THE MACROECONOMICS OF INDUSTRIALIZATION IN NIGERIA

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ABSTRACT

This study examined the effectiveness of macroeconomic policy mix on industrial output in Nigeria from 1981 – 2015. The theoretical relationship between macroeconomic mix and industrialization (or the real sector) was critically examined and established in the study. The researcher made use of six explanatory variables for his study. The ordinary Least Square was employed. The result revealed that there is no significant relationship between macroeconomic mix and industrialization and so, they have not been effective means of industrialization in Nigeria. The study

Introduction

The promotion of industrial development becomes a major challenge to the African countries during the 1960s as the majority of African countries gained their independence at this time. The representative governments saw industrial development as a means for the continent to gain self – reliance and lower their dependence on the industrialized economies. The ideology and benefits of Africa were based on the vision that industrialization would transform the African economies from the traditional agrarian – to progressive and industrialized – based economies. Industrialization was perceived as an instrument of economic growth that will assist the continent to attain its macroeconomic objective (Isiksal and Chimezie, 2016).

Industrialization is the process of manufacturing consumer goods, capital goods and creating social oriented capital in order to provide goods and services to both individuals and business (Jhingan (1997). Several Scholars see industrial development as the application of modern technology, equipment and machineries for the production of goods and services, alleviating human suffering and to ensure continues improvement in their welfare. Such modern manufacturing processes are characterized by high technological innovations, the development of marginal and entrepreneurial talents and Improvements in technical skills which normally promote productivity and better living conditions (Fashola ,2008). In recognition of this, successive governments in Nigeria have continued to articulate policy measures and programme to achieve industrial growth and development. This cannot be attained until manufacturing capacity is utilized to a reasonable extent.

strongly recommends that macroeconomic policy mix and focus should be redefined so as to bring about the desired industrialization, and technological development that Nigeria hopes for.

Key words: Industrialization, Macroeconomic, policy mix, Industrial output, Development, Ordinary Least Square, Technological Development, Nigeria.

In Nigeria, industrialization has been pursued since independence (i.e. 1960). From this period the country adopted the policy of import substitution with the belief that through industrialization, the government would be able to promote the emergence and expansion of domestic industries by substituting major consumer industries such as textile, shoes, food and detergents for major manufacturing industries.Although the level of industrialization in Nigeria is still low up to now, but ithas not only affected economic and social development but has also created pressure on the environment. Industrialization is expected to be associated with several benefits such as, employment of labour, gain in technical and managerial experience in large scale capital goods such as automobile, ships, complex electronics, rise in GDP, improved health care services through manufacture of drugs and other medical ancillaries and other related benefits.Dsagie, 1980) Anyawu (1986),

Although industrialization is vital in the process of economic development, its performance in Nigeria has not been quite impressive. Two main strategies have been put in place to correct this anomaly. The first is the import substitution strategy while the second is the export promotion strategy. The second strategy, which has been in vogue since the adoption of the SAP in Nigeria in mid – 1986, emphasized the promotion of value added non-oil exports, especially manufactures and did not actually achieved significant results (Umiamikogbo, 1996).

Several scholars, stakeholders and policy makers have tried to enhance industrialization in Nigeria through research works, policy formulation and attempts of setting up industries but with little success. This increased pressure to formulate solutions could be attributed to segmentation of policies in terms of some trying to view the problem from either fiscal, monetary or trade openness policy of the economy. This could be attributed to the fact that industrialization and sustainable development has been and will continue to be a major trend in our emerging world which has a common future. (Ola 2014).

Industrialization is an essential aspect of long –run development. Industrial policy can be important and powerful instrument for stimulating rapid economic growth and development. The process of attaining industrialization in Nigeria and its impact on the economy seems to defy series of policy formation. This has necessitated this research work in an attempt to bring together the various segments of analysis and policy formulation in trying to foster solution to lingering industrialization problem in Nigeria.

The attempted to answer these research questions:

(i)   What is the impact of macroeconomic policy mix on industrialization in Nigeria?
(ii)   Is there any relationship between industrialization and macroeconomic mix?

(iii) What should be our macroeconomic focus vis - a vis industrialization?

The main objective of this paper is to examine the effective of macroeconomic policy mix on industrialization in Nigeria. Specifically, the paper seeks to examine the impact of macroeconomic policy mix on industrialization in Nigeria, and establish the relationship between industrialization and macroeconomic mix.

The paper will be structured into 5 sections. Section 1 is the introduction; section 2 is the literature review and theoretical framework; section 3 is the methodology; section 4 is the data analysis and discussion of results, while section 5 is the conclusion.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Conceptual Issues

Monetary policy is an aspect of macroeconomics which deals with the use of monetary instruments designed to regulate the value, supply and cost of money in an economy, in line with the expected level of economic activity. Such monetary instruments include money supply, inflation rate, interest rate, balance of payments, external reserves and exchange rate policies (CBN, 1992; Shoaib, 2010). In other words, monetary policy is a major economic stabilization weapon which involves measures taken to regulate and control the volume, cost, availability and direction of money and credit in an economy to achieve some specified macroeconomic policy objectives and to counter all undesirable trends in the economy (Anyanwu, 1993, Gbosi, 1998, Okowa, 1995). These undesirable trends are unemployment, inflationary pressures, sluggish economic growth, and external sector instability. Thus, the objectives of monetary policy are the attainment of internal and external balance to ensure sustainable economic growth and development.

Central Bank of Nigeria (2011) defined fiscal policy as the use of government expenditure and revenue collection through tax and amount of government spending to influence the economy. Samuelson and Nordhaus (2002) defined fiscal policy as a government's program with respect to the purchase of goods and services and spending on the transfer of payments, and as well the amount and type of taxes. Peter and Simeon (2011) define fiscal policy as the process of government management of the economy through the manipulation of its income and expenditure and to achieve certain desired macroeconomic objectives.

In finance, fiscal policy is the use of government revenue collection (taxation) and expenditure (spending) to influence the economy. The two main instruments of fiscal policy are government taxation and expenditure. Changes in the level and composition of taxation and government spending can affect aggregate demand and the level of economic activity; the pattern of resource allocation; and the distribution of income (David, 2005; Mark and Asmaa, 2009; Chirag, 2010). This implies that Fiscal policy refers to use of the government budget to influence economic activities. Geoff (2012) contended that fiscal policy involves the use of government spending, taxation and borrowing to affect the level and growth of aggregate demand, output and jobs creation. It is the government spending policies that influence macroeconomic conditions. These policies affect tax rates, interest rates and government spending, in an effort to control the economy.

Judging from the above definitions, fiscal policy can be seen as the government policy used to achieve full employment, stability of price level, sustainable economic growth and external balance and its instrument is the main instrument used in achieving macroeconomic targets. Nigeria for the

past decades has maintained large fiscal policy measures in other to influence economic growth and activities. But the pertinent question is: has fiscal policy instrument stabilized the growth rate of manufacturing sector through its contribution to GDP?

Trade openness,
Trade openness is a trade policy which encourages the flow of goods and services unhindered by government-imposed restrictions. Such restrictions could be high taxes, tariffs and even non tariffs barriers such as regulatory legislation and quotas. Trade openness permits an economy to make better use of its resources by allowing import of goods and services at a lower cost than they could be produced at home (following the theory of comparative cost advantage). It also enable developing countries to import capital equipment and intermediate inputs that are critical to long-run growth which will be expensive or impossible to be produced domestically. Other possible benefits of trade openness include more intense competition, which obliges local firms to operate more efficiently than under protection, and greater awareness of new foreign ideas and technologies (knowledge spillover).

Industrialization
Anyanwu et al (1997) describes industrialization as the process of building up a nation's capacity to convert raw materials and other inputs to finished goods and to manufacture goods for other production or for final consumption. Industrialization enhances the utilization of productive inputs (labour, capital and raw materials), given the country's technology, to produce non-durable and durable consumer goods, intermediate goods and capital goods for domestic consumption, export or further production.According to Balami (2006) industry is conceptualized as the coming together of firms or group of firms producing either identical or similar products.
Industrialization is about the introduction and expansion of industries in a particular place, region or country (Obioma and Ozughalu, 2005). It is a situation where many industries are established in different parts of the country.
The less developed counties need industrialization to free themselves from the adverse effects of frustration in the price of Primary products and determination in their terms of trade, such countries mainly export primary product and import manufactured goods which often lead to determination in the terms of trade or less developed countries(LDC'S).However, many countries in their early stage of industrialization prefer to use small-scale plant that uses more labor, than machine in their production process so that unemployment will reduce to the minimal. Most of their industries are food processing industries which depends heavily on Agricultural raw materials such as fruits, cereals wools etc. they are referred to as agro-based industries which mainly are agricultural economies. As industrialization progresses, the industrialized countries gain more technical and managerial experience in large scale capital goods such as automobile ships complex electronics etc.

Industrialization in Nigeria:
Industrialization in Nigeria was based on the processing of raw materials in order to reduce bulk and minimize freight cost, and to add value to the products exported out of the country. Very few

industrial establishments were based on imported raw materials e.g. soft drinks, beer and tobacco. The industrial production was also based on British or foreign technology thus making ownership predominantly foreign (Adeboye; 1989; Anyanwu, *et al,* 1997

By 1960, there was a strong need to industrialize the country. Emphases were mostly laid on the growth of light consumer based manufacturing industries that are import-substituting activities; the emergency of industrial concentration or estates; and the expansion of foreign ownership and control. In respect to foreign ownership and control about 110 industries were wholly owned by foreigners, 52 wholly owned by Nigerians, 14 wholly owned by the Federal Government, while 115 were joint ventures with foreigner having the largest shares in 73 firms (Adeboye 1989). This period also witnessed a slight rise in the contribution of the manufacturing industries to the country's Gross Domestic Product from N37.8 million i.e. about 2.8 per cent (in pre-independence years) to N55.2 million or 3 per cent (Abubakar 1989; Adeboye 1989; CBN 1993).

In the 1970s, the various Enterprises Promotion Decrees reversed the issue of ownership e.g. the Indigenization Degree of 1976 that gave Nigerians 60 per cent share and foreigners 40 per cent. This period also witnessed very rapid growth in industrial investment, output and the number of industrial establishments. The period was also characterized with the growth of import-substitution industries with traditionally light consumer goods producing 80 per cent of domestic consumption; the growth of government intervention which was aimed at expanding the import-substituting strategy in order to attain self-growths and sustenance.

According to Osagie (1980) the manufacturing industries of ECOWAS nations are rudimental. He found out that in most cases, the manufacturing industries only assemble final parts, which is the easiest stage of production process, he then blame the level of industrialization at it infect stage on the factor of colonialism. The colonized nations applied materials to the industrialized nation who in turn supplied to the colonial masters the requirement for manufacturing. Owoseku and Ofiga (1976) look at the gains of industrialization. According to them, industrialization help to increase national income, stabilized foreign exchange earnings by diversification of export, promotes import substitution and provides productive employment. As earliest stated, Nigeria had experimented with import substitution industrialization strategy whose means is food.

Import Substitution Policy:

Many industrial policies had been adopted since political independence of Nigeria in 1960.The changing nature of Nigeria's industrial policies is classified and discuss as follows: Import substitution industrialization (henceforth ISI) was adopted in Nigeria as far as back as 1960 (Ndebbio, 1994) and persisted till 1985 (Bushari, 2005). Often described as an inward looking strategy of industrialization, ISI refers to domestic production of manufactured goods for domestic markets. It involves processing of raw materials and setting up of manufacturing factories to produce locally certain manufactured goods which were originally imported by a country thereby saving the country from importation of such commodities into the local markets. To get the home industries started and make them survive, it requires the imposition of protective tariffs, import quotas and exchange controls to protect the home industries from foreign competitors by making the entry of foreign goods expensive. ISI was first implemented by Latin

American countries following the disruption of import flows by the Second World War and the depression in the international economy between 1927 and 1933 with the aim of reducing imports through increased reliance on domestic manufactured goods and to create a favourable balance of payment. Following the perceived success of ISI in these countries, other countries, Nigeria inclusive, adopted it.

The motives of adopting ISI strategy in Nigeria, like that of the Latin American countries, were to reduce the volume of imports and external dependence via increased reliance on goods manufactured domestically, save foreign exchange, create favourable balance of trade and payments, encourage technological development as well as create employment (Egwaikhide, 1997; Bushari, 2005). In pursuit of the ISI objectives, government took steps to pressurize the local and foreign investors, especially importers of manufactured goods to set up local plants. Industries such as textiles, wearing apparels, paints, tyres and tubes, cement and other building materials producing units as well as grain milling factories were established as joint stock ventures with trading companies which originally imported the goods (CBN 2002). With the dramatic increased in the inflow of „oil funds‟ in the 1970s, government became a major player in the ISI process by setting up many public enterprises. Heavy industries such as Nitrogenous Fertilizers Projects, Calabar Cement Company, Ngalaku Cement Company, IkotEkpene Sunshine Batteries, Nigeria Newsprint Manufacturing Company, Petrochemical Complex, the Kaduna and Warri Refineries, Calabar and Iwopin Pulp and Paper Mills, etc. were established. Government also embarked on large scale capital intensive projects such as Ajaokuta Steel Company Limited, Steel Rolling Company at Aladja, Jos, Kaduna and Oshogbo, and Auto-assembly Plants at Kaduna among others. However, the unfortunate thing about some of these projects was that while some of them were abandoned at construction stage, others were shut down few years into production following the departure of the construction/ maintenance expatriates, none availability of imported raw materials or insufficient funding. Another special argument for industrialization via substitution rest on the contention that a peripheral country's demand for its export, so that the country most supply all those industrial product which cannot be imported in view of the relatively slow growth of its export, if we accept the income elasticity of demand for imports and either imported or produced at home and that country has no other means of increasing its capacity to import, then there is prima facie a case for industrial production to encourage import substitution.

The widespread pursuit of import substitution has in practice based mainly on the objectives of industrialization and balance of payment, proportionate of industrial protectionism have adduced several special arguments in the content of development argument that should be considered more seriously than the usual simple assertion about a "natural" infirmity of agriculture or the supposed necessity of industrialization to achieve a rise in the level of income. Support for import replacement comes partly from an appeal to the experience of industrialized countries.

Overview of Industrialisation in Nigeria
Figure 1(a): Structure of Nigerian Industrial Sector (2010-2015)

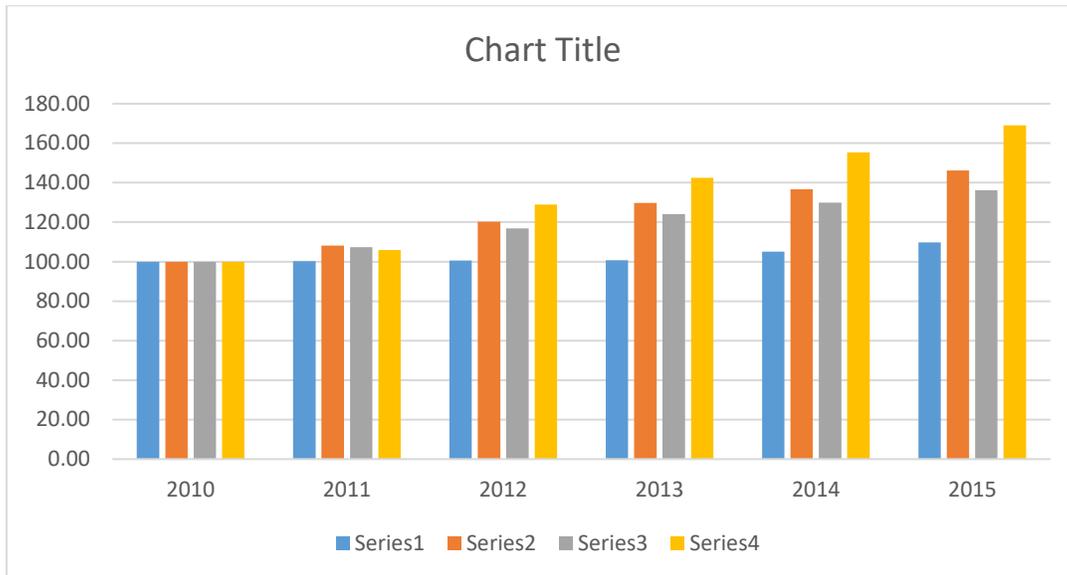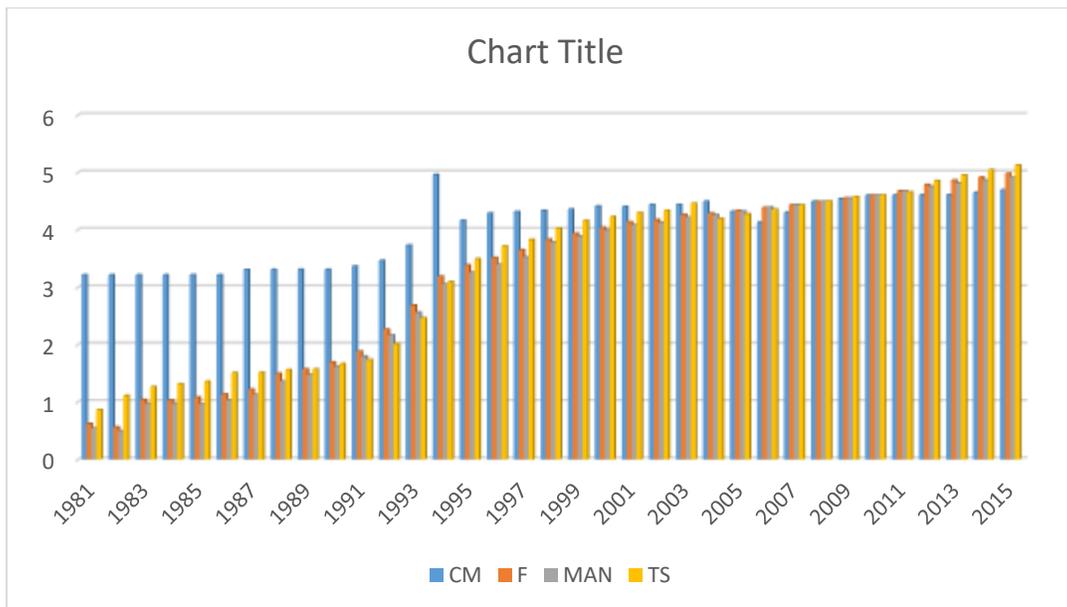Figure 1(b): Structure of Nigerian Industrial Sector (1981-2015)

Source: Author, 2017

Export Promotion Policy
The domestic resources cast of saving a unit of foreign exchange, in other words the resource used in import substitution could have earned a greater amount of foreign exchange through export substitution. These relies on high effective rate of protection, some empirical studies of the factor requirement of industrial exports and imports indicate that if capital and foreign exchange are true

constraints and labor is not the value of import could be replaced. Moreover, to the extent that it rest on exogenous world demand, the process of industrialization through export substitution is not limited to the narrow domestic market of the import substitution processes. The urgent need to generate more foreign exchange particularly from non oil sources to meet the country's rising import bills, mounting external debt obligations, rising fiscal responsibilities of the government, and to attend to socio economic responsibilities resulted in the introduction of Structural Adjustment Programme (SAP) in Nigeria in July, 1986, and eventually a shift in Nigeria's industrial policy thrust from ISI approach to export promotion industrialization (henceforth EPI). According to Bamidele (2005) and Banjoko et al (2012), SAP was meant to reverse the downward trends in the economy, widen industrial base, provides stimuli for increased exports and incentives for the manufacturing sector to enlarge its value-added and contribution to GDP. Export promotion industrialization (EPI) strategy, otherwise described as outward oriented industrialization, involves domestic production of manufactured goods for export. It is government's deliberate efforts to expand the volume of a country's exports through export incentives and other means in order to generate more foreign exchange and improve the current account of the balance of payment (Torado and Smith, 2003; Obioma and Ozughalu, 2005). Pioneered by the newly industrialized countries (NICs) in South East Asia like South Korea, Taiwan, Singapore and Hong-Kong, the success of the NICs process of industrialization, specializing in the production and export of light consumer goods spurred many countries, Nigeria inclusive, to adopt it. The export oriented industrial policy was meant to achieve a broad objective of accelerating the pace of industrial development in Nigeria. Embedded in this industrial policy package were SAP induced industrial policies like new export promotion decree of 1986, interest rate deregulation policy, the privatization and commercialization policy of 1988, the new export promotion policy/incentives, the new industrial policy of Nigeria of 1989 and debt conversion (equity swap) policy (Nedbbio, 1994). With the new export promotion law, export license requirements for exportation of manufactured goods was abolished, export credit guarantee and insurance schemes was introduced, commodity boards were scrapped to allow the markets forces to be more active and export free zones were established at several locations in the country (Essia and Ibor, 2005). The hitherto regulated interest rate in the country was deregulated to stimulate foreign capital inflow, encourage Nigerians to repatriate capital flight, induce saving and restrain credit expansion. The discount rate was raised from 11% to 14% in 1987 with minimum lending rate fixed at 14%. The new export policy/incentives permitted Nigerian exporters of non-oil (industrial) products to retain for use 100% of their export proceeds in foreign currency instead of 25% permitted before the introduction of new export policy. Privatization and commercialization policy, which was aimed at reducing the dominance of unproductive investment in the public sector, down-sizing public sector and increase private sector participation in the economy, led to the setting up of Technical Committee on Privatization and Commercialization (TCPC). Many public enterprises like Flour Mills of Nigeria Limited, African Petroleum Limited, National Oil and Chemical Company, Aba Textile Mills, United Nigerian Insurance Company, Northern Breweries among others were privatized. However, one of the observable facts about the privatized public enterprises is that because of the impropriety associated with it, some of them are yet to resume full production after many years of privatization.

Foreign Direct Investment

This is the inflow of foreign income into a particular economy through investment which involves Multinational Corporations (MNC). They operate in many countries at different level of economic development and manufacturing facilities in several countries. They have multinational stock ownership. Expansion by foreign direct investment can take any of the three forms below: (a) Horizontal expansion where the same products are produced; (b) Vertical expansion process that comes before processing activity and (c) Conglomerate expansion whereby different goods from those of the domestic market are produced

The greatest part of foreign direct investment in terms of value and number involves either horizontal expansion to produce the same or similar line of goods abroad or vertical integration backwards into the production of some raw materials. Foreign direct investment originates from differentiated oligopoly in the home market with product differentiation. They are large in size.They are oligopolistic firms in the home market having exhausted all possible sources of economic of scales. A firm would not invest abroad while profitable opportunities remained for the exploitation of scale economics in the home market. Multinational Corporation tends to populate foreign oligopolistic markets which are protected by strong barriers to entry. They have advantage against sources of entry barriers in the foreign market.

Mohammad and Mahmoud (2013) defined Foreign Direct Investment (FDI) as the investment that involves a long-term relationship reflecting a lasting interest of a resident entity in one economy (direct investor) in an entity resident in an economy other than that of the investor. According to them, FDI refers to the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise, operating in an economy other than that of the investor and can be further developed as the sum of equity capital, reinvestment of earnings, other long term capital, and short-term capital as shown in the balance of payments in that economy. It is generally seen as a composite bundle of capital stock and technology, and can augment the existing stock of knowledge in the host economy through labour training, skill acquisition and diffusion, and the introduction of new managerial practices and organizational arrangements (De Mello, 1999).

(Griffin and Pustay, 2007; Farrell (2008) see FDI as a package of capital, technology, management, and entrepreneurship, which allows a firm to operate and provide goods and services in a foreign market. According to OECD (2002), Foreign Direct Investment (FDI) is an investment in the form of a controlling ownership in a business enterprise in one country by an entity based in another country. The investment may be made either 'inorganically' by buying a company in the target country or 'organically' by expanding operations of an existing business in that country.

Foreign Direct Investment includes 'mergers and acquisitions, building new facilities, reinvesting profits earned from overseas operations and intra company loans'. In a narrow sense, FDI refers to building new facility, a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor (Ewe-Ghee, 2001). FDI is the sum of equity capital, other long-term capital, and short-term capital as shown in a country's balance of payments (OECD, 2002). FDI usually involves participation in management, joint ventures, transfer of technology and expertise UNCTAD (2010). Stock of FDI is the net cumulative

FDI for any given period (That is, inward FDI minus outward FDI). Direct investment excludes investment through purchase of shares Ewe-Ghee (2001).

Foreign Exchange

The foreign exchange or exchange rate is the rate at which one currency is exchanged for another. It is the price of one country's currency in relation to another country. According to Aliyu (2011) an exchange rate is a relative price of one currency in term of other that connects domestic and world markets for goods and assets, but it also signals the competitiveness of a country's exchange power with the rest of the world in a global market according to Owolabi (1992), exchange rate is the domestic price of foreign money. That is, of domestic currency that will purchase a unit of foreign currency. Afolabi (1998) opined that an exchange rate is the rate at which one currency will exchange for another. He added that dependent economies such as Nigeria, the exchange rate are an important price because it determines virtually all other prices. Nzotta (2004) agreed with Afàlàbi and adds that exchange rate is the transformation .of one country's currency to another. Therefore, it is customary to define an exchange rate as the rate at which the relative value of a nation's currency is expressed in term of another currency to integrate domestic and foreign market for goods and asset in a global market.

Sambo (2002) posited that exchange rate is arguably the single most important variable in determining the economic environment for trade sectors. Exchange rate affects trade by determining the relationship between international trade and domestic prices. This makes exchange rate a potent tool in the management and control of international trade. Generally, two broad methods are usually adopted in the Management of exchange rate; fixed and flexible exchange rate regimes. Chukwu (2007) observed that instability exchange rate as a major determinant of trade in Nigeria: having a positive influence on the dependent variable, export trade; and at other times a negative influence. This suggested an erratic change in the value of Naira having a long-run effect on export and economic growth.

Empirical Issues

Iya et al (2016) investigated the impact of industrialization on economic growth in Nigeria from 2001 to 2013 using Ordinary Least Square (OLS) techniques in estimating the relationship between industrial output, industrial employment and economic growth, after which ADF unit root test was conducted alongside Breusch-Godfrey serial correlation LM test and Breusch-Pagan-Godfrey heterosked dasticity test.The result of this study revealed that industrialization will go a long way in stimulating economic growth in Nigeria. The coefficient of industrial output shows that increase in industrial output will increase economic growth. The paper therefore, recommended that government and its relevant authorities should provide a conducive investment environment by removing the structural rigidities that exist in the economy to encourage industrial activities. Government should endeavour to provide stable supply of power, good roads for transportation of goods and people, functional legal system, security of lives and property, infrastructural facilities etc. All these would boost industrial output thereby making goods and services readily available to meet the ever increasing demand in order to prevent inflation and subsequently lead to industrial expansion and improvement in economic growth of the economy. Based on the coefficient of

industrial employment; increase in industrial employment will increase economic growth. The paper further recommended the need to formulate policies to increase industrial employment which may likely improve the welfare of Nigerians which would provide employment opportunities for the people. The coefficients of elasticity revealed the extent to which industrial output and industrial employment affects economic growth in Nigeria. It was found that economic growth was highly susceptible to change in industrial output and less susceptible to change in industrial employment.It therefore, recommended that more effort should be channel toward increasing industrial output than industrial employment so as to achieve the desired economic growth.

Isiksal and Chimezie (2016) attempted to analyze the relationship between GDP, agriculture (AR), industry (ID) and services sector (SV) in Nigeria. The Johansen co-integration testing approach was used which demonstrated a significant long-run relationship between these three variables. The results revealed that agriculture, industry and services have a significant positive relationship with GDP. The Causality results demonstrated a bidirectional causal relationship between GDP, AR, ID and SV. It is suggested therefore that it is important to develop the agricultural sector to provide the needed support to the industrial and services sectors. Such a strategy can be expected to encourage the development and economic growth of a developing country.

Obiomaet *al (2015)*investigated the performance of industrial development on the Nigeria's economic growth 1973 – 2013. They used the ordinary least square method to analyze the extent Nigeria industrial sector has contributed to the economic growth and development of the country. The model explained that the influence of industrial output on economic growth is not statistically significant, though the sign obtained from its àpriori expectation is positively related to (economic growth) GDP but does not hold strong enough.Savings has a positive relationship and also significant impact on the economy. Inflation has a negative relationship while net foreign direct investment is positively significant on the impact of economic growth.

Based on the findings, it recommended that the government and its agencies should ensure political stability and also the implementation of strategic policies that will create a fair playing grounds for foreign investors which will also improve the establishment of industries especially the manufacturing industries to encourage industrialization of the Nigerian economy as this will facilitate the strengthening of economic growth (GDP). Increase in savings will make money available for the economy through high interest rate and income adjustments from the monetary policy. The Bank of Industry (BOI) should be ready to aid Nigerian industrialization along Nigeria's line of development and not a total shift to accepting models which worked elsewhere given their environment and circumstance which differs from place to place.

*Audi and Mohammed (2014)*diagnosed the interface between industrialization and sustainable development in Nigeria, using unstructured interview and other secondary sources of data collection.The analysis discovered that industrialization is an essential aspect of long-run development in most nations that have achieved socio-economic development. However, with some attendant environmental consequences, such nations have also seen structural transformation from primary production towards industrialization. The paper discovered that lack of proper government policy, poor infrastructural facilities and lack of funding are the factors responsible for the backward nature of industrialization in Nigeria. Finally, the paper

recommended that government should invest more on industrial development through adequate funding and viable policies that could guarantee sustainable industrial development in Nigeria.

Olorunfemi, et al, (2013), examined manufacturing performance for sustainable economic development in Nigeria, with the specific objectives as follows: i) to look at the growth rate and contribution of manufacturing to GDP. ii) To examine trend in both manufacturing and employment. iii) to determine the structure of capacity utilization. iv)To determine factors influencing manufacturing performance. Panel data analysis was used on secondary data from 1980-2008. The results indicate positive relationship between manufacturing and each of capacity utilization and import as 1 percent change in capacity utilization and import lead to 43081 and 3.8 percent change in manufacturing respectively. However, there is a negative relationship between manufacturing and each of investment, exchange rate, and export. A 1 percent change in investment, exchange rate and export lead to 0.04, 12729, 0.3 percent reduction in manufacturing respectively. The t-values for investment, capacity utilization and import were used to test the hypothesis that each coefficient is different from 0. This is rejected; since the t-value is lower than 1.96 (at 95% confidence level). This showed that investment, capacity utilization and import were major determinants of manufacturing performance for the period. The study concludes that the key to reversing the poor performance of Nigerian manufacturing is to provide incentives for firms to become more export oriented.

Eze et al (2014) examined the impact of fiscal policy on the manufacturing sector output in Nigeria using an ex-post factor design (quantitative research design). The results of the study indicated that government expenditure significantly affects manufacturing sector output based on the magnitude and level of significance of the coefficient and the p-value and there is a long-run relationship between fiscal policy and manufacturing sector output. The implication of his finding is that if government did not increase public expenditure and its implementation, Nigerian manufacturing sector output will not generate a corresponding increase in the growth of Nigerian economy. They recommended that expansionary fiscal policies should be encouraged as they play a vital role for the growth of the manufacturing sector output in Nigeria; that fiscal policy should be given more priority attention towards the manufacturing sector by increasing the level of budget implementation, which will enhance aggregate spending in the economy; and consistent government implementation will contribute to the increased performance of the manufacturing sector.

Ubi et al. (2012), assesses the impact of monetary policy on industrialization in Nigeria as an open economy, using vector error correction mechanisms of ordinary leaste squares econometric technique as the estimation method. The result of the findings is that the variables used in the estimation were statistically significant and have impact on industrialization. They recommended that monetary policy should be consistent and transparently defined in response to the dynamics of the domestic and global economic development.

Osmond et al (2015), examined the impact of monetary policy variables in Nigeria from 1981-2012, using the Johansen co-integration test to establish a Long- run equilibrium relationship between the explained and explanatory variables. The paper also employed the error correction model (ECM) in the estimation of the model. The study revealed that money supply and credit to the private sector exert tremendous influence on manufacturing in Nigeria.

Owolabi et al (2014), examined the impact of monetary policy on industrial growth in the Nigeria economy, using multiple regressions to analyzedata collected upon. The findings were that all the variable as independent variables were statistically significant. The paper recommended that government should develop the individual sector of the economy through its capital expenditure which will contribute positively to industrial growth which will invariably enhance economic growth.

Udoh et al, examined the nature of the sectoral bias of FDI inflow and effect on employment creation in Nigeria, using the OLS and Augmented Dickey Fuller test and error correction model (ECM). The study found out that there is evidence from the Nigerian data that foreign direct investment inflows into the county has not been largely of job creating or employment generations due to the fact that sectoral distribution of foreign direct investment is skewed in favour of mining and quarrying sector, a highly capital intensive distribution sector. They recommended that foreign investment should be encouraged in Agriculture, Forestry and other sectors which demand low skill and labour intensive production techniques.

Ude and Agodi (2015), examined trade openness using Nigeria trade policy as yardstick. The study used Autoregressive conditional heteroskedasticity (ARCH), Generalized Autoregressive conditional heteroskedasticity (GARCH) methodology using secondary data from 1984 to 2013. The results show that trade openness has a significant impact on economic growth. The paper recommended that policy makers in Nigeria should not only be so much occupied with formulating trade policies but should also consider whether the environment is conducive for such policy to thrive. Tamuno and Edoumiekumo (2012) examined the impact of globalization on the Nigerian industrial sector, using unit root test for stationary for the data and the Johansen's co – integration test for Long- run relationship was also employed. The ordinary least square statistical technique was adopted for the estimation of the model. The result showed that gross fixed capital formation and degree of openness of the economy negates the opinion expectations. The Nigerian industrial sector has a weak base and cannot compete favorably with her foreign counterparts. Also, domestic investment is weak and unreliable. The paper recommended that Nigerian should encourage the production of non- primary export commodities and formulate policies that would attract foreign direct investment. External debt should be sourced for productive projects only and also as means of maintaining stable exchange rate.

Odior (2013), investigated that impact of macroeconomic factors on manufacturing productivity in Nigeria over the period 1975 to 2011. The Augmented Dickey Fuller (ADF) test was employed for stationary test and estimate of error correction mechanism for the model (ECM). The findings show that credit to the manufacturing sector in the form of loans and advances and foreign direct investment have the capacity to sharply increase the level of manufacturing productivity in Nigeria. While broad money supply has less impact. The study therefore recommended that government must create "enabling environment" for manufacturers in the area of infrastructure, finance, legal and property rights.

High cost of borrowing is due to high interest rate spread. Therefore the paper advocates a cut in margin between lending and deposit rates. For a resounding performance, the establishment of microfinance banks, small and medium industries, Equity investment scheme and small and medium enterprises development Agencies of Nigeria, Bank of industry should be overhauled for

development and improvement in the local production. Also efforts should be made to achieve a more realistic and stable trade balance through liberalization (though FDI) that will guarantee output growth in both the short and long-rum.

Ekpo (2014), explores the industrial policies and the performance of the individual sector. Using a narrative and descriptive statistic methodology , the study revealed that the policies, identified as ISI, EPI and PII have not helped Nigeria to attain the required level of industrialization that can produce dynamic change in the economic structure of the country and the performance of the industrial sector especially manufacturing have been below expectation. The policies have a common feature of foreign input reliance which makes their successful implementation in Nigeria very costly. The paper recommended that a proper conception and implementation of industrial policy, human capital development especially in the sciences and technical education for skill development, acquisition of relevant technology in the world , massive public investment in the provision of infrastructural facilities and completion or rehabilitation of core industrial projects especially iron and steel projects should be embarked upon.

Ojo and Ololade (2104), attempted the assessment of the contribution of manufacturing sector to economic growth in Nigeria in the era of globalization, using the OLS econometric technique. The study found that though manufacturing sector benefitted from globalization process, the level of the development in the sector is highly neglible. Implying that globalization exert little impact on economic growth via manufacturing sector of the economy. As such the study recommended that efforts should be geared towards strengthening the macroeconomic, socio-infrastructural and institutional environment of the nation, this bring a good linkage between domestic and external institutions with the ultimate aim of properly harnessing funds mobilized towards productive manufacturing sector of the economy.

Oweriebor et al, (2015), examined the public spending on the industrial sector in Nigeria within a dynamic structure , using data covering the period 1980 to 2013, the paper employed the use of econometric tools of Augmented Dickey fuller (ADF) for stationarity test of the time series data, Engle and Granger co- integration, Error correction mechanism (short run analysis). The study found out that public sector spending has no significant effect on industrial production in the short – run. Moreover, government spending has a relatively weak effect on industrial production even in the long- run, suggesting a disconnection between public spending and the real sector of the economy. The paper recommended that the proper focus for policy makers bent on improving industrial performance in Nigeria, thus, is on the process of fiscal management restructuring, at least in the medium- term.

Glych (2016), investigated the effect of fiscal and monetary policy on GDP, determination of the relationship between government spending and industrial development and to determine the effect of budget on investment or employment generation where the thrust of the paper. The OLS technique, F-test was used as analytical techniques, the study revealed that industrialization has a negative impact on economic growth in Nigeria in the long run, which was confirmed by the F- test statistics. The study recommends among, others, that government should redirect its industrial and investment policy so as to increase output of the domestic production (RGDP).   Flexible exchange rate and control inflation rate since that showed that increase in exchange and inflation

rate, decreased output, investment and industrial policy should be inflexible on infant industries so as to encourage productivity and improve GDP.

Moses (2011), examine the sectoral impact of oil and non- oil FDI on Nigerian economic growth. Using OLS techniques and data from 1970 to 2008. The study found out that NON OILFDI is more statistically significant and has more effect on the Nigerian economy on the average compared to OIL FDI. Contrarily, the extractive sector that has higher FDI in the Nigeria economy has less impact on economic growth. The study recommended that government and all stakeholders should encourage FDI into non-oil sectors that have more economic returns in the form of human capital employment, local contents, that the extractive sector dominated expatriates. The local content policy should be strengthen and more in the extraction industry to annex the gains of that sector to economic growth.

From the above review it is evident that a lot of researches have been conducted on industrialization in Nigeria using various econometric methods of the OLS, error correction mechanism, ADF test and Johansen test, ARCH, GARCH. The researchers have been disaggregated in the sense that most tend to either look at monetary policy variables with the industrial sector, or fiscal policy variables with the industrial sector and to some extent, the degree of openness of the economy to industrialization. Because of these separations, this study will attempt to bring together both the monetary, fiscal and openness of the economy in an attempt to see whether or not all or some of these variables have significant impact on industrialization. And whether there is a relationship between and among the variables in question.

Theoretical Framework:

Here major theories of economic growth and industrialization were discussed. The relevance of these theories to the problems of economics and industrial development were also discussed. We shall highlight some major policies and theories, and their relevance to the industrial development in Nigeria.

Big Push Theory:

The big push theory founded by Professor Paul N, Resentein Rodan has seen the need for infrastructures which is the bed rock for industrial development and hence economic development. According to big push theory, social overhead capital the most important instances of indivisibility and hence of external economic of the supply side. The most important product are investment opportunities creating in other industries social overhead capital which comprises all these basic industries like power, transport, communication etc. A look at the state of infrastructure in Nigeria will tell us that there is gross inadequate provision of those highly needed infrastructure for economic development.

The implication of the big push theory in Nigeria

Taking a critical look at the brief history and the present state of Nigerian economy, the appropriate theory and policy to apply in the pursued of industrialization in Nigeria should be the export promotion policy and "big push" theory. The above reasons that account for the preference of the export substitution policy over the import substitution policy and the theories of economic

development through industrialization are as follow: The big push theory has the need for infrastructure which is its bedrock for industrial development and hence economic development. According to the big push, social overheads capitals the most important instance of indivisibility and hence of external economies on the supply side. The most important product are investment opportunities created in other industries, social overhead capital which comprises all those basic industries like power, transport, communication, etc. A look at the state of the infrastructure in Nigeria will tell us that there is gross inadequate and provision of this highly needed infrastructure for economic development. Therefore for the country to be launch into a self-sustaining growth and development, a minimum level of resource (capital) must be developed to the provision of social overhead capital. Another policy of great importance to industrialization and hence economic development in Nigeria is the export promotion policy (and the big push theory). This theory and policy is highly relevant to industrial development, in the less developed country because of some advantages it has over its cousin policy, the import substitution industrialization policy. Generally speaking, the cost of access export promotion is more visible to policy makers than those of import substitution. An export oriented development strategy generally entails relatively greater use of indirect, rather than direct, interventions; there is considerate evidence from individual studies that direct intervention may be considerably recognized. If there are significant indivisibilities of economies of scale, an export oriented strategy will enable firm to adequate size to realize them. If indivisibles and or economics of the scale are of importance an export oriented strategy will provide better incentives for expansion of capacity in existing lines. As such an import substitution strategy therefore are generally limited in their horizons by the size of the domestic market.

The New Growth Theory (Romer, 1990):

New Growth Theory is based on a view of the economy that incorporates two important views. First, it views technological progress as a product of economic activity. Previous theories treated technology as given, or a proof non-market force. New Growth Theory is often called "endogenous" growth theory, because it internalizes technology into a model of how markets function. Second, New Growth Theory holds that unlike physical objects, knowledge and technology are characterized by increasing returns, and these increasing returns drive the process of growth Balami (2006). This new theory addresses the fundamental questions about what makes economies grow: Why is the world measurably richer today than a century ago? Why have some nations grown more than others? The essential point of New Growth Theory is that knowledge drives growth. Because ideas can be infinitely shared, ideas could be accumulated without limit. They are not subject to what economists call "diminishing returns." Instead, the increasing returns to knowledge propel economic growth. New Growth Theory helps to make sense of the on-going shift from a resource-based economy to a knowledge-based economy. It underscores the point that the economic processes which create and diffuse new knowledge are critical to shaping the growth of nations, communities and individual firms. According to Romer (1993), all increases in standards of living can be traced to discoveries of more valuable arrangements for the things in the earth's crust and atmosphere. No amount of savings and investment, no policy of macroeconomic fine-tuning, no set of tax and spending incentives can generate sustained economic growth unless it is accompanied by the countless large and small discoveries that are required to create more value from a fixed set of natural resources Romer (1993, p. 345),

emphasized that people tend to focus on the computer and the Internet as the icons of economic progress, but it is the process that generates new ideas and innovations, not the technologies themselves, that is the force that sustains economic growth. Romer (1993) is credited with stimulating New Growth Theory, but as Romer himself noted, (Romer 1994) there is really nothing new about the theory itself. The central notion behind New Growth Theory is increasing returns associated with new knowledge or technology. The cornerstone of traditional economic models is decreasing or diminishing returns, the idea that at some point as you increase the output of anything (a farm, a factory, a whole economy) the addition of more inputs (work effort, machines, land) results in less output than did the addition of the last unit of production. Decreasing returns are important because they result in increasing marginal costs (that is, at some point, the cost of producing one more unit of production is higher than the cost of producing the previous unit of production). Decreasing returns and rising marginal costs are critical assumptions to getting the mathematical equations economists use to describe the economy to be settling down to a unique equilibrium.

Implications of New Growth Theory in Nigeria context
According to Balami (2006), the New Growth Theory has impressed some economists to the extent that it is likely to lead academics to revise textbooks. There are a number of practical implications from New Growth Theory that should guide us as we think about how to formulate programs designed to stimulate economic growth in Nigeria. According to him if countries accept the theory, it should lead to change in our views of the importance of history in shaping development trajectories, in the role of institutions (law makers) in providing a framework for growth. It should also revive our interest in the importance of place to development.

The Lewis Theory of Growth/Development:
According to Todaro and Stephen (2011) one of the best-known early theoretical models of development that focused on the structural transformation of a primarily subsistence economy was that formulated by Nobel laureate W. Arthur Lewis in the mid-1950s and later modified, formalized, and extended by John Fei and Gustav Ranis in 1997. The Lewis two-sector model became the general theory of the development process in surplus-labour developing nations during most of the 1960s and early 1970s, and it is sometimes still applied, particularly to study the recent growth experience in China and labour markets in other developing countries. In the Lewis model, the underdeveloped economy consists of two sectors: a traditional, overpopulated rural subsistence sector characterized by zero marginal labour productivity-a situation that permits Lewis to classify this as surplus labour in the sense that it can be withdrawn from the traditional agricultural sector without any loss of output-and a high-productivity modern urban industrial sector into which labour from the subsistence sector is gradually transferred. The primary focus of the model is on both the process of labour transfer and the growth of output and employment in the modern sectors. (The modern sector could include modern agriculture, but we will call the sector "industrial" as a shorthand). Both labour transfer and modern-sector employment growth are brought about by output expansion in that sector. The speed with which this expansion occurs is determined by the rate of industrial investment and capital accumulation in the modern sector. Such investment is made possible by the excess of modern-sector profits over wages on the assumption that capitalists reinvest all their profits. Finally, Lewis assumed that the level of wages in the urban industrial sector was constant, determined as a given premium over a fixed average subsistence level of wages in the traditional agricultural sector. At the constant urban wage, the

supply curve of rural labour to the modern sector is considered to be perfectly elastic Todaro and Stephen (2011).

METHODOLOGY

A log linear econometric regression analysis was used to estimate the effect and relationship between industrialization (industrial output) and macroeconomic policy mix. ADF test was conducted to ascertain whether or not the data are stationary since they are secondary time series data (1981 - 2015).

The econometric analytical form of the model is presented below:

$$INDO = \beta_0 + \beta_1 FEX + \beta_2 INF + \beta_3 INT + \beta_4 FDI + \beta_5 M2 + \beta_6 DOO + U_T \qquad (1)$$

Where,

INDO = industrial output (proxy by index of production); FEX= foreign exchange rate; INF=inflation rate; INT=interest rate; FDI=foreign direct investment; M2=money supply; DOO= degree of openness of the economy (which is calculated, an addition of imports and export divided by GDP. Apriori $\beta_1, \beta_2, \beta_3, \beta_5 < 0$; $\beta_4, \beta_6 > 0$

In addition to the empirical results, some descriptive statistics and diagnostic tests were carried out to confirm and add value to the results and findings.

DATA ANALYSIS AND DISCUSSION OF RESULT

Descriptive Statistics

Trend in Macroeconomics Policy

Figure 2: Trend in macroeconomics
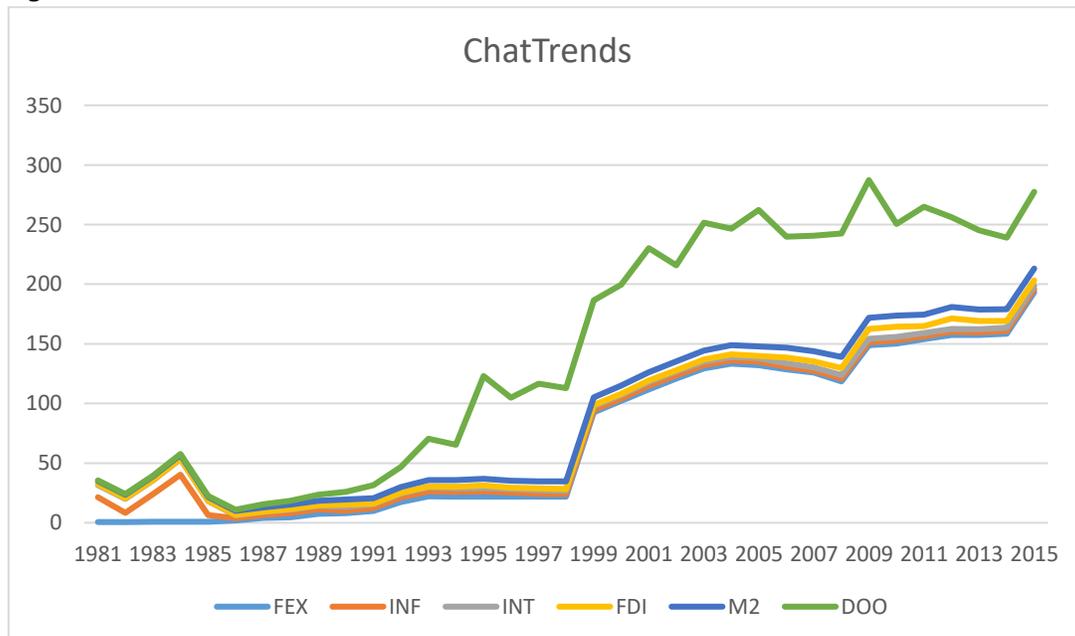
Source: Author, 2022

The trend in macroeconomic policy is seen in figure 2. The trend showed a steady upward growth in policy from 1991 to 2015.This is a pointer that policy was not lacking but there could have been mismatch and misdirection of the policies.

Trend in Industrialisation

Figure 3: Trend in Industrial Production
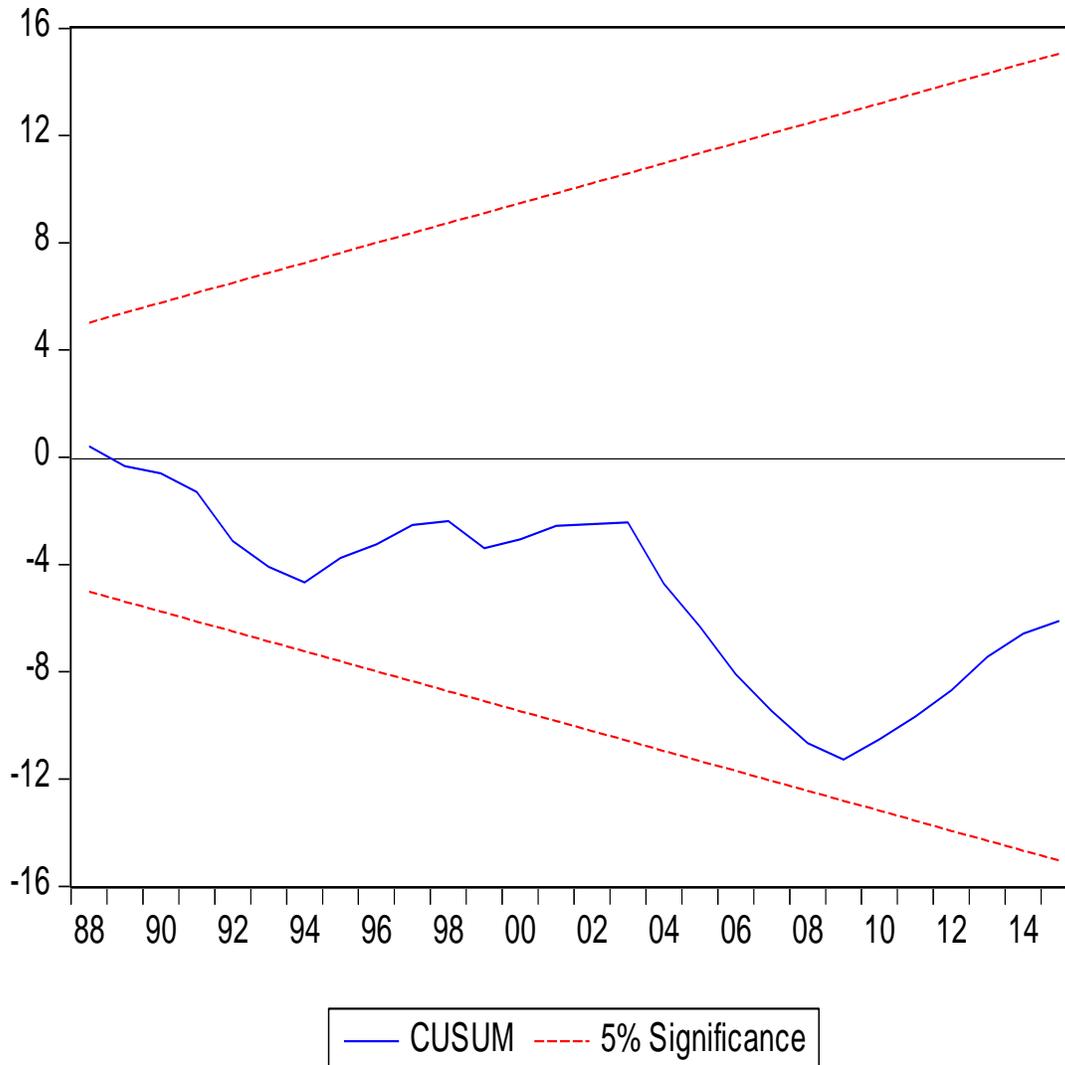
Source: Author, 2022

Industrialisation represented by industrial output exhibit a downward and a negative trend (figure 3). Thus, a growth in policy led to downward growth in industrial production. This implies that macro-policy was directed wrongly or was implemented without due regard to basic objective of policy.

Jarque-Bera and Kurtosis

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Figure 4: Jarque- Bera and Kurtosis
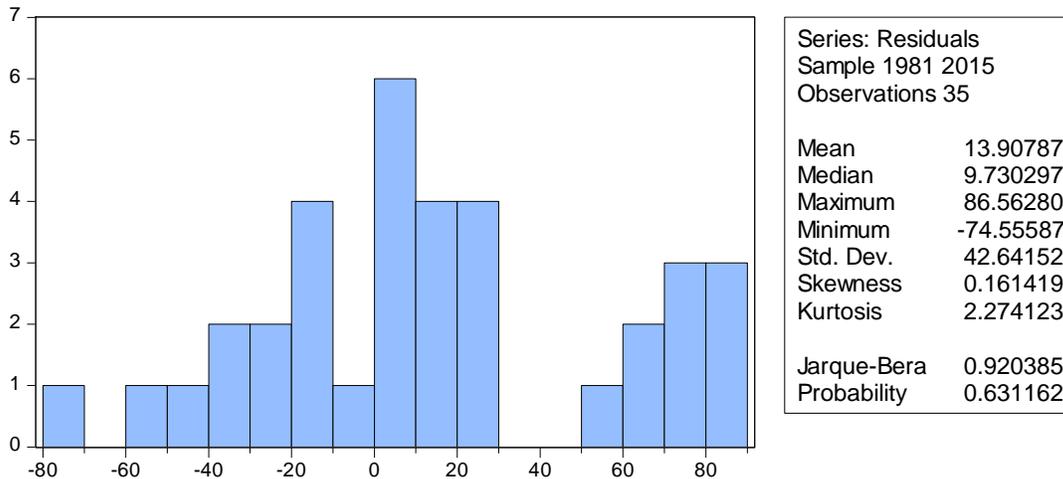
Source: Author, 2017

This statistic explains the growth rate of policy. The rates for all variables, except industrial production, are positively skewed, going by their kurtosis. The variables have a mean of 13.9% and a median of 9.7%. Based on the Jarque-Bera statistic, we accept the null hypothesis that all variables are normally distributed.

Empirical Results

The data were first log so as to compress the data for easier computation using E-views after which a stationarity test was done to avoid spurious regression on the data. It was found from the stationarity test that none of the variables used are stationary at level. While industrial out (Y), foreign exchange rate (FEX), Inflation rate (INF), Interest rate (INT), and Foreign direct investment (FDI) were stationary at first difference, but money supply (M2) and Degree of openness (DOO) were stationary at second level. See below the values of ADF and Mackinnon critical values all at 1%.

Stationarity Test

Table 1: Augmented Dickey Fuller Test Result

	Order	ADF at statistic	Mackimon critical values
Industrial output (Y)	I (1)	- 6.203650	1% = - 3.646342
Foreign exchange (Fex)	I (1)	- 4.954776	1% = -3.646342
Interest rate (Int)	I (1)	- 5.868660	1% = - 3.646342
Inflation (Inf)	1 (1)	- 5.664551	1% = - 3.646342
Foreign direct investment (FDI)	I (1)	- 10.95613	1% = -3646342
Money supply (M2)	I (2)	- 8.121140	1% = - 3.653730
Degree of openness (DOO)	I (2)	- 7.303190	1% = - 3.661661

Source: Author, 2022

The data was differenced in order to become stationary. The ADF test results are summarised in Table 1. The results showed that all variables have unit root in levels but became stationary after first difference. All variables became stationary at 1% level of significance. The null hypothesis of unit root was rejected for the alternative hypothesis of no unit root in the series. The variables are integrated of order I(1), except for broad money supply (M2) and openness (DOO) which were integrated of order I(2).

Regression Result
Using the stationarity test result to run an ordinary least square test, both the log value and stationarity result where incorporated into the estimation procedure. The following result in log form was established and is summarised as follows:

$$INDO= -0003+0.019LFEX-0.079LINF+0.035LINT-0.027LFDI-0.032LM2+0.044LDOO \qquad (2)$$
$$(-0.02) \quad (0.37) \qquad (-2.57) \qquad (0.58) \qquad (-0.03) \qquad (-0.29) \qquad (1.51)$$

SE: 0.02   0.05   0.03   0.58   -0.97   0.11   0.03

R^2= 0.299   Adjusted R^2= 0.138   DW = 1.7

From the result, FEX, INT, and FDI violate our apriori expectation. In terms of magnitude, INF, DOO, and INT respectively have greater influence on industrialisation, followed by M2, FDI and FEX in that order. The main findings of our empirical results show that all the independent variables were not statistically significant in explaining the change in industrial output. The change in industrial output could not be explained jointly by changes in the independent variables as the adjusted R^2 is just 0.137735 least than 15% meaning that the changes in industrial output are explained by other factors other than these. The implication of the whole result is that there is no relationship between industrial output and macroeconomic policy mix.

From the result obtained the coefficients of foreign direct investment show that any increase in above 1% will lead to a fall in industrial output by about 0.026967 and for inflation rate will lead to a reduction of industrial output by above 0.078467 and stock of money supply will be 0.032447.

The intercept term in saying that nothing affects industrial output at its values is -0.000297. The values of the intercept foreign direct investment tends to defy expectation while interest rate, foreign exchange rates have agreed with expectation.

The implication of the whole result is that there is no relationship between industrial output and macroeconomics mix. But if on the bases of absolute figures without reference to sign of the values the only variable that has a relationship with industrial output is inflation which may imply that as the rate of inflation increases manufacturers may increase their output to gain from the increasing prices of output in the economy.

Test for Cointegration
Table 2(a): Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.994663	291.2460	125.6154	0.0000
At most 1 *	0.742158	118.5509	95.75366	0.0006

At most 2 *	0.619972	73.82240	69.81889	0.0231
At most 3	0.464166	41.89455	47.85613	0.1617
At most 4	0.293283	21.30483	29.79707	0.3389
At most 5	0.185348	9.849730	15.49471	0.2925
At most 6	0.089247	3.084939	3.841466	0.0790
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Table 2 (b): Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.994663	172.6951	46.23142	0.0000
At most 1 *	0.742158	44.72848	40.07757	0.0139
At most 2	0.619972	31.92785	33.87687	0.0839
At most 3	0.464166	20.58972	27.58434	0.3018
At most 4	0.293283	11.45510	21.13162	0.6019
At most 5	0.185348	6.764791	14.26460	0.5173
At most 6	0.089247	3.084939	3.841466	0.0790
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

From Tables 2 (a) and (b), the trace test indicates that 3 equations cointegrated at 5% level of significance while table 2 (b) indicates that there are only 2 cointegrating eqns at 0.05 level of significance. Since there is evidence of cointegration, we ran a vector error correction model (VECM) as suggested by economic theory.

Vector Error Correction Model (VECM)
The VECM helps us to establish the short-run dynamics of variables in the system. These dynamics are influenced by the deviation from equilibrium. This is shown by equation 3.

$$\Delta Y_t - \beta_1 X_t + \beta_2 (Y_{t-1} - A_{xt-1}) + \varepsilon_t \qquad (3)$$

The error correction term is $Y_{t-1} - A_{xt-1}$. If the coefficient of $_{xt-1}$ is 1, it means there is a proportional long-run relationship between Y and X. Y is expected to change between t-1 and t as a result of changes in the values of the explanatory variables X between t-1 and t. This is also expected to correct for any disequilibrium that was present in the previous period. **A** indicates the long-run relationship between X and Y. β_1 defines the short-run relationship between changes in X and changes in Y. β_2 defines the speed of adjustment back to equilibrium (Asteriou and Hall, 2007).

Table 3: VECM results (Dependent variable DLINDO)

Variable	coefficient	Standard Error	t-statistics
D INDO(-1)	-0.024807	(0.04046)	[-0.61309]
D FEX(-1)	0.010490	(0.07506)	[0.13977]
D INF(-1)	0.017895	(0.00676)	[2.64883]

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D INT(-1)	-0.011617	(0.00071)	[-16.2735]
D FDI(-1)	-0.003790	(0.00490)	[-0.77333]
D M2(-1)	-3.473243	(2.08447)	[-1.66625]
D DOO(-1)	-0.032546	(0.06649)	[-0.48952]
C	-1.518795	(3.00746)	[-0.50501]
Error Correction	D (INDo)	D (FEX)	D (INF)
CointEq1	0.071980	0.126398	0.313426
	(0.22458)	(0.14238)	(0.49964)
	[0.32052]	[0.88778]	[0.62731]

D (INT)	D (FDI)	D(M2(-1))	D(DOO(-1))
-5.280793	-0.881601	-4.02E-05	-0.026593
(2.70075)	(1.99954)	(0.00304)	(0.13634)
[-1.95531]	[-0.44090]	[-0.01321]	[-0.19504]

Source: Author, 2022

From table 3, foreign exchange (DLFEX) has a positive relationship with the dependent variable (INDO), both in the long-run and short-run, but the relationship is statistically insignificant. Inflation (DLINF) is related to industrialisation positively both in the long-run and short-run but both are statistically insignificant. Interest rate (DLINT), both in the long-run and short-run, has a statistically significant negative relationship with industrialisation (DLINDO). Foreign direct investment (DLFDI) has a negative relationship with DLINDO both in the long-run and in the short-run, and the relationship is statistically insignificant. Broad money (DLM$_2$) and openness of the economy all have a statistically insignificant negative relationship with industrialisation

Variance Decomposition Analysis (VDA)
VDA measures the proportion of forecast error variance in a variable which is explained by innovations in itself and the other variables. It defines the ratio of movements in the dependent variable (Indutrialisation) that are due to their own shocks and the shocks to the other variables (Brooks, 2002).

Table 4: Variance Decomposition Proportions
Associated Eigenvalue

Variable	1	2	3	4	5	6
FEX	0.023443	0.000362	0.003577	0.929444	0.043175	1.18E-09
INF	0.002192	0.816551	0.181019	0.000235	2.03E-06	1.42E-14
INT	0.017530	0.971490	0.010953	2.68E-05	6.87E-07	4.70E-15
FDI	0.998667	0.001326	3.81E-06	3.39E-06	5.54E-08	5.85E-15
M2	0.478497	0.000118	0.001277	0.297588	0.135783	0.086736
DOO	0.182822	0.026257	0.020366	0.726165	0.044390	3.01E-10

Source: Author, 2022

Table 4 contains the variance decomposition proportions. These are the contributions of the explanatory variables to variations in industrial output during the period under study. From the third year (period) upwards, FDI contributed 3.8% to variations in industrialisation (INDO) while interest rate (INT) from the fourth year accounted for only 2.7% variations in INDO. Thus, FDI accounted for 3.8% to 5.8% variations in INDO while INT contributed 2.7% to 4.7% variations to INDO over the period.

Granger Causality Test

Table 5: Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
FEX does not Granger Cause Y	33	0.80174	0.4586
Y does not Granger Cause FEX		1.29753	0.2891
INF does not Granger Cause Y	33	1.53470	0.2331
Y does not Granger Cause INF		0.94546	0.4006
INT does not Granger Cause Y	33	4.55711	0.0193
Y does not Granger Cause INT		1.53534	0.2330
FDI does not Granger Cause Y	33	0.34447	0.7116
Y does not Granger Cause FDI		0.66744	0.5210
M2 does not Granger Cause Y	33	0.42831	0.6558
Y does not Granger Cause M2		0.28315	0.7555
DOO does not Granger Cause Y	33	0.74395	0.4844
Y does not Granger Cause DOO		2.83580	0.0756

Source: Author, 2022

The results in table 5 above indicate that the null hypothesis that FDI, M2 and openness (DOO) does not granger cause industrial growth (INDO) cannot be rejected (p-value > 5%) and vice versa.

Policy Implication of the Findings
The policy implication is that there is a weak and insignificant link between the explanatory variables and industrial production. From the analyses and results, there are both long-run and short-run relationships between macroeconomic policies and industrialisation. However, most macro policies were short-run policies directed at solving short term problems. Judging from the VECM, we infer that macroeconomic policies were not properly matched with the required policy objectives, especially as they related to industrial growth and development. Even in the short-run, policies made insignificant and most often negative contribution to industrialisation let alone in the long-run.
Furthermore, Nigeria macro policy had been skewed in favour of services, such as transport service and food production industrialisation. Figure 1 (a) and (b) and appendix 2 confirm our findings.

CONCLUSION
Macroeconomics is a potential mechanism for dealing structural issues in relation to industrial growth and economic development. However, the results showed that macroeconomic policy

failed to translate into sustained industrial growth in Nigeria. Macroeconomic policy in Nigeria more or less had been targeted at public works, services, etc rather than growing the real sectors, particularly the manufacturing sector. Thus, Macroeconomics have not had the requisite impart in the economy.

Recommendation

i. What we need is not just macro policy but macroeconomic policy with practical impartation in the real aspects of the economy. Such policies should focus on the long-run industrial growth performance. There must be policy design and framework in the areas of foreign exchange policy, inflation and interest rate policy.

ii. Our variance decomposition analysis showed that FDI and interest rate account for significant variations in industrial output during the period of this study. Lower real interest rates would encourage domestic savings and capital formation. Inflow of capital into the economy, if channelled into the correct real sectors would boost industrial growth.

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APPENDIX 1: Macroeconomic Policy Mix

Years	Foreign exchange(fex)	Inflation(inf)	Interestrate(int)	Foreign Direct Investment ('$ Billion)(fdi)	Money supply (m2)	Index of industrial production (Y)	Degree of openness(DOO
1981	0.6100	20.9	10.00	0.739	16.2	115.6	0.60085
1982	0.6729	7.7	11.75	0.542	18.1	122.9	0.57977
1983	0.7241	23.2	11.50	0.431	20.9	98.4	0.71368
1984	0.7649	39.65	13.00	0.364	23.4	91.8	0.82456
1985	0.8938	5.5	11.75	0.189	26.3	100.00	0.89713
1986	2.0206	1.832581	2.295560	0.486	27.4	103.5	0.99903
1987	4.0179	2.465129	2.636196	0.193	33.7	122.1	2.74380
1988	4.5367	3.533395	2.810607	0.611	45.4	108.8	3.18006
1989	7.3916	3.892228	3.007661	0.379	47.1	125.0	4.94015
1990	8.0378	2.054124	3.230804	1.884	68.7	130.6	6.54453
1991	9.9095	2.501026	2.997730	0.588	87.5	138.8	10.97115
1992	17.2984	3.796949	3.209229	0.712	129.1	136.2	16.79180
1993	22.0511	4.045504	3.454738	0.897	198.5	131.7	34.83217
1994	21.8861	4.050393	3.019449	1.345	266.9	129.2	29.38640
1995	21.8861	4.286754	3.007167	1.959	318.8	128.8	86.12609
1996	21.8861	3.377246	2.987700	1.079	390.3	132.5	69.5859
1997	21.8861	2.367436	2.879198	1.593	429.7	140.6	81.88442
1998	21.8861	2.061787	2.900322	1.539	525.6	133.9	78.255401
1999	92.6934	1.890095	3.010128	1.051	699.7	129.1	81.23780
2000	102.1052	1.937302	3.057298	1.005	1036.1	138.9	84.40827
2001	111.9433	2.937573	3.154444	1.140	1315.9	144.1	103.85817
2002	120.9702	2.555676	3.209633	1.191	1,599.5	145.2	80.67658
2003	129.3565	2.641198	3.030617	1.874	1,985.2	147.0	107.12828

2004	133.5004	2.708050	2.953868	2.005	2263.6	114.2	97.63005
2005	132.1470	2.882564	2.887590	1.874	2814.8	116.7	114.47928
2006	128.6516	2.106570	2.827314	4.983	4027.9	114.8	93.11490
2007	125.8331	1.690096	2.829678	4.854	5809.8	113.3	96.92820
2008	118.5669	2.449279	2.739549	6.035	9166.8	110.7	103.68674
2009	148.8802	2.528924	2.910174	8.197	10,780.6	113.5	115.45728
2010	150.2980	2.619583	2.867331	8.555	11525.5	120.3	76.78832
2011	153.8616	2.379546	2.773838	6.026	13,303.8	128.7	90.41725
2012	157.4994	2.501436	2.484907	8.841	15483.8	130.2	75.21965
2013	157.3112	2.367436	2.484907	7.070	15689.0	137.9	66.29667
2014	158.5526	2.474014	2.674149	5.563	18913.7	137.9	59.87352
2015	193.2792	2.542992	2.755622	4.656	20029.8	133.2	64.43407

Source: CBN Statistical Bulletin, 2015

APPENDIX 2: Structure of Industry in Nigeria

Year	Coal mining	Food	manufacturing	Transport	service
1981	24.97	1.87	1.72	2.38	
1982	24.97	1.76	1.65	3.05	
1983	24.97	2.84	2.67	3.55	
1984	24.97	2.81	2.66	3.74	
1985	24.97	2.97	2.62	3.90	
1986	24.97	3.12	2.81	4.54	
1987	27.36	3.40	3.09	4.56	
1988	27.38	4.48	3.93	4.78	
1989	27.41	4.84	4.38	4.83	
1990	27.38	5.46	5.04	5.31	
1991	29.05	6.60	6.05	5.69	
1992	31.95	9.67	8.73	7.48	
1993	41.84	14.71	12.96	11.76	
1994	143.17	24.32	21.23	22.09	
1995	64.51	29.59	26.00	32.94	
1996	72.99	33.70	29.87	41.22	
1997	74.91	38.64	33.96	46.06	
1998	76.70	46.23	43.91	56.27	
1999	78.24	51.37	48.92	64.19	
2000	82.72	57.03	54.86	68.80	
2001	82.13	62.95	59.35	73.72	
2002	84.87	65.23	62.15	76.49	
2003	84.87	71.06	67.99	86.72	
2004	89.67	72.96	70.73	66.73	
2005	75.12	76.57	75.66	72.25	
2006	62.50	80.55	80.90	78.27	
2007	74.39	84.59	85.04	84.29	
2008	89.59	89.41	89.69	90.27	

2009	93.98	95.36	95.41	97.37
2010	100.00	100.00	100.00	100.00
2011	100.25	108.15	107.38	105.86
2012	100.50	120.19	116.83	129.00
2013	100.70	129.81	124.15	142.43
2014	105.16	136.66	129.94	155.37
2015	109.78	146.12	136.24	168.98

Source: Bureau of Statistics, 2015