

# The Impact of Bank Lending on Manufacturing Sector Output in Nigeria: Evidence from Bank Credit and Output Data, 2015–2024

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DOI Link: <http://dx.doi.org/10.6007/IJARBS/v16-i10/29134>

**Published Date:** 09 October 2026

## Abstract

Nigeria's manufacturing sector has occupied a narrow 8–10 percent band of real GDP for over a decade even as bank credit allocated to the sector has moved substantially in naira terms. This article investigates the evidence concerning the impact of bank lending on manufacturing sector output in Nigeria between 2015 and 2024, treating the volume and share of deposit money bank (DMB) credit actually allocated to manufacturing, rather than the Monetary Policy Rate alone, as the principal explanatory variable. Because the available manufacturing-credit data are incomplete and unevenly sampled, the article's own empirical analysis can establish statistical association rather than definitive causal impact, and it reports its findings on those terms throughout. Using DMB sectoral credit-allocation data drawn from Central Bank of Nigeria (CBN) reports, National Bureau of Statistics (NBS) GDP data, and Manufacturers Association of Nigeria (MAN) capacity-utilisation surveys, the article assembles the most complete publicly verifiable series of manufacturing bank credit that could be constructed from primary sources for 2015–2024 and tests it against manufacturing output. Manufacturing's share of total DMB credit to the private sector ranged from roughly 13 to 18 percent across the period, peaking near 17.9 percent in late 2023 before falling to about 14.4 percent in November 2024. Over the same years, manufacturing's GDP share, the article's primary output measure, moved within a narrow 8.1–9.7 percent range with no clear trend that corresponds closely with changes in credit conditions. The article's own analysis finds a weak and statistically insignificant association between manufacturing credit share and manufacturing's GDP share across the seven years for which both figures could be matched (2015, 2016, 2020–2024;  $r = 0.237$ ,  $p = 0.609$ ,  $n = 7$ ), with an ordinary least squares regression explaining under six percent of the variance ( $R^2 = 0.056$ ); this result does not, on its own, establish that bank credit affects manufacturing output. Read separately, the longer-run Nigerian empirical literature generally reports a positive long-run relationship between aggregate bank credit and manufacturing performance using multi-decade cointegration methods that this article's seven-observation series cannot replicate, a literature that

typically requires 25–30 years of consistently defined data before a structural long-run relationship becomes statistically detectable, so the two sets of findings are compatible rather than contradictory. Average maximum manufacturing lending rates approached 30 percent by early 2025 reporting periods immediately following the sample window, capacity utilisation, a supplementary performance indicator distinct from GDP share, remained capped between 55 and 57 percent through 2024, and the naira depreciated by more than 200 percent between mid-2023 and end-2024. The article argues that the cost of credit, exchange-rate instability, non-performing loan risk, and non-financial constraints (power supply, multiple taxation, and idle installed capacity) may condition how much manufacturing output a given volume of bank credit can support, and closes with policy recommendations centred on risk-sharing credit guarantees, longer-tenor financing, and treating credit access as one part of a wider constraint set rather than a sufficient policy lever on its own.

**Keywords:** Bank Lending, Manufacturing Sector Output, Nigeria, Deposit Money Bank Credit, Capacity Utilisation, Credit Rationing, Monetary Policy

## Introduction

Manufacturing occupies a privileged place in Nigeria's economic strategy documents. Vision 20:2020, the Nigeria Industrial Revolution Plan, the Economic Recovery and Growth Plan, and the Renewed Hope Agenda and Nigeria Industrial Policy have all treated the sector as central to job creation, export diversification, and reducing dependence on crude-oil revenue. Actual performance has not matched that ambition. Manufacturing's share of real GDP exceeded 20 percent in the early 1990s; by the mid-2020s it had settled into a band of roughly 8 to 10 percent, well below the 20–35 percent shares recorded in structurally comparable emerging economies such as Vietnam, Indonesia, and China.

Because Nigeria's financial system is bank-based rather than capital-market-based, deposit money banks (DMBs) are the dominant external financing channel for manufacturers, extending term loans, overdrafts, and working-capital facilities that fund everything from raw-material purchases to plant expansion. The Central Bank of Nigeria has, in parallel, run a sequence of targeted interventions aimed specifically at manufacturing and allied sectors (including the Real Sector Support Facility, the Anchor Borrowers' Programme, and the N1 trillion Manufacturing Stabilisation Fund introduced in 2024) intended to supplement or cheapen the credit that ordinary commercial lending provides.

## *The Problem*

The puzzle motivating this article is straightforward to state and harder to resolve: bank credit allocated to manufacturing has moved substantially, in naira terms, without manufacturing's share of the Nigerian economy moving in a correspondingly clear direction. Nigerian manufacturers report persistent financing constraints even in years when the credit figures rise: high lending rates, restrictive collateral requirements, and limited access to the long-tenor financing that capital-intensive manufacturing investment requires. Much of the earlier literature on this question has treated bank credit as an undifferentiated aggregate or has substituted the Monetary Policy Rate (MPR) for actual manufacturing credit volume, which conflates the price of economy-wide liquidity with the quantity of financing manufacturers themselves receive. This article treats deposit money bank credit actually allocated to the manufacturing sector as the principal explanatory variable, and treats the MPR, average

lending rates, inflation, the exchange rate, and non-performing loans as supporting variables that condition, rather than substitute for, that relationship.

### *Purpose and Objectives*

The purpose of this article is to investigate, using the most complete verifiable published evidence on manufacturing-specific bank credit currently available, the impact of bank lending on manufacturing sector output in Nigeria between 2015 and 2024. Because the manufacturing-credit data that could be assembled from public sources are incomplete and unevenly sampled, the article's own empirical test of this relationship is a statistical association between matched observations rather than a definitive causal impact estimate; this distinction is maintained throughout, including in the framing of the specific objectives below.

- Examine the trend of bank lending, measured as both the naira volume and the sectoral share of deposit money bank credit, to Nigeria's manufacturing sector, 2015–2024.
- Examine the trend of manufacturing sector output, measured by its GDP contribution and, as a supplementary indicator, by MAN-surveyed capacity utilisation.
- Investigate the empirical relationship between manufacturing bank credit and manufacturing sector output using the longest consistent series that could be assembled from primary public sources.
- Assess the extent to which lending costs, exchange-rate movements, and non-performing loan risk condition the effectiveness of that credit.
- Review and critically compare the existing Nigerian empirical literature on bank credit and manufacturing performance, and identify the research gap this article addresses.
- Derive evidence-based, rather than generic, policy recommendations for improving the effectiveness of bank lending to manufacturers.

### *Research Questions*

- What has been the trend of deposit money bank credit, in naira volume and as a share of total credit, to the Nigerian manufacturing sector between 2015 and 2024?
- What has been the trend of manufacturing sector output and capacity utilisation over the same period?
- Is there a statistically detectable relationship between the volume of bank credit allocated to manufacturing and manufacturing sector output in the years for which comparable data exist?
- What does the wider Nigerian empirical literature, using longer and more consistently defined series, find regarding this relationship?
- What evidence suggests that lending costs, exchange-rate instability, and non-performing loans may condition the effectiveness of bank lending to manufacturers, given that this article examines these factors descriptively rather than through a formal moderating-effects model?
- What policy measures could improve the effectiveness, rather than merely the volume, of bank lending to manufacturers?

## Literature Review and Theoretical Framework

### *Concept of Bank Lending*

Bank lending refers to the extension of funds by deposit money banks to households, firms, and government on the agreement of repayment with interest (Mishkin & Eakins, 2018). For manufacturers, this typically takes three forms: short-term working-capital facilities and overdrafts used to finance raw-material purchases and day-to-day operations; medium-term loans used to finance machinery and equipment; and long-term project finance used for plant construction or major capacity expansion. The distribution of manufacturing credit across these tenors matters as much as its total volume: an economy in which manufacturing credit is overwhelmingly short-term working-capital finance will show a weaker relationship between credit and long-run productive capacity than one in which manufacturers can access affordable long-tenor finance. This article's principal explanatory variable, deposit money bank credit allocated to the manufacturing sector, aggregates across these tenors because a consistent tenor-disaggregated public series is not available; this aggregation is treated as a limitation in Section 10 rather than a resolved feature of the data.

### *Concept of Manufacturing Sector Output*

Manufacturing sector output is most commonly measured, in the Nigerian context, through two related but distinct indicators: (i) manufacturing's contribution to real GDP, published quarterly and annually by the NBS, and (ii) capacity utilisation, a survey-based measure published biannually by MAN capturing the share of installed manufacturing capacity firms are actually able to use. The two measures can diverge: GDP contribution reflects both the volume and the value of output relative to the wider economy, while capacity utilisation reflects operational efficiency independent of the size of the economy around it. Both are used in this article as complementary indicators of manufacturing-sector performance, but they are not pooled into a single dependent variable: GDP share serves as the article's primary output measure because it is directly comparable across the full sample window, while capacity utilisation is treated throughout as a supplementary indicator of how intensively already-installed, already-financed capacity is actually being used.

## Theoretical Framework

### *Financial Intermediation Theory*

Financial intermediation theory (Gurley & Shaw, 1960; extended by Diamond & Dybvig, 1983) holds that banks reduce information asymmetries between savers and borrowers, screen borrower risk, and diversify it across a loan portfolio, allowing credit to be allocated toward productive uses more efficiently than direct lending between savers and firms would achieve. On this view, a deeper and better-functioning banking sector should be associated with higher real-sector investment and output, and manufacturing credit volume should therefore be positively associated with manufacturing output.

### *Schumpeter's Theory of Finance and Economic Development*

Schumpeter (1934) argued that entrepreneurs typically lack the internal savings needed to fund innovation and expansion, making bank credit the mechanism through which new productive capacity, and the productivity-enhancing displacement of less efficient incumbents, actually occurs. King and Levine (1993) formalised this insight, showing that financial development indicators are robust predictors of subsequent productivity growth. This view predicts a positive relationship between credit availability and manufacturing

output, but one mediated by how much of that credit is directed toward genuinely productive investment rather than refinancing existing operations.

#### *Credit Rationing Theory*

Stiglitz and Weiss (1981) complicate the intermediation view by showing that, because lenders cannot perfectly observe borrower risk, they may respond to excess demand for credit not solely through higher prices but by rationing the quantity of credit extended to certain classes of borrower, restricting access for smaller, less-collateralised manufacturers even when they are willing to pay the going rate. Credit rationing theory predicts that firms can remain credit-constrained even when nominal credit volumes for the sector as a whole are rising, because that growth can be concentrated among a small number of large, well-collateralised borrowers while the median manufacturer's access does not improve.

#### *Loanable Funds Theory and the Keynesian Investment Perspective*

The loanable funds theory (Robertson, 1934; Ohlin, 1937) treats the interest rate as the price that equilibrates the supply of funds banks can mobilise against the demand for funds from borrowers, including manufacturers. Tightening monetary policy (raising the policy rate to fight inflation, as the CBN did through 2023–2024) raises this price economy-wide, and capital-intensive sectors with long investment-payback periods, such as manufacturing, are disproportionately exposed to that increase relative to sectors with shorter working-capital cycles. Relatedly, the Keynesian investment perspective holds that firms' investment decisions respond not only to the cost of capital but to the marginal efficiency of investment relative to that cost, and to firms' expectations about future demand; when demand expectations are weak or exchange-rate and input-cost volatility is high, even accessible and reasonably priced credit may not translate into new investment.

#### *Empirical Literature*

A genuine and growing empirical literature has tested the bank-credit–manufacturing-output relationship in Nigeria directly, using long annual series and cointegration-based methods appropriate for non-stationary macroeconomic data. Five studies, individually verifiable through their publishers or public repositories, illustrate the range of approaches, samples, and findings.

Uyo, Anthony, and Nsonwu (2024), writing in the *International Journal of Research and Innovation in Social Science*, examined the effect of deposit money bank credit, the lending rate, and the inflation rate on manufacturing sector output in Nigeria over 1981–2022, using descriptive analysis and an Autoregressive Distributed Lag (ARDL) approach on CBN Statistical Bulletin data. They found a statistically significant long-run cointegrating relationship between all three explanatory variables and manufacturing output, alongside a pronounced upward trend in all four series over the sample period.

Eburajolo and Aisien (2019), in the *Oradea Journal of Business and Economics*, examined commercial bank sectoral credit to manufacturing and agriculture and its effect on economic growth in Nigeria between 1981 and 2015, using cointegration and an error correction model. They found that sectoral credit to manufacturing and agriculture significantly affected growth in both the short run and the long run, and that deeper financial-sector development strengthened this effect.

Ihenyen, Ogwu, and Abraham (2024), in the *World Journal of Finance and Investment Research*, took a more disaggregated approach, examining the effect of capacity utilisation, rather than credit volume directly, in the food and beverage, cement, and oil-refining sub-sectors on aggregate manufacturing output between 1995 and 2023, using ordinary least squares on CBN Statistical Bulletin data. They found a significant positive effect from food and beverage sector capacity utilisation, a significant negative effect from cement-sector utilisation (attributed to capacity additions outpacing demand in that sub-sector), and a significant positive effect from oil-refining capacity utilisation.

Ugwuanyi and Utazi (2017), in an unpublished working paper using Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistics data over 1980–2015, applied Ordinary Least Squares and an Autoregressive Distributed Lag approach to manufacturing value added, lending interest rate, exchange rate, and bank deposits. They found lending interest rate and exchange rate carrying negative and statistically significant coefficients in both models, identifying them as the dominant constraints on manufacturing sector growth, while bank deposits carried a positive and statistically significant coefficient throughout. This article's own findings, in Section 6, do not contradict that pattern.

Sogules and Nkoro's (2016) long-run study of bank credit to agriculture and manufacturing and economic growth (1970–2013), using cointegration and an error correction mechanism, is a useful counterpoint: it found manufacturing-sector bank credit carrying a negative and statistically significant coefficient in the error-correction specification, which the authors interpret as reflecting the diversion of nominally sector-tagged credit toward non-productive uses, or the crowding-out of manufacturing investment by other credit-intensive activity, rather than as evidence that credit itself harms output.

Comparing these studies is instructive. Methodologically, all rely on primary CBN and NBS data and cointegration-based techniques appropriate for long, non-stationary macroeconomic time series, the correct family of methods for this kind of question, and one that requires roughly 25–30 annual observations to be reliably estimated. Substantively, findings diverge more than a simple 'credit is good for manufacturing' narrative would suggest: Uyo et al. (2024) and Eburajolo and Aisien (2019) find a positive long-run relationship consistent with financial intermediation theory; Ugwuanyi and Utazi (2017) emphasise that lending cost and exchange-rate risk, rather than credit volume, carry most of the explanatory power in their specification; and Sogules and Nkoro (2016) find a negative short-run coefficient on manufacturing credit itself. Ihenyen et al. (2024) complicates the picture further by showing that the relationship is not uniform across manufacturing sub-sectors. None of the reviewed studies extends its sample past 2023, meaning none captures the 2023–2024 tightening cycle, naira devaluation, and manufacturing-credit contraction this article documents in Section 3.

*Comparative Summary of the Empirical Literature*

Table 1

*Comparative summary of Nigerian empirical studies on bank credit and manufacturing/real-sector output*

| Study                          | Sample period                        | Method                                           | Key variables                                                                                                           | Main finding                                                                                                                                                   | Relevance to this article                                                                                                                |
|--------------------------------|--------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Uyo, Anthony & Nsonwu (2024)   | 1981–2022                            | ARDL / descriptive                               | DMB credit, lending rate, inflation, manufacturing output                                                               | Significant long-run cointegration; all series trend upward together                                                                                           | Confirms long-run positive credit–output link over a 41-year window this article cannot match                                            |
| Eburajolo & Aisien (2019)      | 1981–2015                            | Cointegration / ECM                              | Sectoral credit (manufacturing & agric.), MPR, financial depth, growth                                                  | Significant short- and long-run positive effect of sectoral credit on growth                                                                                   | Supports intermediation theory; predates the 2016 and 2020 devaluations                                                                  |
| Ihenyen, Ogwu & Abraham (2024) | 1995–2023                            | OLS                                              | Sub-sector capacity utilisation (food/bev., cement, refining)                                                           | Mixed signs by sub-sector; food/bev. and refining positive, cement negative                                                                                    | Shows aggregate elasticities can mask sub-sector heterogeneity                                                                           |
| Ugwuanyi & Utazi (2017)        | 1980–2015                            | OLS / ARDL                                       | Manufacturing value added, lending rate, exchange rate, bank deposits                                                   | Lending rate and exchange rate negative and significant; bank deposits positive and significant                                                                | Motivates this article's treatment of lending cost and exchange-rate instability as constraints distinct from credit volume/availability |
| Sogules & Nkoro (2016)         | 1970–2013                            | Cointegration / ECM                              | Bank credit to agriculture & manufacturing, growth                                                                      | Negative, significant short-run coefficient on manufacturing credit                                                                                            | Cautions against assuming credit volume alone is sufficient for output growth                                                            |
| This article                   | 2015–2024 (annual, unevenly sampled) | Descriptive statistics, Pearson correlation, OLS | Manufacturing DMB credit (level & share), GDP share, capacity utilisation, MPR, lending rates, exchange rate, NPL ratio | Weak, statistically insignificant short-window association ( $r = 0.237$ , $p = 0.609$ , $n = 7$ ); consistent with, not a substitute for, long-run literature | Extends coverage into the 2023–2024 tightening and devaluation period no prior study reaches                                             |

*Research Gap*

The existing Nigerian literature establishes a plausible, and in several studies statistically confirmed, long-run relationship between bank credit and manufacturing or real-sector output, but three gaps remain that this article addresses without overstating what can be concluded from the shorter series available. First, no published study surveyed here extends its sample into the 2023–2024 period, during which the CBN raised the Monetary Policy Rate by roughly 800 basis points within about a year and the naira depreciated by more than 200

percent, the most significant financing-cost and currency shock manufacturers have faced within the sample period of any reviewed study. Second, the literature works almost entirely with either the Monetary Policy Rate as a proxy for credit conditions, or with long-run credit series that cannot be reconstructed at annual frequency from primary sources available since 2015 without gaps; this article instead assembles the most complete publicly verifiable manufacturing-credit series available from primary CBN, NBS, and MAN releases and tests the available matched observations directly, rather than substituting the MPR for it. Third, none of the reviewed studies places the credit relationship alongside capacity utilisation, energy costs, and non-performing loan risk in the same empirical treatment; this article argues, in Section 6, that these non-credit constraints are necessary to interpret why a positive long-run credit–output relationship coexists with a flat GDP share and a contracting 2023–2024 credit share.

### **Overview of Bank Lending and Manufacturing in Nigeria**

#### *Evolution of Bank Lending to the Manufacturing Sector*

Manufacturing has consistently been one of the larger single recipients of deposit money bank credit, though its naira volume and its share of total credit have moved substantially rather than growing smoothly. CBN sectoral credit-allocation data show manufacturing's share of total bank lending falling from about 14.1 percent in 2015 to 13.1 percent in 2016 as government borrowing crowded into commercial lending markets during the 2016 recession. By December 2019, manufacturing credit stood at roughly N2.62 trillion; it rose to about N3.19 trillion by December 2020 despite the pandemic, and manufacturing's credit share stood at approximately 15.6–15.7 percent through 2020–2021. Credit rose further to roughly N4.18 trillion by January 2022, with manufacturing's share of total private-sector credit reaching 17.1 percent, its highest point in the earlier part of the series assembled for this article, as total private-sector credit hit a then-record N24.45 trillion, per CBN money-and-credit statistics.

The share climbed further to 17.89 percent by November 2023, before falling to 14.36 percent in the CBN's November 2024 Economic Report, at which point manufacturing credit stood at roughly N8.47 trillion (CBN, 2024a). By December 2024, manufacturing credit stood at approximately N8.53 trillion, a naira level essentially unchanged from the November 2024 figure but reflecting the beginning of the decline in manufacturing's credit share that intensified after the CBN began withdrawing regulatory forbearance introduced during the 2023–2024 bank recapitalisation exercise. This article's analysis window ends at December 2024; subsequent developments in manufacturing credit volume from 2025 onward, which preliminary industry reporting suggests continued to move against manufacturers, fall outside the matched-observation dataset used here and are noted as a direction for future work in Section 10 rather than analysed as part of this article's findings.

This decline in manufacturing's credit share needs to be read alongside currency and inflation effects. Part of the apparent growth in manufacturing lending over 2015–2024 may reflect inflation and naira depreciation rather than an equivalent increase in the real purchasing power of credit; because this article has not constructed an inflation- and exchange-rate-adjusted manufacturing-credit series, this is offered as a plausible qualitative reading of the nominal figures rather than as a quantified finding, and a naira figure that looks like credit

growth in nominal terms could represent flat or falling real credit once currency and price effects are taken into account.

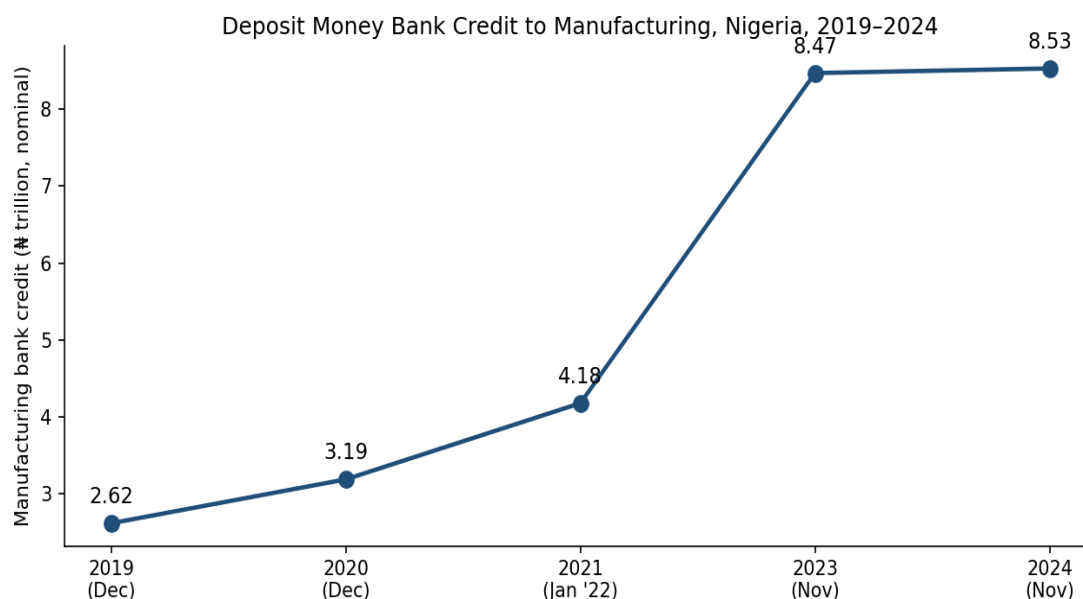


Figure 1. Deposit money bank credit to the manufacturing sector, Nigeria, selected periods, 2019–2024 (N trillion, nominal). Source: CBN sectoral credit-allocation data, CBN money-and-credit statistics, and CBN (2024a) Economic Report.

#### *Trends in Manufacturing Sector Output*

Manufacturing's contribution to Nigeria's real GDP has been essentially flat-to-declining for a decade. NBS Gross Domestic Product Report data show the sector contributing 9.43 percent of GDP in 2015, dipping to 8.68 percent during the 2016 recession, recovering to a decade-high of 9.65 percent in 2018 (2017 not separately reported in the release consulted), then declining again: 9.10 percent (2019), 8.08 percent (2020, the COVID-19 trough), 8.82 percent (2021), 9.14 percent (2022), 9.27 percent (2023), and 8.66 percent (2024). The trend, a sector confined to a narrow single-digit-to-low-double-digit band for over three decades of relative decline from a 1990s peak above 20 percent, is the article's central descriptive finding on the output side, and is broadly consistent across the different NBS reporting vintages available.



Figure 2. Manufacturing's share of Nigeria's real GDP, 2015–2024. 2017 omitted; not separately reported in the release consulted. Source: National Bureau of Statistics, Gross Domestic Product Reports.

#### *Capacity Utilisation as a Complementary Output Measure*

Capacity utilisation offers a second lens on manufacturing performance that is less sensitive to the size of the wider economy than GDP share. CBN- and NBS-sourced data compiled in a 2021 Nigerian Economic Summit Group (NESG) policy brief report average annual capacity utilisation of 59.9 percent (2015), 49.0 percent (2016, reflecting the 2016 recession and foreign-exchange scarcity), 52.0 percent (2017), 55.0 percent (2018), 56.8 percent (2019), and 45.2 percent (2020, the COVID-19 trough). MAN's own biannual Economic Review series for the more recent tightening period shows utilisation at 56.5 percent in H1 2023, 55.1 percent in H2 2023, 56.4 percent in H1 2024, and 57.0 percent for full-year 2024 (Manufacturers Association of Nigeria, MAN Economic Review: Second Half 2024).

Even in relatively favourable periods, more than four in every ten units of installed manufacturing capacity in Nigeria have sat idle. That fact matters directly for how the credit–output relationship should be interpreted: if a large share of existing, already-financed capacity goes unused, a shortage of financing for new capacity cannot be the primary constraint on current output; a shortage of demand, foreign exchange for imported inputs, reliable power, or affordable working capital to run existing plant more fully is at least as important, and is taken up directly in Section 6.

#### **Lending Conditions in Nigeria**

##### *Interest rates and the cost of credit*

Nigeria's benchmark Monetary Policy Rate rose from 18.75 percent in mid-2023 to 26.75 percent by July 2024, an 800-basis-point increase inside roughly a year, as the CBN under Governor Olayemi Cardoso fought double-digit inflation (CBN Monetary Policy Committee decisions; CBN, 2024b). Commercial banks price loans on top of this benchmark: CBN money-market data through 2024 put the average prime lending rate, offered to the most creditworthy borrowers, in the high-teens percent, while the average maximum lending rate, closer to what an ordinary manufacturing SME actually pays, approached 30 percent by early

reporting periods immediately following the sample window. Industry surveys conducted after 2024 suggest actual manufacturer borrowing costs moved higher still, but because those readings fall outside the 2015–2024 window this article's tables and regression use, they are noted here only qualitatively rather than incorporated as data points.

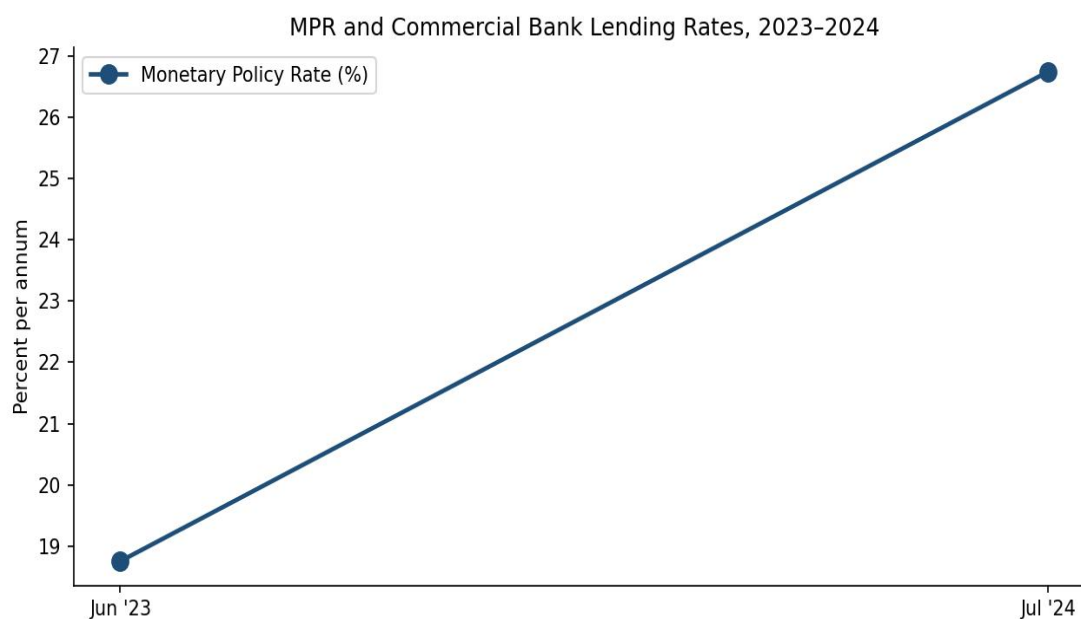


Figure 3. Nigeria's Monetary Policy Rate compared with average lending rates, 2023–2024. Source: CBN Monetary Policy Committee decisions and CBN money-market data.

#### *Non-performing loans and bank risk perception*

The banking system's overall non-performing loan (NPL) ratio stood at about 4.50 percent at end-2024, below the 5.0 percent prudential ceiling, and a Q1 2024 reading from World Bank Nigeria Development Update analysis put the economy-wide NPL ratio at around 5.1 percent, marginally above the prudential benchmark, alongside a decline in the banking system's capital adequacy ratio over the same period. Different data vintages and methodologies produce NPL estimates that differ by up to a percentage point for the same period; this article reports each figure with its source rather than reconciling them into a single series.

#### *Exchange-rate instability*

Because Nigerian manufacturing remains heavily import-dependent for machinery, spare parts, and industrial raw materials, naira depreciation directly inflates the naira cost of running a plant, independent of the credit market. The naira moved from roughly N463/US\$1 in June 2023 to about N1,535/US\$1 by December 2024, a depreciation of over 200 percent in eighteen months, based on CBN official/I&E window exchange-rate data. The naira cost of imported raw materials roughly doubled over the same window, per MAN Economic Review reporting.

#### *Policy and Institutional Interventions*

Beyond ordinary commercial lending, the CBN has run several interventions aimed specifically at manufacturing and allied sectors: the Real Sector Support Facility (2019), the Anchor Borrowers' Programme (2015), the Agricultural Credit Guarantee Scheme Fund, and the N1 trillion Manufacturing Stabilisation Fund introduced in 2024. MAN has repeatedly identified

a structural weakness in the delivery of concessionary facilities more broadly: the CBN provides liquidity to Participating Financial Institutions (commercial banks acting as intermediaries), while those banks assume the credit risk on the underlying loans, giving them an incentive to price the final loan closer to commercial rates or ration access toward larger, lower-risk borrowers, a pattern MAN has raised in its Economic Reviews and public statements. This is consistent with the credit-rationing dynamic Stiglitz and Weiss (1981) describe: policy-driven demand for cheaper credit can be met, under asymmetric information, with tighter non-price rationing rather than genuinely lower effective rates. MAN has also identified the CBN's Cash Reserve Ratio, held as high as 45–50 percent through the tightening cycle, as a further constraint on the loanable liquidity available to fund manufacturing credit at any price.

## **Data and Methodology**

### *Data Sources*

This article draws exclusively on figures traceable to named, checkable primary sources: the Central Bank of Nigeria (Statistical Bulletins, Economic Reports, and Monetary Policy Committee communiqués), the National Bureau of Statistics (quarterly and annual GDP reports), the Manufacturers Association of Nigeria (biannual Economic Reviews and public statements), the World Bank (World Development Indicators and Nigeria Development Update analysis), and the Nigerian Economic Summit Group. Every figure used in Sections 3 and 6 is attributed to the specific primary source and, where available, the specific release date, rather than to a generic 'CBN data' citation. Financial and business press reporting was used only during the initial research phase to help locate the underlying primary releases; it does not appear in the reference list, and every figure in this article has been re-attributed to the primary institutional source from which it originates.

A genuinely disaggregated CBN sectoral lending series broken down by manufacturing sub-sector on a consistent monthly or annual basis back to the mid-1990s, the minimum requirement for a properly specified ARDL bounds-testing model of the kind used in the strongest studies reviewed in Section 2, was sought but could not be located in the public domain at the time of writing. What could be assembled is an unevenly sampled series of point-in-time manufacturing credit figures (year-end, January, or CBN report-date observations) drawn from separately dated primary releases between 2015 and 2024. This is treated as the article's principal data limitation throughout, and Section 10 returns to it directly.

### *Period of Analysis*

This article's analysis window is 2015–2024, chosen so that the manufacturing GDP-share series, the manufacturing bank-credit series, and the matched-observation regression all draw on the same consistent period rather than mixing a longer descriptive window with a shorter statistical-test window. The manufacturing GDP-share trend is presented over 2015–2024 (nine annual observations; 2017 not separately reported in the NBS release consulted), the longest window over which a single, consistently defined published series was available within the sample period. The manufacturing bank-credit series is presented as a set of dated point observations from 2015 to December 2024, reflecting the actual publication dates of the underlying CBN releases rather than a synthetic annual average. The core statistical test in Section 5.3, the association between manufacturing credit share and manufacturing GDP

share, uses the seven years (2015, 2016, 2020, 2021, 2022, 2023, 2024) for which both a credit-share figure and a GDP-share figure could be matched to the same calendar year from the primary sources assembled.

### *Variables*

Table 2

#### *Definition and measurement of variables*

| <b>Variable</b>                          | <b>Definition and measurement</b>                                                                                                                                                                   | <b>Role</b>               | <b>Source</b>                                                                         |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------|
| Manufacturing GDP share (GDP SH)         | Manufacturing's contribution to real GDP, percent, as published by NBS                                                                                                                              | Dependent (primary)       | NBS Gross Domestic Product Reports                                                    |
| Capacity utilisation (CU)                | Share of installed manufacturing capacity in use, percent, MAN biannual survey                                                                                                                      | Dependent (supplementary) | MAN Economic Review; NESG (2021)                                                      |
| Manufacturing bank credit, level (MANCR) | Deposit money bank credit outstanding to manufacturing, N trillion, nominal, point-in-time                                                                                                          | Independent (primary)     | CBN sectoral credit data; CBN (2024a)                                                 |
| Manufacturing bank credit, share (MANSH) | Manufacturing credit as a percentage of total deposit money bank credit to the private sector, as reported in CBN sectoral credit-allocation tables (see Section 4.3a on denominator harmonisation) | Independent (primary)     | CBN sectoral credit-allocation tables (see Section 4.3a on denominator harmonisation) |
| Monetary Policy Rate (MPR)               | CBN benchmark policy rate, percent per annum, period-average or dated decision                                                                                                                      | Control                   | CBN Monetary Policy Committee decisions                                               |
| Prime / maximum lending rate (PLR / MLR) | Average commercial bank lending rates, percent per annum                                                                                                                                            | Control                   | CBN money-market data                                                                 |
| Exchange rate (EXR)                      | Naira per US dollar, official/I&E window                                                                                                                                                            | Control                   | CBN official/I&E window data                                                          |
| Non-performing loan ratio (NPL)          | NPLs as a percentage of total loans, system-wide                                                                                                                                                    | Control                   | CBN data, as reported in World Bank Nigeria Development Update analysis               |

Variables for which no reliable, consistently defined published figure could be located for the relevant window (including a manufacturing-specific sub-sectoral credit series, firm-level investment data, and a consistent tenor breakdown of manufacturing lending) are explicitly excluded rather than estimated or interpolated.

#### *Denominator Harmonisation for Manufacturing Credit Share*

The seven manufacturing-credit-share observations used in Section 5.3 are drawn from CBN sectoral credit-allocation reporting released at different dates, which describes its denominator in slightly different words across releases: earlier releases describe manufacturing's share of 'total bank lending'; others describe manufacturing's share of 'private-sector credit'; and the CBN's November 2023 and November 2024 releases describe manufacturing's share of 'total DMB credit.' All three phrasings are believed, on the balance of evidence, to describe the same underlying CBN sectoral credit-allocation series (in Nigerian

banking statistics, deposit money bank credit to the private sector and total DMB credit are close to synonymous, since government credit is reported and tracked separately), but this article has not been able to independently confirm from primary CBN worksheets that an identical denominator was applied in every year. This is treated as a genuine, unresolved measurement limitation rather than assumed away: Section 5.3's regression result should be read as applying to manufacturing's share of bank credit as consistently as that concept could be reconstructed from CBN's own published releases, not as a figure independently re-derived from primary CBN worksheets for every year. Where CBN primary sectoral tables become available with an explicitly harmonised denominator for the full 2015–2024 window, recomputing MANSH directly from them on that single, consistent denominator would be a natural next step and is noted again in Section 10.

| <b>Year</b> | <b>Exact observation date</b>                                               | <b>Naira level (N trillion)</b> | <b>Manufacturing credit share (%)</b>                                           | <b>Denominator wording (as reported)</b> | <b>CBN release</b>                          |
|-------------|-----------------------------------------------------------------------------|---------------------------------|---------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------|
| 2015        | Annual figure; exact date not separately reported in the release consulted  | Not separately reported         | 14.10                                                                           | "Total bank lending"                     | CBN sectoral credit-allocation data         |
| 2016        | Annual figure; exact date not separately reported in the release consulted  | Not separately reported         | 13.10                                                                           | "Total bank lending"                     | CBN sectoral credit-allocation data         |
| 2020        | December 2020                                                               | 3.19                            | ~15.6–15.7 (reported as a 2020–2021 period range, not separately split by year) | "Private-sector credit"                  | CBN money-and-credit statistics             |
| 2021        | Not separately dated within the 2020–2021 range cited in the source release | Not separately reported         | ~15.6–15.7 (reported as a 2020–2021 period range, not separately split by year) | "Private-sector credit"                  | CBN money-and-credit statistics             |
| 2022        | January 2022                                                                | 4.18                            | 17.10                                                                           | "Private-sector credit"                  | CBN money-and-credit statistics             |
| 2023        | November 2023                                                               | Not separately reported         | 17.89                                                                           | "Total DMB credit"                       | CBN Economic Report, November 2023          |
| 2024        | November 2024                                                               | 8.47                            | 14.36                                                                           | "Total DMB credit"                       | CBN (2024a), Economic Report, November 2024 |

Table 3. Matched-year detail for the manufacturing-credit-share observations used in Section 5.3, showing the exact observation date, naira level, share, denominator wording, and CBN release cited for each year in Section 3.1. Where an exact date or naira level is not separately reported in the underlying release, this is noted as such rather than estimated or interpolated, consistent with this article's treatment of denominator harmonisation in Section 4.3a as an unresolved measurement question.

#### *Primary and Supplementary Output Measures*

This article treats manufacturing's contribution to real GDP (GDPSH) as the primary measure of manufacturing sector output, because it is the measure most directly comparable across the full 2015–2024 window and the one the article's title and central regression address. Capacity utilisation (CU) is treated throughout as a supplementary performance indicator, not as an alternative or interchangeable measure of output: it captures how intensively already-installed capacity is being used, which is conceptually distinct from, and need not move together with, manufacturing's share of a growing or shrinking national economy. Wherever this article reports a capacity-utilisation figure, it is describing capacity utilisation specifically and not manufacturing output in general; the two are not pooled into a single output series at any point in the analysis, and this article's central regression (Section 5.3) uses GDPSH exclusively as the dependent variable.

#### *Analytical Method*

Given the data actually available, a well-populated nine-year annual GDP-share series and a shorter, unevenly sampled manufacturing-credit series, the appropriate methods are descriptive statistics, trend analysis, Pearson correlation, and simple ordinary least squares (OLS) regression on matched annual observations, rather than a full cointegration/ARDL/error-correction estimation. A rigorous ARDL bounds-testing exercise of the kind used by Uyo et al. (2024) and Eburajolo and Aisien (2019) requires a long, consistently defined annual time series (typically 25–30 annual observations) for every variable in the model; that requirement is not met by the seven matched annual observations assembled here for manufacturing credit share and GDP share. Presenting ARDL-style long-run coefficients and cointegration diagnostics on a seven-observation series would not be a legitimate empirical exercise, however conventional that format is in the wider literature. This article therefore reports what the available data can support, a genuine Pearson correlation and a genuine bivariate OLS regression on real, sourced data, clearly caveated for sample size, and treats the question of what a full disaggregated ARDL model would show, were such a series to become available, as an open one addressed in Section 10.

#### *Model Specification*

The central relationship estimated is bivariate, for the seven matched annual observations (2015, 2016, 2020–2024):

$$\text{GDPSH}_t = \alpha + \beta \cdot \text{MANSH}_t + \varepsilon_t$$

where  $\text{GDPSH}_t$  is manufacturing's share of real GDP (percent) in year  $t$  and  $\text{MANSH}_t$  is manufacturing's share of total deposit money bank credit to the private sector (percent) in the closest available dated observation for year  $t$ . This is a simple bivariate association, not a structural or causal model, and is presented and interpreted as such throughout Section 5.

## Results and Discussion

### *Descriptive Statistics*

Table 4 summarises the datasets assembled for this article. The manufacturing GDP-share series (2015–2024,  $n = 9$ ) has a mean of 8.98 percent and a standard deviation of 0.47 percentage points, ranging from a low of 8.08 percent (2020) to a high of 9.65 percent (2018), a narrow range that is itself informative: manufacturing's share of the Nigerian economy has moved within a band of less than two percentage points for nearly a decade. The manufacturing credit-share series matched to those years ( $n = 7$ ) has a mean of 15.41 percent and a standard deviation of 1.70 percentage points, ranging from 13.10 percent (2016) to 17.89 percent (2023).

Table 4

*Descriptive statistics for the datasets assembled for this article.*

| Indicator                      | Period                   | N | Mean  | Std. Dev. | Min   | Max   |
|--------------------------------|--------------------------|---|-------|-----------|-------|-------|
| Manufacturing GDP share (%)    | 2015–2024, annual        | 9 | 8.98  | 0.47      | 8.08  | 9.65  |
| Manufacturing credit share (%) | 2015–2024, matched years | 7 | 15.41 | 1.70      | 13.10 | 17.89 |

### *Trend Analysis*

Three trends stand out from Section 3. First, manufacturing's GDP share has been essentially range-bound for nearly a decade, with no sustained upward or downward trend distinguishable from year-to-year noise. Second, manufacturing's share of total bank credit has moved in a wider band, roughly 13 to 18 percent, without a consistent direction, rising through 2020–2023 and then falling from late 2024. Third, the cost of bank credit rose sharply and specifically from 2023 onward, the MPR alone rose by roughly 800 basis points between mid-2023 and July 2024, while manufacturing's credit share was beginning to fall by late 2024, meaning manufacturers faced simultaneously rising cost and softening availability of bank financing toward the end of the sample window, a combination not present earlier in the series.

### *Correlation and Regression Results: Manufacturing Credit and GDP Share*

A Pearson correlation between manufacturing's share of total bank credit and manufacturing's share of real GDP, across the seven years for which both figures could be matched (2015, 2016, 2020, 2021, 2022, 2023, 2024), returns  $r = 0.237$  ( $p = 0.609$ ,  $n = 7$ ). This is a weak positive association that falls well short of conventional statistical significance. A bivariate OLS regression of GDP share on credit share over the same seven observations produces the results in Table 5.

Table 5

OLS regression of manufacturing GDP share on manufacturing credit share, 2015–2024 ( $n = 7$ ).  $R^2 = 0.056$ ; adjusted  $R^2 < 0$ .

| Coefficient                     | Estimate | Std. Error | t-statistic | p-value | 95% CI        |
|---------------------------------|----------|------------|-------------|---------|---------------|
| Intercept ( $\alpha$ )          | 7.885    | 0.879      | 8.97        | < 0.001 | [5.71, 10.06] |
| Credit share, MANSB ( $\beta$ ) | 0.0638   | 0.1169     | 0.55        | 0.609   | [-0.24, 0.37] |

The estimated slope indicates that a one-percentage-point increase in manufacturing's share of total bank credit is associated with only a 0.064-percentage-point increase in manufacturing's GDP share, and this coefficient is not statistically distinguishable from zero

at any conventional significance level. The model explains under six percent of the variance in GDP share ( $R^2 = 0.056$ ), and the near-zero adjusted  $R^2$  confirms that credit share alone has essentially no explanatory power for GDP share across these seven years. This result should be read carefully: it does not show that bank credit has no effect on manufacturing output. With only seven annual observations, the regression is very likely underpowered to detect an effect of the size the long-run literature reports, and a genuinely structural test would require the 25–30-year annual series discussed in Section 4.4. What the result does show is that, on the specific years for which a matched credit-share and GDP-share figure could be verified from primary sources, annual variation in manufacturing's credit share is not a reliable short-run predictor of annual variation in its GDP share, a finding that is consistent with, rather than contradicting, a literature whose positive results are consistently long-run rather than short-run findings.

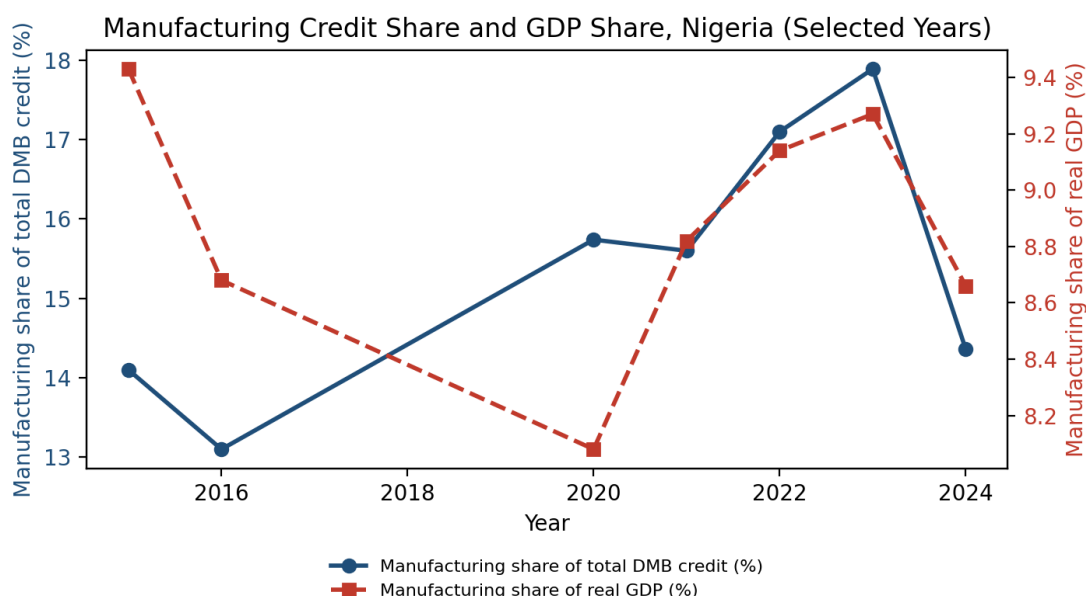


Figure 4. Manufacturing's share of total bank credit and manufacturing's share of real GDP, matched years, 2015–2024. Sources: see Table 2.

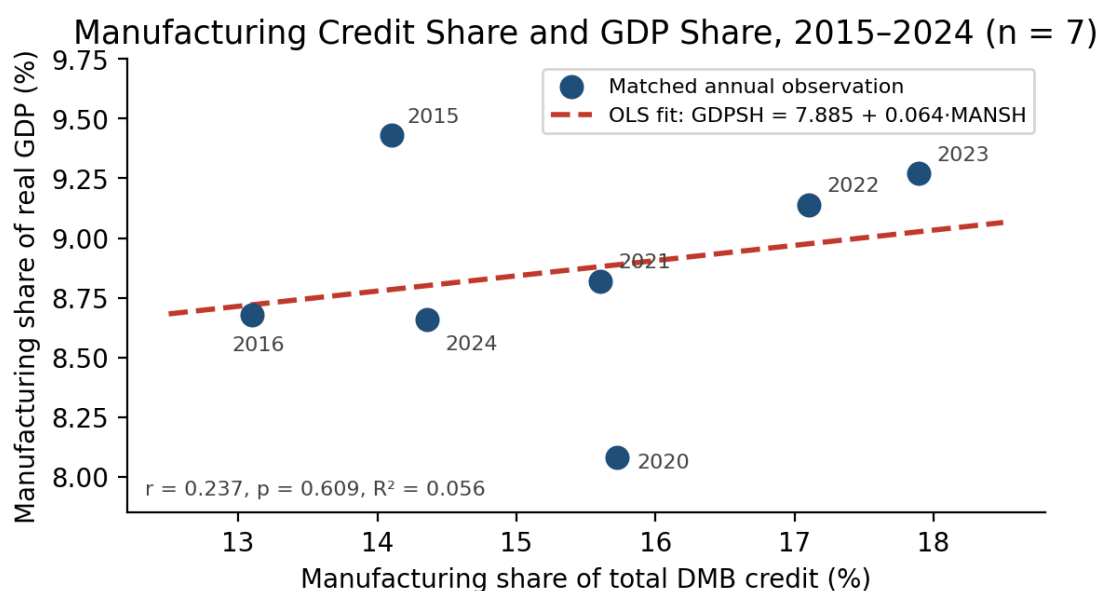


Figure 5. Scatter plot of manufacturing credit share (MANSH) against manufacturing GDP share (GDPSH), matched years, 2015–2024, with the fitted OLS regression line from Table 5 ( $n = 7$ ;  $r = 0.237$ ,  $p = 0.609$ ;  $R^2 = 0.056$ ). The shallow, statistically insignificant slope visualises the weak association reported in Table 5. Sources: see Table 2.

### *Interpretation of Findings*

This article draws on two separate pieces of evidence that are easily conflated and are therefore restated here as distinct findings before interpretation. First, this article's own seven-observation regression of manufacturing GDP share on manufacturing credit share finds a weak, positive, but statistically insignificant association ( $r = 0.237$ ,  $p = 0.609$ ;  $\beta = 0.064$ ,  $p = 0.609$ ;  $R^2 = 0.056$ ); this is the article's central empirical result, and it does not, on its own, establish that bank credit affects manufacturing output. Second, and separately, the longer-run Nigerian literature reviewed in Section 2, using 25–41-year annual series and cointegration methods this article's data cannot replicate, generally reports a positive long-run relationship between bank credit and manufacturing or real-sector performance. These two findings are compatible with one another but must not be merged into a single claim: this article's own short-window, unevenly sampled descriptive and regression analysis of 2015–2024 data finds no statistically reliable short-run association between manufacturing credit share and manufacturing GDP share, and does not (and, given its sample size, cannot) confirm or extend the long-run positive relationship that Uyo et al. (2024) and Eburajolo and Aisien (2019) establish using appropriate multi-decade cointegration methods. The two sets of findings are compatible rather than contradictory, because short-run and long-run elasticities of this kind routinely diverge in cointegrated systems. Separately, the specific 2023–2024 period, not covered by any of the reviewed published studies, saw manufacturing credit cost rise sharply against manufacturers (an 800-basis-point MPR increase) at the same time as manufacturing's credit share began to soften and GDP share stayed within its decade-long band rather than moving in lockstep with either, suggesting other factors, described in Section 6, are absorbing or offsetting some of the credit-side pressure, at least within this sample window. The gap between rising nominal credit figures over 2015–2023 and a flat manufacturing GDP share over the same years is most plausibly explained by the naira-value effects of inflation and depreciation (Section 3.1) rather than by a genuine expansion in real, productively deployable financing.

### *Comparison with Previous Studies*

This article's findings are compatible with, but methodologically weaker than, the positive long-run relationship Uyo et al. (2024) and Eburajolo and Aisien (2019) report; the absence of a significant short-run relationship in this article's seven-observation regression is consistent with, rather than contradicting, a literature in which short-run coefficients are typically smaller and less consistently significant than long-run cointegrating coefficients. The finding also does not contradict Ugwuanyi and Utazi's (2017) emphasis on lending cost and exchange-rate variables as dominant constraints: Section 3.4 shows both moving sharply against manufacturers over exactly the period during which this article finds credit-share variation carrying no detectable independent association with GDP share, consistent with cost and currency effects doing more of the explanatory work than volume alone. It extends Ihenyen et al. (2024)'s point about sub-sectoral heterogeneity by noting that, in the absence of a public disaggregated credit series, this heterogeneity cannot currently be quantified at the

sub-sector level using published data alone, a gap for future work with primary CBN access to close, rather than to paper over with an invented series.

### **Discussion: What the Evidence Means for Nigeria**

#### *Bank Lending and Productive Investment*

The financial intermediation and Schumpeterian frameworks in Section 2.3 predict that bank credit should translate into new productive capacity. The capacity-utilisation evidence in Section 3.3 complicates a simple version of this story: a manufacturing sector running at 55–57 percent utilisation through 2024 is not obviously capacity-constrained in the way that would justify prioritising new-capacity financing over financing that helps firms use the capacity they already have. This suggests that, at the margin, credit that finances working capital and operating costs may currently do more for aggregate output than credit that finances new plant, until utilisation rates rise closer to their practical ceiling, a point the weak credit-share/GDP-share association in Section 5.3 is consistent with.

#### *Credit Costs and Manufacturing Performance*

At a maximum lending rate approaching 30 percent by the periods immediately following the sample window (Section 3.4.1), few manufacturing projects, particularly capital-intensive ones with multi-year payback periods, can generate returns that comfortably clear the cost of borrowing. MAN's identification of the CBN's 45–50 percent Cash Reserve Ratio as a further constraint on loanable bank liquidity reinforces this point: the price of credit and the quantity of credit available were both working against manufacturers simultaneously through 2024, consistent with the loanable-funds prediction that tight monetary policy disproportionately burdens capital-intensive sectors, and consistent with Ugwuanyi and Utazi's (2017) finding that lending rate is a significant negative constraint on manufacturing sector performance.

#### *Access to Long-Term Finance*

The concentration of Nigerian bank lending in short-tenor working-capital facilities, rather than the long-tenor project finance capital-intensive manufacturing investment typically requires, is a recurring theme in MAN's industry commentary (Section 3.5) even where it cannot be quantified precisely from published aggregate data. Development finance institutions and CBN intervention facilities are, in principle, designed to fill this long-tenor gap, but the Participating-Financial-Institution risk-transfer problem described in Section 3.5 limits how much of that intended long-term, low-cost character actually reaches the manufacturer at the point of disbursement.

#### *Monetary Policy Transmission into Manufacturing Credit*

The 2023–2024 tightening cycle was a defensible response to inflation that reached multi-decade highs, but its transmission into manufacturing lending rates and, by late 2024, the early stages of a decline in manufacturing credit share, has been faster than any corresponding movement in manufacturing output within this sample window. The regression result in Section 5.3 is consistent with the possibility that manufacturers may respond to rate and credit-share shocks through reduced borrowing, deferred investment, and margin compression well before (if at all, within a short window) the effect shows up in aggregate output data separable from other simultaneous shocks; this article's bivariate methodology cannot confirm any of these specific mechanisms directly, and they are offered as plausible interpretation rather than as findings.

*Exchange Rate and Imported Production Inputs*

Because bank credit is denominated in naira but a large share of manufacturing inputs and machinery is imported, naira depreciation of the scale documented in Section 3.4.3 erodes the real purchasing power of a given naira loan between the time it is approved and the time it is spent, independent of anything happening in the credit market itself. This mechanism helps explain why nominal manufacturing lending figures rose through much of 2015–2024 even as manufacturers reported increasing, not easing, financing pressure toward the end of the window.

*Structural Constraints Beyond Bank Lending*

The evidence assembled in this article supports the view that bank lending alone does not determine manufacturing output in Nigeria, and that this is precisely why the credit-share/GDP-share association in Section 5.3 is weak rather than strong. Capacity utilisation below 60 percent even in relatively favourable periods, rising alternative-energy spending as firms self-generate power in response to unreliable grid supply (MAN Economic Review reporting), and manufacturers' own survey responses citing multiple taxation and unreliable infrastructure as first-order constraints all point to a manufacturing sector whose output is shaped as much by power reliability, exchange-rate stability, and the regulatory and tax environment as by the volume or cost of bank credit. Credit that finances the purchase of a machine does little to raise output if the machine then sits idle for want of electricity, imported spare parts, or affordable inputs.

**Summary**

This article investigated the evidence concerning the impact of bank lending on manufacturing sector output in Nigeria between 2015 and 2024, using deposit money bank credit actually allocated to manufacturing, rather than the Monetary Policy Rate alone, as the principal explanatory variable. Because the available manufacturing-credit data are incomplete and unevenly sampled, the article's own empirical analysis was, from the outset, designed to estimate statistical association rather than definitive causal impact, and its findings are summarised here on those terms.

**Findings**

The wider Nigerian empirical literature that has formally tested the credit–output relationship over long time horizons, notably Uyo, Anthony, and Nsonwu (2024) and Eburajolo and Aisien (2019), provides evidence of a genuine positive long-run relationship between bank credit and manufacturing performance using multi-decade cointegration methods this article's data cannot replicate. The present study's shorter and unevenly sampled data do not independently confirm that long-run relationship, but neither do they contradict it: a Pearson correlation between manufacturing credit share and manufacturing's GDP share, the article's primary output measure, across the seven matched annual observations assembled for 2015, 2016, and 2020–2024 is weak and statistically insignificant ( $r = 0.237$ ,  $p = 0.609$ ), and a bivariate OLS regression explains under six percent of the variance in GDP share, with a slope coefficient indistinguishable from zero ( $\beta = 0.064$ ,  $p = 0.609$ ). No causal claim is made on the basis of this bivariate result.

The same body of evidence shows manufacturing's GDP share confined to a narrow 8–10 percent band for nearly a decade, bank lending rates to manufacturers rising by roughly 800

basis points at the policy-rate level between mid-2023 and July 2024, manufacturing's credit share beginning to soften from a November 2023 peak of 17.89 percent to 14.36 percent by November 2024, and capacity utilisation capped in the mid-to-high 50s despite active CBN intervention.

### Conclusion

The wider Nigerian literature reviewed in this article provides evidence of a positive long-run relationship between manufacturing credit and manufacturing performance, on the evidence of studies using appropriately long series; the present study's shorter and unevenly sampled 2015–2024 data do not independently confirm that long-run relationship, and its short-run and volume-specific dimension is not currently detectable in the data available for this window. The evidence assembled in Sections 3 and 6 suggests, without this article's bivariate methodology being able to confirm it formally, that the effectiveness of manufacturing credit may be conditioned by the price of that credit, exchange-rate instability, and non-credit constraints such as power, taxation, and infrastructure that limit how much manufacturers can do with the credit they receive. Raising manufacturing's share of Nigeria's economy will most plausibly require treating the cost of credit, exchange-rate stability, infrastructure reliability, and credit availability as part of the same policy problem, rather than as separate issues to be solved one at a time, or assuming that credit-volume measures alone would be sufficient to move manufacturing's GDP share out of the band it has occupied since 2015.

### Limitations of the Article

- **Data source:** this article is built entirely on data drawn from named, official sources (principally the Central Bank of Nigeria, the National Bureau of Statistics, and the Manufacturers Association of Nigeria) rather than on independent primary data collection. This means the article inherits whatever measurement choices, revisions, and reporting gaps those institutions make, without independent verification: CBN sectoral credit figures are not independently audited by this article, NBS GDP figures are periodically rebased in ways that can shift historical shares, and none of these agencies' underlying worksheets could be inspected directly. A sub-sectoral breakdown of manufacturing credit is also not separately published by the CBN, so disaggregation by manufacturing sub-sector was not possible.
- **Sample size and statistical power:** the correlation and regression reported in Section 5.3 rest on only seven annual observations. This is a substantive constraint on what the analysis can show, not a minor caveat: with  $n = 7$ , the model has very low power to detect anything short of a large effect, the coefficient and  $R^2$  estimates are unstable, and the result could change materially with the addition or removal of a single year. The 95 percent confidence interval on the credit-share coefficient ( $-0.24$  to  $0.37$ ) is wide enough that the true relationship could plausibly be mildly negative or moderately positive; the point estimate reported in Table 5 should not be read as a precise measurement of anything.
- **Missing years are not random:** 2017, 2018, and 2019 are excluded from the matched-observation dataset not because those years were uneventful, but because a matching credit-share figure could not be verified for them. If the years for which CBN happened to publish a usable figure differ systematically from the years it did not (for example, because reporting practices changed around periods of stress), the seven-

year sample may not represent the full 2015–2024 period, and the regression result could be biased in a direction this article has no way to assess..

- **Correlational, not causal, design:** even setting sample size aside, a bivariate OLS regression on seven annual observations cannot establish the direction of causality between credit share and GDP share, and cannot rule out that both are driven by a third factor, such as general macroeconomic conditions or naira depreciation, that this article discusses narratively in Sections 3 and 6 but does not model formally. The association reported in Section 5.3 should not be read as evidence that credit availability does, or does not, cause changes in manufacturing output.
- **No stationarity or robustness testing:** a seven-observation series is too short to support formal unit-root or cointegration testing, so this article cannot rule out that the weak correlation it reports is an artefact of trends common to both series rather than a stable underlying relationship. No robustness checks, such as leave-one-out re-estimation or recomputing MANSI under an alternative denominator assumption, were carried out; a single unusual year in a seven-observation sample could be driving the reported result.
- **Scope of analysis:** the statistical analysis is confined to 2015–2024, so this article cannot say whether the weak short-run association it finds is a stable feature of the Nigerian data or specific to this particular decade. The longer series used in the cointegration literature reviewed in Section 2 was not accessible to this article, so its short-window finding cannot be reconciled against, or used to test, the long-run relationship that literature reports; the two are simply not comparable on the same terms.

### Contribution to Knowledge

This article contributes in four ways. First, it assembles, from named and checkable primary sources (CBN sectoral credit-allocation reports, NBS GDP releases, and MAN Economic Reviews), the most complete publicly verifiable series of deposit money bank credit specifically allocated to manufacturing (rather than the Monetary Policy Rate used as a proxy) that could be constructed for 2015–2024, and tests the resulting matched observations' statistical association with manufacturing output directly, rather than substituting a policy-rate proxy for it. Second, it distinguishes explicitly between the volume, cost, and availability of manufacturing credit, treating each as a separate empirical object rather than collapsing them into a single 'financing' variable. Third, it synthesises and critically compares the existing Nigerian empirical literature on bank credit and manufacturing output, identifying where this article's shorter-window findings are consistent with, and where they cannot substitute for, the multi-decade cointegration evidence in that literature, a distinction the literature itself does not always draw explicitly. Fourth, it offers policymakers, commercial banks, manufacturing firms, and researchers an evidence-based account of why credit-volume changes and output changes have not moved together in a simple, mechanical way since 2015, without overstating what a short, unevenly sampled, and incompletely harmonised credit series can establish. Taken together, these four contributions extend the Nigerian bank-credit/manufacturing literature into a period, the 2023–2024 monetary tightening cycle, that none of the reviewed long-run studies has yet incorporated, while being explicit about the methodological limits that a short, matched-observation dataset imposes on what can be concluded from it.

## Recommendations

### *Improving Access to Affordable Credit Through Risk-Sharing*

Because the gap between headline concessionary rates and what manufacturers actually pay appears to be driven by Participating Financial Institutions absorbing credit risk on CBN-funded facilities (Section 3.5), a credit-guarantee mechanism that shares default risk between the CBN/Development Bank of Nigeria and participating banks, rather than leaving banks to absorb it entirely, would more directly translate a lower headline rate into a lower rate actually paid by manufacturers, without requiring a larger headline subsidy.

### *Expanding Long-Term Manufacturing Finance*

Given the apparent concentration of manufacturing credit in short-tenor facilities, expanding the availability of genuinely long-tenor (5–10 year) financing, with grace periods matched to the construction and ramp-up timelines of capital-intensive manufacturing investment, would better match the tenor of financing to the tenor of the investment it is meant to fund, a mismatch flagged as a structural constraint across the literature reviewed in Section 2.

### *Strengthening Credit-Guarantee Mechanisms*

Existing mechanisms such as the Agricultural Credit Guarantee Scheme Fund provide a template (partial guarantee cover that reduces, without eliminating, the risk borne by the lending bank) that could be extended and sized appropriately for cement, chemical/pharmaceutical, and other capital-intensive manufacturing sub-sectors, rather than concentrated on agro-allied lending alone.

### *Improving Monetary Policy Transmission*

Ring-fenced, carefully monitored facilities that decouple manufacturing lending rates, at least partially, from the full force of MPR-driven repricing would allow the CBN to continue an aggressive anti-inflation stance without transmitting the full 800-basis-point tightening documented in Section 3.4.1 directly into the cost of capital for a sector whose investment decisions are unusually sensitive to financing costs given long payback periods.

### *Addressing the Late-2024 Softening in Manufacturing Credit Share*

Given that manufacturing's share of total bank credit fell from a peak of 17.89 percent in November 2023 to 14.36 percent in November 2024, and that this decline appears linked to the CBN's withdrawal of regulatory forbearance during bank recapitalisation rather than to a genuine reassessment of manufacturing creditworthiness, a monitored, time-limited transition facility that smooths banks' return to full provisioning requirements for existing manufacturing exposures, rather than an abrupt across-the-board tightening, could reduce the risk that a bank-capital-adequacy measure produces an unintended real-sector credit crunch. Given that industry reporting suggests this decline continued after the end of this article's sample window, monitoring whether the pattern persists is a natural extension of this recommendation.

### *Reducing Manufacturing Production Costs*

Given that capacity utilisation has remained below 60 percent through a period of active credit intervention, investment in reliable and affordable grid power, and measures to reduce naira volatility and the multiplicity of taxes and levies manufacturers report as a first-order

constraint, would likely raise the productivity of existing bank credit by more than an equivalent increase in credit volume alone.

#### *Improving Credit Information and Risk Assessment*

Better, more timely borrower credit information, building on infrastructure such as the National Collateral Registry established under the Secured Transactions in Movable Assets Act, which allows movable assets to be used as loan collateral (CBN, 2024c), could reduce the collateral barriers that disproportionately exclude small and medium manufacturers from formal bank credit, addressing the credit-rationing dynamic described by Stiglitz and Weiss (1981) at its source rather than only through price subsidies.

#### *Strengthening Development Finance Institutions*

The Bank of Industry, the Development Bank of Nigeria, and NEXIM occupy the long-tenor, higher-risk-tolerance niche that commercial banks are structurally reluctant to fill. Adequately and predictably capitalising these institutions, rather than relying primarily on commercial banks as intermediaries for concessionary funding, would reduce the extent to which the Participating-Financial-Institution risk-transfer problem described in Section 3.5 dilutes the intended effect of CBN interventions.

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