DEFICIT FINANCING AND TRADE BALANCE IN NIGERIA

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Abstract

Using a time series data the study employed Granger-Causality and Vector Auto-Regression (VAR) techniques in the analysis of the data collected. This study assessed the effects of deficit financing on trade balance in Nigeria from 1980 - 2008. Our short-run dynamic result indicates a positive relationship between Deficit financing and Trade balance (surplus). While the long-term result posits that an increase in deficit financing diminishes trade deficit in Nigeria. The implication of the above result is that deficit financing is an available instrument for government to improve trade in the shortrun and that in the long-run deficit financing could be used to reduce trade deficit in Nigeria if properly managed by government.

Key words: trade deficit; deficit financing; Nigeria

BACKGROUND OF STUDY

Fiscal deficits are certainly not new in almost all countries of the world today, even the developed nations like the USA, United Kingdom, and others have from one time to another experienced fiscal deficit. Increased government expenditure, mismanagement of government revenue and declining government revenues could be said to be responsible for the steep increase in the public sector deficits.

Deficit financing in Nigeria dates back to 1961, when the first deficit financing exercise was undertaken. Deficit budgeting appeared justified during the immediate post-independence era, largely because of the need then to expand the economy. This culture however became seemingly entrenched over time. Up till 1970, the country ran fiscal deficits and sustained public sector spending boom. The fiscal deficits of the 1970 were justified on the grounds that it was largely for war reconstruction. Backed with huge wealth from oil Nigeria embarked on wasteful spending, the mismanagement of the oil boom of the early 1970s led to the return to deficits in 1975. From 1982 the continuing decline in crude oil export earnings in 1981, once again, led to the resumption of fiscal deficits which were financed through heavy borrowing after reducing the nation's reserves. The trend now continued unabated till 1995, but resumed immediately from 1996 to date (Isenmila and Okolie 2008, Oluba 2008).

 This study is set to find out whether deficit financing significantly cause changes in trade deficit in Nigeria.

EMPIRICAL REVIEW ON BUDGET DEFICITS AND TRADE DEFICITS

Darat (1988) used Granger causality to test the hypothesis that large budget deficits cause rising trade deficits, using data from U.S. covering the period 1960-1984. He found that "the empirical results only partially support the conventional view that a rising budget deficit

caused the 1980s escalation in the U.S. trade deficit". "he found evidence of a budget-to-trade deficit causality and also find, perhaps stronger, evidence of trade-to-budget deficit causality".

Enders and Lee, (1990) employed a VAR system, which they derived from a consumer optimization model of the economy consistent with the Richardian Equivalence Hypothesis (REH). The result indicates that variance decompositions show a small but significant effect of both government spending shocks and debt shocks on the net exports. Plots of impulse response functions show a sustained decrease in net exports in response to both a government spending shock and a government debt shock. Their results were contradictory to the Richardian Equivalence Hypothesis (REH). But when they imposed theoretical restrictions drawn from the Richardian theory on the model of study and tested their validity, they were unable to reject Richardian Equivalence (Shojai, 1999).

Ziet and Pemberton (1990) used a multi-equation, structural, open economy model of the U.S. economy over the period 1972:4 – 1987:2. Using model equation which includes equations for short-term interest rates; the real trade-weighted exchange rate; domestic absorption; exports; imports; the domestic inflation rate; and trend absorption. They derived two-stage least squares estimates for each equation. Stimulations of the model indicate a strong effect of budget policy on net exports, primarily through the effect of domestic absorption on imports. Despite the sizable effects of fiscal policy on net exports, they concluded that less than half of the trade deficits of the 1980s could be explained by government policy. They added that the budget deficit affects the trade deficit mainly through its impacts on domestic absorption and income rather than through higher interest and exchange rates.

Abell (1990) estimates a seven-variable VAR model using monthly data for the period 1979:02 – 1985:02, the variables included in the system are the federal government budget deficit, the U.S. Merchandise trade balance, the MI money supply, Moody's AAA bond yield, the Dallas Federal Reserve Bank's 101 Country trade-weighted dollar exchange rate, real disposable personal income, and the Consumer price index (CPI) (Abell 1990). This study concluded that budget deficits influence trade deficits indirectly rather than directly. The study contended that indirect causation running from the budget deficit through the interest rate and the exchange to the trade deficit exists. His reported impulse response functions showed a positive response of the trade deficit to a one-standard-deviation shock to the budget deficit.

Eisner (1991) estimates an OLS equation using the ratio of net exports to GNP as the dependent variable and including the price-adjusted high-employment deficit as a percentage of GNP as an explanatory variable. Using U.S. data over the period 1957-1988, he finds a positive effect of the budget deficit on the trade deficit, although the estimated coefficient is only marginally statistically significant. However Eisner's model avoids the non-stationarity problem inherent in using data in levels.

Bachman (1992) tests the deficits hypothesis in the U.S. using quarterly data for the period 1974-1988. He also tested the relationship between the trade deficit and three other "causal variables", gross domestic investment, relative productivity, and the exchange rate risk premium. All of his analysis is bivariate, finding no evidence of co integration between the current account and the budget deficit.

Tallman and Rosensweig, (1991) investigates the relationship between deficits and trade deficits in the U.S. over the period 1971-1989, they found that government deficit (as a ratio to GNP) Granger causes the trade deficit (as a ratio of GNP) but not vice versa.

Egwaikhide, (1999) using a macroeconomic model to examine the effects of budget deficits on the trade balance in Nigeria over the period 1973-93 by using the OLS method. The result indicates that budget deficits arising from increased government spending adversely affects the balance of trade irrespective of whether it is money financed or by external borrowing.

Piersanti, (2000) obtains evidence that strongly supports the view that current account deficits associated with large budget deficits during the 1970-1997 periods in most industrial

countries, after studying seventeen OECD countries over the period, while using the Granger-Sims causality technique for the investigation.

Onafowora and Owoye, (2006) uses Cointegration and vector error-correction techniques, Granger- Causality tests and generalized impulse response analysis to examine the "twin deficits" phenomenon in Nigeria. They found evidence of positive relationship between trade and budget deficits proposition and refutes the Richardian Equivalence Hypotheis. Their result also indicates a unidirectional causality from trade deficits to budget deficits for Nigeria, contrary to the conventional proposition that budget deficits cause trade deficits.

In contrast, studies such as Bachman, (1992), Evans, (1988) and others found evidence of no link between budget deficits and trade deficits.

An implicit policy implication arising from their result is that attempts to reduce budget deficits in Nigeria must begin with reductions in trade deficits, which could be achieved through indirect monetary channels.

In the overall the majority of the studies reviewed above shows that there is evidence supporting the two deficits relationship mainly through the transmission mechanisms of interest rates and exchange rates.

However, we observe that the methodology used to analyze the above studies varied from well-specified theoretical models to using simple one-to-one relationships between the budget deficit and trade deficits, therefore empirical evidence on this issue is inconclusive, in this study, we will attempt to close this gap, by employing a well-specified model.

MODEL SPECIFICATION

This study employs the Easterly, Rudriguez and Schmidt-Hebbel (1994) framework to specify the relationships of fiscal deficit (deficit financing) and macroeconomic variables of interest to the case Nigeria.

Trade balance is associated with both the difference between output and absorption and the good market counterpart of the accumulation of net foreign assets, ie capital account. This means that the description of local and foreign market is needed in order to determine the level of trade balance. Public net foreign assets accumulation is negatively affected by public sector deficits for a given stock of domestic public debt and base money. Furthermore the gross domestic product and exchange rate fluctuations are yet variables of consideration as backed by theories in economics.

Therefore our equation is specified following various previous studies such as Rodriguez (1989); Abell,(1990) and Eisner,(1991). The relationships between the variables are such that the trade balance is directly related to the accumulation of capital. Private net foreign accumulation depends on the difference between desired and actual private NFA holdings. Public NFA accumulation will reflect directly and actual negative sign, the public sector deficit for a given stock of public debt and base money. Hence the trade balance equation can be specified as;

$$TB = \beta_o + \beta_1 GDP + \beta_2 EXGR + CA\beta_3 + \beta_4 BDFIN + Ut \quad \dots \quad (1)$$

The logarithm of the above equation becomes;

$$LogTB_1 = \beta_o + \beta_1 LogGDP_1 + \beta_2 LogEXGR_1 + \beta_3 LogCA_1 + \beta_1 BDFIN_1 + Ut \dots (2)$$

Where

TB = the surplus ie GDP - Domestic Absorption/Deficit

GDP = Gross domestic product

CA = Capital account

$BDFIN$ = deficit financing

RESULTS
 Stationarity Test Result

VAR	ADF	PP	ADF. Order of Int	PP Order Of Int
CAB	-4.2977*	-4.24096*	1(0)	1(0)
EXCHR	-5.50803*	-5.5372*	1(1)	1(1)
BDFIN	- 3.31161**	-4.2382**	1(1)	1(1)
GDP	-5.0323*	-1.0323*	1(0)	1(0)
MS	-3.7346*	-5.7722	1(1)	1(0)
TB	4.5912*	-12.9984*	1(0)	1(1)

Note: *and ** denotes significance at 1% and 5% level.
        Source: Author's Estimation Using E view 6.0

Short-run dynamics results for trade balance Equation
        Interestingly, the result indicates a positive relationship between Deficit financing and Trade balance (surplus). This is reflected by the 1.5 coefficient of Deficit financing in the period of study. This shows that a 10 percent increase in Deficit financing may have caused Trade surplus by about 1.5 points. This indicates that government borrowing might have caused trade surplus in the shortrun within the study period in Nigeria.
        It is worthy to note from this result also that a 10% increase in GDP would have caused Trade balance (surplus) to increase by about 0.39 points, while a 10% increase in EXGR and CA balance would have caused 10.7 and 10.4 points increase in Trade balance respectively.
        A further assessment of the above result shows that Deficit financing was not a major determinant of Trade balance (surplus) of Nigeria within the period studied (1980-2007). However, the variables employed shows about 93 percent of the variations in Trade balance in Nigeria, and this indicates the models fit.

Granger Causality Test Results

Null Hypothesis:	Obs	F-statistic	prob
BDFIN does not Granger cause TB	*26*	*8.91219*	*0.00158*
TB does not Granger cause BDFIN		*0.06174*	*0.56233*

        Source: Author's Estimation Using E view 6.0

        The null hypothesis that deficit financing (BDFIN) does not Granger cause Trade balance (TB) is rejected, given the high F-statistic and low Probability value, we reject null hypothesis and accept the alternative, which states that deficit financing Granger cause trade balance. On the other hand the null hypothesis that TB does not Granger cause BDFIN was accepted given the low F-statistic and high probability values. Therefore this result indicates that, while causality runs from deficit financing to trade balance, the same cannot be said of trade balance to deficit financing because of the low F-statistic and high probability value. This implies that government spending predicts trade balance in Nigeria.

Trade balance and deficit financing VAR result
TB=36.4785+0.0142TB(-2)-0.0076GDP(-2)+21.4081EXGR(-2)   –0.1159CA(-2)   -0.1144 BDFIN(-2)
SE (6.4069) (0.2084) (0.8053) (46.3842) (5.4603)(11.3275)
t   [0.5768] [-8.0465] [-1.9708] [4.6153] [-6.2197][0.1536]
R^2 0.7299
F-statistic = 6.055

Sources: Author's Estimation Using E view 6.0 (see appendix for details)

The results of the estimation show that the explanatory variables account for approximately 72.9 percent variation in trade balance in Nigeria. The estimation also shows that deficit financing and trade balance (our variables of interest) are negatively statistically related. For instance, a 1 percentage increase in deficit financing diminishes trade balance by approximately -0.11 percentages. This is in support of the earlier results of Egwaikhide, (1999) whose result indicates that budget deficits arising from increased government spending adversely affects the balance of trade irrespective of whether it is money financed or by external borrowing.

But this result is contrary to Abell, (1990) who concluded that budget deficits influence trade deficits indirectly rather than directly. Abell contended that indirect causation running from the budget deficit through the interest rate and the exchange to the trade deficit exists.

Surprisingly our result further confirmed that a 1 percentage increase in exchange rate affects trade balance by approximately 21.4 percentages. By implication exchange rate is therefore a major determinant of trade balance in Nigeria.

SUMMARY OF FINDINGS

1) Our short-run dynamic result indicates a positive relationship between Deficit financing and Trade balance (surplus). While the long-term result posits that an increase in deficit financing diminishes trade balance in Nigeria.

2) We also found that increased government spending adversely affects the balance of trade irrespective of whether it is money financed or by external borrowing. Empirically deficit financing directly and indirectly affect trade balance of Nigeria.

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