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Economic Impact of Some Determinant Factors of Nigerian Inflation Rate

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Abstract

The Nigerian Government both previous and present has introduced several policies and programmes to reduce or proffer remedial measures to militate against the negative impact of high inflationary levels on the Nigerian economy. All these measures have not led to a productive result as the inflation rate has continued to sour higher over the years. This paper aimed at examining the economic influence of the determinant factors that influence inflationary trends that are multi-dimensional and dynamic which continue to defy solutions. The data used for this work was sourced from the National Bureau of Statistics and Central Bank of Nigeria, from 1983 to 2020. The ordinary least square approach was used to analyze the data and the result shows that consumer's price index, interest rate and total export has a positive effect on Nigeria inflation, but only the Consumer's Price Index (CPI) have a statistically significant effect on the Nigeria inflation at 99% confidence interval. Result also shows that the exchange rate, foreign reserve, money supply, real GDP, real income and total imports has a negative effect though not statistically significant on the Nigeria inflation rate. The result of the granger causality test shows exchange rate and total imports to granger cause Nigeria inflation. It is recommended that Government should improve locally manufacture products to meet international demands to reduce total imports.

Keywords: *Economic growth; Fiscal policy; Granger causality test; Gross domestic product; Inflationary rate; Interest rate.*

JEL Classification: *O47, E62, E31, E40.*

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1. Introduction

It is commonly acknowledged that achieving price stability is critical to long-term growth and development, and that it should be a priority for every economy. One explanation for this is the high and fluctuating inflation rate, which has social and economic consequences due to its negative impact on price stability, savings, and investment. Given this scenario, the primary goal of monetary policy should be to achieve low inflation rather than to increase output or reduce unemployment. Inflation does not occur spontaneously. With an inflation rate of 3 to 6%, a perfect and healthy economy has consistent positive economic growth. Inflation increases investment and output, which boosts wage and consumption growth. However, a high inflation rate in the double digits could have a detrimental economic impact. This will have a negative impact on the consumer's purchasing power. It can cause borrowers and lenders, as well as buyers and sellers, to be unclear about the value of their gains and losses. (Aisen and Veiga, 2007). Because of their high marginal propensity to spend, a high inflation rate is caused by an increase in food prices, which damages the poor. Whether a rich or developing country, the major goal of monetary and fiscal policies has been to maintain a low and generally stable rate of aggregate inflation. Economic stability is frequently seen as the starting point for achieving macroeconomic goals (Metwally and Al-Sowaidi, 2004).

Since the mid-1960s, inflation has become so serious and contentions a problem in Nigeria. Though the inflation rate is not new in Nigerian economic history, the recent rates of inflation have been a cause of great concern to many. The continued overvaluation of the naira in 1980, even after the collapse of the oil boom engendered significant economic distortions in production and consumption as there was a high rate of dependence on imports which led to a balance of payment deficits. This resulted in taking loans to finance such deficits. An example was the Paris Club loan, which was a mere Five Billion, Thirty-nine million dollars ($5.39 billion) in 1983 rose to twenty-one billion, six million dollars ($21.6billion) in 1999. Inflation harms the economy as a whole. In Nigeria, some of the macroeconomic variables determining inflation are the real Gross Domestic Product (GDP), exchange rate, government expenditure, money supply, interest rates, current account deficits, public debt, trade volume, foreign reserves, money supply and balance of trade, amongst other factors. The adoption of the Structural Adjustment Programme (SAP) in 1986 saw a temporal reduction in fiscal deficits and subsidies in the economy. But as the effects of the policy gathered momentum, there was a fall in the growth rate of Gross Domestic Product (GDP) in 1990 from 8.3% to 1.2% in 1994, with inflation rising from 7.5% in 1990 to 57.0% in 1994 respectively. In 1995, the inflation rate rose to 72.8%

due to the increased lending rate, the policy of guided deregulation and the lagged impact of fiscal indiscipline. The Nigerian government, in addition to its current fiscal and monetary policies, has enacted a number of other initiatives targeted at reducing inflation in the country. One of these measures was the price policy (price control), which was implemented in 1971 to control increasing prices of vital products but was repealed in 1980 due to its ineffectiveness as a result of acute shortages during the Nigerian oil glut. Agricultural programs such as "Operation Feed the Nation" and the "Green Revolution" were implemented to increase output and lower food prices, however the results were minor. Despite the Nigerian government's efforts to reduce inflation, the growth rate of the living standard of most Nigerians who are fixed-income earners or unemployed has slowed. (Belsley, 1991).

2. Literature Review

In literature, the search for the influence of inflation indicators on the inflation rate is studied to discover better results. Eisenstat and Strachan (2014) recognized the determinants of equal market premium as interest for homegrown cash, the pace of expansion different terms of exchange and contended that swelling rises because the depreciation associated with the unification of both the authority and equal trade rates disposes of incomes from sending out the profit. Canetti and Greene (1991) estimated the impact of financial development and conversion scale changes on winning and anticipated paces of swelling in the regions of Gambia, Ghana, Kenya, Nigeria, Sierra Leone, Somalia, Tanzania, Uganda, Zaire, and Zambia. They used the Vector Auto Regression (VAR) technique as an analysis tool and discovered that money related elements overwhelm swelling levels in four nations, yet in three different nations, conversion scale devaluation controls expansion. Egwakhide (1994), in looking at conversion scale devaluation and expansion in Nigeria, found that deterioration of the swapping scale applies up increasing pressure yet it takes a base time of one year before this is thought about value expansion. Acknowledgement of this outcome suggests acknowledgement of the way that the country's swelling is brought about by both financial and underlying variables. To examine the inflationary pattern in Nigeria from 1971 to 1995, Iyabode (2000) developed a two-stage least square model. To deal with value levels, the study used a fractional balancing model based on miniature firms. The findings confirmed the importance of scale components with equal market swapping. Odusola and Akinlo (2001) utilized unhindered VAR strategy and motivation reaction to analyze an investigation on yield, swelling and swapping scale in Nigeria. Proof from

motivation reaction capacities and underlying VAR models showed a negative impact of expansion on the yield. Yet, yield and equal conversion standards were discovered to be the significant determinants of expansion elements in Nigeria. Busari (2007) utilized among different measures, the Hodrick and Prescott channel. After disintegrating expansion into patterns of repetitive, occasional, and, arbitrary segments, the examination received the general-to-explicit displaying the way to deal with research the principle determinants of every segment of swelling. The outcomes affirmed that over the long haul, expansion is to a great extent and decidedly identified with the degree of (thin) cash supply and, imperceptibly, to financial deficiency. In the medium term, expansion was seen to be emphatically identified with conversion scale devaluation and the development of the cash supply. In the short run, it was seen that swelling was emphatically identified with development in cash supply and conversion scale devaluation while it was adversely identified with development in genuine GDP. Odusanya and Atanda (2010) used the Augmented Engle-Granger (AEG) co-reconciliation test and the Error Correction Mechanism (ECM) model to investigate the dynamic and concurrent relationship between expansion and its causes in Nigeria from 1970 to 2007. They documented significant benefits gained by transitioning from a high or moderate rate of expansion to a low rate of expansion. Bakare (2011) used a semi-test research configuration approach for the information examination to examine the causes of cash supply growth and its proposals for expansion in Nigeria. They discovered a link between the growth of the cash supply and the inflating of the Nigerian economy. Imimole and Enoma (2011) explored the effect of swapping scale deterioration on swelling in Nigeria by utilizing auto relapse appropriated slack (ARDL) and co-coordination methodology. Their results recommends that swapping scale devaluation, cash supply and genuine total national output were the primary determinants of expansion in Nigeria. Alexander et al. (2015) explored the primary determinants of expansion in Nigeria for the period 1986-2011 using VAR and Granger causality tests. They found out that monetary shortages, conversion scale, import of labour and products, cash supply and rural yield impact the expansion rate in Nigeria. Bawa et al. (2016) studied the factors influencing inflationary cycle in Nigeria over the period 1981-2015 by utilizing bounds testing approach to cointegration. Their empirical findings demonstrated that inflation in Nigeria, as measured by the Consumer Price Index (CPI), exhibited a high degree of inertia. Past inflation and average rainfall appeared to be the key predictors of the inflationary process in Nigeria across the study period, according to the researchers. They also discovered substantial evidence of the role of money supply in the inflation process, confirming the monetarist theory's supremacy in Nigeria's inflation dynamics.

In turn, this study aims at building a statistical model for Nigerian inflation and its determinants. It shall also identify the determinants responsible for the high inflation rate in the country and carry out a granger causality test to ascertain whether there exist bi-directional, uni-directional or no direction between the explanatory variables.

3. Materials and Methods

3.1. Source of Data

The data used in this study are collected from the 2019 National Bureau of Statistics and Central Bank of Nigeria Statistical Bulletin. The data are collected from the period 1983 to 2020 for inflation rate, Consumer Price Index (CPI), interest rate, money supply, real income, real Gross Domestic Products (GDP), Foreign Exchange (FOREX) reserve, exchange rate, total imports and total export.

3.2. Model Specification

The study shall utilize nine explanatory variables, namely; CPI, interest rate, money supply, real income, real GDP, FOREX reserve, exchange rate, total imports and total export

$$\sum Y$$

is Inflation Rate, is CPI, is Interest Rate, is Money Supply (M2), is Real Income, x is Real GDP (Gross Domestic Product), is Forex Reserve, is Exchange Rate, is Total Imports, is Total Exports, and is a disturbance term.

3.3. Ordinary Least Square Regression Model

Regression analysis is widely used to test for the impact, influence or effect of one or more explanatory variables on the response variable. In restricted circumstances, regression analysis can be used to infer causal relationships between the independent and dependent variables. However, this can lead to

illusions or false relationships, so caution is advisable. It is also used for prediction and forecasting (Farrar et al., 1967). For regression equation to be efficient, some assumptions are made about the stochastic error term. These assumptions are given below as follows:

Assumptions of Regression Analysis

i. The error is a random variable with a mean of zero conditional on the explanatory variables.

ii. The independent variables are measured with no error. (If this is not so, modelling may be done instead of using errors-in-variables model techniques).

iii. The independent variables (predictors) are linearly independent, i.e. it is not possible to express any predictor as a linear combination of the others.

iv. The errors are uncorrelated, that is, the variance-covariance matrix of the errors is diagonal and each non-zero element is the variance of the error.

v. The variance of the error is constant across observations (homoskedasticity). If not, weighted least squares or other methods might instead be used.

4. Results and Discussion

4.1. Preliminary Test for Regression assumption

Test for Stationarity

This section of this research contains the test for stationarity for all variables involved. The time plot for all the variables is presented to examine the trend of the variables and subsequently, to check if the series is stationary and also differencing the series when found not stationary. The formal test was also conducted to corroborate the graphical analyses already displayed. The results are summarized in Figures 1-9 and Table 1.

From the result above, Figure 1 shows that Exchange Rate is non-stationary at the level. (The probability statistic also shows not significant with value 0.9426), while Figure 1b shows that Exchange Rate is stationary at 1^{st} difference. The probability statistic also shows significance with a value of 0.0000.

Table 4.5 produce an absolute value of the test statistic (2.0495) which is less than the absolute value of the 1% critical value (3.5777), 5% (2.9252) and 10%

critical value (2.6007). Therefore, we do not reject the null hypothesis and conclude that Forex Reserve is non-stationary at the level. (The probability statistic also shows not significant with value 0.2655), while Table 4.6 shows the absolute value of the test statistic (7.5796) which is greater than the absolute value of the 1%, 5% and 10% critical values (3.5812, 2.9266 and 2.9014). Therefore, we do not accept the null hypothesis and conclude that Forex Reserve is stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000. Figure 2 shows that Forex Reserve at level is non-stationary or has unit root while Figure 2b indicates that Forex Reserve has no unit root or it's stationary at First Difference. Figure 3 shows that the inflation rate is stationary at a level. The probability statistic also shows significance with a value of 0.0006. Figure 4 show that Interest Rate is non-stationary at the level. (The probability statistic also shows not significant with value 0.2655) while Figure 4b shows that Interest Rate met stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000. Table 4.10 produce an absolute value of the test statistic (1.5703) which is less than the absolute value of the 1% critical value (3.5812), 5% (2.9266) and 10% critical value (2.6014). Therefore, we do not reject the null hypothesis and conclude that Money Supply is non-stationary at level. (The probability statistic also shows not significant with value 0.4894), while Table 4.11 shows the absolute value of the test statistic (14.9873) which is greater than the absolute value of the 1%, 5% and 10% critical values (3.5812, 2.9266 and 2.9014). Therefore, we do not accept the null hypothesis and conclude that Money Supply is stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000.

Figure 5 shows that Money Supply at level is non-stationary or has unit root while Figure 5b indicates that Money Supply has no unit root or it's stationary at First Difference. Figure 6 shows that Real GDP is non-stationary at level. (The probability statistic also shows not significant with value 0.9587) While Figure 6b shows that Real GDP met stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000. Figure **7** shows that Real Income is non-stationary at level. (The probability statistic also shows not significant with value 0.8576), while Figure 7b shows that real Income met stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000. Figure 8 shows that Total Export is non-stationary at level. (The probability statistic also shows not significant with value 0.2445), while Figure 8b shows that Total Export is stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000. Figure 9 shows that Total Import is non-stationary at level. (The probability statistic also shows not significant with value 0.4976), while Figure 9b

shows that Total Import met stationary at 1st difference. The probability statistic also shows significance with a value of 0.0000.

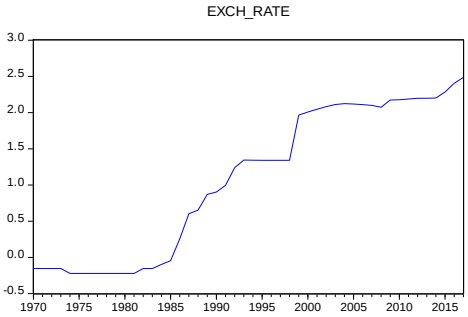

Figure 1: Exchange Rate at Level

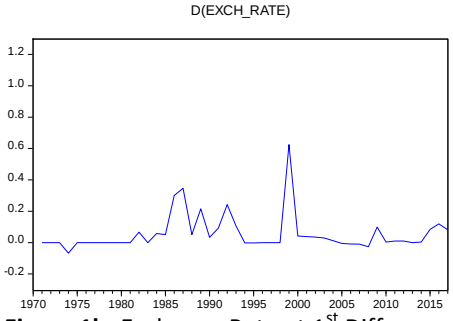

Figure 1b: Exchange Rate at 1st Diff

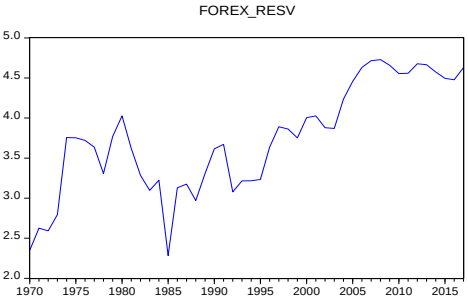

Figure 2: Forex Reserve at Level

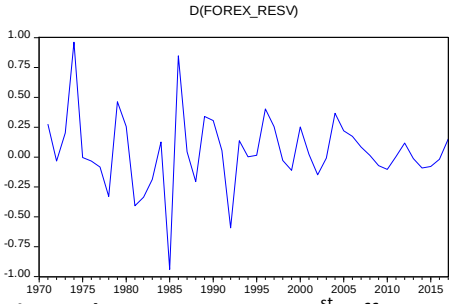

Figure 2b: Forex Reserve at 1st Diff

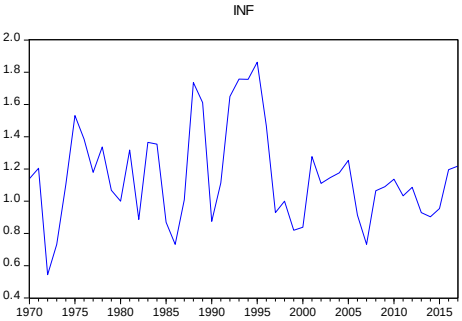

Figure 3: Inflation Rate at Level

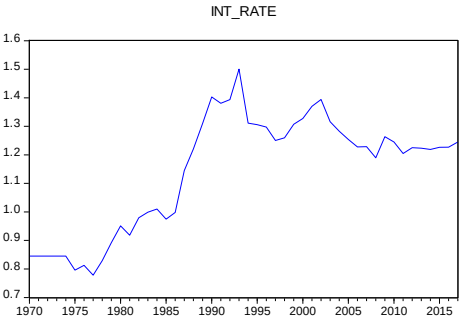

Figure 4: Interest Rate at Level

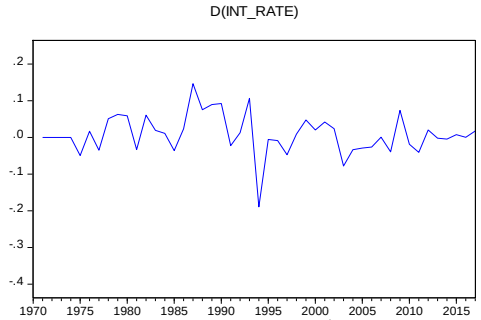

Figure 4b: Interest Rate at 1st Diff

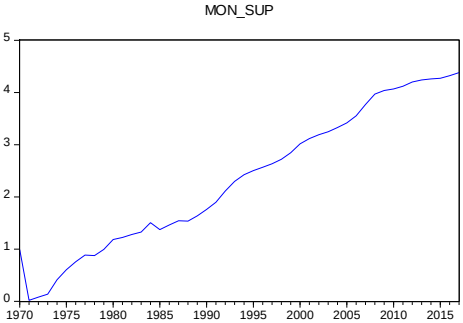

Figure 5: Money Supply at Level

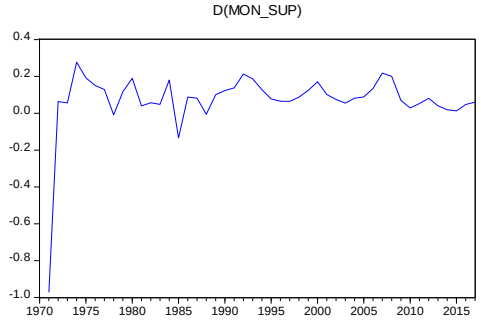

Figure 5b: Money Supply at 1st Diff

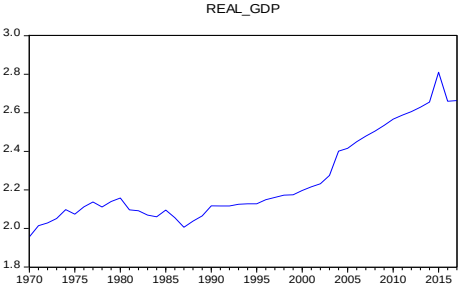

Figure 6: Real GDP at Level

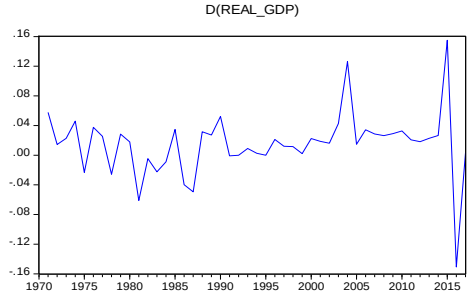

Figure 6b: Real GDP at 1st Diff

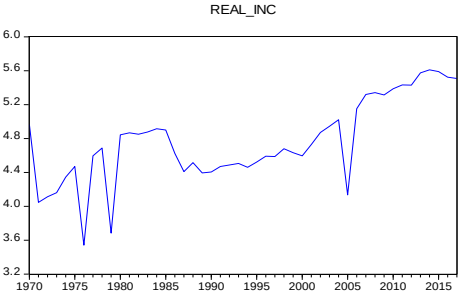

Figure 7: Real Income at Level

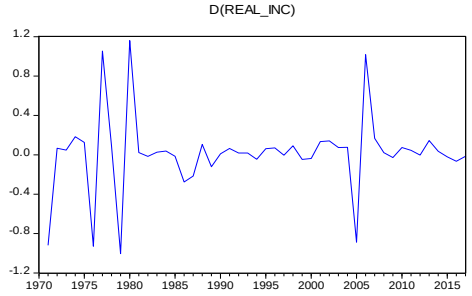

Figure 7b: Real Income at 1st Diff

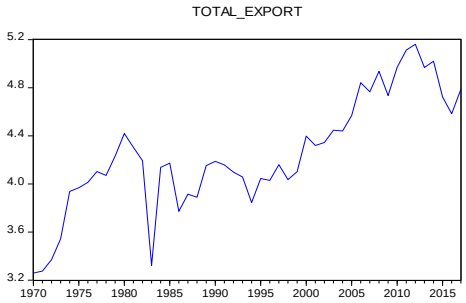

Figure 8: Total Export at Level

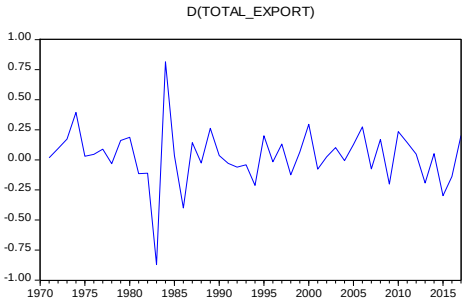

Figure 8b: Total Export at 1st Diff

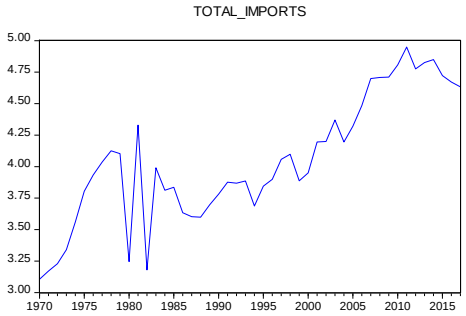

Figure 9: Total Import at Level

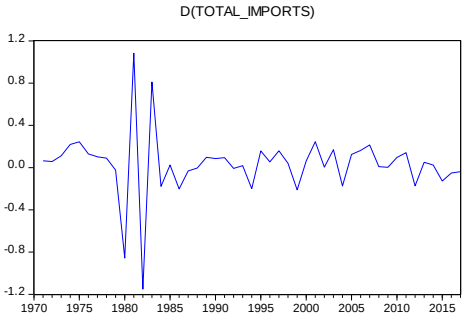

Figure 9b: Total Import at 1st Diff

Table 1. ADF Test for Stationarity Results

S/No	Variables	Level	First Difference
1	CPI	Non stationary	Stationary
2	Exchange Rate	Non stationary	Stationary
3	Forex Reserve	Non stationary	Stationary
4	Inflation Rate	Stationary	--
5	Interest Rate	Non stationary	Stationary
6	Money Supply	Non stationary	Stationary
7	Real GDP	Non stationary	Stationary
8	Real Income	Non stationary	Stationary
9	Total Export	Non stationary	Stationary
10	Total Import	Non stationary	Stationary

Test for Autocorrelation using Breusch-Godfrey LM Test

The Breush-Godfrey LM test for autocorrelation presented in Table 2 ascertains that serial correlation is absent in the model with a chi-square probability value of 0.0851 which is greater than (0.05) the level of significance.

Test for Heteroskedasticity

From the chi-square result in Table 3 produce as a result of testing for heteroskedasticity, we could note that chi-square prob. (0.7133) is greater than 0.5 level of significance. Therefore, we do not reject the null hypothesis and conclude that the model is not suffering from heteroskedasticity.

Test for Normality

The null hypothesis is that the residuals are normally distributed. Considering the chi-squared result of the test for normality presented in Figure 10, we could note that the probability value 0.7280 is greater than the critical value (0.05). Therefore, we cannot reject the null hypothesis and conclude that the residuals are normally distributed. Hence, the OLS used for this study is appropriate.

Table 2. Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.4899	**Prob. F(9,28)**	0.2000
Obs*R-squared	15.2195	**Prob. Chi-Square(9)**	0.0851

Table 3. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.0601	**Prob. F(9,37)**	0.4138
Obs*R-squared	9.6354	**Prob. Chi-Square(9)**	0.3808
Scaled explained SS	6.2634	**Prob. Chi-Square(9)**	0.7133

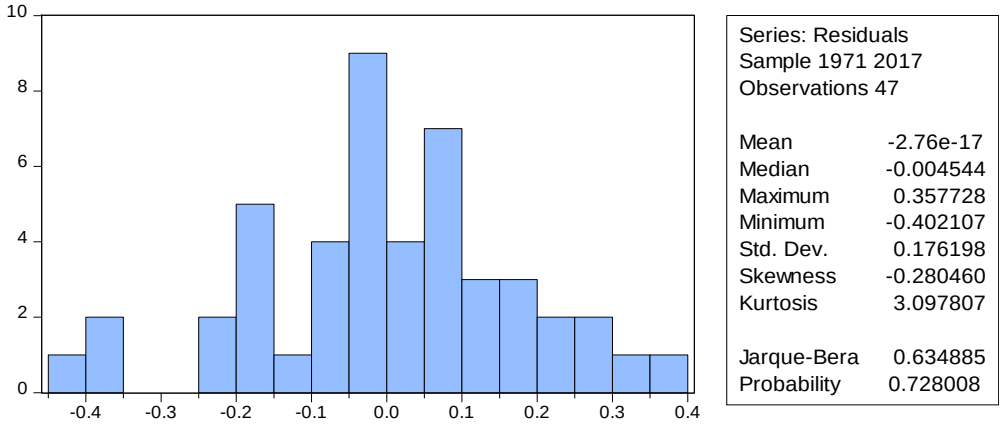

Figure 10. Normality Chart

4.2. Correlation Matrix

Table 4 show that there exist a positive association between CPI and Inflation Rate, Exchange Rate and CPI, Interest Rate and Exchange Rate, Interest Rate and Forex Reserve, Money Supply and Inflation Rate, Money Supply and CPI, Money Supply and Exchange Rate, Money Supply and Forex Reserve, Money Supply and Interest Rate, RGDP and CPI, RGDP and RGDP and Forex Reserve, RGDP Interest Rate, RGDP and Money Supply, Real Income and CPI, Real Income and Money Supply, Real Income and RGDP, Export and CPI, Export and Forex reserve, Export and Interest Rate, Export and Money Supply, Export and RGDP, Export and Real Income, Import and Inflation Rate, Import and CPI and between Import and RGDP while the other are negative association. The probability result in the table shows that there exists a correlation between Interest Rate and Exchange Rate (0.0064), Money Supply and Forex Reserve (0.0007), RGDP and CPI (0.0000) and between Export and Money Supply (0.0405) since their probability value is less than 0.05 level of significance. While the rest are not correlated as their probability result values are greater than then level of significance (0.05).

Table 4. Correlation Matrix

	INF	DCPI	DEXR	DFXR	DINT	DMS	DRGD	DRINC	DTEX	DTIM
INF	-									
DCPI	0.0048	-								
DEXR	-0.0776	0.0027	-							
DFXR	-0.1306	-0.0025	-0.0521	-						
DINT	-0.0647	-0.0594	0.4048***	0.0914	-					
DMS	0.1295	0.1549	0.0305	0.4928***	0.0275	-				
DRGDP	-0.0134	0.8940***	-0.0723	0.0109	0.0657	0.1215	-			
DRINC	-0.0904	0.0933	-0.1440	-0.0782	-0.1097	0.1175	0.0074	-		
DTEX	-0.0269	0.1190	-0.0750	0.2304	0.0166	0.3101**	0.1122	0.0883	-	
DTIM	0.1920	0.0486	-0.2110	-0.0815	-0.2006	-0.0801	0.0862	-0.1208	-0.1860	-

Notes: ***, ** and * indicates 1%, 5%, and 10% statistical significance levels respectively.

4.3. Ordinary Least Square Test

OLS analysis accounts R-squared value of 0.6613, which indicates that 66.13% of the total variation in the inflation rate can be explained by the explanatory variables.

Table 5. Multiple Regression Analysis Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CPI)	3.5207	0.4424	7.9580	0.0000
D(EXCH_RATE)	-0.3792	0.2865	-1.3233	0.1938
D(FOREX_RESV)	-0.1226	0.0987	-1.2418	0.2221
D(INT_RATE)	0.4619	0.5969	0.7737	0.4440
D(MON_SUP)	-0.1499	0.1921	-0.7803	0.4401
D(REAL_GDP)	-0.1898	0.7157	-0.2651	0.7923
D(REAL_INC)	-0.1124	0.0812	-1.3847	0.1744
D(TOTAL_EXPORT)	0.1510	0.1300	1.1614	0.2529
D(TOTAL_IMPORTS)	-0.0390	0.1021	-0.3818	0.7047
C	0.9395	0.0482	19.4742	0.0000
R-squared	0.6613	Mean dependent var		1.1543
Adjusted R-squared	0.5789	S.D. dependent var		0.3027
S.E. of regression	0.1964	Akaike info criterion		-0.2303
Sum squared resid	1.4280	Schwarz criterion		0.1632
Log likelihood	15.414	Hannan-Quinn criter.		-0.0822
F-statistic	8.0282	Durbin-Watson stat		2.6880
Prob(F-statistic)	0.0000			

The coefficient column on the table above shows the values by which the inflation rate was influenced by the independent variable, which could either be positive or negative. When it's positive, it means the inflation rate and the variable move in the same direction and is inversely related when it's negative. For example: For every unit change in interest rate, the inflation rate increases by 0.46. A unit change in CPI will increase inflation by 3.52. If the money supply changes by 1 unit, the inflation rate will decrease by 0.15. A unit change in the exchange rate will decrease inflation by 0.18. The Parameters of the model was estimated using the student T-test where only the CPI was found to be statistically significant ($P<0.05$). The F-test (0.000) shows that the explanatory variables have a significant effect on the inflation rate. The OLS model is thus given as:

InfRate = 0.9395 + 3.5208*CPI – 0.3792*ExRate – 0.1227*ForexRes + 0.4619*IntRate – 0.1499*MonSup – 0.1898*RGDP – 0.1125*RInc + 0.1510*Export – 0.0390*Import.

4.4. Granger Causality Test

Table 6 shows unidirectional causalities between variables. It reveals that Exchange Rates has granger causality to Inflation in Nigeria at 5% significance level. Moreover, Real GDP and CPI has bi-directional causality between themselves which are statistically significant at 1% level.

Table 6. Pairwise Granger Causality Test Result

Null Hypothesis	Obs	F-Stat.	Prob.
DCPI does not Granger Cause INF	42	0.5318	0.5920
INF does not Granger Cause DCPI	42	0.0653	0.9369
DEXCH_RATE does not Granger Cause INF	45	3.4590	**0.0412**
INF does not Granger Cause DEXCH_RATE	45	0.7681	0.4706
DFOREX_RESV does not Granger Cause INF	45	0.3269	0.7231
INF does not Granger Cause DFOREX_RESV	45	0.1191	0.8881
DINT_RATE does not Granger Cause INF	45	0.6179	0.5442
INF does not Granger Cause DINT_RATE	45	1.9884	0.1502
DMON_SUP does not Granger Cause INF	45	2.1772	0.1266
INF does not Granger Cause DMON_SUP	45	0.6091	0.5488
DREAL_GDP does not Granger Cause INF	44	0.9371	0.4004
INF does not Granger Cause DREAL_GDP	44	0.5058	0.6069
DREAL_INC does not Granger Cause INF	45	1.5382	0.2272

INF does not Granger Cause DREAL_INC	45	0.2122	0.8097
DTOTAL_EXPORT does not Granger Cause INF	45	0.6187	0.5437
INF does not Granger Cause DTOTAL_EXPORT	45	1.1050	0.3411
DTOTAL_IMPORTS does not Granger Cause INF	45	4.1942	**0.0222**
INF does not Granger Cause DTOTAL_IMPORTS	45	0.1212	0.8862
DEXCH_RATE does not Granger Cause DCPI	42	0.7129	0.4968
DCPI does not Granger Cause DEXCH_RATE	42	0.0370	0.9637
DFOREX_RESV does not Granger Cause DCPI	42	0.0412	0.9597
DCPI does not Granger Cause DFOREX_RESV	42	0.2787	0.7584
DINT_RATE does not Granger Cause DCPI	42	1.5515	0.2254
DCPI does not Granger Cause DINT_RATE	42	0.0102	0.9898
DMON_SUP does not Granger Cause DCPI	42	1.1432	0.3298
DCPI does not Granger Cause DMON_SUP	42	0.4749	0.6257
DREAL_GDP does not Granger Cause DCPI	42	7.2660	**0.0022**
DCPI does not Granger Cause DREAL_GDP	42	13.9845	**0.0000**
DREAL_INC does not Granger Cause DCPI	42	0.5147	0.6019
DCPI does not Granger Cause DREAL_INC	42	0.8561	0.4331
DTOTAL_EXPORT does not Granger Cause DCPI	42	0.1703	0.8441
DCPI does not Granger Cause DTOTAL_EXPORT	42	1.5719	0.2212
DTOTAL_IMPORTS does not Granger Cause DCPI	42	0.0868	0.9170
DCPI does not Granger Cause DTOTAL_IMPORTS	42	0.3088	0.7362
DFOREX_RESV does not Granger Cause DEXCH_RATE	45	0.4775	0.6238
DEXCH_RATE does not Granger Cause DFOREX_RESV	45	0.0340	0.9666
DINT_RATE does not Granger Cause DEXCH_RATE	45	0.0582	0.9435
DEXCH_RATE does not Granger Cause DINT_RATE	45	2.2945	0.1139
DMON_SUP does not Granger Cause DEXCH_RATE	45	1.1354	0.3314
DEXCH_RATE does not Granger Cause DMON_SUP	45	0.0264	0.9740
DREAL_GDP does not Granger Cause DEXCH_RATE	43	0.5628	0.5743
DEXCH_RATE does not Granger Cause DREAL_GDP	43	0.2975	0.7444
DREAL_INC does not Granger Cause DEXCH_RATE	45	0.0107	0.9894
DEXCH_RATE does not Granger Cause DREAL_INC	45	1.3380	0.2739
DTOTAL_EXPORT does not Granger Cause DEXCH_RATE	45	1.8392	0.1721
DEXCH_RATE does not Granger Cause DTOTAL_EXPORT	45	0.0037	0.9963
DTOTAL_IMPORTS does not Granger Cause DEXCH_RATE	45	0.0306	0.9699
DEXCH_RATE does not Granger Cause DTOTAL_IMPORTS	45	1.3019	0.2833

DINT_RATE does not Granger Cause DFOREX_RESV	45	0.6363	0.5345
DFOREX_RESV does not Granger Cause DINT_RATE	45	0.3295	0.7212
DMON_SUP does not Granger Cause DFOREX_RESV	45	4.4631	**0.0178**
DFOREX_RESV does not Granger Cause DMON_SUP	45	0.0667	0.9356
DREAL_GDP does not Granger Cause DFOREX_RESV	43	0.5270	0.5947
DFOREX_RESV does not Granger Cause DREAL_GDP	43	0.2584	0.7736
DREAL_INC does not Granger Cause DFOREX_RESV	45	0.7070	0.4992
DFOREX_RESV does not Granger Cause DREAL_INC	45	0.1234	0.8842
DTOTAL_EXPORT does not Granger Cause DFOREX_RESV	45	5.9146	**0.0056**
DFOREX_RESV does not Granger Cause DTOTAL_EXPORT	45	2.3555	**0.1079**
DTOTAL_IMPORTS does not Granger Cause DFOREX_RESV	45	1.1622	0.3231
DFOREX_RESV does not Granger Cause DTOTAL_IMPORTS	45	3.7932	**0.0310**
DMON_SUP does not Granger Cause DINT_RATE	45	0.7758	0.4672
DINT_RATE does not Granger Cause DMON_SUP	45	0.0406	0.9603
DREAL_GDP does not Granger Cause DINT_RATE	43	0.6540	0.5257
DINT_RATE does not Granger Cause DREAL_GDP	43	0.4379	0.6486
DREAL_INC does not Granger Cause DINT_RATE	45	0.1776	0.8379
DINT_RATE does not Granger Cause DREAL_INC	45	0.2419	0.7863
DTOTAL_EXPORT does not Granger Cause DINT_RATE	45	0.4587	0.6354
DINT_RATE does not Granger Cause DTOTAL_EXPORT	45	0.5906	0.5587
DTOTAL_IMPORTS does not Granger Cause DINT_RATE	45	0.3273	0.7228
DINT_RATE does not Granger Cause DTOTAL_IMPORTS	45	0.1208	0.8865
DREAL_GDP does not Granger Cause DMON_SUP	43	0.0222	0.9780
DMON_SUP does not Granger Cause DREAL_GDP	43	0.3899	0.6798
DREAL_INC does not Granger Cause DMON_SUP	45	0.8506	0.4347
DMON_SUP does not Granger Cause DREAL_INC	45	2.0896	0.1370
DTOTAL_EXPORT does not Granger Cause DMON_SUP	45	7.0649	**0.0024**
DMON_SUP does not Granger Cause DTOTAL_EXPORT	45	0.6069	0.5500
DTOTAL_IMPORTS does not Granger Cause DMON_SUP	45	1.9561	0.1547
DMON_SUP does not Granger Cause DTOTAL_IMPORTS	45	1.7632	0.1846
DREAL_INC does not Granger Cause DREAL_GDP	43	0.4878	0.6178
DREAL_GDP does not Granger Cause DREAL_INC	43	1.0271	0.3678
DTOTAL_EXPORT does not Granger Cause DREAL_GDP	43	0.4050	0.6698
DREAL_GDP does not Granger Cause DTOTAL_EXPORT	43	1.5526	0.2248
DTOTAL_IMPORTS does not Granger Cause DREAL_GDP	43	0.0594	0.9424

DREAL_GDP does not Granger Cause DTOTAL_IMPORTS	43	0.2731	0.7625
DTOTAL_EXPORT does not Granger Cause DREAL_INC	45	0.5705	0.5697
DREAL_INC does not Granger Cause DTOTAL_EXPORT	45	0.3462	0.7095
DTOTAL_IMPORTS does not Granger Cause DREAL_INC	45	0.7844	0.4633
DREAL_INC does not Granger Cause DTOTAL_IMPORTS	45	6.0958	**0.0049**
DTOTAL_IMPORTS does not Granger Cause DTOTAL_EXPORT	45	6.9035	**0.0027**
DTOTAL_EXPORT does not Granger Cause DTOTAL_IMPORTS	45	0.5997	0.5538

5. Discussion and Conclusion

The purpose of this study is to build a statistical model for Nigerian inflation and its determinants. The problems of inflation are undoubtedly surmountable if only the constituted authorities would demonstrate their dexterity in the implementations of the necessary policies to curb the menace. Since one of the components that are relatively under the control of the monetary authority in Nigeria is the nominal effective interest rate, efforts must be made to ensure interest rate stability to stem inflationary tendencies. Also, the government must put in place measures that will reduce the impact of total imports on domestic inflation. This can be achieved by reducing the dependence of the economy on imported goods and find means of appreciating our local products. Government should reduce the money supply though it has been one-sided as the rich become richer and the poor becoming poorer which is not fair. Government should also stimulate the productive capacity of the economy, especially the agricultural sector to increase the aggregate supply of food products so that prices will come down and consequently reduce the rate of inflation.

This research work shows that the series does not suffer from serial correlation, heteroskedasticity and its residuals are normality distributed. It was also discovered that only the Inflation rate was stationary at level while CPI, Exchange Rate, Forex Reserve, Interest Rate, Money Supply RGDP, Real Income Export and Import attains stationarity at the first difference.

The correlation result shows that there exists a correlation between Interest Rate and Exchange Rate, Money Supply and Forex Reserve, RGDP and CPI and between Export and Money Supply since their probability value is less than 0.05 level of significance. While the rest are not correlated as their probability result values are greater than the level of significance (0.05).

We found out that 66.13% of the total variation in the inflation rate can be explained by the explanatory variables. It was also observed from the result that

CPI, Interest Rate and Export has a positive relationship with the inflation rate but only CPI has a significant effect on the inflation rate with a probability value less than 0.05.

The result shows unidirectional causality between Exchange Rate and Inflation Rate, Total Import and Inflation Rate, Money Supply and Forex Reserve, Total Export and Forex Reserve, Forex Reserve and Total Import, Total Export and Money Supply, Real Income and Total Import and between Total Import and Total Export. The result shows bi-directional causality between Real GDP and CPI.

Based on the findings of the study, it was recommended that interest rates should be given attention and the government should create policies that will eliminate fluctuations in the interest rate. The Nigerian Government should improve the local product to meet international demands to reduce total imports. Lastly, the policy that will check the money supply in the country and its utilization should be formulated.

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