

The Impact of Monetary and Fiscal Policies On the Performance of the Industrial Sector in Nigeria: A Bounds Test Approach

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ABSTRACT: *This study explicitly digs into the separated impact of fiscal and monetary policies as government stabilization policies on the Nigerian industrial sector performance as a real sector, from 1986-2021, using the ARDL Bounds Testing Approach. The data were filtered with use of Augmented Dickey Fuller unit root test while Johansen cointegration test was used to justify the long-run relationship among all included variables. Annual data were gathered from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank Indicators (various issues). It was discovered that government stabilization policies are potent determinants on the industrial sector output in Nigeria both in the short-run and long-run. An appropriate monetary and fiscal policies mix and adjustments to match the dynamic nature of the economy would not only develop and sustain the Nigerian industrial sector but also enhance the living standard of the people.*

KEYWORDS: industrial output, fiscal policy, monetary policy, stabilization policy, covid-19, bounds test approach

INTRODUCTION

The importance of industrialization to economic development and sustainability cannot be overemphasized. This is because Industrialization has been a veritable tool that foster and sustain an economic growth that structurally transform and diversify and agrarian and mono economy to an industrialized and self-reliant state. Over the years, industrialization has been adopted as a strategy for economic growth and development with an appropriate technology mix, quality and sustainable infrastructural input, modern and up-to-date managerial expertise coupled with other necessary developmental inputs that are capable of attracting considerable local and foreign interest into the industrial process of Nigeria. (Okafor, 2005). Data from the Central Bank of Nigeria Statistical Bulletin have shown that the manufacturing sector of Nigeria is more dynamic when compared to other sectors in Nigeria due to the dynamism of government fiscal and monetary policies on which it highly depends on for its growth (Szirmai, 2008).

The current shocks and dwindles in the Nigerian manufacturing sector (proxy for industry), especially from the global pandemic experienced in 2020, and a seemingly collapse in the entire

socio-economic infrastructures of the economy has considerably slowed the growth paced of the manufacturing sector. For instance, the statistics released by the Nigerian Bureau of Statistics shows that total output of the manufacturing sector shrink by -2.75 percent in 2020, signaling a negative growth after a two-year positive growth. Although, the sector has suffered gross neglect due to bad governance with series of inconsistent polices and policy somersault from successive military and civilian governments with frequent changes of power coupled with corruption and mismanagement of public funds, weak budgetary allocations, policy reversals and policy somersault. All these are some of the banes to development and have slowed the development pace of a vibrant manufacturing sector. (Banmijoko, 2011). The moribund state of the manufacturing sector of Nigeria is traceable to the failure of the government's departure from a growing diversifying economy to a complete oil-reliant economy. However, before Nigeria gained her independence, the infant manufacturing sector was dominated by foreign firms like John Holts, UAC, Royal Niger Company (RNC) and CFAO. Their operations in the Nigerian economy cause more harm than good because the rate of capital flight was enormous, retarding the growth and development of both local entrepreneurship and infant industries in Nigeria. (Adejugebe 2006). However, the Nigerian government, over the years, has embarked on different industrialization programmes to remedy some of the ugly situations in the sector. Among these programmes are the Nigerian Enterprises Promotion decrees of 1972, 1977, and 1981, which aimed at placing a limit to shares owned by foreigners in the sector. The programmes, to a greater extent, achieved its primary aim by shifting majority of the foreign ownership to indigenious ownership from the early 1960s to 1970. This gave birth to the Indigenization policy which created room for a higher local participation in the industrial sector of the economy. Data from the National Bureau of Statistics revealed an unprecedented growth of 12.9 percent in the manufacturing sector output from 1966 to 1975 due to the oil boom enjoyed by Nigeria and the import substitution industrial strategy which primary aim was to produce locally, goods that were hitherto imported. The growth rate accelerated further to 18.3 percent from 1976 to 1985 owing to the establishment of more import-substituting industries. However, the collapse of the world oil market due to the war that ravaged the Middle East led to a sharp drop in the foreign exchange earning capacity of Nigeria and this negatively affects the importing capacity of the industrial sector. This subsequently led to a shortage of the needed raw materials causing manufacturing output to nosedive with an average of about 2.6 percent from 1986 to 1998, despite the introduction of the Structural Adjustment Programme (SAP) by the Olusegun Obasanjo's administration, in 1986. (Anyanwu, 2004).

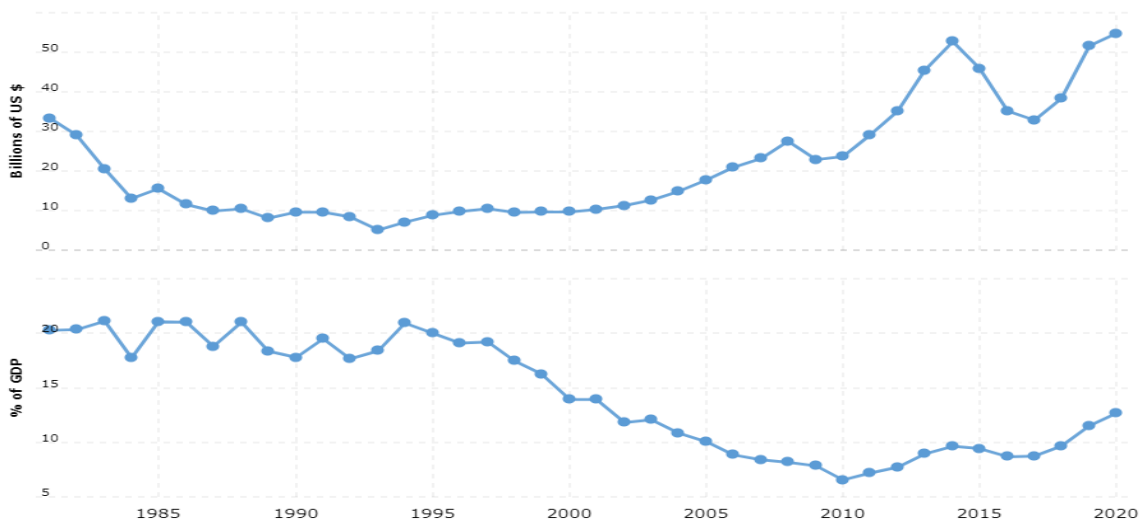
The Nigerian government fiscal policy has never been a favourable one since 1970, recording just six surpluses since then, especially in the early 1970s during which the country enjoyed a period of oil boom. One of the primary causes are the development consciousness for the rising population coupled with rising external and domestic debts incurred to finance the deficits in the budget, amongst others. This has not augured well for the manufacturing sector's growth (World Bank, 2016). However, the government, through her monetary and fiscal policies, can influence the behaviour of the manufacturing sector via money supply, interest rates, taxes and public expenditure. The achievements of government goals through the use of these tools rest on the shoulders of her apex financial institution- the Central Bank of Nigeria (CBN). To this light, this

research work digs into the impact of an efficient mix of fiscal and monetary policies, as stabilization policies, on the Nigerian industrial sector.

REVIEW OF RELATED LITERATURES

Brief Outlook of the Nigerian Manufacturing Sector's Performance.

Data from the National Bureau of Statistics revealed that the Nigerian manufacturing sector clocked a 7.83 percent highest contribution to the gross domestic product in 1982 and after which it began to experience a steady decline. A major cause of this variation has been the changing government monetary and fiscal policies, and this has also reshaped the activities of the sector. Before the oil boom era of the early 1970s, the manufacturing sector contributed a meager 9.9 percent to Nigeria's national income, after which the government focused almost entirely on the oil boom which caused the contribution of the sector to output to decline further even though the country experienced growth at a diminishing rate. The economic recession that collapsed world oil prices in the first quarter of 1980 forced the government to shift her focus back to the manufacturing sector, (especially steel production). Before the recession, in 1972 and 1977 to be precise, the Nigerian Enterprises Promotion Decrees (NEPD) was able to switch ownership of foreign firms to indigenous ownership. To protect infant industries and encourage local production of necessities like salt and soap, foreign capital inflows were restricted, import duty were raised to discourage consumption of imported goods, foreign exchange control amongst other measures. Furthermore, the government provided export and import subsidies with the aim of encouraging the importation of strategic raw materials vital for the growth assembly plants in the country, like the Peugeot Automobile of Nigeria (PAN) in Kaduna and Volkswagen Assembly plant in Lagos, Nigeria. The sector experienced a short spike manufacturing output in the first quarter of 1980, contributing 7.83 percent of total gross domestic product. Local manufacturers were discouraged from the rising cost of inputs, weak infrastructural and human capital investment (Banmijoko, 2011).



Source: World Bank

Figure 1: The Nigerian Manufacturing sector performance/Contributions to GDP

The Structural Adjustment Programmes (SAP), an initiative of the World Bank in 1986 adopted the import substitution industrialization strategy to boost the balance of payments position by restricting imports with the aim of producing locally goods that were hitherto imported. Although, this strategy failed to achieve its primary aim as there were fewer closure of foreign plants. The Commercialization and Privatization Acts of 1988 were born to boost the efficiency level in public manufacturing enterprises. However, data from the World Bank show that the sector experienced a 0.62 percent rise in manufacturing output from 1986 to 1988 as a result of the aforementioned programmes. Nigeria relied majorly on oil exportation, neglecting the manufacturing sector on its moribund state. Firms in the industry were inefficient with a poor export base, causing most of them to relocate to a more comfortable environment abroad, except for few key ones like textiles, beverages, tobacco and cement who kept the industry's head above waters, but operated below half their capacity. In 2020 manufacturing output stood at \$54.76B, a 6.06 percent rise from 2019, a 34.72 percent increase from 2018 to 2019, a 16.66 percent increase in 2018 from 2017 and a mere 6.47 percent increase in 2017 from 2016. (See figure 1)

Monetary and Fiscal Policies Influence on Manufacturing Productivity in Nigeria

To revamp the manufacturing sector in the first quarter of 1980, the government adopted a mix of fiscal and monetary policies to stimulate real output vis a vis inflation control, as inflation was less severe in this period (Adejugbe, 2006). Each of the stabilizing policies shifted in the 1970s which immediately led to the feasible dynamics in growth pattern recorded in manufacturing production and real output. Fiscal policy became more expansionary in terms of both capital and recurrent spending. Basic infrastructures were put in place and there was an economic empowerment in the form of increase in wages and salaries. These resulted to a rise in demand for goods and services. Although, the combined effect of these policies resulted in inflationary pressure which led to a reduction in real output in the late 1970s, data from the World Bank revealed. The shift in monetary policy target from exchange rate to a direct money supply control is a deliberate attempt to curtail the inflationary pressure. Under money supply targeting, monetary policy restraint should have dominated the fiscal expansion through the exchange rate and interest rate channels but the fixed exchange rate and interest rate policy of the period did not make this happen (Anyanwu, 2004).

Data from the National Bureau of Statistics revealed that the exchange rate in real terms depreciated in response in part, to non-monetary factors and external financial conditions rather than appreciating as perceived, and restrictions on money supply growth appeared to have smaller effects on expenditure than are anticipated. In the mid-1980s the shifts in fiscal and monetary regimes in opposite directions offset the effects of each other on real output hence the downward trend in the real output. Thus, despite the apparent shifts in fiscal and monetary policy regimes in this period, it appears that the period of relatively high but volatile growth rate coincided with a period of combined fiscal and monetary policy that is expansionary and accommodating. In the 1980s period, fiscal and monetary policies imposed coordinated restraint on the economy. Fiscal restraint, in response to concern over the mounting deficit and debts resulting from a fall in oil revenue marked drastic departure from 1970s fiscal expansion posture. Monetary restraint is also introduced to tighten monetary conditions aimed at reducing inflation. This is a coordinated domestic fiscal and monetary restraint combination and it marks the end of a relatively high, and

stable real output growth. However, the adverse impacts of this policy mix on growth led to a quick reversal of the policy restraint in the 1990s to fiscal policy moderation and monetary accommodation. Real output responded to this stimulus positively but slowly. The above trend analysis suggests that the post 1970s period of slower and more volatile growth in real output did occur during a period when fiscal and monetary policies shifted from expansionary to more of restraint and moderation. Thus, the shift in policy might possibly accounted for the greater volatility and low growth in real output in the later period from 1980s even in the 1990s when substantial structural and policy reforms had been implemented. Perhaps the most fundamental change in the practice of post SAP monetary policy was the shift from a direct to an indirect monetary policy management system. The focal aim of a shift in policies was to deepen and strengthen the money market with a view of ensuring monetary and fiscal stability in Nigeria.

Despite the introduction of the Structural Adjustment Programme in 1986, very little change with respect to the pattern of the government fiscal policy even with the concerted effort by the government to cut its spending in mid-1990s. This apparent linkage in policy and output trends is therefore suggesting, though tentatively, that macroeconomic policy is an integral determinant of output growth volatility and hence could not be excused from the dismal manufacturing sector's performance over the years. However, in broad terms there is a case for more detailed investigation of the relationship that exist between the manufacturing output and the stabilization policies of the governments to determine whether they act as catalysts of growth or not to the industrial sub-sector.

Previous studies centered their views on the effectiveness of the fiscal policy and monetary policy on economic activities. While several studies involved either of the two stabilization instruments, others who are very few combined both. Yet, very few literatures are available on the relative effectiveness of monetary and fiscal policies on manufacturing industry in developed and developing countries of the world. However, there are different opinions on which of the two policies holds greater influence on the economic or manufacturing activities in Nigeria. The findings of the study carried out by Oktaviani et al. in 2010 revealed that both monetary and fiscal policies are quite powerful to minimize the impact of external and internal shocks. However, if the impact of internal or external shocks on Indonesian economy is quite big, the government should intervene at a reasonable scale as well. On the types of policy tools that are used, the result showed that fiscal policy with different tools will result in different impacts. It will depend on the transmissions that have occurred. Further, their study suggests that Indonesian industry is not so responsive to changes in the interest rate. This means that fiscal policy is still preferable to improve the real sector relative to monetary policy.

In Nigeria, some studies have also examined the relative effectiveness of the government stabilization policies on the economy with few dedicated to manufacturing. Ezeoha and Uche (2004), while reviewing the practice of fiscal and monetary policies in their study, "Rethinking Monetary and Fiscal Policies in Nigeria", the independent variables they employed are retained revenue, total expenditure, overall deficit/ surplus and debt for fiscal policy; nominal lending rate and real interest rate for monetary policy, and the dependent variable used is capacity utilization

rate. The methodology of their study was not, however, stated but they concluded that fiscal recklessness has been the cause of the failure of the stabilization policies of the government, and that what the government of Nigeria needed was fiscal policy rule. Reviewing the various literatures above, while the studies of Ajisafe and Folorunso (2002), Ezeoha and Uche (2004), supported monetary policy as being more potent than the fiscal policy in regulating the macroeconomic activities, others such as the studies of Oktaviani et al. (2010), Olaloye and Ikhide (1995) had contrary results. Can we then conclude that, probably, monetary policy is more effective than fiscal policy or vice versa? Is it even possible to deduce that there may be external factors such as economic openness, globalization policy, etc, counteracting the effects of the government monetary and fiscal policies in Nigeria?

It has become obvious that empirical studies regarding the relative effectiveness of the stabilization tools in Nigeria are on the increase. Yet, there are fewer related studies on the output of manufacturing sector in Nigeria. The purpose of this study is, therefore, to fill this vacuum by testing empirically the effects of monetary and fiscal policies' variables on the index of manufacturing sector in Nigeria taking due advantage of longer time series.

Contributions of Manufacturing Industries in Nigeria to Growth and Development

According to Aderibigbe (2004) manufacturing industry contributes significantly to the nation's economic development in the following ways; 'increase in government revenue through tax; boost manufacturing no doubt will lead to industrialization. The bigger the number of manufacturing industries the better industrialized such society is said to be; Improve standard of living with manufacturing potentials, more of the people will be gainfully employed in various manufacturing activities, per capita income may increase and the general standard of living improved; Infrastructural growth- construction of good roads to areas where raw materials are exploited and siting of manufacturing industries to these sources of raw materials may help improve the growth of basic infrastructural requirements; Contribution to Gross National Product (GNP)- the manufacturing sector in Nigeria being next to oil has through their operations contributed to the gross national product of the country through earning from exportation of manufactured goods; Employment generation- manufacturing industry being one of the largest in the economy performs the major role of employment generation at all levels i.e. skilled, semi-skilled and unskilled labour and thereby fulfilling one of the nation's ultimate macroeconomic goals; Enhance manpower development- the manufacturing industries provides on the job training for some of the workers to enable them to operate some machine or perform some activities and thereby enhancing manpower development; Manufacturing can also make available many essential commodities; it lead to transfer of technology; Manufacturing may bring about an improvement in bilateral relationship especially in terms of trade with other foreign nations; Industrialization lead to foreign direct investment.

The Nigerian manufacturing sector was no doubt hit by the ravaging COVID-19 pandemic except companies providing vital goods and services including pharmaceuticals, beverages and paper, while others experienced a sharp drop in demand with the mounting pressure to cut operational cost. Before the COVID-19, the closure of the Nigerian borders was able to partially shield the

economy from negative external shocks. The government plans to utilize available local resources have created huge opportunities for both local and foreign investors, willing to work and invest in the manufacturing sector, in order to achieve an all-inclusive growth. Reports released by the Manufacturers Association of Nigeria (MAN) in 2021 revealed that manufacturing activities sprout up to pre-COVID-19 era in the second quarter of 2021, with weak infrastructural base and poor access to foreign exchange as major banes. The Manufacturers CEO Confidence Index (MCCI) is used as a barometer by MAN to acquire CEO's view of macroeconomic changes in the economy for a specific period. Points above 50 indicate manufacturers' confidence in the economy while points below indicate otherwise. Macroeconomic variables including exchange rate, lending rate and inflation rate were pretty much unfavourable. The manufacturing sector experienced a boost during the pre-COVID-19 era to 52.9 points in the second quarter of 2021. However, the sector experienced major challenges like weak access to foreign exchange for importing raw materials and machines vital for production. The Central Bank of Nigeria (CBN) temporarily ban the allocation of foreign exchange to the Bureau De Change which further places more responsibilities on the Deposit Money Banks (DMBs) on FOREX sales and applications on the economy. As a remedy, the reports urge DMBs to designate more desks to handle FOREX related issues, unite all FOREX windows and effectively and efficiently allocate all FOREX to enable government, through the CBN, achieve her monetary and fiscal policies.

Manufacturing Sector and the Nigerian Economy

In a country of over sixty years of self-rule, incessant military intervention in governance culminating into twenty-eight years of military rule and three years of civil war, Nigeria could be said to have derailed from the path of industrial progress and failed to effectively utilize her fertile soil which generated over 60% of GDP in the 1960s; rich and massive oil and other mineral resources; and a relatively skilled and well-educated citizen. The failure of the country which has caused widespread poverty and economic dislocation emanated from chronic mismanagement and corruption (Adejuge, 2006). The importance of the industrial sector, particularly the manufacturing, in the growth process cannot be over-emphasized. The experience of the East Asian infant industrialized countries with booming manufacturing attests to the fact that appropriate macroeconomic policy mix and productivity growth in the manufacturing sector are the key to promoting competitiveness and growth of the industrial sector and the economy as a whole. In 1960, after independence, Nigeria inherited a weak and moribund manufacturing sector based that was majorly into the processing of forestry and other agricultural products for foreign and domestic markets. The manufacturing sector that was dominated by foreign firms, contributed only 4.8% of GDP in 1960. Institutional setbacks, from the British colonial administration, were responsible for this low level of manufacturing output. (Egbon, 1995; Soludo and Adenikinju, 1997). Although not much have been achieved, the Nigerian governments have promoted rapid industrialization as envisaged in the development plans and strategies. In line with the prevailing paradigm then, imports substitution industrialization (ISI) strategy was embraced with the primary aim of transforming the manufacturing sector to a more vibrant and productive sector. The Indigenization Decree of 1972 and 1977 gave birth to the Nigerian Enterprises Promotion Decree which aims to expand the infrastructural base and also promote indigenous and private participation in the manufacturing sector. Various set of incentives like tax holidays, tariff and

non-tariff protections, credit policies, favourable exchange rates and to mention a few, were initialized with a view to encouraging and promoting both foreign and local investment in the manufacturing sector. With the implementation of the ISI strategy the growth performance of Nigeria's manufacturing sector was highly dependent on domestic demand, import substitution policies and availability of foreign exchange to procure imported inputs. Consequently, the sector was highly dependent on capital goods and raw materials import, and needed to be protected from foreign competition; hence government adopted preferential treatment in foreign exchange allocation amongst others. This led to weak competition with a poor forward and backward linkage effects with other sectors. Macroeconomic crises following the collapse of crude oil prices in the 1980s led to the introduction of the Structural Adjustment Programme (SAP) in 1986. The industrial policy under SAP was aimed to promote investment by the stimulation of non-oil exports and provided a fair ground for private sector-led development. Among the industrial policies that were introduced under SAP were those that were meant to promote efficiency of Nigeria's industrial sector. Specifically, the commercialization and privatization programmes initiated by the government were intended to promote industrial efficiency. Government also encouraged both local and foreign investors in Nigeria by promulgating a new decree in 1989, and repealed the indigenization decrees of 1972 and 1977.

Further, financial and trade liberalization policies were promulgated to encourage and promote healthy competition among domestic firms and between competing domestic import and foreign firms with a view to promoting efficiency. As part of trade liberalization scheme, the levels of both non-tariff and tariff barriers were reduced and commodity marketing boards were scrapped. This resulted into the exposure of the local firms (which had been hitherto protected under ISI) to foreign competition, hence the need for these firms to be more efficient in order to be able to compete favourably and effectively with the foreign firms. The policy of financial liberalization through liberalization of payment system, market determined exchange rate and deregulation of interest rates was meant to promote healthy competition and efficiency in the financial sector (Sharifi-Renani & Mirfatah, 2012). The anticipated effect of this policy on the manufacturing sector is that, the benefits or preferences (in terms of concessionary rates of interest, tariff protection, etc.) that have been enjoyed by the manufacturing sector prior to SAP were eroded, and the sector has to compete for funds in the financial market. Moreover to promote non-oil exports, especially export of manufacturing, a package of incentives has been introduced since 1986. In effect, an Export Credit Guarantee and Insurance Scheme were put in place. A new scheme was launched, as compensation, to encourage exporters of goods that were locally manufactured to access subsidies from the export adjustment scheme fund. In addition, an export expansion fund was set up to provide cash inducements for exporters who have achieved a minimum of fifty thousand naira (N50000.00) worth of manufactured or semi-manufacture products. Other incentives that were introduced include exports proceeds retention scheme, export license waiver, capital allowance of 5 per cent on plant and machinery for firms that exports a minimum of half of their annual turnover. Further, The Nigerian Export and Import Bank (NEXIM) was set up to implement the scheme and facilitate the process of financing manufactured exports in Nigeria.

The reform process was re-launched after democracy was restored in 1999, primarily through a home-grown strategy which aimed at poverty alleviation. The National Economic Empowerment and Development Strategy (NEEDS), adopted in 2003, was initiated to guide public policies until 2007. Associated poverty reduction strategies were developed at the State and local levels – State Economic Empowerment and Development Strategies (SEEDS), and Local Economic Empowerment and Development Strategies (LEEDS). NEEDS, SEEDS and LEEDS were major departures from the policies of the past. Their broad agenda of social and economic reforms was based on four key strategies to:

- (i) reform the way Government works in order to improve efficiency in delivering service, eliminate waste and free up resources for investment in infrastructure and social services;
- (ii) make the private sector the main driver of economic growth, by turning the Government into a business regulator and facilitator;
- (iii) implement a “social charter”, including improving security, welfare and participation; and
- (iv) push a “value re-orientation by shrinking the domain of the state and hence the pie of distributable rents which have been the haven of public sector corruption and inefficiency”.

In contrast with previous development plans, NEEDS emphasized the growth in the industrial sector as germane to attainment of the set target by 2007. The policy direction and target of NEEDS for the real sector specifically stated that critical to the growth performance in the sector is improvement in power and other infrastructure, general reduction in the cost of doing business and more conducive investment environment, including security of life and property. High growth is expected in the primary and secondary sectors, particularly agriculture, manufacturing and solid minerals. The manufacturing sector for example grew by 7% over the 2004 to 2007 period, while agriculture grew consistently by 6% between 2004 and 2007. This explains the attention on manufacturing by the President Obasanjo’s NEEDS, and his successor, Yar’Adua/Jonathan’s 7-Points Agenda and the current vision 20:2020. Although, the national boarder closure by the Buhari’s administration, in 2019, to protect and encourage local firms was quite significant especially in rice production but the critical appraisal of industrialisation in Nigeria and some LDCs has shown that the policy has not brought the expected economic and social benefits. On the locally made goods, Anyanwu (2002) poses the following pertinent questions: “who will consume our products? Who is interested in consuming our products? Who are we in the service of? Where do we want to go? And it seems that unless these questions are answered, we will continue to chase the wind without clearly defined sense of who we are, or an answer to the question of what effort in the satisfaction of what objectives.” Because of these unanswered questions, Nigeria and many other developing nations blindly adopted foreign-made industrialization policies and the experiences have not been fruitful. The situation became worse because most Nigerians have preference for foreign goods or anything imported. The consequence of this is that domestic manufactured products become unsalable thus entrenching and institutionalizing the problem of low output resulting from underutilized capacity.

Problems Affecting the Nigerian Manufacturing Sector

Soludo and Adenikinju (1996) opined that the main problems that have characterized the manufacturing sector of Nigeria are lack of competitiveness, import dependency, low capacity utilization and low output. According to them, the period of the implementation of import substitution industrialization strategy produced a manufacturing sector that is weak, non-competitive and highly import dependent. Even though some growth in value-added was recorded during this period (particularly in the oil boom period 1973-81), manufacturing sector performance has been propelled by investment in factor accumulation rather than efficiency in factor use. They argued that the period of adjustment reforms (and beyond) has also featured low capacity utilization resulting in low output in the manufacturing sector, non-competitiveness of exports even after the introduction of various export incentive scheme and trade liberalization policy.

Report from the Nigerian Manufacturing Enterprise Survey 2001, had as part of their findings, is in consonance with the findings of Anyanwu (2004), highlighted the lingering problems rocking the Nigerian manufacturing sector as follow:

- (a) Low level of technology;
- (b) Low level of capacity utilization rate
- (c) Low investments;
- (d) High cost of production
- (e) Inflation; and
- (f) Poor performing infrastructure.

Apart from these militating factors listed above, there exist other fundamental and current socioeconomic and political problems affecting manufacturing captured by many authors. These are stated as follow:

(1) **Multiple Taxation/Levies:** This stands out as one of the thorniest problems of the sub-sector in recent time. The tax and levies structures in the country are not well defined and are also volatile as all levels of government come up with different ways of raising revenue to finance their budgets. The government must take a position that recognizes that some of its expenditures and fiscal activities have negative effects on the economy. The recent government active drive on internally generated revenue where a manufacturer/business concern is made to pay over 61 different taxes/levies per annum from the three tiers of government has a negative impact (Borodo, 2020). Producers pay taxes but of course, the incidence is mostly borne by the consumers especially for goods with relative inelastic demand. This accounts for the reason why prices of commodities are highly volatile in the Nigerian local markets.

(2) **Scarcity/Incessant Increase in Petroleum Products' Prices:** As an alternative to the poor power supply, manufacturers rely on generators to stay in business. The prices of diesel (AGO) and petrol (PMS) alone which have now constituted the larger chunks of costs of inputs in the production process have led to high cost of doing business in the country. In 1999, the Obasanjo's administration assumed office and argued for the removal of the oil subsidy claiming that the proceeds could be used for important economic purposes. Eight years later, the former president

left petrol price at seventy five naira (N75.00) from the nineteen naira (N19.00) which he met in the year 1999. This is about 295 per cent hike in petrol price. In addition to this, reduction in subsidy payment by President Jonathan in January 2012 aggravated this effect by raising the PMS Price to ninety seven naira (N97.00) from sixty five naira (N65.00) his predecessor left it (a 38.14 per cent and 410.5 per cent rise, respectively since inception of democracy in 1999). But what about its concomitant effect on other products since their prices are tied to oil price?

(3) **Insecurity of Lives and Properties:** Business thrives in a conducive environment that is devoid of factors inimical to growth and development. The constant ethno-religious and political crises in the country have contributed in large measure to the relocation of some firms from certain regions of the country to another while others like the multinational companies are threatening to quit business in Nigeria.

METHOD OF ANALYSIS

In order to ascertain the impact of monetary and fiscal policy on the industrial performance, we used the Autoregressive Distribution Lag (ARDL) Bounds Test Approach to cointegration. The ARDL is most suitable where the regressors are purely $I(0)$, purely $I(1)$ or mutually co-integrated. This informed the choice of adopting the ARDL estimation techniques. Other benefits of the ARDL are that it gives room for variables to have different optimal lags which is not possible with other traditional co-integration techniques. Unlike other traditional estimation techniques that require large data set for validity, the ARDL is more suitable with small sample size.

Nature and Sources of Data

The data for this study were generated from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank Indicators for Nigeria (various issues) during 1986 to 2021. Monetary policy was proxy by Money Supply (MS2), Interest Rates (INT), Inflation (INF) and Exchange Rate (EXR). Fiscal policy was proxy by Government Expenditure (GE), Consumer Price Index (CPI) and Fiscal Deficit (FD) while Industrial Output (IO) was used as the dependent variable.

Estimation Technique

Three econometric models are considered in this study. The third model takes monetary policy proxy by Money Supply (MS2), Interest Rates (INT), Inflation (INF) and Exchange Rate (EXR), as the explanatory variables and Industrial output (IO) as the dependent variable. The second model takes fiscal policy proxy by Government Expenditure (GE), Consumer Price Index (CPI) and Fiscal Deficit (FD), as the explanatory variables and Industrial output (IO) as the dependent variable while the first model combines both monetary policy and fiscal policy as explanatory variables and industrial output (IO). These were used to obtain reliable parameter estimates in the time series. The models are specified as:

$$IO = f(MP, FP) \quad (1)$$

$$IO = f(FP) \quad (2)$$

$$IO = f(MP) \quad (3)$$

Where:

IO = Industrial Output

MP = Monetary Policy

FP = Fiscal Policy

In order to estimate equations (1, 2 & 3), we can translate these into the following:

$$IO = B_0 + B_1MS2 + B_2INT + B_3EXR + B_4INF + B_5GE + B_6CPI + B_7FD + e_t \quad (4)$$

Where B_0 is the drift component, the term, B_1 to B_7 are the coefficients of the model, the variables are as explained earlier and E_t represents the error term. This study employs a double-log functional specification of the ARDL Bounds Test Approach to cointegration. As noted by Pesaran et al. (2001), the decision to reject or accept the null hypothesis H_0 (no co-integration among the variables) is as follows:

If (F-statistics) $F_s >$ upper bound, we reject the H_0 and conclude that the variables are co-integrated; If $F_s <$ lower bound, we accept the H_0 and conclude that the variables are not co-integrated; But if $F_s \geq Z$ lower bound and \leq upper bound, the decision is inconclusive. The essence of the Error Correction Model is to show the speed of adjustment back to long run equilibrium after a short run shock. In order to ensure the goodness of fit of the model, we conduct a number of diagnostic tests.

RESULTS AND DISCUSSION

This section deals with various analytical tests, beginning with the unit root test (stationarity of the data). In addition, there is a test for the ARDL lag determination. A test is also conducted to measure the strength of the model selection. The study also carries out a diagnostic test before embarking on the cointegration test. (Moon and Perron, 2004; Demetriades and Fielding, 2012; Ishibashi, 2012 and Frimpong, 2012).

As shown in Tables 4.1a and 4.1b, the variables are non-stationary under the null hypothesis ($H_0:\alpha=1$), unlike the alternative hypothesis ($H_1:\alpha\neq 1$) of stationarity (no unit root). The aim here is to establish that no variable is I(2) as suggested by Pesaran et al. (2001). Based on the test, two of the variables are I(0) while others are I(1) and none is in I(2). The p-values are shown at 1%, 5% and 10%, which show that all the variables are statistically significant and stationary (has no unit roots). This satisfies Pesaran et al. (2001) that the dependent variable must be I(1) and the independent variables I(0) or I(1).

Table 4.1a: Augmented Dickey Fuller (ADF) summary of Unit Root Test result

Variables	ADF Test Statistics (At level)	Mackinnon Critical Values			Prob. (value)	Remark
		1%	5%	10%		
CPI	-1.646	-4.296	-3.568	-3.218	0.749	Not Stationary
EXR	-1.630	-4.296	-3.568	-3.218	0.756	Not Stationary
GE	-2.787	-4.339	-3.587	-3.229	0.213	Not Stationary
INF	-2.901	-4.416	-3.622	-3.248	0.180	Not Stationary
INT	-3.600	-4.296	-3.568	-3.218	0.046	Stationary
IO	-2.071	-4.309	-3.574	-3.221	-0.539	Not Stationary
MS2	1.860	-4.296	-3.568	-3.218	1.000	Not Stationary

Source: Author's Computation

Table 4.1b Summary of Unit Root Test result

Variables	ADF Test Statistics (At first difference)	Mackinnon Critical Values			Prob. (value)	Remark
		1%	5%	10%		
CPI	-5.244	-4.309	-3.574	-3.221	0.001	Stationary
EXR	-3.645	-4.309	-3.574	-3.221	0.043	Stationary
GE	-3.553	-4.374	-3.603	-3.238	0.055	Stationary
INF	-3.621	-4.374	-3.603	-3.238	0.048	Stationary
INT	-6.235	-4.309	-3.574	-3.221	0.000	Stationary
IO	-4.255	-4.374	-3.603	-3.238	0.012	Stationary
MS2	-11.154	-4.323	-3.580	-3.225	0.000	Stationary

Source: Author's Computation

The unit root test as identified in the Augmented Dickey Fuller Test result in tables 4.1a and 4.1b shows that consumer price index, exchange rate, government expenditure, interest rate, interest rate, Industrial output and money supply are not stationary at level, implying that there is a random walk in the aforementioned variable as shown in table 4.1a. Also, in table 4.1a, only inflation rate is stationary at level. This implies that inflation rate is integrated at order one, I(1). Due to the non stationarity of consumer price index, exchange rate, government expenditure, interest rate, interest rate, market capitalization and money supply at their level form, the first difference is conducted as depicted in table 4.1b.

Therefore, from table 4.1b, consumer price index, exchange rate, government expenditure, inflation rate, interest rate, market capitalization and money supply are stationary at first difference which implies that it is integrated at order one, I(1).

Table 4.1c: Phillips Perron (PP) summary of Unit Root Test result

Variables	PP Test Statistics (At level)	Mackinnon Critical Values			Prob. (value)	Remark
		1%	5%	10%		
CPI	-5.275	-4.309	-3.574	-3.221	0.001	Stationary
EXR	-3.633	-4.309	-3.574	-3.221	0.044	Stationary
GE	-6.613	-4.309	-3.574	-3.221	0.000	Stationary
INF	-6.406	-4.309	-3.574	-3.221	0.000	Stationary
INT	-6.248	-4.309	-3.574	-3.221	0.000	Stationary
IO	-3.496	-4.309	-3.574	-3.221	0.058	Stationary
MS2	-4.216	-3.574	-3.221	-3.218	0.012	Stationary

Source: Author's Computation

The unit root test as identified in the Phillips Perron Test result shows that consumer price index, exchange rate, government expenditure, interest rate, inflation rate, industrial output and money supply are not stationary at level, implying that there is a random walk in the aforementioned variable as shown in table but were stationary at first difference as captured in table 4.1c.

The orders of lags are selected using the Schwarz Information Criterion (SIC) and Akaike Information Criterion (AIC) that are commonly used in literature of ARDL estimation (see Pesaran et al., 2001 and Ozturk and Acaravci, 2011).

Table 4.2: Panel ARDL lags Selection Criteria

S/N	Variables	Lag selections	SIC	AIC
1	Industrial Output	4	17.328	17.140
2	Money Supply	2	15.426	15.286
3	Interest rate	3	5.354	5.214
4	Inflation	4	7.160	6.666
4	Exchange rate	4	8.737	8.597

Source: Author's Computation

As depicted in Table 3, the results show 4-lags for Industrial output, 2-lags for money supply, 3-lags for Interest Rates, 4-lags for Inflation Rate and 4-lags for exchange rate. The unit test results show that the lags are obtained on each I(0) and I(1) variables. in line with Dritsakis (2011). More so, the study further allows an automatic lag selection dynamic regressor to choose an optimum lag for the model. Table 4.2 shows that the most appropriate automatic lag length selection for the entire model is 3 as shown in Table 4.2. The 3-lags for the ARDL model is consistent with Christiano et al. (1996) and Sharifi-Renani (2010). Furthermore, the comparison between the SIC and AIC for the optimum 3-lags (5.354* and -5.214*) selected reveals that the AIC gives the most negative (lowest value) hence, employed for the ARDL regression.

To ascertain the strength of the Akaike Information Criterion (AIC) model selection criteria over the Schwarz criterion in the regression and also determining the long-run and short-run relationships in this study, we employ the criteria graph to determine the top twenty (20) different ARDL models. Based on the benchmark analysis, “the model is best the lower the value of the AIC”. As shown in figure 1, the first ARDL (4, 2, 3, 4, 4) model is preferred to others because it gives most negative (the lowest) value of the Akaike Information Criterion. In addition, the ARDL (4, 4, 3, 4, 4) and (4, 4, 4, 4, 4, 4) models appear to be the top second and third respectively as they record -2.02 and -2.01 values as indicated by their own criteria graph.

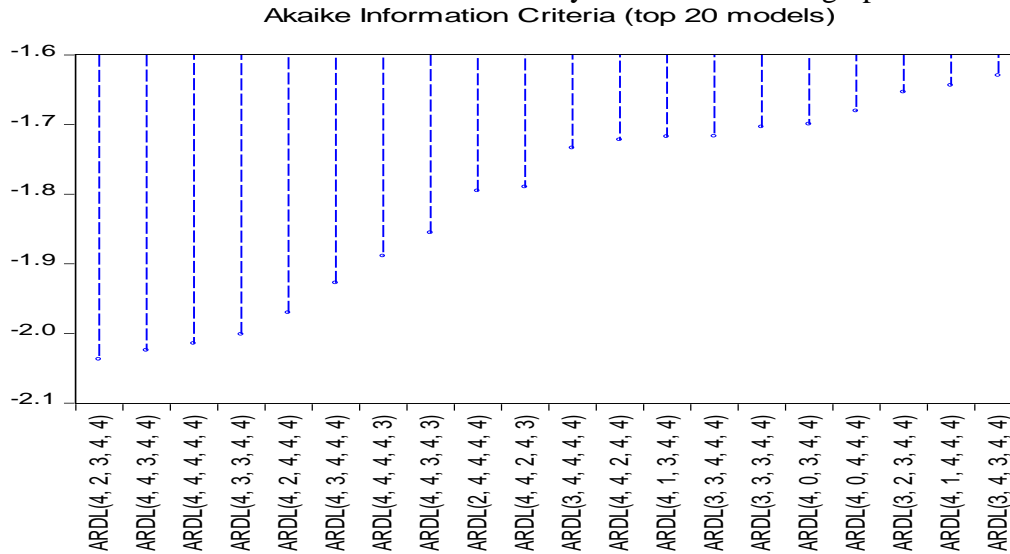


Figure 2: Akaike Information Criteria (top 20 models)

Table 4.3: Diagnostic Checks results

	F-Statistics	Probability
Normality Test	0.049	0.975
Breusch-Pagan-Godfrey Heteroscedasticity Test	0.683	0.756

Source: Author’s Computation

Table 4.3 reveals that the model is free from heteroskedasticity. These results have shown that the model is consistent and favorable in analyzing the efficacy of monetary policy and industrial sector performance in Nigeria and it is normally distributed. Figure 2 shows the stability test for the ARDL model. The Recursive Chow test suggests the benchmark ARDL be stable over the sample period. The graph shows the Cusum test for the model. Since the line capturing the data passes within the 5% confidence interval, it means that the model is stable.

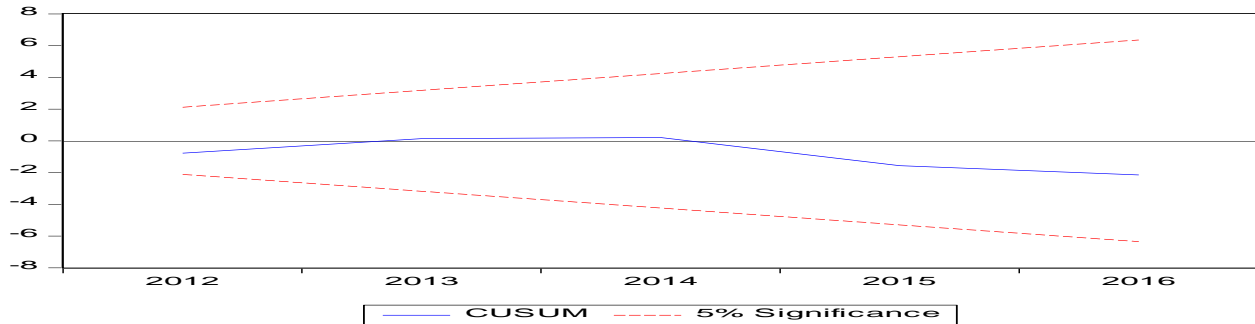


Figure 3: Stability Test for ARDL Model

Table 4.4: Autoregressive Distributed Lag estimates for model one

Dependent Variable: LNIO

Method: Least Squares

Selection Model: ARDL (4, 2, 3, 4, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNIO(-1)	0.397	0.336	1.182	0.290
LNIO(-2)	-1.284	0.313	-4.093	0.009
LNIO(-3)	0.128	0.227	0.568	0.594
LNMS2	1.026	0.339	3.019	0.029
LNMS2(-1)	-0.805	0.459	-1.753	0.139
LNMS2(-2)	0.423	0.272	1.553	0.181
LNINT	-0.081	0.016	-4.860	0.004
LNINT(-1)	-0.013	0.011	-1.162	0.297
LNINT(-2)	-0.007	0.013	-0.541	0.611
LNINT(-3)	-0.039	0.018	-2.139	0.085
INF	0.008	0.003	2.411	0.060
INF(-1)	0.005	0.003	1.753	0.139
INF(-2)	-0.003	0.003	-0.945	0.387
INF(-3)	0.002	0.002	0.805	0.457
EXR	-0.002	0.002	-0.935	0.392
EXR(-1)	-0.0002	0.003	-0.068	0.948
EXR(-2)	-0.0007	0.003	-0.251	0.811
EXR(-3)	0.018	0.004	4.158	0.008
C	6.688	1.525	4.383	0.007

$R^2=0.929$

Adjusted $R^2=0.950$

Prob.(F-statistics) **0.000**

F-Statistics = **339.059**

Durbin-Watson Stat.: **2.595**

Source: Author's Computation

According to the estimates in table 4.4, money supply at the current period, interest rate and the lag of exchange rate are statistically significant in explaining industrial output. The result implies that monetary policy actions taken by monetary authority can impact on industrial output production in Nigeria. As expected, the interest rate is negative, indicating that an increase in the interest rates will lead to an unfavorable reduction in investment, thereby affecting industrial output while an increase in money supply, inflation and stable exchange rate will lead to an increase in industrial output and thus, leads to an increase in economic growth. Conversely, currency appreciation EXR(-1) reduces industrial output production and affects economic growth as a result of high technological cost as Nigeria is still a victim of technological importation. This relationship is in consonance with expectations, economic theory and empirical evidence (see Omolade and Ngalawa, 2014) that industrial output is affected by currency appreciation owing to lower export (e.g. it causes trade deficit, which can cause a negative or contractionary effect on the economy). Overall, the finding has revealed that monetary policy is observed to cause a significant impact on industrial output. This finding agrees with Liu et al. (2002), Dong (2012), Fasanya et al. (2013), and also similar to Kutu et al. (2016) that sound monetary policies are pivotal in China's industrial growth. To this light, policymakers should closely monitor the outcome of their policies when pursuing their mandate of price stability (fighting inflation). This is because sound economic policy is important for Nigeria's industrial output while poor policy will result in a nexus of constraints from which escape may be difficult (or impossible). There should be policy consistency that will lead to stable rate of interest in the economy.

Table 4.5: ARDL Bound Testing for cointegration

Asymptotic critical values				
T Statistics	Value	Signif.	I(0)	I(1)
F-statistics	5.768	10%	2.2	3.09
K	4	5%	2.56	3.49

Source: Author's Computation

Peseran et al (1999) and Peseran et al (2001) developed the above sets of critical F values for different set of specifications. One of the F critical values, the lower bound assuming that all the underlying variables are integrated of order zero (I(0)), and the other critical value, the upper bound assuming them to be of order one (I(1)). From table 4.5, presence of cointegration was found among the variables under study, since the calculated F-statistic of 5.21 has exceeded the threshold of the critical values at both levels of significance with reference to table 4. This is so for both AIC selected criterion. This means that null hypotheses is rejected confirming that cointegrating relationship exist between the variables as specified in equation one.

Table 4.6: Panel ARDL lags Selection Criteria

S/N	Variables	Lag selections	SIC	AIC
1	Industrial Output	3	17.328	17.140
2	Total Government expenditure	1	14.217	13.929
3	Consumer Price Index	0	17.845	17.703
4	Inflation rate	3	7.160	6.666
5	Fiscal deficit	1	14.271	14.083

Source: Author’s Computation

As depicted in Table 4.6, the results show 3-lags for Industrial output, 1-lag for total government expenditure, 0-lag for consumer price index, 3-lags for Inflation Rate and 1-lag for fiscal deficit. These lags are obtained on each I(0) and I(1) variables (as shown by the unit root tests) in line with the findings of Dritsakis (2011). The study further permits an automatic lag selection dynamic regressor to choose an optimum lag for the model. As shown in Table 4.2, the study found that the most appropriate automatic lag length selection for the whole model is 3. The 3-lags for the ARDL model are consistent with Christiano et al. (1996) and Sharifi-Renani (2010).

To ascertain the strength of the Akaike Information Criterion (AIC) model selection criteria over the Schwarz criterion in the regression and also determining the long-run and short-run relationships in this study, we employ the criteria graph to determine the top twenty (20) different ARDL models. Based on the benchmark analysis for the model, “the model is best the lower the value of the AIC”. As shown in figure 3, the first ARDL (3, 1, 0, 3, 1) model are strongly preferred over the others because it gives most negative (the lowest) value of the Akaike Information Criterion. In addition, the ARDL (3, 3, 2, 3, 0) and (3, 1, 0, 3, 0) models appear to be the top second and third respectively as they record -1.282 and -1.280 values as indicated by their own criteria graph.

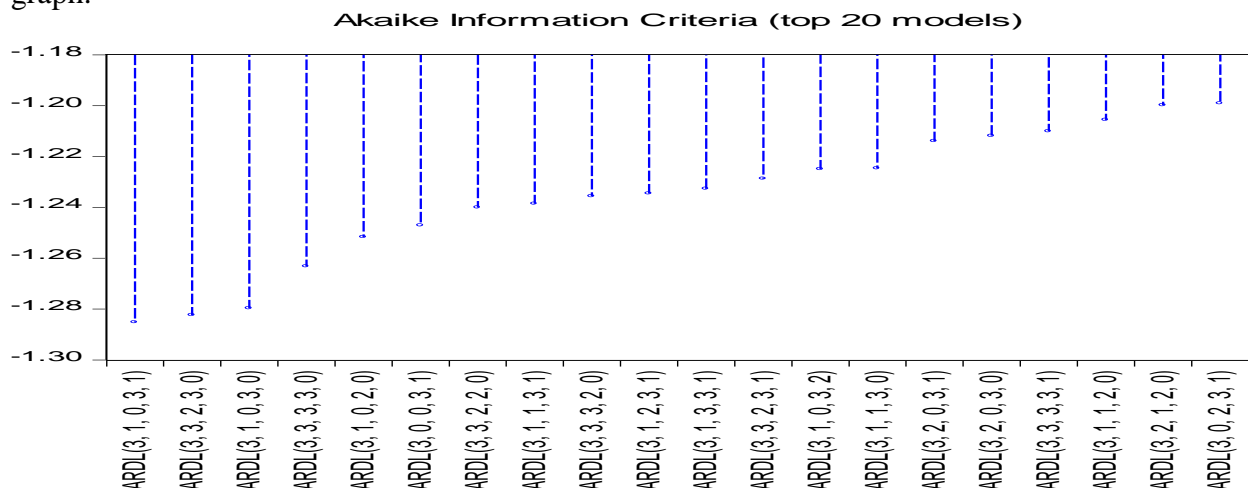


Figure 4: Akaike Information Criteria (top 20 models)

Table 4.7: Diagnostic Checks results

	F-Statistics	Probability
Normality Test	0.597	0.741
Breusch-Pagan-Godfrey Heteroscedasticity Test	1.257	0.332

Source: Author’s Computation

Table 4.7 reveals that the model is free from heteroskedasticity. These results have shown that the model is consistent and favorable in analyzing monetary policy effectiveness and industrial sector performance in Nigeria and it is normally distributed. Finally, figure 4 shows the investigation of the stability or instability of the estimated coefficients in the ARDL model (stability test). The Recursive Chow test suggests the benchmark ARDL be stable within the sample period. The Cusum test for the model is shown in the graph below (Figure 4). The model is stable because the data passes within the 5% confidence interval.

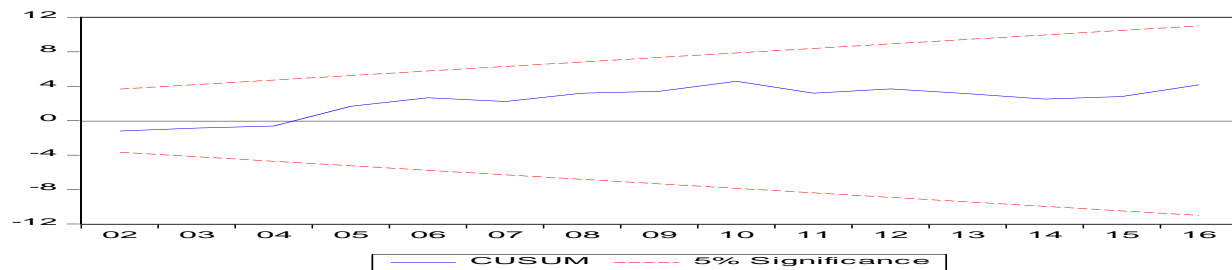


Figure 4: Stability Test for ARDL Model

Table 4.8: Autoregressive Distributed Lag estimates for model two

Dependent Variable: LNIO
 Method: Least Squares
 Selection Model: ARDL (3, 1, 0, 3, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNIO(-1)	0.698	0.226	3.086	0.007
LNIO(-2)	-0.273	0.228	-1.196	0.250
LNIO(-3)	0.332	0.158	2.097	0.053
LNGE	-0.019	0.173	-0.114	0.910
LNGE(-1)	0.233	0.176	1.317	0.207
INF	0.004	0.001	2.837	0.012
LNCPI	0.017	0.032	0.540	0.597
LNCPI(-1)	0.008	0.047	0.177	0.861
LNCPI(-2)	-0.117	0.038	-3.092	0.007
LNCPI(-3)	0.080	0.047	1.693	0.111
FD	0.0003	0.0001	2.504	0.024
FD(-1)	-0.0002	0.0002	-1.095	0.290
C	0.704	0.261	2.693	0.016

R²=0.932

Adjusted R²=0.915

Prob.(F-statistics) 0.000

F-Statistics = 465.458

Durbin-Watson Stat.: 2.021

Source: Author’s Computation

From the estimates in table 4.8, money supply at the current period, the lag of inflation rate and consumer price index and fiscal deficit are statistically significant in explaining industrial output/performance. Overall, the finding has reveals that fiscal policy is observed to exert a significant impact on industrial output.

Table 4.9: ARDL Bound Testing for cointegration

Asymptotic critical values				
T Statistics	Value	Signif.	I(0)	I(1)
F-statistics	9.123	10%	2.2	3.09
K	4	5%	2.56	3.49

Source: Author's Computation

Peseran et al (2001) developed the above sets of critical F values for different set of specifications. One of the F critical values, the lower bound assuming that all the underlying variables are integrated of order zero (I(0)), and the other critical value, the upper bound assuming them to be of order one (I(1)). From table 4.5, presence of cointegration was found among the variables under study, since the calculated Fstatistic of 9.123 has exceeded the threshold of the critical values at both levels of significance with reference to table 4.9. This is so for both AIC selected criterion. This means that null hypotheses is rejected confirming that there is cointegrating relationship exist between the variables as specified in equation one.

CONCLUSION AND RECOMMENDATIONS

The Nigerian manufacturing sector is dominated by food, beverages and tobacco while the greatest value of output in the sector is sugar and bread products. The highest intermediate input is generator fuel, and with a rising cost of production, as an aftermath of the global economic depression brought about by the COVID-19 pandemic, has led to a significant level of cost push inflation in Nigeria. Besides, multiplicity of taxes, corruption, poor infrastructural base, poor implementation and inconsistent government monetary and fiscal policies amongst others, have worsened the woes in the manufacturing sector. Although, a reasonable proportion of the raw materials are locally sourced, the proportion imported is rising over the period, including capital items. The Chemical and Pharmaceutical companies top the chart with the highest value of raw materials under the period covered by this study.

In sum government should encourage and maintain spending towards the manufacturing sector development and simultaneously develop the nation's infrastructural facilities as this will reduce the cost of doing business in Nigeria. Besides, the government should create and maintain an enabling environment for business to thrive especially in the northern part of the country. This will also encourage domestic investors and attract more foreign investors which are highly competitive globally. Government should also maintain a more consistent tax pattern that are mild on investors and encourages output growth; however the government should design a more discriminatory tax policy system that favours local industries to encourage and shield them from stiff competition from their foreign counterparts. These will also serve as a recovery strategy from the adverse

effects of the recent global pandemic. Multiplicity of taxes on local industries is anti-productive and could lead to economic menace. Furthermore, loans to the manufacturing sector and broad money supply should be encouraged and maintained in order to boost manufacturing productivity. In the same vein, a milder inflation would have a better result on manufacturing performance and this could be achieved through policy of inflation targeting.

It is now clear that stabilization policies in Nigeria have a greater deal on the performance of the Nigerian manufacturing sector. Both fiscal and monetary policies have great influences on industrial output; smoothing these policies will boost industrial output and improve the welfare of Nigerians through employment generation and improved standard of living.

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