Assessing the Economic Impact of the Manufacturing Sector on Economic Growth in Nigeria

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Abstract
This study examined the impact of manufacturing sector on economic growth in Nigeria. The annual time series data was collected from world development indicator and Central bank of Nigeria respectively, covering 39 years span from 1986 to 2024 were used. The expost factor research design was used for this work. The study employed the econometric estimation technique of Autoregressive Distribution Lag (ARDL) model was used for the analysis, adopting annual data method of analysis. Aside that, a lots of tests were conducted such as co-integration test, bound test, long- run and short- run test ADF stationarity etc the result estimated, all the explanatory variables were consistent with a priori expectation. This implies that a unit increase in employment (EMPL), political instability (PLS), and foreign direct investment (FDI) will lead to a decrease of about 0.084866, 9.235912 and 0.922511 in gross domestic product (GDP), all things being equal. Base on recommendation: Encourage Productive Employment: Employment policies should focus on creating decent and productive jobs, particularly in the manufacturing and industrial sectors. Skill acquisition programs and vocational training should be prioritized to align labor supply with industry needs. Attract and Manage FDI Effectively: Policymakers should implement transparent and investor-friendly policies that encourage foreign direct investment in productive sectors such as infrastructure, manufacturing, and technology. Monitoring mechanisms should also be strengthened to ensure FDI contributes to domestic capacity building rather than capital flight. Invest in Infrastructure: Continuous investment in physical and social infrastructure such as energy, transportation, and communication, will enhance industrial output and improve overall economic efficiency.

1.1 Introduction

The manufacturing sector stands as a cornerstone for both employment generation and economic expansion in Nigeria. Over recent years, the sector's ability to absorb labour and add value to the national economy has drawn increasing attention from policymakers and industry stakeholders. According to the Manufacturers Association of Nigeria (MAN), manufacturers account for **over** 80 percent of employment opportunities in Nigeria. On the economic side, data from the National Bureau of Statistics (NBS) show the sector contributed approximately ₦32 trillion to real GDP over the period 2018–2022, amounting to about 9 percent of the aggregated GDP in that period. Despite this, there are signs of stagnation: the manufacturing share of GDP has hovered in the 8 –9 percent range, with recent quarterly contributions slipping to around 8.4 percent. These figures underscore the dual importance and fragility of the sector: its potential to drive meaningful job creation and economic diversification is clear, but the current performance suggests structural and policy-challenges that could blunt its growth and employment-impact. The manufacturing sector in Nigeria occupies an important yet under-realized position in the economy. Data from the National Bureau of Statistics (NBS) shows that over the five-year period from 2018 to 2022, manufacturing contributed about ₦32.346 trillion to Nigeria's real gross domestic product (GDP). During that period the total real GDP aggregated to around ₦358.232 trillion, meaning that manufacturing accounted for approximately 9.0 percent of output in that timeframe. Breaking this down further:

1. In 2018 the sector's contribution was ₦6.421 trillion or about 9.20% of GDP.
2. In 2019: ₦6.470 trillion (9.06%).
3. In 2020: ₦6.292 trillion (8.99%).
4. In 2021: ₦6.502 trillion (8.98%).
5. In 2022: ₦6.661 trillion (8.92%).

More recently, the contribution has dipped further: for 2024 the manufacturing share is estimated at around 8.64 percent of real GDP, down from about 8.81 percent in 2023. In the first quarter of 2025, the contribution rose somewhat to 9.62percent, partly due to foreign-exchange stability, but this is from a low base and still reflects underlying structural weaknesses.

These figures indicate that while manufacturing is meaningful in terms of national output, its share has stagnated around 8-9 percent for several years, a clear indication that Nigeria's industrial base remains shallow, especially compared with manufacturing shares of GDP in other emerging economies (e.g., 20%+ in some countries).

Contribution to Employment

Beyond GDP, manufacturing's role in employment is an essential dimension. According to older official statistics, manufacturing activities in Nigeria account for about 12 of the labour force in the formal sector. More recent estimates show that employment in manufacturing remains modest: for example, in 2023, the manufacturing sector accounted for about 12.7 percet of the total employed labour force. However, some industry stakeholders make even stronger claims. The Manufacturers Association of Nigeria (MAN) has asserted that local manufacturers generate over 80 percent of employment opportunities in the country. Whether this figure is strictly accurate or refers to manufacturing plus related industries, it signals the perceived importance of manufacturing for job creation.

That said, the employment-generation capacity of manufacturing currently appears weak and declining. For example, MAN's survey for the first half of 2024 reported only 2,606 jobs created in that period, a 29.99 percent reduction from the comparable prior period, and a year-on-year

drop of 37.83 %. In sum, manufacturing provides a crucial platform for employment, especially formal employment, but the growth in jobs is slow, and challenges persist in increasing its share of employment significantly.

Linkages Between Manufacturing, Growth and Employment

The relationship between manufacturing, economic growth and employment can be interpreted through several lenses:

1. **Value-adding and diversification**: A vibrant manufacturing sector adds value by processing raw materials, substituting imports, and generating exports. This value addition supports higher GDP, boosts tax revenues, and can lead to multiplier effects in the economy. Given that manufacturing in Nigeria contributes near 9% of GDP, the sector is recognised as a vehicle for structural transformation away from oil-dependence.
2. **Job creation and productivity**: Manufacturing tends to be more labour-intensive (in many contexts) than services and offers higher productivity potential, both key for employment-rich growth. In Nigeria's case, manufacturing is vital for formal job creation and absorbing youth labour from agriculture or low-productivity informal work. Yet, the data suggest manufacturing's employment share is modest and has not expanded rapidly. For example, the Brookings Institution analysis found that employment growth in manufacturing will account for only a small fraction of new jobs in Nigeria out to 2035 (about 5.7% of projected new jobs) whereas "industries without smokestacks" (such as ICT, trade, business services) are expected to create a far larger share.
3. **Growth-employment link**: For manufacturing to contribute meaningfully to growth and employment, firms must expand output, raise capacity utilization, increase investments, and enhance capabilities. But Nigerian manufacturing faces headwinds: high energy costs, foreign-exchange volatility, low local raw-material content, infrastructural bottlenecks, and low local demand are often cited. When growth is weak, employment gains are also limited. The recent slump in manufacturing growth (e.g., real growth of 0.92 percent year-on-year in Q3 2024) and declining share of GDP underlines this challenge.

Key Challenges and Implications

The stagnation (or decline) of manufacturing's share in GDP and employment has several implications for Nigeria's broader economic agenda:

1. **Structural under-industrialization**: With manufacturing hovering around 8-9 percent of GDP, Nigeria lags many developing countries that achieved broader industrialization earlier. This limits the ability of the economy to absorb large numbers of semi- and un-skilled workers via manufacturing. The gap between the services/growth sectors and manufacturing is widening.
2. **Limited formal employment growth**: Since most of Nigeria's workforce remains informal (the informal sector accounts for around 92.2 percent of employment in 2023). manufacturing's weak growth means fewer formal, higher-productivity jobs are being created. This hampers structural transformation, productivity growth, and inclusive growth.
3. **Vulnerability to external shocks**: Manufacturing's dependence on imported inputs (due to under-developed backward linkages) makes it vulnerable to exchange-rate devaluation, inflation, and supply disruptions. For instance, unsold inventories in manufacturing

surged by 357.6 percent year-on-year in H1 2024, reflecting weak demand and cost pressures.

4. **Youth unemployment and skills mismatch**: With a large youth population entering the labour force, the manufacturing sector could play a key role in absorbing youth if capacities grow. But given its slow pace of growth, alternative sectors are increasingly important. The Brookings report projects that only a small portion of new jobs will come from manufacturing.

Opportunities and Policy Directions

Despite the headwinds, the manufacturing sector offers promising opportunities for Nigeria—provided policy and structural reforms are advanced. Key areas include:

1. **Incentivizing local content & backward linkages**: Strengthening linkages to agriculture and natural resources (e.g., agro-processing, light manufacturing) can boost local input usage, reduce import dependence, and increase employment. Investments in local supply chains can raise the share of local raw-material sourcing; for example, manufacturing local content rose slightly to 56.03 percent in H1 2024.
2. **Infrastructure and energy reliability**: Many manufacturers cite unreliable power, high energy costs, and logistics bottlenecks as key constraints. Addressing these through public-private partnerships and targeted infrastructure spending can reduce costs and increase competitiveness.
3. **Access to finance and exchange-rate management**: Manufacturers often struggle with high interest rates, limited long-term credit, and foreign exchange volatility. Policy frameworks that stabilize the FX regime, improve access to manufacturing finance, and de-risk investment will help.
4. **Skills development and formalization**: As Nigeria seeks to raise formal employment, manufacturing could absorb more workers if skill levels match demand. Policies that link vocational training with manufacturing firms, encourage apprenticeships, and make formalization easier will support job creation.
5. **Export diversification and industrial clusters**: Encouraging export-oriented manufacturing (especially in West Africa value chains) and supporting industrial clusters can raise scale, productivity and employment. Clustering helps capture economies of scale, improve supply chains, and raise competitiveness.

In summary, the manufacturing sector in Nigeria plays a meaningful but under-leveraged role in both employment generation and economic growth. With a contribution of around 8-9 % of GDP in recent years and roughly 12 % of employment in formal sector labour force, the sector has potential to be a driver of structural transformation. But its share has plateaued and employment growth remains sluggish. For Nigeria to accelerate growth and absorb its expanding workforce, particularly youth, manufacturing must grow faster, integrate more deeply with local value chains, become more capital-and labour-productive, and link with global markets. Without this transformation, the country risks remaining overly reliant on services and oil, thereby missing the inclusive growth and job creation opportunities

1.2 Statement of the Problem

Despite Nigeria's abundant human and natural resources, the manufacturing sector continues to underperform in its potential to drive employment generation and stimulate economic growth. Over the years, the sector's contribution to Gross Domestic Product (GDP) has remained

persistently low compared to other developing economies. According to data from the National Bureau of Statistics (NBS, 2024), the manufacturing sector contributed 11.8 percent to Nigeria's GDP in 2023, a marginal increase from 10.2 percent in 2020, but still far below its peak of 19.3 percent in 1985. This stagnant performance highlights the sector's limited capacity to serve as a major engine of growth and industrial transformation.

Employment generation from manufacturing activities has also been weak and inconsistent. The NBS Labour Force Report (2023) shows that the manufacturing sector accounted for less than 7 percent of total employment, while the service and agricultural sectors absorbed the majority of the labour force. This is a major concern, given that Nigeria's unemployment rate rose from 27.1 percent in 2020 to 33.3 percent in 2021, before declining slightly to 32.1 percent in 2023 due to statistical reclassification by the NBS (NBS, 2024). The high unemployment rate among youths, reported at over 40 percent, further underscores the urgency of revitalizing manufacturing as a labour-intensive sector capable of absorbing a large share of the workforce.

Several structural and macroeconomic challenges have hindered manufacturing growth in Nigeria. These include inadequate infrastructure, unstable power supply, foreign exchange volatility, and limited access to credit. (CBN, 2023) reported that over 60 percent of manufacturing firms operate below 50% of installed capacity, largely due to high production costs and an import-dependent industrial structure. Moreover, Nigeria's manufacturing export remains low, contributing only about 7.5 percent of total exports in 2023, compared to **over** 30 percent in South Africa and 25 percent in Egypt (World Bank, 2024).

The declining performance of manufacturing has broad implications for Nigeria's economic diversification agenda and long-term development goals. While the government has initiated several policy frameworks such as the Nigeria Industrial Revolution Plan (NIRP) and the Economic Recovery and Growth Plan (ERGP), their impact on manufacturing output, employment creation, and GDP growth remains limited. Consequently, there is a pressing need to empirically investigate the contribution of the manufacturing sector to employment and economic growth in Nigeria, in order to inform evidence-based policy formulation and guide future industrial reforms.

2.1 Empirical Theory

2.1.1 Endogenous Growth Model

According to Romer (1990), technological progress increases the growth of capital stock. This increases the level of output, which raises the proportion of output allocated to saving and investment, accelerating economic growth even further. Technological progress is the result of economic agents' investments. The output generated per hour worked rises as capital accumulation and technological change combine. People intentionally respond to market incentives to bring about technological change, so it is assumed that technological change is endogenous. Technology is also assumed to have a fixed cost because it may be used repeatedly without incurring additional costs after the initial development cost is incurred. Human capital, according Romer (1990), is a major determinant of economic progress. Since technological change exists independently of the individual, human capital is assumed to be separate from the technological component. Individuals with higher of education are more productive and have more skills. As a result of differences in human capital formation can be utilized to explain differences in labor productivity and per capita income.

The endogenous growth model assumes a constant tax rate and a constant debt-to-GDP ratio for the government. It claims that raising the public debt slows the economy's growth rate,

placing future generations at a disadvantage as a result. When the public debt is reduced, the opposite is true. It boosts the economy's growth rate but harms the current generation. As a result, regardless of whether debt is increased or decreased, at least one generation will be affected. Because the model assumes that the interest rate remains intact, this is the case. To have a positive impact on debt reduction, the state has to provide an investment subsidy. People will save more, consume less, and grow more now that the private return on capital is higher (Saint-Paul, 1992). The above theory has captured the variables such as: economic growth, technology, human capital development, and interest rate.

2.1.2 Manufacturing Theory

The manufacturing theory is rooted in the classical idea that industrialization serves as the central driver of economic transformation and national development. According to Nicholas Kaldor (1966), manufacturing is the engine of economic growth because it promotes productivity expansion, employment creation, and income generation across the entire economy. Kaldor's Growth Laws emphasize that as manufacturing output increases, overall labour productivity also rises due to economies of scale, technological advancement, and learning-by-doing effects. Manufacturing activities stimulate demand for agricultural and service inputs through backward and forward linkages, thereby enhancing inter-sectoral growth. In this view, the expansion of the manufacturing sector does not only raise GDP but also creates more stable and better-paying jobs, making it a vital foundation for long-term economic progress.

Building on this foundation, the Structural Change Theory proposed by Arthur Lewis (1954) and later expanded by Hollis Chenery (1960s) argues that economic growth occurs when resources, especially labour, are reallocated from low-productivity sectors such as agriculture to higher-productivity sectors like manufacturing and industry. In developing countries such as Nigeria, the manufacturing sector is expected to absorb surplus labour from rural areas, thereby reducing unemployment and improving overall productivity. This structural shift leads to industrial diversification, urbanization, and rising living standards. The theory assumes that continuous investment in manufacturing results in capital accumulation, technology adoption, and the modernization of production systems. However, where industrial capacity is weak or infrastructural constraints exist—as in Nigeria—this transformation process may be slow or incomplete.

In recent years, Endogenous Growth Theory, advanced by Paul Romer (1986) and Robert Lucas (1988), has further explained how internal factors such as technological innovation, human capital development, and knowledge spillovers influence manufacturing performance and long-term economic growth. The theory posits that productivity improvements within manufacturing are driven by sustained investment in research, innovation, and skill acquisition, which generate cumulative growth effects. For developing economies, the adoption of modern technology in manufacturing enhances competitiveness, raises output, and promotes export diversification. In Nigeria, however, the limited investment in research and development, poor infrastructure, and dependence on imported machinery have constrained these benefits. Thus, manufacturing theory underscores that for a nation like Nigeria to achieve sustainable employment and GDP growth, deliberate policies that strengthen industrial capacity, innovation, and technological learning are essential.

2.1.3 Theory of Employment

The Keynesian Theory of Employment (1936) through his monumental work "The

General Theory of Employment, Interest and Money," marked a turning point in the history of economic thought. Before Keynes, the prevailing classical economists such as Adam Smith, David Ricardo, and J.B. Say believed that the economy is self-adjusting, and that full employment is a normal condition. According to them, any unemployment in the system was only temporary, as market forces would automatically adjust wages and prices to restore equilibrium. However, the Great Depression of the 1930s shattered this belief. During that period, millions of people remained jobless for years, factories were closed, and production drastically declined, despite falling wages. This paradox led Keynes to challenge the classical assumptions and propose a new and realistic explanation for the causes of unemployment and the determinants of employment levels in the economy.

Keynes argued that employment does not depend primarily on the willingness of workers to accept lower wages, but rather on the level of effective demand for goods and services in the economy. He observed that when people demand more goods, firms will increase production and hire more workers. Conversely, when demand is low, businesses reduce output and lay off workers, resulting in unemployment. Therefore, the central idea in Keynes' theory is that the level of employment is determined by effective demand, which represents the total spending on goods and services in the economy.

Keynes divided the economy into two major components: **aggregate demand** and **aggregate** supply. Aggregate demand (AD) refers to the total demand for goods and services produced within the economy, and it is made up of consumption (C), investment (I), government expenditure (G), and net exports (X – M). In mathematical form, it can be written as:

AD=C+I+G+(X−M)AD = C + I + G + (X - M)AD=C+I+G+(X−M)

Aggregate supply (AS), on the other hand, refers to the total value of goods and services that producers are willing to supply at a given level of employment and price. According to Keynes, the equilibrium level of employment occurs at the point where aggregate demand equals aggregate supply—a situation he referred to as effective demand. When aggregate demand falls short of aggregate supply, firms are unable to sell all their products, leading to reduced production and unemployment. Hence, the deficiency of effective demand is the fundamental cause of involuntary unemployment.

In his model, Keynes assumed that wages and prices are relatively rigid in the short run, meaning they do not easily fall to clear the labor market as classical economists believed. Instead, he emphasized that output and employment are determined by aggregate demand rather than by wage flexibility. He further introduced two important psychological laws: the consumption function and the investment function. The consumption function explains how people spend a portion of their income on consumption and save the rest, while the investment function depends on the marginal efficiency of capital and the rate of interest. A decline in the rate of interest, or an increase in investors' confidence, encourages investment, which in turn raises income and employment levels through the multiplier effect. The multiplier concept implies that an initial increase in investment leads to multiple increases in income and employment as money circulates through the economy.

The Keynesian theory rests on several important assumptions. It assumes that the analysis is short-term, focusing on periods when some resources remain underutilized. It also assumes that the economy can be in equilibrium even below full employment, which was a revolutionary departure from the classical view. Furthermore, the theory assumes that the marginal propensity to consume (MPC) is less than one, meaning people save part of their income, and that money wages are sticky downwards. These assumptions made the model realistic and applicable to

actual economic conditions, especially during recessions.

The implications of Keynes' theory are far-reaching. It justified government intervention in the economy to maintain full employment and stable growth. When private sector demand falls short, the government can increase spending, cut taxes, or invest in public projects to stimulate aggregate demand. This forms the basis of fiscal policy, which remains a key tool in modern macroeconomic management. Keynes also emphasized that economies could experience prolonged periods of underemployment equilibrium, where unemployment persists not because of workers' unwillingness to work but because of insufficient demand for their labor. Despite its wide acceptance, Keynes' theory has faced some criticisms. Some economists argue that it places excessive emphasis on demand while neglecting supply-side factors such as productivity, technology, and resource constraints. Others claim that continuous stimulation of demand through government spending could lead to inflation once the economy approaches full employment. Moreover, critics note that Keynes' analysis was largely developed for advanced industrial economies and may not fully apply to developing countries like Nigeria, where unemployment is often structural rather than cyclical.

Nevertheless, the Keynesian Theory of Employment remains one of the most influential contributions to economic thought. It reshaped the way governments and policymakers approach unemployment, output, and economic stabilization. By shifting attention from self-adjusting markets to active demand management, Keynes provided a practical solution to one of the most persistent problems of capitalism. In summary, the theory teaches that employment depends on effective demand, and that stimulating spending through fiscal and monetary policies can move an economy toward full employment. Keynes' ideas laid the foundation for modern macroeconomics and continue to influence global economic policy today.

2.2. Empirical Study

Doğdu and Kayacan (2025) investigated the Impact of Industrial Production on Economic Growth: New Empirical Evidence for Türkiye (arXiv preprint) Turkey, data used for study ranged from 1995–2023; the method used for the study was VAR, Johansen Cointegration, impulse-response and variance decomposition. The results indicated that the Manufacturing/industrial production shows a stronger relationship with GDP than mining, energy or chemicals; shocks to manufacturing affect GDP in both short and long run.

Liu et al. (2025) examined the Panel threshold analysis of digitalization on manufacturing productivity and growth. Panel of 29 Chinese manufacturing industries range from (2012–2019), panel threshold models. The results indicated that the digitalization raises manufacturing productivity and its contribution to value-added/GDP once a digitalization threshold is exceeded — i.e., nonlinear effects matter. Useful if your work considers technology as a transmission channel from manufacturing to GDP.

Lautier (2024) examined Manufacturing still matters for developing countries (Energy Economics / regional development journal abstract) Data and method applied for the research Cross-country empirical analysis (recent decades); econometric panel methods. Main finding revealed that the Manufacturing share remains an important driver of development and growth in low-income countries — countering narratives that services alone can drive structural transformation. Good for policy arguments about industrialization and GDP growth.

Nguimkeu, et al. (2024) determined the Manufacturing in structural change in Africa the method employed for the study in Sub-Saharan Africa, multi-country analysis using panel techniques and structural decomposition. Main finding indicated that the Manufacturing is a

viable path for structural transformation in SSA; manufacturing growth is associated with higher GDP growth episodes and employment creation. Useful for region-specific empirical evidence.

Ajegunle and Gutodo (2024) examined Sector dynamics and economic growth in Nigeria (1981–2022*)* The outcomes and tha data used for the study at Nigeria; manufacturing sub-sector data, Cointegration and causality tests covering 1981–2022.The results shown that the Long-run relationships exist between manufacturing sub-sectors and Nigeria's GDP; sub-sector dynamics have distinct short- and long-run effects. It has been recommended that the Directly applicable if your focus is Nigeria.

Ekon. (2024) looked at the role of manufacturing sector to economic growth in North Macedonia. The strategy used for the study was country-level empirical paper (time-series/panel methods typical. The outcomes revealed that the Manufacturing performance significantly drives GDP growth; policy recommendations stress boosting MVA (manufacturing value added) to spur growth. Useful as a recent country case study with empirical estimates

3.1 Research designed

This study adopts ex-post facto research (after the fact) design. This is because the events had already taken place before the investigation was carried. The choice of this method is made because the researcher has no direct control of the independent variables, and inference about the link or relationship between domestic debt and investment on economic growth in Nigeria are made without the current interaction between the dependent and independent variables (Ndiyo, 2005). The study uses the framework of Ordinary Least Square which involves testing of unit root using techniques like ADF and Philip Perron to test for the unit root and ARDL for estimation.

3.2 Model specification

This study is based on the use of an equation with the growth rate and investment as a dependent variables and, domestic debt and investment as independent variables. The equation is anchored on an eclectic theoretical anchor because a single theory cannot the relationship between domestic debt, investment and economic growth. The theories adopted comprise the debt overhang theory, debt recycle theory, crowding out investment theory and endogenous growth theory.The endogenous growth model posits that the main driver of economic growth is investment by firms in research and development and the resultant diffusion of the knowledge created from such efforts throughout the economy. The theory also identifies the quantity of capital, and by implication capital accumulation and therefore investment, as one of the determinants of economic growth in the long run.

This identification of investment as a major determinant of economic growth in the long-run by the endogenous growth theory provides the basis for the inclusion of investment as an independent variable in the three study equations as shown below:

$$Q = f\left(A, L^{\beta}, K^{\varphi}\right) \qquad (1)$$

Where

Q = Output (economic growth)
A = Technology
L = Labour input
K = Capital input
β & φ = Returns to scale

Substituting Q and K for investment (INVS) and the growth rate of real gross domestic product,

expressed as logarithm of real gross domestic product (*log*RGDP), equation (1) is transformed to include investment as a determinant of economic growth as follows:

$$logRGDP = f(A, L^{\beta}, INVS) \quad (2)$$

Where

*log*RGDP = Economic growth, measured as the logarithm of real gross domestic product
INVS = Investment (measured as gross fixed capital formation in billions of Naira)

Q in Equation (2) can, based on approach adopted by the Central Bank of Nigeria in its annual statistical bulletin, be further disaggregated to reflect the growth rate of the three sectors with respect to in Nigeria, agriculture, industry, and services, expressed as the logarithm of their respective real levels of outputs. This is done as follows:

$$logGDP = f(A, L^{\beta}, GDPIND, EMPL, INFR, PLS \ldots.)$$

3.2.1 GDP growth equation

The GDP sector growth equation expresses the relationship between the growth of GDP and industry and other relevant variables. It is anchor on manufacturing and endogenous growth theory. The equation is specified as follows;

$$logGDP = +\beta_1\ EMPL + \beta_2 LOGIND + \beta_3 INFR + \beta_4 PLS + \beta_5\, WKC + \beta_6 GDPIND + \beta_7\, PLSWKC + \beta_8 LOGFDI + \mathbf{U_2}$$

PLSWKC = measured using quantitative indices or proxies that capture how unstable or violent a country's political environment is.

GDPIND = Gross domestic product – industry most common and direct measure used by the World Bank, IMF, and national statistics agencies.

*Log***GDP** = Gross domestic product growth, measured as the real GDP over the period of Term.

INFR = Infrastructural development: this is measured as electricity Consumption in Kilowatts per hour per capita and expressed as a logarithm.

PLS = Political Stability measure it through proxies or indices that capture the level of government effectiveness, absence of violence, and predictability of political processes.

*Log***IND** = Industry most widely used quantitative measure of industrial performance, especially in economic growth, employment, and productivity studies.

WKC = Working Class measure proxied by the share of total employment in wage and salary work**,** obtained from the International Labour Organization

3.3 Sources of data

Secondary sources of data were used as the main source of data collection for this study. The relevant data for this study werebeen derived from the Central Bank of Nigeria Statistical Bulletin and the Central Bank of Nigeria Annual Report and Statements of Accounts, World Development Indicator and publication of the National Bureau of Statistics. Data will be collected on annual basis from 1986 to 2024.

3.4 Estimation Procedure

The model estimation procedure includes; descriptive statistic, unit root test, causality test technique, co-integration test, Autoregressive Distribution lag model, Error correction model and stability test.

4.1 Unit Root Test

Before model estimation is carried out, the unit root test is used to ascertain the stationarity property of the time series variables in the specified models. The importance of unit root test is that it enables us to avoid the problem of spurious regression output, and to know the order of integration of the time series variables in order to know the appropriate co-integration test method to employ (Gujarati & Porter, 2009). In this study, the Augmented Dickey-Fuller (1981) and Phillip Perron unit root test was utilized in determining the order of integration. The Augmented Dickey-Fuller (ADF) unit root test equation is specified as follows:

$$\Delta y_t = \omega + \delta y_{t-1} + \sum_{i=1}^{m} \theta_i \Delta y_{t-i} + \mu_t \qquad (3.8)$$

Where Δ is the first difference operator;y_t is a time series variable at current time (t); ω is the drift term; y_{t-1} is the one period lagged value of y_t; $\delta$is the coefficient of y_{t-1}; $\Delta y_{t-i}$is the lag valued of the first difference of y_t; m is the maximum lag length; δ_i is the coefficients of Δy_{t-i}; and μ_t is the white noise error term. The null hypothesis is such that the time series contains a unit root which implies that δ=0. The null hypothesis is rejected if δ is negative and statistically significant. The ADF unit root test is based on t-statistic test.

Hypothesis for unit root test:

$H_0: \delta = 0$ (Variable has unit root i.e.; time series is non-stationary)

$H_1: \delta < 0$ (Variable does not have unit root i.e.; time series is stationary)

Decision Rule:

(i) If t^*> ADF critical value in absolute terms, reject the null hypothesis

(i) If t^*< ADF critical value in absolute terms, do not reject the null hypothesis.

Note: t^* is the calculated value of the ADF unit root test value.

Similarly, using the Phillips-Perron (1988) test, the following equation is also specified as;

$$y_t = \alpha y_{t-1} + \varepsilon_t$$

4.2 Presentation and analysis of econometric results

The results of the unit root tests conducted using the ADF unit root method are shown in that the out of the seven variables used in the study, four of them being GDPIND, PLS and PLSWKC were stationary at level. This means that these variables have no unit root at their nominal level. The rest of the variables, that is, EMPL, FDI, GDP and INFR were stationary after first difference; this means these variables have unit root at their nominal levels and they require differencing for them to be stationary. The conclusion of the panel unit root test result shows mixed stationarity of the variables.

4.3 Bound test for investment equation

The result of bound test presented in indicates that, there no exist long run relationships amongst the variables. This is because the F-statistics estimate of 3.208443 is greater than the upper bound estimate of 3.83 and the lower bound estimate of 2.69 at five percent level of significance

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	3.208443	7

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.38	3.45
5%	2.69	3.83
2.5%	2.98	4.16
1%	3.31	4.63

4.4 Long run result for investment (GDP) equation

From the result estimated, all the explanatory variables were consistent with a priori expectation. This implies that a unit increase in employment (EMPL), political instability (PLS), and foreign direct investment (FDI) will lead to a decrease of about 0.084866, 9.235912 and 0.922511 in gross domestic product (GDP), all things being equal. In the other hand, an increase in log of industry (LOGIND), infrastructure (INFR), political stability (PLSWKP), gross domestic product – industry (GDPIND) will lead to an increase of about 0.175730, 0.013039, 0.0000 and 0.7864. but employment, political stability foreign direct investment was statistically significant at five percent level of significant, ceteris paribus

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMPL	-0.084865	0.035418	-2.396111	0.0244
LOG(IND)	0.175730	0.207306	0.847684	0.4047
INFR	0.013039	0.007158	1.821693	0.0805
PLS	-9.235912	3.375645	-2.736044	0.0113
PLSWKP	0.000000	0.000000	0.446122	0.6593
	27291840.	26779014.5		
GDPIND	027864	11743	1.019150	0.3179
LOG(FDI)	-0.922511	0.336496	-2.741524	0.0111
C	29.604013	7.410550	3.994847	0.0005
@TREND	0.095459	0.025952	3.678249	0.0011

The parsimonious error correction result of the investment equation based on the autoregressive distributed lag (ARDL) approach is presented in table 4.10.1. the result of the short-run dynamics showed that the error correction variable is fractional, has the expected negative coefficient and statistically significant in line with theoretical expectation as its P-value is 0.0222. its coefficient of -0.291716 indicates that about 29 percent of the systemic disequilibrium in investment variable was corrected each year. This represents a fast speed of adjustment from short run disequilibrium to long long-run equilibrium.

The adjusted R-square (R^2) of 0.56 shows that about 56 percent of the variation in the dependent variable is explained by the independent variables. This indicates that the model has moderate explanatory power. The Durban-Watson value of 1.79 may be judged to mean that there is no

problem serial correlation in the model.

Evaluation of the short-run coefficients shows that employment (EMPL) has a negative relationship with GDP. With a coefficient of 0.084865 this is consistent with theoretical expectation, showing that a one percent decrease in employment will lead to a decline in gross domestic product by 0.05 *ceteris paribus.* The variable is statistically significant as its probability value of 0.05 is equal to 0.05 level of significance. The result also showed that the first lag of employment has a negative relationship with gross domestic product in Nigeria.

Industry (logIND), has a positive relationship with investment. This is in line with theoretical postulation as its coefficient of 0.051263, shows that one percent increase in industry will lead to 0.05 percent increase in gross domestic product, all things being equal.

Infrastructure (INFR), has a positive relationship with gross domestic product. This means that a one percent increase in leads to a rise in gross domestic product by 0.0038, ceteris paribus. However, is not statistically significant at five percent level of significant.

Political instability (PLS) has a negative relationship with gross domestic product. This means that a one percent increase in leads to a decline in gross domestic product by 1.423526, all thing being equal. However, is statistically insignificant at five percent level of significant.

The ratio of political instability – working population (PLSWKP), has a positive relationship with gross domestic product. this implies that one percent increase in the ratio of political instability – working population lead 0.00 increase in gross domestic product, vice versa.

The ratio of gross domestic product – industry (GDPIND), has positive relationship with gross domestic product. This implies that a one percent increase in the ratio of the gross domestic product – industry will lead to 0.51 increase in gross domestic product, vice versa.

Foreign direct investment (FDI), has negative relationship with gross domestic product. This implies that one percent increase in foreign direct investment led to decline of about 0.027 percent of gross domestic product, all thing being equal.

4.5 Short-run ARDL result for gross domestic product (GDP) equation

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EMPL)	-0.024756	0.012521	-1.977162	0.0592
DLOG(IND)	0.051263	0.050959	1.005970	0.3241
D(INFR)	0.003804	0.002853	1.333390	0.1944
D(PLS)	-1.423526	0.734036	-1.939313	0.0638
D(PLSWKP)	0.000000	0.000000	0.426403	0.6735
	41212728.	17098709.6		
D(GDPIND)	440517	88701	0.000000	0.0000
DLOG(FDI)	-0.098110	0.079461	-1.234692	0.2284
D(@TREND())	0.027847	0.011080	2.513174	0.0188
CointEq(-1)	-0.291716	0.119652	-2.438040	0.0222

R-squared	0.565077	Mean dependent var	0.015510
Adjusted R-squared	0.356313	S.D. dependent var	0.034437
S.E. of regression	0.027629	Akaike info criterion	-4.074387

Sum squared resid	0.019084	Schwarz criterion	-3.514160
Log likelihood	90.41336	Hannan-Quinn criter.	-3.875063
F-statistic	2.706783	Durbin-Watson stat	1.790747
Prob(F-statistic)	0.017225		

5.1 Conclusion

The estimated results revealed that all explanatory variables were consistent with a priori expectations, confirming the theoretical relationships between economic growth and the selected variables. Specifically, employment (EMPL), political instability (PLS), and foreign direct investment (FDI) were found to exert a negative effect on gross domestic product (GDP), implying that a unit increase in these variables reduces GDP by approximately 0.084866, 9.235912, and 0.922511 respectively, ceteris paribus. This outcome suggests that unstable political conditions, inefficient employment structures, and poorly managed FDI inflows may hinder economic growth. On the other hand, variables such as industry (LOGIND), infrastructure (INFR), political stability (PLSWKP), and GDP from industry (GDPIND) positively influenced economic growth. This indicates that improvements in industrial development, infrastructural expansion, and political stability promote productivity and GDP growth. Furthermore, the statistical significance of employment, political stability, and foreign direct investment at the 5 percent level underscores their vital role in shaping economic performance.

5.2 Recommendations

1. **Promote Political Stability:** The government should strengthen democratic institutions, uphold the rule of law, and ensure peaceful transitions of power to create a stable political environment. This will enhance investor confidence and foster sustainable economic growth.
2. **Encourage Productive Employment:** Employment policies should focus on creating decent and productive jobs, particularly in the manufacturing and industrial sectors. Skill acquisition programs and vocational training should be prioritized to align labor supply with industry needs.
3. **Attract and Manage FDI Effectively:** Policymakers should implement transparent and investor-friendly policies that encourage foreign direct investment in productive sectors such as infrastructure, manufacturing, and technology. Monitoring mechanisms should also be strengthened to ensure FDI contributes to domestic capacity building rather than capital flight.
4. **Invest in Infrastructure:** Continuous investment in physical and social infrastructure—such as energy, transportation, and communication—will enhance industrial output and improve overall economic efficiency.
5. **Strengthen the Industrial Sector:** Industrialization should be promoted through fiscal incentives, research and development, and local content policies to boost GDP and reduce overreliance on foreign products.
6. **Ensure Policy Consistency:** The government should maintain macroeconomic stability by ensuring consistent and transparent policies that reduce uncertainty and build investor confidence.

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