

Impact of Budget Deficit on Current Account Balance in Nigeria

Eze, Titus Chinweuba

Department of Economics,
Federal University, Lokoja, Nigeria

Abstract

This paper is specifically set out to investigate the extent to which changes in budget deficits (Bd) predicts changes in current account balance in Nigeria using time-series data spanning from 1980 to 2019. This study is underpinned on the famous Mundell-Fleming Model. The methodology adopted for this study is multiple regressions based on the ordinary least-square (OLS) techniques. The specified models were estimated using standard econometric techniques which include: Augmented Dickey-Fuller (ADF) unit root tests, Johansen cointegration tests, Vector Error Correction (VECM) Model, and systems equation complemented with Granger causality tests, aimed at determining the existence, if any, of feedback effects among the series in the model. The regression results show that at 5 percent levels of significance and relevant degrees of freedom, changes in budget deficits (Bd) have a positive and significant long-run impact on current account balance (CAB) in Nigeria. Moreover, the result of the system equations confirmed the existence of a causal relationship between budget deficits and current account balance in Nigeria, however, the Granger causality test failed to reveal the direction of causation. Furthermore, a short-run negative relationship between budget deficit and export was also established, thus confirming the presence of twin deficits hypothesis in the Nigerian economy in the short-run period. Based on these findings, the study made the following recommendations: government should as a matter of urgency and importance adopt fiscal management actions aimed at minimizing borrowing and capable of reducing fiscal deficits that often result in a large amount of transfer payments and questionable additional budget expenses in Nigeria. A diversification policy should be vigorously pursued to ensure a zero oil export economy. There are needs also for the government to align fiscal policies towards the objectives of macro-economic stability in Nigeria. Finally, efforts should be made to control the excess liquidity in the economy by a combination of a good fiscal and monetary policy framework to curb the unending inflationary cases in the country. This can be done by cutting down on government expenditure, an increase in investment level, and reduce corrupt practices by government officials.

Keywords: *Granger causality, System equation, Co-integration test, Unit Root Test, Co-integration, vector error correction model, Diversification, Augmented dickey-fuller*

Corresponding Author: Eze, Titus Chinweuba

Background to the Study

Budget deficits reveal an imbalance in the fiscal position of a government. Perpetual budget deficits normally imply that the government will always increase its stock of debts. Financing of these deficits and debts result in various macroeconomic imbalances. As reported by Kosimbei, (2009), Wosowei, (2013), Funke and Nickel, (2006), and Drakos, (2001) “lots of empirical researches have been carried out on the issue of budget deficits and macroeconomic performance of an economy”.

In all these studies, opinion differs on how budget deficits affect the economy, especially as it concerns current account balance. For instance, Wosowei (2013), in his study maintained that the budget deficits, especially for an emerging economy, are the visible key instruments disturbing other sectors of an economy. He believed that the link between budget deficit and other macroeconomic aggregates, such as current account balance, is a function of methods of financing such deficit. Reacting to the above analysis, Iyoha, Oyefusi and Oriaku (2004), further confirmed that in less developed nations, Nigeria inclusive, the major cause of imbalance on some macroeconomic variables such as current account balance has been blamed on the method of financing the deficits. In their submission “financing of deficits through external or internal loan always result in increased money supply and instability in macroeconomic variables especially a nation's current account figure”. Their defence is that instead of using the loan on productive capital investment such as road construction, the building of dams, developing the agricultural sector etc, and such loan is usually wasted on unproductive ventures. These have always resulted in uncontrollable increase in both capital and recurrent expenditure of the government at all levels.

The Nigerian economy has been experiencing budget deficits over the years, which seem to go hand in hand with declining growth rates and current account deficit. Moreover, low growth rates worsen the poverty situation and thus reduce the welfare of households and firms. Available statistics have shown that since the oil boom of the early 1980s, Nigeria has continued to witness increasing deficit budgeting in her economy. Since then, desperate efforts to exit the deficit trap have been taking but none has yielded many positive results. The resultant effect has been rapid monetary growth, exchange rate depreciation, low investment rate, as well as unfavourable balance of payment, and rising inflation and unemployment level.

Over the years, various macroeconomic policies have been adopted by the Nigerian government such as; the establishment of the National Manpower Board in 1962; National Directorate of Employment (NDE) charged with the responsibility of creating employment opportunities in the country; Structural Adjustment Programme (SAP), aimed at restructuring and diversifying the productive base of the economy for sustainable growth in the long term (FGN, 1986); National Economic Empowerment and Development Strategy (NEEDS), established in 2003 with the aim at reducing the adverse effects of the macroeconomic instability such as rise in inflation, exchange rate volatility, current account deficit, increase in deficit financing, and rise in interest rate; and finally, creation of Ministry of poverty eradication and youth empowerment in 2002 to address the increasing rate of

unemployment and youth restiveness in the country. However, despite all these laudable policies, the economy still witnessed volatile budget deficit, low investment level, increase in the money supply with its attendant unemployment and, current account deficit, thus resulting in the dismal growth rate etc.

Thus, the issues the study deals with include whether budget deficits have been the reason for poor performance of macroeconomic variables in Nigeria, especially current account imbalance and the causes and impacts of this imbalance on economic growth in Nigeria. This becomes important so that we can confirm Wosowei's (2013) assertion that budget deficits play a major function in accelerating economic growth and ensuring the steadiness of macroeconomic variable over time. Thus, the key aim of the study is to establish the existence or not of any significant impact of deficit financing on current account equilibrium in Nigeria and the possible existence of twin deficit syndrome in the Nigerian economy.

Theoretical Framework

Two major theories are commonly used to explain the causal connection amidst budget deficit and current account deficit. They include the Mundell-Fleming model of the exchange rates and the Ricardian equivalence hypothesis approach.

Mundel-Fleming Model

This study was anchored on the famous model developed by the works of Robert Mundell (1968) and J. Marcus Fleming (1967), otherwise known as the Mundell-Fleming model. It provided another way of analyzing how the budget deficits and the current account deficits are related. In a nutshell, the Mundell-Fleming model captures the general objective of this thesis, which is to analyze the effects of budget deficits on current account deficits. The model assumes capital is mobile across the globe with a uniform interest rate (Olga, 2000). It maintains that a positive link exists among the two deficits (budget and trade deficits) and as put by Olga (2000), "causality runs from budget deficit to current account deficit and not the reverse as discovered by some authors". The model is often used by the conventional Keynesians to argue that a rise in the budget deficits and domestic absorption are positively related. This will increase aggregate demand and put upward pressure on domestic interest rate above the world rate. This, in turn, increases imports, reduce export and bring about a rise in the rate of exchange thus worsening the current account balance. In all, this hypothesis summarizes that, as the budget deficit rises, demand for interest will be stimulated thereby attracting inflows. This will as well cause a rise in the prices of exchange rates thus facilitating the rise in current account deficit.

The use of the Mundell–Fleming model becomes appropriate especially as it captures the transmission mechanism of effects of government expenditures to variables such as current account and national income. This provides an underpinning for the empirical evaluation of the effects of budget deficits on current account balance, in view of the fact that it links budget variables to national income.

Ricardian Equivalence Hypothesis

An alternative explanation for equilibrium association between the budget deficit and the current account deficit is based on the Ricardian Equivalence theory (REH) which is commonly associated with the work of Barro (1989). He stated that Ricardian equivalence implies that taxpayers do not view government bonds as net wealth; hence its acquisition by individuals does not alter their consumption behaviour. The main assumption of the REH is that changes in the budget deficits will have no effects on domestic interest rates, total savings, investment, price level and national income; thus not affecting current account balance. The argument is that a reduction in taxes which is accompanied by an increase in budget deficit does not affect consumption and hence, does not have any expansionary effect as households tend to increase savings in anticipation of higher taxes in the future which are necessary to redeem the debt (Gadong, 2010).

Critics of the Mundell-Fleming framework question the sequence of causation described by the model and thus employed the Ricardian equivalence proposition to argue that there is absence of any connection between budget deficit and current account deficit. These schools argue that in a Ricardian world, it is believed that a budget deficit that is financed by reduction in the rate of taxes paid and bond sales would be perceived by individuals as incurring future tax liabilities to service and retire the increased debt (Onafowora and Owoye, 2006; Yanik, 2006 and Ratha, 2011). This theory dispenses totally with the income-expenditure approach and relied as an alternative on the inter-temporal approach.

They asserted that given that government's sources of finance do not change private agents' inter-temporal budget constraints; the actual interest rate, the magnitude of investment or current account balance will not be affected. They claimed that deficit financing does not influence changes in both interest and exchange rates (Chang & Hsu (2009).

Empirical Literature Review

Empirical studies have established some channels through which fiscal deficits influence the current account balance. For instance, Opeyemi (2012) investigated the twin deficit proposition for the Nigerian economy for the period 1970 to 2010 by looking at the long-run association between budget deficit and trade deficit and the direction of causality. The study employed the Johansen co-integration method and multivariate feedback test to examine this relationship. In conformity with theoretical considerations, the analysis of the study established a significant positive link between the current account deficit and the budget deficit. Nevertheless, the study established an insignificant link among the variables. A reverse causality was confirmed between current account deficit and budget deficits (reverse causality). The author advised the policy makers on diversifying the export base of the economy.

Olanikpekun (2012) undertook a study on the impact of budget deficit on current account balance in Nigeria. Among the techniques employed are ordinary least squared (OLS) to determine the influence of budget deficits on current account balance. Other tests carried out include, Johansen's co-integration test as well as the error correction model aimed at

establishing the long-run relationship among the variables included in the model. The Granger causality test was also carried out to check the possibility of any feedback effect among the variables. The results of the regression show that budget deficits and current account balance are positively related. Moreover, bidirectional causality was confirmed between budget deficits and current account balance. The findings therefore, proved that there is an existence of twin-deficits hypothesis in Nigeria.

In another study, Oladipo (2012) examine the effects of twin deficits in Nigeria for the period 1970-2008 using secondary time series data and econometric techniques. The results show a bidirectional causal association involving fiscal deficits and trade deficits in Nigeria. This study concludes that an appropriate role in reducing trade deficits and complement this with fiscal reduction policies via a sound programme that will focus in policies for export expansion, output development and exchange rate, and so on.

In a similar study, Udah (2011) embarked on the study of the direction of causality between current account balance and budget deficit in Nigeria. The study worked with the standard econometric methodologies and discovered that bi-directional causality existed between current account balance and budget deficits. The Granger causality examination also discovered the existence of one-directional causality running from current account balance to exchange rates. It was also confirmed that variables such as exchange rate, monetary policy reliability and budget deficit predict current account trends in Nigeria. Nonetheless, the study established absence of causal relationship between financial indicators and current account balance. In conclusion, the study suggested that a supply-side approach will be adopted as a way of tackling unfavourable fluctuations on the trend of the current account..

Studies for other countries on twin deficits hypothesis abound. For instance, Ogbonna (2014) carried out an empirical study on the link between fiscal deficit and current account imbalance for South Africa employing data for South Africa for the period from 1960 to 2012. The study employed cointegration analysis and vector autoregression (VAR) Granger non-causality process to investigate the existence of short term causalities for the economy. The results indicate no evidence of the twin deficits phenomenon for South Africa in the short run time frame, thus suggesting that Ricardian equivalence proposition (REP) holds for the economy within such time horizon. The study is of the view that since people are rational, they should know that the reduction in taxes, resulting from the government expansionary fiscal policy of tax cut or increase in public debt, is temporal and will save the extra disposable income to pay for the future higher taxes. This by implication suggests that the national savings position will be sustained because the decrease in government savings represented by increased fiscal deepening will be adequately compensated by the additional private savings for expected future increase in taxes.

Moreover, Baharumshah, Evans, and Khalid (2006), examined twin deficits theory in Indonesia, Malaysia, Philippines as well as Thailand economy. The study made use of multiple regression method employing time series data from these countries. The regression results established that there is long-run significant connection between budget deficits and

current account balance in the countries sampled. The study also confirmed a unidirectional causality without feedback effect which runs from budget deficit to current account deficit for Thailand. For Indonesia economy, it was confirmed that there was the existence of current account targeting, while reverse causality was confirmed in Malaysia and Philippines economy.

Alkswani (2000), conducted a study in Saudi Arabia with the intention of finding out the nexus between budget deficit and trade deficit on an economy. The econometric methodology employed included an error correction model. Other standard tests such as unit root tests, Granger causality tests, and Johansen co-integration were used. The study confirmed the existence of an equilibrium link between budget deficits and trade deficits, as well as the direction of causality running from trade deficits to budget deficits. The study could have generated more information had it included other variables such as interest rates, private consumption and private investments as the present study did.

Methodology

The principal instrument adopted for this study was Vector Error Correction Model (VECM). Thus, the model specification was developed from the theoretical framework (Mundell-Fleming model) presented in the previous chapter and was modified and adapted to suit Nigeria's case. Subsequently, the following modified Mundell-fleming model in a VECM equation as presented below are specified and tested:

In other to determine how budget deficits predict the current account balance in Nigeria within the period under investigation, the model below was specified;

$$CAB_t = \delta_0 + \delta_1 Bd_{t-1} + \delta_2 EXCHR_t + \delta_3 Export_t + \mu_{3t} \quad (1)$$

Where;

CAB = Current account balance

Bd = Budget deficits

EXCHR = Nominal exchange rate

Export = Export rate

The Keynesian economics hypnotized that budget deficits are positively related to the balance of payments through exchange rate and exports. Thus, the inclusion of exchange rate and export was necessitated by the fact that literature reviews have established the existence of the twin deficits in some economy. The model thus was formulated to test the existence or not of the twin deficits hypothesis in Nigeria within the sample period as demonstrated by Opeyemi, (2012) for Nigeria and Ogbonna, (2014) for South African economy.

Estimation Procedure

Unit Root Tests

The following procedures were adopted at the course of the study:

The first step concerned testing for the Stationarity of the data used. This is a typical practice used to make sure that the variables have a stable mean so that the resultant regression results

are meaningful. Otherwise, if the stationarity of the variables is present and not checked, the existence of drift in the data sequence will signify that the regression outcome was false.

Two major procedures for testing for the existence of unit roots were the Augmented Dickey-Fuller (ADF) and Phillips Peron (PP) tests. The ADF process attempts to maintain the strength of the tests based on white-noise errors in the regression model by ensuring that the errors were certainly white-noise. On the other hand, the Phillips-Peron (PP) process corrected for serial correlation through a non-parametric modification to the normal statistic (Oduor, 2008). Phillip-Peron acts to change the statistics after the evaluation so as to take into account the effects that autocorrelation errors had on the outcome. For that reason, ADF is desirable because it does not require evaluation of other parameters that would have required extra data and also did not exhaust degrees of freedom.

The fundamental equation used in the ADF test remains identical with the one used in the PP test. The ADF tests the null hypothesis that $|P| = 0$ against an alternative that $|P| < 0$ in the autoregressive equations:

(i) ADF without intercept and trend

$$\Delta y_t = \rho y_{t-1} + \sum \delta_i \Delta y_{t-i} + \mu_t \quad \dots \dots \dots \quad (2)$$

(ii) ADF with an intercept but no trend

$$\Delta y_t = \alpha + \rho y_{t-1} + \sum \delta_i \Delta y_{t-i} + \mu_t \quad \dots \dots \dots \quad (3)$$

(iii) ADF with both the intercept and trend

$$\Delta y_t = \alpha + \beta_t + \rho y_{t-1} + \sum \delta_i \Delta y_{t-i} + \mu_t \quad \dots \dots \dots \quad (4)$$

In this study, the researcher employed Augmented Dickey-Fuller techniques to examine the existence or not of random walk process. The null hypothesis of the presence of unit roots is rejected when the theoretical value is less than the computed ADF and the alternative hypothesis of absence of unit roots accepted.

Cointegration Analysis

Cointegration refers to a long-run equilibrium link among series. The idea of long-run stability implies that two or more series may drift away from one variable to the other in the short-run but shift collectively in the long-run (Enders, 1995). When variables wander away from each other, the process is known as a random walk. In the long-run, however these variables may shift in a similar path, that is; have a long-run link. In this case, the present of a linear combination of these random walk processes is established. As submitted by Enders, (1995), “the variables are said to be cointegrated”.

Vector Error Correction Model (VECM)

If variables are cointegrated, vector error correction model shall be specified and estimated using standard diagnostic tests. According to Gujarati, (2003), “the coefficient of Error Correction term measures the speed of adjustment of the short-run relation to unexpected shocks”. When the dependent variables are above the level indicated by the explanatory variables, the dependent variable will be expected to fall, and vice versa, to maintain long-run equilibrium.

As noted by Koutsoyannis, (2003), “the Vector Error Correction Model (VECM incorporates both the long-run and short-run effects simultaneously”. The advantage of vector error correction model is that once variables are confirmed to be non-stationary but cointegrated, the estimates from such a vector error correction model are more efficient than the OLS. The vector error correction model also saves one from the agony of the endogeneity.

Granger Causality Tests

The causality test was conducted to establish the existence or not of any feedback relationship, and the direction of causality (if any) among budget deficit and current account balance. This was done using the system equations generated from the residual of OLS regression results and supported with the Granger causality tests.

Results

Tests for stationarity

This study began with the presentation of the results. The result of the Augmented Dickey-Fuller Unit Root test showed that the whole series employed (Budget deficit, Current account balance (CAB), Exchange rate and Export are non-stationary, ie I (1). This is because their respective ADF test-statistics exceeded the 5% critical value. In other words, the variables are not stationary at their level form and needed to be difference to determine their respective order of integration. They were all confirmed to be stationary only after their first differencing. The result conducted at both 1% and 5% critical values is presented in table 4. 1 and 4.2 below:

Table 1: Cointegration Tests Result for Bd on Cab

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.838314	105.4371	63.87610	0.0000
At most 1 *	0.586901	48.95208	42.91525	0.0112
At most 2	0.395196	21.54599	25.87211	0.1574
At most 3	0.174842	5.957596	12.51798	0.4657

Trace test indicates 2 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 2.

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.838314	56.48506	32.11832	0.0000
At most 1 *	0.586901	27.40608	25.82321	0.0307
At most 2	0.395196	15.58840	19.38704	0.1638
At most 3	0.174842	5.957596	12.51798	0.4657

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

To still confirm the existence of the simultaneous effects of both short-run and long-run relationship between the current account balance and budget deficits, exchange rate and export, the researcher carried out vector error correction test supported with the normalized cointegrating coefficient as shown below:

Normalized cointegration coefficients (standard error in parentheses)

CAB	Bd	EXCHR	EXPORT
1.00000	3.71E-05	-0.295434	-2.15E-05
	(6.5E-06)	(0.07307)	(3.0E-06)

The result shows a positive cointegrating equation. The t-statistics are statistically significant (-0.94283). The value of VECM is -0.476281. This shows that about 48 % of the short-run errors of the economy are corrected each year.

Table 3: Vector Error Correction Model (Vecm) Result for Bd On Cab

Vector Error Correction Estimates
 Date: 11/18/14 Time: 06:01
 Sample (adjusted): 1983 2012
 Included observations: 30 after adjustments
 Standard errors in () & t-statistics in []

CointegratingEq:	CointEq1				
CAB(-1)	1.000000				
Bd(-1)	3.71E-05 (6.5E-06) [5.74104]				
EXCHR(-1)	-0.295434 (0.07307) [-4.04293]				
EXPORT(-1)	-2.15E-05 (3.0E-06) [-7.25747]				
C	-37.14333				
Error Correction:	D(CAB)	D(Bd)	D(EXCHR)	D(EXPORT)	
CointEq1	-0.476281 (0.132003) (-3.608095)	-264630.4 (58103.1) [-4.55450]	-0.234239 (0.21022) [-1.11424]	-18898.73 (10392.1) [-1.81857]	
D(CAB(-1))	-0.388863 (0.21869) [-1.77817]	128856.4 (570851.) [0.22573]	0.486606 (2.06541) [0.23560]	46400.95 (102100.) [0.45446]	
D(CAB(-2))	-0.382678 (0.20879) [-1.83285]	775743.2 (545013.) [1.42335]	-0.641521 (1.97192) [-0.32533]	-90474.51 (97479.0) [-0.92814]	
D(Bd(-1))	-7.07E-07 (7.7E-07) [-0.92365]	8.302601 (1.99832) [4.15479]	7.84E-06 (7.2E-06) [1.08416]	0.649264 (0.35741) [1.81657]	

The R-Squared value of 0.599507 indicates that about sixty per cent of the variability in the current account balance in Nigeria within the period was influenced by the budget deficits, exchange rate and export. At five per cent level of significance and relevant degrees of freedom, budget deficits, exchange rate, and export as shown by their computed t-values of -4.55450, -1.11424, -1.81857 respectively, appeared to be statistically significant in predicting the current account balance in Nigeria within the sampled period.

The signs indicate that a positive and significant connection between the current account balance and fiscal deficits in Nigeria between 1980 and 2019 exists. However, both exchange rates and export rates showed a long-run negative relationship with budget deficits in Nigeria within the sample period. Note also that all the explanatory variables exert a highly statistical significance impact on current account balance in Nigeria.

As regards the short-run effects as shown by the lower region of the VECM results, all the variables except exchange rate, was negatively related and significant with the current account balance in Nigeria. The appearance of budget deficits with negative sign in the short-run confirms the presence of the twin deficits in the Nigerian economy in the short-run which conforms to Onafowora and Owoye, (2006) submission that the twin deficits syndrome exists in Nigeria.

Furthermore, the system equation was used to test the presence of the causality between budget deficit and current account balance. The results shown below indicate that there is a causal relationship between budget deficits and the current account balance in Nigeria.

Table 4: System Equation for Bd on Cab

Dependent Variable: D(CAB)

Method: Least Squares

Date: 11/18/14 Time: 06:05

Sample (adjusted): 1983 2012

Included observations: 30 after adjustments

$$D(CAB) = C(1) * (CAB(-1) + 3.70988424689E-05 * Bd(-1) - 0.295434397136$$

$$*EXCHR(-1) - 2.15300664908E-05 * EXPORT(-1) - 37.1433291238) +$$

$$C(2) * D(CAB(-1)) + C(3) * D(CAB(-2)) + C(4) * D(Bd(-1)) + C(5) * D(Bd(-2))$$

$$+ C(6) * D(EXCHR(-1)) + C(7) * D(EXCHR(-2)) +$$

$$C(8) * D(EXPORT(-1)) +$$

$$C(9) * D(EXPORT(-2)) + C(10)$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.476281	0.132003	3.608095	0.0011
C(2)	-0.388863	0.218687	-1.778171	0.0906
C(3)	-0.382678	0.208789	-1.832851	0.0818
C(4)	-7.07E-07	7.66E-07	-0.923653	0.3667
C(5)	-4.56E-07	7.10E-07	-0.642004	0.5282
C(6)	0.036301	0.029004	1.251570	0.2252
C(7)	-0.004034	0.025124	-0.160554	0.8741
C(8)	9.53E-07	9.02E-07	1.056957	0.3031
C(9)	4.61E-07	8.60E-07	0.536076	0.5978
C(10)	1.000170	0.846292	1.181827	0.2511
R-squared	0.299507	Mean dependent var	0.216108	
Adjusted R-squared	-0.015715	S.D. dependent var	1.580500	
S.E. of regression	1.592870	Akaike info criterion	4.030153	
Sum squared resid	50.74469	Schwarz criterion	4.497219	
Log likelihood	-50.45230	Hannan-Quinn criter.	4.179572	
F-statistic	0.950147	Durbin-Watson stat	1.997500	
Prob(F-statistic)	0.506243			

Source: Author's computations using Eviews 7 computer software

From the result of system equations in table 4 above, the ECM-1 coefficient of -0.476281 satisfies the requirement of being negative and significant. However, it is not fractional. The implication of not being fractional reflects the reality of Nigeria's consistent trade deficits. The non-fractional nature implies that the current account imbalance is persistent and explosive.

However, the result of the Granger causality tests failed to indicate the direction of causality between the budget deficits and the current account balance in Nigeria at 5 per cent levels of significance as shown below:

Table 5: Granger Causality Tests Result for Gd on Cab

Pairwise Granger Causality Tests

Date: 11/18/14 Time: 06:08

Sample: 1980 2012

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
Bd does not Granger Cause CAB	31	0.07103	0.9316
CAB does not Granger Cause Bd		1.04522	0.3659

Evaluation of Working Hypotheses

H₀₁: Budget deficits have not significantly predicted the current account balance in Nigeria from 1980 to 2018.

The researcher used the coefficient of the t-statistics of the upper region of the vector error correction result as shown above to test this hypothesis. As shown from the regression result, with the coefficient of t-value of 5.74104 for the budget deficit at the upper region of the VECM, it is clear that the budget deficits have a positive long-run significant impact on the current account balance in Nigeria. The negative connection between the budget deficits and the export in Nigeria as shown by the lower region of the VECM is a pointer that the “twin deficits hypothesis” prevails in Nigeria in the short-run but not in the long-run as shown by the positive relationship between the budget deficits and the current account balance at the upper region of the VECM results. This conforms to the discovery by Opeyemi, (2012) who revealed a positive long-run link among the current account deficits and the budget deficits but still, found weak short-run support that these deficits are strongly connected.

H₀₂: Causality does not significantly run from the budget deficits to the current account balance in Nigeria.

This hypothesis was tested using the P-values of the systems equation generated from the least square residuals and supported by the Granger causality tests. The necessary requirements for the existence of causality are that the ECM-1 coefficient be fractional, negative and significant. Based on these conditions, the variables were subjected to the causality tests in order to confirm the hypothesis as stated above. The results are as follows:

(1) There are feedback effects between the budget deficits and the Current account balance (CAB) in Nigeria within the period under review. This was confirmed by the ECM-1 coefficient value of the systems equation for the variables which satisfied the conditions of being fractional, negative and significant. However, the Granger causality tests failed to show the direction of causality between the series.

Discussion

The key objective of this paper is to establish the existent or absence of any significant influence of the budget deficits on the current account balance in Nigeria within the period under investigation. The unit root tests result showed that all the series are stationary after first differencing. The cointegration result also confirmed 2 each for cointegrating equation for trace and maximum eigen values. The existence of at least 1 cointegrating equation is a condition to run for vector error correction (VECM) model.

As a result, vector error correction test statistics was carried out and the result revealed that about 2 per cent imbalance between short-run and long-run is corrected annually. Furthermore, the VECM result also showed that the budget deficits, exchange rate and the exports exerted a strong significant long-run impact on the current account in Nigeria. The result also revealed that positive relationship exists between the budget deficit and the trade balance in Nigeria, which imply that a percentage change in the budget deficits cause an increase in trade balance by about 71 per cent. The R-squared value of 0.299597 means that about 30 per cent of the variability in current account balances was attributable to changes in the included explanatory variables. That means that about 70 per cent of changes in current account were construed to be determined by other factors outside the model.

It was also established that there is a causal relationship between the budget deficits and the current account balance using the systems equation. However, the result of the Granger causality tests failed to show the direction of the causal relationship between the variables.

Summary

After the analysis, the following empirical deductions were generated:

The regression results showed that at 5 per cent levels of significant and relevant degrees of freedom, changes in the budget deficits have a positive and significant long-run impact on the Current account balance (CAB) in Nigeria within the sampled period. Secondly, the result of systems equation established that causality existed between the budget deficits and the current account balance (CAB) within the period under review. However, the Granger causality tests conducted failed to reveal the direction of the causality. It was also confirmed that the twin deficit postulation is present in the Nigerian economy in the short-run.

Conclusion

The study concludes that the budget deficits have a long-run significant effect on the current account in Nigeria. This finding has gone a long way in supporting Keynesian hypothesis as well as the current empirical works carried out on this area such as studies by; (Wosowie, 2013; Onuorah, 2013; Ibrahim, *et al*,(2012). Moreover, the system equation tests which revealed presence of a feedback effects between the budget deficits and the current account require that government should be judicious in management of its fiscal and monetary policies to ensure favourable trade balance.

In all, this paper submits that what should be the overriding interest to economists and the government with regard to economic development in Nigeria should be the methods involved in funding such budget deficit, the effects on current account balance, as well as the absorptive capacity of the economy.

Recommendations

In view of the foregoing, the following policy prescriptions were proffered by the present study.

1. Governments should urgently implement budgetary management measures aimed at reducing borrowing and able to cut down the size of the budget deficits that frequently create transfer payments and doubtful additional budgetary operating cost. For example, governments should make sure that unwarranted wasteful expenditure does not enter into the proposed budget of the federal government.
2. Diversification policy should be vigorously pursued to achieve zero oil export dependence. Furthermore, efforts should be intensified on revenue generation drive to strengthen government income generation and investment in such areas as economic and social infrastructural needs. There is need also for more efforts from the governments to improve on the budgetary processes and fiscal forecast as well as supervision practices to usher in a significant fall in the level of budget deficits and transfer public spending from extravagant expenditure to fruitful human and material infrastructural investment. To achieve this, it will require openness in budget preparation by the government.

References

- Alkswani, A. M. (2000). The twin deficits phenomenon in Petroleum economy: Evidence from Saudi Arabia. *The Seventh Annual Conference: Economic Research forum*. Amman: Jordan
- Baharumshah, A. Z., Evans, L. & Khalid, A. M. (2006). Testing twin deficits hypothesis using VARs and variance decomposition, *Bond University School of Business Papers: epublication@bond*.
- Barro, R. (1989). New Classical and Keynesians, or the good guys and the bad guys, *Swiss Journal of Economics and Statistics* 125 (3).
- Chang, J. & Hsu, Z. (2009). Causality relationship between the twin deficits in the regional economy, *Electronic Version: 04/06*.
- Dalyop, G.T. (2010). Fiscal deficits and the growth of domestic output in Nigeria, *Jos Journal of Economics*, 4 (1).
- Drakos, K. (2001). Testing the Ricardian equivalence theorem: Time series evidence for Greece, *Journal of Economic Development*, 26 (1)
- Enders, W. (1995). *Applied econometric time series*, New York: John Wiley and Sons Inc.
- Federal Republic of Nigeria (1986). Structural adjustment programme, Lagos: *Government printer*.
- Funke, K, & Nickel, C. (2006). Does fiscal policy matter for the trade deficits? A panel co-integration study, *International Monetary Fund Working*

- Gujarati, D.N. (2003). *Basic econometrics*: (3rd ed.), New York: Macgraw-Hill Inc
- Ibrahim, A., Adesanya, O. & Bolarinwa, S. (2012). Empirical investigation Between budget deficit, inflation and money supply in Nigeria, *European Journal of Business and Social Sciences* Vol. 2(12).
- Iyoha, M. A., Oyefusi, S. A., & Oriaku, D. (2004). *An introduction to modern macroeconomics*, Benin; Mindex Publishing.
- Kosimbei, G. K. (2009). Budget deficits and macroeconomic performance in Kenya: An empirical analysis, *A Thesis Submitted to the School of Humanities and Social sciences*, Kenyatta University.
- Koutsoyiannis, A. (2003). *Theory of econometrics* 2nd ed, New York. Palgrave Publishing Company.
- Mundell, R. A. (1968). *International economics*, New York: Macmillian.
- Ogbonna, B. C. (2014). Investigating for twin deficits hypothesis in South Africa, *Journal for Developing Countries Studies* (IISTE). 4(10).
- Onafowora, O. A & Owoye, O. (2006). An empirical investigation of budget deficits and trade deficits: The case of Nigeria, *Journal of Developing Areas* 39 (2).
- Odour, J. (2008). Impacts of real exchange rate misalignments on trade creation and Diversion within regional trading blocs: the case of COMESA, *PhD Thesis. Bielefeld University*.
- Olanipekun, D. B. (2012). Bound testing analysis of budget deficits and current account in Nigeria (1960-2008), *International Business Management*: 6.
- Oladipo, S. O, & Akinbobola, T. O. (2011). Budget deficit and inflation in Nigeria: A causal relationship, *Journal of Emerging Trends in Economics and Management Sciences*, 2 (1).
- Olga, V. (2000). Twin deficits hypothesis: The case of Ukraine. A thesis submitted in For the award of degree of Doctor of Philosophy (PhD) in Economics at the national University Kyiv-Mohyla Academy.
- Onuorah, A. C. & Ogomegbunam, O. (2013). Relationship between macro-economic variables and budget deficit, *International Journal of Management Sciences*, 1 (10).
- Udah, E. B. (2011). Adjustment policies and current account behaviour: Empirical evidence from Nigeria, *European Journal of Humanities and Social Sciences*, 6 (1).
- Wosowei, E. (2013). Fiscal deficits and macroeconomic aggregates in Nigeria, *Journal of Developing Countries*: 3(4).