Determinants of Inflation in Nigeria: An Empirical Analysis

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Abstract

This study investigates the determinants of inflation in Nigeria between 1981 and 2003. The Nigerian economy had faced with inflationary trends over the years and the various government policies to deal with it eluded long-term solution needed to bring about increased living standard of the Nigerian citizenry. Hence, the need for an investigation into the multi-dimensional and dynamic factors that affect inflation with the view to make appropriate recommendations to curbing it. From the study, it was revealed that all explanatory variables (fiscal deficits, money supply, interest and exchange rates) significantly and positively impacted on the rate of inflation in Nigeria during the period under review. The explanatory variables accounted for 72% of the variation in inflation during the period with the error terms capturing 28% of the variation. This research contributes to the idea that the causes of inflation in Nigeria are multi-dimensional and dynamic, requiring full knowledge at any point in time to be able to proffer solutions to the inflationary trends in the country to lead to high productivity and increased living standard of the citizenry.

Introduction

The maintenance of price stability is one of the macroeconomic challenges facing the Nigerian government in our economic history. This elusive factor is known and referred to as inflation in our economic history and this is defined by economists as a continuous rise in prices. By definition, inflation is a persistent and appreciable rise in the general level of prices (Jhingan, 2002). Not every rise in the price level is termed inflation. Therefore, for a rise in the general price level to be considered inflation, such a rise must be constant, enduring and sustained. The rise in the price should affect almost every commodity and should not be temporal. But Demberg and McDougall are more explicit referring to inflation as a continuing rise in prices as measured by an index such as the Consumer Price Index (CPI) or by the implicit price deflator for Gross National Product (Jhingan 2002). In an inflationary economy, it is difficult for the national currency to act as medium of exchange and a store of value without having an adverse effect on income distribution, output and employment (CBN, 1984). Inflation is characterized by a fall in the value of the country's currency and a rise in her exchange rate with other nation's currencies. This is quite obvious in the case of the value of the Naira (N), which was N1 to $1 (one US Dollar) in 1981, average of N100 to $1 in year 2000 (Okeke, 2000) and over N128 to $1 in 2003. This decline in the value of the Naira coincides with the period of inflationary growth in Nigeria, and is an unwholesome development that has led to a drastic decline in the living standard of the average Nigerian.

To measure inflation are three approaches. These are the Gross National Product (GNP) implicit deflator, the Consumer Price Index (CPI) and the wholesome or producer price index (WPI or PPI). The period to period changes in these two latter approaches (CPI and WPI) are regarded as direct measures of inflation. There is no single one of the three that rather uniquely best measure inflation. The Consumer Price Index (CPI) approach, though it is the least efficient of the three is used to measure inflation rates in Nigeria as it is easily and currently available on monthly, quarterly and annual basis (CBN, 1991)

Existence of excess aggregate demand can cause inflation (demand pull inflation). Cost-push inflation arises from upward pressure of production costs, while structural inflation arises from constraints such as inefficient production, marketing and distribution systems in the productive sectors of the economy (CBN, 1996). Inflation has been apparent in Nigeria from the outset of our national life. This was propelled in the 1960s through the "cheap money policy" adopted by the government to stimulate development after independence. Interest rates were lowered and targeted at the preferred sectors of the economy, and was meant to facilitate the implementation of the First National Development Plan and subsequently the prosecution of the civil war. This led to rapid monetary expansion with the narrow and broad measures of money stock (M_1 and M_2 respectively) rising at annual rates of 29.7% (1961) and 44% (1969). Consequently, inflation increased from 6.4% (1961) to 12.1% (1969)

The oil boom era of the 1979s was characterized by fiscal dominance and severe macro economic misbalances as the period witnessed a sharp increase of government revenue in foreign exchange from oil exports. In 1971, the revenue rose from six hundred and three million naira (N603.0M) to Ten billion, four hundred and thirty three million, one hundred thousand naira (N10,433.1M) with a share in the total revenue of 52.46% (1971 and 88.89% (Suleiman, 1998). Reluctantly, the government injected massive private and public expenditure into the economy through the enormous post war reconstruction of the early 1970s and expenditures on the gigantic capital embarked upon by all the governments under the third national development plan (Suleiman 1998). This increased the entire currency in circulation with businessmen calling and withdrawing money from the banks. As a result, the annual growth rate in money supply escalated from 56.6% to 91.3% in January and April 1975 (CBN, 1982).

However, the Udoji Committee which doubled the basic minimum wage in the public sector in 1975 represented a climax in inflationary tendencies that led to the widespread strikes and unrest in the private sector on which the Udoji recommendations were not binding. This cost push factor further crippled productivity and enhanced inflation as the increased money supply and increased aggregate demand was not matched by an increased productivity. The resultant structural rigidities hampering productivity, especially agricultural productivity led to the appointment of an Anti-Inflation Task Force in 1975 to recommend the liberalization of imports that resulted in the massive inflow of food, raw materials and other consumer goods.

Furthermore the hosting of FESTAC in 1977 help in compounding the problem of macroeconomic stability whereas the accelerated growth in money supply and aggregate demand between 1970 and 1974 was attributed to monetization of crude oil exports earnings through government spending, the main expansionary factor in 1975 to 1979 was the explosive growth in bank credit, especially to the government sector. Consequently, inflation rates increased from 13.8% in 1970 to 33.9% in 1975 but fell to 11.8% in 1979. This fall was due to the direct credit allocation policy by government productive investments to generate output and employment growth. Again, the imposition of special deposits, especially on import demand helped to contain the growth in aggregate demand (CBN, 2001). From the foregoing, over the years, inflation is one of the most crucial macroeconomic problems in Nigeria, hence the need for a greater attention to it. Given the major distortions caused by it in the economic growth of the country and the living standard of the citizenry, various administrations in Nigeria in the past and present had adopted various measures to deal with inflation in the country without achieving the desired goal – long-term solution. Therefore, the research work intends to make a critical assessment of the determinants of inflation in Nigeria is the necessary condition upon which a lasting solution to inflation can be found in Nigeria.

Statement of the Problem

Since mid 1960s, inflation has become so serious and contentions a problem so serious and contentious a problem in Nigeria. Though inflation rate is not new in the Nigerian economic history, the recent rates of inflation have been a cause of great concern to many. During the period under review (1981–2003), there has been an upsurge in the inflationary rates leading to major economic distortions. The continued over valuation 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 import which led to balance of payment deficits. This resulted to taking loans to finance such deficits. An example was the Paris Club loan, which was a mere Five Billion, Thirty nine million dollars ($5.39billion) in 1983 rose to twenty one billion, six million dollars ($21.6billion) in 1999 (CBN 2001)

The oil glut from 1981, that resulted into balance of payment deficits also led to foreign exchange crises that necessitated various measures of import restrictions. These restrictions reduced raw materials for domestic production and spare parts for machinery operation. The resultant shortage of goods and services for local consumption spurred the inflation rate to rise from 20% in 1981 to 39.1% in 1984 (Itua, 2000). With the adoption of the Structural Adjustment Programme (SAP) in 1986, there was a temporal reduction in fiscal deficits as government removed subsidies and reduced her involvement in the economy. But as the effects of the Structural Adjustment Programme (SAP) policies 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% (1990) to 57.0% (1994) Again, the devaluation of the naira by the Central Bank of Nigeria (CBN) through the Second Tier Foreign Exchange Market (SFEM) led to a fall in agricultural outputs as machines and raw materials (mostly imported) were out of reach.

The devaluation reduced the aggregate real income and aggregate demand and at the same time raised the naira prices of goods whose production depended heavily on imported goods. Thus, unsold inventories accumulated in the face of consumer revolt. In this circumstance, the National Income (NI) fell and the price level rose (Osagie, 1989). In 1995, inflation rate rose to 72.8% due to increased lending rate, the policy of guided deregulation and the lagged impact of fiscal indiscipline. In addition to her contemporary fiscal and monetary policies, the Nigerian government had implemented various other policies aimed at curbing inflation in the country. One of such policies was the price policy (price control) in 1971 meant to control the soaring prices of essential goods but abolished in 1980 for its ineffectiveness resulting from the severe shortages witnessed during the oil glut in Nigeria (Udu, 1989).

The Economic Recovery Emergency Fund of 1986 where one percent (1%) of workers' salaries was deducted monthly to build the funds was meant to curb inflationary trends in Nigeria. They gradually and greatly reduced the purchasing power of the working class. But the policy measures failed as the prices of goods and the profits of corporate bodies were not controlled. Therefore, as prices rose, the labour unions agitated for higher wages resulting in further higher prices (Agba, 1994). More so, various agricultural programmes like the "Operation Feed the Nation" and the "Green Revolution" where implemented to boost output to reduce prices of food items but yielded minimal results. Notwithstanding the various efforts of the Nigerian government to curb the inflationary trend, inflation continued to cause setback in the growth rate of the living standard of most Nigerians who are fixed income earners or unemployed (Agba, 1994). Inflation has had adverse effects on savings, investment, productivity and balance of payment in the Nigerian economy, hence the fall in the growth rate of the Gross Domestic Product (GDP) from 26.8% (1981) to 5.4% (2000) and 3.5% (2002). The above explanations raise some research questions: (i) do the inflationary trends in Nigeria depend on the fiscal deficits? (ii) Is money supply a determinant of inflation in Nigeria? (iii). does the real exchange rate determine inflationary trends in the Nigerian economy? and (iv)   how does interest rate determine the inflation rate in Nigeria?

This study has been able to identify the fact that despite the various policies/programmes of the present governments to curb the inflation menace in Nigeria, it has continued to defile solution due to the fact that the sources of the inflationary trends are multi-dimensional and dynamic. As such, to be able to curb its menace, indebt knowledge of these multi dimensional and dynamic sources is required. Therefore, the study is intended to x-ray these (multi dimensional and dynamic) sources for a lasting solution to the inflationary trends in the Nigeria nation.

Theoretical Framework

In this study, demand pull theory was used to justify the Keynesian approach to inflation. The demand pull theory, which is the traditional and the most common type of inflation results, form the aggregate demand exceeding the supply of goods and services in an economy. The shortage in the supply could result from underutilization of resources due to inadequate spare parts resulting form high interest and exchange rates or the inability of the production to be increased rapidly rise. The demand-pull theory is sub-divided in to the monetarists and Keynesian views (Jhingan, 2002) but the Keynesian view utilized for this study.

According to John Keynes and his followers (the Keynesian view), demand-pull inflation occurs when aggregate demand exceeds aggregate supply at full employment level of output that is attributing inflation to the relationship between the aggregate expenditure (C+I+G) and full employment level of output (Agba, 1994). This implies that only an increase in price above the full employment can be called inflation. Therefore, as long as an economy has not reached the level of full employment, any increase in money supply or the price would exhaust itself in raising the level of employment and output and not the general price level in the economy (Bakare, 2000). They (Keynesians) emphasized non monetary influences such as government process (CBN, 1991), Keynes then explained inflation through the inflationary gap, which exists when the aggregate demand exceeds the level of output at full employment level (Vaish, 1978), this implies that once an economy has reached the point of full employment, any slight increase in aggregate demand over the available output will obviously lead to a rise in price. If such demand persists, the result is inflation. Below is a graph showing the inflationary gap of the Keynesian approach.

Figure1: Inflationary gap under Keynesian approach

$$E = Y$$

$$AD = C + I + G$$

Expenditure

C

B

Inflationary gap

A

45^0

O Y_F Y_e Output (₦M)
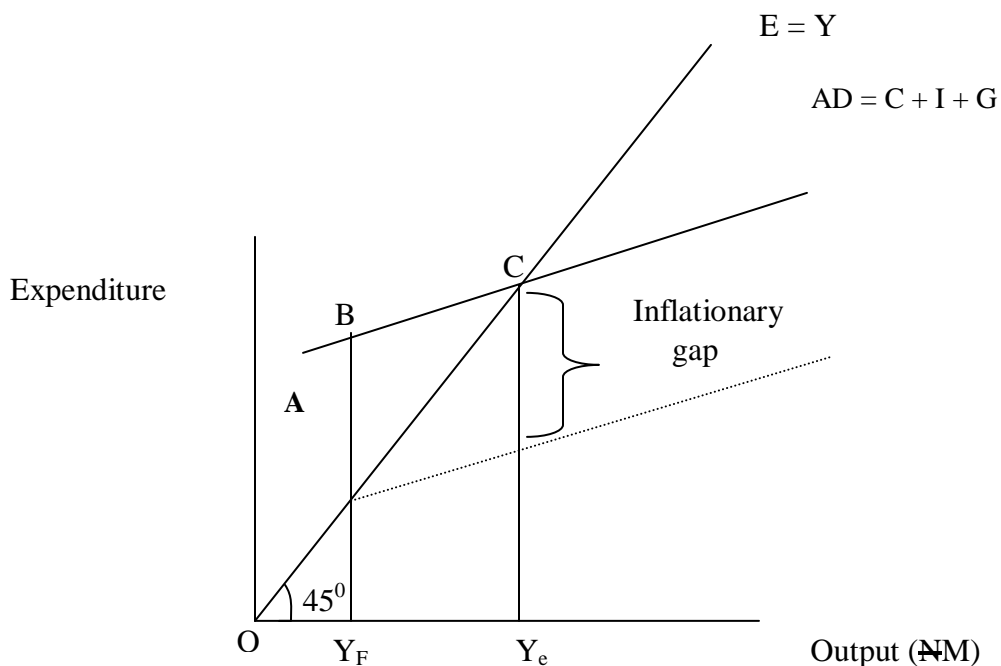
From the above graph, Y_F and Y_e represent employment and equilibrium national income respectively. However, as it can be seen from graph, Y_e is greater than Y_F because the level of expenditure required to yield full employment is Y_{FA} while the actual level of expenditure consistent with the equilibrium national income (Y_e) is Y_eC. This latter expenditure exceeds the full employment level by the vertical distance between the break even line ($E = Y$) and aggregate demand (AD) curve. Thus, AB is the inflationary gap. According to this explanation, it is this increase in AD above the level of output that "pull up' prices (Agba, 1994).

In a cross-section analysis of the origins and development of inflationary trends by the Central Bank of Nigeria (1974) to determine the impact of inflation on the growth of African countries including Nigeria, the impact of changes in money supply, deficit financing, and real domestic product on price changes was investigated for Nigeria and six African Countries. In the case of Nigeria, changes in money supply and domestic credit had no significant effects on the changes in the prices level but real income with a 60 percent coefficient of determination. But lagged changes in money supply produced significant regression coefficients, leading to the conclusion that changes in real income, money supply and its lags affect rates of inflation in Nigeria.

Fashoyin (1984) in a study with respect to the impact of structural phenomenon on inflation in Nigeria identified ten structural variables (agricultural bottlenecks, industrial production, imports, exports, food import and production, trade union militancy, indirect taxation on companies, wage bill, government expenditure – deficit financing and money supply) responsible for inflation in Nigeria. Regressing the rate of inflation on the ten variables using the Ordinary Least Square (OLS) approach, the results indicated that money supply; wages, imports, exports, food import and indirect taxation had significant positive relationships with inflation. However, other variables provided inconclusive results due to unavailability of data for computation. Attempting to ascertain the amount of government expenditure affecting money supply during 1970 – 1980, Osakwe (1983) investigated the relationship between changes in net current government expenditure, money wages, money supply (current and lagged) and prices using quarterly and annual data. The regression analysis including a dummy variable to capture the effect of price control in force indicated a strong relationship between increases in net government expenditure and growth in money supply on the one hand and growth in money supply and inflation on the other hand. The two most important factors that influenced price movement between 1970 and 1980 were increases in money wage rates and money supply. However, government price controls did have some minimal checks on price increases. Akinnifesi (1984) in a second study considered factors such as change in money supply, lagged changes in money supply, credit to government by the banking system, and government deficit expenditure with industrial production and food price indices to capture the effect of structural inflation.

Using changes in the annual data from 1960 to 1983, in the estimation, the result indicated that changes in the factors jointly explained inflationary tendencies in Nigeria. However, the study revealed emphasis on the increases in government expenditure financed by monetization of oil revenue and credit from the banking system as responsible for the expansion of money supply, which in turn, with a lag in effect, contributed greatly to inflationary tendencies. Adeyeye and Fakiyesi (1980) estimated and tested the hypothesis that government expenditure is the main factor responsible for price instability and inflationary tendencies in Nigeria. The thrust of their argument is that massive expenditure on defence and social services, which do not bring about production of any tangible commodity, would magnify or escalate inflation. Annual time series data spanning seventeen (17) years were tested with the result that the rate of inflation in Nigeria is linearly related to the rate of growth of money stock, government deficit expenditure, and growth of government revenue especially monetization of foreign exchange from oil exports. Some significant positive relationship between inflation rate and money supply, government expenditure and bank credit were established but he relationship of inflation rate with growth of government revenue was unclear. Moreover, the observed nature of disequilibria between supply and demand was said to be due to inadequate domestic production, especially food production resulting from low productivity caused by poor infrastructural development. More so, direct price controls was regarded as ineffective instruments for the control of inflation if caused by such other factors as wage increases, adverse balance of trade and balance of payment positions (NISER, 1975).

As the economy expands, the role of government becomes even more important, hence the expenditure requirements of programmes do not always coincide with projected revenue. This sharp drop in revenue can be attributed to external shocks among other variables. This then results to fiscal deficits which necessitates money creation to meet the resources gap (CBN 1998) It is therefore, believed that fiscal deficits over the years have led to inflation rates on the average remaining double digits. The effectiveness of demand is primarily based on the willingness and ability to buy a good or service. This ability is therefore, dependent of the availability of money. Hence, an increase in aggregate demand is a function of an increase in money supply. Therefore, money supply is the relationship between the quantity of money supplied in the form of currency and checkable deposits and the level of interest rates prevailing at a given point in time (Hyman, 1996). Itua (2000), in his work on the structural determinants of inflation in Nigeria between 1981 and 1998 combined the conventional causes of inflation demand pull, cost push and structural as inflation over the years in Nigeria has been determined by all the three alternating at various times. Therefore, variables like fiscal deficits and money supply (M_1) will be used to depict the demand pull factors, the percentage contribution of agriculture to the Gross Domestic product (GDP) to highlight the structural factor while exchange rate will show the cost push factor.

Exchange rate is a major determinant of inflationary rate in Nigeria. It is the value of the domestic currency in terms of foreign currency. On the other hand, foreign exchange is the actual foreign currency or various claims (bank deposits or promises to pay) on it that are traded for each other (Christal and Lipsey, 1999). Exchange rate changes can affect the relative prices, thereby the competitiveness of domestic and foreign producers. A significant appreciation of the domestic currency makes domestic goods expensive relative to foreign goods resulting in a shift of demand away from domestic to foreign goods. The effect of such a shift on the economy is reduction of demand pull inflation. But depreciation in a country's currency makes the import of necessary productive equipment expensive, leading to high prices of goods and services due to high costs of production. Iyoha (2000) opined that the current inflation has been driven by both demand pull and cost push factors. According to hi, the demand pull factors fuelling the inflationary spiral include expansionary fiscal policy, rapid monetary growth caused by excessive fiscal spending and hefty wage and salary increases while the cost push factors driving the inflation comprise fuel price increases and or fuel scarcity leading to high transportation costs, inadequate and poor infrastructure services; and supply bottlenecks arising from ports congestion. From the review of literature above, many of the authors emphasized the importance of the disequilibria between supply and demand in the inflationary process. But this study has identified wage increases to be consistent in influencing inflation rate in Nigeria while the monetization policy injects more money into circulation causing higher inflationary rates. Consequently, the study has noted that the inflationary rate in the country is caused by multi dimensional and dynamic factors, which need to be identified with the hope to making policy prescriptions that will help remove or minimize them to result in low inflationary rate to bring about increased productivity and the eventual increased living standard for the Nigerian citizenry. Therefore, policy prescriptions should focus on the ways to remove the structural constraints, particularly the need to increase the supply of agricultural and manufactured goods.

Model Specification Estimation Technique

The search for a reliable inflation function continues to be an intensive activity. Given the nature of the Nigerian economy, very little is still known about the contemporary relationship between inflation and other key macroeconomic variables. The inflation function adopted in this study, therefore, combines the structuralist, monetarist and fiscalist approaches as follows:

$$D_{pt} = f(FD, DM, IR\ EXR) \tag{1}$$

But stated econometrically as:

$$\text{Log } D_{Pt} = b_0 + b_1 \text{ Log } FD_t + \log DM_t + \log EXR_t + U_t \tag{2}$$

Where

D_{pt} = Percentage of inflation rate at period t.
FD_t = Percentage of fiscal deficits at period t
DM_t = Percentage growth rate of money supply (M_t) at period t.
LRT = Percentage interest rate at period t.
EXR_t = Percentage of real exchange rate at period t
U_t = Stochastic (error) term

Parameters For Estimation/*A Priori Expectation*

The following linear equation is obtained from the specified model

$$D_{Pt} = b_0 > b_1 FD_t > b_2 DM_t > b_3 LR_t > b4 EXR_t > U_{it} \tag{3}$$

b_o, b_1, b_2, b_3 and b_4 are parameters to be estimated while U_1 is the error term. It was expected that increased/higher $b_1 FD$, $b_2 DM$, $b_3 IR$ and $b_4 EXR$ resulted in high inflationary rules within the period under review. Thus, the a priori expectation becomes

$$b_1 > 0 \qquad b_2 > 0 \qquad b_3 > 0 \qquad b_4 > 0$$

Based on *a priori* therefore, the signs of b_1, b_2, b_3 and b_4 are expected to be positive while the sign b_3 is expected to be negative. This is so because, inflationary tendency is expected to increase as fiscal deficits, money supply (M_1), interest rate and exchange rate increase. The normal distribution of the error term is the key assumption of the model.

Presentations and Analysis of Data

The data assessed (shown below) was regressed and the result obtained shown below . The equation was estimated to capture the relationship between the explanatory variables and the rate of inflation. The model was estimated to examine the impact of these explanatory variables on the inflation rates.

YEAR	DP	FD	DM	IR	EXR
1981	20.90	-7.70	5.60	10.00	0.64
1982	7.70	-11.80	3.10	11.75	0.67
1983	23.20	-5.90	12.30	11.50	0.75
1984	39.60	-4.20	8.20	13.00	0.81
1985	5.50	-4.20	17.60	11.75	1.00
1986	5.40	-11.30	-4.10	10.50	3.32
1987	10.20	-5.40	15.70	17.50	4.20
1988	38.30	-8.40	14.90	16.50	5.35
1989	40.90	-6.70	21.50	26.80	7.65
1990	7.50	-8.50	44.90	25.50	9.00
1991	13.00	-11.00	32.60	20.01	9.75
1992	44.50	-7.20	52.80	29.80	19.66
1993	57.20	-15.50	59.70	36.09	22.63
1994	57.00	-7.70	45.90	20.19	21.89
1995	72.80	0.10	16.30	20.20	21.89
1996	29.30	1.60	26.30	19.10	21.89
1997	8.50	-2.00	18.20	17.86	21.89
1998	10.00	-4.70	20.50	18.30	21.89
1999	6.60	-8.90	18.00	25.00	21.89
2000	6.90	-2.30	62.20	26.40	109.55
2001	18.90	-4.30	28.10	31.20	112.49
2002	12.90	-5.50	15.90	25.70	126.40
2003	14.00	-2.80	29.50	21.60	129.26

Source: CBN Statistical bulletin of various years   CBN Annual Reports of various years

Table Showing Regression Results

Variable	Coefficient B	Standard Error	T – Value
Constant	32.119	15.073	2.131
Fiscal deficits	0.513	0.210	2.443
Money supply	0.460	0.161	2.857
Interest rate	0.532	0.216	2.465
Exchange rate	-0.424	-0.175	-2.423

R^2 = 0.719 R^2 = 0.642 SE   = 9.750

DW   = 2.023 F   = 6.710

Result Analysis

The results of the equation estimated to verify the impacts of various sources of inflationary trends in Nigeria are presented in the table above. An evaluation of the model revealed that the explanatory variables explained about 72 percent of changes in the dependent variable as adjudged with the coefficient of multiple determinations (R-squared). The Durbin Watson (DW) statistics (2.02) is close to the convectional point, which showed the absence of serial auto correlation. Again, the F-statistics indicated that the model has a good fit. The result indicated that all the coefficients of the explanatory variable are statistically significant at the conventional level of five (5) percent of the explanatory variables, only exchange rate has negative sign.

Discussion of Findings

From the discoveries in the research work, the input of the fiscal deficits on the inflationary trends was moderate as a unit change in the fiscal deficit resulted in 51% change in the inflationary rate in Nigeria during the period. Though significant, it did not conform to our positive theoretical framework. The reason for the significance and positive sign might not be unconnected with the fraudulent acts that characterized government spending. A great percentage of the deficits actually resulted from the waste, misappropriation, mismanagement/embezzlement of public funds that found their routes to the foreign banks and or investment abroad instead of Nigeria to make immediate contribution to productive capacity to increasing the supply of goods and services to result in low prices in the economy. Another reason for the significance of the variable was the servicing and or repayment of foreign debts, which had no positive impact on the supply of goods and services in Nigeria at the time period. Available data revealed that external debt service payment in 2003 was US $1.8b, an increase of US$0.6 billion over the service payment of US$1.2 billion in 2002. The total service payment in 2001 was US$2.1billion while that of 1999 was US$1.7 billion. The continued debt servicing meant stagnation for the economy.

In another development, the findings from the research work revealed a moderately significant contribution of the money supply in the inflationary rate variation as a unit change in the money supply accounted for 46% of the total variation. The positive result conformed to our a priori expectation as a unit rise in the money supply in the economy was supposed to result in a rise in the inflation since increases in money supply lead to increase in the aggregate demand. The explanatory variable was statistically significant in influencing inflation in Nigeria as variation in money supply is a major factor responsible for inflation at any given point in time since there would not be a corresponding increase in the available goods and services.Within the period under review, the real exchange rate of the Naira vis-à-vis the US Dollar ($) was statistically significant and positive but moderate in influencing the rate of inflation. Investigation revealed that a unit change in the percentage exchange rate resulted in only 42% total variation in the rate of inflation.

With increases in the exchange rate, inflation increased moderately. With the devalued naira, imports became more expensive. Expensive imports, coupled with the Federal government's import substitution policy among others reduced/stopped the patronage for non important imported goods and service. Some of the hitherto imported goods and services were banned from being imported into the country. These measures were aimed at discouraging the consumption of imported into the country. These measures were aimed at discouraging the consumption of imported consumer goods. Thus reducing the size of imports to naturally reduce prices of imports and inevitably domestic prices. But the decline in imports resulting from the high exchange rate coupled with the import substation policy which could not be fully realized given the high costs of imported machines, spare parts among other led to the reduction in the available goods that the money in circulation was chasing. However, interest rate during the period was statistically significant and positive influencing the inflation rate in Nigeria given its moderate impact of 42 percent in varying the rate of inflation with a unit change in the interest rate.

The impact is positive as increases in interest rate resulted in increased cost of production that led to decrease in the supply of goods in the market. The limited goods had to compete with the available money in circulation.

A wage increase, largely resulting from the deliberations of wages and salary commissions has been consistent in determining inflation. The main mechanism by which this is done is the announcement effect of the commission's awards which usually reverberates to wage and non wage incomes so that every group/individual seeks to improve, or at least maintain its existing position relative to others. An extreme demonstration of this competition is borne out by the fat that in some cases producers and sellers increase the prices of their goods in anticipation of wage increases, usually to be followed by additional increases when the awards have actually been affected. Within the period under review, salaries were increased for an upward of about five times in Nigeria, each time characterized with increase in the prices of goods and services. These phenomena demonstrate the extent of the competitive behaviour of different economic and social groups in the economy for their share of the nations' wealth.

The monetization policy of the Nigeria Government is another determinant of inflation in the economy. By the policy, a hug sum of money is pumped into economy without a corresponding increase in the provision of goods and services. The variables not included in the model but captured by the error term (U_1) include population explosion, activities of the middlemen, imported inflation, et cetera.The analysis of variance (F-statistics) test sought to find out the overall significance of the regression equation. At five (5) percent level of significance with the degree of freedom, the regression result is significant. Therefore, the null hypothesis is rejected while accepting the alternative that the explanatory variables had overall significant influence on the rate of inflation in Nigeria during the period under review.

Conclusion and Recommendation

Inflation is one of the major macroeconomic problems that confront the Nigerian economy today. Attempts by the government to control this menace using the traditional monetary and fiscal polices have not provided a long lasting solution. Therefore, the knowledge of the determinants of inflation in Nigeria is the necessary prerequisite to evolving a long term solution.

In this research, the macroeconomic uncertainties that are associated with inflation rate in Nigeria are fiscal deficits, money supply, interest rate, and exchange rate among others. These explanatory variables combined to significantly influence the rate of inflation in Nigeria as much as 72% while the stochastic error term (U_1) capture 28%. At five (5) percent level of significance, they all impacted on the rate of inflation during the period. Thus, revealing some important facts about the general determinants of inflation in the Nigerian economy. These determinants are multi dimensional and dynamic. Therefore, the government should pursue with vigour, policies that will enhance the reduction of the general price level but enhance increased productivity of goods and services. Such policies may include wage control/freeze, monetary policy (reduction in money supply), fiscal policy (increase in personal income tax and reduction in government in government expenditure), total ban on importation of some goods, increase in output of goods and services, over hauling distribution system, government/CBN intervention in FEM/SFEM to check excessive bidding or depreciation of the Naira among others. These will asset in controlling inflation, which if allowed to go out of control, would lead to macroeconomic instability and further reduce the already unacceptably low rate of economic growth. The research work revealed some important facts about the general determinants of inflation in Nigeria between 1981 and 2003. Based on the findings, it was established that inflation in Nigeria was caused by such dynamic factors as increased deficits, money supply (M_1), interest rate, real exchange rate and other factors like population growth rate, activities of the middlemen and monopolistic activities, distribution, bottlenecks, high production costs etc. captured by the stochastic error term.

Recommendations

Following the analysis and the findings of this research work, these recommendations are made to curb inflation in the Nigerian economy.

(a) Spurred by the urge to jump start the economy and thus create employment and alleviate poverty, fiscal operations of the three tiers of government were always expansionary as evidenced by their borrowing from the money and capital markets. Since government direct instrument and the moral suasion by the Central Bank of Nigeria never persuaded them to adhere to the fiscal prudence, there should be a policy or an act of parliament empowering the banks granting loans to government to make exceptional prudential provision for such loans.

The problem of poor economic infrastructure (water supply, transport system, telecommunication, and energy) is solved by the use of either massive public expenditure or massive private investment. These have inflationary effect on the economy. But such inflationary effect would be minimised/minimal if these investments were spread out over a long time period.

(b)   The government should display a high sense of transparency in the fiscal operations to bring about realistic fiscal deficits. Fiscal deficits, where recorded should be channelled to productive investments like road constructions, electricity provision, and other overheads that will serve as incentives to increased productivity and high Gross Domestic Product (GDP). Therefore, deficit financing should only be applied in a situation of true economic recession to reduce the incidence of inflation. Fiscal deficits can also be reduced by the government reducing her participation in the economic activities by the government reducing her participation in the economic activities as evidenced in her on going privatization and commercialization policies. However, government must continue to exercise caution and be systematic in the implementation to check the monopolistic tendencies of private investors.

(c)   On the determining power of money supply (M_1) on inflation, the policy of selective credit control should be pursued with the vigour it deserves. Greater efforts should be made to make available, short, medium and long term loans to productive investments like small scale industries/businesses as they constitute an integral part of the growth and transformation process of an agro based economy like that of Nigeria.

(d)   Exchange policy should be designed to bridge the savings investment gap, enhance government revenue and reduce the fiscal gap through the curtailment of deficits and guarantee of external balance in the long rune. This implies that domestic productivity and exports should be enhanced in the medium to long term while aggregate demand should be curtailed in the short run. To reduce exchange rate, the foreign exchange marked should be policed to ensure that only those who have the aim to add value to the real sector get attention. This among other steps would at least value of the naira against major world currencies, and leave us with only the prices increases occasioned by increase in local money supply.

(e)   To checking the influence off other explanatory variables captured by the stochastic error term (u_i), government should adopt and pursue with vigour policies such as encouragement of family planning to further reduced population growth rate. this will reduce excess demand for goods over their supply. Hoarding of any kind should be prohibited with necessary sanctions on defaulters. Again, a good distribution network should be set up to eliminate dubious distributors who increase prices of their goods at each distribution stage for profits.

From the research work, it was revealed that the determinants of inflation in Nigeria are multi dimensional and dynamic. Therefore, the multi-dimensional and dynamic nature of the determinants of inflation in Nigeria pose a problem for future/further researchers to continuously make recommendations to curbing inflationary tendencies in Nigeria.

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