Inflation and Manufacturing Capacity Utilization in Nigeria: An ARDL Bound Testing Approach

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Abstract

The study examines the impact of inflation on manufacturing capacity utilization in Nigeria from 1986 to 2018. Inflation rate, trade openness, interest rate, gross fixed capital formation, and import of goods and services were the independent variables while manufacturing capacity utilization was the dependent variable. For this study, secondary time series data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin 2018 and World Development Indicators (WDI), was adopted. In addition, Auto-Regressive Distributed Lag (ARDL) model was employed after conducting a diagnosis test and ensuring that the data was stable. Results of the analysis showed that inflation had a significant negative effect on the country's manufacturing capacity utilization; trade openness had a negative but insignificant effect on manufacturing capacity utilization; interest rate has a positive but insignificant effect; gross fixed capital formation and import of goods and services had a negative but significant effects on manufacturing capacity utilization. Based on the results, it is therefore recommended that the Nigerian government should implement policies geared towards combating inflation in order to enhance the development of the manufacturing sector's output which will eventually make the manufacturing sector more vibrant, reduce her unemployment rate, prevent arbitrary distribution of wealth and income and invariable lead to economic growth and external viability.

Keywords: Auto-Regressive Distributed Lag Model, Economic growth, External viability, Inflation rate and Manufacturing capacity utilization.

Introduction

One of the core issues of policy debates in most countries is engaging structural policies to combat inflation so as to assist most sectors in the economy and most importantly the manufacturing sector to achieve improvement on economic performance and eventually leading to overall growth of the economy. Economic goals and needs of most countries are predicated on their level of development. Take for example, the economic realities of the United Kingdom may be divergent from that of Zambia for one is a significantly developed country while the other is an under developed nation. The formulation of effective and appropriate monetary and fiscal policies are predicated upon the attainment of these goals, to ensure recovery of these economies in spite of the global crisis.

Manufacturing involves the transformation of raw materials into intermediate or finished goods. Manufacturing sector is concerned with the production, processing of items, and engaging in either creation of new commodities or in value addition (Adebayo, 2011). According to Dickson (2010), manufacturing sector is responsible for the large share of the industrial sector in developed economy. Also, manufacturing sector plays an important role in the transformation of a modern economy. Manufacturing sector is a subsection of the industrial sector. It is a trial for increasing the productivity interrelated to import replacement and export expansion, creating foreign exchange income capacity; which result to employment and per capita income, with project unique consumption patterns. Its contribution to the Gross Domestic Product (GDP), the manufacturing sector is paramount and has been overhauled by the service sector in a number of enterprise for Organization of Economic Co-operation and Development (OECD) countries (Ugwanyi, Utazi, Micheal & Umedike, 2015).

The key presumption that increased in the sector labor productiveness and the productivity-reviving innovations technologies engaged in the sector lead to higher proportion in economies of scale and technical progress than other sectors (Thirlwall, 2013; Onakoya, Ogundajo & Johnson, 2017). More so, Szirmai (2012) believed that the arrival of manufacturing sector as a significant activity in many developing countries has a pattern and frame the basic aspect of economic growth and development. Omankhanlen and Owonibi (2012) noticed that this sector is riddled with various challenges. Apart from infrastructure, there are other challenges such as high inflation rate and bank unwillingness to lend to the manufacturing sector though the monetary authorities rank it as the priority sector. All these could be the reason why manufacturing sector has not been successful in serving as a means to increasing productivity that is related to import replacement and export expansion, creating foreign exchange earning capacity, increasing unemployment and capital income, which result to unusual consumption pattern. These issues of uncertainty and inconsistency in inflation rate rattled serious problems to manufacturing sector capacity utilization.

Research on impact of inflation on economic variables in the Nigerian economy has been of interest to economist and policy makers for a long time. However, studies have been carried out on certain aspects of economic variables. The main motivation of this study is to assess the impact of inflation on manufacturing output in Nigeria and, in particular, whether inflation had effect on capacity utilization of the manufacturing sector. There is ample empirical evidence in the literature about inflation and manufacturing output in developed and developing countries (Agbonlahor, 2014; Nuno, 2012; Penelope & Thirlwall, 2013; Kruskovic, 2020) among others. Similarly, there are evidences from Nigeria (Odior, 2013; Nwadu, 2016; Nwokoro, 2017; George-Anokwuru & Ekpeyong, 2020) among others. However, only a few had examined how inflation affects specific sectors of the economy (Uguwanyi *et al*, 2015; Modebe & Ezeaku, 2016). Of these few studies, only a handful have looked at the performance of the manufacturing sector, with a high percentage using output or productivity as the proxy. Since there are other measures of the performance of the sector, using output or productivity alone may leave out some salient information and hence this study makes an attempt at filling the gap in the literature and presents an analysis of the effect of inflation on capacity utilization in the Nigerian manufacturing sector. The incessant rise in the general price level in the Nigerian economy which is attributable to the rate of inflation, and the call for enabling environment by the manufacturing sector, gave the impetus to find out if the monetary policies on inflation, implemented by the Central Bank of Nigeria, have been capable of addressing manufacturing sectors capacity utilization. This is important because the manufacturing sectors capacity utilization is fundamental to production decisions, employment generation, investors' investment decisions, and eventually leading to economic growth in Nigeria.

From a methodological view, the focus has been on the non-linear effects of inflation on economic growth. Many authors find multiplicative effects of inflationary trend on manufacturing capacity utilization to be significantly higher in economic down turns (Nwadu, 2016; Nwokoro, 2017; Marlina & Sudana, 2020) among others. As such, exchange rate appreciation in the short run, could reduce inflation rate and enhance GDP growth while in the long run, monetary policy mechanism would have negative effect on real GDP. This study is important for cohesion on the pattern of the manufacturing sector convergence through monetary control instruments (inflation). The main question in this respect is to determine the effect of inflation on capacity utilization in the manufacturing sector of Nigeria over the period of 1986 to 2018.

Our main results showed that inflation has a significant negative effect on manufacturing sector performance which confirms the theoretical knowledge. In addition, trade openness had a negative and almost significant effect on manufacturing sector capacity utilization; interest rate has a positive but insignificant effect. The coefficient of gross fixed capital formation and import of goods and services had negative but significant effects on manufacturing capacity utilization, which agrees with the a priori expectation. This shows that there is an inverse relationship between capacity utilization and inflation in Nigeria. It implies that if capacity utilization doubles at any time period, the result will be a decline in the current rate of inflation by about 1.05 percentage points. Possible explanation for this result may be that since increasing capacity utilization means the acquisition of more capital stock, money supply in circulation is reduced. It becomes a mop up mechanism that diverts idle fund, which have the tendency to fuel inflation to be channeled into productive activities. The lags in the manufacturing and distribution chain also help to tie down these funds, till they are purchased by the final consumer, thereby impacting negatively on inflation. It was also established by the study that gross fixed capital formation and import of goods and services are important determinants of manufacturing sector performance.

The benefits of this study therefore reveal that the monetary authorities should put in more effort towards lubricating access to financial resources which will induce producers in the manufacturing sector, to improve upon the level of installed capacity being utilized. The Nigerian government should evolve policies that will help manufacturing industries in the country increase capacity as this will help to curb the rate of inflation. This can be achieved by addressing notable constraints to capacity utilization such as infrastructure with particular reference to electricity and energy supply. Increased capacity utilization is expected to lower the weight of unemployment of resources in the whole economy, particularly labour resources.

The paper is structured as follows: Section 2 reviews the importance of inflation on manufacturing output from a policy and empirical perspective. Section 3 explains the methodology and data used. Section 4 presents the results of the analysis. Concluding remarks are reflected in Section 5.

Literature Review

During the recent financial crisis in Nigeria, policymakers, almost consensually, proposed the used of appropriate monetary instruments to combat inflationary trends in all sectors of the economy, manufacturing sector inclusive (Nigerian Economic Summit, 2016). Both developed and developing economies incorporated sound monetary policy tools in their price stability stimuli packages. (IMF, 2009). Economic theory of the classical school by David Ricardo (1772 - 1823), is considered a supporter of the money quantitative theory. Since money is understandably a medium of exchange, demonetization of precious metals and paper money in circulation is needed. However, fixed exchange rate should be institutionalized by the monetary authorities in order to avoid the depreciation of money (Smith, 2019). His concerned that money depreciation, due to the high price of gold was immediately followed by the rising prices and the accumulation of commodities value is a function of regular amount of money in circulation. In this regard, price fluctuation occurs as a result of changes in commodity production manner resulting from labour productivity.

Imoughele and Ismaila (2014) empirically examine the impact of monetary policy on Nigeria's manufacturing sector performance for the period 1986-2012. The study revealed after ensuring data stationarity and co-integration that individual variables: inflation rate, exchange rate and external reserve were statistically significant to manufacturing sector output while broad money supply and interest rate were not significant to manufacturing sector both in the previous and current year.

Charles (2012) investigated the effect of monetary policy on manufacturing sector in Nigeria, using econometrics test procedures. The result states that money supply affect manufacturing sector performance positively, while lending rate, income tax rate, inflation rate and exchange rate affects the performance of manufacturing sector negatively. This means that monetary policy is vital for the growth of the manufacturing sector in Nigeria which in turn would lead to economic growth. Odior (2013) investigated empirically the impact of macroeconomic factors on manufacturing productivity in Nigeria over the period 1975-2011, using Augmented Dickey Fuller (ADF) test and error correction mechanism model. The findings establish the presence of a long term equilibrium relationship among the variables as indicated by the co integrating equation of the VECM. The author found that credit to the manufacturing sector in the form of loan and advance has the capacity to sharply increase the level of manufacturing output in Nigeria. The study concluded that high cost of borrowing is due to wide interest rate spread and a cut in margin between lending and deposit rate was recommended.

Onakoya *et al* (2017), investigated monetary policy and the sustainability of the manufacturing sector in Nigeria. The findings established a positive relationship between monetary policy and manufacturing sector performance in Nigeria. Nwokoro (2017), carried out a study on the relationship between foreign exchange, interest rates and manufacturing sector output in Nigeria. The author employed the ordinary least square (OLS), stationary, co-integration, together with error correction modelling. The results showed a negative but significant relationship between foreign exchange rate, interest rate and manufacturing output in Nigeria.

Methodology

Analytical Framework

The classical monetarist's theory propounded by David Ricardo (1817) is used in this study to explain the relationship between monetary policies and price level in the economy. Following the quantity theory of money (QTM), they propounded that the quantity of money is the main determinant of the price level, or the value of money, such that any change in the quantity of currency produce can have direct and proportionate variation in the price level. Irving Fisher's equation of exchange on the QTM;

$$MV = PQ \qquad (1)$$

Where M stands for the stock of money; V the velocity of circulation of money; Q the volume of transactions which take place within the given period; while P stands for the general price level in the economy. Substituting Y for Q, the equation of exchange becomes;

$$MV = PY \qquad (2)$$

However, P, V and Y are endogenously determined within the system. The variable M is the policy variable, which is exogenously determined by the monetary authorities.

The ARDL the Autoregressive Distributive Lags (ARDL) of Pesaran, Shin, and Smith (2001) was used to estimate and assess the parameters and effects of the model and apply the bounds testing approach to ascertain whether long-run relationship exists between the variables in the model. One of the advantages of the ARDL approach is its usage to model mixture of both I(0) and I(1) in the same specification. Its bounds testing approach is more suitable and provides better results for small sample size. Using this approach, the dynamics of both the short-run and long-run parameters including the speed of adjustment when there is shock are estimated simultaneously within the same framework. Thereby subverting the problem of over parameterization, as robust lag lengths are crucial to this approach although, unable to incorporate I(2) variables in its analysis (Nkwatoh, 2014).

In the study, the dependent variable is Manufacturing Capacity Utilization (MCU). The explanatory variables are the vector of variables that include: Inflation Consumer Prices (INFCP), Trade Openness (TOP), Interest Rate (INT), Gross Fixed Capital Formation (GFCF) and Import of Goods and Services (IMPC). The functional relationship between dependent and independent variable is specified as follows:

MCU = f (INFCP, TOP, INT, GCFC, IMPC) ……………………………… (3)

The above equation can be transformed into an econometric model in a semi log form as follows:

$MCU = \beta_0 + \beta_1 INFCP + \beta_2 TOP + \beta_3 INT + \beta_4 GFCF + \beta_5 \ln IMPC + \mu$ ……..….. (4)

Where, MCU is Manufacturing capacity utilization; INFCP is Inflation consumer prices; TOP is Trade openness; INT is Interest rate; Gross Fixed Capital Formation (GCFC); IMPC is Import of goods and services current (local currency); μ is stochastic variable or error term which must be negative, less than zero and significant sign for causality to exist in the long-run; $\beta0$ is constant term; $\beta1$, $\beta2$, $\beta3$, $\beta4$ and $\beta5$ are parameters to be estimated for inflation consumer prices, trade openness, interest rate, gross fixed capital formation and import of goods and services respectively and Ln = Natural Logarithm of the variables used to smoothen possible scholastic effect from variables at level. Furthermore, the ARDL bounds test approach for the long-run relationship was based on the Wald test (F statistic), by imposing restrictions on the long-run estimated coefficients of three period lagged level of each of the explanatory variables to be equal to zero, that is, (Ho; $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$) for equation (4), the logged variable is IMPC.

Apriori specification: the expected signs of the coefficients of the explanatory variables are:

$\beta_1 < 0$ (negative effect), $\beta_2 < 0$ (negative effect), $\beta_3 > 0$ (positive effect), $\beta_4 < 0$ (negative effect) and $\beta_5 > 0$ (negative effect); on manufacturing capacity utilization.

Estimation Technique and Procedures

The processes to this estimation procedure begin with the examination of the stochastic properties of the data in which descriptive statistics and unit root test are performed. The unit root test is necessary in order to avoid a spurious regression that may give a good fit and predict a statistical significance relationship between variables where none really exist (Mahadeva & Robinson, 2014). The variables used for the analysis are subjected to unit root tests so as to determine stationary or non-stationary of the series. The study considers the unit root tests of Augmented Dickey Fuller (ADF) test to determine unexpected shift in time series that can lead to unreliable estimates. In each of these tests performed, the null hypothesis with intercept and trend was considered to determine whether each of the variables in the model being analyzed is stationary or not.

Data Description and Sources

The study utilizes time series data on five variables on manufacturing capacity utilization indicators. The independent variables include the Inflation consumer prices (INFCP), Trade openness (TOP), Interest rate (INT), Gross fixed capital formation (GFCF), and Import of goods and services (IMPC); while the dependent variable is Manufacturing Capacity Utilization (MCU). The entire data set covered the period 1986 to 2018 for which data are available. The data were obtained from two sources: Central Bank of Nigeria (CBN) Statistical Bulletin and World Development Indicators (WDI). Eviews 9 econometrics tool was used.

Result of the Findings

Preliminary Analysis

Figure 1 present the line and symbolic basic graph of the variables. MCU has its lowest point in 1995 while the highest was in 2014 and relatively stable afterwards. INFCP had a sharp increase in 1992 to 1995 with the highest in 1995, but dropped afterwards to the lowest in 2007. TOP was unstable while INT, GFCF and IMPC had been relatively stable for the period of study (1986 – 2018).

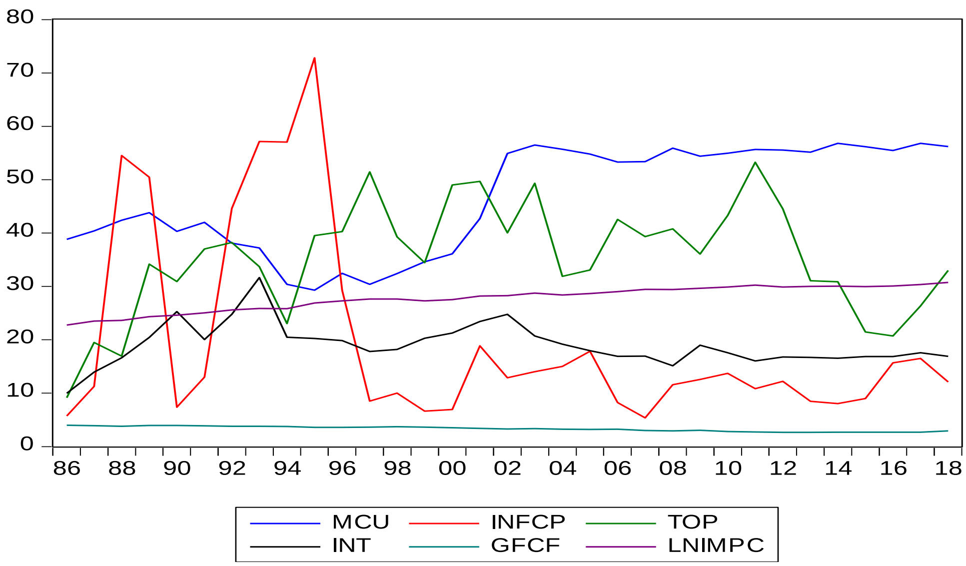

Figure 1: Line and symbol basic graph

Source: Author's computation 2020

Descriptive Statistics

Table 1 reports the summary statistics for each of the variables used in the model for the period (1986-2018). The statistics presented include the mean, median, maximum, minimum, standard deviation, skewness, kurtosis and Jarque-Bera. As it is observed, the standard deviations of INFCP is relatively higher than the other variables. This implies that inflation is more volatile and unpredictable compared to others. The skewness test which measure the asymmetry of the distribution of the series shows positive skew values for INFCP and INT variables. This indicates that the variables are skewed to the right and that the right tails are longer. Whereas, MCU, TOP, GFCF and IMPC are negatively skewed to the left. The result of kurtosis statistics which measures the peakedness or flatness of the distribution of the series indicates that INFCP and INT are highly leptokurtic as its kurtosis statistics is greater than 3. However, the distribution of MCU, TOP, GFCF and IMPC are highly platykurtic relative to the normal. The calculated Jarque-Bera statistics and p-values in Table 1 are used to test the null hypothesis for normal distribution. Given this, the p-values indicate that the null hypothesis of normality is accepted for MCU, TOP, GFCF and IMPC while it is rejected for INFCP and INT variable. This connotes that these variables apart from INFCP and INT are normally distributed.

Table 1: Descriptive Statistics of the variables

Variables	Mean	Median	Max.	Min.	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Observations
MCU	46.454	53.3	56.81	29.29	9.956	-0.371	1.522	3.764	33
INFCP	19.949	12.555	72.835	5.388	18.279	1.611	4.216*	16.307	33
TOP	35.274	36.059	53.278	9.136	10.467	-0.435	2.849	1.074	33
INT	18.99	17.948	31.65	9.959	3.895	0.928	5.285*	11.926	33
GFCF	3.332	3.345	4.006	2.651	0.463	-0.148	1.587	2.866	33
LNIMPC	27.774	28.289	30.749	22.764	2.285	-0.663	2.286	3.119	33

Source: Authors Computation 2020

Unit Root Tests

In testing the time series properties of the variables in the model, this paper performed a univariate regression analysis using conventional unit root tests in order to ascertain whether each of these variables has unit root (non-stationary) or does not have unit root (stationary series). Following the summary results of the unit root tests presented in Table 2, it is clearly shown that the variables considered are a mixture of stationary I(0) and non-stationary I(1) series. Given this scenario, there is therefore a need for long-run relationship among the variables in each of the models, which the use of ARDL is capable of capturing.

Table 2: Summary and Decision for Unit Root Test

Variables	ADF Test Statistics (At Levels)	Critical Values @ 5%	ADF Test Statistics (At 1st Diff.)	Critical Values @ 5%	Order of Integration
MCU	-2.0956	-3.5629	-3.9062	-3.5628	I(1)
INFCP	-2.9834	-3.6032	-6.1601	-3.622	I(1)
TOP	-3.3319	-3.5577	-7.0098	-3.5628	I(1)
INT	-4.0742	-3.5742	-6.4761	-3.5628	I(0)
GFCF	-1.771	-3.5577	-4.9808	-3.5628	I(1)
LNIMPC	-2.2584	-3.5577	-6.486	-3.5628	I(1)

Note - The decision is made based on the estimation results with consideration to trend and intercept. I(0) represents stationary of a variable (i.e. significant at level) while I(1) denotes non-stationarity (i.e. significant at first difference)

Source: Authors computation 2020

VAR Lag Order Selection Criteria

The optimal lag length of the variables included in the ARDL model with a critical band of 5% significant level, was selected based on the LR, FPE, AIC, SC and HQ, indicated an optimal lag length of three (3) as seen in Table 3.

Table 3: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-434.648	NA	230829.5	29.376	29.657	29.466
1	-314.197	184.692	872.842	23.746	25.708	24.374
2	-253.825	68.422	235.639	22.121	25.765	23.287
3	-180.091	54.071*	51.540*	19.606*	24.931*	21.309*

*Indicate lag order selected by the criterion (each at 5% level). LR = Likelihood Ratio test; FPE = Final Prediction Error; AIC = Akaike Information Criterion; SC = Schwarz Information Criterion; HQ = Hannan–Quinn Information Criterion

Source: Authors computation 2020

Stability Test

The Recursive CUSUM test results in figure 2 indicated no break in the regression coefficients and the departure of the parameters from the constancy is within the straight line that represents critical band at 5% significant level.

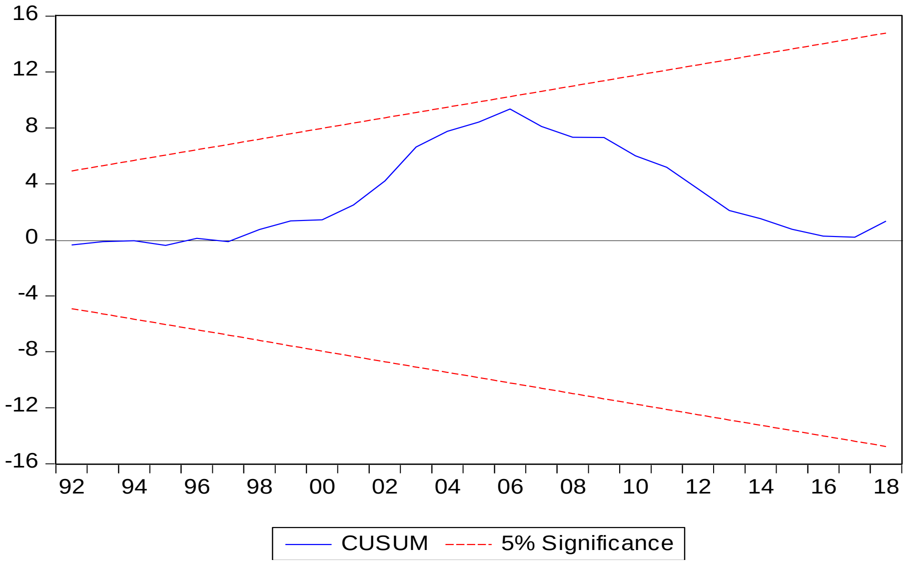

Figure 2: Cumulative Sum of Recursive Residual

Source: Author's computation 2020

The Recursive CUSUM of squares results in figure 3 indicated no break in the regression coefficients and the departure of the parameters from the constancy is within the straight line that represents critical band at 5% significant level.

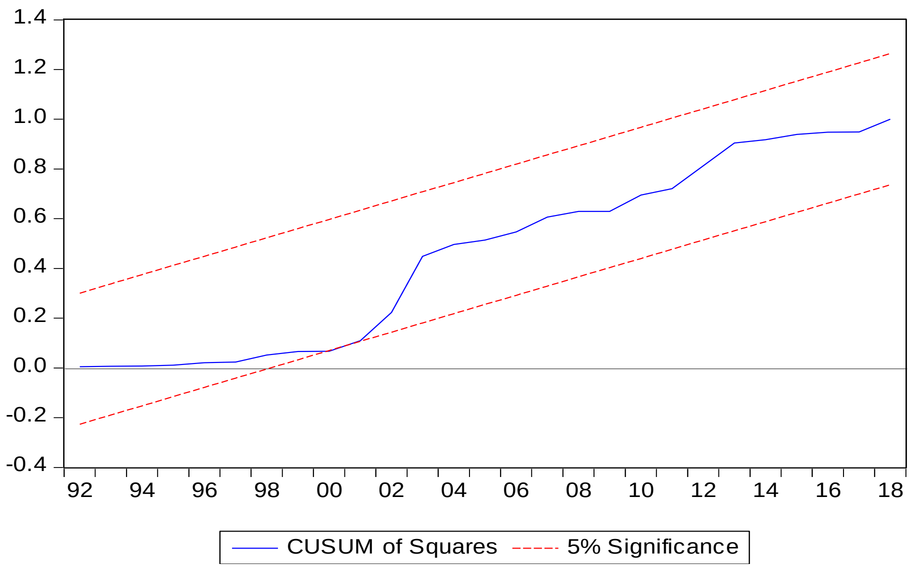

Figure 3: Cumulative Sum of Squares of Recursive Residual

Source: Author's computation 2020

Inverse Roots

The inverse roots of AR characteristics Polynomial in figure 3 also shows the points are within the circle that represents critical band at 5% significant level.

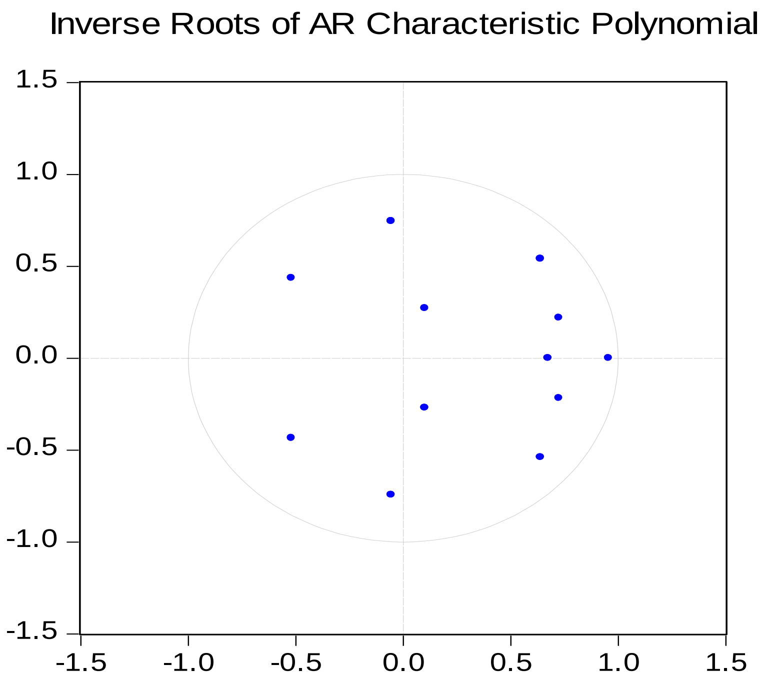

Figure 4: Inverse Roots of AR Characteristics Polynomial

Source: Author's computation 2020

Bound Test

To determine the existence of long-run relationship or trend between macroeconomic variable (MCU) in the model and selected variables (INFCP, TOP, INT, GFCF and IMPC), a co-integration analysis is performed using ARDL bounds test. In the case, the null hypothesis of no co-integration (Ho; $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$) is tested. In the model (Manufacturing capacity utilization), the results in Table 4 depict that the Wald F-statistic of 3.836 fall above both the upper and lower critical bounds of 2.62 and 3.79 at 5% level of significance as established by Pesaran et al. (2001). Based on this, we reject the null hypothesis and conclude that there is long-run relationship between the variables between 1986 and 2018.

Table 4: ARDL Bound Test for Co-integration Analysis

	Inflation	
	Wald F-statistic: 3.836204; K = 5	
Dependent variable		
F-statistic Bounds level	**Lower bound I(0)**	**Upper bound I(1)**
10% critical bounds value	2.26	3.35
5% critical bounds value	2.62	3.79
2.5% critical bounds value	2.96	4.18
1% critical bounds value	3.41	4.68

Source: Author's computation 2020

Short Run Analysis

The co-efficient of determination (R^2) in table 5, shows the total variation in the dependent variable, manufacturing capacity utilization that is accounted for by the independent variables included in the model. The five independent variables explain about 99.33% variation in manufacturing capacity utilization. The adjusted co-efficient of determination (R^2) is 0.967627, it implies that the explanatory variables are able to explain 96.76% of the total variable in the dependent variable. The value of the F-statistic is 38.68685 with the probability value of 0.000092%. The P-value of F-statistic is less than 0.05%. This means that all the independent variables have a jointly significant influence on the dependent variable. We reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1). The value of Durbin-Watson statistics is 2.466570. It implies that there is no auto-correlation.

Table 5: Short Run Coefficient of ARDL (3, 3, 3, 3, 3, 3)

R-squared	***0.993302***	***Mean dependent var***	***47.04633***
Adjusted R-squared	***0.967627***	***S.D. dependent var***	***10.25489***
S.E. of regression	***1.845121***	***Akaike info criterion***	***4.053529***
Sum squared resid	***20.42683***	***Schwarz criterion***	***5.174487***
Log likelihood	***-36.80293***	***Hannan-Quinn criter.***	***4.412133***
F-statistic	***38.68685***	***Durbin-Watson stat***	***2.46657***
Prob(F-statistic)	***0.000092***		

Source: Author's computation 2020

Long Run Analysis

Table 6 displays the long run impact of MCU. It showed that INFCP reduces/increases the impact of the MCU in Nigeria. The coefficient of INFCP is negative and statistically significant, which implies a percentage increase in INFCP decreases MCU by 1.05 percent and percentage decrease in INFCP increases MCU in Nigeria. This conforms to the empirical findings of Imoughele and Ismaila (2014) and Amaefule and Maku (2019). The main reason for this result is that majority of the manufacturing businesses in Nigeria as a developing economy are working below full capacity because inflation has eroded their working capital and profits. The money that should have been plough back into the business had been eaten up on arrival by inflation. The increase in the rate of inflation in the country, in addition to other extraneous variable has negatively affected the manufacturing output in Nigeria. An increase in trade openness sends a signal to the businesses which affects manufacturing capacity utilization. INFCP therefore, strongly affect MCU in Nigeria. The coefficients of TOP showed a negative relationship with MCU though statistically insignificant. GFCF and IMPC also showed a negative relationship with MCU but statistically significant. This implies that one percentage increase in TOP, GFCF and IMPC decreases MCU by 0.13 percent, 34.50 percent and 5.97 percent respectively conforming to the apriori expectations. Trade openness, gross fixed capital formation and import of goods and services affects manufacturing capacity utilization. Interest rate co-efficient showed a positive relationship with MCU but statistically insignificant. This implies that a percentage increase in INT increases MCU by 1.47 percent and the reverse also hold. When interest rate increases, manufacturing capacity utilization also increases as manufacturers would be more efficient in the use of resources such as capital, labour and information technology to be more productive to cover the interest payment on loans receive and also have sufficient working capital to thrive their businesses. This will make the manufacturing sector more vibrant, reduce her unemployment rate, prevent arbitrary distribution of wealth and income and invariable lead to economic growth and external viability.

Table 6: Long Run Coefficient of ARDL (3, 3, 3, 3, 3, 3)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFCP	-1.051156	0.148741	-7.067003	0.0004
TOP	-0.133205	0.200023	-0.66595	0.5302
INT	1.468419	0.676842	2.169515	0.0731
GFCF	-34.501519	7.16213	-4.817215	0.0029
LNIMPC	-5.968093	1.910242	-3.12426	0.0205
C	318.418415	71.063203	4.480778	0.0042

Source: Author's computation 2020

Conclusion

This study analyzed the relationship between inflation and manufacturing capacity utilization in Nigeria relying on annual data spanning 1986 to 2018. Exploiting techniques from the time series literature, our results revealed that in the long run, firstly, the inflation consumer prices had a significantly negative relationship with the manufacturing capacity which conforms to classical assumption on quantity theory of money that price fluctuation occurs as a result of changes in commodity production manner resulting from labour productivity. Secondly, trade openness has a negative and insignificant relationship on the manufacturer's capacity utilization. Thirdly, gross fixed capital formation and import of goods and services has a negative and significant relationship with manufacturing capacity utilization. However, interest rate has a positive but insignificant relationship with manufacturing capacity utilization. From the variables used to measure the relationship between inflation and manufacturing capacity utilization, it is concluded that the policies put in place by the central bank should be such as to reduce the impact of inflation on the manufacturing sector as it is seen that it has been negatively and significantly affecting the capacity and eventual productivity and performance of the manufacturing sector in Nigeria. The bounds test results showed that there is long term relationship among the variables.

Policy Recommendations

Based on the results of the study, the following recommendations are hereby proposed:

i. A sustainable inflation rate that will spur manufacturing output should be maintained in Nigeria. This will reduce its negative impact on the manufacturing capacity utilization and enhance improvement in the manufacturing output.

ii. Strategic framework for the development of the manufacturing sector should be entrenched. This will assist in short, medium and long term plan of the sector for effective capacity utilization.

iii. The available infrastructure in the area of electricity supply and road network should be improved upon in Nigeria for optimum capacity utilization in the manufacturing sector.

iv. The Central Bank of Nigeria (CBN) should adopt policies that would decrease the current inflation rate by enabling stable prices which will play a catalytic role for growth in manufacturing capacity utilization, and eventually bring about economic growth in the country.

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