THE IMPACT OF FISCAL AND FINANCIAL POLICY ON INDUSTRIAL PERFORMANCE IN NIGERIA

LEVI UCHE ULOKAMEJE
PG/SSC2215583

UNIVERSITY OF BENIN
BENIN CITY

DECEMBER, 2025

THE IMPACT OF FISCAL AND FINANCIAL POLICY ON INDUSTRIAL PERFORMANCE IN NIGERIA

LEVI UCHE ULOKAMEJE
PG/SSC2215583

BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (MSc) DEGREE IN ECONOMICS

DECEMBER, 2025

CERTIFICATION

We, the undersigned, certify that this research work was carried out by **LEVI UCHE ULOKAMEJE** with matriculation number **PG/SSC2215583** and approved as adequate in scope and content for the partial fulfilment of the requirements for the award of Master of Science (MSc.) Degree in Economics.

_____ _____

Dr. (Mrs) F. Mogbolu **DATE**
(Project Supervisor)

_____ _____

Dr. (Mrs) F. Mogbolu **DATE**
(Programme Co-Ordinator)

_____ _____

Prof. Clement Ighodaro **DATE**
(Head of Department)

DEDICAION

This project is dedicated to my late father and mentor Prof. Francis Ogbonnaya Otunta of blessed memory and my late grandmother Rebecca Oriema Ulokameje.

ACKNOWLEDGMENT

I am thankful to God Almighty, the giver of all things for the blessings of understanding, strength, ability and very importantly, the resources that were key in the course of carrying out this research work from the very beginning to this level of completion.

Profound appreciation to my beloved mother and guidance, Dr (Bar.) Bertha Nnenna Otunta for her indescribable show of love, moral and spiritual support, diligent guidance and encouragement that were helpful all through this research work.

To my siblings, Confidence Okoye I appreciate all the support you showed me in the course of this program.

I remain sincerely grateful to my able supervisor in person of Dr (Mrs.) F. Mogbolu whose tutelage and guidance were instrumental in making sure this project work was a success.

Special appreciation to all Academic and Non-academic members of staff of the Department of Economics, Faculty of Social Sciences, University of Benin, Edo State for the hospitable and supportive learning environment they provided in the course of undertaking this program. To mention but a few, I would like to appreciate Prof. S.E Edo, Prof. Hassan Oaikhenan, Prof (Mrs) E.I Izilein, Prof. S.A Oyefusi, Prof. C.A. Ighodaro, Prof. I.P Sede, Dr. N. L Arodoye (Head of Department) Dr. (Mrs) F. Mogbolu (our able MSc Coordinator), Dr. S.O Abusonwan, Dr. J. W Okweshine etc.

To crown it all, I acknowledge my course mates who were very supportive in the course of this program. Not forgetting to mention Ngi Solomonon, Idemudia Stanley, Emeka Okologwu, Destiny Ejiro, Itoya Clement, Collins Edobor, Mando Jacqueline, Efe Iweta, Christopher Oseghale, Fruitful Effiong etc.

Thank you all!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This study examines the impact of fiscal and financial policies on industrial performance in Nigeria over the period 1981 to 2023, drawing on endogenous growth theory, which emphasises the role of policy-driven capital accumulation, technological progress, and productivity in sustaining long-term economic growth. Specifically, the study investigates the effects of government expenditure and financial depth on industrial output, recognising that effective government intervention and a well-functioning financial system can generate growth-enhancing externalities. The Autoregressive Distributed Lag (ARDL) model is employed to capture both short-run and long-run dynamics.

The empirical results reveal that government expenditure exerts a positive and statistically significant effect on industrial performance in both the short run and long run, supporting the endogenous growth proposition that productive public investment stimulates sustained industrial growth. In contrast, credit to the private sector, used as a measure of financial depth, has a negative and statistically significant effect, suggesting inefficiencies in the allocation of financial resources to the industrial sector. Inflation is found to have an insignificant effect on industrial performance. The ARDL bounds test confirms the existence of a stable long-run relationship among fiscal policy, financial policy, inflation, and industrial performance.

Based on these findings, the study recommends strengthening productivity-oriented government expenditure, particularly in industrial infrastructure, alongside reforms in the financial sector to improve the effectiveness of private sector credit in supporting industrial activities. It further emphasises the need for coordinated and long-term fiscal and financial policy frameworks to promote sustainable industrial growth in Nigeria.

CHAPTER ONE

INTRODUCTION

1.1 Preamble

The industrial sector remains a cornerstone of economic development in many countries, providing employment, fostering innovation, and contributing significantly to gross domestic product (GDP). In Nigeria, the industrial sector, encompassing manufacturing, mining, and construction, plays a vital role in diversifying the economy away from its heavy reliance on oil exports. However, despite its potential, the sector has faced persistent challenges such as inadequate infrastructure, limited access to finance, policy inconsistencies, and fluctuating government support, all of which have constrained its growth and overall performance (BakareAremu & Osobase, 2015).

Fiscal policy, defined as the government's use of public spending and taxation, serves as a critical tool for influencing economic activities, including industrial production. Government expenditures on infrastructure, subsidies, and capital projects can enhance industrial capacity, while taxation policies affect the cost structure and profitability of industrial enterprises. Empirical studies have highlighted the significant role Fiscal policy plays in shaping industrial output, though the effects vary depending on the components of Fiscal policy and the specific industrial subsectors considered (Akamo et al., 2025; Eze, 2014).

In parallel, financial policy, which reflects the regulatory and operational framework of the financial system, particularly financial depth, is equally important for industrial performance. Financial depth, often measured by broad money supply, credit availability, and financial market development, determines the ease with which industries can access capital for investment and expansion (Oranefo & Ndum, 2023). A well-developed financial system facilitates the mobilization and allocation of resources,

reducing the cost of capital and mitigating risks, thereby promoting industrial growth. Conversely, limited financial depth and inefficiencies in the financial sector can hinder industrial activities by restricting credit availability and increasing the cost of borrowing (Eduno, 2021).

Given the complex interplay between fiscal policy and financial depth, a comprehensive examination of their combined impact on Nigeria's industrial sector is necessary. While previous research has separately analyzed fiscal policy or financial sector variables, few studies have integrated both dimensions to provide a holistic understanding of how government financial decisions and the state of financial markets affect industrial productivity. This study therefore seeks to bridge this gap by investigating the influence of Fiscal policy and financial depth on the performance of Nigeria's industrial sector over a significant period.

By addressing this topic, the research aims to offer empirical evidence that can inform policymakers and stakeholders on the design and implementation of fiscal and financial policies that stimulate industrial development. This is particularly crucial for Nigeria as it endeavors to diversify its economy, create jobs, and achieve sustainable economic growth in an increasingly competitive global environment.

1.2 Statement of the Research Problem

Nigeria's industrial sector is a critical engine for economic growth, job creation, and diversification from its dependence on oil revenues. Despite its importance, the sector's performance has been inconsistent and generally below its potential, as evidenced by low manufacturing output, limited value addition, and sluggish industrial growth over recent decades (Bakare-Aremu & Osobase, 2015; Effiong et al., 2024). Various factors have been identified as contributing to this underperformance, among which Fiscal policy and financial sector dynamics stand out as pivotal yet complex influences.

Fiscal policy, through government expenditure and taxation, theoretically has the capacity to stimulate industrial activity by providing infrastructure, subsidies, and enabling environments. However, in Nigeria, the effectiveness of Fiscal policy in driving industrial growth has been mixed. Studies show that while some fiscal components, such as capital expenditure, have had positive short-term impacts on industrial output, other components, including recurrent expenditure and certain tax policies, have either had negative or statistically insignificant effects in the long run (Akamo et al., 2025; Olawale & Onoshole, 2024). Additionally, concerns have been raised about Fiscal policy sustainability given Nigeria's fiscal deficits and high external debt levels, which may undermine the fiscal space available for productive industrial investments (Joshua-Gyang, 2024).

Similarly, financial policy, particularly the depth and development of the financial sector, plays a crucial role in facilitating industrial growth by ensuring adequate credit availability, efficient capital allocation, and investment financing. However, Nigeria's financial system has faced structural inefficiencies, limited credit access to the industrial sector, and underdeveloped capital markets, which have restricted industrial firms' ability to expand and innovate (Oranefo & Ndum, 2023; Eduno, 2021). Moreover, empirical evidence points to inconsistent relationships between financial development indicators and industrial performance, with some measures such as market capitalization sometimes exhibiting negative associations with industrial output (Oranefo, 2022).

The fragmented nature of existing studies presents a significant research gap. Many prior investigations have focused narrowly on either Fiscal policy or financial variables, seldom integrating both to assess their combined impact on industrial performance in Nigeria.

Furthermore, the differential effects of fiscal and financial policies across short-term and long-term time horizons remain underexplored, limiting the understanding of policy effectiveness and

sustainability.

Given the pressing need for Nigeria to accelerate industrial growth to achieve economic diversification and sustainable development, there is a clear demand for a comprehensive analysis that captures the nuanced roles of Fiscal policy and financial depth. This study aims to address this gap by empirically investigating how Fiscal policy and financial policy jointly influence industrial sector performance in Nigeria, thereby providing actionable insights for policymakers to optimize economic strategies and promote industrialization.

1.3 Research Questions

This study seeks to answer the following key research questions:

1. What is the impact of Fiscal policy on industrial sector performance in Nigeria?
2. How does financial policy, particularly financial depth, influence the industrial sector's growth in Nigeria?
3. What are the relative effects of Fiscal policy and financial policy on the industrial sector performance over both the short and long run in Nigeria?

1.4 Objectives of the Study

The main objective of this study is to investigate the impact of Fiscal policy and financial policy on industrial performance in Nigeria. The specific objectives are to:

1. examine the effect of Fiscal policy on the industrial sector performance in Nigeria.
2. assess the influence of financial policy, with a focus on financial depth, on industrial growth in Nigeria.

3. evaluate the relative impact of Fiscal policy and financial policy on the industrial sector's short-term and long-term performance in Nigeria.

1.5 Hypotheses of the Study

The study will test the following null hypotheses:

1. Fiscal policy has no significant impact on industrial performance in Nigeria.
2. Financial policy, as measured by financial depth, has no significant effect on industrial performance in Nigeria.
3. The relative effects of Fiscal policy and financial policy does not significantly influence industrial performance in Nigeria.

1.6 Significance of the Study

The significance of this study lies in its potential to contribute substantially to the understanding and enhancement of industrial performance in Nigeria through the lens of fiscal and financial policy. Nigeria, as one of the largest economies in Africa, continues to face challenges in developing a robust industrial sector that can drive sustained economic growth and diversification. This research aims to shed light on the roles that government fiscal actions and financial sector policies play in either facilitating or constraining industrial development.

For policymakers, the study offers empirical evidence on which fiscal and financial measures are most effective in stimulating industrial productivity. This information is crucial for crafting sound economic policies that prioritize efficient government spending, taxation reforms, and the creation of an enabling financial environment. With better knowledge of these dynamics, government agencies can design interventions that enhance infrastructure, reduce industrial bottlenecks, and foster investment in key manufacturing and industrial subsectors.

Financial institutions and regulatory bodies will also benefit from the findings as they can understand the impact of financial depth and financial development on industrial growth. This understanding will encourage the development of financial products, credit facilities, and regulatory frameworks tailored to meet the specific needs of industrial enterprises, especially small and medium-sized manufacturers that often face difficulties accessing finance.

Industrial operators and business leaders will gain insights into how fiscal policies such as taxation, government expenditure, and external debt management influence their operational environment. Such knowledge can guide businesses in making strategic decisions regarding investment, expansion, and engagement with government programs.

Academically, the study fills important gaps in the literature by integrating fiscal and financial policies in analyzing industrial sector performance, which many previous studies have treated separately. This comprehensive approach provides a holistic view of the economic forces at play and opens avenues for further research into policy synergies and conflicts.

Furthermore, the study has socio-economic implications. A thriving industrial sector can generate employment, reduce poverty, and enhance the standard of living for Nigerians. By highlighting how fiscal and financial policies can be optimized to achieve these outcomes, the research supports national development objectives and international commitments toward sustainable economic growth.

In summary, this study provides practical, policy-relevant, and scholarly contributions that will inform government action, financial sector reform, industrial strategy, and academic discourse. It serves as a vital resource for all stakeholders interested in fostering a resilient and competitive industrial sector in Nigeria.

1.7 Scope of the Study

This study focuses on examining the impact of Fiscal policy and financial policy on industrial performance in Nigeria. It covers the period from 1980 to 2023, a timeframe selected to capture the effects of various economic reforms, policy changes, and structural adjustments that have shaped Nigeria's industrial sector over the last four decades. The study specifically analyzes key Fiscal policy variables such as government expenditure, taxation, recurrent and capital spending, and external debt management. On the financial policy side, the research considers indicators such as financial depth, broad money supply, credit to the industrial sector, interest rates, and other measures of financial development.

The industrial performance under investigation primarily relates to the manufacturing and solid minerals subsectors, which are vital components of Nigeria's industrial base and have significant potential to drive economic diversification and growth. The study adopts a sectoral approach that captures the complexities and specificities of industrial output, investment patterns, and productivity.

Geographically, the study concentrates on Nigeria as a whole, considering the national economic environment, policies, and institutional frameworks. It does not delve into regional or state-level variations, although these may be areas for future research.

Methodologically, the study employs time series data analysis techniques, including cointegration tests, error correction models, and autoregressive distributed lag models, to establish both short-term and long-term relationships between fiscal and financial policies and industrial performance. This approach allows for a comprehensive understanding of how policy changes influence industrial growth over different time horizons.

By defining this scope, the study aims to provide focused and relevant insights that are applicable to policymakers, financial institutions, industrial stakeholders, and researchers interested in the nexus between economic policy and industrial development in Nigeria.

1.8 Organisation of the Study

The present study is systematically structured into six chapters to provide a clear and comprehensive exploration of the impact of Fiscal policy and financial policy on industrial performance in Nigeria. The first (present) chapter introduces the research topic, outlining the preamble, statement of the problem, research questions, objectives, hypotheses, significance, scope, and organisation of the study. This chapter sets the foundation for understanding why the study is important.

Chapter two provides the background to the study by examining the historical and economic context of Nigeria's industrial sector. It discusses the evolution of fiscal and financial policies and their influence on industrial development. This chapter also highlights the theoretical frameworks and policy environments that are relevant to the study.

The third chapter reviews existing literature related to Fiscal policy, financial policy, and industrial performance. It critically evaluates empirical and theoretical studies both within Nigeria and globally, identifying gaps that the current research aims to fill.

Chapter four described the research approach (methodology) used in this study. Explained are the study's theoretical underpinnings, data sources, variables, and methodological procedures. This chapter also justifies the choice of methodological approach and outlines how the data will be collected and analyzed.

Chapter five presents and analyzes the data collected for the study. The results are discussed in detail to show the relationships between Fiscal policy, financial policy, and industrial performance, using appropriate statistical and econometric methods.

Finally, chapter six summarizes the research findings, draws conclusions, and offers recommendations for policymakers and stakeholders. It also suggests areas for further research to continue advancing knowledge in this field.

The organisation of this study follows a logical progression to ensure that each aspect of the research is thoroughly addressed, providing readers with a clear understanding of the study and its outcomes.

CHAPTER TWO

BACKGROUND TO THE STUDY

2.1 Trend Analysis of Industrial Performance in Nigeria (1981–2023)

Understanding the trend of industrial performance over time provides insight into the historical dynamics of Nigeria's industrial sector. This analysis helps identify periods of growth, stagnation, and decline, which are crucial for assessing the impacts of fiscal and financial policies as well as external economic factors.

Figure 2.1: Trend of Industrial Performance in Nigeria

Early Period from 1981 to 1999: Gradual Decline with Fluctuations

As shown in Figure 2.1, Nigeria's industrial performance began at a relatively strong level in the early 1980s, with the index peaking near 39.25 in 1981. Throughout the 1980s and 1990s, the graph depicts notable fluctuations, reflecting periods of modest growth interspersed with declines. These movements correspond to Nigeria's economic and policy environment at the time, which was affected by oil price volatility, structural adjustment programs, and infrastructural challenges.

While the industrial sector maintained moderate performance in the 1980s, Figure 2.1 illustrates a gradual downward trend emerging in the late 1990s, where the index values

begin to fall from the mid-thirties towards the high twenties and low thirties. This decline signals early signs of industrial distress influenced by inconsistent policy implementation and economic instability.

The 2000s: A Steep Decline

The graph in Figure 2.1 vividly captures a pronounced decline during the 2000s. The industrial performance index falls sharply from approximately 33.8 in 2000 to reach its lowest point in the dataset, around 18.17 in 2016. This represents a severe contraction of industrial activity over this period.

Several factors contribute to this decline, including inadequate infrastructure, especially unreliable power supply, political uncertainty, and a lack of diversification away from oildependent revenue. The graph's downward slope during this decade visually confirms these challenges and highlights the extent of the industrial downturn.

The Recovery Phase from 2011 to 2023: Signs of Revival

Beginning in the early 2010s, and more clearly after 2015, Figure 2.1 shows an upward turn in industrial performance. The index climbs steadily from its lowest levels, rising to approximately 32.58 by 2023. This recovery indicates a resurgence in industrial activity, likely driven by improved macroeconomic policies, targeted reforms, and a growing focus on diversification and

industrial revitalization.

The upward slope in the graph during this recent period is encouraging, yet it also suggests that Nigeria's industrial sector has not fully regained the high-performance levels seen in the 1980s.

This highlights ongoing structural constraints that need to be addressed to sustain growth.

Overall Trends and Volatility

Throughout Figure 2.1, the industrial performance index shows considerable year-to-year volatility, reflecting Nigeria's exposure to both internal and external shocks e.g., fluctuating global commodity prices and shifts in government policy. Despite this variability, the long-term trend line superimposed on the graph reveals a moderate decline at an average rate of about 0.25 index points per year.

This dual picture of volatility and long-term decline emphasizes the vulnerability and cyclical nature of Nigeria's industrial sector, underscoring the need for policies that enhance resilience and promote sustainable growth.

In sum, Figure 2.1 serves as a critical visual aid in understanding the trajectory of Nigeria's industrial performance. It captures the gradual decline from the early 1980s, the steep downturn of the 2000s, and the promising recovery after 2015. This trend analysis highlights that while recent progress is evident, substantial work remains to restore and strengthen Nigeria's industrial base. Policymakers and stakeholders must continue to focus on infrastructure, diversification, and economic stability to secure a more robust industrial future.

2.2 Trend Analysis of Government Expenditure in Nigeria (1981–2023)

Government expenditure is an important aspect which is critical in shaping the economy and influencing industrial performance. Examining its trend over time sheds light on how fiscal policies have evolved and their potential impact on Nigeria's industrial sector**.** Figure 2.2 illustrates the trend of government expenditure (GEX) from 1981 through 2023.

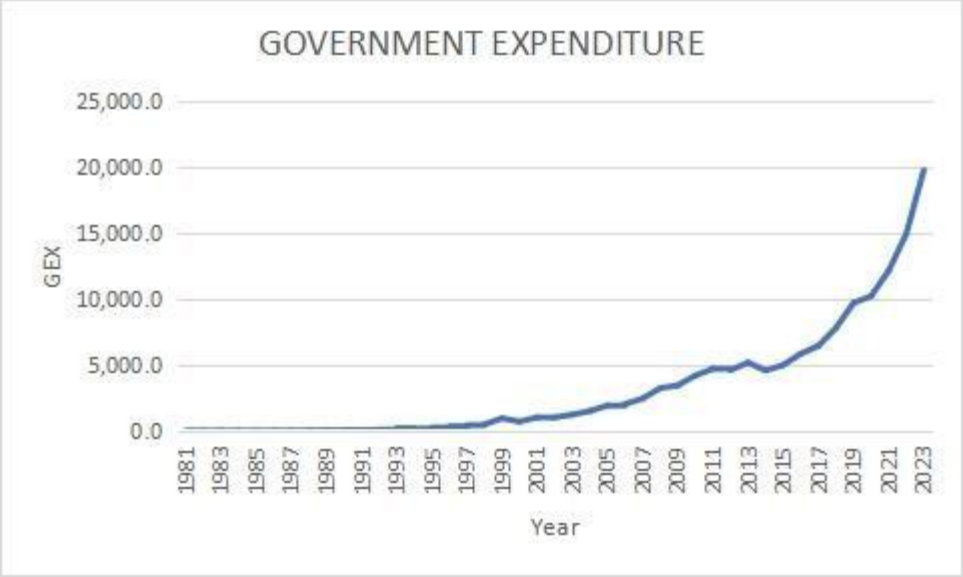


Figure 2.2: Trend of Government Expenditure in Nigeria

Government expenditure in Nigeria has followed a striking and sustained upward trajectory from 1981 to 2023, and this pattern is clearly illustrated in Figure 2.2. The values, which represent total public spending in billions of naira, reveal how the cost and scale of governance have expanded steadily over more than four decades. Unlike the fluctuating industrial performance shown earlier in Figure 2.1, government expenditure displays consistent growth with no extended periods of contraction.

In the early 1980s, total government spending was relatively modest, beginning at about 11.4 billion naira in 1981. Subsequent years witnessed gradual increases, with expenditure rising to approximately 27.7 billion naira by 1987. This early period reflects restrained fiscal activity influenced by limited revenue inflows, economic adjustment efforts and strict expenditure controls adopted during episodes of macroeconomic instability. Although spending grew slowly,

Figure 2.2 shows that Nigeria's fiscal responsibilities were already beginning to expand.

A more pronounced rise appears between Q4 of 1980s and Q1 of 1990s. Government expenditure increases significantly from 41 billion naira in 1989 to more than 60 billion naira in 1990, and further climbs to nearly 93 billion naira by 1992. This upward shift

corresponds with growing administrative pressures, economic liberalisation policies and increasing demands for public services. During this time, although industrial performance was fluctuating as seen in Figure 2.1, government expenditure continued its upward movement, highlighting expanding fiscal commitments.

A dramatic transformation occurs in the mid to late 1990s. Government expenditure rises from 160.9 billion naira in 1994 to 487.1 billion naira by 1997, more than doubling within a short period. It then surges further to approximately 947.7 billion naira in 1999. These increases are linked to inflationary pressures, rising governance costs, growing public sector obligations and efforts to stabilise the economy amid political transitions. Figure 2.2 clearly captures this sharp rise, which contrasts with the weakening industrial output displayed in Figure 2.1.

The 2000s mark a period of rapid and sustained fiscal expansion. From 701.1 billion naira in 2000, government expenditure exceeds 1 trillion naira in 2001 and continues climbing sharply throughout the decade. By 2005, spending surpasses 1.9 trillion naira, and by 2007, it rises above 3.2 trillion naira. By 2010, expenditure reaches over 4.1 trillion naira. These increases reflect substantial oil revenues during high price cycles, expanded public investment programs, increasing security expenditure and broadening administrative responsibilities. Meanwhile, industrial performance declined significantly during this period, indicating that increased spending did not automatically translate into improved industrial outcomes.

From 2011 onward, Nigeria enters another phase of accelerated public spending. Expenditure rises from around 4.7 trillion naira in 2011 to more than 5.1 trillion naira in 2013, and increases further to nearly 5.9 trillion naira by 2016. After this point, the pace of growth becomes even more rapid. By 2018, government expenditure rises to approximately 7.8 trillion naira, and by 2019 it approaches 9.7 trillion naira. These

increases reflect economic stimulus efforts, rising public debt servicing, currency pressures and heightened security needs.

The most dramatic increases occur in the most recent years. Government expenditure climbs sharply to 12.2 trillion naira in 2020, rises further to 14.9 trillion naira in 2021, and then reaches an unprecedented 19.8 trillion naira in 2023. These figures highlight wide ranging macroeconomic challenges including inflation, naira depreciation, expanded subsidy responsibilities, escalating security expenditures and increasing social obligations. Figure 2.2 vividly depicts this steep upward curve, signalling the rapidly growing scale of Nigeria's public financial commitments in the modern period.

Overall, the pattern of government expenditure between 1981 and 2023, expressed in billions of naira, reveals a long term and uninterrupted rise in public spending. Unlike the cyclical behaviour of industrial performance shown in Figure 2.1, government spending has expanded continuously. This divergence suggests that although the fiscal burden on the Nigerian state has increased dramatically, the industrial sector has not consistently responded with higher output or improved performance.

The trend captured in Figure 2.2 underscores the importance of aligning rising public expenditure with productive investments that can support sustainable economic growth. Strengthening fiscal discipline, improving expenditure efficiency and ensuring that increased spending translates into measurable economic gains remain critical considerations for Nigeria's long-term development.

2.3 Trend Analysis of Credit to Private Sector in Nigeria (1981–2023)

Credit to the Private Sector as a percentage of GDP provides an important measure of financial sector development and the extent to which private businesses and households have access to credit that can support investment, expansion and economic diversification. The movement of this indicator in Nigeria from 1981 to 2023, as portrayed in Figure 2.3,

reveals a generally fluctuating pattern punctuated by periods of growth, stagnation and decline. Unlike government expenditure, which shows a consistent upward movement in Figure 2.2, and unlike the industrial performance curve that exhibits clear cycles in Figure 2.1, the trend in CPS as a share of GDP presents a mixed and irregular trajectory.

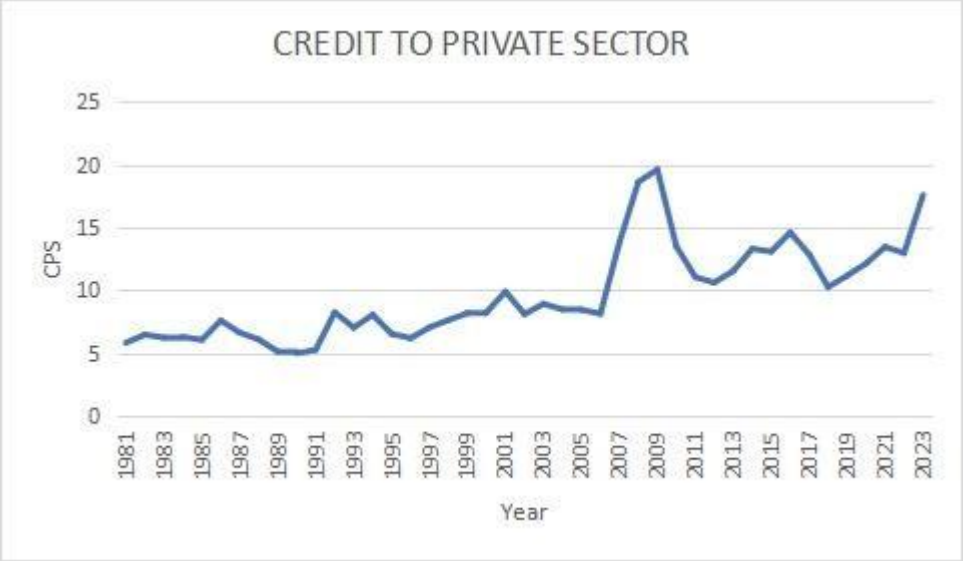


Figure 2.3: Trend of Credit to Private Sector in Nigeria

As seen in Figure 2.3, in the early 1980s, CPS as a percentage of GDP remained relatively low, fluctuating between approximately 5.8 and 6.5 percent. This reflects limited credit penetration during a period characterised by strict financial controls, underdeveloped banking systems and limited access to formal credit for private enterprises. Although modest increases were recorded during these years, the overall level of credit relative to economic output remained small, highlighting the early stage of financial sector development at that time.

During the Q4 of1980s and Q1 of 1990s, CPS as a percentage of GDP experienced mild fluctuations rather than sustained growth. The ratio moved from around 5.09 percent in 1988 to about 4.95 percent in 1989, before rising again to 5.24 percent in 1990 and jumping to 8.23 percent in 1991. These changes correspond with financial reforms that attempted to liberalise and expand credit markets, although persistent macroeconomic

instability limited the durability of these improvements. The movement captured in Figure 2.3 shows that access to private sector credit increased at certain moments, but these expansions were not always sustained.

The mid 1990s continued to reflect a pattern of alternating increases and declines. CPS as a share of GDP shifted between values such as 7.00 percent, 8.16 percent and 7.00 percent, demonstrating instability in credit allocation and persistent constraints in the financial sector. Inflation, exchange rate pressures and high interest rates during this period contributed to inconsistent lending, which is evident in the irregular shape of the trend line in Figure 2.3.

A more significant change emerged in the late 1990s and early 2000s, when CPS as a percentage of GDP began to expand more visibly. From around 8.24 percent in 1998, the ratio increased to

9.88 percent in 2000, reflecting the initial gains from banking sector reforms and broader economic restructuring. However, the expansion was interrupted at various points, as the ratio declined in some years due to economic shocks and periods of monetary tightening.

The most notable surge occurred in the mid to late 2000s. CPS as a share of GDP was up sharply from 8.12% in 2005 to 13.79% in 2006, and further climbed to 18.63 percent in 2007. This dramatic increase reflects the impact of the landmark banking consolidation exercise, expansion in commercial banking operations and deeper financial sector reforms that enhanced credit availability. Figure 2.3 clearly illustrates this upturn as one of the strongest periods of credit expansion in the entire series.

However, the progress achieved during this period was not sustained. Following the global financial crisis, CPS dropped significantly from 19.63 percent in 2008 to 13.49 percent in 2009, and then further to about 11.04 percent in 2010. The contraction highlights the sensitivity of Nigeria's credit system to global financial movements and

domestic macroeconomic vulnerabilities. As Figure 2.3 shows, the ratio did not regain its pre-crisis peak during the decade that followed.

From 2010 onward, CPS as a percentage of GDP remained unstable, fluctuating between 10.24 percent**,** 14.60 percent, and 12.13 percent across different years. These movements reflect ongoing structural weaknesses in Nigeria's financial system, including high lending rates, credit risk concerns, inconsistent monetary conditions and the dominance of government borrowing which often crowds out the private sector.

In recent years, the trend shows a modest upward direction. CPS rose from 13.44 percent in 2020 to 17.59 percent in 2023, suggesting a gradual recovery in private credit allocation despite ongoing macroeconomic challenges. These gains may be attributed to recent financial sector reforms, expansion of digital lending platforms and policy efforts aimed at improving private sector financing.

Overall, the long-term trend captured in Figure 2.3 shows that CPS as a percentage of GDP has increased significantly over the four-decade period, but in a highly uneven and cyclical manner. Unlike the consistent rise in government expenditure illustrated in Figure 2.2, the expansion of private sector credit has been repeatedly disrupted by economic shocks, policy changes and structural constraints within the financial system. While long term growth is evident, the irregular pattern underscores the need for stronger credit infrastructure, improved financial stability and policies that reduce barriers to private borrowing.

The behaviour of CPS over the years highlights both the gradual deepening of Nigeria's financial sector and the persistent volatility that has inhibited stable and widespread access to private sector credit. Addressing these challenges remains critical for supporting private investment and overall economic growth.

2.4 Trend Analysis of Inflation in Nigeria (1981–2023)

Inflation is a critical macroeconomic indicator that measures the rate at which the general price level of goods and services rises, eroding purchasing power. In the context of industrial performance, inflation influences production costs, investment decisions, and overall economic stability. Analyzing inflation trends helps understand the economic environment within which industries operate. Figure 2.4 displays the inflation trend in Nigeria over the period from 1981 to

2023.

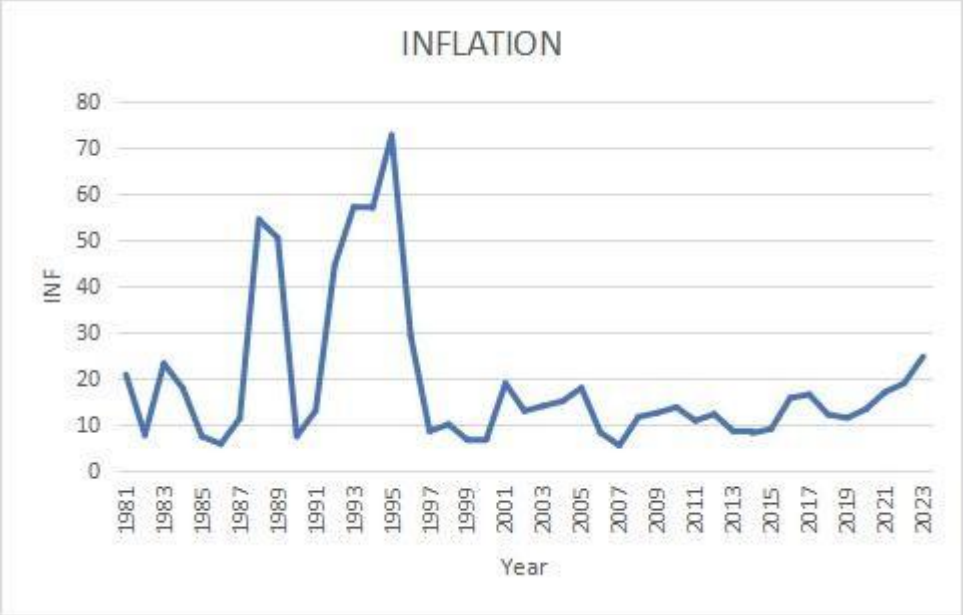


Figure 2.4: Trend of Inflation in Nigeria

The trend of inflation in Nigeria from 1981 to 2023, as illustrated in Figure 2.4**,** reveals a highly volatile and cyclical pattern marked by alternating periods of sharp increases and temporary declines. This instability reflects the broader macroeconomic challenges that have shaped Nigeria's economic landscape over the past four decades, including structural distortions, exchange rate pressures, fiscal imbalances and supply-side constraints. Compared to the patterns observed in Figures 2.1, 2.2 and 2.3, inflation

displays the most pronounced variability, underscoring its sensitivity to economic shocks and policy conditions.

Inflation started the period at a relatively high level of 20.8 percent in 1981, before falling sharply to 7.7 percent in 1982**.** This early decline was short lived, as inflation surged again to 23.2 percent in 1983, reflecting economic instability during the recession and balance-ofpayments crisis of the early 1980s. The mid-1980s saw inflation decline temporarily to 7.4 percent in 1985 and 5.7 percent in 1986, indicating the effects of policy adjustments and reduced monetary expansion during this period.

A major turning point occurred in the late 1980s, when inflation spiked dramatically. Inflation soared to 11.3 percent in 1987, then skyrocketed to 54.5 percent in 1988, followed by 50.5 percent in 1989**.** These extremely high inflation rates coincide with the implementation of the Structural Adjustment Programme (SAP), which involved exchange rate deregulation and removal of subsidies. As shown in Figure 2.4, this period marks one of the strongest inflationary surges in Nigeria's economic history.

The early 1990s brought mixed outcomes. Inflation fell sharply to 7.4 percent in 1990, then rebounded to 13 percent in 1991, before skyrocketing again to 44.6 percent in 1992 and 57.2 percent in 1993. The peak came in 1994, when inflation rose to an extraordinary 72.8 percent, the highest in the entire period. This hyperinflationary episode was driven by severe fiscal deficits, exchange rate collapse and political instability. The steep upward movement in Figure

2.4 visually reflects the intensity of the crisis.

Following this peak, inflation dropped significantly to 29.3 percent in 1995 and then to 8.5 percent in 1996, marking a period of stabilization under tighter monetary and fiscal controls. The late 1990s maintained relatively moderate inflation levels, ranging between 6.6 and 10 percent, although intermittent pressures continued to threaten stability.

The early 2000s were characterised by moderate but persistent inflation. Rates fluctuated between 6.9 percent in 2000**,** 18.9 percent in 2001**,** 12.9 percent in 2002 and 14 percent in 2003. These movements reflect exchange rate adjustments and supply-side bottlenecks, including rising food prices. The mid-2000s saw temporary easing, with inflation dropping to 8.2 percent in 2006 and 5.4 percent in 2007**,** before rising again to 11.6 percent in 2008 and 12.5 percent in

2009, partly due to global food and fuel price shocks.

From 2010 onward, inflation remained moderate but unstable. It stood at 13.7 percent in 2010, dropped to 10.8 percent in 2011, and then fluctuated between 8.1 and 9.0 percent during 2012– 2014. A significant rise occurred in 2016, when inflation reached 15.7 percent, followed by 16.5 percent in 2017, reflecting recession-induced currency depreciation and import price surges.

These increases are clearly visible in the upward movements displayed in Figure 2.4.

Although inflation moderated to 12.1 percent in 2018 and 11.4 percent in 2019, it began rising again from 2020 onwards. The rate increased to 13.3 percent in 2020**,** 17 percent in 2021**,** 18.9 percent in 2022, and further to 24.7 percent in 2023. These recent spikes reflect persistent exchange rate pressures, heightened food inflation, fiscal imbalances and the broader economic disruptions caused by global supply shocks and domestic policy reforms. The sharp ascent in the final years of the series is clearly depicted in Figure 2.4.

Overall, the inflation trend in Nigeria from 1981 to 2023 reveals a long history of macroeconomic instability. The pattern is highly irregular, with multiple peaks driven by structural weaknesses, external shocks and policy inconsistencies. Unlike government expenditure in Figure 2.2, which exhibits steady growth, and unlike private sector credit in Figure 2.3, which rises gradually but fluctuates, inflation stands out for its extreme volatility. The persistently high levels of inflation in many periods have

contributed to erosion of purchasing power, suppressed investment incentives and weakened overall economic performance.

The long-term trend suggests that while Nigeria has periodically achieved short-term price stability, sustained low inflation has remained elusive. The trajectory depicted in Figure 2.4 underscores the need for deeper structural reforms, improved macroeconomic management and enhanced policy coordination to achieve lasting price stability and support broader economic development.

2.5 Co-Movement of the Variables

This section examines the movement of the key variables used in the study which include industrial output, government expenditure, credit to the private sector and inflation. Understanding the trend and interaction among these variables over time provides insight into their behaviour and the possible relationships that may exist among them. The data for the period from 1981 to 2023 are presented in Table 2.5 and form the basis for the descriptive analysis that follows.

Table 2.1: Trends in Industrial Output, Government Expenditure, Credit to Private Sector and Inflation from 1981 to 2023

Year	IND	GEX	CPS	INF
1981	39.25	11.40	5.80	20.80
1982	34.81	11.90	6.45	7.70
1983	34.12	9.60	6.21	23.20
1984	30.35	9.90	6.27	17.80
1985	33.47	13.00	6.04	7.40
1986	32.83	16.20	7.57	5.70
1987	32.89	22.00	6.60	11.30

1988	32.61	27.70	6.07	54.50
1989	35.39	41.00	5.09	50.50
1990	35.41	60.30	4.96	7.40
1991	36.97	66.60	5.24	13.00
1992	37.71	92.80	8.23	44.60
1993	33.17	191.20	7.01	57.20
1994	31.32	160.90	8.04	57.00
1995	36.54	248.80	6.51	72.80
1996	37.45	337.20	6.17	29.30
1997	35.25	428.20	7.03	8.50
1998	28.70	487.10	7.62	10.00
1999	29.36	947.70	8.17	6.60
2000	33.82	701.10	8.25	6.90
2001	28.28	1018.00	9.88	18.90
2002	23.04	1018.20	8.08	12.90
2003	26.00	1226.00	8.91	14.00
2004	28.39	1504.20	8.46	15.00
2005	28.20	1919.70	8.44	17.90
2006	25.75	2038.00	8.12	8.20
2007	24.34	2450.90	13.80	5.40
2008	24.71	3240.80	18.63	11.60
2009	21.24	3453.00	19.63	12.50

2010	25.32	4194.60	13.49	13.70
2011	28.28	4712.10	11.04	10.80
2012	27.07	4605.30	10.60	12.20
2013	25.74	5185.30	11.53	8.50
2014	24.64	4587.40	13.30	8.10
2015	20.16	4988.90	13.08	9.00
2016	18.17	5858.60	14.61	15.70
2017	22.32	6456.70	12.85	16.50
2018	25.73	7813.70	10.25	12.10
2019	27.38	9712.20	11.16	11.40
2020	28.22	10232.30	12.13	13.30
2021	31.41	12164.10	13.45	17.00
2022	30.78	14946.20	12.96	18.90
2023	32.58	19808.40	17.59	24.70

Author's Compilation (2025)

Analysis of Co-Movement

Industrial Output and Government Expenditure

Government expenditure increased steadily throughout the period under review with very large rises in the later years. Industrial output however did not follow a similar upward pattern and remained within a narrow range. The lack of parallel movement indicates that higher public spending did not directly translate into improved industrial performance. This may be due to inefficiencies in public expenditure or limited targeting of industrial growth enhancing sectors.

Industrial Output and Credit to the Private Sector

Credit to the private sector grew consistently especially after the year two thousand. Industrial output did not move in the same direction and showed a mix of stagnation and decline in many years. The weak relationship suggests that credit was not channelled adequately to industrial activities or that industrial firms faced barriers in accessing financial resources.

Industrial Output and Inflation

Inflation shows a more pronounced relationship with industrial output. Periods characterised by high inflation coincide with periods of low or declining industrial output. Inflation increases production costs and reduces profitability which in turn discourages industrial expansion. The consistent inverse pattern indicates that inflation is a significant factor affecting industrial performance in the period under review.

The movement of the variables indicates that government expenditure and credit to the private sector display weak relationships with industrial output. Inflation shows a strong and persistent negative relationship with industrial performance and therefore appears to be the most influential variable among those examined.

CHAPTER THREE

LITRATURE REVIEW

3.1 Conceptual Clarifications

This section provides clear explanations of the key concepts used in this study, including Fiscal policy, financial policy, financial depth, and industrial performance. It also presents the various measures used for each variable and identifies the one chosen for use in this study. These concepts are essential for understanding how government actions and financial systems influence economic growth, particularly in Nigeria.

Fiscal policy refers to the government's use of taxation, spending, and borrowing to influence economic activity. It is a major tool used to regulate the economy, promote growth, and maintain macroeconomic stability (Eze, 2014). Fiscal policy is typically measured using government expenditure, tax revenue, fiscal deficit, or public debt levels. In this study, government expenditure is adopted as the measure of Fiscal policy due to its direct influence on industrial activities through investment in infrastructure and capital projects (Akamo et al., 2025; Ighoroje & Akpokerere, 2021).

Financial policy in this study focuses on regulations and measures related to the financial sector, including credit availability, interest rates, money supply, and financial depth. Financial depth reflects the size, efficiency, and reach of the financial system. Common measures of financial depth include broad money supply as a percentage of GDP (M2/GDP), credit to the private sector as a percentage of GDP, and stock market capitalization (Eduno, 2021; Oranefo & Ndum, 2023). This study adopts credit to the private sector (CPS) as the measure of financial depth because it directly reflects the extent to which industrial enterprises can access financing for productive activities.

Industrial performance denotes the growth, productivity, and output level of the industrial sector. It is often measured using industrial GDP contribution, industrial production

indices, manufacturing output, or capacity utilization rates (Bakare-Aremu & Osobase, 2015; Olawale & Onoshole, 2024). In this study, industrial output index (IND) is chosen as the measure because it captures the overall performance and productivity of the industrial sector over time.

Inflation is included as a control variable because it influences industrial costs, investment, and profitability. Inflation can be measured using the Consumer Price Index (CPI) or Producer Price Index (PPI). This study uses CPI-based inflation (INF) as it reflects the general rise in prices affecting both production and consumption.

These variables are interconnected. Fiscal policy, measured by government expenditure, influences industrial performance by shaping public investment and sectoral priorities. Financial policy, measured through credit to the private sector, affects industrial performance by facilitating access to funds and efficient capital allocation. Inflation impacts industrial output by altering production costs and profitability. Understanding these measures and their selection is crucial for analyzing how policies affect Nigeria's industrial growth.

3.2 Theoretical Literature

This section explores the economic theories that provide the foundation for understanding the effects of Fiscal policy, financial policy, and financial depth on industrial performance. These theories explain how government and financial sector actions influence industrial growth.

The Keynesian theory of Fiscal policy advocates active government intervention to regulate economic activity and stimulate growth. It emphasizes that government spending and taxation policies can influence aggregate demand and production. According to this theory, increasing government expenditure, particularly capital investments in infrastructure and industry, boosts industrial output and economic growth (Eze, 2014).

Conversely, high taxation may reduce disposable income and discourage investment, negatively affecting industrial growth (Imide, 2019).

Classical and neoclassical growth theories focus on the role of savings, capital accumulation, and technological progress in fostering economic growth. These theories posit that financial development is crucial for channeling savings into productive investments. Financial depth improves the efficiency of financial markets, reduces information gaps, and facilitates capital formation. This creates an enabling environment for industrial expansion by supporting investment in machinery, technology, and infrastructure (Eduno, 2021; Udeaja et al., 2021).

The financial intermediation theory highlights the role of financial institutions in mobilizing savings and allocating funds to productive sectors, such as industry. A well-developed financial system reduces transaction costs and the risks associated with lending. By improving credit supply and promoting capital market development, financial depth stimulates industrial activities and contributes to economic growth (Oranefo, 2022; Oruta, 2015).

Financial policy theory focuses specifically on government interventions in the financial sector. It emphasizes how government regulations, monetary policies, and financial sector reforms influence the availability and cost of credit, interest rates, and liquidity in the economy. By shaping the rules and environment of financial markets, government policies ensure that funds are efficiently allocated to priority sectors, including industry. This theoretical approach clarifies the role of government-driven financial measures in enhancing industrial performance and complements other growth-oriented theories (Eduno, 2021; Olawale, 2024).

The endogenous growth theory stresses the importance of government policies and innovation in achieving sustained long-term growth. It suggests that Fiscal policy,

through investments in infrastructure, human capital, and technology, can produce lasting effects on industrial development. Financial policy, through effective regulation and support of the financial sector, provides industries with access to finance necessary for innovation and expansion (Olawale, 2024).

Together, these theories provide a comprehensive understanding of how Fiscal policy and financial policy, particularly financial depth, affect industrial performance. 1Fiscal policy influences industrial output through government expenditure and taxation, while financial policy, through sector-specific regulations and financial development, supports industrial growth by improving access to credit and enabling efficient allocation of resources. This theoretical framework underpins the analysis of policy impacts on Nigeria's industrial sector.

3.3 Empirical Literature

The authors of the study by Bakare-Aremu and Osobase (2015) investigated this question with the help of an error correction model (ECM) that allows studying the impact of fiscal and monetary policies on the operations of the manufacturing sector in Nigeria. They used time series data, which was analysed with Ordinary Least Squares (OLS), and their stationarity with the Augmented DickeyFuller (ADF) test, and long averages with the Johannesen cointegration test. The findings revealed that fiscal and monetary stabilization policies have a major influence on the manufacturing production in the short and long-term. The ECM showed the rate of short-run disequilibrium, which is adjusting in the long-run equilibrium, which supports the idea that the stabilization policy makes a significant impact on the performance of an industry sector. The findings made by the authors were that the effectiveness of the manufacturing industry can be enhanced through correct revision of these policies, which in the long run should enhance economic development in Nigeria.

Akamo, Oniore, and Aigbedion (2025) examined how the Fiscal policy variables could influence the development of the Nigeria manufacturing sector during 1986 and 2023 through Autoregressive Distributed Lag (ARDL) regression model. The research has determined that government tax revenue has a positive and significant effect on the performance of the manufacturing sector in short-run, but in the long-run, it only has positive but statistically insignificant effect. It was found that government recurrent expenditure exercised negative influence on the performance of manufacturing in the short run but positive, but non significant relationship in the long run. By the same token, government capital spending was positively and significantly correlated in the short run but the negative and insignificant relationships between the manufacturing performance and the government capital spending were independent in the long term. The external debt showed a positive significant effect in the short-run and negatively insignificant results in the long- run. Through these results, the authors gave a recommendation on how taxes should be administered, the allocation of recurring expenditure on activities that finance manufacturers, to increase infrastructure projects of manufacturers and to minimize unproductive external borrowing to promote industrial productivity in Nigeria.

Abimbola and others (2024) examined the impacts of Fiscal policy on the development of the industrial sector in Nigeria with particular reference to solid minerals subsector in 1986 to 2021 and used Autoregressive Distributed Lag (ARDL) as the estimation method. It was also discovered that corporate income tax will adversely impact the output of solid minerals in the long- run, whereas government capital expenditure in mining and quarrying industry and exchange rates positively affect the output. In the short term, there were negative impacts on the corporate income tax and exchange rates, but the capital expenditure was positive. On these findings, the authors suggested that corporate income tax rates on solid minerals be lowered and increase budget on capital expenditures in

mining and quarrying, but they should be efficiently used to improve infrastructure and help in development of the sector.

Effiong, Ukere, and Ekpe (2024) tested the relationship between Fiscal policy variables (government spending and taxation) and interest rates and the performance of the manufacturing industry in Nigeria between 1981 and 2021 with the Autoregressive Distributed Lag (ARDL) model. The bounds test supported a long-run association between the variables. The finding indicated that within a short-run, government spending and its lag had a negative and significant effect on manufacturing output and the same value-added tax (VAT) had a positive and significant effect, and its lag was negative. Interest rate positively and significantly affected the manufacturing performance in short run. The government expenditure had a negative, but negligible effect in the long pain, VAT and interest rates had a positive and significant effect. The disaggregated study showed that occurrence expenditure had a negative impact on manufacturing production, whereas capital expenditure, VAT, and interest rate had a positive impact on the same, with the exception that VAT has a negative important predictor. The research suggested the cost of governance be cut so that state spending can be redirected to expenditures in areas that will be more fruitful in boosting the growth of the manufacturing sector.

Olawale and Onoshole (2024) examined the influence of Fiscal policy on the industrial sector in Nigeria between 1985 and 2022 as applied in the dynamic Ordinary Least Squares (DOLS). The variables on which the study was targeted included total amounts of tax revenue to GDP, income taxes, taxes on international trade and the ratio of foreign direct investment (FDI) inflow to GDP. The results showed that larger tax revenue as a ratio of total tax revenue to GDP in higher-income countries, especially when compared to low-and-middle-income countries, is due to higher per-capita income and number of medium and large taxpayers. It was also revealed in the study that increasing the tax

revenue to the GDP at the expense of the corporate profit margins and the rate of returns to investments has a negative effect on the flows of FDI, implying that Fiscal policy, which is based on taxation can affect the performance of the industrial sector, by influencing investment decisions.

In his research, Eze (2014) focused on the effect of Fiscal policy on output of the manufacturing sector in Nigeria through the use of error correction model (ECM). The quantitative researched study, based on ex-post facto, found the economy empirical evidence on the fact that government expenditure is a major determinant of manufacturing output, as well as determined the existence of a long-term relationship between Fiscal policy and the performance of the manufacturing sector. The findings have indicated that growth in manufacturing output and the Nigerian economy would not rise unless more and well-realized public expenditure is raised. The research suggests the focus on expansionary Fiscal policy and improvement of the budget execution as the means of creating future impact on the aggregate spending and stimulating the growth of the manufacturing segment.

The author, Olawale (2024) examined the connection between the growth of manufacturing sector and government capital expenditure in 1981-2022 in Nigeria using a regression model. The paper affirmed that the variables were stationary following the initial differentiating and the model used the Johansen cointegration test to determine that there was a long-run equilibrium between manufacturing output, government capital expenditure, value added tax, and customs and excise duty. The findings showed that government capitals spending was strongly and positively linked to expansion of the manufacturing sector. The article identifies government investment in infrastructure, regulations, and policies in support of industries and economic growth in Nigeria as important factors that drive industrial development.

Olasehinde and Omolade (2022) examined the mode of Fiscal policy shock on growth in output of industrial sector in Nigeria during 1981 and 2020 in a structural vector error correction (SVEC) model. The researchers discovered that the effects of government expenditure are not a stabilising or sustainable effect on the industrial sector. Revenue shocks in the industrial sector had a beneficial impact but decreased when reaching its peak. There was no significance on the shock on expenditure in terms of the output growth. The shocks of interest rates brought about declining industrial output growth and permanent negative impact on the aggregate demand shock. In contrast, capital shock investment was permanently positive in growth of the industry sector.

Oladipo et al. (2023) have analyzed how the Fiscal policy will influence the growth of the industrial sector in Nigeria in the solid minerals subsector during the period 1986-2021. Using the Autoregressive Distributed Lag (ARDL) model to determine the relationships, the study established that corporate income taxes have a strong negative long-run impact on the output in solid minerals of Nigeria. On the other hand, the government capital investments in the mining and quarrying sector, and exchange rate variations, had a positive impact on the output of the sector in the long run. Corporate income tax, exchange rate had negative impacts in the short run, whereas government capital expenditure had a positive impact. Based on that, the authors suggest decreasing the corporate income tax rates on solid minerals industry to encourage its growth, and the increase and effective distribution of government capital expenditure in order to promote infrastructure improvement in the industry.

Ighoroje and Akpokerere (2021) examined how Fiscal policy and the output of the industrial sector are related in Nigeria in the period of 1987 to 2019. The analysis has broken down Fiscal policy into government spending, tax revenue and budget deficit and industrial output was calculated using GDP contribution of industrial sector. The results

of the multiple regression analysis on a series of analyses conducted in a Johansen cointegration and Error Correction Model framework showed that Fiscal policy has long-run and short-run impacts on the industrial output. In particular, government spending and budget deficit led to the optimal effect on the output of the industrial sector, although the impact of tax revenue was positive but statistically non-significant. The research came down to the conclusion that the industrial sector of Nigeria is growing as a result of Fiscal policy and suggested development and execution of effective Fiscal policy to enhance stability in the economy.

Joshua-Gyang (2024) examined the effect of key Fiscal policy metrics in the output of the manufacturing industry in Nigeria 1987-2022. With the help of ex post facto research design and using time-series data provided by the Central Bank of Nigeria (CBN) Statistical Bulletin, the research employed ARDL model in determining the impacts of Fiscal policy variables on manufacturing output. The findings revealed that the risk factors that had a positive impact on manufacturing output were the government recurrent expenditures, non-oil taxation, and the governmental public debt which have statistically significant effects on output. Conversely, the capital spending by the governments, oil taxation and government external debt had negative impacts on manufacturing output but only a few were found to be statistically non-significant. The research suggested that government especially the Federal ministry of finance and other concerned agencies should put in place systems which can help to effectively gauge Fiscal policy indicators and give priority on industrial driven infrastructural projects to increase output of the manufacturing sector in Nigeria.

In their study, Ekong and Ekong (2022) assessed the impact of the monetary policy shocks on the industrial sector performance of Nigeria and their impact on the overall economic growth between the years 1980 and 2018. The variables that were introduced in

this study as a monetary policy consisted of money supply (M2), monetary policy rate (MPR), Treasury bill rate (TBR), and credit to the private real sector, and the control variables included gross fixed capital formation, inflation and exchange rate. The authors discovered through Vector Autoregression (VAR) and Generalized Method of Moments (GMM) models that unexpected shocks to the monetary policy rate, and growth in the money supply, had adverse impacts on the industrial output and they did not converge during the period. Conversely, an electric shock to the credit supply and the Treasury bill rates had a positive effect on the industrial growth, albeit to different levels. Also, the paper has pointed out that pass-through effects in the industrial sector performance to the overall growth in the economy is notable and this effect has been found to contribute at least 30% of the total growth impact. To enhance transmission of monetary policies to the private sector, the authors suggested that there should be an increase in the relationship between the monetary policy and the industry performance by creating effective capital market and better credit access.

Ogunjobi et al. (2025) examined how the labour market and the manufacturing industry in Nigeria influenced the growth of the economy in the country between the years 1993 and 2023. The study employed the Solow-Swan growth model and Dynamic Ordinary Least Squares (DOLS) acquisition methods to investigate some of the main factors, which included, labour market participation, output in manufacture, gross fixed capital formation, inflation and interest rates. Its findings showed that there are meaningful positive influences on the real GDP of Nigeria through participation in the labour market and entrepreneurial outputs as well gross fixed capital formation hence their pivotal importance with regard to stimulating growth in an economy. On the other hand, inflation and interest rates were also determined to have serious negative effects. The authors had suggested specific policy interventions to enhance better skills of their workforce, greater

access to credits by small and medium enterprises, and government-to-business collaborations to support the growth of manufacturing and sustainable economic growth in Nigeria.

Effiong and Essien (2020) tested how government spending, as a Fiscal policy measure, affected the output of the industrial sector in Nigeria in the period between 1980 and 2018. The paper broke down the government spending into capital and recurrent spending and used unit-root tests (Augmented Dickey-Fuller test and Phillips-Perron test) to test the stationarity of the variables. A co-integration test (Johansen) showed that the variables had a long-term connection and a Vector- Error Correction Model (VECM) was estimated. Findings showed that both capital and recurrent expenditures turned out to be very important determinants of industrial output in a short-run. But over short-term, recurrent expenditure was the only one that gave a positive significant correlation with industrial sector output, where capital expenditure failed to do so. The authors suggested that the government needs to put efforts to better infrastructural facilities to help boost the industrial output, hence drawing both local and foreign investments.

In their study, Akpunonu and Orajaka (2021) investigated how the manufacturing sector increases production in response to the monetary policy in Nigeria, using the output of the manufacturing sector between 1986 and 2019. The research evaluated the effect of the important monetary policy instruments such as Open Market Operations (measured by Treasury bill rate), Cash Reserve Ratio (CRR) and Monetary Policy Rate (MPR) using data of the CBN Statistical Bulletin and through multiple regression analysis with Ordinary Least Squares (OLS). The results indicated that Treasury bill rate and CRR had positive and significant impacts on GDP of manufacturing sector whereas MPR did have a negative and significant impact. The research was able to find out that monetary policy becomes a significant instrument in promoting industrial growth in Nigeria and suggested

that the monetary authorities should keep a low MPR to encourage investment and growth in industry.

Imide (2019), empirically evaluated the effects of Fiscal policy on the manufacturing industry in Nigeria between 1980 and 2017 as index of manufacturing sector (IMS) is the dependent variable and the results revealed that government expenditure, the rate of company income tax and outstanding federal government debt were the explanatory variables. The analysis used annual time-series data, (CBN Statistical Bulletins), and Ordinary Least Squares (OLS) regression analysis at a significant level of 5% has been used. The results showed that government spending and company income tax rate and manufacturing output had positive correlation though they did not show any significant impact. Conversely, the federal government domestic debt outstanding played a big negative role with regard to the manufacturing output. The research advocated the governmental flow of expenditure towards physical development of infrastructure to become competitive and suggested a policy of subsidizing income tax of companies in the manufacturing subsector.

Udeaja et al. (2021) also re-examined the correlation between finance and industrial growth in Nigeria by adding aggregate credit to industrial sector and financial development index to industrial growth model. The study utilized data over 40 years of data by using the Autoregressive Distributed Lag (ARDL) bounds-testing methodology but factored in the electricity consumption variable and structural breaks. The results highlighted that finance is a major pivot to growth of industries in Nigeria. Interestingly, the research findings indicated that models which rely on aggregate credit to the private sector have underestimated the long-run effects of finance on industrial performance than sector specific credit measures are capable of doing. Also, structural breaks were also found to be more accurate in estimating long-run effects of credit on industrial

growth. The authors have highlighted the need to maintain policies that allow an increased credit supply to the industrial sector as an expansion measure non-withstanding policy used like minimum Loan-to-deposit ratio.

In his article, Eduno (2021) investigated how the financial sector affects the manufacturing sector output in Nigeria between 1980 and 2018. The study carried out using unit root tests and the Autoregressive Distributed Lag model concluded that significant indicators of development in the financial sector that include the percentage of credit to the privately owned sector in terms of GDP, the broad money supply in relation to the GDP, the interest rate spread as well as the amount of loans extended to the manufacturing industry were critical 72 indicators of development of the finance sector during the long term as far as manufacturing output is concerned. Conversely, the gross fixed capital formation as compared to GDP did not influence significantly in long run. According to the study, the federal government should be recommended to deploy policies to establish a friendly business climax by cutting taxes and establishing incentives in manufacturing businesses.

Oranefo and Ndum (2023) examined the association between industrial sector performance and financial development in Nigeria in terms of broad money supply as dependent variables reflecting financial development and the variation index of industrial production as dependent variables reflecting industrial performance. The data used in the study were the results of an ex post facto research, investigating the information between 1986 and 2020, which were retrieved on the CBN Statistical Bulletin. Analysis was done using the Autoregressive Distributed Lag estimation approach. The findings indicated that output in the industrial sector was largely explained by financial development as indicated by such variables as broad money supply and savings. The research advised the CBN ought to keep on empowering and controlling the financial operations

connecting with the industrial sector and persuade its commercial banks to ensure that it funds industrial production to capitalize on its advantages.

The research by Oruta (2015) aimed to determine the effects of credit policy on the output in the industrial sector in Nigeria between 1980 and 2012. The analysis of the results by Ordinary Least Squares (OLS) regression to estimate the parameters included that there was a significant and positive relationship between credit and the performance of industry by deposit money banks. Interest rate was however positive although it did not show any significant relationship with industrial output. The analysis suggested the need to develop and deregulate financial markets so that the sector can operate efficiently in promoting sound, competitive industrial sector that can support the demand and supply of credit facilities.

Oranefo (2022) investigated the impact of finances development to industrial production in Nigeria through ex post facto research study design with a period interval between 1986 and 2020. The CBN annual reports and statistical bulletin were used as the sources of data. An E-Views 9.0 software was used to analyze the data in the form of descriptive and inferential statistics. In the research, gross capital formation and industrial production were observed to have a significant positive correlation with a significance of five percent. On the other hand, market capitalisation showed negative relationship with industrial production. According to these findings, the study suggested that the government should add more efforts in promoting the stock market activities to attract investments, enhance capacity, and increased manufacturing.

3.4 Summary of Reviewed Literature

The reviewed literature provides a great deal of empirical evidence that fiscal and financial policies contribute to the performance of the industry in Nigeria greatly. The aspects of Fiscal policy including government spending and taxation, and government

debt have resulted in divergent implications on short and long-term industrial growth. Industrial output is often supported with Government capital expenditure, to improve infrastructure and productive capacity (Bakare-Aremu and Osobase, 2015), and sometimes growth is reduced by recurrent expenditure and high tax rates (Akamo et al., 2025; Effiong et al., 2024). This emphasizes the necessity to have the resources of fiscal allocation highly managed and strategically allocated to accelerate the industrial development.

Fiscal policies that enhance access to credit and the establishment of financial markets supplement financial policies in stimulating industrial development. Credit to the industrial sector has been suggested to be more effective than general credit policy (Udeaja et al., 2021; Eduno, 2021). The monetary policy instruments are not associated with consistent effects, and interest rate shock and changes in money supply affect industrial production differently, which presupposes the significance of integrated monetary and financial policies (Ekong & Ekong, 2022; Akpunonu and Orajaka, 2021).

Fiscal and financial policies also interact with the broader macroeconomic environment on such factors as the labour market participation, inflation, and the level of investment in determining the performance of industries (Ogunjobi et al., 2025). On the whole, as it is observed in the literature, the coordination and integration of fiscal and financial policies, which must be customized to meet the needs of the industrial sector is the key to sustainable industrial growth and economic development in Nigeria. Building on these insights, the current study aims to explore the combined effects of fiscal and financial policies on Nigeria's industrial sector performance, offering evidence to guide more effective policy formulation.

3.5 Gaps in Literature

Despite the abundance of studies examining Fiscal policy, financial policy, and their effects on industrial performance in Nigeria, several gaps remain that this research intends to address.

Firstly, many empirical studies tend to focus separately on either Fiscal policy or monetary policy without adequately integrating financial policy, particularly financial depth, as an independent and influential factor. While fiscal measures such as government expenditure and taxation have been extensively analyzed (Akamo et al., 2025; Eze 2014), the role of financial depth, which captures the size and efficiency of financial institutions and markets, is often underexplored or only indirectly addressed (Oranefo & Ndum 2023; Eduno 2021). A more comprehensive analysis that explicitly incorporates financial depth alongside 1Fiscal policy is necessary to fully understand their combined impact on industrial growth.

Secondly, most existing research emphasizes short-term relationships using time series methods, with less focus on long-term structural dynamics and the sustainability of policy measures. For example, while some studies apply autoregressive distributed lag techniques and error correction models to investigate cointegration (Bakare-Aremu & Osobase 2015; Effiong et al., 2024), there is limited exploration of how persistent fiscal and financial policies influence industrial performance over extended periods, especially considering structural breaks or changes in the economic environment.

Thirdly, the industrial sector is often treated as a homogeneous entity without sufficient differentiation among its key subsectors such as manufacturing and solid minerals. The fiscal and financial needs as well as responses to policy interventions vary across these subsectors (Abimbola et al. 2024; Oladipo et al. 2023). Studies that disaggregate industrial performance offer more precise policy insights but remain few and far between.

Fourthly, while most studies rely on aggregate fiscal and financial variables, there is a lack of focus on qualitative aspects such as the efficiency of fiscal spending, quality of financial regulation, and institutional environment. These factors are critical in determining how policies translate into industrial growth but are often difficult to quantify and thus overlooked.

Finally, the dynamic relationship between fiscal and financial policies has not been sufficiently explored. Most research examines these policies in isolation rather than analyzing their joint effects and potential complementarities in driving industrial development. Understanding how fiscal and financial policies interact is essential for designing coordinated strategies that maximize industrial sector performance.

This study aims to fill these gaps by integrating 1Fiscal policy and financial depth measures, examining both short-term and long-term dynamics, disaggregating industrial sector performance where relevant, and considering policy efficiency within the prevailing economic context.

CHAPTER FOUR

THEORETICAL FRAMEWORK AND METHODOLOGY

4.1 Theoretical Framework

This study is guided by endogenous growth theory, with support from the neoclassical growth framework, to explain how fiscal and financial policies influence industrial performance in Nigeria in both the short run and the long run.

Endogenous growth theory emphasizes that long run economic growth is driven by policy induced improvements in capital accumulation, technological progress, and productivity. Government expenditure enhances industrial performance by reducing infrastructure bottlenecks, improving productive efficiency, and generating positive externalities. Financial policy, through credit to the private sector, facilitates capital formation, innovation, and industrial expansion. Macroeconomic stability, captured by inflation, influences the effectiveness of both fiscal and financial policies. Industrial performance is expressed as:

$IND_t = A_t K_t^{\alpha} L_t^{\beta}$

Where:

IND_t represents industrial performance

K_t represents capital stock

L_t represents labor input

A_t represents total factor productivity

Total factor productivity is assumed to be influenced by fiscal and financial policies and macroeconomic stability, such that:

$A_t = f(GEX_t, CPS_t, INF_t)$

Where:

GEX_t represents government expenditure

CPS_t represents credit to the private sector

INF_t represents inflation

Substituting into the production function gives:

$IND_t = f(GEX_t, CPS_t, INF_t)$

The estimable linear model is specified as:

$IND_t = \beta_0 + \beta_1 GEXt + \beta_2 CPS + \beta_3 INFt + \varepsilon_t$

Where:

β_0 is expected to be positive

β_1 is expected to be positive

β_2 is expected to be negative

ε_t is the error term

Relevance of the Theory to the Study

Endogenous growth theory is particularly relevant to this study because it provides a strong theoretical justification for examining the roles of fiscal and financial policies in shaping industrial performance in Nigeria. The theory emphasizes that long run growth is not solely determined by exogenous technological progress but can be influenced by deliberate government actions and institutional arrangements. This aligns directly with the study's focus on government expenditure and financial policy as key policy instruments affecting industrial output.

The theory explains how government expenditure enhances industrial performance by improving infrastructure, reducing production constraints, and generating productivity enhancing externalities. This provides a sound basis for including government expenditure as a core explanatory variable and for expecting a positive relationship between Fiscal policy and industrial performance.

Endogenous growth theory also underscores the importance of financial development in sustaining growth. By facilitating capital accumulation, innovation, and efficient resource allocation, financial depth supports industrial expansion and productivity improvement. This theoretical insight validates the inclusion of credit to the private sector as a proxy for financial policy and supports the expectation of a positive relationship between financial policy and industrial performance.

Furthermore, the theory accommodates both short run and long run dynamics, making it consistent with the ARDL methodology employed in this study. While Fiscal policy may influence industrial performance through demand stimulation in the short run, financial policy is expected to exert stronger long run effects by supporting sustained investment and innovation. This theoretical flexibility strengthens the analytical framework of the study.

Overall, endogenous growth theory provides a comprehensive and policy relevant framework for analyzing the impact of fiscal and financial policies on industrial performance in Nigeria, thereby ensuring coherence between the study's objectives, model specification, and empirical strategy.

4.2 Variables of the Study

The variables used in this study are operationalized based on the theoretical foundations outlined above. They include the dependent variable (industrial performance) and the explanatory variables (government expenditure, credit to private sector, and inflation). Their definitions, and measurements are presented in the table below.

Table 4.1: Description of Variables

Dependent Variable
Industrial Performance (IND)
Industrial performance represented by industrial output captures the productive capacity and technological advancement and the overall performance of the industrial sector, such as the production processes, and increased investment.
Explanatory Variables
Government Expenditure (GEX)
Government expenditure proxied for total government expenditure is a substitute indicator that captures the role of 1Fiscal policy intervention which is expected to stimulate industrial activities which in turn reflect the broader fiscal actions of government.
Credit to Private Sector (CPS)
Credit to private sector (e.g domestic credit to private sector) proxied for financial development measuring credit available to industries for investment which in turn increases industrial activities.
Inflation Rate (INFR)
Inflation rate proxied for consumer price index (CPI) captures macroeconomic instability that affects production cost and investment decisions.

4.3 Autoregressive Distributed Lag (ARDL) Model

The Autoregressive Distributed Lag (ARDL) model is adopted because it accommodates variables integrated at order I(0), I(1), or a combination of both, and performs well with limited sample sizes. The ARDL model allows simultaneous estimation of short-run and

long-run dynamics and provides a coherent framework for investigating the relationship between 1Fiscal policy, financial policy, and industrial performance.

Following the autoregressive distributed lag framework, the general ARDL model for examining the impact of fiscal and financial policies on industrial performance in Nigeria is specified as:

$$IND_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i IND_{t-i} + \sum_{j=0}^{q1} \beta_j GEX_{t-j} + \sum_{k=0}^{q2} \lambda_k CPS_{t-k} + \sum_{l=0}^{q3} \delta_l CPS_{t-l} + \varepsilon_t$$

Where:

IND_t represents industrial performance

GEX_t represents government expenditure

CPS_t represents credit to the private sector

INF_t represents inflation

p, q_1 , q_2 , q_3 represent optimal lag lengths

ε_t represents the error term

4.3.1 The Long-Run ARDL Model

The long-run relationship among the variables is expressed as follows:

$$IND_t = \beta_0 + \beta_1 GEXt + \beta_2 CPS_t + \beta_3 INF_t + \varepsilon_t$$

Where:

IND_t = industrial performance

GEX_t = government expenditure

CPS_t = credit to the private sector

INF_t = inflation

ε_t = error term

4.3.2 ARDL Bounds Test Equation

To test for cointegration, the ARDL bounds testing procedure is applied using the unrestricted error-correction version of the ARDL model:

$$\Delta IND_t = \alpha_0 + \alpha_1 IND_{t-1} + \alpha_2 GEX_{t-1} + \alpha_3 CPS_{t-1} + \alpha_4 INF_{t-1} + \sum_{i=1}^{p} \beta_i IND_{t-i} + \sum_{j=0}^{q1} \delta_i GEX_{t-J} + \sum_{k=0}^{q2} \gamma_i CPS_{t-K} + \sum_{m=0}^{q3} \varphi_i INF_{t-m} + \mu_t$$

In this formulation, the coefficients α_1 to α_4 test for the existence of a long-run relationship among the variables.

4.3.3 Short-Run ARDL Error Correction Representation

When cointegration is established, the short-run dynamics are captured using the error correction model (ECM):

$$\Delta IND_t = \theta_0 + \sum_{i=1}^{p} \theta_i IND_{t-i} + \sum_{j=0}^{q1} \lambda_j GEX_{t-J} + \sum_{k=0}^{q2} \psi_k CPS_{t-k} + \sum_{m=0}^{q3} \omega_m INF_{t-m} + \rho ECM_{t-1} + \eta_t$$

Here:

ECM_{t-1} represents the lagged error-correction term derived from the long-run equation.

The coefficient ρ measures the speed of adjustment toward long-run equilibrium, and is expected to be negative and statistically significant.

4.3.4 Interpretation

The ARDL approach therefore allows this study to capture:

Short-run effects of fiscal and financial policy shocks

Long-run equilibrium relationships among the variables

The speed at which deviations from long-run equilibrium are corrected

This makes ARDL a robust methodological choice for analysing how policy variables influence industrial performance.

4.4 Empirical Model Specification

The empirical model connects the theoretical framework with the variables defined earlier and specifies how industrial performance responds to fiscal and financial policies in

Nigeria. Industrial performance is included as the dependent variable because it reflects productive activity, capacity utilization, and the overall health of the industrial sector.

Government expenditure is included as an explanatory variable because Keynesian theory argues that public spending stimulates economic activity by increasing aggregate demand and providing essential infrastructure. Empirical studies confirm that productive government expenditure positively influences industrial growth. Thus, the expected effect of government expenditure on industrial performance is positive.

Credit to the private sector is included because the financial development theory links financial depth to improved investment and productive capacity. Empirical evidence also shows that increased credit availability enhances industrial output. Therefore, credit to the private sector is expected to exert a positive influence on industrial performance.

Inflation is included as a control variable because rises in the price level reduce purchasing power, raise production costs, and introduce uncertainty into investment decisions. Inflation is therefore expected to have a negative impact on industrial performance.

The empirical model is therefore stated as:

$IND_t = \beta_0 + \beta_1 GEXt + \beta_2 CPS_t + \beta_3 INF_t + \varepsilon_t$

Apriori Expectations

$\beta_0 > 0$, $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$.

4.5 Data and Econometric Methods

4.5.1 Data Sources

The study uses annual time-series data for the period 1980 to 2023. Industrial performance and government expenditure data were sourced from the National Bureau of Statistics (NBS), while data on credit to the private sector and inflation were obtained

from the World Development Indicators (WDI). These sources provide reliable and consistent data suitable for long-run economic analysis.

4.5.2 Econometric Methods

The analysis begins with unit root tests using the Augmented Dickey–Fuller and Phillips–Perron approaches to determine the order of integration of the variables. Based on these results, the ARDL bounds testing procedure is applied to determine whether a long-run relationship exists among the variables.

Once cointegration is established, the ARDL long-run and short-run equations are estimated, including the error correction term to capture adjustments toward equilibrium. Diagnostic tests for serial correlation, heteroscedasticity, normality, and stability (CUSUM and CUSUMSQ) are conducted to ensure the robustness of the estimated model.

CHAPTER FIVE

DATA PRESENTION AND DISCUSSION OF FINDINGS

5.1 Descriptive Statistics

This section provides a descriptive overview of the key variables used to examine the relationship between fiscal and financial policies and industrial performance in Nigeria. The industrial output (IND), expressed as a percentage of GDP, is used as a proxy for industrial performance. Government expenditure (GEX), measured in billions of naira, represents Fiscal policy, while credit to the private sector (CPS), also as a percentage of GDP, captures financial policy. Inflation rate (INF) is included a to account for macroeconomic conditions. The descriptive statistics for these variables over 43 observations are presented in Table 5.1 below.

Table 5.1: Descriptive Statistics

Statistic	**IND**	**GEX**	**CPS**	**INF**
Mean	29.75	3186.50	9.66	19.08
Median	29.36	1018.18	8.25	13.00
Maximum	39.25	19808.44	19.63	72.80
Minimum	18.17	9.64	4.96	5.40
Standard Deviation	5.16	4475.38	3.72	16.28
Skewness	-0.18	1.93	0.92	1.87
Kurtosis	2.25	6.60	3.16	5.46
Jarque-Bera	1.23	49.80	6.09	35.83
Probability (JB)	0.54	0.00	0.048	0.00
Sum	1279.18	137019.40	415.32	820.50
Sum of Squared Deviations	1120.22	841,000,000	582.66	11134.25
Observations	43	43	43	43

Source: Researcher's Computations (2025)

As shown in Table 5.1, industrial output (IND) has an average value of approximately 29.75 percent of GDP, indicating a moderate contribution of the industrial sector to national output. The standard deviation of 5.16 suggests some degree of variability, while the skewness of -0.18 points to a slightly left-tailed distribution. However, with a kurtosis of 2.25 and a Jarque-Bera probability of 0.54, the distribution does not significantly deviate from normality.

Government expenditure (GEX), the proxy for Fiscal policy, shows a markedly different pattern. The mean value stands at ₦3,186.50 billion, but the large standard deviation of ₦4,475.38 billion, coupled with a maximum value of ₦19,808.44 billion and a minimum of only ₦9.64 billion, highlights the presence of significant fiscal volatility. The positive skewness of 1.93 and high kurtosis value of 6.60 further support this observation. The Jarque-Bera statistic confirms nonnormality with a probability of 0.00, suggesting increased government spending over the observed period.

Credit to the private sector (CPS), representing financial policy, averages 9.66 percent of GDP with a relatively low standard deviation of 3.72. This implies a more stable trend in financial policy compared to Fiscal policy.

Inflation displays considerable volatility, with a mean of 19.08 percent and a wide range between a minimum of 5.40 percent and a maximum of 72.80 percent. The standard deviation of 16.28 confirms high variability in inflation rates. The distribution is positively skewed (1.87) and leptokurtic (kurtosis of 5.46), and the Jarque-Bera test statistic (probability of 0.00) confirms non-normality, pointing to persistent inflationary pressures in the economy.

5.2 Correlation Matrix

Before proceeding with the regression analysis, it is essential to examine the correlation between the main variables to identify any potential multicollinearity issues. Multicollinearity can distort the estimation results by inflating standard errors and making it difficult to assess the individual effect of predictors. Table 5.3 presents the correlation matrix among Government Expenditure (GEX), Credit to Private Sector (CPS), and Inflation (INF).

Table 5.3: Correlation Matrix of Key Variables

	GEX	**CPS**	**INF**
GEX	1.000	0.675	-0.167
CPS	0.675	1.000	-0.275
INF	-0.167	-0.275	1.000

Source: Researcher's Computations (2025)

The matrix reveals a moderate positive correlation between GEX and CPS (r = 0.675), indicating the possibility of multicollinearity. Conversely, Inflation (INF) shows weak negative correlations with both GEX and CPS, suggesting less concern for multicollinearity involving inflation in the model. However, a further test (Variance inflation factors test) will be carried out later to confirm the absence of multicollinearity problem.

5.3 Unit Root Test Results

To determine the stationarity properties of the series under study, the Augmented Dickey-Fuller (ADF) test was employed. The null hypothesis for the ADF test states that the series contains a unit root (non-stationary). The test was conducted with a constant term and an automatically selected lag length based on the Schwarz Information Criterion

(SIC). The critical values used are at the 5% significance level. Table 5.1 summarizes the results of the ADF tests for all variables in both levels and first differences.

Table 5.1: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	ADF Test Statistic	5% Critical Value	pvalue	Conclusion on Stationarity	Order of Integration
IND (level)	-1.667	-2.937	0.440	Non-stationary	I(1)
D(IND)	-6.213	-2.937	0.000	Stationary	
GEX (level)	9.651	-2.933	0.996	Non-stationary	I(1)
D(GEX)†	5.219	-3.540	0.027	Stationary	
CPS (level)	-1.285	-2.933	0.628	Non-stationary	I(1)
D(CPS)	-5.445	-2.939	0.000	Stationary	
INF (level)	-3.082	-2.933	0.036	Stationary	I(0)

Source: Researcher's Computations (2025)

As shown in Table 5.1, the variables IND, GEX, and CPS are non-stationary at their levels but become stationary after first differencing, indicating that they are integrated of order one, I(1). In contrast, INF is stationary at level, suggesting it is integrated of order zero, I(0). The presence of I(0) and I(1) variables confirms the suitability of the Autoregressive Distributed Lag (ARDL) approach for further analysis.

5.4 ARDL Bounds Test for Cointegration

The ARDL bounds test was employed to investigate the existence of a long-run relationship among the variables. The null hypothesis asserts that there is no levels

relationship (no cointegration). The test results, including the F-statistic and t-statistic, are compared against the 5% critical values for I(0) and I(1) bounds to make a decision.

Table 5.4: ARDL Bounds Test Statistics and 5% Critical Values

Statistic	Value	5% I(0)	5% I(1)
F-statistic	5.083	3.548	4.803
t-statistic	-3.861	-2.860	-3.780

Source: Researcher's Computations, 2025.

The results in Table 5.4 show that the F-statistic of 5.083 exceeds the upper bound critical value of 4.803 at the 5% significance level. This allows us to reject the null hypothesis of no cointegration, indicating the presence of a significant long-run relationship among the variables under study.

5.5 Cointegrating Relationship Specification

This section presents the long-run cointegrating relationship between industrial output (IND) and its determinants: government expenditure (GEX), credit to the private sector (CPS), and inflation (INF). Only variables significant at the 5% level are considered statistically meaningful in the long run.

Table 5.5: Cointegrating Coefficients and Statistics (Significant at 5%)

Variable	Coefficient	Std. Error	t-Statistic	Probability
GEX	0.000696	0.000339	2.054	0.0467
CPS	-1.315899	0.383812	-3.429	0.0014

Source: Researcher's Computations, 2025.

Table 5.5 shows that government expenditure (GEX) and credit to the private sector (CPS) have statistically significant long-run relationships with industrial output at the 5% level. Government expenditure has a positive effect, while credit to the private sector

exhibits a negative impact on industrial output. Inflation (INF) was excluded here as it was not significant at the 5% threshold (see appendix).

5.6 Short-Run ARDL Model Estimation Results for Industrial Output

The Autoregressive Distributed Lag (ARDL) model was estimated to analyze the short-run dynamics of industrial output (IND) in relation to government expenditure (GEX), credit to the private sector (CPS), and inflation (INF). The selected model, ARDL(1,0,0,0), was chosen based on the Akaike Information Criterion (AIC) using data spanning from 1982 to 2023.

Table 5.7: Short-run coefficients, standard errors, t-statistics, and p-values for the model variables.

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
IND(-1)	-0.3978	0.1030	-3.8613	0.0004
GEX	0.0003	0.0001	2.3361	0.0250
CPS	-0.5235	0.1743	-3.0029	0.0048

Source: Researcher's Estimation, 2025

As indicated in Table 5.7, the lagged dependent variable (IND) is statistically significant and negatively signed, confirming the adjustment toward long-run equilibrium. In the short run, government expenditure positively and significantly influences industrial output, while credit to the private sector exerts a significant negative effect at the 5% significance level.

5.8 Diagnostic Test Results for the ARDL Model

Before discussing the ARDL model results, it is essential to verify the validity of the model through diagnostic tests. These tests assess issues such as multicollinearity, serial correlation, heteroscedasticity, and model specification. The results of these diagnostic

checks are summarized in Table 5.8, while Figures 5.2 and 5.3 present the CUSUM and CUSUM of squares

tests for parameter stability.

Diagnostic Test	**Statistic**	**pvalue**	**Result**
Variance Inflation Factor (VIF)	Centered VIF < 5	—	No multicollinearity
Breusch-Godfrey Serial Correlation LM Test	F-statistic: 0.399	0.532	No serial correlation
Breusch-Pagan-Godfrey Heteroscedasticity Test	F-statistic: 0.407	0.802	Homoscedasticity confirmed
Ramsey RESET Test	F-statistic: 0.233	0.632	No model misspecification

Source: Researcher's computations, 2025

As shown in Table 5.8, the centered Variance Inflation Factors for all variables are below the critical threshold of 5, indicating no multicollinearity issues among the regressors. The BreuschGodfrey test confirms the absence of serial correlation in the residuals (p = 0.532), while the Breusch-Pagan-Godfrey test indicates homoscedasticity (p = 0.802), satisfying assumptions of constant variance of errors. Additionally, the Ramsey RESET test fails to reject the null hypothesis of correct model specification (p = 0.632), suggesting the model is appropriately specified. The normality of the residuals from the ARDL model was assessed using the JarqueBera (JB) test. The result, as shown in Figure 5.2, indicates a JB statistic of 1.233 with a corresponding p-value of 0.540. Since the p-value exceeds the 5 percent significance level, the null hypothesis of normally distributed residuals cannot be rejected. This suggests that the residuals are approximately normally

distributed, satisfying one of the key assumptions of classical regression analysis. Furthermore, the CUSUM and CUSUM of squares plots (Figures 5.3 and 5.4) show that the blue lines remain within the critical bounds (red lines), confirming the stability of the model parameters over the sample period. These diagnostic results validate the robustness of the ARDL model and support the reliability of the estimated coefficients.

Figure 5.2: Normality Test (see appendix)

Figure 5.3: CUSUM Plot (see appendix)

Figure 5.4: CUSUM of Squares Plot (see appendix)

5.9 Discussion of Findings: Test of Hypotheses

This section discusses the empirical findings of the study in relation to the stated hypotheses and situates the results within the context of existing theoretical and empirical literature. The discussion draws on evidence from the short run and long run estimates of the ARDL model, the bounds test for cointegration, and the long run cointegrating equation. Emphasis is placed on understanding how fiscal and financial policies influence industrial performance in Nigeria, both independently and jointly, in line with the objectives of the study.

Hypothesis One

Fiscal policy has no significant impact on industrial performance in Nigeria

The short run results from the ARDL estimation indicate that government expenditure exerts a positive and statistically significant influence on industrial performance at the five percent level. This finding suggests that increases in public spending immediately stimulate industrial activity, possibly through higher aggregate demand, improved capacity utilization, and enhanced provision of public goods that support production. In the Nigerian context, government spending on infrastructure, energy, transport, and industrial

support services appears to reduce operational bottlenecks faced by industrial firms, thereby improving output performance in the short run.

In the long run, government expenditure retains a positive and statistically significant coefficient, indicating that Fiscal policy has a sustained impact on industrial performance. This result implies that beyond short term demand stimulation, consistent public investment contributes to the expansion of productive capacity and long term industrial growth. The persistence of this effect supports the predictions of endogenous growth theory, which posits that government intervention through productive expenditure can generate lasting productivity gains and growth enhancing externalities.

Given the statistical significance of government expenditure in both the short run and long run, the null hypothesis is rejected. The findings are consistent with empirical studies such as Bakare Aremu and Osobase (2015) and Olawale (2024), who document the growth enhancing role of public expenditure in Nigeria's industrial sector, particularly through infrastructural development. Although this study does not disaggregate government expenditure into capital and recurrent components, the results underscore the importance of effective fiscal planning, efficient public spending, and prudent resource allocation in stimulating industrial development.

Hypothesis Two

Financial policy, as measured by financial depth, has no significant effect on industrial performance in Nigeria

The short run results reveal that credit to the private sector exerts a negative and statistically significant effect on industrial performance at the five percent level. This outcome is counterintuitive, as conventional financial development theory predicts that increased access to credit should support investment, innovation, and industrial expansion.

The negative short run effect suggests that credit expansion may not be immediately translated into productive industrial investment in Nigeria.

In the long run, credit to the private sector remains negative and statistically significant, indicating that financial depth has a persistent adverse effect on industrial performance. This leads to the rejection of the null hypothesis, as financial policy does exert a significant influence, albeit in a direction contrary to theoretical expectations. The result suggests that increased credit availability, in its current form, may not be effectively channeled to productive industrial activities.

This finding diverges from earlier studies by Udeaja, Akanni and Offum (2021) and Eduno (2021), who report a positive relationship between financial deepening and industrial growth. A plausible explanation for this discrepancy lies in the measurement of financial depth. This study uses aggregate credit to the private sector, which may obscure the sectoral allocation of credit. A substantial proportion of private sector credit in Nigeria may be directed toward consumption, trade, or speculative activities rather than manufacturing and industrial production.

Furthermore, structural challenges such as high lending rates, stringent collateral requirements, credit misallocation, and weak financial intermediation may undermine the effectiveness of financial policy in promoting industrial performance. These issues are well documented in studies by Ekong and Ekong (2022) and Akpunonu and Orajaka (2021), who emphasize that without deep structural reforms, financial expansion may fail to translate into real sector growth. The findings therefore highlight the need for targeted credit policies that prioritize industrial financing and strengthen the link between the financial sector and productive activities.

Hypothesis Three

The combined effect of fiscal and financial policies does not significantly influence industrial performance in Nigeria

The ARDL bounds test provides strong evidence of a long run relationship among industrial performance, government expenditure, credit to the private sector, and inflation. The computed F statistic exceeds the upper critical bound at the five percent significance level, confirming the existence of cointegration among the variables. This implies that Fiscal policy, financial policy, and industrial performance move together in the long run, despite short run fluctuations.

The estimated cointegrating equation further reveals that government expenditure and credit to the private sector remain statistically significant in the long run, while inflation is not significant at the five percent level. These results lead to the rejection of the third null hypothesis and demonstrate that fiscal and financial policies jointly exert a statistically significant influence on industrial performance in Nigeria over the long run.

The significance of the combined policy framework aligns with the broader empirical literature, which emphasizes the importance of policy coordination in fostering industrial development. Ogunjobi et al. (2025) argue that industrial performance is shaped not by isolated fiscal or financial measures, but by the interaction of multiple macroeconomic policies within a stable institutional and macroeconomic environment. The findings of this study reinforce this perspective by showing that fiscal and financial policies jointly determine industrial outcomes, even when their individual effects differ in magnitude and direction.

Additionally, the reliability of the empirical results is supported by diagnostic tests indicating the absence of serial correlation, heteroskedasticity, and model misspecification. The stability of the estimated parameters is further confirmed by the CUSUM and

CUSUM of squares tests, which show that the model remains stable over the sample period. These robustness checks enhance confidence in the validity of the estimated ARDL model and the conclusions drawn from the analysis.

5.10 Policy Implications

The findings of this study have several policy implications that are crucial for enhancing the effectiveness of fiscal and financial policies in promoting industrial performance in Nigeria. These implications are drawn from both the short-run and long-run relationships established between the variables, as well as the diagnostic and stability tests which validate the robustness of the model.

1. Enhancing the Productivity of Government Expenditure

The positive and significant impact of government expenditure on industrial performance, both in the short and long run, highlights the importance of public spending as a driver of industrial growth. Policymakers should prioritize productive forms of government expenditure, particularly capital spending on infrastructure, energy, transportation, and industrial support services. Recurrent expenditure should be efficiently managed to avoid crowding out capital projects. The strategic alignment of fiscal budgets with industrial development goals can help accelerate structural transformation and job creation within the industrial sector.

2. Improving the Targeting and Efficiency of Credit Allocation

The negative and significant relationship between credit to the private sector and industrial performance suggests inefficiencies in credit allocation, potential crowding-out effects, or misalignment of financial policies with industrial needs. This calls for a re-evaluation of financial sector strategies to ensure that credit flows are directed toward productive industrial ventures. Policies that encourage sector-specific lending, particularly to manufacturing and value-adding industries, should be pursued. In addition,

regulatory interventions may be necessary to reduce the cost of borrowing and enhance access to finance for small and medium-

scale industrial enterprises.

3. Promoting Coordinated Fiscal and Financial Policy Frameworks

The confirmation of a significant long-run relationship between fiscal and financial variables and industrial performance indicates the importance of integrated macroeconomic management. The government should adopt a coordinated policy approach where fiscal initiatives are supported by complementary financial sector reforms. This would involve harmonizing public investment programs with financial instruments that facilitate industrial financing, such as development banks, credit guarantee schemes, and targeted incentives for industrial credit expansion.

4. Strengthening Institutional and Regulatory Structures

The effectiveness of both fiscal and financial policies depends on strong institutional capacity, transparency, and accountability in policy implementation. Strengthening public financial management systems and enhancing regulatory oversight of the financial sector are critical for ensuring that fiscal and financial interventions yield the intended impact on industrial development. Institutional reforms should also aim at reducing bureaucratic bottlenecks that hinder private sector investment and access to public support.

5. Ensuring Macroeconomic Stability

The presence of inflation in the model, although not significant at the 5 percent level, points to its potential role as a moderating variable in industrial performance. Policymakers should ensure that inflation remains within manageable levels to preserve the real value of government spending and private sector investment. Stable macroeconomic conditions are essential for sustaining industrial growth and attracting long-term investment in the industrial sector.

In short, the results of this study advocate for a policy shift toward more strategic, efficient, and coordinated macroeconomic management. By aligning fiscal and financial policies with the specific needs of the industrial sector, Nigeria can foster a more robust and competitive industrial base, thereby advancing its broader development objectives.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings

This study investigated the effects of fiscal and financial policies on industrial performance in Nigeria between 1982 and 2023, using the Autoregressive Distributed Lag (ARDL) estimation technique. The analysis focused on key variables such as government expenditure, credit to the private sector, inflation, and industrial output.

The major findings are summarised as follows:

1. Government expenditure, as a proxy for 1Fiscal policy, had a positive and statistically significant effect on industrial performance in both the short run and long run. This suggests that increased public spending, particularly in capital projects, contributes meaningfully to industrial growth in Nigeria.
2. Credit to the private sector, representing financial policy, exhibited a negative and statistically significant impact on industrial performance. This indicates that the financial sector's support for industry has been suboptimal or misaligned with industrial sector needs.
3. Inflation had a positive but statistically insignificant effect on industrial performance, implying that inflationary changes did not consistently explain variations in industrial output during the study period.
4. The ARDL bounds test confirmed the presence of a long-run relationship among government expenditure, credit to the private sector, inflation, and industrial performance. This finding implies that fiscal and financial policies jointly influence industrial output over time.

6.2 Conclusion

The study concludes that both fiscal and financial policies significantly affect industrial performance in Nigeria, though their impacts vary in direction and significance. Government expenditure plays a constructive role in stimulating industrial growth, highlighting the importance of well-targeted fiscal interventions. In contrast, the negative effect of credit to the private sector suggests inefficiencies in credit allocation or structural constraints within the financial sector.

The confirmation of a long-run relationship among the key variables underscores the need for consistent and harmonised policy efforts aimed at industrial development. Overall, the findings reinforce the view that coordinated fiscal and financial strategies are crucial to improving the performance of Nigeria's industrial sector.

6.3 Recommendations

In light of the findings, the following policy recommendations are offered:

1. **Enhance the effectiveness of government expenditure**

Fiscal policy should prioritise capital expenditure that supports industrial infrastructure, such as power supply, transport systems, and industrial clusters. This will ensure that public spending yields tangible benefits for the industrial sector.

2. **Reform the credit delivery system**

Financial policy should be restructured to ensure that credit to the private sector effectively reaches industrial firms. This may include targeted industrial financing schemes, interest rate support mechanisms, and enhanced oversight to reduce diversion of funds.

3. **Promote inflation stability through coordinated policies**

Although inflation was not statistically significant in this study, it remains an important macroeconomic variable. Policymakers should continue to ensure a stable inflation environment that supports investment and industrial planning.

4. **Ensure long-term policy consistency and synergy**

Given the evidence of a long-run relationship among the variables, both fiscal and financial policies should be formulated with a long-term perspective. Greater coordination among monetary, fiscal, and industrial policy authorities is essential to achieve sustainable industrial growth.

REFERNCES

Abimbola, O., Adegoke, A., & Oladipo, J. (2024). Effects of Fiscal policy on Nigeria's solid minerals subsector development: An ARDL approach. *Journal of Economic Studies*, 41(2), 145–162.

Akamo, D. O., Oniore, J. O., & Aigbedion, M. I. (2025). Fiscal policy variables and manufacturing sector performance in Nigeria. *Advance journal of economics and marketing research, 10(9),47-66.*

Akpunonu, U., & Orajaka, U. P. (2021). Effect of monetary policy on industrial growth in Nigeria. *International Journal of Entrepreneurship and Business Innovation*, 4(1), 47–60.

Bakare-Aremu, T., & Osobase, A. (2015). Effects of fiscal and monetary policies on Nigeria's manufacturing sector performance. *International Journal of Economics and Finance*, 7(9), 45–56.

Dickey, D. A., and Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427-431.

Eduno, E. B. (2021). *Impact of Financial Sector on Manufacturing Sector Output in Nigeria.*
AKSU Journal of Social Sciences (AJSS), 1(2), 66- 79.

Effiong, U. E., & Essien, E. B. (2020). Revitalizing the industrial sector through Fiscal policy: Nigeria in focus. *International Journal of Management Studies, Business & Entrepreneurship Research*, 5(1), 58-80.

Effiong, U., Ukere, W., & Ekpe, I. (2024). Fiscal policy variables, interest rates, and manufacturing sector performance in Nigeria: Evidence from ARDL. *African Journal of Economic Review*, 32(1), 88–110.

Ekong, C. N., & Ekong, U. M. (2022). Monetary policy and industrial sector performance in Nigeria: Measuring the extended impact on the economy. *Journal of Applied Financial Econometrics*, 3(1), 97–131.

Engle, R. F., and Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica, 55*(2), 251-276.

Eze, O. R. (2014). Impact of Fiscal policy on the manufacturing sector output in Nigeria: An error correction analysis. *British Journal of Business and Management Research*, 1(2), 31–35.

Ighoroje, O., & Akpokerere, J. (2021). Fiscal policy and industrial output in Nigeria: A Johansen cointegration and ECM analysis. *Journal of Public Policy and Administration*, 36(4), 95– 110.

Imide, I. O. (2019). Empirical review of the impact of Fiscal policy on the manufacturing sector of the Nigerian economy (1980–2017). *Journal of Economics and Sustainable Development*, 10(2), 89–97.

Joshua-Gyang, J. (2024). Fiscal policy indicators and manufacturing output in Nigeria: An
ARDL approach. *Nigerian Journal of Finance and Economics*, 29(2), 120–136.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London:

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3-42.

Levine, R. (1997). Financial development and economic growth Views and agenda. *Journal of Economic Literature*, 35(2), 688-726.

Ogunjobi, J. O., Oluga, O. F., Oyeniyi, O. A., & Oladipo, O. A. (2025). Fiscal policy and the manufacturing sector performance: Effect on economic growth. *International Journal of Social Sciences and Management Research*, 11(1), 357–368.

Oladipo, A. O., Joshua, B. Y., Machi, I. O., Yusuf, A. M., & Afamefuna, M. E. (2023). Fiscal policy and industrial sector development in Nigeria. *Journal of Economics and Allied Research*, 8(4), 66–78.

Olasehinde T.J & Omolade. A (2022). Fiscal policy shocks and industrial sector growth in Nigeria. Fuoye Journal of Accounting and Management, 5(2), 182-195.

Olawale, O., & Onoshole, O. (2024). Impact of Fiscal policy on Nigeria's industrial sector: Evidence from dynamic OLS. *Nigerian Journal of Economic Policy*, 45(3), 77–94.

Oranefo, P. C. (2022). Effect of financial development on industrial production in Nigeria. *International Journal of Research in Education and Sustainable Development*, 2(12), 29-39.

Oranefo, P. C., & Ndum, N. B. (2023). Financial development and performance of industrial sector in Nigeria. *Advance Journal of Management and Social Sciences (AJMSS)*, 7(2), 1–8. Advance Scholars Publication.

Oruta, L. I. (2015). An appraisal of the impact of credit policy on industrial output in Nigeria. *International Journal of Social Sciences and Humanities Reviews*, 5(2), 80–85.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289-326.

Phillips, P. C. B., and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335-346.

Romer, P. M. (1986). Increasing returns and long run growth. *Journal of Political Economy*, 94(5), 1002-1037.

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), S71-S102.

Schumpeter, J. A. (1911). *The theory of economic development*. Harvard University Press.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65-94.

Udeaja, E. A., Akanni, E. O., & Offum, P. F. (2021). *Revisiting the finance and industrial growth nexus in Nigeria*. *CBN Economic and Financial Review*, 59(2), 1-22.

APPENDIX

Descriptive Statistics

	IND	GEX	CPS	INF
Mean	29.74831	3186.499	9.658579	19.08140
Median	29.36369	1018.178	8.248989	13.00000
Maximum	39.24509	19808.44	19.62560	72.80000
Minimum	18.17313	9.636500	4.957522	5.400000
Std. Dev.	5.164484	4475.380	3.724632	16.28192
Skewness	-0.181722	1.925273	0.918216	1.865518
Kurtosis	2.254129	6.601357	3.162532	5.464960
Jarque-Bera	1.233409	49.80202	6.089694	35.82736
Probability	0.539720	0.000000	0.047604	0.000000
Sum	1279.177	137019.4	415.3189	820.5000
Sum Sq. Dev.	1120.220	8.41E+08	582.6612	11134.25
Observations	43	43	43	43

Unit Root

@ Level

Null Hypothesis: IND has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.667093	0.4398
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IND)
Method: Least Squares
Date: 10/22/25 Time: 13:52
Sample (adjusted): 1984 2023
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND(-1)	-0.158012	0.094783	-1.667093	0.1042

D(IND(-1))	0.156779	0.154971	1.011667	0.3184
D(IND(-2))	-0.303681	0.150916	-2.012250	0.0517
C	4.549823	2.824539	1.610819	0.1160

R-squared	0.206450	Mean dependent var	-0.038351
Adjusted R-squared	0.140321	S.D. dependent var	2.987409
S.E. of regression	2.769892	Akaike info criterion	4.970133
Sum squared resid	276.2029	Schwarz criterion	5.139021
Log likelihood	-95.40267	Hannan-Quinn criter.	5.031198
F-statistic	3.121918	Durbin-Watson stat	1.877524
Prob(F-statistic)	0.037799		

Null Hypothesis: GEX has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		9.651271	0.9964
Test critical values:	1% level	-3.596616	
	5% level	-2.933158	
	10% level	-2.604867	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GEX)
Method: Least Squares
Date: 10/22/25 Time: 13:55
Sample (adjusted): 1982 2023
Included observations: 42 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEX(-1)	0.211955	0.021961	9.651271	0.3450
C	-120.1520	100.8364	-1.191553	0.2405

R-squared	0.699580	Mean dependent var	471.3577
Adjusted R-squared	0.692070	S.D. dependent var	935.1602
S.E. of regression	518.9341	Akaike info criterion	15.38788
Sum squared resid	10771705	Schwarz criterion	15.47063
Log likelihood	-321.1455	Hannan-Quinn criter.	15.41821
F-statistic	93.14703	Durbin-Watson stat	1.370634
Prob(F-statistic)	0.000000		

Null Hypothesis: CPS has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.284953	0.6278
Test critical values:	1% level	-3.596616	
	5% level	-2.933158	
	10% level	-2.604867	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CPS)
Method: Least Squares
Date: 10/22/25 Time: 13:58
Sample (adjusted): 1982 2023
Included observations: 42 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPS(-1)	-0.112669	0.087684	-1.284953	0.2062
C	1.347614	0.885628	1.521649	0.1360

R-squared	0.039641	Mean dependent var	0.280665
Adjusted R-squared	0.015632	S.D. dependent var	2.011926
S.E. of regression	1.996138	Akaike info criterion	4.266754
Sum squared resid	159.3827	Schwarz criterion	4.349500
Log likelihood	-87.60183	Hannan-Quinn criter.	4.297084
F-statistic	1.651105	Durbin-Watson stat	1.459411
Prob(F-statistic)	0.206200		

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.081555	0.0357
Test critical values:	1% level	-3.596616	
	5% level	-2.933158	
	10% level	-2.604867	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 10/22/25 Time: 14:01
Sample (adjusted): 1982 2023
Included observations: 42 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.

INF(-1)	-0.385022	0.124944	-3.081555	0.0037
C	7.388108	3.119461	2.368393	0.0228

R-squared	0.191854	Mean dependent var	0.092857
Adjusted R-squared	0.171650	S.D. dependent var	14.46465
S.E. of regression	13.16482	Akaike info criterion	8.039421
Sum squared resid	6932.497	Schwarz criterion	8.122167
Log likelihood	-166.8278	Hannan-Quinn criter.	8.069751
F-statistic	9.495980	Durbin-Watson stat	1.595871
Prob(F-statistic)	0.003718		

@ First Difference

Null Hypothesis: D(IND) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.212578	0.0000
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IND,2)
Method: Least Squares
Date: 10/22/25 Time: 13:53
Sample (adjusted): 1984 2023
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IND(-1))	-1.280210	0.206068	-6.212578	0.0000
D(IND(-1),2)	0.369056	0.149195	2.473647	0.0181
C	-0.101704	0.449511	-0.226255	0.8222

R-squared	0.542363	Mean dependent var	0.062490
Adjusted R-squared	0.517626	S.D. dependent var	4.082908
S.E. of regression	2.835707	Akaike info criterion	4.994498
Sum squared resid	297.5257	Schwarz criterion	5.121164
Log likelihood	-96.88997	Hannan-Quinn criter.	5.040297
F-statistic	21.92509	Durbin-Watson stat	1.914714
Prob(F-statistic)	0.000001		

Null Hypothesis: D(GEX) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 5 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		5.218640	0.0265
Test critical values:	1% level	-4.234972	
	5% level	-3.540328	
	10% level	-3.202445	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GEX,2)
Method: Least Squares
Date: 10/22/25 Time: 13:57
Sample (adjusted): 1988 2023
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GEX(-1))	2.699892	0.517355	5.218640	0.0000
D(GEX(-1),2)	-2.688830	0.508160	-5.291303	0.0000
D(GEX(-2),2)	-1.681964	0.457596	-3.675651	0.0010
D(GEX(-3),2)	-1.675947	0.454172	-3.690118	0.0010
D(GEX(-4),2)	-2.375855	0.517198	-4.593701	0.0001
D(GEX(-5),2)	-1.667554	0.393429	-4.238516	0.0002
C	373.1803	251.1156	1.486090	0.1484
@TREND("1981")	-34.60575	13.74631	-2.517458	0.0178

R-squared	0.599501	Mean dependent var	134.8998
Adjusted R-squared	0.499376	S.D. dependent var	651.6500
S.E. of regression	461.0735	Akaike info criterion	15.29812
Sum squared resid	5952484.	Schwarz criterion	15.65001
Log likelihood	-267.3662	Hannan-Quinn criter.	15.42094
F-statistic	5.987541	Durbin-Watson stat	2.198034
Prob(F-statistic)	0.000251		

Null Hypothesis: D(CPS) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.445201	0.0001
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CPS,2)
Method: Least Squares
Date: 10/22/25 Time: 14:00
Sample (adjusted): 1985 2023
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CPS(-1))	-1.419898	0.260761	-5.445201	0.0000
D(CPS(-1),2)	0.540695	0.202753	2.666767	0.0115
D(CPS(-2),2)	0.457811	0.167510	2.733030	0.0098
C	0.358632	0.308428	1.162772	0.2528

R-squared	0.503144	Mean dependent var	0.117311
Adjusted R-squared	0.460557	S.D. dependent var	2.595211
S.E. of regression	1.906100	Akaike info criterion	4.224910
Sum squared resid	127.1625	Schwarz criterion	4.395531
Log likelihood	-78.38574	Hannan-Quinn criter.	4.286127
F-statistic	11.81433	Durbin-Watson stat	1.849567
Prob(F-statistic)	0.000017		

Correlation Matrix

	GEX	CPS	INF
0.67498672650	GEX 1 79702	0.16676125058	85994
			-
	0.67498672650		0.27526334999
CPS	79702	1	17094
	-	-	
0.16676125058	0.27526334999		
INF	85994	17094	1

ARDL Static Model

Dependent Variable: IND
Method: ARDL
Date: 10/22/25 Time: 14:13
Sample: 1982 2023
Included observations: 42
Dependent lags: 1 (Automatic)
Automatic-lag linear regressors (1 max. lags): GEX CPS INF
Deterministics: Unrestricted constant and no trend (Case 3)
Model selection method: Akaike info criterion (AIC)
Number of models evaluated: 8
Selected model: ARDL(1,0,0,0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
IND(-1)	0.602171	0.103029	5.844683	0.0000
GEX	0.000277	0.000119	2.336078	0.0250
CPS	-0.523503	0.174332	-3.002903	0.0048
INF	0.043714	0.025529	1.712292	0.0952
C	15.01814	4.118356	3.646635	0.0008

R-squared	0.769446	Mean dependent var	29.52220
Adjusted R-squared	0.744522	S.D. dependent var	5.007028
S.E. of regression	2.530796	Akaike info criterion	4.806289
Sum squared resid	236.9824	Schwarz criterion	5.013154
Log likelihood	-95.93206	Hannan-Quinn criter.	4.882113
F-statistic	30.87080	Durbin-Watson stat	1.812576
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent test results do not account for model selection.

ARDL Bounds Test

Bounds test

Null hypothesis: No levels relationship
Number of cointegrating variables: 3
Trend type: Unrest. constant (Case 3)
Sample size: 42

Test Statistic	Value
F-statistic	5.083354
t-statistic	-3.861336

Bounds Critical Values

	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
			F-Statistic			
40	2.933	4.020	3.548	4.803	5.018	6.610
45	2.893	3.983	3.535	4.733	4.983	6.423
Asymptotic	2.720	3.770	3.230	4.350	4.290	5.610
t-Statistic						
Asymptotic	-2.570	-3.460	-2.860	-3.780	-3.430	-4.370

* I(0) and I(1) are respectively the stationary and non-stationary bounds.

ARDL Long Run

Cointegrating Specification

Deterministics: Unrest. constant (Case 3)

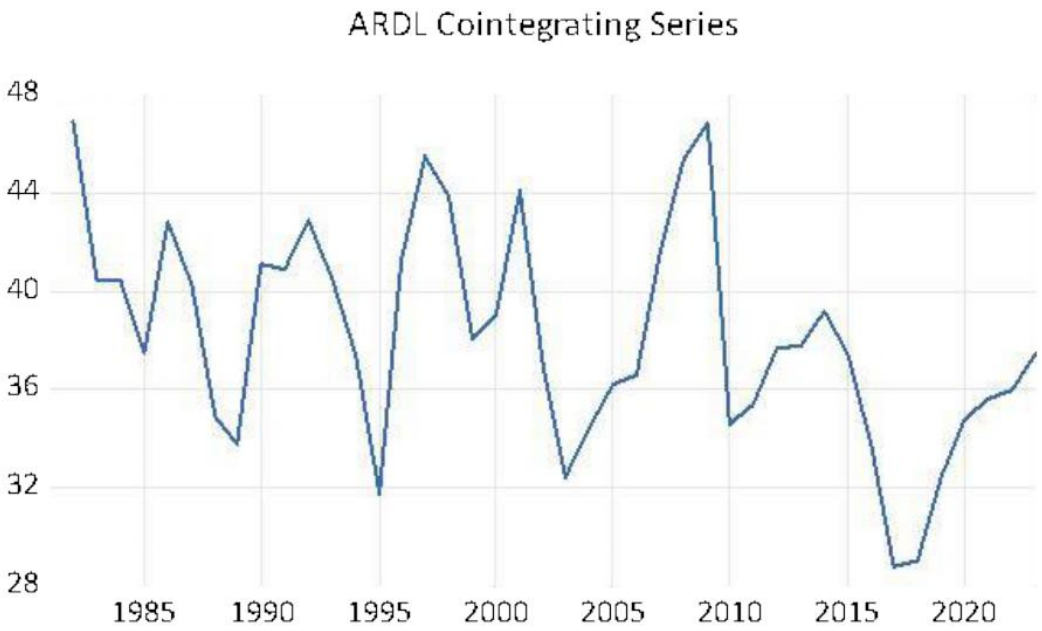
CE = IND(-1) - (0.000696*GEX - 1.315899*CPS + 0.109880*INF)

Cointegrating Coefficients

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
GEX	0.000696	0.000339	2.054332	0.0467
CPS	-1.315899	0.383812	-3.428504	0.0014
INF	0.109880	0.064545	1.702384	0.0966

Note: * Coefficients derived from the CEC regression.

Cointegrating Series



Short Run Results (Conditional Error Correction)

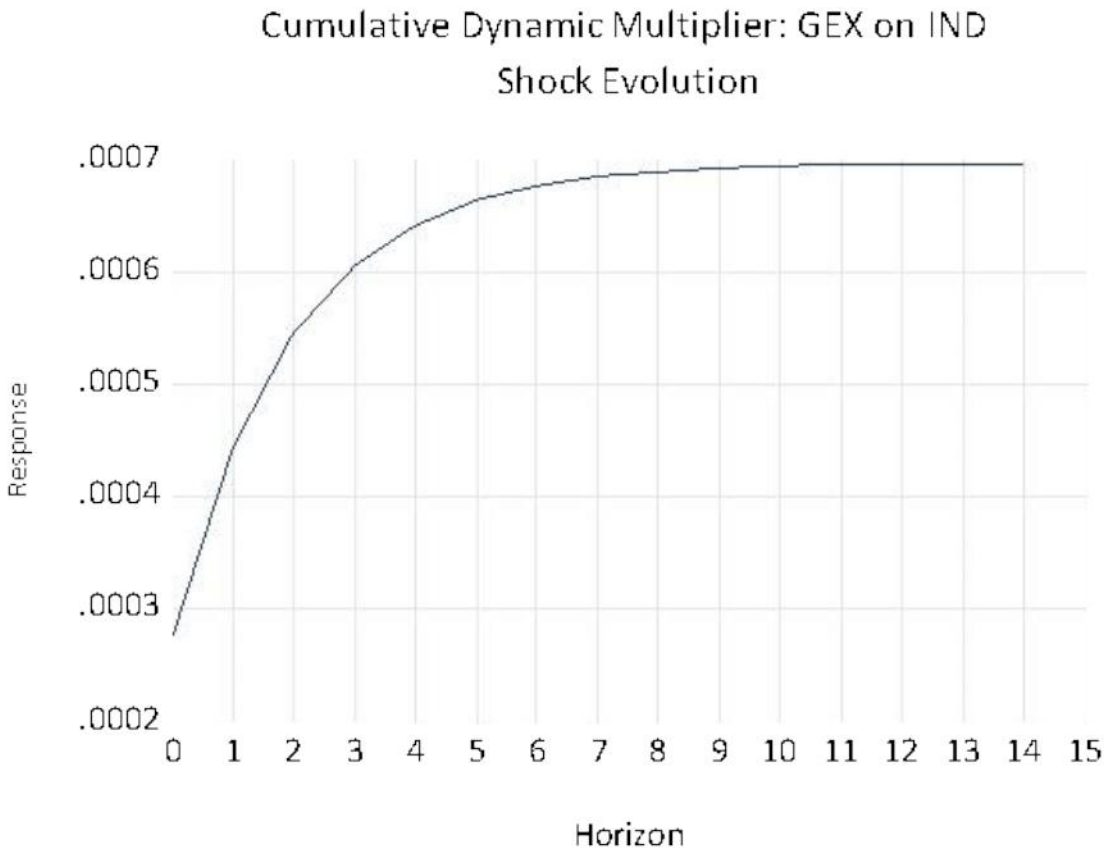
Dependent Variable: D(IND)
Method: ARDL
Date: 10/22/25 Time: 14:18
Sample: 1982 2023
Included observations: 42
Dependent lags: 1 (Automatic)
Automatic-lag linear regressors (1 max. lags): GEX CPS INF
Deterministics: Unrestricted constant and no trend (Case 3)
Model selection method: Akaike info criterion (AIC)
Number of models evaluated: 8
Selected model: ARDL(1,0,0,0)

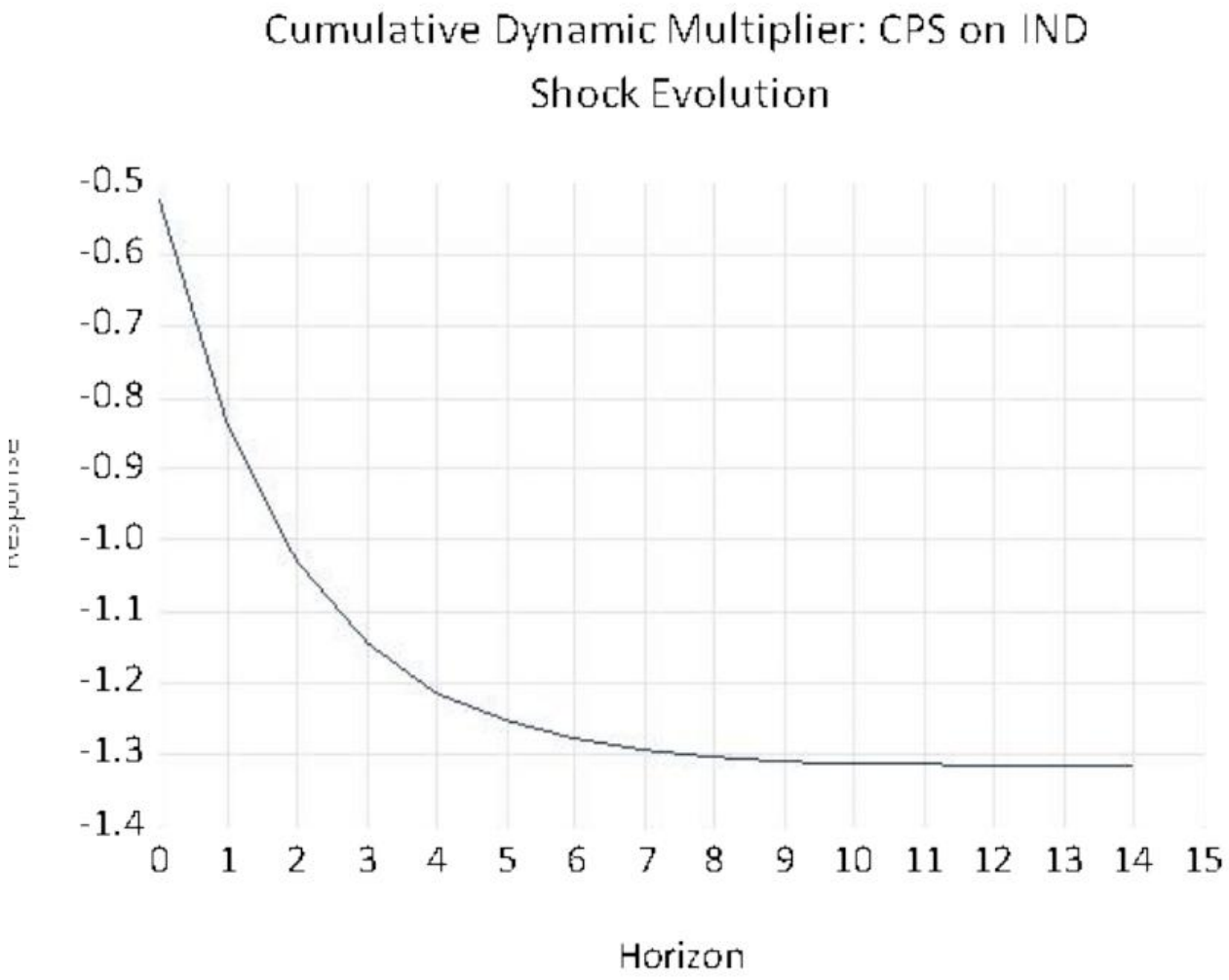
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND(-1)*	-0.397829	0.103029	-3.861336	0.0004
GEX**	0.000277	0.000119	2.336078	0.0250
CPS**	-0.523503	0.174332	-3.002903	0.0048
INF**	0.043714	0.025529	1.712292	0.0952
C	15.01814	4.118356	3.646635	0.0008

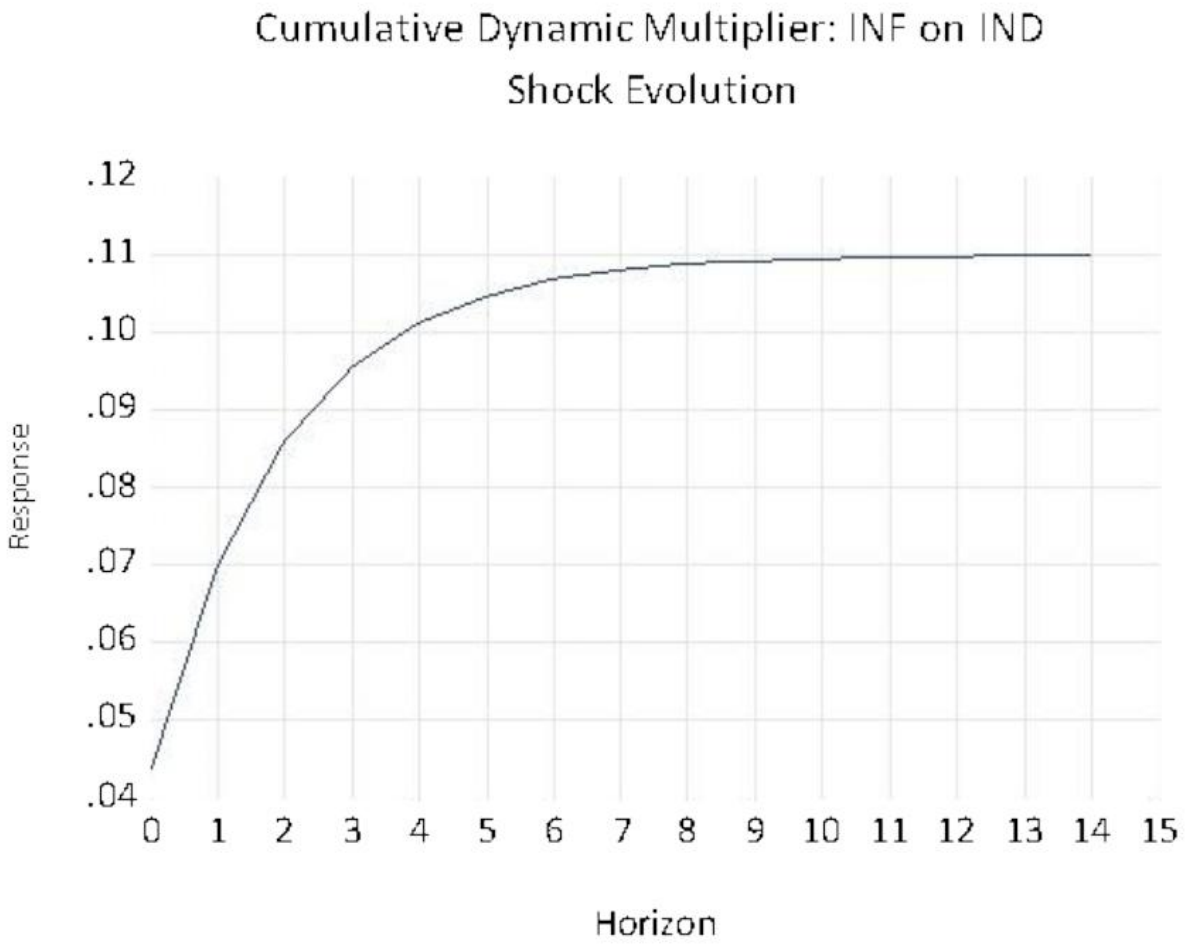
R-squared	0.354652	Mean dependent var	-0.158588
Adjusted R-squared	0.284885	S.D. dependent var	2.992741
S.E. of regression	2.530796	Akaike info criterion	4.806289
Sum squared resid	236.9824	Schwarz criterion	5.013154
Log likelihood	-95.93206	Hannan-Quinn criter.	4.882113
F-statistic	5.083354	Durbin-Watson stat	1.812576
Prob(F-statistic)	0.002290		

* p-values are incompatible with t-bounds distribution.
** Zero-lag variable.

Dynamic Multiplier Graphs




Cumulative Dynamic Multiplier: CPS on IND
Shock Evolution
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Horizon

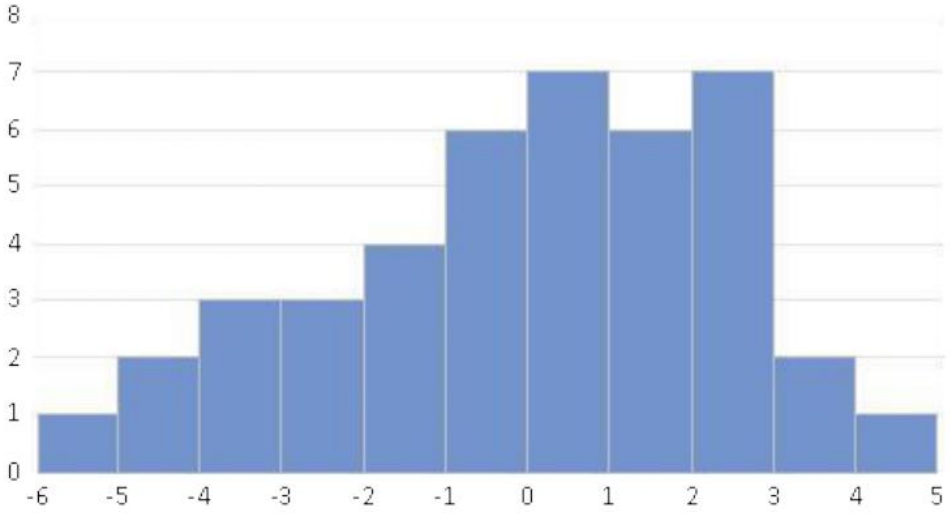

Cumulative Dynamic Multiplier: INF on IND
Shock Evolution
.12
.11
.10
.09
.08
.07
.06
.05
.04
Response
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Horizon

Multicollinearity Test (VIF)

Variance Inflation Factors
Date: 10/22/25 Time: 14:30
Sample: 1981 2023
Included observations: 42

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
IND(-1)	0.010615	63.16308	1.842902
GEX	1.40E-08	2.802500	1.822300
CPS	0.030392	21.63930	2.692510
INF	0.000652	2.682096	1.132678
C	16.96085	111.2199	NA

Normality Test (Histogram)



Series: Residuals
Sample 1982 2023
Observations 42

Mean	-1.61e-15
Median	0.250222
Maximum	4.945544
Minimum	-5.618084
Std. Dev.	2.404175
Skewness	-0.363894
Kurtosis	2.581942
Jarque-Bera	1.232786
Probability	0.539888

Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 1 lag

F-statistic	0.398750	Obs*R-squared	0.460112
Prob. F(1,36)	0.5317	Prob. Chi-Square(1)	0.4976

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 10/22/25 Time: 14:33
Sample (adjusted): 1982 2023
Included observations: 42 after adjustments
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND(-1)	-0.043399	0.124554	-0.348436	0.7295
GEX	5.49E-06	0.000120	0.045793	0.9637
CPS	-0.034302	0.183969	-0.186456	0.8531
INF	0.002629	0.026074	0.100818	0.9203
C	1.559699	4.831329	0.322830	0.7487
RESID(-1)	0.126788	0.200784	0.631466	0.5317

R-squared	0.010955	Mean dependent var	-1.61E-15
Adjusted R-squared	-0.126412	S.D. dependent var	2.404175
S.E. of regression	2.551613	Akaike info criterion	4.842892
Sum squared resid	234.3863	Schwarz criterion	5.091131
Log likelihood	-95.70074	Hannan-Quinn criter.	4.933881
F-statistic	0.079750	Durbin-Watson stat	1.901687
Prob(F-statistic)	0.994969		

Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.407422	Prob. F(4,37)	0.8021
Obs*R-squared	1.771872	Prob. Chi-Square(4)	0.7776
Scaled explained SS	1.087671	Prob. Chi-Square(4)	0.8962

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 10/22/25 Time: 14:35
Sample (adjusted): 1982 2023
Included observations: 42 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.311585	12.04184	0.441094	0.6617
IND(-1)	-0.021858	0.301251	-0.072557	0.9425
GEX	-0.000431	0.000347	-1.243117	0.2216
CPS	0.254653	0.509738	0.499576	0.6203
INF	-0.005149	0.074646	-0.068984	0.9454

R-squared	0.042187	Mean dependent var	5.642438
Adjusted R-squared	-0.061360	S.D. dependent var	7.182817
S.E. of regression	7.399904	Akaike info criterion	6.952155
Sum squared resid	2026.068	Schwarz criterion	7.159020
Log likelihood	-140.9952	Hannan-Quinn criter.	7.027979
F-statistic	0.407422	Durbin-Watson stat	2.137047
Prob(F-statistic)	0.802092		

Model Specification Test (Ramsey RESET Test)

Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: IND IND(-1) GEX CPS INF C

			Df	
			36	
Value	Probability	t-statistic	0.482663	0.6323 F-statistic
	0.232964	(1, 36)	0.6323	
Likelihood ratio		0.270915	1	0.6027

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	1.523703	1	1.523703
Restricted SSR	236.982437		6.404930
Unrestricted SSR	235.458736		6.540520

LR test summary:
Value

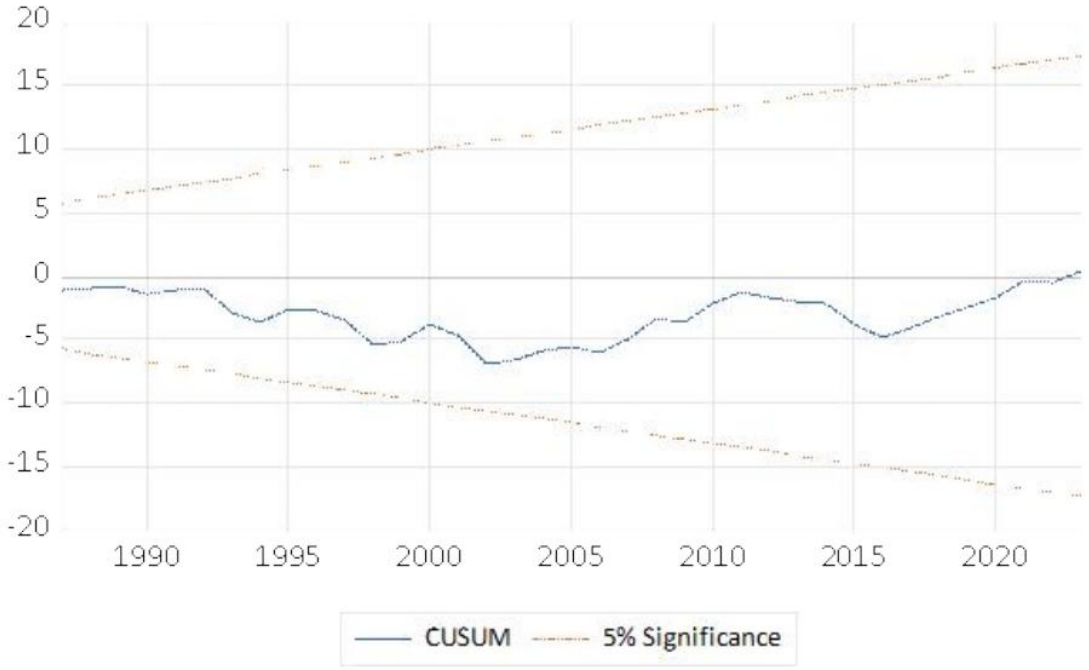
Restricted LogL	-95.93206
Unrestricted LogL	-95.79660

Unrestricted Test Equation:
Dependent Variable: IND
Method: Least Squares
Date: 10/22/25 Time: 14:36
Sample (adjusted): 1982 2023
Included observations: 42 after adjustments

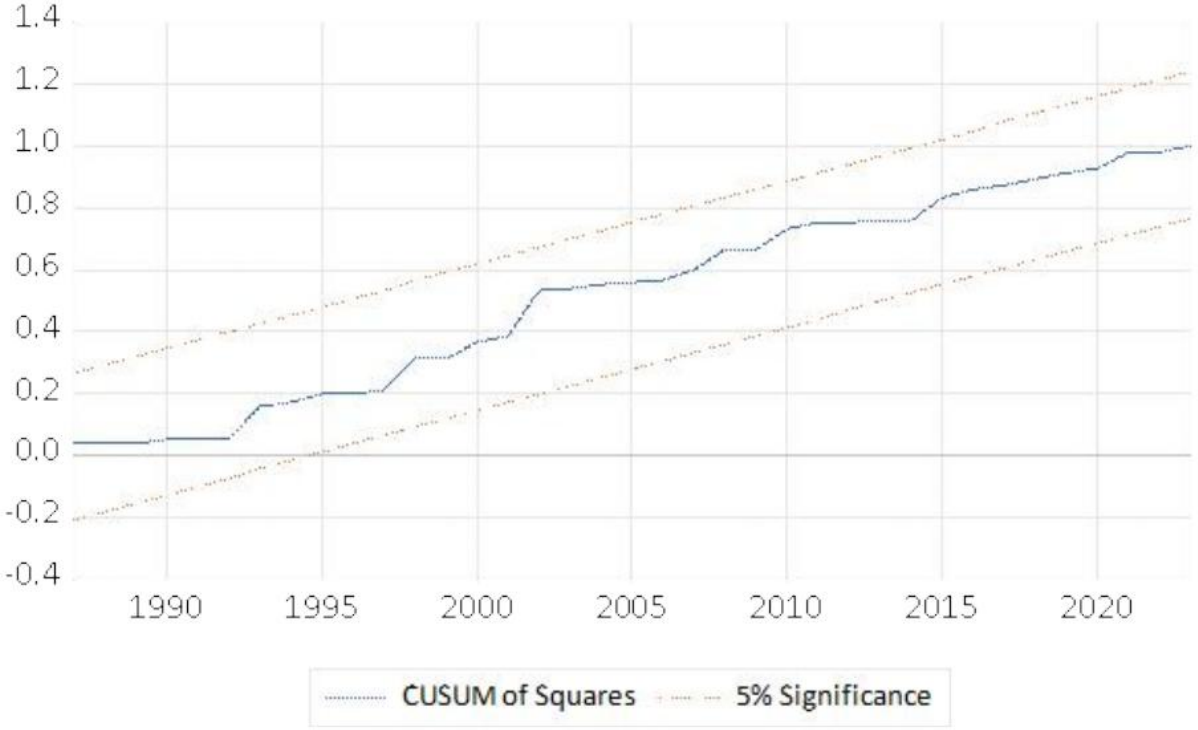
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IND(-1)	0.114732	1.015247	0.113009	0.9107
GEX	9.55E-05	0.000394	0.242229	0.8100
CPS	-0.170204	0.752879	-0.226071	0.8224
INF	0.003863	0.086502	0.044653	0.9646
C	15.22453	4.183629	3.639072	0.0009
FITTED^2	0.013664	0.028311	0.482663	0.6323

R-squared	0.770929	Mean dependent var	29.52220
Adjusted R-squared	0.739113	S.D. dependent var	5.007028
S.E. of regression	2.557444	Akaike info criterion	4.847457
Sum squared resid	235.4587	Schwarz criterion	5.095696
Log likelihood	-95.79660	Hannan-Quinn criter.	4.938447
F-statistic	24.23125	Durbin-Watson stat	1.825886
Prob(F-statistic)	0.000000		

Stability Test (CUSUM)



Stability Test (CUSUM of Squares)



DATASET

YEAR	IND	GEX	CPS	INF
1981	39.24509	11.4	5.802075	20.8
1982	34.80921	11.9	6.450602	7.7
1983	34.11844	9.6	6.208623	23.2
1984	30.34592	9.9	6.266046	17.8
1985	33.4666	13.0	6.039751	7.4
1986	32.83078	16.2	7.574985	5.7
1987	32.8869	22.0	6.602986	11.3
1988	32.61487	27.7	6.066024	54.5
1989	35.39181	41.0	5.090333	50.5
1990	35.41033	60.3	4.957522	7.4
1991	36.96557	66.6	5.241096	13
1992	37.70961	92.8	8.234514	44.6
1993	33.17434	191.2	7.007718	57.2
1994	31.31839	160.9	8.037288	57
1995	36.54049	248.8	6.508711	72.8
1996	37.44548	337.2	6.174444	29.3
1997	35.24885	428.2	7.03059	8.5
1998	28.70244	487.1	7.619452	10
1999	29.36369	947.7	8.168808	6.6
2000	33.823	701.1	8.248989	6.9
2001	28.27627	1,018.0	9.880807	18.9
2002	23.04084	1,018.2	8.084343	12.9
2003	26.00241	1,226.0	8.909485	14
2004	28.39004	1,504.2	8.461664	15
2005	28.20158	1,919.7	8.435095	17.9
2006	25.75164	2,038.0	8.12036	8.2
2007	24.34472	2,450.9	13.79702	5.4
2008	24.71425	3,240.8	18.63301	11.6
2009	21.23676	3,453.0	19.6256	12.5
2010	25.31745	4,194.6	13.49074	13.7
2011	28.2778	4,712.1	11.04363	10.8
2012	27.07302	4,605.3	10.6047	12.2

2013	25.74232	5,185.3	11.53321	8.5
2014	24.64361	4,587.4	13.29701	8.1
2015	20.16078	4,988.9	13.07868	9
2016	18.17313	5,858.6	14.60804	15.7
2017	22.31512	6,456.7	12.85203	16.5
2018	25.73331	7,813.7	10.24658	12.1
2019	27.38254	9,712.2	11.15756	11.4
2020	28.22051	10,232.3	12.13185	13.3
2021	31.40753	12,164.1	13.44945	17
2022	30.77557	14,946.2	12.95747	18.9
2023	32.58441	19,808.4	17.59	24.7

Sources: World Development Indicators (WDI, 2025) and National Bureau of Statistics (NBS, 2025).