International Journal of Research
Available at https://edupediapublications.org/journals

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 03 Issue 09
May 2016

Inflation in Nigeria: An In-depth Quantitative Analysis of Determinants (1981-2014)

Shuaib Owolabi Olajire
Lautech Open and Distance Learning Centre, Ogbomoso, Oyo State
Email: olajire56@gmail.com

E. C. Anene (Ph.D.)
Ladoke Akintola University of Technology, Ogbomoso,
Department of Management and Accounting,
Faculty of Management Sciences

Email: anenenonye@gmail.com

Abstract

Prominent among the obstacles facing the performance of the Nigerian economy are the determinants of inflations. This study purposively chosen fiscal deficit, exchange rate, money supply consumer price index and interest rate among numerous determinants of inflation in Nigeria. Price instability (inflation) has been found to affect economic growth, the standard of living likewise the value of the currency, which in turn influences the nation's exchange rate. The major issue of discourse therefore in developing countries such as Nigeria cantered on discovering its (inflation) trend and determining factors.

This study assessed determinants of inflation in Nigeria, compared and also determined the most contributing of all the determinants of inflation among the purposively chosen ones for this paper (1981-2014). Data which are secondary in nature were gathered from the Central Bank of Nigerian Statistical Bulletin. The extracted figures within the reference period (1981-2014) were compared, using an unconventional quantitative technique. That is, the study employed a Z-test approach within the framework of the data presented as the main tool to assess and also determined the most

contributing of all the determinants of inflation among the purposively chosen ones for this paper. The mean value was used to ascertain the extent of the contribution of each determinant of inflation to price stability and their effect on the economic performance of Nigeria. The result revealed that with z = 115.13 for the period under review indicated that interest rate is the most contributing determinant among all the study variables while fiscal deficit, exchange rate, money supply and consumer price index with z = -20.98, 35.16, 20.78, and 35.65, respectively, also contributed small percentages as determinants of inflation.

The result, further, showed that consumer price index with z = 35.65, is the next most contributing determinant of inflation followed by exchange rate with z = 35. 16. Also, the result revealed that with z = 20.78 for money supply indicated that has an influence on inflation rate in Nigeria while the negative sign of fiscal deficit of z = -20.98 indicated that fiscal deficit in the indirect determinant of inflation as it only cause inflation when attempt is geared towards finding solution to its existence.

The study concluded that interest rate was the most contributing determinant of inflation among all the variables employed in this study with z-value of 115.13 which surpassed the z-values of other variables and also found fiscal deficit as the indirect cause of inflation in Nigeria.

It is therefore recommended that the government through the Central Bank of Nigeria should pay more attention to the interest rate as one of the monetary measures to regulate the volume of money in circulation. It also recommended that government should be very careful about the measure employed to solve the problem of fiscal deficit as the attempt of the government to find a remedy to fiscal deficit can lead to inflation in the long run.

Keywords: determinants of inflation, fiscal deficit, consumer price index, money supply, exchange rate, interest rate, unconventional quantitative technique

Introduction

An economy that is faced with 3 to 6 per cent rate of inflation may experience positive economic effect. Inflation encourages investment and production and as such increases growth in wages and consumption. But, a high inflation rate in the range of double digit may produce a negative economic effect. This will adversely affect purchasing power of the consumer. It can lead to uncertainty of the value of gains and losses, borrowers and lenders as well as buyers and sellers (Abdul, Syed and Qazi, 2007). Furthermore, higher level of inflation creates uncertainty which discourages savings and investment. Savings are discouraged as inflation reduces the real rate of return on financial assets. This again leads to low investment and a declining economic growth. High inflation rate erodes the gains from growth and leaves the poor worse off, thereby, increasing the gap between the rich and poor in the society. A high inflation rate results from increase in food prices; it hurts the poor because of their high marginal propensity to consume.

The main target of every nation's monetary and fiscal policies, whether a developed or less developed nation has been the maintenance of a low and relatively stable rate of aggregate inflation (Metwally and Al-Sowaidi, (2004)). In the last two decades, the inflation rate in Nigeria has assumed different dimensions and accelerated considerably. Non-stationary price path introduces uncertainty in the objective function of economic agents, reduces economic efficiency and consumer welfare. This is the reason why inflation as a macroeconomic variable or phenomenon has received much attention in recent time.

Inflation is usually the result of the interplay of many factors. The Nigerian economy immediately after the civil war progressed rapidly with large inflow of petro-dollars courtesy of the crude oil boom of the early 1970s. The large petro-dollars allowed investment expenditure to increase rapidly and thus, the purchasing power rose significantly for a number of persons in the economy (Kuijs, 1998). The increase in salary of workers in 1975 further enhanced the purchasing power of the individuals. Oil revenue increased significantly and by 1980, Nigeria was rated one of the middle income countries. Despite this fit, inflation, deficit finance, balance of payment disequilibrium and corruption have appeared on the scene as a case of concern.

Most significant of these macroeconomic factors is inflation as an epicenter due to its general effects on prices of goods and service and growing ability to regulate economy. Further, the lackluster performance of the economy and inadequate tax programs frustrated government efforts to generating enough revenue for expenditure, hence the pursuance of the policy that finance government expenditure by creation of money, became inevitable (Onwioduokit, 2002). More recently, the financial tsunami and drought that hit most part of the world had created a supply crisis, aggravating the upward trend in food prices (Tule, 2004). Nigeria is an import dependent nation. The growing gap between domestic demand and domestic production was filled by a sharp increase in net imports. With the attendant slow growth rate in developed economies, looming financial crises and increasing tariffs, it became obvious that the Nigeria nation have imported inflation courtesy of the high marginal propensity to import.

Inflation which is a persistent increase in the general level of prices has in several times been characterized by an upsetting impact on economic well-being, since it causes the cost of living to rise and the value of investments to fall (Greenidge and Dacosta, 2009). An implication of the above statement, therefore, is the fact that to keep the cost of living to the barest minimum, inflation (price instability) must be well managed by the monetary authority of any country.

The slumped in the price of crude oil, the world over, led to the depreciation of the naira between 1980 and 1986. This event led to the depreciation of the naira as at this period, which also enhanced the inflationary pressure in the country. Associated with this is the substantial budget deficit operated annually by the various tiers of Government in the last decade, part of which is financed through bank credit directly affecting the money base. This phenomenon also exerts upward pressure on the general price level. However, the rate has been relatively stable lately, patrolling around 10% to 15% between 2004 and 2010, which still tells of the critical task in the hands of the monetary authority. All of these above stated concerns suggest that there are many sources of the current inflation, and in order to control the growing tendencies of inflation in any economy, it is imperative to first understand its key determinants.

Problem of the Statement

Since mid-1960s, inflation has become 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 (1981–2014), 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. These developments have necessitated the problem of 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 that rose to twenty one billion, six million dollars ($21.6billion) in 1999 (CBN, 2001)) among several others. Thus, this paper would delve into the of accessing all the determinants of inflation, as well as determining the most contributing of the 5 purposively chosen determinants.

Objective and Significance of the study

This study assessed determinants of inflation in Nigeria. Specifically, it determined the most contributing of all the determinants of inflation. The study's significance is found mainly in the assessed determinants of inflation, here, in Nigeria. It also lies in the implications of the most contributing of all the determinants among the purposively chosen ones for this paper.

Research Hypothesis

There is no most contributing of all determinants of inflation

Literature Review

Inflation can be defined as a sustained and continuous rise in the general price level of goods and services. Alternatively, inflation is a sustained and continuous fall in the value of money. Generally, some theories have been identified with respect to the concept of inflation. The demand-pull paradigm is of the view that inflation exist when aggregate demand for goods and services exceed aggregate supply for goods and services, such that the excess aggregate demand cannot be satisfied by running down the existing stocks, diverting supplies from the export market to the domestic market, increasing imports or postponed demand. In the cost-push theory, prices rise via increase cost of production. This theory maintained that prices of goods and services rise because wages are pushed up by trade unions' bargaining power, or by the pricing policies of oligopolistic and monopolistic firms with market power. The cost-push view attributed inflation to a host of non-monetary supply-oriented influences of shocks that raise costs and consequently price. In recent time, this school of thought attributed inflation to such random non-monetary shocks such as crop failures, commodity shortages, vagaries of weather and increase in the price of oil (Onwiodukit, 2002). Chibber and Shafik (1990) argued that "wage-push inflation is rare in Africa", largely because wages constitute only a small part of national income. However, this might not be true of Nigeria as any rise in wage simultaneously triggers upward prices of goods and services. The structuralists explained the long-run inflationary trends in developing countries in terms of structural rigidities, market imperfection and social tension, relative inelasticity of food supply, foreign exchange constraints protective measures, rise in demand for food, fall in export earnings and political instabilities. Unarguably, monetarists opined that "inflation is always and everywhere a monetary phenomenon resulting from and accompanied by a rise in the quantity of money relative to output", hence prices tend to rise when the rate of inflation in money supply is greater than the rate of increase in real output of goods and services. On the contrary, imported inflation arises from international trade where inflation is transmitted from one country to another, particularly, during periods of rising price all over the world (Anyanwu, 1992). These paradigms support some of the reasons why inflation rate in Nigeria is high, but, the monetarists view gained prominence.

In this regard an empirical investigation of the determinants of inflation is essential. The high inflation rate has become a major concern because poverty rate has increased (Olatunji, Omotesho, Ayinde and Ayinde, 2010). Imimole and Enoma (2011) posit that there is one and only one relationship between exchange rate and price inflation. Basing their argument on empirical studies of some African countries, they concluded that devaluation could exert upward pressure on the general price level through its increased cost of production in the short-run. London (1989) had examined the role of money supply and exchange rate in the inflationary process in 23 African countries. The pure monetarist model was employed and the results revealed that in the period of 1974-1985, the growth of money supply, expected inflation and real income were significant determinants of inflation in the sampled countries.

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 temporary 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, 1988). In 1995, inflation rate rose to 72.8% due

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 03 Issue 09
May 2016

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).

An important conclusion from various econometric models employed by Ajayi (1988) indicates that inflation in Nigeria is determined largely by developments in the external sector, but complemented by internal influences. Specifically, the finding demonstrates that the openness of the economy is highly correlated with inflation. Inflation rates in excess of 10 per cent have always been an issue of major concern, demanding serious policy actions, which are geared towards its stabilization (Dornbush, 1987). In line with the monetarists' belief, inflation is a consequence of too many money chasing few goods, which is often connected to money creation; one of the ways of financing budget deficit (a common practice since the 1920s) (Bakare, 2011).

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 programs 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

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 03 Issue 09
May 2016

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?

Theoretical Framework

Several literatures have explored a number of theories on inflation; theories explaining the behaviour of inflation and its determinants. Some of the major theories include the Quantity theory of money, Keynesian Demand Pull theory, the Monetary theory put forward by Milton Friedman, also are the Cost Push theory and the Rational Expectation theory by Lucas, McCallum, Sargeant and Hansen. All of these theories in their individual piece made attempt to uncover the peculiar nature of inflation, which has been seen to be a persistent general rise in the price of goods and services, based on the tenets of their schools of thought.

John Maynard Keynes (1883 – 1946) and his cohorts in their support for the Demand Pull inflation theory, opine that inflation is majorly caused by increase in aggregate demand, which is composed of investment, government expenditure and consumption. They explained this, using the concept of inflationary gap; the excess of aggregate demand over aggregate supply. Keynes submitted that the larger the gap between aggregate demand and aggregate supply, the more rapid inflation is and to reduce inflationary tendencies in any economy, entails initiating policies that reduce those components of total demand.

The monetary theorists on the other hand, favoured money matters as key factor influencing the behaviour of inflation in any economy. In Milton Friedman's submission, only money matters,

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 03 Issue 09
May 2016

and monetary policy is potential in ensuring economic stabilization as against the fiscal policy, which is vehemently supported by the Demand Pull theory. According to the monetarists, money is the dominant but not elusive determinant of inflation in an economy.

Based on the above explanations, this study was anchored on monetary police by Milton Friedman which asserts that money supply growth is the cause of inflation. Faster money supply growth causes faster inflation. In particularly, 1% faster money supply growth causes 1% more inflation.

Methodology

Data which are secondary in nature were gathered from the Central Bank of Nigerian Statistical Bulletin. The extracted figures for only Five (5) purposively chosen determinants within the reference period (1981-2014) were, however, compared using an unconventional quantitative technique. That is, the study employed a Z-test approach within the framework of the data presented as the main tool to compare determinants of inflation in Nigeria. The mean value was used to ascertain the extent of influence of each determinant on inflation while the Z-test was used to determine the most contributing determinant.

Results and Discussion

There are lot of determinants of inflation which include money supply, fiscal deficit, interest rate, exchange rate, consumer price index, employment rate, level of output, import of goods and services, notational income, poverty rate, government expenditure etc. The main objective of this paper was to compare only five purposively chosen determinants of inflation in Nigeria under the study period and determine the most contributing of all the determinants. The result revealed that with $z = 115.13$ for the period under review indicated that interest rate is the most contributing determinant among all the study variables while fiscal deficit, exchange rate, money supply and consumer price index with $z = -20.98$, 35.16, 20.78, and 35.65, respectively, also contributed small percentages as determinants of inflation.

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 03 Issue 09
May 2016

The result, further, showed that consumer price index with z = 35.65, is the next most contributing determinant of inflation followed by exchange rate with z = 35. 16. Also the result revealed that with z = 20.78 for money supply indicated that has influence on inflation rate in Nigeria while the negative sign of fiscal deficit of z = -20.98 indicated that fiscal deficit in indirect determinant of inflation as it only cause inflation when attempt is geared towards finding solution to its existence.

on

Year	**FD**	**EXTR**	**MS**	**CPI**	**INTR**
1981	-3.90	0.617708	14.47	7.697747	8.916667
1982	-6.10	0.673461	15.79	23.21233	9.5375
1983	-3.36	0.72441	17.69	17.82053	9.976667
1984	-2.66	0.766527	20.11	7.435345	10.24167
1985	-3.04	0.893774	22.30	5.717151	9.433333
1986	-8.25	1.754523	23.81	11.29032	9.959167
1987	-5.89	4.016037	27.57	54.51122	13.96167
1988	-12.16	4.536967	38.36	50.46669	16.61667
1989	-15.13	7.364735	45.90	7.3644	20.44167
1990	-22.12	8.038285	52.86	13.00697	25.3
1991	-35.76	9.909492	75.40	44.58884	20.04167
1992	-39.53	17.29843	111.11	57.16525	24.75833
1993	-65.16	22.0654	165.34	57.03171	31.65
1994	-70.27	21.96	230.29	72.8355	20.48333
1995	1.00	21.89526	289.09	29.26829	20.23333
1996	32.05	21.88443	345.85	8.529874	19.83667
1997	16.88	21.88605	413.28	9.996378	17.795

1998	-133.39	21.886	488.15	6.618373	18.18417
1999	-285.10	92.3381	628.95	6.933292	20.29
2000	-103.78	101.6973	878.46	18.87365	21.27417
2001	-221.05	111.2313	1269.32	12.87658	23.43833
2002	-301.40	120.5782	1505.96	14.03178	24.77083
2003	-202.72	129.2224	1952.92	14.99803	20.71417
2004	-172.60	132.888	2131.82	17.86349	19.18083
2005	-161.41	131.2743	2637.91	8.239527	17.94833
2006	-101.40	128.6517	3797.91	5.382224	16.9
2007	-117.24	125.8081	5127.40	11.57798	16.93917
2008	-47.38	118.546	8008.20	11.53767	15.47983
2009	-810.01	148.9017	9411.11	13.7202	18.36167
2010	-1105.40	150.298	11034.94	10.84079	17.585
2011	-1158.52	153.8616	12172.49	12.21701	16.01667
2012	-975.68	157.4994	13895.39	8.475827	16.7925
2013	-1153.49	157.3112	15160.29	8.05733	16.7225
2014	-978.43	158.5526	17680.52	9.017684	16.54833
	-8272.41	2306.867	109690.97	669.2001	606.33
Mean Value	-243.3059	67.84904	3226.205	19.68236	17.83323
Standard Deviation	382.7506	63.68873	5122.94	18.20453	5.111767
Z-test	-20.98	35.16	20.78	35.68	115.13

Source: Researchers' Test Results, 2016

Conclusion and Recommendations

e-ISSN: 2348-6848
p-ISSN: 2348-795X
Volume 03 Issue 09
May 2016

The study found interest rate as most contributing determinant of inflation among all the variables employed in this study with z-value of 115.13 which surpassed the z-values of other variables and also found fiscal deficit as indirect cause of inflation in Nigeria.

It is therefore recommended that, government through the Central Bank of Nigeria should pay more attention to interest rate as one of the monetary measure to regulation the volume of money in circulation. It also recommended that, government should be very careful about the measure employed to solve the problem of fiscal deficit as the attempt of government to find remedy to fiscal deficit can lead to inflation in the long run.

REFERRENCES

Abdul, A.K., Syed, K.H.B. and Qazi, M.A. (2007. Determinants of recent inflation in Pakistan. Research Report Vol 66 No 2 pp 1-16 Mpra.ub.uni-muenchen.de/…/determinants_of_recent_inflation_in_pakistantRR.pdf

Agba, V. A (1994), "Principle of Macroeconomics', Concept Publication Ltd, Lagos.

Aiyede, E. R. (2002), Decentralizing Public Sector Collective Bargaining and the Contradictions of Federal Practice in Nigeria-African Study Monographs, Vol. 23 No. 1: pp 11-29

Ajayi, S.I (1988), "Issues of Overvaluation and Exchange Rate Adjustment in Nigeria" Prepared for Economic Development Institute of the World Bank, Washington D.C

Bakare, A.S (2011); "A Theoretical Analysis of Capital Formation and Growth in Nigeria" *Far East Journal of Psychology and Business Vol 3 No 1 pp. 23-56*

Bakare, A.S. (2011), An Empirical Study of the Determinants of Money Supply Growth and its Effects on Inflation Rate in Nigeria. *Journal of Research in International Business and Management, vol. No. 15 pp.124-129.*

Chhibber, A., and Shafik, N. (1990). Exchange reform, parallel markets and inflation in Africa: The case of Ghana. Policy, Research, and External Affairs Working Paper, No. WPS 427. The World Bank

Dornbusch, R. (1987), "Exchange Rates and Prices", American Economic Review, Vol. 77 No. 1, pp. 93-106.

Greenidge K. and Dacosta D. (2009), Determinants of Inflation in Selected Caribbean Countries, Business, Fiinance and Economics in Emerging Economies, Vol.4 No.2 pp. 1-9

Imimole, B. and Enoma, A. (2011). Exchange Rate Depreciation and Inflation in Nigeria (1986 – 2008), *Business and Economics Journal, Vol. 2 No. 11 pp*. 8-78

Itua, G (2000) "Structural Determinants of Inflation in Nigeria (1981 – 1998)". Unpublished work, ABU, Zaria

Metwally, M.M. and Al-Sowaidi, S. 2004. The Main Determinants of Inflation in Egypt. The Middle East Business and Economic Review, Vol. 10, No. 1, pp. 45-86

Olatunji, G. B, Omotesho, O. A, Ayinde, O. E, and Ayinde, K (2010): Determinants of Inflation in Nigeria: A Co-integration Approach. Joint 3rd Africa Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa.

Onwioduokit, E. (2002) Capital flight from Nigeria: An empirical re-examination. Accra, Ghana: West African Monetary Institute.

Osagie E (1988) The Relevance of Income Policy in a Free Market Economy. A paper presented at the workshop on Income Policy and Structural Adjusted Economy, Lagos.

Tule, M. K (2008) "Determinant of Public Sector Wages in Nigeria (An Application of the Error Correction Methodology)" CBN Economic and Financial Review, Vol. 42. No 1 pp. 4-34

Udu, E (1989) "New System Economics". African Publishers Ltd, Onitsha.