

Macroeconomic Performance and Government Fiscal Deficits - Evidence from Nigeria

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Abstract

Governments in most developing economies, including Nigeria, have often had to contend with issues of weak economic and social indicators vis-à-vis poor fiscal performance. In Nigeria for instance, there is evidence that between 1981 and 2014 fiscal operations have been dominated by fiscal deficits while major indicators of economic health have remained at sub-optimal levels. There has been considerable disagreement on the relationship between fiscal deficits and economic performance. As our contribution towards the resolution of this contentious issue, this study examines the relationship between the performance of key macroeconomic indicators (exchange rate, inflation rate, gross fixed capital formation and unemployment) and fiscal deficits. Data on the research variables covering the period 1981-2014 were sourced from the publications of the Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS). Employing the econometric methodology of the vector error correction model (VECM), the study shows significant positive effect of gross fixed capital formation as well as significant negative impact of inflation rate and unemployment on fiscal deficits in Nigeria. Though, there is evidence of negative effect of exchange rate, the study shows it is not significant. These results imply that policies aimed at enhancing the infrastructure base of the economy promote the practice of deficit budgeting. Similarly, economic policies that tend to reduce inflation (such as raising domestic output levels) and unemployment reflect in higher fiscal deficits. The causality tests show evidence of causal impact of government fiscal deficits on exchange rate, inflation rate and unemployment but failed to show evidence of causation between fiscal deficits and gross fixed capital formation. It is recommended that government should ensure prudent utilization of the proceeds of debt finance in promoting domestic production in order to strengthen the economic fundamentals required to support improved fiscal performance in the long-run.

Keywords: Fiscal deficit, macroeconomic performance, fiscal operations, economic fundamentals.

Introduction

Financing of fiscal deficits is conventionally regarded as a veritable tool for the promotion of economic growth and development, particularly in developing economies (Eyiuche, 2000).

These economies are often associated with low levels of domestic savings and capital formation, high level of poverty and unemployment, idle production capacity, massive infrastructure deficit, dependence on primary production, weak economic fundamentals, weak institutions, etc. Proponents of the supply leading theory of finance contend that finance has a role to play in redressing the above imbalance. To supply the needed finance, Keynesian economists aver

that government can promote economic growth and macroeconomic stability by manipulating fiscal policy tools (taxation and expenditure) to influence the level of economic activity.

Proponents of the Keynesian school, argue that governments can reduce tax rates to enhance economic growth or increase its own spending to raise level of economic activity, reduce unemployment and increase output. In Nigeria, the major fiscal policy tool is creation of fiscal deficits through increased government expenditure. Financing of these deficits is largely done through the banking sector and external sources (NCEMA, 2004). The Central Bank of Nigeria (CBN) accounts for a large

proportion of the financing from the banking sector (CBN, 2004). However, with the CBN Act of 2007 which accorded full autonomy to the Central Bank of Nigeria, deficit financing by the CBN is restricted to statutory limits while the banking sector plays the leading role in the new dispensation.

Fiscal policy plays a key role in the promotion of economic growth and macroeconomic stability (Ezeabasili et al, 2012). However, Siegal (1979), Tanzi and Blejer (1984) argue that the magnitude of government fiscal surplus or deficit is an important indicator of the impact of fiscal policy on the economy. During the first decade of independence, fiscal operations in Nigeria recorded a positive balance over the period 1961-1969, at an annual average of 8.12 per cent (CBN, 2014). The first deficit balance (8.62 per cent) was recorded in 1970. The fiscal surplus of the 1960s can be linked to a vibrant agricultural sector that ensured a steady stream of income for government operations as well as the nation's conservative approach to industrialization.

Between 1971-1980 fiscal operations in Nigeria show surplus balances only in 1971 (2.58 per cent), 1973 (1.92 per cent), 1974 (9.54 per cent) and 1979 (3.48 per cent). The fiscal surplus of the early-mid 1970s can be attributed to the massive revenue from oil during the oil boom of the period, an indication of the strategic role of the sector in the conduct of the nation's fiscal operations. However, liquidity surfeit arising from crude petroleum export promoted large scale fiscal indiscipline, leading to initiation of a number of ambitious projects and large-scale misappropriation of public funds. For instance, the total budget of the 2nd national development plan, 1970-1974 rose from N4.9 bn to N30 bn the 3rd plan 1975-1980 (Eyiuche, 2000). This attitude to public finance largely explains the dominance of fiscal deficits between 1976-1980. Table 1 shows that on the basis of 10-year average, fiscal operations in Nigeria stood at an annual average of 0.40 per cent (deficit) between 1971 and 1980. The period 1981-1990 witnessed a dramatic increase to 7.74 per cent

(deficit) per annum. This period coincided with the drastic decline in oil revenue following the glut in the international oil market in the early 1980s. Government was only able to sustain its expenditure level by increasing its borrowing from both domestic and external sources. Fiscal operations in Nigeria showed a decline in deficit balance to 5.13 per cent during the period 1991-2000. Between 2001 and 2010, fiscal operations recorded a marked improvement leading to a further decline in fiscal deficits to 2.89 per cent.

Table 1: Data on fiscal deficits (FISOP), exchange rate (EXRV), inflation rate (INF), gross fixed capital formation (GFCF) and unemployment (UNEP).

YEAR	FISOP	EXRV	INF	GFCF	UNEP
1981 - 1990	-0.40	18.79	19.72	18.30	5.26
1991-2000	-7.74	16.43	41.11	9.65	5.54
2001-2010	-5.13	2.79	13.92	8.69	15.7

Derived from various issues of CBN Statistical Bulletin and Annual Reports,

Following the full operational independence granted the CBN in 2007, fiscal deficits between 2008 and 2013 stood at 0.20, 3.27, 3.25, 3.09, 1.37 and 0.00 per cent over the respective years. This translates to an annual average of 1.86 per cent. Nnanna and Nnanna (2012) attribute the low level of deficits during the period to the operation of the CBN Act 2007 which empowers the CBN to say "NO" to the government when its pattern of expenditure portends danger for macroeconomic stability.

The relationship between deficit financing and the performance of major economic indicators has remained a contentious issue. For instance, while the Classical economists argue that inflation is a direct result of deficit spending, the Keynesians contend that inflation is rather the cause of higher deficits. This study seeks to examine the relationship between deficit spending in Nigeria (dependent variable) and key indicators of economic performance like exchange rate, inflation rate, gross fixed capital formation, and unemployment (independent variables). Econometric method based on

analytical techniques of the vector error correction model (VECM) and Granger causality was adopted.

Conceptual issues

Budget Deficit or Fiscal Deficit: This refers to the practice whereby the government spends more money that it receives within the fiscal year. The gap between the revenue and expenditure profile of the government is either bridged by borrowing or supply of new money (hot money) into the economy. Budget deficit may be attributed to a number of reasons but basically it derives from a deliberate effort of the government to stimulate the economy by either lowering the tax rate or increasing its expenditure. The need may also be a direct fall-out of government inefficiency in the areas of revenue generation (reflecting widespread tax evasion, leakages, etc.), wasteful spending arising from wrong policy choices or from a conscious effort to develop local capacity necessary to drive and sustain future growth. It may also be politically motivated.

Fiscal operation: This relates to actions taken by the government to implement budgetary policies, such as revenue and expenditure measures, as well as issuance of public debt instruments and public debt management (OECD, 2002).

Fiscal Balance: This refers to the amount of revenue accruing to the government from taxation plus proceeds of assets sold less government expenditure. A positive outcome connotes fiscal surplus while a negative balance is an indication of fiscal deficit. When both sides are in balance (zero balance), we have a balanced budget. A balanced budget implies that government is spending or injecting as much money into the economy as it is taking from the citizens in taxes.

Review of Related Literature

It was the renowned British economist, John Maynard Keynes, who put forward the argument that under-spending by governments depress economic performance and exacerbate the rate of unemployment. He argues that in order to reduce unemployment, government should

deliberately create fiscal deficits to stimulate demand for goods and services and in the process drive output and create employment. Advocates of the Keynesian school contend that deficit financing lowers domestic interest rate, promotes productive investments and aggregate demand, leading to higher levels of output, income and employment. As plausible as the Keynesian argument seems, Phillips (1958) argues that though deficit financing can lead to increased economic activity and lower the level of unemployment, there is an unintended consequence in the form of higher level of inflation in the economy.

An economic implication of the adoption of deficit financing is excessive growth in domestic liquidity which impacts on the general price level leading to undue demand pressure on interest rate, foreign exchange and cost of production (CBN, 2002). Gali et al (2011) argue that financing of deficits raises the level of inflation in the economy and fuels exchange rate volatility. As opposed to the Keynesian thought that liquidity arising from deficit financing promotes a regime of low interest rates, critics argue that excessive borrowing from the banking sector may promote a rising trend in domestic interest rates and may also impair private sector participation in the economy (Stevan, 2010; Onoh, 2007).

A number of studies have produced evidence of positive relationship between fiscal deficits and economic growth. They include Okoye and Akenbor (2010), Adamu and Bevan (2004), Perotti (2004), De Castro (2004), Stevan (2010), Brauningner (2004), Hsieh and Lai (1994), Gregorion et al (2007), Liu (2008), Easterly and Schimidt-Hebbel (2003), Fiani (1991), Landau (1983), Ariyo and Raheem (1991). Studies by Ezebasili et al (2012), M'Amanja and Morrissey (2006), Gemmel (2001), Imobighe (2012), Ogbuagu (2011), Eyiuche, (2000), Ojong and Owui (2013) find evidence of negative relationship between deficit financing and economic growth. With regard to causation, a number of studies have also produced conflicting results on causal relationship

between deficit financing and some key macroeconomic indicators. Gali et al (2011), Onwioduokit (1996) show evidence of uni-directional causality from deficit financing to inflation in Nigeria. Jacobs (1977), Aghevei and Kahn (1977 and 1988), Miller (1984), Blejer and Khan (1984) show evidence of bi-directional causation between deficit financing and growth. Komain (2007) finds evidence of causal impact of government expenditure on growth. Paiko (2012) finds significant negative impact of deficit financing on private sector investment in Nigeria. Eyiuche, (2000) and Kreitner and Paul (2010) find significant negative impact of inflation on fiscal deficits.

Methodology

Quantitative research technique based on *ex-post facto* design was adopted for the study. Time series data on the research variables (fiscal deficit, exchange rate, inflation rate, gross fixed capital formation and unemployment) over the period 1981-2013 were sourced from the publications of the Central Bank of Nigeria and National Bureau of Statistics. Econometric method based on vector error correction mechanism (VECM) was adopted in estimating the parameters of the model. The Granger causality test was used to test for causation between the dependent and independent variables. Fiscal deficit (proxied as ratio of total deficit to GDP) was adopted as the dependent variable while exchange rate (proxied as percentage change in exchange rate between successive periods), inflation rate, gross fixed capital formation and unemployment were adopted as independent variables. The parameter estimates were based on 5 per cent level of significance.

Model Specification

The model adopted for this study derives from the work of Eyiuche (2000). Eyiuche (2000) examined the extent to which variations in budget performance in Nigeria (expressed as the level of deficit budgeting) is explained by variations in inflation rate, level of savings,

interest rate, exchange rate, balance of payment, level of domestic debt, unemployment level and GDP using data for the period 1980-1994. This study sought to identify major determinants of recurring fiscal deficits in Nigeria using data on exchange rate, inflation rate, gross fixed capital formation and unemployment over the period 1981-2013. Drawing extensively from recent methodological advancements in data analysis as well as employing data over a longer period, this work offers a more robust insight on the subject. The explicit form of the model is presented below:

$$GDF_t = \beta_0 + \beta_1 EXR_t + \beta_2 INF_t + \beta_3 GFCF_t + \beta_4 UNEP_t + \varepsilon_t$$

Where: GDF = government deficit financing, EXR = exchange rate, INF = inflation rate, GFCF = gross fixed capital formation, UNEP = unemployment.

Empirical Result and Discussions

Results of the diagnostic tests presented in tables 2 and 3 above show that only exchange rate (EXRV) and gross fixed capital formation (GFCF) show evidence of stationary trend at levels. Presence of unit root or non-stationary trend was established for government deficit (GDF), inflation (INF), and unemployment (UNEP) at levels. Given the non-stationary state of some of the variables, the study went further to difference the series. All the variables became stationary at the first difference, implying a rejection of the null hypothesis of non-stationary trend.

Table 4 shows the result of the co-integration test based on the Johansen and Jesulius (1992) approach. Both the trace and Maxi-Eigen statistics show evidence of co-integrated equations. The existence of a co-integrated equation implies that a long-run relationship could be established among the variables considered in the estimated deficit financing model. The R-squared result indicates that over 60 percent of the total variations in government deficit financing are explained by the variations in the exogenous variables in the model.

Table 2: Augmented Dickey Fuller (ADF) Unit Root Test at Levels and first difference

Variable	ADF Test @Levels	ADF Critical values	Test @ First Difference	ADF Critical values @ 1%	Remark
GDF	-2.781381	-2.954021	-7.568883***	-2.957110	Integrated of order 1
EXRV	-4.680965***	-2.954021	-4.821912***	2.963972	Integrated of order 0
INF	-2.796147	-2.954021	-5.744198***	-2.957110	Integrated of order 1
GFCF	-4.894155***	-2.954021	-3.923061***	-2.957110	Integrated of order 0
UNEP	0.062610	-2.954021	-6.441670***	-2.957110	Integrated of order 1

** , *** Represents stationary trend at 5% and 1% level of significance

Table 3: Phillip-Perron (PP) Unit Root Test at Levels and first difference

Variable	PP Test @Levels	PP Critical values	Test @ First Difference	PP Critical values @ 1%	Remark
GDF	-2.699609	-2.954021	-12.82617***	-2.957110	Integrated of order 1
EXRV	-4.873659***	-2.954021	-12.55241***	-2.957110	Integrated of order 0
INF	-2.789583	-2.954021	-9.153539***	-2.957110	Integrated of order 1
GFCF	-6.932035***	-2.954021	-3.731133***	-2.957110	Integrated of order 0
UNEP	0.588130	-2.954021	-6.444601***	-2.957110	Integrated of order 1

** , *** Represents stationary trend at 5% and 1% level of significance

Table 4:Co-integration result

Hypothesized No. of CE(s)	Eigen Value	Trace Statistics	0.05		Max-Eigen		0.05	
			Critical Value	Prob.**	Statistic	Hypothesized No. of CE(s)	Critical Value	Prob.**
None *	0.674938	92.64147	69.81889	0.0003	35.95971	None *	33.87687	0.0278
At most 1 *	0.523924	56.68176	47.85613	0.0060	23.74972	At most 1	27.58434	0.1437
At most 2 *	0.449755	32.93204	29.79707	0.0211	19.11651	At most 2	21.13162	0.0935
At most 3	0.340821	13.81552	15.49471	0.0881	13.33634	At most 3	14.26460	0.0697
At most 4	0.014863	0.479179	3.841466	0.4888	0.479179	At most 4	3.841466	0.4888

Table 5: Long-run estimates Analysis of vector error correction estimates

Variable	Coefficient	Std. Error	T-Statistic
C	5.674525		
EXRV(-1)	-0.044447	0.04372	-1.01658
INF(-1)	-0.108423	0.04121	-2.63071
GFCF(-1)	0.579519	0.15350	3.77533
UNEP(-2)	-0.453297	0.09397	-4.82365
Diagnostic tests			
R-squared	0.602423		
Adjusted R-squared	0.359459		
F-statistic	2.479475		
Log likelihood	-64.17235		

Table 6: Short-run estimates

Error Correction:	D(GDF)	D(EXRV(-2))	D(INF(-2))	D(GFCR(-1))	D(UNEP(-3))
ECM (-1)	-0.821631	0.011277	-0.044403	-0.307354	-0.251521
Standard Error	(0.23433)	(0.02592)	(0.04171)	(0.23552)	(0.18662)
T-Statistic	[-3.50623]	[0.43504]	[-1.06450]	[-1.30500]	[-1.34777]

Table 7: Granger causality estimate

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
EXRV does not Granger Cause GDF	32	0.64667	NA
GDF does not Granger Cause EXRV		4.53171	0.0201
INF does not Granger Cause GDF	32	1.38967	0.2664
GDF does not Granger Cause INF		7.23743	0.0030
GFCF does not Granger Cause GDF	32	0.99317	0.3835
GDF does not Granger Cause GFCF		0.22781	0.7978
UNEP does not Granger Cause GDF	32	1.95029	0.1618
GDF does not Granger Cause UNEP		2.21747	0.1283

The F-statistic (2.479475) provides evidence of that the entire model statistically and significantly explain the phenomenon. Evidence from the long-run regression estimate shows significant positive effect of gross fixed capital formation as well as significant negative impact of inflation rate and unemployment on fiscal deficits in Nigeria. Though, there is evidence of negative effect of exchange rate, the study shows it is not significant. Having examined the nature of the long run relationship between deficit financing and its determinant variables, the error correction model was employed to determine the nature of the short run adjustment process towards the long run equilibrium state. The error correction term shows that over 82 percent of the error associated with the short run adjustment mechanism is being corrected per period. This further suggests the system has a relatively high adjustment speed and could also converge to its equilibrium state when acted upon by external forces. The Granger causality estimate shows evidence of uni-directional causality from (i) government deficit financing to exchange rate (ii) government deficit financing to inflation (iii) government deficit financing to

unemployment. The estimates were obtained at 5 percent significance level. This implies that government deficit financing causes changes in exchange rate, inflation rate and unemployment in Nigeria. The study however could not produce evidence of causal relationship between gross fixed capital formation and government deficit financing.

Summary and Conclusion

The study shows significant positive effect of gross fixed capital formation as well as significant negative impact of inflation rate and unemployment on fiscal deficits in Nigeria. Though, there is evidence of negative effect of exchange rate, the study shows it is not significant. These results imply that policies aimed at enhancing the infrastructure base of the economy promote the practice of deficit budgeting, Similarly, economic policies that tend to reduce inflation (such as raising domestic output levels) and unemployment reflect in higher fiscal deficits. The causality tests show evidence of causal impact of government fiscal deficits on exchange rate, inflation rate and unemployment but failed to show evidence of causation between fiscal deficits and gross fixed

capital formation. It is recommended that government should ensure prudent utilization of the proceeds of debt finance in promoting domestic production in order to strengthen the economic fundamentals required to support improved fiscal performance in the long-run.

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