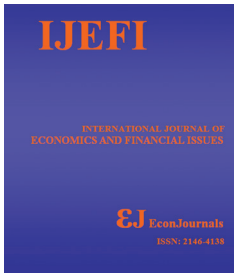

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Dynamics of Inflation and Manufacturing Sector Performance in Nigeria: Analysis of Effect and Causality

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ABSTRACT

The inflation-growth linkage has been on the front burner of academic discourses. However, the relations between inflation and growth have mostly been studied at an aggregate level and the need to relate inflation to some specific activity sectors of an economy rather than from the perspective of total growth have been largely ignored. This gap in knowledge motivated this study which is aimed at examining the linkage between inflation and manufacturing sector growth in Nigeria using annualized time series data from 1982 to 2014. The baseline regression results reveal that inflation and interest rate have negative and non-significant effect on manufacturing sector growth while exchange rate appear to positively and significantly influence the growth of manufacturing sector value added. Granger causality results reveal a unidirectional causality running from exchange rate to output growth. Inflation and interest rate however are not causal for output growth and *viz*.

Keywords: Inflation, Manufacturing Sector, Vector Error Correction Model
JEL Classifications: E02, E40

1. INTRODUCTION

In the olden days when a tuber of yam is bought with a cowry, it is an expression of prices that existed at that time. In our own time N100 or more might be used to pay for a bottle water or N300 for a plate of food. That portion of increase in prices of these items is what we call inflation, a general increase in level of prices in the economy. The price level measures the average prices of goods and services in the economy. It is an indicator for gauging the purchasing power of money (i.e., what money can buy) at a particular time (Baye and Jansen, 2006). The Central Bank of Nigeria (CBN) (2012), in their review of monetary sector model for Nigeria explains that emphasis given to price stability in the conduct of monetary policy is designed to promote sustainable growth and development as well as strengthening the purchasing power of the domestic currency amongst others.

In economics, inflation is referred to as a persistent increase in the general price level of goods and services over a period of time. Ahlgrim and D'Arcy (2012) defined inflation as changes in the overall level of prices within an economy, which consequently leads to fall in value of the domestic currency. In an inflationary period, price level rises, which means that the purchasing power of money falls and money as a medium of exchange deteriorates in real value, and if unchecked would have adverse effect on the economy. Kasidi and Mwakanemela (2013) argue that most macroeconomic policies in most economies have often centered on attaining sustainable economic growth and achieving price stability (strengthening the purchasing power of money). Stability here, according to Anyanwaokoro (1999), does not mean a situation where price will remain fixed; rather it is a situation where variation in prices over a long period is minimal. There are three main approaches to measuring inflation. These include the consumer price index (CPI), wholesale price index and the gross national product implicit deflator. The CPI is an approach adopted by the CBN in measuring inflation in Nigeria. This approach is also applied in USA and other developed economy. CPI is a direct measure of inflation.

Globally, economic growth and price level have been fluctuating. And one of the strongest policy nightmares is about smoothening out the relations between economic growth and inflation rate. Compared to economic growth rate, inflation rate draws more attention. Various attempts to find answer to the question have

produced contradicting results, and it is obvious that, so far, there is no consensus among researchers on this macroeconomic problem. The reason might well be adduced to peculiarity of each country's economy, structure and level of development hence nature of relationship between growth and inflation is both region and country specific.

Granted, the questions about the effect of changes in price level on economic growth have continued to attract the attention of researchers; whether inflation promotes growth, or is inimical to sustainable growth have been vigorously argued. However, examining the responsiveness of the manufacturing sector to inflation has been largely neglected. The Nigerian economy is comprised of various sectors whose activities contribute to the total annual gross domestic product (GDP). Most studies have assessed the relation between changes inflation and the economy, but only few have attempted to disaggregate the economic components to determine the specific effect of inflation on a specific priority sector of the economy. It is argued that a study on the economy as a whole might not provide salient information on some sectors of the economy, which could have aided in policy making. Hence, we attempt in this discourse to fill this knowledge gap by examining the link between inflation and the industrial sector growth in Nigeria from 1981 to 2014.

2. REVIEW OF RELATED LITERATURE

Economic theories have divergent opinions about the responsiveness of output growth to inflation. The aggregate supply-aggregate demand framework explains that there is a positive relationship between inflation and output growth. In other words, when output increases inflation increases as well and *viz*. However, the distinct phenomenon of stagflation (persistent high inflation in addition to unemployment and stagnant demand for goods and services in a country's economy) came into prominence in the 1970s and the validity of positive relationship earlier suggested was questioned (Gokal and Hanif, 2004). Arriving at a common consensus seems very unlikely as findings reveals that the nature of relation between output growth and inflation is country specific, and depends also on the methodology used to determine such relation.

The costs associated with high and variable inflation have always been emphasized by economists, policymakers and financial industry regulators. Despite the fact that there are evidences of substantial changes in the nature of firms, industries and markets in recent times, these institutional developments have not had significant impression on mainstream theories for inflation (Nitzan, 1990). When the efficiency of an economy is undermined by inflation it brings about myriad of negative externalities. Theoretically speaking, such inefficiencies are often observed when inflationary tendencies make future profitability or returns on investment projects improbable. In this case, investors might become conservative in their strategies, which eventually lead to decline in investment and economic growth. Inflation may also weaken the international competitiveness of a country, causing its exports to be relatively more expensive hence decrease in demand for its goods and services overseas. In the vent of dwindling demand for exports, local industries would find it difficult to operate at optimal level and productivity will obviously begin to fall - A problem the not only hurt the activity sectors of the economy but may ultimately impact negatively on the balance of payment (Gokal and Hanif, 2004).

The effects of lasting increases in the inflation rate for long-run activity appear very complex. The agreement about the adverse effect of inflation on real economic growth has explained little, leaving the greater part of the phenomenon undetermined. Lately, exhaustive studies have focused on the non-linear relationship between these two variables. Non-linear relationship in essence entails that when inflation rate is lower, the relationship is not significant or even positive to explain output growth; but at higher rates, inflation exerts a significant and negative effect on growth (Li, 2014). Bruno and Easterly (1998) established that some economies have had experience of persistent inflations of 20-30% without actually suffering any serious adverse consequences. Bruno and Easterly estimated 40% to be the threshold of inflation beyond which significant decline in growth sets in. Writing on threshold, Alade (2015) argues that their there exist tradeoff in monetary policy choices. He basically analyzed the monetary policy rate threshold, and maintains that setting an appropriate threshold should be based on a forward guidance monetary policy interaction strategy focused on promoting output, enhancing investment, improving the external reserve and maintain price stability. But particularly on inflation, Bawa and Abdullahi (2012) in their paper used a quarterly time series data for the period 1981-2009 to estimate a threshold level of inflation for Nigeria. A threshold inflation level of 13% for Nigeria was however estimated. Below the threshold level, inflation has no major effect on economic activities, while above it, inflation exerts significant negative effect on economic growth.

Beyond any threshold, Mamo (2012) argues that the controversy regarding inflation and growth is not only about whether a positive or negative association exist between them, but the need to ascertain the causal direction between these two components is debatable. Some studies suggest a unidirectional causality, whereas some reveal bidirectional, or even no causality between inflation and economic activities. Understanding these obvious controversies, this aims at examining both relationship and causality between inflation and manufacturing sector growth in Nigeria.

Previous studies on inflation and growth relationship have confirms the complexity of the issue. No-relationship, negative relationship and positive relationship between inflation and economic growth have been ascertained under different conditions. The majority of empirical studies argue in favor of negative inflation-economic growth relationship especially when inflation is above the optimal level. Sergii (2009) supports the above argument and opines that there are theoretical arguments for a positive link between inflation and growth for low levels of inflation and a negative relation for high levels. Thus, an inflation-growth relationship is non-linear and there is inflection point which shifts impact from favorable to adverse. Ifionu, (2015) suggests that, besides other interventions, securing a strong financial sector for efficient intermediation can potentially mitigate the inflationary impacts Moreover, when

inflation rate is moderate, the results show otherwise; revealing zero-relationship, and apparently statistically positive association between inflation and economic growth. On the other hand, some discourses are of the view that inflation could cause growth, while others argue that inflation is causal for growth (Xiao, 2009).

Gillman et al. (undated) studied the link between inflation and economic growth, empirical model of which was based on a considerable panel of OECD and APEC member countries between 1961 and 1997. The results show a negative inflation-growth effect, and one that is stronger at lower levels of inflation. The negative inflation effect is found for the OECD countries to be significant. Whereas ror APEC countries. The findings from using instrumental variables also revealed significant evidence of a similar behavior.

Pradana and Rathnayaka (2013) tested the link between inflation and economic growth, with main objective of investigating short-run and the long-run relationship between them. The study concentrated on three Asian countries covering the period 1980-2010. The Johansen's cointegration test, Granger causality test and vector error correction model (VECM) were employed in the estimations. The results indicate that there is a long run negative and significant relationship between the economic growth and inflation in Sri Lanka. While no statistically significant relationships were found between inflation and growth in China and in India, a negative and significant short run relationship was found for China. The causality results show that there exists a unidirectional causality that runs from the growth to inflation in China. In a related study on the Nigerian data, Osuala et al. (2013) found a statistically significant positive relationship between inflation and economic growth for Nigeria, but no causality between inflation and growth. But, Olu and Idih (2015) employed the ordinary least square (OLS) technique in estimating the multiple regression model and argues that the relationship between these two variables are indeed positive, but is non-significant.

Mwakanemela (2013) examined the impact of inflation on economic growth in Tanzania, using time-series data for the period 1990-2011. The study adopted the Johansen co-integration test in analyzing the data. Results revealed that inflation has a negative impact on economic growth. The study also showed that there was long-run relationship between inflation and economic growth in Tanzania during the period of study. In contrast, Umaru and Zubairu (2012), Bakare et al. (2015) assessed the impact of inflation on economic growth and development in Nigeria. The results revealed that inflation possessed a positive impact on economic growth. Bayo (2013) in his study evaluated the determinants of inflation in Nigeria between 1981 and 2003. It was revealed that fiscal deficits, money supply, interest and exchange rates have positive and significant impact on inflation rate in Nigeria during the period under review, which points that the very causes of inflation are multi-dimensional, very similar to Abidemi and Maliq (2010), Nwoye et al. (2015).

Omoke (2010) examined the relationship between inflation and economic growth in Nigeria. The methodology employed in this study is the co-integration and Granger causality test. The result of the test showed that for the periods, 1970-2005, there was no co-integrating relationship between Inflation and economic growth for Nigeria data. The results of the vector autoregression-Granger causality showed a unidirectional causality running from inflation to economic growth.

Mbutor (2014) assessed the relationship between of money supply on inflation in Nigeria. The impulse response function showed a persistent positive relationship between inflation and money supply. However, the variance decomposition of inflation showed that GDP was the strongest contributor to inflationary developments in Nigeria, and that money supply accounts for <50% of aggregate price changes. Umaru and Zubairu (2012) Contend that inflation exerts positive influence on economic growth by encouraging productivity, output level and promoting total factor productivity. In contrast however, Eze (2015) in his study established that inflation is inversely related with economic growth.

Doguwa (2012) re-examined the issue of the existence and the level of inflation threshold in the relationship between inflation and growth in Nigeria, using different approaches that provide appropriate procedures for estimating the threshold level and inference. The results revealed a two threshold point model with 11.2% and 12.0% as the appropriate inflation threshold points. These results suggested that the threshold level of inflation above which inflation is detrimental to growth is estimated at 10.5-12% for Nigeria.

Shuaib et al. (2015) examined the impact of inflation rate on the economic growth in Nigeria, exploring secondary data for the period of 1960 to 2012. The empirical result of the test showed that for the period covered by the study, there was no co-integrating relationship between Inflation and economic growth for Nigeria data. Moreover, the Granger causality test showed that there was no causal relationship between inflation and economic growth.

Chude and Chude (2015) analyzed the relationship between inflation and economic growth in Nigeria from 2000 to 2009, using the OLS technique of analysis. The findings indicate that there is strong relationship between inflation and economic growth in Nigeria, and that exchange rate exerts positive impact on economic growth and that high interest rate is shown to be negatively related to growth.

While empirical evidences continue to expound the inflation-growth nexus for Nigeria, there is growing concern over the virility of the manufacturing sector in Nigeria. CBN (2008) maintains that the manufacturing sector does not make significant contribution to the Nigerian economy compared to oil and agricultural sub-sectors. This decline in manufacturing output, according to Medee (2015), persists despite the fact that the CBN rolls out various strategies aimed at stimulating industrial production and enhancing capacity utilization of the industrial sector. Against this backdrop, we evaluate the association between inflation and the manufacturing sector in Nigeria.

3. DATA AND METHODOLOGY

This empirical study made us of secondary data sourced solely from World Bank national accounts data files and the OECD national accounts data files spanning the period 1982-2014. Our dependent variable and measure of manufacturing sector performance is the Annual growth rate for manufacturing value added (to GDP) at constant basis. On the other side of the equation are inflation rate as independent variable, and interest rate and exchange rate as control variables. The augmented Dickey–Fuller (ADF) test for unit root was applied to ascertain the selected variables are stationary or not, and also to find out their order of integration. Johansen test for co-integration was employed to determine if our proxy variables have long-run association, or are co-integrated. The OLS regression technique and the VECM were applied to assess the dynamic effects of the independent variables on the dependent variable. Granger causality test was used in order to determine the nature of causal links existing among the variables selected.

3.1. Model Specification

The baseline model for this study will be patterned after Mwakanemela (2013) which examined inflation-growth relation in Tanzania. The model applied in the study is of the form;

$$GDP_t = \beta_0 + \beta_1 INFL_t + U_t \quad (1)$$

Where, *GDP* = Gross domestic product, β_0 and β_1 = Parameters, *INFL* = Inflation and *U* = Error term. The above model was modified to suit our purpose hence we represent our baseline equation thus;

$$MANGR_t = \beta_0 + \beta_1 INFL_t + \beta_2 INTR_t + \beta_3 EXR_t + \varepsilon_t \quad (2)$$

Where, *MANGR* = Annual growth rate for manufacturing value added, *INFL* = Inflation, *EXR* = Exchange rate, *INTR* = Interest rate, ε = Error term, β_0 = Constant term, and β_1 = Parameter estimate.

3.2. Unit Root Test for Stationarity

Since we are dealing with time series data, it is important that we verify the stochastic properties of our variables to be estimated. This becomes necessary since regression results on non-stationary data is bound to be spurious. In order to overcome such undesirable outcome, we used the ADF unit root test to determine if our data is stationary or not. The null hypothesis is $\delta = 0$ (data has unit root), while the alternate hypothesis is $\delta \neq 0$ (data has no unit root). The general form of ADF can be represented as,

$$Y_t = \lambda Y_{t-1} + \mu_t \quad (3)$$

In Equation (3a), our time series is stationary (i.e., has no unit root) if $\lambda < 1$, meaning that *Y* is stationary. However, our time series is stationary (or has no unit root) if $\lambda = 1$ hence *Y* is stationary. In a situation where data is non-stationary, it can be converted to stationarity by differencing the data set. Therefore if *Y* is not stationary, we need to regress one period lag of *Y* and determine if λ is statistically equal to one or not. To achieve this, Equation (3a) can be modified thus,

$$Y_t - Y_{t-1} = (\lambda - 1) Y_{t-1} + \mu_t \quad (4)$$

Equation (3b) can be rewritten as,

$$\Delta Y_t = \delta Y_{t-1} + \mu_t \quad (5)$$

Where, $\delta = (\lambda - 1)$, and Δ = First-differencing operator.

Having transformed the data, the actual procedure ADF test for stationarity is demonstrated in the model thus:

$$\Delta y_t = \beta_0 + \beta_1 t + \lambda y_{t-1} + \sum_{j-1}^{p} \partial_j \Delta y_{t-j} + \mu_t \quad (6)$$

In Equation (3d), β_0 = Constant, β_1 = Trend series coefficient, λ = Coefficient of y_{t-1}, but y_{t-1} = lagged value of yt at first difference, and Δy_{t-j} = A change in lagged value, δ = Measure of lag length, while $\Delta yt = y_t - y_{t-1}$ = First difference of y_t, and μ_t = White noise.

4. RESULTS AND ANALYSIS

Table 1 presents the ADF unit root results for the time series data. The Table 1 has four panels each of which displayed the stochastic properties of each variable in our model. Each of the variable as explained in the table attained stationarity at 1%, 5% and 10% significance level after first differencing i.e., at order 1 (1(1)). We therefore reject the null hypothesis that our data has unit root, and accept the alternate hypothesis that our data set is stationary or has no unit root. Since all the variables are integrated of same order 1, we can subject the variables to Johansen co-integration test to determine if there is long-run relationship between them. If the variables are co-integrated then we may as well run the VECM. The Durbin–Watson value in each case is approximately 2.0 which indicate the absence of autocorrelation problems.

From Table 2, trace statistic in the first section of the Table 2 indicates that there are at least two co-integrating equations. This outcome is confirmed in the section two of the table by the Max-Eigen statistic. This implies that a long-run association exists between our variables. In other words, they move together in the long-run. It is also very interesting to note that in the last panel, the relationship between the variables is demonstrated. The interpretation is that the dependent variable has negative relationship with each of the independent variable. Hence when inflation, exchange rate and interest rate increase, manufacturing sector growth decreases. But when they decrease the manufacturing sector will have positive growths. This finding is in line with

Table 1: Unit root test at first difference

Variables	ADF at level	Critical value			Remark
		1%	5%	10%	
MANGR	−6.978589	−3.739633	−2.982745	−2.693645	Stationary
INFL	−7.524083	−3.739645	−2.982745	−2.693645	Stationary
INTR	−4.739243	−3.739630	−2.982745	−2.693645	Stationary
EXR	−5.012615	−3.739635	−2.982745	−2.693645	Stationary

Source: Authors eviews result. ADF: Augmented dickey–fuller

Table 2: Johansen co-integration test

Sample (adjusted): 1985-2014				
Included observations: 30 after adjustments				
Trend assumption: Linear deterministic trend				
Series: *MANGR*, *INFL*, *EXR*, *INTR*				
Lags interval (in first differences): 1 to 2				
Unrestricted co-integration rank test (Trace)				
Hypothesized number of CE (s)	**Eigen value**	**Trace statistic**	**0.05 critical value**	**P****
None*	0.796252	87.23551	47.85613	0.0000
At most 1*	0.565795	39.50944	29.79707	0.0028
At most 2	0.346874	14.48229	15.49471	0.0706
At most 3	0.055178	1.702759	3.841466	0.1919
Trace test indicates 2 co-integrating equation (s) at the 0.05 level				
***Denotes rejection of the hypothesis at the 0.05 level.**				
****MacKinnon-Haug-Michelis (1999) P values**				
Unrestricted co-integration rank test (maximum Eigen value)				
Hypothesized number of CE (s)	**Eigen value**	**Max-Eigen Statistic**	**0.05 critical value**	**P****
None*	0.796252	47.72607	27.58434	0.0000
At most 1*	0.565795	25.02714	21.13162	0.0134
At most 2	0.346874	12.77954	14.26460	0.0847
At most 3	0.055178	1.702759	3.841466	0.1919
1 Co-integrating equation (s): Log likelihood−376.2760				
Normalized co-integrating coefficients (standard error in parentheses)				
MANGR	***INFL***	***EXR***	***INTR***	
1.000000	−1.999454 (0.51465)	−0.474507 (0.10065)	−3.021063 (1.31832)	

Source: Authors'

Table 3: VECM and system equation

Dependent variable: D(*MANGR*)				
Method: Least squares				
Sample (adjusted): 1985-2014				
Included observations: 30 after adjustments				
D(*MANGR*) = C(1)*(*MANGR*(−1) − 1.99945416828INFL*(−1) − 0.474506616747**EXR*(−1) − 3.02106286669**INTR*(−1) + 126.154498152) + C(2)*D(*MANGR*(−1)) + C(3)*D(*MANGR*(−2)) + C(4)*D(*INFL*(−1)) + C(5)*D(*INFL*(−2)) + C(6)* D(*EXR*(−1)) + C(7)*D(*MANGR*(−2)) + C(8)*D(*INTR*(−1)) + C(9)*D(*INTR*(−2)) + C(10)**				
???	**Coefficient**	**SE**	**t-statistic**	**P**
C(1)	0.102379	0.035708	2.867117	0.0095
D(*MANGR*(−1))	−0.727719	0.121554	−5.986809	0.0000
D(*MANGR*(−2))	−0.687256	0.093737	−7.331746	0.0000
D(*INFL*(−1))	0.041498	0.075075	0.552749	0.5866
D(*INFL*(-2))	0.239757	0.091609	2.617162	0.0165
D(*EXR*(-1))	0.012563	0.081703	0.153758	0.8793
D(*EXR*(-2))	0.210609	0.083228	2.530498	0.0199
D(*INTR*(-1))	−0.595300	0.394438	−1.509235	0.1469
D(*INTR*(-2))	−0.784077	0.356651	−2.198439	0.0399
C(10)	1.518665	1.235867	1.228826	0.2334
R^2	0.789774	Mean dependent variable		1.087667
Adjusted R^2	0.695172	SD dependent variable		10.69037
SE of regression	5.902282	Akaike info criterion		6.649757
Sum squared residual	696.7387	Schwarz criterion		7.116823
Log likelihood	−89.74635	Hannan–Quinn criterion		6.799175
F-statistic	8.348405	Durbin–Watson statistics		2.179137
P (F-statistic)	0.000044			

Source: Authors'. VECM: Vector error correction model, SE: Standard error, SD: Standard deviation

economic theory which explains that increase in inflation and interest rates impair economic growth.

The system equation in Table 3 shows that there is no long-run causality running from inflation, exchange rate and interest rate to manufacturing sector growth. The second period lags of inflation and exchange rate are strongly significant in explaining manufacturing sector performance whereas interest rate is non-significant in explaining the dependent variable.

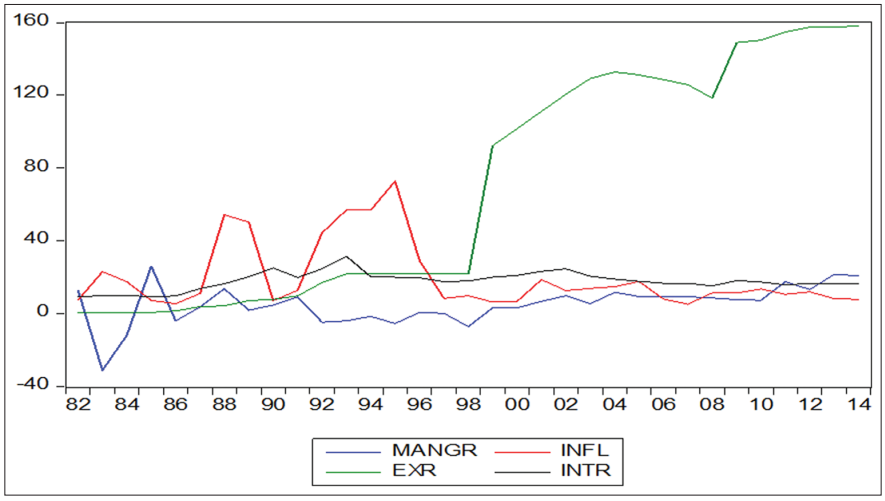
Our baseline model is represented in Table 4 and reveals that inflation and interest rate have negative and non-significant effect of manufacturing sector growth while exchange rate appear to positively and significantly influence growth of manufacturing sector value added. The value of the R^2 is highly substantial and explains that 88% of the variation in manufacturing sector growth was explained by inflation, exchange rate and interest rate while the remaining 12% was explained by other variables not captures in the model.

Tests for causation in Table 5 reveals that there is one-way causality from exchange rate to manufacturing sector growth but there is no feedback effect from manufacturing to exchange rate. There is however no causal relationships between manufacturing sector growth and inflation or interest rate.

5. CONCLUSION AND RECOMMENDATIONS

The inflation-growth linkage has been on the front burner of academic discourse, attracting interest from research scholars and the academia. However, the relations between inflation and growth have mostly been studied at an aggregate level and the need to relate inflation to some activity sectors of an economy rather than from the perspective of total growth have been largely ignored. This gap in knowledge motivated this study which is aimed at examining the linkage between inflation and manufacturing sector growth in Nigeria using annualized time series data from 1982 to 2014. Stationarity of the data set was determined using the ADF unit root test. The Johansen co-integration test was utilized to find out if the variables have long-run association while the OLS technique and the VECM were employed to ascertain the dynamic effects of the independent variables on manufacturing sector performance. The Johansen co-integration results indicate that there is la long-run relationship between manufacturing sector growth and inflation, exchange rate and interest rate, and the VECM results show that there is no long-run causality running from inflation, exchange rate and interest rate to manufacturing sector growth. the results further reveals that inflation and interest

Figure 1: Graphical presentations of proxy variables



Source: Authors' computation from CBN Statistical Bulletins (various years).

Table 4: Long-run estimation and baseline model

Dependent variable: *MANGR*				
Method: Least squares				
Sample: 1982-2014				
Included observations: 33				
Variable	**Coefficient**	**SE**	**t-statistic**	**P**
C	2.962057	6.509321	0.455049	0.6525
INFL	−0.077569	0.115215	−0.673258	0.5061
EXR	0.078248	0.030957	2.527597	0.0172
INTR	−0.086811	0.395933	−0.219257	0.8280
R^2	0.882043	Mean dependent variable		5.308485
Adjusted R^2	0.807771	SD dependent variable		10.75153
SE of regression	9.569635	Akaike info criterion		7.468280
Sum squared residual	2655.759	Schwarz criterion		7.649675
Log likelihood	−119.2266	Hannan–Quinn criterion		7.529314
F-statistic	3.797459	Durbin–Watson statistics		2.022675
P (F-statistic)	0.020647			

Source: Authors'. SE: Standard error, SD: Standard deviation

Table 5: Granger causality test

Pairwise Granger causality tests			
Sample: 1982-2014			
Lags: 2			
Null hypothesis	**Obs**	**F-statistic**	**P**
INFL does not Granger cause *MANGR*	31	1.39898	0.2648
MANGR does not Granger cause *INFL*		0.41172	0.6668
EXR does not Granger cause *MANGR*	31	6.76281	0.0043
MANGR does not Granger cause *EXR*		0.21181	0.8105
INTR does not Granger cause *MANGR*	31	1.17849	0.3236
MANGR does not Granger cause *INTR*		1.05943	0.3611

Source: Authors'

rate have negative and non-significant effect of manufacturing sector growth while exchange rate appear to positively and significantly influence growth of manufacturing sector value added. The Granger causality results show a unidirectional causality running from exchange manufacturing sector growth while there is no causality between manufacturing growth and inflation or interest rate. We therefore recommend that government and the monetary authorities should encourage manufacturing sector production by making credit available to manufacturers at a competitive price this can be in the form of concessions and establishing a special credit window for this preferred sector of Nigerian economy. Stimulating domestic production will also go a long way to increase domestic as well as foreign demands for goods, which in the long run is capable of lowering inflation and enhance exchange rate appreciations.

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