

An Empirical Analysis of the Short Run and Long Run Impacts of Foreign Aid on Domestic Savings in Nigeria

P.B. Eregha and I.R. Irughe

Department of Economics, Adeyemi College of Education, Ondo, Ondo State, Nigeria

Abstract: This study examines the impact of foreign aid inflow on domestic savings in Nigeria. This study is necessitated by the fact that most studies examine this issue with either panel data analysis or cross-country analysis framework, which do not really show specific country characteristics and moreover, there is no time series analysis on the impact of foreign aid on domestic savings in Nigeria. The study employed Ordinary Least Square method of estimation with an autoregressive model to examine the short run and long run elasticity coefficients of this impact. Data for the study were mainly secondary source extracted from the World Development Indicator, 2007. The study revealed that both at the short run and steady state, foreign aid inflow to Nigeria has positive effect on domestic savings. However, total debt service payment has negative impact on domestic savings. The study then recommends that policies aim at reducing the dependency and proper use of foreign aid should be implemented.

Key words: Per capita income, foreign aid, domestic savings, total debt service, short run coefficient, long run coefficient

INTRODUCTION

The various form of inflow of foreign aid was welcome in developing countries to bridge the gap between domestic savings and domestic investment and therefore, to accelerate growth (Chenery and Strout, 1996). The benefits of foreign aid have recently been under severe scrutiny. Several observers argued that a very large portion of foreign aid flowing from developed to developing countries is wasted and only increases unproductive public spending. Poor institutional development, corruption, inefficiencies and bureaucratic failures in the developing countries are often cited as reasons for the result (Alesina and Dollar, 1998; Furuoka, 2008).

While there are many reasons for giving foreign aid, a major argument for such aid is that this assistance will increase the rate of economic growth in countries, which are recipient of aid. These expectations of aid induced growth however have often been unrealistic. The explanation is that aid largely goes to consumption rather than productive activities which crowd-out domestic savings and investment.

Recent years have seen a surge in calls for more foreign aid to Nigeria in order to eliminate the country's poverty. Developed countries, international organizations and other Philanthropists have all made renewed pleas for

a massive infusion of development aid to Nigeria. Experts who argued in favour of more aid are of the view that injecting more foreign aid would materially benefit the people of the recipient country.

The role of western assistance in alleviating Africa extreme poverty depends on various theories on why Africa is poor of which Nigeria is inclusive. Economists overtime have insinuated different models of poverty that have different implications for foreign aid. These include the big push models and foreign aid, project intervention (education, health and infrastructure), models of policies and growth as well as aid, institutions and development. Based on these theories and others, several researchers have examined empirically the impact of foreign aid inflow on growth as well as savings. Most studies regarding the connection between foreign aid and growth as well as domestic savings have been more of panel data analysis or cross country analysis. The main thrust of this study is to examine this connection in a specific country time series analysis specifically in Nigeria.

Akonor (2008) examined foreign aid impact to Africa using theoretical and descriptive quantitative analyses revealed that aid is not a panacea for Africa's development woes. He said, foreign aid has so far created a welfare continent mentality and has become the hub around which the spokes of most African economies turn. The study further stated that dependency on foreign aid

has compromised the sovereignty of African countries and that it is very unfortunate that aid has taken >50% of Sub-Saharan African countries' budgets and 70% of their public investment.

Ahmed and Ahmed (2002) studied the impact of foreign capital inflow on domestic saving in Pakistan by applying three variants of cointegration techniques to time series data for the 1972-2000 periods. The study revealed in every case a valid long run relationship among the variables. The three variants of cointegration technique also revealed an inverse relationship between saving rate and foreign capital inflows and short run relationship between these two variables was also found to be negative.

Burnside and Dollar (2000) studied the link between aid, policy and growth for 56 developing countries. The study applied panel data analysis for the period 1970-1973 and 1990-1993 and the study revealed that on the average aid has had little impact on growth, although, a robust finding was that aid has had a more positive impact on growth in good policy environments.

Singh (1985) examined the impact of interventionist state policy on economic growth. The study using cross-sectional OLS method revealed that both the savings rate and the rate of foreign aid were positive and significant. However, when an index of state intervention was introduced into the model, foreign aid became insignificant. With savings as the response variable, foreign aid was negative and significant when the index of state intervention was introduced into the model.

As earlier stated and for the purpose of emphasis, this present study intends to contribute to this discussion by analyzing the impact of foreign aid inflow on domestic savings in Nigeria with control for other variables and examine the short run and long run elasticity coefficients of this impact. Most studies regarding the connection between foreign aid and domestic savings are mainly either panel data or cross country framework, which do not really show country specific characteristics and for the main fact that this connection is ignore in empirical works in Nigeria.

MATERIALS AND METHODS

Data source and procedure: The study uses time series data covering the period 1980-2007. In this study the effect of foreign aid on domestic savings is analyzed with explicit controls for correlated effects of per capita income and other omitted variables. The software programme used in obtaining the regression estimates is E-Views 4.1

package. The natural log-transformation for the model was specified. The use of natural log transformation allows the research to determine the responsiveness of savings to changes in the predictors used in the study. Data relied upon were obtained mainly from the World Development Indicator.

Model specification: Based on Synder (1990), it is hypothesized that gross domestic savings as a proportion of GNP (ASY) depends on per capita income (GNI) and overseas development assistance as a proportion of GNP (ODA). However, to argument the Synder specification, we include Total Debt Service (TDS) and net barter term of trade in this present specification. Therefore, the implicit general functional model relied upon for the purpose of this study is of the e following:

$$ASY_t = f(GNI_t, TDS_t, BTT_t, ODA_t) \quad (1)$$

Where:

ASY = Gross domestic savings as a proportion of GNP

GNI = Per capita income

TDS = Total debt service

BTT = Barter term of trade

ODA = Verseas development assistance as a proportion of GNP

t = End of period

However, to determine the short run relationship we include the lagged value of Official Development Assistance (ODA) adopted from Iyoha (2004) and Edo (2001). Thus, the equation in a log linear form is:

$$\log ASY_t = \pi_0 + \pi_1 \log ASY_{t-1} + \pi_2 \log GNI_t + \pi_3 \log TDS_t + \pi_4 \log BTT_t + \pi_5 \log ODA_t + \mu_t \quad (2)$$

where, π_2 to π_5 are the short run coefficients.

For the purpose of examining the long run coefficients:

$$\begin{aligned} \log ASY_t &= \log ASY_{t-1} = \log ASY_t^* \\ \log ASY_t - \pi_1 \log ASY_{t-1} &= \pi_0 + \pi_2 \log GNI_t + \pi_3 \log TDS_t + \pi_4 \log BTT_t + \pi_5 \log ODA_t + \mu_t \\ (1 - \pi_1) \log ASY_t^* &= \pi_0 + \pi_2 \log GNI_t + \pi_3 \log TDS_t + \pi_4 \log BTT_t + \pi_5 \log ODA_t + \mu_t \end{aligned}$$

$$\begin{aligned} \log ASY_t^* &= \pi_0 / 1 - \pi_1 + \pi_2 / 1 - \pi_1 \log GNI_t + \pi_3 / 1 - \pi_1 \log TDS_t + \pi_4 / 1 - \pi_1 \log BTT_t + \pi_5 / 1 - \pi_1 \log ODA_t + \mu_t / 1 - \pi_1 \end{aligned} \quad (3)$$

where, $\pi_2 / 1 - \pi_1$ to $\pi_5 / 1 - \pi_1$ are the long run coefficients.

RESULTS AND DISCUSSION

The estimate is done by using the Ordinary Least Square (OLS) method of estimation contained in the E-Views 4.1 package. The estimation result of the model is reported in equation form for easy of appreciation as thus:

$$\log ASY_t = 1.48 + 0.43\log ASY_{t-1} - 0.94\log GNI_t - 0.15\log TDS_t + 0.74\log BTT_t + 0.26\log ODA_t \quad (4)$$

$$\log ASY_t^* = 2.60 - 1.65\log GNI_t - 0.28\log TDS_t + 1.30\log BTT_t + 0.26\log ODA_t \quad (5)$$

$$(0.16) * (0.01) * (0.0006) * (0.05) * (0.0016) * (0.0016) * \\ R^2 = 0.79 \text{ Durbin-h stat} = 2.09 \text{ F-stat} = 20.34$$

Equation 4 and 5 presented above are the equations showing the short run and long run elasticity coefficients respectively. The values in parenthesis are the p-values.

In the estimation result, the R² value indicates that per capita income, total debt services payment, barter term of trade and official development assistance account for 79% of the total variation in domestic savings for the sample period. The f-value of 20.24 which is significant at both 1 and 5% indicates that there is a considerable harmony in the relationship between domestic savings and all the explanatory variables put together.

The result shows that all the explanatory variables are well behaved except for per capita income and barter term of trade. This is an indication that their coefficients are in conformity with a priori expectation of the model. A careful examination of the result also shows that the coefficients pass the significance test at 5% level. One desirable characteristics of the model is the value of the Durbin-h statistics, which indicates absence of serial correlation in the error term.

The result shows that total debt service has short run and long run elasticity coefficients of -0.15 and -0.28, respectively. This implies that there exists a negative relation between domestic savings and total debt services. A 1% increase in total debt service will lead to 0.15 and 0.28% reduction in domestic savings in the short run and long run, respectively. It was also revealed that a percent increase in official development assistance will lead to 0.26 jump in domestic savings.

In general, it was observed that official development assistance has appreciable impact on savings, while debt service has negative impact on savings in Nigeria during the period of investigation.

CONCLUSION

This study identified and analyzed some critical factors contributing to the fluctuations in Nigerian domestic savings. The study analyzed both the short run and long run impacts of foreign aid allocation on aggregate savings in Nigeria. The study revealed that foreign aid had contributing impact on the growth of aggregate domestic savings in Nigeria but debt service payment had negative impact on savings in both the short run and long run. Nigeria heavily relies on foreign aid to fill the gap between domestic savings and domestic investment. One main issue, which has attracted some attention, is that by making recourses easily available, foreign aid flow permitted a relaxation in domestic savings effort and encourages an increase consumption and therefore, foreign aid may particularly impedes the public and private savings. Also, foreign aid flow might encourage wasteful and unproductive public spending. There is therefore, the need for Nigeria government to implement policies that will reduce dependency on foreign aid and as well ensure proper use of aid to productive public spending. We also recommend that policy which encourages manufactured exports to increase its foreign earnings that will make debt service payment not to be burdensome.

Conclusively, whether or not my professional colleagues agree with the premises on which the results of the study were obtained; they do in fact appear to provide some useful insights into the foreign aid allocation growth and its determinants and indeed we can be satisfied if the evidence offered by the study can lead to more research on the issue especially on specific country time analysis.

ACKNOWLEDGEMENTS

I whole heartedly wish to express my profound gratitude to my beloved wife Idekegbamini P. Eregha and my son Divine for the perseverance, sacrifice and moral support throughout the duration of the research. I am also indebted to Tomson Ogwang of the Brock University, Canada for the inspiration impacted on me on econometric research.

REFERENCES

Ahmed, M.H. and Q.M. Ahmed, 2002. Foreign capital inflows and saving in Pakistan: Cointegration technique and error correction modeling. www.pide.org.pk/pdf/.../Foreign%20Capital%20Inflows.pdf.
Akonor, K., 2008. Foreign aid to Africa: A hollow hope? *International Law and Politics (JILP)*, 40: 1071-1078. www.law.nyu.edu/ecm_dlv/.../ecm_pro059426.

- Alesina, A. and D. Dollar, 1998. Who gives foreign aid, to whom and why? *J. Econ. Growth*, 5: 33-63. www.nber.org/papers/w6612.
- Burnside, C. and D. Dollar, 2000. Aid, policies and growth. *Am. Econ. Rev.*, 4: 847-868. www.jstor.org/stable/117311.
- Chenery, H. and W. Strout, 1996. Foreign assistance and economic development. *Am. Econ. Rev.*, 66: 679-733.
- Edo, S.E., 2001. Demand for new issues in the capital market: The role of stock market liquidity. *J. Soc. & Mgt. Sci.*, 29 (3): 229-224.
- Furuoka, F., 2008. A dynamic model of foreign aid allocation. *Econ. Bull. (EB)*, 15: 1-13. vanderbilt.edu/2008/.../EB-08O10012A.
- Iyoha, M.A., 2004. *Applied Econometrics*. 1st Edn. Benin. Mindex Publishing. pp: 25-32. ISBN: 978-803-51-91.
- Singh, R.D., 1985. State interaction, foreign economic aid, savings and growth in less developed countries. Some Recent Evidence, *Kyklos*, 38: 216-232.
- Snyder, D., 1990. Foreign aid and domestic savings: A spurious correlation? *Econ. Dev. Cultural Changes*, 37 (1): 175-181.