Restructuring Industrial Sector and Economic Growth in Nigeria

Ibeaja, Uzoma. F. PhD[1], Amadi, Kevin T. PhD[2]

[1]Dept. of Accountancy, Federal Polytechnic Nekede,
Owerri, Imo State, Nigeria
[2]Dept. of Economics, Gregory University,
Uturu, Abia State, Nigeria

Abstract

This study investigated the effects of restructuring industrial sector on economic growth in Nigeria. The study sets to examine the effect of the manufacturing on economic growth in Nigeria, examine the impact of crude petroleum and natural gas on economic growth in Nigeria and investigate the effect of solid mineral mining on economic growth in Nigeria. The study adopted both primary and secondary source of data. The study employed Error Correction Model (ECM) and Auto Regressive Distributed Lag (ARDL) model for hypothesis testing. The findings of the study showed that Manufacturing (LnMAN) had a significant positive effect on economic growth in Nigeria. Crude petroleum and natural gas (LnCPN) had positive and significant impact on economic growth in Nigeria. Solid mineral mining (LnSMM) had an insignificant positive impact on economic growth in Nigeria. Therefore, the study concluded that restructuring industrial sector, if properly and adequately implemented, would certainly propel and facilitate economic growth, development and unity in Nigeria with positive multiplier effect on West African states and Africa as awhile. Hence, the study recommended that there is need for the government to develop stimulants for the manufacturing sector and manufacturers in form of tax incentives and credit facilities. A good road network to mining sites and a sufficient power supply will go a long way to boost the productivity of the sector. Government should encourage the production of more agricultural products that could be used as raw materials by manufacturing industries to achieve balanced growth between the agricultural and the manufacturing industries in Nigerian.

Key Notes: Restructuring, Manufacturing, Economic, Industrial, Growth

Introduction

The structure of the Nigerian economy is somewhat typical with the integers of an underdeveloped nation notwithstanding excess mineral and natural resources that the country is endowed with. With agriculture playing a crucial role, more than half of the gross domestic product (GDP) is accounted for by the primary sector. Particularly, in 2019, the oil and gas sector remains a prime mover of the economy of the nation, accounting for more than 95% of export earnings and about 70% of government revenue (Abdu & Anam 2018). Nevertheless, industrial sector provided about 9% of the GDP in 2020. On the other hand industrial sector (constituting manufacturing, mining, and utilities) provided only a 24.14% proportion of economic activity, with the nominal GDP of the manufacturing sector recording a 16.44% growth rate in 2020, which is lesser than the 34.73% rate in 2019. This development occurred despite various policies and actions undertaken over the years, in particular more lately, that have endeavored to stimulate the industrialization process.

As a result of Britain's insignificant effort to industrialize Nigeria during the colonial regime, the industrial sector of the nation was somewhat insignificant at independence in terms of its contribution to the GDP. The colonial trading firms and a few other multinational corporations established most of the earlier companies which concentrated on the production of soft industrial items such as leather works, detergents, soft drinks, textiles, and confectionaries. In 1952, the colonial administration enacted the "Aid to Pioneer Industries Ordinance", this was after the nationalist political pressure for independence supported by equal pressure for

economic independence. This introduced quite gracious tax concessions but in 1958 it was substituted by the Industrial Development Relief (Income Tax Relief), which lengthened the duration for laying claims for tax holidays and promoted the technique for completing pioneer certificates (Anyanwu, 2016).

The Nigerian economy witnessed admirable growth in the first decade of political independence. Between 1960's to70 the Real Gross Domestic Product (GDP) was 3.1% annual growth before it grew to 6.2% annually in 1970 - 1978. In early 1980s, the country suffered negativity in growth but this was overturned by the introduction of Structural Adjustment Programme (SAP) with real GDP annual growth of 4% in 1988 - 1997. Even with the discovery and exploitation of crude oil (NPC, 2004), Nigerian economy still recorded considerably poor growth rate. GDP grew by -1.62%, 1.81%, 1.92%, 2.21% and -1.79% in 2016, 2017, 2018, 2019 and 2020 respectively. Correspondingly, the real per capita income was -19.03%, -9.53%, 3.01%, 9.97%, and -5.95% in 2016, 2017, 2018, 2019, and 2020 respectively.

The dominance of the primary sector, agriculture, mining and quarrying (including crude oil and gas) constituted the structure of Nigerian GDP within the last five decades. At independence, the primary sector contributed about 70% of the GDP. This share, however, declined in subsequent years to about 62.10% and 55.68% in 1977 and 1990 respectively. However, in 1990, real gross domestic product stood at 267550million and increased to 8487032million in 1993. In 2004, it was estimated at 11411067 million. It increased by 3199815million from 2004 to 2005. Real gross domestic product was estimated at 24296329million in 2008 and increased to 40566273million in 2012. In 2013, it stood at 44971868 million. It increased by 11571675 million from 2013 to 2015 and decreasing increment is witnessed till 2020.

However, because of this backward development in GPD, external debt rose from US $ 4.1 billion in 1986 to $ 28 billion in 1999. Late 1980s and 1990s real gross domestic product (GDP) was less than 3% on the average. Between 1993 and 1999 GDP grew average of 2.5%, while the fiscal deficit/GDP ratio moved down from 15.4% in 1993 to 7.7% in 1994 and was 8.8% in 1999. Nevertheless in recent time, savings GDP ratio has been single digit and has continue to be in the decline for instance, savings ratio fell from 23.5% in 1991 to 13.7% in 1993 and was -15.2% in 1995, thus it averaged 0.7% between 1995 and 1998. More so, investment/GDP ratio has been single digit too from 1996 to 2003. From 2004 to 2008, the real GDP increased slowly with #316.4billion in aggregate savings. But from 2011 to 2012, the real GDP stagnated at #836.8billion with an aggregate savings of #653.1billion. Furthermore 2014 witnessed a better increase of N1009.22billion in real GDP with N12008.21billion in aggregate savings. GDP was 21.7% in 2015, down to 20.8% in 2016, 18.3% in 2019 and 17.4 in 2020 (CBN, 2020).

Notwithstanding, several industrial strategies and policies to actualize restructuring of industrial sector in Nigeria, amongst are; Import Substitution Industrialization (ISI), Export Promotion Strategy, and Foreign Private Investment-led Industrialization, as well as policy reforms such as Indigenization Policy, Structural Adjustment Programme (SAP) meant to address the macroeconomic problems of economic growth, unemployment, balance of payment, technical issues to mention but a few. Despite these aforementioned strategies cum attempts by the government, Nigerian industrial sector is still dwindling.

This discouraging scenario gave rise to the need to ascertain what could be responsible for this dismal performance of the sector. Could it be that the sector has no adequate funding, infrastructure, electricity n FOREX provision or other incentives? Hence, this research is concerned with an indebt study on the root cause of this ugly scenario.

The broad objective of this study is restructuring industrial sector and economic growth in Nigeria, while specific objectives are to;

Examine the effect of the manufacturing on economic growth in Nigeria.
Examine the impact of crude petroleum and natural gas on economic growth in Nigeria.
Investigate the effect of solid mineral mining on economic growth in Nigeria.

Conceptual Literature
Industrial Restructuring

Industrial restructuring, which is also known as industrial or structural adjustment, refers to the process by which segments of an economy respond to changes in comparative advantage.

Ediri (2021), restructuring is the act of reorganizing the legal, ownership, operational or other structures of an enterprise for the motive of making it more profitable or better organized for its current needs. Other motives for restructuring include a change of ownership or ownership structure, demerger, or a response to a crisis or vital change in the enterprise such as repositioning, bankruptcy, or buyout.

Restructuring is necessary when declining productivity, mounting losses or diminishing market shares suggest an actual or potential deterioration in international competitiveness or in the capacity to deliver expected products at a competitive quality and price. It encompasses all dimensions of structural change, comprising modifications in the relative size and efficiency of the industries; the start-up, closing, growth, or shrinkage of industries; and changes in product mix and technology. It involves the movement of resources— capital, labor and technology from one part of the economy to another and occasionally across nations (Nwogwugwu et al, 2021).

Offor, Amadi and Ibeaja (2022), restructuring can occur on an individual industry, enterprise, or industrial sector-wide level. Also, it can happen for various reasons. It may be "defensive," that is, in reaction to a risk already present, or it may be "positive," if the change is sought to build a dominant competitive position for the future.

Ajayi (2021), industrial restructuring is a system whereby an economy is designed to generate or grow wealth through machines and industries for the betterment of the aggregate population. It is also a strategic process whereby raw materials in transform into consumer goods, producer goods, and services with the aid of capital and as well as human resources.

Dutshime and Osele (2021), industrial restructuring is the period of social and economic change that transforms a human group into an industrial society from an agrarian society, encompassing the extensive manufacturing reorganization of an economy. He amplified that it requires several key elements to grow on a significant scale, which are land, labor, capital technologies and connections.

Amadi (2023), industrial restructuring is one of the bedrocks on which any developing economies like Nigeria survives. It brings about economic growth in any state. To grow on a significant scale, industrialization needs several key elements which are land, labour, capital, technology and connections. Without a generous supply of these basic elements and the ability to organize them, people/environment cannot develop into an industrial society

Ani and Udeh (2021), defined industrial restructure as the societal and economic process that transforms a human from an agrarian nature to an industrial nature. In their view, industries provoke changes in three ways: modernization, the development of large-scale energy, and metallurgy production. These characteristics are closely linked to economic growth. They also assert that industrialization brings with it the sociological process of rationalization.

Strategies of Restructuring in Nigeria
Given the urgent desire to restructure and the additional setbacks developing countries like Nigeria encounter, World Bank work yield some helpful lessons for developing nations as there is no globally universally accepted model for restructuring. Industrial restructuring strategies and programs must be founded on an in-depth knowledge of the fundamental causes and nature of the particular restructuring efforts (Chete et al, 2016).

Nwaru (2022), restructuring needs complementary rather than contradictory actions on the government's part, industry, labor unions, financial system and individual firms. Furthermore, a blend of self-reinforcing policy reforms, institutional changes and direct measures at the particular industry, organizational and/or national level is required to stimulate sustainable industrial restructuring.

Jelilov (2016), effective restructuring needs advancements not only in the physical plant installations but also alterations in the behavior and motivations of enterprises, managers, and workers. The exact blend of such measures relies so much on the nature of the restructuring, the economic and social system of the nation, and the capacity of individual companies to respond promptly to the altered policy environment.

Ahuja (2021), the role of government must be one of developing an appropriate policy and business environment that promotes restructuring. Rather than interfering in the decision-making process at the organizational level, governments must focus on eradicating policy distortions, facilitating efficient institutions, and strengthening market mechanisms. Direct restructuring measures should normally be inferred and implemented by individual organizations—public and private. Governments may, however, have a vital role in working with industry to develop and support the implementation of suitable restructuring strategies.

Challenges of Restructuring in Nigeria
It is my conviction that embracing the industrialization lessons of other nations that have succeeded despite all odds will assist in repositioning industrialization in Nigeria. It is expected that sufficient industrialization will go a long way to eliminate or alleviate unemployment, crimes/criminalities, poverty, death rate, social menace, hawking and incessant emigration in Nigeria.

Positive economists especially development economists acknowledge that inadequate capital and the leaders' selfishness do play substantial roles in developing countries' inability to industrialize. Industrialization comprises a lot of economic and social changes such as a tendency towards urbanization, an expanding body of wage earners, and increased technical and education advancement. This signifies large output production due to recent production techniques and improved use of societal resources, thereby giving rise to increased income, improved environment, and living standards (Abiodun & Ochuwa, 2020).

The fundamental pressures to restructure the industry in LDCs emanate from the same causes. First, changing tastes of consumers, market saturation in many commodities, and alterations in technology and the relative factors of production costs have drastically lessened demand globally for the major industrial commodities (Agba & Dum, 2016).

Also, the African economy has been incapable of attaining a rapid economic growth rate. And the pace of change in technology, design, and production techniques has hastened tremendously; increasingly product life cycles are shorter and, because of improved efficiency, manufacturing costs are declining. Again, as a result of these huge changes, technological development, product design, marketing, and distribution—rather than manufacturing itself—account for an increasing proportion of a product's value (Loto & Musa, 2018).

Insufficient capital and inadequate industries to harness endowed resources have in several paths been a stumbling block for growth and progress in Nigeria. This predicament compel the former CBN Governor; Lamido Sanusi Lamido to lament that nations such as Thailand, Malaysia, India, and Indonesia were not closer to Nigeria in per capita gross domestic product in the 1970s, but are now extremely far ahead of Nigeria (Sanusi, 2011). He further noticed that the main factors contributing to the fall and poor performance of the Nigerian economy are political instability, economic mismanagement, lack of focus and visionary leadership, and corruption amongst others.

Investments in Nigeria are frequently hindered by corrupt practices. The barriers confronting investors in Nigeria concerning getting application files are observed to except one gives kickback (Konyeaso, 2016). The industrialization saga of Ajaokuta Steel Company Limited built as the major iron base, and other steel rolling mills at Jos, Aladja, Katsina, and Oshogbo have severe problems. The worst is Ajaokuta, which is largely due to corruption, incompetence, absence of foresight, and instability of policies at the federal government level (Ogunmuyiwa & Adelowokan 2018).

Another observed problem is that of inability to grow in developing nations emanating from defective economic and socio-political institutional setup, low entrepreneurial skill, technological backwardness,

defective attitude towards work, utter lack of basic and heavy industries, and inadequate water and power supply, amongst others. This situation operates in diverse means to perpetuate the vicious circle of poverty (Uchechukwu & Ibiok, 2015).

Furthermore, in Africa, the above reasons have been worsened by additional external and internal factors. The debt crisis and unfavorable terms of trade for vital products, combined with stagnant domestic growth and restricted potential for further import substitution, have put enormous pressure on developing nations to expand their manufactured exports. For most, this will mean restructuring their industries to make them more internationally competitive (Okonkwo, 2020).

Nzotta (2021), several internal factors in developing nations compound these pressures. Market distortions and constraints induced by past government policies have often facilitated inefficient investments while curtailing and sometimes eliminating internal and external competition and giving little incentive to improve productivity.

Adeusi and Aluko (2015), trade protection measures, including tariffs and unrealistic exchange rates, have resulted in high and fluctuating inflation and interest rates, unfavorable labor and wage policies, state monopolies and regulatory restrictions on private investment, price controls, and subsidies. Not only ineffective, but these policies are also highly untenable; governments have been unable to sustain the huge subsidies required to continue them.

Todaro and Smith (2011), the most important is an absence of adequate institutions and infrastructure, which can impede efficient operations and immediate movement of capital, labour and technology from inefficient to efficient sectors of the economy. The shortage of efficient financial markets is a significant obstacle to the normal market-based restructuring that takes place through the decline or bankruptcy of ineffective businesses and the movement of capital to profitable ventures. Insufficient infrastructure—and here infrastructure comprises "software" aspects such as marketing know-how, management, distribution networks, and so on—is also a limitation.

Theoretical Literature
The Big Push Theory
The Big Push theory was proposed by Paul Rosenstein-Rodan in 1943. The theory stresses that underdeveloped countries need huge amounts of investments to launch the path of economic development from their current state of backwardness. This theory suggests that a 'bit-by-bit' investment program will not influence the growth process as much as expected for underdeveloped nations. Injections of small quantities of investments will surely result in the wastage of resources. Paul Rosenstein-Rodan admiringly quotes a Massachusetts Institute of Technology study in this regard, "There is a minimum level of resources that must be devoted to.... a development program if it is to have any opportunity of success. Launching a nation into self-sustaining growth is a little like getting an airplane off the ground. There is a critical ground speed which must be passed before the craft can become airborne...." (Howard, 1961).
Rosenstein-Rodan suggested that the whole industry which is planned to be created should be attended to and planned as a massive entity. He endorses this argument by asserting that the social marginal product of an investment is always different from its private marginal product, so when a group of industries is designed together in line with their social marginal products, the growth rate of the economy is bigger than it would have otherwise been (Nath, 1962). Rodan explains that the government has a role to play in achieving this industrialization strive.

Role of the Government: The large-scale program of industrialization subscribed by this model needs large investments that are above the means of the private sector. The investment in social infrastructures and basic industries (like transport, power, and communications) is 'lumpy' and has long gestation periods. The role of the government in this theory is thus vital for investment in social overhead capital. Even if the private sector had the needed resources to invest in such a program, it would not do so since it is profit-oriented (Misra and Puri, 2010).

The rationale for the Big Push: The fundamental rationale of the 'Big Push' like the 'Balanced Growth' theory is founded upon the idea of 'external economics'. In welfare economics theory, external economies

are defined as those unsettled benefits which go to third parties. The private costs and prices of products fail to reflect these benefits. And the market prices have to be corrected if an account of these external economies is to be taken into consideration (Jinghan, 2011).

Now, the basic argument of the 'big push' theory is that such a mutually beneficial way of output growth is not likely to happen unless the initial barriers are overcome. There are 'non- appropriabilities' or 'indivisibilities' of several kinds which if not eliminated through a "big push" will not enable the emergence and transmission of 'external economies' – which lie at the back of a self-generating process of development. A 'bit by bit' approach to development would not permit the economy to cross over certain indivisible obstacles to economic development. What is needed is a vigorous effort to leap over these obstacles. As such, for the economy to be successfully launched on the corridor of self-generating growth a "big push" in the form of a minimum-size investment program is important.

The theory states that for Nigeria to achieve Economic growth, the Nation's industrial Sector should be restructured in a way that we require a holistic combination of various industries. From the primary firms like Agricultural firms to secondary firms like manufacturing, and to tertiary firms like the service industry. Developing these firms bit-by-bit will not have any significant impact on the Nation's economy unless they are holistically planned and undertaken.

Adam Smith's Theory of Growth
Adam Smith in his memorable work, 'An Enquiry into the Nature and Causes of the Wealth of Nations' published in 1776, was largely interested in the issue of economic development. Adam Smith believed in the doctrine of 'natural law' in economic affairs. He considered every individual as the best judge of his self-interest who should be allowed to pursue it to his advantage. In promoting his self-interest he would also promote the common good.
Division of labor was the starting point of Smith's economic growth theory. It is the division of labor that yields the biggest improvement in the labor's productive power. He credited this increase in productivity to (1) the rise in the dexterity of labor; (2) time saved to produce goods; and (3) the invention of a huge amount of labor-saving machines. The last cause of an increase in productivity stems not from labor but capital. It is superior technology that results in a division of labor and market expansion. But what results in the division of labor is a certain propensity in human nature—the propensity to trade, barter, and exchange one thing for another.

Smith, however, accentuated that capital accumulation must come before the introduction of the division of labor. Like modern economists, Smith considered capital accumulation as a vital condition for economic development. So the issue of economic development was largely a result of people's ability to save more and invest more in a nation. The investment rate was determined by the savings rate, and savings were entirely invested. But virtually all savings resulted from capital investments or the renting of land. Hence, only capitalists and landlords were held to be able to save, while the laboring classes were assumed to be incapable of saving. This belief was based on the 'Iron Law of Wages'.

According to Smith (1776), investments were carried out because the capitalists anticipated receiving profits from them; and the future anticipations about profits depended on the current investment climate as well as actual profits. But during the development process, what is the behavior of profits? Smith believed that profits tend to decrease with economic progress. When the rate of capital accumulation rises, rising competition among capitalists increases wages and tends to lower profits. It is the heightening difficulty of uncovering new profitable investment outlets that bring about falling profits. Considering the role of interest rate in economic development, Smith noted that with the rise in economic prosperity, progress, and population, the interest rate declines, and as a result, the capital supply is augmented. This is because, with the fall in interest rates, the moneylenders will lend more to obtain more interest to maintain their standard of living at the previous level. Therefore the quantity of capital for lending will rise with the fall in interest rate.

The agents of economic progress according to Smith (1776) are farmers, producers, and businessmen. It was free trade, business, and competition that led farmers, producers, and businessmen to expand the market

which, in turn, made economic development possible. The objectives of these three are interrelated. To Smith, the development of agriculture increased construction works and commerce.

Like the theory of the big push which considered huge capital outlay for investment. Smith considered capital accumulation as a vital condition for economic development. He proposed that individual self interest results in common good. Industrialist who pursue their interest of maximizing profit by establishing factories create room for employment, and production through the dexterity of labor, saved time in production, and utilization of huge machines which subsequently result in economic growth.

Empirical Literature
Ughulu (2021), examined the relationships between industrial sector output and sustainable economic growth of Nigeria for the period 1981 to 2018 using descriptive statistics, unit root, and co-integration tests, as well as long-run and short-run analyses and error correction model (ECM). His results disclosed that there existed a significant positive relationship between industrial sector output and economic growth, though this was weak in examining the magnitude of the effects.

Nwogo and Orji (2019), explored the impact of industrialization on the growth of the Nigerian economy. The study employed secondary data derived from CBN statistical bulletin. The dependent variable was the real gross domestic product (RGDP), while the independent variables were the manufacturing sector output (MSO), crude petroleum and natural gas output (CPNGO), solid mineral mining output (SMMO), and real exchange rate (REXR). Data analyses were carried out using the vector error correction (ECM), and system equation estimation technique. Their study found that there is a positive and significant impact of the MSO, CPNGO, and SMMO on the real gross domestic product, while the REXR was found to be negative on RGDP, and also a long-run relationship was found to exist among the variables used.

In studying the impact of industrialization in Nigeria, Ajie et al (2019), analyzed the relationship between GDP and agriculture (AR), industry (ID), and services sector (SV) in Nigeria. They utilized the Johansen testing approach, the Granger causality test, and OLS regression. The Johansen cointegration test approach demonstrates a significant long-run relationship between GDP and agriculture (AR), industry (ID), and services sector (SV) in Nigeria. The OLS results revealed that agriculture, industry, and services have a significant positive relationship with GDP. The Causality results indicated a bi-directional causal relationship between GDP, AR, ID and SV.

Abdu and Anam (2018), assessed the impact of manufacturing sector development on economic growth in Nigeria for the period 1981 to 2017 using Ordinary Least Square (OLS) technique. The main objective of their study was to ascertain the impact of manufacturing sector development on economic growth in Nigeria and to determine the direction of the causality relationship between the manufacturing sector and Nigeria's economic growth. The error correction model (ECM) result demonstrated that manufacturing sector output does not have a significant impact on economic growth in Nigeria

Offor, Amadi & Ibeaja (2022), ascertained the effects of Nigeria's manufacturing sector on economic growth between 1981 and 2018, using the OLS methodology. The results reveal that the manufacturing sector's output has a positive and significant relationship with the rise of the GDP, suggesting that it has a favorable impact on growth. The fact that this variable is significant implies that Nigeria's manufacturing industry is one of the country's major economic drivers currently. Moreover, there is a strong and positive correlation between capital and GDP, which implies that capital can enable the GDP growth drive. The relationship between labor and GDP growth is positive and significant, implying that labor has a positive impact on Nigeria's GDP. The relationship between FDI and the GDP is positive and significant demonstrating that FDI has a positive impact on the GDP growth of Nigeria. The connection between exchange rate and GDP is both positive and insignificant, which suggests that Nigeria's exchange rate management is unsatisfactory.

Ani and Udeh (2021), studied the influence of solid mineral development on economic growth in Nigeria, using the Auto Regressive Distributed Lag (ARDL) Approach. Time series data which spanned from 1981 to 2019 were used in the survey. The study tested for stationarity amongst the time series, while all results were tested at a 5 percent significance level. The result disclosed that Solid Mineral Development exerted an insignificant positive effect on economic growth in Nigeria. The study finally recommended a religious

enactment of the solid mineral development plan and the strengthening of regulation, among others, intending to stimulate Nigeria's economic growth.

Jelilov and Isik (2016), researched the impact of industrialization on economic growth in Nigeria from 2000-2003. The study sets three major research objectives, which include investigating the effect of fiscal and monetary policy on the Gross Domestic Product (GDP), analyzing the relationship between government spending and industrial development, and examining the effect of the budget on investment or employment generation. The study specified a workable model, which has GDP as the dependent variable while industrial output, foreign direct investment, interest rate, foreign exchange rate, and inflation rate were independent variables. The ordinary least square (OLS) technique was used as the analytical technique. The study disclosed that in the long run, industrialization has a negative impact on the economic growth of Nigeria.

Research Methodology
Sources of Data
The study used secondary data collected from the Central Bank of Nigeria (CBN) annual statistical bulletin 2020.

Model Specification
The model of this study is expressed functionally as;
$RGDP = f(MAN, CPN, SMM)$ - - - - - - - - - - - (1)

The model is rewritten in linear form as

$RGDP = \alpha_0 + \beta_1 MAN + \beta_2 CPN + \beta_3 SMM + et$ - - - - (2)

Where

(RGDP) = Real Gross Domestic Product

(MAN) = Manufacturing

(CPN) = Crude Petroleum and Natural Gas

(SMM) = Solid Mineral Mining

α_0 =   Intercept

β_1 - β_7 =   Parameter coefficients (slope)

et =   Stochastic Error term

Thus, the logarithms function is given below:

$LnRGDP = \alpha_0 + \beta_1 LnMAN + \beta_2 LnCPN + \beta_3 LnSMM$

The independent variables are expected to take the following signs as it relates to the dependent variable; $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$.

Summary of ADF statistics

Variable	@Level	@1st Difference	Order of integration
LnRGDP	-4.446337	0.101166	1(0)
LnMAN	-0.826451	-3.335771	1(1)
LnCPN	-1.015948	-5.000193	1(1)
LnSMM	-2.379290	-6.319073	1(1)

Source: *Output from E-view 9*

The unit root result indicated that the variables are integrated in mixed order that is at 1(0) and 1(1) compelling the use of the ARDL bound test methodology in estimating the long-run co-integrating relationships in the model.

Presentation of Bounds Test for co-integration

Test Statistic	Value	K
F-statistic	3.830336	7

Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.03	3.13
5%	2.32	3.5
2.5%	2.6	3.84
1%	2.96	4.26

Source: *Output from E-view 10*

There is the existence of a long-run co-integrating relationship between real GDP and the variables hence the null hypothesis (H_0) of no long-run relationship is rejected.

Presentation of ARDL long-run coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(MAN)	0.195389	0.026161	7.468791	0.0000
LOG(CPN)	0.151959	0.029213	5.201740	0.0002
LOG(SMM)	0.035998	0.026929	1.336747	0.2042
C	1.061192	0.252691	4.199572	0.0010

Source: *Output from E-view 9*

It is worthy of note that all the variables in the model conform to the a-priori expectation in the long run.

Presentation of Error Correction Estimates (ECM)

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(MAN)	0.140197	0.016250	8.627305	0.0000
DLOG(CPN)	0.192284	0.017632	10.905443	0.0000
DLOG(SMM)	-0.048438	0.017789	-2.722888	0.0174
CointEq(-1)	-0.717528	0.048819	-14.697735	0.0000

Cointeq = LOG(RGDP) - (0.1954*LOG(MAN) + 0.1520*LOG(CPN)
-0.0360*LOG(SMM) + 0.5104*LOG(SEV) + 0.1826*LOG(AGR)
-0.0001*OPN -0.0001*REX + 1.0612)

Source: *Output from E-view 9*

The result of ECM-1 for the estimated ARDL model showed that estimated coefficient is found to be negative and statistically significant at a 5% level which implies that they are positively related to the economic growth in Nigeria.

Hypothesis 1

H_0: $\beta i = 0$; Manufacturing does not have any significant effect on economic growth in Nigeria.
H_1: $\beta i \neq 0$; Manufacturing has significant effect on economic growth in Nigeria.

Decision: Probability value of manufacturing (LnMAN) in ARDL result is 0.0000 which is lesser than 0.05. Hence, we reject H_0 and concluded that Manufacturing has a significant effect on economic growth in Nigeria.

Hypothesis 2

H_0: $\beta i = 0$; Crude petroleum and natural gas do not have any significant impact on economic growth in Nigeria.

H_1: $\beta i \neq 0$; Crude petroleum and natural gas have significant impact on economic growth in Nigeria.

Decision: Probability value of crude petroleum and natural gas (LnCPN) is 0.0002 which is lesser than 0.05. Thus, we reject H_0 and concluded that crude petroleum and natural gas have a significant effect on economic growth in Nigeria.

Hypothesis 3

H_0: $\beta i = 0$; Solid mineral mining does not have any significant effect on economic growth in Nigeria.

H_1: $\beta i = 0$; Solid mineral mining has a significant effect on economic growth in Nigeria.

Decision: Probability value of solid mineral mining (LnSMM) is 0.2042 which is greater than 0.05. We therefore accept H_0 and concluded that solid mineral mining does not have any significant effect on economic growth in Nigeria.

Summary of Results from various Diagnostic Tests

Diagnostic Test	Probability Value
Serial correlation test: Breusch-Godfrey	F-statistics = 3.273894 Prob. F = 0.1852
Heteroscedasticity test: Breusch-Pagan-Godfrey	F-Statistics = 2.105422 Prob. F = 0.1014
Misspecification: Ramsey reset test	F-statistic = 0.252177 Prob. F = 0.6246

Source: *Output from E-view 9*

The results of diagnostic tests based on the ARDL framework, using the Breusch-Godfrey serial correction, heteroscedasticity, and misspecification showed a non-significant prob. F. which indicates the absence of serial correlation, heteroscedasticity and misspecification bias in the residuals generated by the model.

Discussion of Findings
The result was found to exhibit a mixed order of integration hence the bounds cointegration approach result revealed a long-run relationship exists amongst the variables.

The result revealed that in the long run, manufacturing, crude petroleum and natural gas and solid mineral mining possessed a positive effect on economic growth in Nigeria.

The ECM coefficient confirms that there is disequilibrium in the short run with the set of variables in the model, hence the long run for correction.

The result indicated absence of serial correlation, heteroscedasticity and misspecification bias in the residuals generated by the model.

Summary of Findings
Manufacturing (LnMAN) had a significant positive effect on economic growth in Nigeria.

Crude petroleum and natural gas (LnCPN) had positive and significant impact on economic growth in Nigeria.

Solid mineral mining (LnSMM) had an insignificant positive impact on economic growth in Nigeria.

Conclusion
Conclusively, restructuring industrial sector, if properly and adequately implemented, would certainly propel and facilitate economic growth, development and unity in Nigeria with positive multiplier effect on West African states and Africa as a whole.

Recommendations

- There is need for the government to develop stimulants for manufacturers in form of tax incentives and credit facilities to enable manufacturing sector drive economic growth in Nigeria.
- Government can improve exploration and production of crude oil and gas by encouraging internal and domestic workers and professionals, that would lower the cost of production, however improve domestic skills, education, research and development.
- Government should encourage massive production of agricultural products that could be used as raw materials both by oil and gas and manufacturing industries to boost economic growth in Nigeria.
- The federal government through the CBN should ensure that the exchange rate policy should is consistent to provide an opportunity for a realistic and stable driving economic growth in Nigeria.

References

1. Abdu, M. & Anam, B. E. (2018), Evaluation of the Nigerian industrial sector and economic growth in the face of sustainable development goals. *International Journal of Advanced Research in Public Policy.* Social Development and Enterprise Studies

2. Abiodun, M. A. & Ochuwa, P. E. (2020), Response of economic growth to the dynamics of the service sector in Nigeria. *Future Business Journal,* Vol.6 (27)

3. Adeusi, S.O. & Aluko, O.A. (2015), Relevance of financial sector development on real sector productivity: 21st century evidence from Nigerian industrial sector. International Journal of Academic Research in Business and Social Sciences, 5(6), 118-132.

4. Afolabi, B. and Ogoh, S (2017), Industrial output and economic growth in Nigeria. *European Journal of Scientific Research*

5. Agba, P.U and R.O Dum (2016), Development economics. Kricel *publishers,* Owerri, Imo State.

6. Ahuja M. (2021), Personal savings in developing nations. *Journal of Economic Record,* World bank

7. Amadi. K.T (2023), Microfinance banks and growth of agricultural sector in Nigeria. *International Journal of Agriculture, Management and Technology*, Vol. 5 www.ijamt.com

8. Ani, G. A., and Udeh, S. N (2021), Exchange rate and economic growth in Nigeria. *Advance Journal of Management and Social Sciences,* Vol. 5(5)

9. Anyanwu, A. V. (2016), Research methodology in business and social sciences *(Second Edition). Avan Global publishers, Owerri, Nigeria*

10. Akinmulegun, S. O. and Falana, O. E (2018), Exchange rate fluctuation and industrial output growth in Nigeria. *International Journal of Economics and Financial Research,* 4(5):145-158

11. Ajayi, O. (2021). Nigeria's manufacturing sector contracted by 2.75% in 2020. *Naira metric.*

12. Ajie, C.O; Okoh, S.O; & Ojiya, E.A. (2019), The imapct of solid minerals resources on economic Growth of Nigeria: An OLS and Causality Approach. *International Journal of Humanities, Art and Social Studies (IJHAS),* Vol. 4(1)

13. Breusch, T. S (1978), Testing for autocorrelation in dynamic linear models. *Australian Economic Papers.* 17: 334–355

14. Chete, L. N.; Adeoti, J. O.; Adeyinya, F. M. and Ogundele, O. (2016), Industrial development and growth in Nigeria: Lessons and Challenges. *Nigerian Institute of Social and Economic Research (NISER), Ibadan. Working Paper 8*

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

16. Dutshime, A. and Osele, A. (2021), Nigeria: An overview of the economic impact of the coronavirus pandemic in Nigeria. KPMG, Nigeria

17. Ediri, E. (2021), Power generation: Nigeria's Average Unutilized Power Rises 291% to 3,008.1MW in 8 Years. *Vanguard News 30th November 2021.*

18. Godfrey, L. G. (1978), Testing against general autoregressive and moving average error models when the regressors include lagged dependent variables. *Econometrica.* 46: 1293–1301.

19. Jelilov, G., Enwerem, H. I. and Isik, A. (2016), The impact of industrialization on economic growth: The Nigerian experience (2000-2013). *British Journal of Advance Academic Research* 5(1),11-20.

20. Jinghan, M. L. (2011), The economics of development and planning. *40th Edition Vrinda Publications Limited BS,* Ashish Complex, Mayur Vihar Phase I, Delhii 110091

21. KPMG Report (2020), Covid-19: A business impact series: Financial, Tax and Regulatory Considerations to Manage Covid-19 Disruptions, issue 2 April 2020

22. Konyeaso, F.U., (2016), Impact of globalization on Nigeria's economy. *Pyrex journal of business and finance management research.* Vol 2 (10),109-121

23. Loto, M. A. and Musa, S. O. (2018), Effect of macroeconomic policy on industrial sector performance in Nigeria (1981-2016). *Journal of Sustainable Development in Africa,* 20(4): 37-64

24. Misra, S. K., and Puri, V. K. (2010), Economics of development and planning — Theory and Practice (12th ed.). *Himalaya Publishing House.* 217–222

25. Nath, S. K. (1962), The theory of balanced growth. *Oxford Economic Papers,* Vol.14, No. 2, Oxford University Press: 138-153

26. National Bureau of Statistics (NBS, 2020), Nigerian gross domestic product report. *First Quarter* of 2020, 20 – 34

27. Nwaru N.M (2022), Economics of money, banking and financial markets.*(Owerri: Kricel Publishers)*

28. Nwogwugwu, U.C; Nwokoye, E.S; & Ebenebe, O.E. (2021), The nexus between solid mineral development and economic growth in Nigeria. *International Journal of Research in Engineering, IT and Social Sciences,* Vol. 11(6)

29. Nwogo, J. E. and Orji, J. O. (2019), Impact of industrialization on economic growth in Nigeria. *IOSR Journal of Economics and Finance.* 10(5):42-53

30. Nzotta. N (2021), *An error-correction model of the determinants of private saving in Nigeria.* A paper presented at the African economic society (AES) conference, Federal University of Technology, Owerri.

31. Ogunmuyiwa, M. S. and Adelowokan, O. A. (2018), Measuring the impact of exchange rate on industrial output in Nigeria. *European Journal of Marketing and Economics,* 1(2):87-93

32. Offor U.P, Amadi K.T & Ibeaja F.U (2022), Nigerian monetary policy 1991-2021; Money Supply Rate and Inflation Rate. *Asian Journal of Economics Business and Accounting, Vol 22 ISSUE 23. Journal*.ajeba.com/indexphp/AJEBA/article/view/883.

33. Okonkwo, I.C.(2020), Exchange rates devaluation in an oil economy. The Case study of Nigeria. *CBN Economic and Financial Review 2(4).*

34. Sanusi, L.S. (2011), *Growing Nigeria's real sector for employment and economic development*: The role of Central Bank of Nigeria. Being a paper delivered at the inaugural memorial lecture in honour of late Professor Okefie Uzoaga at the University of Nigeria, Nsukka, Enugu State on July 2, 2011. 53.

35. Todaro, M. P., and Smith, S. C. (2011), Economic development (11th ed.)

36. Uchechukwu, G. and Ibiok, E. U. (2015), Sectoral contributions to Nigerian gross domestic product using a VAR approach. *Global Journal of Pure and Applied Sciences.* 25:127-143

37. Ughulu, S. E. (2021), Industrial output and economic growth in emerging economies: Evidence from Nigeria. *Applied Finance and Accounting,*