

NEXUS BETWEEN INFLATION AND BUDGET DEFICIT: A COMPARATIVE STUDY BETWEEN NIGERIA AND SOUTH AFRICA

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Abstract

This study examined the relationship between Budget Deficit and Inflation in the two largest economies in Africa (South Africa and Nigeria). Data for the study were quarterly in nature were sourced from Central Bank of Nigeria, National Bureau of Statistics, South Africa Reserve Bank. The study made used of three estimation techniques. They are Johanson Cointegration, Vector Error Correction Model (VECM) and Granger Causality Test. The variables of interest were integrated of order one 1(1) in both countries (Nigeria and South Africa). The Johanson Co-integration test showed at least two Co-integrating vector in both countries. Results from both Impulse Response function and variance Decomposition showed that shocks emanating From Budget Deficit on inflation is positive and significant in both countries. Also, the major source of inflation in both countries are Budget Deficit and money supply. Granger Causality test showed uni-directional relationship between budget deficit and inflation in South Africa while the causality that runs between Budget Deficit and inflation in Nigeria is bi-directional. Based on these findings, it is recommended that contractionary monetary policy and easy or tight fiscal policy should be aimed at to reducing inflationary pressure in both countries.

Keywords: Inflation, Budget deficit, Johanson co-integration, Vector error correction, Granger causality

INTRODUCTION

Developing nations do not have the pleasant problem of rising full – employment budget surpluses and fiscal drag. Rather, the problem in the typical developing nations is the existence of budget deficits which inevitably leads to inflation, balance of payment deficits and escalating external debt (lyoha, 1999).

Since neither monetary non exchange rate targeting regimes was able to achieve their desire goals of (price stability, steady Economic growth, full employment and other macroeconomic policy objectives.) therefore, developing countries have recently shifted to inflation targeting as best option for their monetary policy regime. (Nigeria and South Africa are not in an exception). Price stability in any economy depends slovenly on the Central Bank independence and financial market development. If the Central bank is not independent enough to block all the external forces that would compel it to create money so as to finance the deficit, then the country is likely to experience high inflation. This therefore, suggests that inflation management lies in the hands of central bank and the financial market (John, 2013).

The development of a budget deficit it often traced to the Keynesian inspired expenditure led growth theory of the 1970s, most countries of the world adopted this theory that government has to motivate the aggregate demand side of the economy in order to stimulate economic growth. However, its consequences on macroeconomic variables cannot be underestimated in most countries of the world.(Olomola & Olagunju 2004). One of the major consequences is the structural inflation. Structural inflation occurs from either expansionary fiscal policy or expansionary monetary policy. Also, budget deficit occurs if the government is focused to spend beyond its tax revenue. In order to clear the deficit, the government needs to either borrow or create money, but under certain conditions. (e.g in an emerging scigniorage revenue John, (2013) and Leeper, (1991) describe a situation where fiscal deficit imply that inflation will eventually occurs as the one where there is an active fiscal policy. Such a situation is also known as fiscal dominance. With fiscal dominance, an increase in government debt will eventually requires an increase in seigniorage. A contractionary monetary policy aimed at producing lower inflation will initially lower seigniorage, revenue and requires additional debt be issued. This ultimately leads to higher inflation. If the fiscal authority does not adjust, the monetary authority will be forced eventually into producing higher inflation.

During the last three decades, the Nigerian Government has been continuously pursuing an expansionary fiscal policy. The broad aim of this policy stance was as result of increasing pressure from public seeking to achieve faster economic Growth. The government responded by expanding its expenditure on development projects and infrastructure improvements. This ultimately lends to budget deficit. That is, government expenditure exceeded government

revenue. Also, the sudden reduction in the price of crude oil at international oil market also reduce revenue that acquire to government.

Moreover, despite the huge fiscal deficit that characterized fiscal policy administrative in Nigeria, the overall economy appears not to have fared very well during these periods and this has constituted a major concern to the policy makers. (Olasunkanmi, 2013). For instance, primary fiscal deficit worsen from an average of 2.6 percent of GDP to 6.2 percent in 1990s, in 2010 alone, primary deficit increased to 5 percent of GDP from 2 percent in 2009. These increases in fiscal deficit did not generate better economic performance but eventually accelerate the volatility of commodity prices.

Coming down to South Africa, the level of inflation is not as high as that of Nigeria. The South African Reserve Bank (Central Bank, 1999) has attributed this slow down inflation during this period to the consistent application of conservative monetary policy since the late 1980s. However, in the last one and half decades, South Africa huge budget deficit to finance its numerous public sector undertaking and persistent high inflation have only created massive poverty and a potentially socio economic environments problems. The country is dismal economic performance raises in the mind of domestic policy makers as well as foreign advisors. The basic question of how to control and thereby bring back the economy into track. (John, 2013)

Several studies have been conducted both in developed and developing nations to establish the relationship between budget deficit and inflation. (John, 2013), (Akca, 2012), (Mucurx & Alper, 1996), (Tekin-Konux & Ozmen, 2003), (Solomon Adewet, 2004), (Ogboko, 2004) (Olasunkanmi, 2013), (Olomola & Olagunju, 2004) and several others. However, many of these studies were conducted when many of the financial sector reforms had not taken place in both countries. Also, most of these studies were either on specific country or on regional basis.

Therefore, there is need to re-investigate the relationship between these two variable (budget deficit and inflation) in two largest economies in Africa (Nigeria and South Africa). Besides these two countries are members of oil producing countries in Africa. Nigeria is first and South Africa is the tenth largest oil producing country in Africa. Nigeria is net oil exporter but South Africa is net oil importer. This is because oil produced in South Africa is not enough for their local oil consumption because of large manufacturing sector in the country.

The rest of the paper is structured thus, this introductory section is systematically followed by section two that presents literature and relevant theories. Section three deals with theoretical underpinning, methods and material. Section four centers on data presentation and its analysis. Section five concludes the paper.

LITERATURE REVIEW

Empirical Literature

Several studies have been conducted to establish the relationship between budget deficit and inflation both in developed and developing countries. However, some of these studies are hereby presented.

John, (2013) examined the nexus between inflation and budget deficit in South Africa between 1980 and 2012. The study employed vector Autoregressive Distributive model as estimation technique. The study employed VAR and Granger causality as estimation techniques. Findings showed that the two variables responded positively and significantly to each other. Also, the causality that runs between the two variables in bi-directional. In Turkey, similar study was carried out by Tekin, Korux & Ozman (2003). That examine the interrelationship among budget deficits, money growth and inflation. The study made use of trivariate system containing money Growth, budget deficits and Inflation. Findings from the study confirmed the quantity theory of money that any change in the quantity of money will change prices as well in a more elaborate study, Darrat, (2000) re-investigate the inflationary effects of budget deficits. Darrat results showed that besides money growth, higher budget deficits played an important and direct role in Greek inflationary process. To further establish the relationship between inflation and budget deficit, Omncia, (2008) investigated the short-run dynamics and long-run relationship between budget deficit, its sources of financing and inflation in Egypt using annual data between 1981 and 2006). Finding from the study showed that Johansen cointegration analysis suggests that in the long-run, inflation is not only related to the budget deficit but also to its sources of financing real output growth and the exchange rate. Cyril, (2004) studied the impact of Inflation on growth performance in Numbia. The study employed ordinary least square as estimation technique. Findings revealed that inflation was counterproductive especially if not controlled. Solomon, (2004) examined the effect of a budget deficit on inflation in Tanzania. The study employed co-integration and Error Correction as estimation technique. Results showed that the causal that run from the budget deficit to the inflation rate was uni-directional.

Attiya et al, (2011) examined the effects of fiscal policy on government budget deficit shocks between 1960-2007. The study employed VAR as estimation technique. Findings from the study revealed that an expansionary fiscal policy shock improves the current account and depreciates the exchange rate. Aremo, Orisadare & Ekperiware, (2012) examined oil price shock and fiscal policy management in Nigeria. The used (SVAR) as estimation technique. Findings from the study showed that oil price shocks affect Government financing negatively.

Olasunkanmi and Babatunde, (2013) studied the effect of fiscal policy shocks on the current account as well as the dynamic interactions among fiscal policy shocks and current account with other macroeconomic variables. The results from this study showed that the expansionary fiscal policy shock had a positive effect on output, exchange rate and negative impacts on Current account balance and interest rate.

Obinyeluaku & Viegi, (2009) investigated the oil revenue shocks and fiscal policy in Nigeria. The study employed VAR as estimation technique. Result showed that expansionary fiscal policy did not in any way improve macroeconomic performance of Nigerian Economy during the study periods. Conclusively, as far as above empirical literature is concerned, there is an element of compatability in the results and findings. However, majority of these studies were country specific. This study is out to examine budget deficit – inflation nexus in the two largest economies in Africa running a different model for each of the countries.

Theoretical Links of the Budget Deficit and Inflation

In the monetarist perspective, money supply drives inflation. If monetary policy is accommodative to a budget deficit, money supply continues to rise for a long time. Aggregate demand increases as a result of this deficit financing, causing output to increase above the natural level of output. Growing labour demand increase wages, which in turn leads to the shift in aggregate supply in downward direction. After some time, the economy returns to the natural level of output. However, this happens at the expense of permanent higher prices.

According to the monetarist view, budget deficits can lead to inflation, but only to the extent that they are monetized (Hamburger and Zwick (1981). In the monetarist (and neo-classical) models, changes in the inflation rate closely depend on changes in the money supply. Generally, the budget deficit does not cause inflationary pressures, but rather affects the price level through the impact on money aggregates and public expectations, which in turn trigger movements in prices. The money supply link of causality rests on Milton Friedman's famous theory of money, which dictates that inflation is always and everywhere a monetary phenomenon. The theory explains that continuing and persistent growth of prices is necessarily preceded or accompanied by a sustained increase in money supply. The expectations link of causality works through the inter-temporal budget constraint, which implies that a government with a deficit must run, in present value-terms, future budget surpluses (Walsh, 1998: 138-57). One possible way to generate surpluses is to increase the revenues from seignorage, so the public might expect future Money Growth. The deficit-inflation relationship is also discussed by considering direct effects of inflation on outstanding debts, tax revenues and expenditures. The dynamic interaction between public deficits and Inflation could go in one of two directions.

Either the effect of inflation to reduce the real value of debts dominates, or Inflation worsens the fiscal position of the Government due to collection lags, which reduces the government's real revenue (Dornbusch, 1990).

Theoretical underpinning

In the literature, there are many theories relating to inflation and budget deficit. However, these theories are conventional that we may not necessarily list them. Therefore, one of them is being used as foundation for the model for this study. This is known as “structural inflation”. Some economist maintain that inflation may not be the outcome of excess demand, rising cost or the willful desire of business to earn more profit by raising the prices of their products, but the manifestation of structural rigidities which create supply shortages and persistent budget deficits arising mainly from inadequate government revenue. Some of these (managerial, technological and infrastructural, deficiencies, climatic changes) structural factors are themselves reflection of the state of economy underdevelopment – CBN briefs,(1996).

Structural inflation can be explained in another way, that is, when there are increases in demand for relatively favoured goods and services causing an increase in their prices while at the same time there is a relative downward inflexibility of factor of prices.

Therefore, structural inflation occurs in an economy when there is a fairly rapid rise in price with high unemployment when some market are expanding and some other are contracting in the circumstances of institutional rigidities and immobility of factors of production. It is equally asserted that even in the unlikely event of aggregate expenditure output balance at the national due to growth of structural changes.

RESEARCH METHODOLOGY

Model Specification

The transmission mechanism between inflation and budget deficit is somehow a difficult one to establish for certain reason. First, empirical studies trying to capture the link between these two variables are bound to produce results that are quite sensitive to the choice of the model being used when one considers the number of possible versions that can be constructed. Most of these studies used the inflation model, while a few used a trivariate system (John, 2013)

Based on the issue raised above and in conclusion with theoretical underpinning, the below model is being specified to capture the relationship between inflation and Budget Deficit in Nigeria and South Africa.

$$INF = \beta_0 + \beta_1 CPI + \beta_2 GBD + \beta_3 M_2 + \beta_4 EXR + \beta_5 GDP_{gr} + u$$

Where

CPI = Consumer Price Index.

GDB = Government Budget Deficit.

MS = Money Supply.

GDP_{gr} = Growth Rate of Gross Domestic Product.

EXR = Exchange Rate.

Data description and estimation

The data for the study are quarterly from the period of 1980 to 2014. The variables of interest are Consumer Price Index (CPI), Government budget deficit (GBD), Board Money supply (MS) Real Gross Domestic Product (RGDP) and Exchange Rate (EXR). These data are sourced from Central Bank of Nigeria and South African Reserve Bank (SARB),

ANALYSIS AND FINDINGS

Unit Root Test of the variables

The prevailing problem of spurious regression has necessitated the test for unit root of time series variables. In order to identify the order of integration of the variables, this study therefore adopted the Augmented Dickey fuller test with optimal lag length chosen from Akaike and Schwarz Bayesian information criteria of variables.

Table 1. Unit Root Test for Nigeria

VARIABLES	AT LEVELS			AT 1ST DIFFERENCE			Level of Integrate
	ADf-Test	1%C.V	5%C.V	ADf-Test	1%C.V	5%C.V	
GBD	-2.2143	-3.4922	-2.8884	-4.01234	-3.4928	-2.8887	I(1)
RGDP	-2.3112	-3.4922	-2.8884	-5.6342	-3.4928	-2.8887	I(1)
EXR	-2.4562	-3.4922	-2.8884	-4.7223	-3.4928	-2.8887	I(1)
MS	-1.6223	-3.4922	-2.8884	-4.5462	-3.4928	-2.8887	I(1)
CPI	-0.0034	-3.4927	-2.8884	-4.3426	-3.4928	-2.8887	I(1)

From the unit root test results in table 1 shows that, the variables of interest are not stationary at level but became stationary after the first difference. We can conclude that the variables of interest are integrated of order one 1(1).

Table 2: Unit root test of variables for South Africa

Variables	Level	1st Difference	Order of integration
GBD	-2.46245	-4.012489***	1(1)
RGDP	-2.352421	-5.341233***	1(1)
EXR	-2.51321	-5.362455***	1(1)
MS	-2.42345	-7.46245***	1(1)
CPI	-2.643622	-4.78224***	1(1)
Test critical values; 1% level(***) – 3.661661 5% level(***) – 2.960411 10% level (***) – 2.619160			

Result in table 2 for South Africa unit root test, shows that not all the variables of interest are stationary at level but became stationary at first difference. Therefore, the variables of interest are integrated of order (1). This result of South Africa unit root test show every element of compatibility with Nigeria unit test result.

Granger Causality Test

Table 3: Granger Causality Test

Wald F- Statistic	P-value	Likelihood Ratio statistic	P-value
1.8345	0.0672	134.822	0.000
1.602	0.0734	145.462	0.000
1.645	0.04562	13.223	0.0672
4.123	0.0542	234.442	0.000

Note: the relevant 5 percent critical value for the wald f – statistic of freedom is 7.8-3

Table 3 shows the estimated values for pairwise tests of Granger causality between Budget Deficit and inflation in Nigeria from the results on table 3, the null hypothesis can conveniently be rejected that budget deficit does not Granger Cause inflation and other variables of interest. That is, Exchange rate, real GDP, Money Supply and Consumer Price Index. Therefore, we accept the alternative hypothesis that budget deficit Granger cause inflation in Nigeria. However, it is should be noted that the relationship is bi-directional. That budget deficit Granger Causes inflation and inflation Granger cause budget-deficit during the study period. This result is compatible with finding from Olomola and Olagunju, (2008) and Nwankwo (1982) but contradict John, (2013) that budget did not Granger cause inflation is South Africa.

Granger Causality Test results for South Africa

Result in table 4 shows that Granger Causality between Budget deficit and inflation in South Africa. From the result on the table, it can be concluded that, the null hypothesis can also be rejected and accepted the alternative hypothesis that budget deficit Granger Cause inflation in South Africa during the study period. This is confirmed by the probability value that shows 0.0624. But from the results, we can accept the non-hypothesis that inflation does not Granger cause budget deficit. This is also known from probability value of 0.3423. Therefore, the relationship between inflation and budget deficit in South Africa is uni-directional. However, the result of this causality test showed another funny result. That is, inflation does not Granger cause money supply. This however, contradicts the conventional theory that says that that excess money supply generates inflation. This result is in line with the finding of John, (2013).

Table 4. Granger Causality Test results for South Africa

Wald F- Statistic	P-value	Likelihood Ratio statistic	P-value
1.624	0.0842	134.762	0.000
1.7841	0.02433	190.304	0.000
1.617	0.6724	12.462	0.0721
3.2456	0.0642	245.6712	0.0000

Notes: The relevant 5 percent critical value for the wald f – statistic with 3 degree of freedom 7.814, (Griffiths et al, (1993).

Nigeria Co-integration Test for the variables

The results of the maximum Eigen value and Trace test statistics for the models are presented in table 5 and 6. The P – values at 5% and 10% level of significant show that the hypothesis of no co-integration among the variables can be rejected. Trace test displayed the existing of two co-integrating vector and also the maximum Eigen value test found two co-integration relationships at 5% significant level among budget deficit, inflation and other variables. Therefore, since the variables are co-integrated we can conclude that there exists the long-run relationship among the variables.

Table 5: Co-integration Test (Trace Test)

No of CE(S)	Trace statistics	Critical value	Prob.
None	184.3446	133.624	0
At most 1	120.314721	110.967461	0.02462
At most 2	76.74341	77.66221	0.093342

At most 3	35.66222	57.66341	0.36722	Table 5...
At most 4	30.07226	37.26278	0.62456	
At most 5	12.99456	25.22772	0.7244	
At most 6	5.2214231	10.233341	0.62772	

To optimize the space, the maximum Eigen values Test is not presented since the result is the same with that of trace test statistics.

Normalized – co-integration result

VEL	CPI	RGDP	EXR	FGBD	MS	C
1	0.04111	0.6456	0.06722	0.04132	-2.0456	-25.33443
	0.07233	-0.0627	-0.0433	-0.016345	-0.0466	-0.1234

From the results, it shows that money supply, Exchange rate and Real Gross Domestic Product have direct relationship with both inflation variable proxy by consumer price index and budget deficit in the long-run in South Africa.

In the Cointegration Test maximum (Eigen value Test) below, only results of Eigen value Test is shown because of limited space.

Table 6. cointegration Test maximum (Eigen value Test)

No of CE(S)	Maximum Eigen value	Critical value	Prob.
None	65.07681	47.06465	0.0004
At most 1	49.56782	42.63456	0.0058
At most 2	30.96245	36.90562	0.118
At most 3	18.167722	30.59231	0.72
At most 4	13.1433456	28.303334	0.6465
At most 5	9.167224	16.89992	0.3546
At most 6	5.245672	9.11645622	0.3830

Normalized co-integration Result (standard Error in Parenthesis)

VEL	CPI	RGDP	EXR	FGBD	MS	C
	0.05623	0.07456	0.0645	2.46232	-0.0624	-26.34322
	(-0.07622)	(-0.0456)	(-0.03.45)	(-0.9456)	(-0.07441)	(-5.1342)

From the above, virtually all the variables show long-run with one another except one GBD. The economic implication of this result is that, the variables of interest are long-run related.

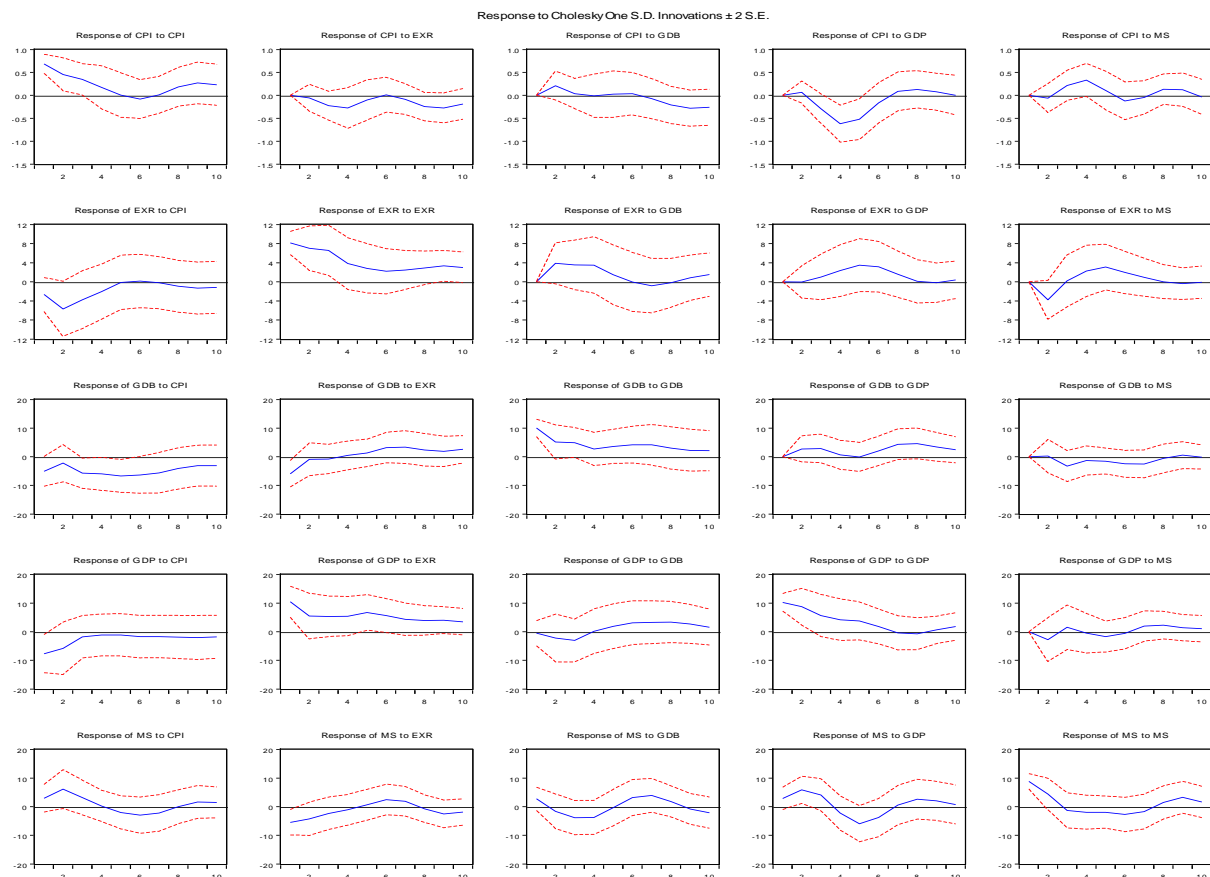
Error Correction Analysis

Since it has been established that variables of interest are related in the long-run, therefore, it is essential to establish the short-run relationship. This short-run analysis is done through Vector Error Correction where Impulse Response Function and Variance decomposition are presented.

Nigeria impulse response functions

The Impulse Response Function show traces the impact of a shock to the budget deficit on consumer price index. It suggests that budget deficit imposes a negative impact on inflation from first quarter till the tenth quarter. The implication of this is that deficit budget increases inflation rate during the study period. However, the negative impact was so high in the 7th and 8th quarters. This might be as a result of oil price volatility between 2008 to 2014. Other variables (except money supply did not show any significance response to shock emanating from budget deficit. Money Supply shows a negative impact to the shocks from budget deficit from the 5th quarter till the 10th quarter.

Figure 1. Nigeria impulse response functions



Variance Decomposition Analysis

Table 7. Estimated variance Decomposition of Budget deficit at the 10 – period Horizon

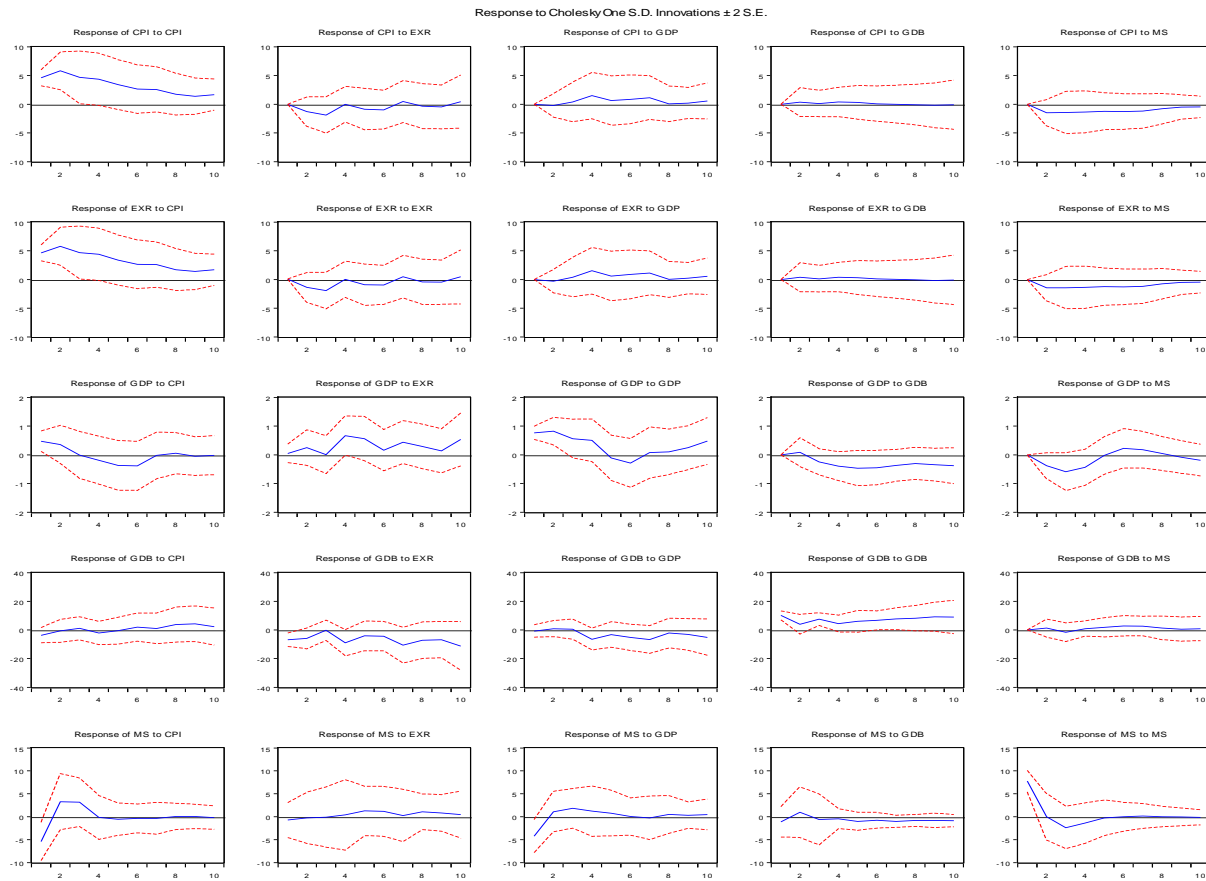
Horizon	GBD	GPI	MS	EX	RGDP
0	1.000	0.014	0.041	0.013	0.001
1	0.962	0.246	0.0172	0.0220	0.046
2	0.8440	0.730	0.046	0.0241	0.042
3	0.706	0.262	0.145	0.033	0.0622
4	0.624	0.674	0.145	0.0341	0.043
5	0.741	0.432	0.149	0.021	0.041
6	0.824	0.523	0.146	0.031	0.052
7	0.952	0.728	0.146	0.045	0.042
8	0.423	0.645	0.146	0.062	0.045
9	0.524	0.443	0.621	0.041	0.041
10	0.434	0.623	0.146	0.033	0.039

Table 7 shows the estimated values of each variable due to innovation within the system through the effect of budget deficit. The budget deficits are the most crucial source of inflation than other variables. The budget deficit contributes almost 10 percent right from first quarter and increased to almost 30% in the tenth quarter. Because of space, we may not be able to show other variance decomposition result. Since our target variables have been shown through variance decomposition.

South Africa Impulse Response and Variance Decomposition

The impulse response function result is shown in figure 2. From the figure, inflation response to budget deficit is negative from 3rd quarter till the 8th quarter. Thereafter, it became stable till the last quarter. This result is compatible with John, (2013). As regards the response of other variables to shocks emanating from budget deficit, all the variables reacted to shocks from budget deficit with different magnitudes. For instance, money supply response to shocks from Budget Deficit is positive right from 1st quarter till 4th quarter and thereafter oscillating. The response of real Gross Domestic Product was positive right from 1st quarter till the 10th quarter. The implication of this is that an increase in government expenditure increases the productive capacity of South Africa economy during the study period. Exchange rate response to shock from Budget Deficit was positive and significant from the first quarter till the – 8th quarter before it became stable.

Figure 2. South Africa impulse response functions



South Africa variance Decomposition

Table 8. Analysis of variance Decomposition estimated for 10 – period Horizon in South Africa

Horizon	GBD	GPI	MS	EX	RGDP
0	0.0624	0.023	0.011	0.014	0.003
1	0.564	0.041	0.023	0.016	0.001
2	0.764	0.062	0.011	0.022	0.052
3	0.0641	0.042	0.032	0.031	0.062
4	0.831	0.033	0.013	0.012	0.042
5	0.621	0.013	0.021	0.011	0.031
6	0.523	0.061	0.032	0.021	0.022
7	0.453	0.023	0.041	0.031	0.062
8	0.345	0.014	0.032	0.021	0.014
9	0.726	0.011	0.011	0.032	0.062
10	0.623	0.022	0.020	0.014	0.014

The estimated values of the Variance Decomposition of budget deficit are presented in table 8. It shows that variation in inflation is mostly caused by budget deficit in South Africa during the study period. This result supports the estimated Impulse Response Function Results, suggesting that budget deficit contributes largely to inflation in South Africa.

Comparative Analysis of budget – deficit inflation nexus in Nigeria and South Africa

The Analysis started with unit root test for both nations. This is stationarity Test of Variables Unit root test result show that all the variables of interest were not stationary at level but became stationary after the first difference. That is, both in Nigeria and South Africa, the variables are integrated of order one $1(1)$.

Thereafter, a Granger Causality test was performed. Result from this test showed that the relationship between Budget Deficit and Inflation in South Africa was uni-directional that is budget deficit Granger cause inflation. However, in Nigeria the relationship between budget deficit and Inflation was bi-directional. That is as inflation Granger causes budget also budget Deficit Granger Causes Inflation. The long-run relationship among the variable of interest were conducted in both nations using maximum Eigen value test and trace test. Both results showed that the variables showed long – run interaction in both countries. Also, the short run analysis was confirmed using vector Autoregressive Distributive model. Both the impulse response function and variance decomposition in some countries showed that the shocks from budget deficit to inflation was positive and significant in both nations.

CONCLUSION AND POLICY IMPLICATIONS

The relationship between Budget Deficit and Inflation has been a perennial topic in the literature. Infact, it is highly contentions. Is an important controversial issue among the Keynesian, monetarists and policy makers. This paper examined both short-run dynamics and long-run relationship between budget deficit and inflation in the two largest economies in Africa (South Africa and Nigeria). The study made used of three estimation techniques. Johansen co-integration, vector error correction model (VECM) and Granger causality Test. The study periods was 1990 to 2014. Findings from the study showed that in both countries budget deficit is one of the major Sources of inflation. Also, monetary policy also contributed significantly to inflation in both countries. That is, the nature of inflation in both nations is structural. That is, expansionary fiscal and monetary policies. These results are confirmed by both impulse response function and Variance Decomposition. Granger causality test showed that the direction of causality between Budget Deficit and Inflation in South Africa is uni-directional. That is, budget deficit Granger Causes inflation. While, in Nigeria the direction of causality between

inflation and budget deficit is bi-directional. Based on these findings, it is recommended that contractionary and easy fiscal policies should be adopted in both countries.

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