

An Empirical Investigation into the Effect of Openness of the Economy on the Growth of Output (RGDP) In Nigeria from 1986-2010

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Abstract

The purpose of this paper is to investigate the effect of openness of the Nigerian economy on its growth, especially, as its affect growth of real GDP. The paper employed two models, viz: Ordinary Least Square (OLS); linear regression model and double-log regression model and also Phillips-Perron (PP) technique was used in testing the presence of unit root and Vector Autoregressive (VAR) was used to detect the flow of causation among the variables of the models. The results of unit root suggested that all the variables in the model were stationary, though at different levels, the results of VAR result revealed the existence of causation between RGDP and openness (OPEN), no causation existed between RGDP and FDI, TEDEBT, FEXR and BOP. One way causation also existed between openness (OPEN) and total external debt (TEDEBT). No causation existed between OPEN and FDI, FEXR and BOP. The result revealed no flow of causation existed from all the other included variables of the model to FDI, FEXR. The result further revealed the existence of causation between TEDEBT and FDI while one way causation between TEDEBT and BOP at only lag one (-1). Lastly, the VAR result revealed no flow of causation from all the included variables to BOP. This implied that RGDP, OPEN, FDI, TEDEBT, and FEXR do not caused BOP in Nigeria for the period under review. The results also discovered that openness, foreign exchange rates, and balance of payment were impacting positively on growth of output (RGDP) in Nigeria; while foreign direct investment and total external debt were impacting negatively on growth of output (RGDP) in Nigeria as shown by the regression results. The elasticity results indicated that, the growth of real GDP in Nigerian was less susceptible to changes in openness, foreign direct investment, total external debt, foreign exchange rates and balance of payment, their elasticities were inelastic. The significance of this paper is that, it stands to be a guide to policy makers. It has also push forward empirical discourse and provided literature to future research. Finally, this paper recommends the pursuance of stable and sustainable foreign policies such as export promotion and import substitution, effective control and utilization of external debt. Also to put in place, measures that will promote greater exchange rate stability and improve conditions of terms of trade, promote greater openness of the economy in order to enhance growth of the economy (RGDP). There is the need for the government to devalue its currency, reduce total external debt as well as reduction in the inflow of foreign direct investment for their negative impact on real GDP in Nigeria. It is hoped that coming up with the above measures could greatly promote the growth of real GDP in the country.

Keywords: economic growth, openness, FDI, foreign exchange rate, BOP and total foreign indebtedness

INTRODUCTION

Nigeria as a nation became open and globalized in 1986 with the advent of Structural Adjustment Programme (SAP). The degree of openness of the economy has been triggering many economic problems in the country, ranging from high unemployment, price instability, fundamental balance of payment disequilibrium, exchange rate instability. Nigeria is a small open economy that has no dictate of its international activities, rather accepting dictate of the world strong economy like United States whose policies are detrimental to the growth of the Nigerian economy. This paper sort to find out the effect of this openness on the growth of the Nigerian

economy by incorporating major indicators of openness such as FDI, total external debt, foreign exchange rates, and balance of payment. According to Smith (2011) Open economy is an economy in which international trade takes place. Most nations around the world have open economies, and many nations rely heavily on international trade to meet economic and social goals. As a general rule, open economies are viewed as stronger than closed economies in which international trade does not occur, and this type of economy tends to be better for companies, investors, and individual citizens. For the global economy, however, open economies can become problematic, because when a large trade

partner experiences economic difficulties, it can have a ripple effect across the globe, instead of being confined to that nation alone as it would be in a closed economy. According to Smith (2011), in an open economy, both imports and exports are permitted, and they can consume a large portion of the company's total gross domestic product in any given year. Imports give citizens of a country access to products and services provided by other nations, which allows for more consumer freedom because people have a wider range of choices. Exports allow companies and citizens to break into other markets to find new buyers for their products. He also postulated that nations with open economies generally have more access to credit, because they can rely on international sources as well as domestic ones for funds. Citizens also have more options in terms of investment and banking, because they can opt to move beyond their national borders with their funds, companies, and ideas. This in turn promotes the exchange between two or more economies, which creates mutual economic strength between trade partners. Open economies can also be used to forge political ties.

Many nations have laws in place which are designed to promote an open economy, and to minimize restrictions on imports and exports. Groups of nations such as the signatories to the North American Free Trade Agreement may in fact have free trade laws built directly into international treaties and agreements, to ensure that members do not later change their minds and alter regulations which pertain to international trade.

The term "small open economy" is used to refer with a nation which has an open economy, but not a lot of economic clout, because its economy is so small in comparison with trading partners. When small open economies experience financial problems such as recessions and inflation, for example, this does not have a very large impact on international trade as a whole, because their fraction of the total trade which occurs annually is negligible.

The politics of an open economy may be more difficult than that of a single nation. Outsourcing and quasi-legal practices can take place on the borderlands of different nations, as well as in a business transaction which is on the fringe of two nations. If a nation's political system is unsure of who governs who's affairs and business practices, the resulting economy can be a capitalistic mayhem. It is exciting to see the open economy which now exists between South Korea and the US. As time progresses, the ties here will strengthen and both nations will benefit because of it. It is to be hoped that one day all nations will participate in an open and light-speed economy based on a strong and secure internet.

CONCEPTUAL LITERATURE

Ndiyo and Ebong (2003) stated that, the economic routes through which macroeconomic variables affect a given economy include the following:

THE CONCEPT OF OPENNESS

Economic growth is an overriding objective in developing countries. The share of imports and exports in overall output provides a ready measure of the extent of openness of an economy. It is weighted sum of merchandise imports and exports divided by GDP (Slaughter and Swagel 1997:2). Growth theories suggest that there is a positive relationship between openness and the rate of growth of GDP in the long run. According to Ekpo (1995) openness to trade enhances economic growth rate since it provides access to a variety of imported inputs, especially technology. Again, openness expands the market for domestic exports returns to innovation and specialization (Romer 1986; Matin 1992; and Ekpo 1995). But Matin (1992:2) points out that the new growth literature does not predict that greater openness will unambiguously raise the growth rate of national output. According to him, they rather show that growth can be lowered by increased foreign competition or it can be increased by import protection, if protection promotes investment in research-intensive production. Hence, since the new growth literature is not clear about how increased openness, affects the growth rate of an economy, the direction of the growth impact of openness therefore, remains an empirical problem. This paper seeks to answer question does openness affect positively and significantly or negatively significantly the growth of the Nigerian economy?

THE CONCEPT OF FOREIGN DIRECT INVESTMENT (FDI)

Classical economists argue that international capital mobility allows countries with limited savings to attract financing for productive domestic investment projects which enables investors to diversify their portfolios, spreads investment risk and promotes intertemporal trade. In turn, higher rates of return can encourage saving and investment that deliver faster economic growth. There is, therefore, a positive relationship between FDI and economic growth.

THE CONCEPT OF FOREIGN EXCHANGE RATE

The strength of a country's currency depends on a number of factors, including the state of the economy in terms of the competitiveness and volume of its exports, the level of domestic production and the quantum of foreign reserves (CBN 1999). In a free-market system, the exchange rate of a country's currency is determined by the forces of the supply and demand for that currency. The objectives of exchange rate policy are to preserve the international value of the domestic currency, maintain a favourable

external reserve position and ensure external balance without compromising the need for internal balance and the overall goal of macroeconomic stability. Therefore, a globalization process that leads to high naira exchange rate can further increase distress in the economy.

THE CONCEPT OF TOTAL FOREIGN INDEBTEDNESS

Growth theories suggest that reasonable levels of borrowing by a developing country are likely to enhance its economic growth. Countries at early stages of development have small stocks of capital and are likely to have investment opportunities with rates of return higher than those in advanced economies (Pattillo et al 2002). As long as they use the borrowed funds for productive investment and do not suffer from macroeconomic instability and policies that distort economic incentives, growth will increase.

THE CONCEPT OF BALANCE OF PAYMENTS (BOP or NX)

Net exports or trade balance is often defined as exports less imports. When trade balance is negative there is a trade deficit, and if it is positive, there is a trade surplus. The balance of payments account keeps track of all the trade transactions between one country and the rest of the world. There are two parts to the balance of payments, namely, the currents account and capital account (for details of these subaccounts, see Taylor 1995: 1040-46). as a monetary tool, a favourable balance of payments position is an indication of a healthy economy. However, fiscal policies for economic growth and stability demands that these variables be kept under strict control.

THEORETICAL FRAMEWORK

The M-F Model is an extension of the IS-LM model with the inclusion of balance of payments. While the IS-LM traditionally deals with a closed economy, the IS-LM –BP describes an open economy. The model shows the short run relationship between an economy's nominal exchange rate, interest rate and output in contrast to the closed economy IS-LM model which focuses only on the relationship between interest rate and output.

The M-F Model has been used to argue that an economy cannot simultaneously maintain a fixed exchange rate, free capital mobility, and an independent monetary policy. This principle is usually called the M-F trilemma (unholy trinity). The M-F Model is precisely an IS-LM Analysis with trade and international capital mobility. Mundell and Fleming pointed out that in an open economy, foreign demand for exports and domestic demand for imports depend on the exchange rate, as well as foreign and domestic income, because the exchange rate

translates the foreign currency prices of foreign products into domestic currency prices.

The Mundell–Fleming model assumes that, given the level of income and the interest rate, domestic demand for imported goods and services increases with a depreciation of the domestic currency. Hence, the import demand function is specified as $IM = IM(Y, i, e)$. In a two-dimensional diagram that relates only the level of domestic income, Y , to aggregate demand, the import demand function IM slopes upward, like the consumption function. The curve IM shifts downward with an increase in the interest rate, i , and it shifts up when the exchange rate appreciates. Exports, X , depend on foreign income, the foreign interest rate, and the exchange rate. That is,

$X = X(Y^*, i^*, e)$, where the starred variables Y^* and i^* are the foreign equivalents of Y and i in earlier equations. The X curve shifts down with an increase in i^* and up with an increase in Y^* or e . Thus, the export function is a straight line in the Keynesian cross diagram.

The net export function, NX , represents the difference between the horizontal X function and the upward sloping IM function:

$$NX = X(Y^*, i^*, e) - IM(Y, i, e) = NX(Y, Y^*, i, i^*, e)$$

The NX function is downward sloping. Imports grow as income rises while exports are unaffected by domestic income; hence, net exports accordingly decreases with domestic income Y (GDP). Technically, the exchange rate should be depicted as the real exchange rate, or eP^*/P , but because the simple Keynesian model assumes prices remain constant in the short run, changes in the real exchange rate are caused by only changes in e . In an open economy, therefore, total product demand is equal to

$$Y = C(Y) + I(i) + G + NX(Y, i, Y^*, i^*, e)$$

EMPIRICAL LITERATURE

Here empirical literature on the growth effects of openness, foreign direct investment, foreign exchange rate, balance of payment (BOP = NX i.e. net export) and other growth related empirics were reviewed. Very recently, economists have considered the effects of openness and balance of payment on aggregate output. Ndiyo and Ebong (2003) conducted a research on the challenges of openness in developing economies Nigeria as a case study. They adopted OLS techniques and found that openness impacted negatively on output, foreign direct investment (FDI) impacted positively but insignificant on output, balance of payment (BOP) impacted negatively on output, world price impacted negatively on national output, and also foreign exchange rate impacted negatively on output in Nigeria. In same vein Adebisi (2006) investigated the relationship between policies of trade openness and

economic growth performance in Nigeria. This study applied Vector Auto regression Techniques and used annual time series data set. Major findings suggested that sustained economic growth in Nigeria can be achieved by implementing a comprehensive trade openness programme. Njikam (2009) tried to analyze the trade openness and development of industrial performance in Cameroon, while trying to explore whether a relation existed between infrastructure and industrial performance during the two time periods, before and after trade openness this study utilized the annual values during the import-substitution era (1986-94) and immediately after trade reform (1995-2003) for a sample of 29 industrial sectors. By means of panel data techniques. This study found that development in infrastructure leads to enhancement in the productivity of industrial sector and in trade openness agenda. Hence, better quality of infrastructure must be given priority. Nazima, et'al (2013) conducted a study on analyzing empirical relationship between trade openness, industrial value added and economic growth in Pakistan. They applied unit root test to determine the time series properties while OLS technique of estimation and Granger causality tests were employed to find out direction of causality. The results inferred from the econometric model articulated that imports and exports (openness) affected positively economic growth. Attempts have also been made to investigate the extent to which government activities affect economic growth. For instance, Ratner (1983), Aschauer (1989) and Munnell (1990) found that government investments were positively related to growth. Other studies such as Evans and Karas (1994), on the other hand, produced a mixed result. The adoption of ordinary least squares reveals a positive correlation between the two proxies of government spending (services and capital spending) and economic growth. But when a two-stage least squares techniques were used, a positive relationship could not be established in most cases, especially in public capital.

Mohsin and Abdelhak (2001) conducted research on threshold effects in the relationship between inflation and growth (a comparative study of industrial and developing countries) and found that the threshold is lower for industrialized countries than it is for developing countries. They also found negative and significant relationship between inflation and growth above the threshold level. They suggested low inflation for sustainable growth. Resulting from dearth of empirical studies on this issue in Africa,

Amin (1998) examined the effects of public investment expenditures on growth of Cameroon's economic activities. Using an aggregate production function, he discovered a positive relationship between the two, even though the relationship could not be statistically established. Ekpo (1995) regressed the disaggregated components of government capital

expenditures on private investment, using ordinary least squares approach with annual data for 1960-90. The findings showed that capital expenditures on transport and communication, agriculture, health and education positively influence private investments in Nigeria, which invariably enhances the growth of the overall economy. Ogiogio (1995) examined the growth impact of recurrent, capital and sectoral expenditures over the period 1970-93. He observed the existence of long-run relationship between economic growth and government expenditures. The study also indicated that government investment programmes in socio-economic infrastructure provided a conducive environment for private-sector-led growth. Odusola (1996) adopted a simultaneous equations model to capture the interrelationship between military expenditures and economic growth in Nigeria. He observed that aggregate military expenditure was negatively related to growth at 10 per cent significant level. And when decomposed into recurrent and capital military expenditures, the former was more growth retarding than the latter.

Obadan (1992) conducted empirical study on direct investment in Nigeria and found a positive and statistical significant relationship between economic growth and FDI inflow. Adofu (2010) conducted study on the role of FDI in accelerating the rate of economic growth in Nigeria. He employed OLS regression techniques and found a positive relationship between FDI inflow and GDP. Innocent et'al (2012) conducted study on Economic growth and foreign direct investment in Nigeria; they used OLS and Granger causality techniques and found that foreign direct investment (FDI) impacted positively and insignificantly on economic growth proxy by GDP. The causality result indicated bidirectional causality between FDI and GDP.

DATA AND METHODOLOGY

THE MODEL I

The basic economic model of an open economy is the same to that of a closed economy model only that two new terms are added: export (x) and import (m):

$$Y = C + I + G + NX \text{ (EXPORT - IMPORT)} \quad (i)$$
 With Y = Gross Domestic Product (GDP)/National income.

C= Consumption

I= Investment

G= Government expenditure

NX= Net export

There is no closed economy in today's world.

It is noteworthy to realize that the M-F IS-LM curve is drawn within the e, Y (e= exchange rate and Y= income /output) for an open economy. This study adopted the Mundell and Fleming model and modified to incorporate some important variables. The linear model for this study was specified as follows

$$\pm \quad + \quad \pm \quad \pm \quad \pm$$

$$\text{RGDP} = f(\text{OPEN}, \text{FDI}, \text{TEDEBT}, \text{FEXR}, \text{BOP}) \quad (\text{ii})$$

Where

GDP = growth rate of output

OPEN = openness [(X+M)/GDP]

FDI = foreign direct investment

TEDEBT = Total external debt outstanding

FEXR = foreign exchange rate

BOP = balance of payments (Export – Import).

THE MODEL II: DOUBLE LOG MODEL

$$\pm \quad + \quad \pm \quad \pm \quad \pm$$

$$\text{LOGRGDP} = f(\text{LOGOPEN}, \text{LOGFDI}, \text{LOGTEDEBT}, \text{LOGFEXR}, \text{LOGBOP}) \quad (\text{iii})$$

The mathematical model was specified as follows:-

$$\text{LOGRGDP} = \beta_0 + \beta_1 \text{LOGOPEN} + \beta_2 \text{LOGFDI} + \beta_3 \text{LOGTEDEBT} + \beta_4 \text{LOGFEXR} + \beta_5 \text{LOGBOP} + \mu \quad (\text{iv})$$

The signs above the variables represent a priori expectations. The signs are of the view that openness, total external debt, foreign exchange rate, and balance of payments exhibit unpredictable movements, depending on their levels while foreign direct investment (FDI) is positively related to output. It may be argued that the more open an economy is, the higher the rate of economic growth. According to Phillips- Perron there is a tendency for time series data to contain a unit root. Consequently, an attempt has been made to render the data stationary prior to specification and estimation. Moreover, as the residuals of non-stationary time series could be correlated with their own lagged values, the assumption of OLS theory that disturbances are not correlated with each other is violated. Hence, OLS estimates of such series are biased and inconsistent, and standard errors computed with such random walk variables are generally underestimated. In this case, OLS is no longer efficient among linear estimators; this justified the need to conducting unit root test (Phillips - Perron) to test the unit root property of the time series data used, after which VAR modeling was estimated to determine the flow of causation between the included variables of the model.

Table 1 contains general regression results for the growth effect of openness (OPEN), foreign direct investment (FDI), total external debt (TEDEBT), foreign exchange rates (FEXR), and balance of payment (BOP) in Nigeria. The results revealed that the constant, coefficients of FEXR, and BOP were statistically significant, and the coefficients of OPEN, FDI, and TEDEBT were statistically insignificant. This implied that FEXR and BOP were positively significantly impacted on economic growth in Nigeria for the period under review, and openness (OPEN) was positively insignificantly impacted on economic growth, while foreign direct investment

(FDI), and total external debt (TEDEBT) were negatively insignificantly impacted on economic growth in Nigeria. Precisely, the coefficients of

RESULTS AND DISCUSSION

Table 1: Linear Regression Results

Dependent Variable: RGDP

Method: Least Squares

Date: 12/14/13 Time: 14:20

Sample: 1986 2010

Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	211264.8	32752.25	6.450390	0.0000
OPEN	18045.83	56645.62	0.318574	0.7535
FDI	-0.015724	0.010991	-1.430616	0.1688
TEDEBT	-0.012478	0.010925	-1.142216	0.2676
FEXR	1422.154	448.4356	3.171367	0.0050
BOP	0.073977	0.014989	4.935402	0.0001
R-squared	0.914184	Mean dependent var	391582.0	
Adjusted R-squared	0.891601	S.D. dependent var	173463.3	
S.E. of regression	57111.18	Akaike info criterion	24.94895	
Sum squared resid	6.20E+10	Schwarz criterion	25.24148	
Log likelihood	-305.8619	Hannan-Quinn criter.	25.03009	
F-statistic	40.48065	Durbin-Watson stat	0.942167	
Prob(F-statistic)	0.000000			

FEXR, and BOP were found to be statistically significant at 1percent level as indicated by their probability values of 0.0050 and 0.0001 respectively. The coefficients of OPEN, FDI, and TEDEBT were found to be statistically insignificant at 75.35percent level, 16.88percent, and 26.76percent level respectively as indicated by their probability values in table 1

These results therefore, implied that a unit change in openness (OPEN), foreign exchange rates (FEXR), and balance of payment (BOP) increased economic growth (RGDP) of the country by 18045.83 units, 1422.154units and 0.0740 units respectively. On the other hand as foreign direct investment (FDI), and total external debt (TEDEBT) changes by a unit economic growth (RGDP) reduced by 0.0157units and 0.0125units respectively as indicated in table 1 above. Though some of the variables of the model like OPEN, FDI and TEDEBT were found individually through t-statistics to be insignificant in determining economic growth (RGDP) in Nigeria but were found jointly significant. The F-statistics value of 40.4807, which measured the joint significance of the explanatory variables, was found statistically significant at 1percent level as indicated by its corresponding probability value of 0.00000 in table 1. This implied that all the variables of the model were jointly significantly impacted on economic growth in Nigeria for the period under review.

The R^2 value of 0.9142 (91.42%) implied that 91.42percent total variation in RGDP was explained by OPEN, FDI, FEXR, TEDEBT, and BOP in the country. This confirmed the joint significant of these variables in determining RGDP in Nigeria. Coincidentally, the adjusted R^2 remained high after adjusting for the degree of freedom as indicated by the adjusted R^2 ($R^2 = 0.8916$ or 89.16%). The Durbin-Watson statistic 0.9422 in table 1 was observed to be higher than R^2 0.9142 indicating that the model is non-spurious and meaningful. The Durbin-Watson statistics 0.9422 is low and less than 2 indicating the presence of/or positive autocorrelation between the disturbance terms. This justified the need to conducting a unit root test.

Table 2: Double Log Regression Results

Dependent Variable:LOG RGDP
Method: Least Squares
Date: 12/14/13 Time: 14:33
Sample: 1986 2010
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGC	10.25500	0.869448	11.79484	0.0000
LOGOPEN	7.79E-05	0.040193	0.001939	0.9985
LOGFDI	0.079056	0.053415	1.480029	0.1562
LOGTEDEBT	-0.000965	0.056269	-0.017152	0.9865
LOGFEXR	-0.080120	0.099757	-0.803147	0.4324
LOGBOP	0.152850	0.056661	2.697604	0.0147
R-squared	0.867172	Mean dependent var	12.79826	
Adjusted R-squared	0.830275	S.D. dependent var	0.420880	
S.E. of regression	0.173393	Akaike info criterion	-0.454194	
Sum squared resid	0.541173	Schwarz criterion	-0.159680	
		Hannan-Quinn		
Log likelihood	11.45033	criter.	-0.376059	
F-statistic	23.50263	Durbin-Watson stat	0.816121	
Prob(F-statistic)	0.000000			

Table 2 contains double-log model for the growth effect of openness (OPEN), foreign direct investment (FDI), foreign exchange rates (FEXR), total external debt (TEDEBT), and balance of payment (BOP) in Nigeria. The results indicated that the coefficients of openness (OPEN) elasticity of growth, foreign direct investment (FDI) elasticity of growth, foreign exchange rates (FEXR) elasticity of growth, total external debt (TEDEBT) elasticity of growth and balance of payment (BOP) elasticity of growth were all found inelastic. This implied that growth of output (RGDP) in Nigeria was found less susceptible to changes in the variables of the model. The F-statistics value of 23.5026, which measured the joint significance of the explanatory variables, was also found statistically significant after taking the natural

logarithm of the variables at 1percent level as indicated by its corresponding probability value of 0.00000 in table 2. This implied that all the variables of the model were jointly significantly impacted on economic growth in Nigeria for the period under review.

The R^2 value of 0.8672 (86.72%) implied that 86.72percent total variation in RGDP was explained by OPEN, FDI, FEXR, TEDEBT, and BOP in the country. This confirmed the joint significant of these variables in determining RGDP in Nigeria and also confirmed the result in table 1 above. Coincidentally, the adjusted R^2 remained high after adjusting for the degree of freedom as indicated by the adjusted R^2 ($R^2 = 0.8303$ or 83.03%). The Durbin-Watson statistic 0.8161 in table 1 was observed to be low and less than 2 indicating the presence of/or positive autocorrelation between the disturbance terms. This further justified the need to conducting a unit root test.

DISCUSSION OF UNIT ROOT TEST RESULTS

The results of unit root test are contained in table 1 (sub-table 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6) and table 2 (sub-table 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6) in appendix. The results in table 1 (sub-table 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6) represent Phillips-Perron's unit root test for non-log time series data used in this study, and the results in table 2 (sub-table 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6) represent Phillips-Perron's unit root test for logarithm of the time series data also used in the course of this study. The results in all the tables revealed that all the variables of the model were found to be stationary though at different significant levels. RGDP, total external debt (TEDEBT) and balance of payment (BOP) were found stationary at second difference ($d(2)$), and at 1percent as indicated by their probability values of 0.0000, 0.0000 and 0.0000 respectively, openness (OPEN) was found stationary at level ($d(0)$) at 5percent level as indicated by its probability value of 0.0226, while foreign direct investment (FDI) and foreign exchange rates (FEXR) were found stationary at first difference ($d(1)$) at 1percent significant level as indicated by their probabilities of 0.0001 and 0.0006 respectively in table 1 (sub-table 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6). After taking the natural logarithm of the series all the variables were found stationary first difference. Real GDP, foreign direct investment (FDI), openness (OPEN), total external debt (TEDEBT), foreign exchange rates (FEXR) and balance of payment (BOP) were all found stationary at first difference ($d(1)$) at 5percent, 1percent, 1percent, 5percent, 1percent and 1percent respectively as indicated by their probability values of 0.0275, 0.0001, 0.0019, 0.0013, and 0.0000 respectively in table 2 (sub-table 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6). These was indicated by the Phillips-Perron's results at all levels less than the critical values in negative direction.

DISCUSSION OF VAR (Vector Auto-Regressive) RESULTS

The VAR results contain in table 3 in appendix. The results revealed the flow of causation among variables of the model at lag one (-1) and lag two (-2). It was revealed the existence of causation between RGDP and openness (OPEN) at both lag one and two; but the causation runs from RGDP to openness and not the order way round as indicated by the t-statistics values greater than 2 in table 3 in appendix. No causation existed between RGDP and FDI, TEDEBT, FEXR and BOP. One way causation also existed between openness (OPEN) and total external debt (TEDEBT); its runs from TEDEBT at both lag one and two to openness (OPEN) as indicated by their t-statistic value of -2.6899 and 2.4091 respectively. This implied that total external debt caused openness of the Nigerian economy for the period under review. No causation existed between OPEN and FDI, FEXR and BOP. The result revealed no flow of causation existed from all the other included variables of the model to FDI, FEXR. The result further revealed the existence of causation between TEDEBT and FDI at both lag one and two, but runs from FDI to TEDEBT while one way causation between TEDEBT and BOP at only lag one (-1) as indicated by their t-statistic greater than 2. The causation runs from BOP to TEDEBT. Lastly, the VAR result revealed no flow of causation from all the included variables to BOP. This implied that RGDP, OPEN, FDI, TEDEBT, and FEXR do not caused BOP in Nigeria for the period under review.

CONCLUSION AND RECOMMENDATIONS

This paper investigates the growth effect of openness, foreign direct investment, total external debt, foreign exchange rates, and balance of payment in Nigeria from 1986-2010. The paper applied OLS technique (both linear and non-linear model) in estimating the coefficients of the variables of the model. Phillips-Perron (PP) technique in testing the unit root property of the series was applied the Vector Autoregressive (VAR) technique was also applied in testing for causation in the series. The results of unit root suggested that all the variables in the model were stationary, though at different levels, the results of VAR result revealed the existence of causation between RGDP and openness (OPEN) at both lag one and two; but the causation runs from RGDP to openness. No causation existed between RGDP and FDI, TEDEBT, FEXR and BOP. One way causation also existed between openness (OPEN) and total external debt (TEDEBT); its runs from TEDEBT at both lag one and two to openness (OPEN). No causation existed between OPEN and FDI, FEXR and BOP. The result revealed no flow of causation existed from all the other included variables of the model to FDI, FEXR. The result further revealed the existence of causation between TEDEBT and FDI at both lag one and two, but runs from FDI to TEDEBT

while one way causation between TEDEBT and BOP at only lag one (-1), the causation runs from BOP to TEDEBT. Lastly, the VAR result revealed no flow of causation from all the included variables to BOP. This implied that RGDP, OPEN, FDI, TEDEBT, and FEXR do not caused BOP in Nigeria for the period under review.

The results also discovered that when openness, foreign direct investment, total external debt, foreign exchange rates, and balance of payment is increased by 1 unit real GDP increase by 18045.83, decrease by 0.0157, and 0.0125, increase by 1422.154, and 0.0740 units respectively. Thus, openness, foreign exchange rates, and balance of payment were impacting positively on growth of output (RGDP) in Nigeria while foreign direct investment and total external debt were impacting negatively on growth of output (RGDP) in Nigeria as shown by the regression results.

The elasticity results indicated that, the growth of real GDP in Nigerian was less susceptible to changes in openness, foreign direct investment, total external debt, foreign exchange rates and balance of payment, their elasticities were inelastic. Consequently, for RGDP to improve, openness (OPEN), FDI, TEDEBT, FEXR and BOP should change.

The paper recommends the pursuance of stable and sustainable foreign policies such as export promotion and import substitution, effective control and utilization of external debt. Also to put in place, measures that will promote greater exchange rate stability and improve conditions of terms of trade, promote greater openness of the economy in order to enhance growth of the economy (RGDP). There is the need for the government to devalue its currency, reduce total external debt as well as reduction in foreign direct investment for their negative impact on real GDP in Nigeria. It is hoped that coming up with the above measures could greatly promote the growth of real GDP in the country.

Lastly, the paper is not without limitations, therefore the reliability of the data sources are in a way the research limitations. It is important to assert that a major limitation to this study is the extent of accuracy of information and data that documents the manifestations of real GDP, openness, foreign direct investment, total external debt, foreign exchange rates and balance of payment in Nigeria.

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APPENDIX

TABLE 1: UNIT ROOT TEST (Phillips-Perron) for linear Model

AT 2ND DIFFERENCE

Table 1.1: Null Hypothesis: D(RGDP,2) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-6.574188	0.0000
Test critical values: 1% level	-3.769597	
5% level	-3.004861	
10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

STATIONARY AT LEVEL

Table 1.2: Null Hypothesis: OPEN has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.369195	0.0226
Test critical values: 1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

*MacKinnon (1996) one-sided p-values.

AT FIRST DIFFERENCE

Table 1.3: Null Hypothesis: D(FDI) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-5.618671	0.0001
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

AT 2ND DIFFERENCE

Table 1.4: Null Hypothesis: D(TEDEBT,2) has a unit root
Exogenous: Constant
Bandwidth: 19 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-9.346157	0.0000
Test critical values: 1% level	-3.769597	
5% level	-3.004861	
10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

AT FIRST DIFFERENCE

Table 1.5: Null Hypothesis: D(FEXR) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.948999	0.0006
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

AT 2ND DIFFERENCE

Table 1.6: Null Hypothesis: D(BOP,2) has a unit root
Exogenous: Constant
Bandwidth: 21 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-7.208778	0.0000
Test critical values: 1% level	-3.769597	
5% level	-3.004861	
10% level	-2.642242	

*MacKinnon (1996) one-sided p-values.

Table 2: Unit Root Test (Phillips-Perron) For Double- Log Model

Table 2.1: Null Hypothesis: D(LOGRGDP) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.288712	0.0275
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Table 2.2: Null Hypothesis: D(LOGOPEN) has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-5.659225	0.0001
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Table 2.3: Null Hypothesis: D(LOGFDI) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.479230	0.0019
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Table 2.4: Null Hypothesis: D(LOGTEDEBT) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-3.564811	0.0152
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Table 2.5: Null Hypothesis: D(LOGFEXR) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-4.636245	0.0013
Test critical values: 1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

*MacKinnon (1996) one-sided p-values.

Table 2.6: Null Hypothesis: D(LOGBOP) has a unit root
Exogenous: Constant
Bandwidth: 7 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	-6.407370	0.0000
Test critical values: 1% level	-3.808546	
5% level	-3.020686	
10% level	-2.650413	

*MacKinnon (1996) one-sided p-values.

Table 3: Var Estimations

Vector Autoregression Estimates

Date: 12/14/13 Time: 14:43

Sample (adjusted): 1988 2010

Included observations: 20 after adjustments

Standard errors in () & t-statistics in []

	RGDP	OPEN	FDI	FEXR	TEDEBT	BOP
RGDP(-1)	1.141378 (0.44295) [2.57676]	-11.35977 (5.29579) [-2.14506]	-0.286530 (5.62641) [-0.05093]	-3.924356 (2.31932) [-1.69203]	0.555110 (2.33649) [0.23758]	5.893002 (4.54035) [1.29792]
RGDP(-2)	-0.165304 (0.46307) [-0.35698]	16.61906 (5.53628) [3.00185]	2.316755 (5.88190) [0.39388]	4.043447 (2.42465) [1.66764]	-0.538964 (2.44260) [-0.22065]	-0.000699 (4.74653) [-0.00015]
OPEN(-1)	-0.029746 (0.02940) [-1.01168]	-1.116267 (0.35153) [-3.17550]	0.507258 (0.37347) [1.35823]	0.061954 (0.15395) [0.40242]	0.173368 (0.15509) [1.11784]	0.095697 (0.30138) [0.31753]
OPEN(-2)	-0.012986 (0.03582) [-0.36253]	-1.028495 (0.42824) [-2.40167]	0.314650 (0.45498) [0.69157]	-0.031516 (0.18755) [-0.16804]	0.173678 (0.18894) [0.91922]	0.537038 (0.36715) [1.46271]
FDI(-1)	-0.007807 (0.03083) [-0.25323]	-0.728154 (0.36857) [-1.97560]	0.307416 (0.39158) [0.78506]	0.067264 (0.16142) [0.41671]	-0.391906 (0.16261) [-2.41004]	-0.185139 (0.31600) [-0.58589]
FDI(-2)	-0.015067 (0.04845)	-2.187433 (0.57923)	0.637005 (0.61540)	0.191557 (0.25368)	0.560489 (0.25556)	0.262835 (0.49661)

	[-0.31098]	[-3.77643]	[1.03512]	[0.75511]	[2.19321]	[0.52926]
FEXR(-1)	0.040126 (0.07964) [0.50382]	1.393715 (0.95221) [1.46367]	-0.122019 (1.01165) [-0.12061]	0.434912 (0.41703) [1.04289]	0.077617 (0.42011) [0.18475]	1.273705 (0.81638) [1.56019]
FEXR(-2)	-0.004956 (0.09516) [-0.05208]	2.604681 (1.13776) [2.28930]	-1.198128 (1.20879) [-0.99118]	0.516641 (0.49829) [1.03683]	-0.025264 (0.50198) [-0.05033]	-0.155429 (0.97546) [-0.15934]
TEDEBT(-1)	-0.006677 (0.07023) [-0.09508]	-2.258512 (0.83963) [-2.68989]	0.424195 (0.89205) [0.47553]	0.256052 (0.36772) [0.69632]	1.157012 (0.37044) [3.12332]	-0.433663 (0.71986) [-0.60243]
TEDEBT(-2)	0.021989 (0.06087) [0.36127]	1.753050 (0.72769) [2.40905]	0.208361 (0.77312) [0.26951]	-0.058056 (0.31870) [-0.18217]	-0.370321 (0.32106) [-1.15345]	0.045558 (0.62389) [0.07302]
BOP(-1)	-0.003023 (0.03244) [-0.09319]	-0.423925 (0.38785) [-1.09301]	0.244635 (0.41207) [0.59368]	-0.289330 (0.16986) [-1.70332]	-0.353255 (0.17112) [-2.06437]	-0.205719 (0.33253) [-0.61866]
BOP(-2)	-0.007812 (0.03905) [-0.20004]	-1.161302 (0.46689) [-2.48730]	0.277748 (0.49604) [0.55993]	-0.053432 (0.20448) [-0.26131]	0.252773 (0.20599) [1.22710]	-0.387202 (0.40029) [-0.96730]
C	0.371621 (1.85161) [0.20070]	-23.76556 (22.1373) [-1.07355]	-34.25907 (23.5193) [-1.45664]	-2.188946 (9.69515) [-0.22578]	2.348895 (9.76692) [0.24049]	-54.27215 (18.9794) [-2.85953]
R-squared	0.992896	0.893102	0.953842	0.978865	0.967303	0.969509
Adj. R-squared	0.980717	0.709849	0.874713	0.942634	0.911251	0.917239
Sum sq. resids	0.023514	3.361047	3.793805	0.644668	0.654248	2.470538
S.E. equation	0.057958	0.692928	0.736188	0.303472	0.305719	0.594083
F-statistic	81.52753	4.873595	12.05432	27.01739	17.25721	18.54816
Log likelihood	39.08019	-10.54397	-11.75514	5.968757	5.821241	-7.465808
Akaike AIC	-2.608019	2.354397	2.475514	0.703124	0.717876	2.046581
Schwarz SC	-1.960793	3.001623	3.122740	1.350350	1.365102	2.693807
Mean dependent	12.86687	-1.125230	12.06679	3.880854	13.55379	12.86940
S.D. dependent	0.417376	1.286401	2.079867	1.267048	1.026219	2.065071
Determinant resid covariance (dof adj.)		3.66E-08				
Determinant resid covariance		6.72E-11				
Log likelihood		63.95642				
Akaike information criterion		1.404358				
Schwarz criterion		5.287714				

COMPUTER OUTPUT.