An Enquiry into the Sustainability of the Nigerian Economy

Mufutau Ayinla Abdul-Yakeen, Felix Gbenga Olaifa, and Kola Subair

Abstract—The study obtains time-series data of three independent variables (Public Expenditure, Debt, and Reserve) and a dependent variable (Gross National Product) between 1971 and 2011 in Nigeria with the aim of verifying the sustainability of the economy. Following Keynesian Model, it formulate hypotheses, estimates parameters, and uses Augmented Dickey-Fuller test to test their significance via used E-View 7. It discovers that Nigerian economy is solvent and sustainable with positive relationship between Public Income, Expenditure and Reserve but negative relationship between the Public Income and Public Debt. It recommends increase and judicious spending of External Debts and appreciates Internalization of Public Reserves by disbursement of some of the proceeds to the Traditional Financial Institution (TFI) to attain the desired economic objectives of Nigerians. Despite its applicability, desirability and productivity; the surmountable limitations of its recommendation are fear of corruption and marginalization among others.

Keywords—Assets, Solvency, Sustainability, and Traditional Financial System.

I. INTRODUCTION

NIGERIA is tagged as "Giant of Africa". Given that the Keynesian theory is applied, Nigeria is supposed to be a very great nation in the world. Nigerian economy is highly populated but heavily dependent on the income generated from the petroleum sector while her population continues to grow and makes some pessimistic scholars, Malthusian economists, to expect abject poverty in the nearest future. Nigeria is well-endowed with a lot of natural resources but heavily dependent on the income generated from crude oil which the pessimists [1] opine may dry-up in the nearest future but the optimists, Keynesian economists, expect immeasurable affluence through the multiplier effect of effective public expenditure on the economy. The presence, effective and efficient coordination of her assets [material resource (petroleum resource) and the human resource (labor)] in Nigeria are expected to yield

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sustainable economic growth, if Cobb-Douglas production function is something to write home about.

Population of Nigeria is always on the increase despite all socio-economic and political up-risings. Nigerian population is said to be growing at over three percent per annum. Thus, it is logical to think that Nigeria shall be able to sustain her solvency, ceteris paribus. Assets like Crude oil, Gold, Silver, Uranium, and many other natural resources are available in Nigeria and as such their incomes need to be efficiently managed, using a local and Nigerian financial strategy. An economy, like Nigeria, is solvent if she has necessary and sufficient resources to pay all her internal and external debts.

Nigeria is a country branded with widespread corruption; lack of trust for the leaders and the led; desire to perpetuate oneself in power; tribalism; nepotism; and sectionalism. Coupled with excessive income disparity, there is failure of so many macroeconomic policies like Operation Feed the Nation (OFN), Austerity Measure, Green Revolution, Back-To-Land, Structural Adjustment Program (SAP), Vision 2010, Vision 20-2020, National Economic Empowerment and Development Strategy (NEEDS), Seven-Point Agenda, and the current Transformation Agenda to yield the desired result on the Nigerian economy.

The study assumes that there is no significant difference between the changes in value of National income vies-a-vie National Expenditure, National Debt and National Reserve in Nigeria. Thus, the study finds the level of Solvency and Sustainability of the Economy.

According to Wikipedia website [2], sustainability is derived from Latin word *sustinere* (*tenere* which means "hold" and *sus* which implies "up"). Therefore, sustainability connotes ability to hold-up something for a reasonable period. Then, Sustainability of the Nigerian Economy denotes the power to maintain and retain the resources in Nigeria for a reasonably long period.

II. REVIEW OF RELEVANT LITERATURE

There is a channel that links fiscal policies to foreign reserves in the developing nations and solvency is treated as net total liabilities or removal of public reserves from public liabilities [3]. The argument of Greenspan [5] that reserves must be big enough to attract global credit worthiness is good but it excludes the fact that huge foreign reserve is not required from a nation with high rate of population growth, unemployment, depreciating value of currency, etc. The

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position of Fischer [4] that countries should hold more foreign reserves is not accepted for there are many economic sectors that need more money to execute their programs.

"... as at the end of 2009, the United States had a negative net foreign wealth position far greater than that of any other country" [6]. This implies that huge external debt does not prevent hard working nations from becoming and retaining the status of her socio-political, economic and technological development.

" ... countries that borrow money in the international market will be those where highly productive investment opportunities are available relative to current productive capacity while countries that lend will be those where such opportunities are not available domestically" [7]. This statement implies that nations need to ensure that they have exhausted all investment opportunities at home before they lend money abroad. The question now is, 'Should nations with high rate of unemployment of human and material resources; and poverty keep on increasing their external reserves?' The answer is no.

Keynes [8] recommends Effective Aggregate Demand and supports deficit financing. Thus, Public Expenditure is the Effective Aggregate Demand but Deficit Financing is the Public Debt. Since Keynes [8] postulates that savings is the unspent income after the consumption expenditure has been met and assumes that the higher the marginal propensity to consume the greater the national income Savings, therefore, is tantamount to leakages. As such, developing nations do not need huge foreign reserves. Going by Wagner's (1911) Law of Expansionist State Spending cited by [9] there are tendencies that activities of government on the different sectors of the economy would increase intensively and extensively. As such, public expenditure is proved to be increasing from time to time. Thus, the growth of public expenditure vies-a-vie public income, debt and reserves in nations like Nigeria may be consistent with the Wagner's Law.

Consequence of the intermittent oil windfall on the Nigerian economy is the focus on education and health sectors of Nigeria [10]. External borrowing would increase as a result of increase in creditworthiness of the country and the hope that the windfall will continue to flow in order to pay the principal and the interest on the debt to be settled [10]. The study of Udoh, et al [10] did not cover the informal sector which contains a chunk of unemployed youths that are looking for jobs within the economy. If there is a proper way by which the windfall would reach the young ones, Nigeria would be proud of her sustainability, growth and development.

Capital inflow allows recipient nations to invest and consume more than it produces [11]. Sanni [11] recommends that economic policies shall focus on the issues that would enhance more foreign capital inflow into the Nigerian Economy. This statement implies that when a nation gets money, fund from many sources including loans from abroad there would be an increase in state spending and economic sustainability. Akpan and Afagideh [12] evaluated aggregated data of trade, foreign direct investment and financial sector

development between 1970 and 2006 in Nigeria to conclude that Nigerian economy had nothing but a dismal performance. The study by Akpan and Afagideh [12] warrants further study, with or without their choice of variables, to know if Nigeria economy has actually failed.

Nigeria's infrastructure is biased in favor of urban area, its development lies behind and below that of low income group used as the bench-mark [13]. Thus, [13] attempts the sustainability of infrastructural sector through which he suggests proper demand and supply management so as to aid an increase in investment on the infrastructural sector. He does not venture, particularly, on what will happen if the nation keeps a lot of money abroad as reserves in foreign accounts. However, he has brought to the lime-light the fact the nation needs a lot of money for infrastructural development.

Abdul-Yakeen [14] discovers that contributions to the purse of Rotating Savings and Credit Associations (ROSCAS) do lead to the taking of loans whose expenses do have multiplier effects on the economic growth of Ilorin Metropolis. It further discovers that most of the ROSCAS loans are spent on the purchase of motor vehicles which is in the transport sector. Owing to the fact that most, if not all transport facilities are imported, loans given to Nigerians are going to increase international trade, economic growth and development. It is against this background that the effective disbursement of other financial assets, like loans from abroad, would yield similar or great impact on the Nigerian economy. Following this, Ibrahim and Abdul-Yakeen [15] recommends that community development associations should be giving loans to the civil servants so as to invest them (loans) on the economy and create circular flow of affluence.

III. Methodology

Source of Data, Model Specification, and Estimation Techniques

Time Series data is culled from World Bank Data from the Internet for the period between 1971 and 2011 because there is no on-line data available for some of the variables for the period before 1971 and after 2011 as at the time of analyzing the data.

Keynesian Model of Income Determination is adopted in accordance to Keynes [8] and used as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots + e$$

Where, Y = Gross National Income {GNI (current US$)},

X_1 = Public Expenditure {(Gross National Expenditure (current US$)},

X_2 = Public Debt {(External Debt Stocks, Total (current US$)},

X_3 = Public Reserves {Total Reserves (current US$)}, and

e stands for error term respectively

Y is the dependent variable while X_1, X_2, and X_3 the independent variables. β_0, β_1, β_2, and β_3 are the estimated parameters of the variables standing in for the autonomous income, change in government income with respect to Public Expenditure, Public Debt Public Reserves, and error term

respectively. It is assumed that for a nation to be solvent *beta 0, beta1 and beta 3* are expected to be positively related to the Gross National Income *beta 2* shall be negatively related to the Gross National Income.

Thus, we made an econometrical analysis of the relationship between growth of national income, expenditure, debt and reserves in order to suggest proper ways of managing the Nigerian economy for sustainable economic growth and development.

The time series data is then collected, collated, regressed, and analyzed using inferential statistics with a unit root tests conducted, to test for stationarity in accordance with Augmented Dickey-Fuller test statistic at 1%, 5%, and 10% significant levels using the E-View version 7 Statistical Package. The test is not lagged.

IV. DATA ANALYSIS, INTERPRETATION, RESULTS AND DISCUSSION

Table of the analysis of time series data obtained from World Bank Statistics [16] using E-View Seven in order to estimate the parameters of the variable, determine goodness of fit of the equation, analyze the variance and test for autocorrelation is pasted below:

TABLE I
REGRESSION ANALYSIS OF THE VARIABLES

Dependent Variable: Y

Method: Least Squares

Date: 10/29/13 Time: 12:07

Sample: 1971 2011

Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.25E+09	1.11E+09	2.032848	0.0493
X1	0.842059	0.019517	43.14546	0.0000
X2	-0.029029	0.039487	-0.735148	0.4669
X3	0.629779	0.071160	8.850202	0.0000

R-squared	0.997263	Mean dependent var	5.61E+10
Adjusted R-squared	0.997042	S.D. dependent var	5.54E+10
S.E. of regression	3.01E+09	Akaike info criterion	46.58235
Sum squared resid	3.36E+20	Schwarz criterion	46.74953
Log likelihood	-950.9382	Hannan-Quinn criter	46.64323
F-statistic	4494.461	Durbin-Watson stat	1.965375
Prob(F-statistic)	0.000000		

Source: Field work, 2013

TABLE II
TABLE OF UNIT ROOT TEST ON VARIABLES

Variable	ADF At Level	ADF at 1st Difference	Status
Y	1.830952	-6.721841*	I(1)
X1	2.902719	-5.872369*	I(1)
X2	-1.532055	-4.309317*	I(1)
X3	-0.320728	-3.341768**	I(1)

Source: Field Work, 2013

Note: */** denotes stationarity at one percent and five percent respectively.

Data Interpretation

Based on the data analyzed above, we have the following equation:

$Y = 2.25E+09 + 0.842059X_1 + -0.029029X_2 + 0.629779X_3 + ... + e.$
Standard Error (1.11E+09) (0.019517) (0.039487) (0.071160)
T-Statistic   2.032848 43.14546 -0.735148 8.850202
Probability   0.0493   0.0000 0.4669   0.0000
$R^2 = 0.997263$, Adjusted $R^2 = 0.997042$; F-statistic = 4494.461, Probability = 0.0000; and Durbin-Watson statistic = 1.965375

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Following table one above, all explanatory variables are statistically significant as indicated by their respective t-statistic and probability values except X_2 which is not significant and also shows an inverse relationship to the dependent variable. The model is a good fit for the adjusted R-Square is over 99% which shows that the equation obtained explains almost every change in explained variable that would be brought by the explanatory variables. In addition, the fact that the value of Durbin-Watson test is 1.97 or less than two implies that the regression ran on the variables eliminates all possibilities of autocorrelation in the model. This shows that the result of the data analyzed is not spurious. Moreover, the probability of F-statistic in the model (0.000000) shows that the model is acceptable.

In accordance to table one, above, and with reference to the Keynesian Model of Income Determination, the implication of the above equation is that the federal government of Nigeria would realize US Dollars 2,250,000,000 without the public expenditure, debts and reserves. The multiplier effect of public expenditure on the economy would be 6.33147 or [1 / (1 − 0.842059)]. Following this, the multiplier effect of public debt on the economy is likely to be 0.97179 or [1 / (1 − -0.029029)]. Finally, based on multiplier concept, the likely effect of public reserve on the economy is expected to be 2.701089 or [1 / (1 − 0.629779)] if it is expended or given out as loans to productive investors within the nation.

Using the table two, above, and reference to Augmented Dickey-Fuller test statistic, the implication of the data analyzed is that D(Y) which represents Public Income is stationary after the first difference. Similarly, D(X1) and D(X3) representing public expenditure and public reserves, respectively are stationary after the first difference. Conversely, D(X2) is not stationary at all levels and after the first difference. In addition, I (1) means that the results of the data are integrate of order one.

V. RESULTS AND DISCUSSION

Based on the data analyzed above, it is discovered that:

i. There is a positive relationship between the Public Income and Public Expenditure of the federal government of Nigeria.

Public Expenditure is capable of leading to multiplication of national income of Nigeria by six times in the nearest future, going by Keynesian Multiplier. The rate of growth of public expenditure and debt were moving pari-passu with the rate of growth of public income. This portends that Nigeria is expected to witness greater economic growth than we witnessed.

ii. There is an inverse relationship between the income and debt of the Federal Government of Nigeria. The public debt, though negatively sloped, has the capacity of increasing the economic growth of Nigeria by over ninety-seven percent or less than an hundred percent, if Keynesian Multiplier is something to go by. This is not good at all, for it shows the under-utilization of the credit-worthiness of Nigeria at the international market.

iii. Money kept as reserves by the federal government of Nigeria can lead to almost three times the tune of our national income, if it were expended locally.

iv. Nigerian economy is a solvent and her solvency is sustainable. This is because both national expenditure and reserves are rising while national debt is falling. If this kind of situation persists, Nigeria would sustain her solvency and thus be referred to as a credit worthy nation.

v. The National Income of Nigeria is not autocorrelated with National Expenditure, Public Debt and Public Reserves. By implication, none of the variables causes changes in another. As such. Policy Makers in Nigeria have to formulate policies that would link these variables with each other.

VI. POLICY RECOMMENDATION

It is suggested that Federal Government of Nigeria shall make optimal utilization of her credit worthiness by incurring more Foreign Debts and minimizing Foreign Reserve in order to internalize and give some of them to the Traditional Financial Institution (TFI) popularly known by all Nigerians as Rotating Savings and Credit Associations (ROSCAS). This will enhance indigenous capital formation, reduce unemployment, alleviate poverty, foster sense of belonging, etc. However, many Nigerians may fear corruption whenever the government wants to increase external debts, and complain of marginalization during the disbursement of funds to indigenous financial institutions. Despite the likely challenges of increase in foreign debt and internalization of excess income, the policy remains the best method of retaining and recycling the national income within the nation (Nigeria) and sustaining the economy.

REFERENCES

[1] C. E. Nnaji; J. O.Chukwu; and E. R. Ukwueze; Fiscal Policy and the Management of Foreign Reserves in the Nigerian Economy" in Distortions in the Nigerian Economy: Implications for Sustainable Development (Selected Papers of the 51st Annual Conference - 2010), The Nigerian Economic Society, Ibadan: Oluben Printers.

[2] http://en.wikipedia.org/wiki/Sustainability#History_of_sustainability ….22/1/2014 …3:20pm.

[3] W.H. Buiter and U.R. Patel, "Budgetary aspects of stabilization and structural macroeconomic dimensions of Public Finance", Fiscal Policy and economic reform: Essays in honour of Vito Tanzi, Blejer, M and Ter-Minassian, T. (Eds.). London: Routledge, 1997.

[4] S. Fischer, Opening remarks, IMF/World Bank International Reserves: Policy Issues Forum. Washington D.C, Apil 2001.

[5] A. Greenspan, Currency reserves and debt, BIS Review No, 47 1999.

[6] P. R. Krugman; M. Obstfeld,; and M.J. Melitz, "International Economics: Theory and Policy" Essex: Pearson Education Limited, 9th ed, 2013, p. 344.

[7] P. R. Krugman; M. Obstfeld,; and M.J. Melitz, "International Economics: Theory and Policy" Essex: Pearson Education Limited, 9th ed, 2013, p. 160.

[8] S. Lamartina, and A. Zaghini; Increasing public expenditures: Wagner's law in OECD countries. http://campus.usal.es/~XVEEP/PAPERS/J1S6/XVEEP-29%20LAMARTINA-ZAGHINI.pdf …. 22/1/2014…3:30pm.

[9] E. Udoh; F. S. Ebong; and C. D. Ekpenyong, "Oil Windfall Revenues and Public Expenditure on Social Services in Nigeria" Selected Papers for the 2007 Annual Conference, The Nigerian Economic Society, Ibadan: Daily Graphics Nigeria, Ltd.

[10] G. K. Sanni, "Foreign Capital Inflows, Financial Deepening and Economic Growth in Nigeria" The Nigerian Journal of Economic and Social Studies, 54 (1), 2012, pp. 111 - 135.

[11] G. E. Akpan, and U. J. Afagideh, "Nigeria's Economic Performance in the Global Economic: A Small Macroeconomic Analysis" Selected Papers of the 50th Annual Conference by The Nigerian Economic Society, Ibadan: Oluberi Printers, 2009.

[12] B. U. Omojimite, "Infrastructure and Growth in Nigeria: Benchmarking Productivity and Sustainability" in Selected Papers of the 50th Annual Conference by The Nigerian Economic Society, Ibadan: Oluberi Printers, 2009.

[13] M. A. Abdul-Yakeen, "An Empirical Study of the Contributions of Rotating Savings and Credit Associations (ROSCAS) to Economic Development of Ilorin Metropolis"; European Scientific Journal, vol. 8 No. 19, 2012, pp. 267-284.

[14] M. O. Ibrahim, and M. A. Abdul-Yakeen, "The Untapped Role of Civil-Servants at Revamping Ilorin Emirate Economy" Mediterranean Journal of Social Sciences, vol. 4 No. 16, 2013, pp. 513 – 522.

[15] J. M Keynes, "The General Theory of Employment, Interest and Money; New York: Herbinger Book, 1964.

[16] World Data Bank http://databank.worldbank.org/data/views/variableselection/selectvariables.aspx?source=world-development-indicators# …..26/10/2013 6:20pm.