

HOW DO GLOBALIZATION CHANNELS AFFECT ECONOMIC GROWTH? EVIDENCE FROM NIGERIA

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Abstract

The short run and long run relationship between channels of globalization and economic growth are examined in Nigeria using multi-dimensional econometric models. The unit root suggests that some of the variables are stationary while others are not. Moreover, causality test shows mix outcome with few cases of bi-directional causation. Also, co-integration result reveals the existence of long run relationship between the variables of the model with six co-integrating equations. The paper argues that channels of globalization affect economic growth more positively. Consequently, it recommends the pursuance of policy aiming at reducing external reserves, ensuring foreign exchange rate stability among others.

Keywords: Globalization, channels, economic growth, causality, cointegration

1. Introduction

Globalization which reflects the interaction among persons and institutions plays a vital role in the growth of trade of most nations of the World, especially the developing ones. The perfect integration of trade and all its multidimensional aspects has come to be known as 'globalization'. A term often use to denote economic revolution of the new millennium which makes the World a global village by advances in information and communication technology.

The term ‘globalization’ has been described differently; Rodrick (1999) viewed globalization as a whirlwind of technological and liberalized trade and investment that brings huge gains in communications and efficiency and effecting huge shifts in wealth and production. In addition, Clark (2000) opined that globalization is the process of creating networks of connections among actors at multi-continental distances mediated through a variety of flows, including people, information and ideas, capital and goods. Thus, from the foregoing, globalization can be defined as a process of integrating World markets and civilizations triggered by advancement in communication and technology. Therefore, globalization is multidimensional, spanning economic, political, cultural and social activities.

In his paper, Obadan (2004) noted that, some people viewed globalization as a beneficial process, an unmixed blessing with potential to boost productivity and living standards everywhere. Others believed that it increases employment and living standards, and thwarts social progress. He further uphold that opportunities too are many namely; global markets, economies of scale in production, gain in efficiency in the use of productive resources, greater specialization between nations, better quality product and wide options for consumers increased competitiveness and increased output, and ability to tap cheaper sources of finance internationally.

Notwithstanding, Stiglitz (2002) explained that globalization could be either success or failure, depending on its management. There is success when it is managed, for instance East Asian countries (South Korea and Taiwan). Their success was based on exports, closing technological, capital and knowledge gaps. Thus, the countries who received the benefits from globalization shared their profits equally. However, there is a failure when it is managed by international institutions, for example; IMF, WTO and the World Bank. Furthermore, Stiglitz (2002) maintained that globalization has brought huge benefits to East Asian’s success especially on the opportunities for trade and increased access to markets and technology. It has brought better health, as well as an active global civil society fighting for more democracy and greater social justice. He argued that, the problem is not with globalization, but with how it has been managed by the international economic institutions (for example, IMF, World Bank, WTO), who set the rules of the game. Although, Bhagwati (2005) challenged Stiglitz’s argument in his text, he emphasizes the benefits of free trade which becomes “the engine of growth” and raises employment. It will ultimately decrease poverty.

Following the globalization trend, Nigeria has been liberalizing its economy since 1986. The country signed a treaty to become a global player and an entrepreneur of the World Trade Organization (WTO) in 1983 with the intent to become a competitor in the global market (see Igudia, 2004).

Three years later it introduced Structural Adjustment Programme (SAP) with its inherent policies, (for instance, trade liberalization, devaluation of national currency, deregulation of the economy particularly in the area of foreign exchange and interest rate regime, privatization, commercialization, etc). But, the short run and long run relationship between globalizing channels and economic growth has not been deeply evaluated by the previous researchers (for example, Stiglitz. 2002; Bhagwati, 2005; Rodrik, 1998, 2006; 2007, 2011; Rodrik & Subramanian 2009; Easterly, 2004; Gries, *et al*, 2009; Dreher, 2006; Dutt, 1997; Hermes & Robert, 2003; Rao & Vadllamannati, 2009), hence the need to fill these practical and empirical research gaps.

Consequently this work will use systematic econometric modeling and applied Granger Cointegration technique. Also, Borensztein, de Gregorio & Lee (1998) studied how FDI affect economic growth without analyzing other globalization channels such as openness, external reserves, foreign exchange rate, net foreign indebtedness, external reserves, foreign exchange rate, net foreign indebtedness, etc.

Studies on globalization as it relate to growth relied heavily on new globalization index, such as the work of Dreher (2006), Dreher, *et al* (2008; 2010), Martens & Amelung (2010) and Martens, *et al* (2010), though important but could not fully capture and illustrate the economic channels of globalization. Additionally, Dreher (2006) developed an index of globalization covering its three main dimensions: economic integration, social integration and political integration. He concluded that globalization indeed promotes growth. Among the three dimensions only economic globalization showed positive relationship with economic growth, while the other two dimensions showed negative relationship, even though these dimension's data (social integration and political integration) are base on proxies.

Furthermore, one of the leading authors on this theme is Dani Rodrik, Rodrik (2011) did not fully analysed this vital discourse of all channels of globalization in this manner, even in his preceding writings on globalization, for instance, Rodrik (1998; 2006; 2007). Again, Easterly (2004) who wrote on channels from globalization to inequality ignored this fundamental analysis. Moreover, Stiglitz (2002) has not fully studied long-run channels of globalization as they affect growth in his text. Even, Bhagwati (2005) who challenged Stiglitz's views could not provide deep insight into this aspect.

It should be noted that, channels of globalization or globalizing channels as put forward in this paper refers to the economic routes through which globalization affects an economy, these includes: openness, foreign direct investment, external reserves, foreign exchange rate, net foreign indebtedness, fiscal deficits, average world prices and balance of payment.

2. Literature Review

Globalization is a theory whose aim includes the interpretation of the current events on the international sphere in terms of development, economic conditions, social scenarios, and political and cultural influences. Globalization, as a set of theoretical claims, underlines especially two main increasing trends: worldwide active communication systems; and fluent economic conditions, especially high mobility of financial resources and trade (Reyes, 2001).

It is generally believed that the term ‘globalization’ implies greater interdependence and integration among regions and countries which have overwhelming influence on international trade, international financial system, cultural values, communications, social indicators and economic growth. Thus, the theory of globalization originated from global mechanisms of international integration spurred by the new technology and its increasing flexibility to connect people around the world, making the world a global village (see Rodrick, 1999; Reyes, 2001; Clark, 2000).

Moreover, the major aspects of globalization theory includes: Global communications systems; it integration mechanisms; advances in the new technology and innovations; new patterns of communications integrating even minorities within a nation; cultural elements which dictate economic and social structure in every country (see Reyes, 2001; Obadan, 2003; Stiglitz, 2002). In addition, the wave of fax machine and internet system allows the achievement of more rapid and expansive communication.

Besides globalization, the other main theories of development are: (i) modernization; (ii) world systems; and (iii) dependency. The theory of globalization coincides with some elements of the theory of modernization. One aspect is that both theories state that the main direction of development should be that which was undertaken by the United States and Europe. The modernization perspective differs from the globalization approach in that the former follows a more normative position, stating how the development issue should be solved, whereas the latter reinforces its character as a positive perspective rather than a normative claim (Reyes, 2001). Also, Globalization theories emphasize cultural and economic factors as the main determinants which affect the social and political conditions of nations.

Researchers the world over are deeply in search of an index that measures globalization and improve our understanding of the phenomena. Thus, studies on globalization as it relate to growth and social indicators relied heavily on new globalization index, such as; MGI and KOF indices which appeared in the monumental works of Dreher, *et al* (2008; 2010), Martens & Amelung (2010) and Martens, *et al* (2010), but they could not capture the essence of economic channels of globalization.¹

In an attempt to measure globalization, Dreher (2006) developed an index of globalization covering its three main dimensions: economic integration, social integration and political integration. He concluded that globalization indeed promotes growth. Among the three dimensions only economic globalization showed positive relationship with economic growth, while the other two dimensions showed negative relationship, even though these dimension's data; social integration and political integration are base on proxies.

We further saw the application of MGI and KOF globalization indices in the works of Martens, *et al* (2010) and Dreher, *et al* (2010). In their paper, Martens, *et al* (2010) argued that socio-cultural factors change as a result of globalization and also describe the application of MGI and KOF globalization indices to social phenomena. While, Dreher, *et al* (2010) demonstrated the application of KOF and MGI globalization indices in their article to abreast our understanding of the scoring system. Similarly, Martens & Amelung (2010) applied MGI to measure the severity of economic crisis and their result suggests rising level of globalization increases vulnerability to economic crises while higher levels of globalization increase the opportunities to deal with crisis.

Another new globalization index is the EY annual globalization index which was first developed in 2009, and is based on a comprehensive understanding of the underlying drivers of globalization across five main pillars: openness to trade, capital flows, exchange of technology and ideas, labour movements, and cultural integration. Also, in 2012 EY introduced revisions to the globalization index scoring system and included several new sub-indicators to better reflect the state of pay in the global economy, technology and markets (see www.ey.com/GL).²

Although, these studies; Dreher, *et al*, 2008; 2010; Martens & Amelung, 2010; and Martens, *et al*, 2010 and so forth, were successful in looking at wider scope of social dimensions of globalization with score system of some countries of the world, but they have not illustrate deeply long run economic channels of globalization as it affect growth.

The capitalist economic theory believes that a liberalized global market is the most efficient way to promote growth due to specialization and comparative advantage. Thus, Rao & Vadlamannati (2009) argued that countries which are highly engaged in globalization process are likely to experience higher economic growth, greater affluence, more democracy, and increasingly peaceful conditions. Similarly, Zhuang & Koo (2007) examined the impact of globalization on economic growth and found that Globalization and economic growth in Sub Sahara Africa has a significant positive effect on economic growth for all countries. However, China and India benefited

most, followed by the developed countries while the least were other developing countries.

Moreover, Stiglitz (2002) explained that globalization could be either success or failure, depending on its management. There is success when it is managed by East Asian countries. Their success was based on exports, closing technological, capital and knowledge gaps. Thus, the countries who received the benefits from globalization shared their profits equally. However, there is a failure when it is managed by international institutions. He opined that globalization has brought huge benefits to East Asian success especially on the opportunities for trade and increased access to markets and technology. He argued that, the problem is not with globalization, but with how it has been managed by the international economic institutions, that set the rules of the game. In addition, Bhagwati (2005) highlighted the benefits of free trade which becomes the engine of growth and raises employment.

Generally, economic theory asserts that financial globalization can improve macroeconomic policies and promote economic growth. Also, Brasoveanu, *et al* (2008) asserted that financial development can affect growth in three main ways, including increasing the marginal productivity of capital, reducing resources absorbed by financial intermediaries, and raising the private savings rate. These ideas are consistent with the view that financial intermediation promotes growth because it allows a higher rate of return to be earned on capital, and growth in turn provides a means to implement costly financial measures. On FDI along, Borensztein, *et al* (1998) found that the effect of FDI on economic growth is dependent on the level of human capital available in the host economy. Hence, globalization could be either success or failure depending on its management

3. Methodology

This section focuses on the research methodology. It discusses; data sources, empirical models and method of analysis. The method of analysis includes; Classical Least Square model; Granger Causality test; Augmented Dickey-Fuller and Johansen Cointegration Techniques.

3.1 Data Sources & Variables Description

The entire data of this research was obtained from quantitative publications and the variables are generally defined in their real terms. Specifically, the data for the following variables; GDP, OPEN, FDI, EXTR, and AVWP were sourced from Central Bank of Nigeria's (CBN) *Statistical Bulletin* publication; while, FEXR and EXDST were obtained from Financial Times London's (FTL) and Debt Management Office's (DMO) publication respectively (Table 1). It should be noted that, external debt stock stands as a proxy of net foreign indebtedness.

Table 1: Summary of Variables and Data Sources

Variables	Abbreviation	Measurement	Sources
Gross Domestic Product	GDP	constant market prices	CBN
Openness	OPEN	(X + M)/ GDP	CBN
Foreign Direct Investment	FDI	Cumulative	CBN
External Reserves	EXTR	Aggregate	CBN
Foreign Exchange Rate	FEXR	Cross Exchange Rate	CBN
Average World Prices	AVWP	Average of aggregate prices of total domestic produced of the World	FTL
External Debt Stock	EXDST	As a proxy of net foreign indebtedness	DMO

Source: Authors Compilation.

3.2 Empirical Models

Following the econometric procedure, we first present our functional form and empirical regression model as;

Regression Model

The Nigerian growth-globalization equation can be specified in the functional form as follows;

$$GDP = f(OPEN, FDI, EXTR, FEXR, AVWP, EXDST) \dots\dots\dots (a)$$

Thus, the empirical model can be specified as;

$$GDP_t = \beta_0 + \beta_1 OPEN_t + \beta_2 FDI_t + \beta_3 EXTR_t + \beta_4 FEXR + \beta_5 AVWP + \beta_5 EXDST + e_t \dots\dots\dots (b)$$

Where; GDP is defined as Gross Domestic product at constant market prices, OPEN is denoted as Openness which is defined as the share of imports plus exports divided by overall output (X + M)/ GDP; FDI is defined as Foreign Direct Investment; EXTR is denoted as External Reserves, which is the financial asset of a country available to its monetary authorities to meet temporary imbalanced in external payments position; FEXR is denoted as Foreign Exchange Rate, which is the value of Naira against the foreign currency; AVWP is denoted as Average World Prices and measures the aggregate prices of total domestic produce; EXDST is defined as external debt stock and measures the amount of debts owned by a country to its creditors.; β_0 is a constant; β_1, \dots, β_5 are parameters in the model; e_t is disturbance term.

Causality Models

The models of causality test are specified as follows:

$$GDP = \sum \beta_1 GDP_{t-1} + \sum \beta_2 OPEN_{t-1} + \sum \beta_3 FDI_{t-1} + \sum \beta_4 EXTR_{t-1} + \sum \beta_5 FEXR_{t-1} + \sum \beta_6 AVWP_{t-1} + \sum \beta_7 EXDST_{t-1} + \mu_{t1} \quad (1)$$

$$OPEN = \sum \phi_1 GDP_{t-1} + \sum \phi_2 OPEN_{t-1} + \sum \phi_3 FDI_{t-1} + \sum \phi_4 EXTR_{t-1} + \sum \phi_5 FEXR_{t-1} + \sum \phi_6 AVWP_{t-1} + \sum \phi_7 EXDST_{t-1} + \mu_{t2} \quad (2)$$

$$FDI = \sum \alpha_1 GDP_{t-1} + \sum \alpha_2 OPEN_{t-1} + \sum \alpha_3 FDI_{t-1} + \sum \alpha_4 EXTR_{t-1} + \sum \alpha_5 FEXR_{t-1} + \sum \alpha_6 AVWP_{t-1} + \sum \alpha_7 EXDST_{t-1} + \mu_{t3} \quad (3)$$

$$EXTR = \sum \pi_1 GDP_{t-1} + \sum \pi_2 OPEN_{t-1} + \sum \pi_3 FDI_{t-1} + \sum \pi_4 EXTR_{t-1} + \sum \pi_5 FEXR_{t-1} + \sum \pi_6 AVWP_{t-1} + \sum \pi_7 EXDST_{t-1} + \mu_{t4} \quad (4)$$

$$FEXR = \sum \gamma_1 GDP_{t-1} + \sum \gamma_2 OPEN_{t-1} + \sum \gamma_3 FDI_{t-1} + \sum \gamma_4 EXTR_{t-1} + \sum \gamma_5 FEXR_{t-1} + \sum \gamma_6 AVWP_{t-1} + \sum \gamma_7 EXDST_{t-1} + \mu_{t5} \quad (5)$$

$$EXDST = \sum \theta_1 GDP_{t-1} + \sum \theta_2 OPEN_{t-1} + \sum \theta_3 FDI_{t-1} + \sum \theta_4 EXTR_{t-1} + \sum \theta_5 FEXR_{t-1} + \sum \theta_6 AVWP_{t-1} + \sum \theta_7 EXDST_{t-1} + \mu_{t6} \quad (6)$$

4. Empirical Results

To assess how channels of globalization influence economic growth, the estimates of the growth- globalization equation (b) is presented in Table 2, The coefficient of the intercept is positive which means it exert a positive relationship with the dependent variable and is statistically significant at 1% level of significance as indicated by its probability value of 0.008. The coefficient of openness (OPEN) is negative and statistically significant at 1% level of significance. This contradicts with theoretical postulation that is expected to be positive. This variable is an index that will boost trade between Nigeria vis-a-vis the rest of the World. This means that, a unit rise in openness leads to reduction in economic growth by 1103992 units. The explanation is that exports of tradable have been declining sluggishly. Moreover, foreign direct investment (FDI) is positively related with the economic growth and it is significant at 1% level as indicated by its probability value of 0.0022. This is in line with theoretical expectation, which implies that a unit increases in foreign direct investment increases the economic growth by 9.94 units. This demonstrates the participation of foreign capital investment in Nigeria.

Similarly, the coefficients of external reserves (EXTR) and foreign exchange rate (FEXR) are both not significant at any level of significance, but external reserves have a negative sign while foreign exchange rate is positive. The coefficient of external reserves is contrary to the theory which should have been positive.

Table 2: OLS Estimates of the Growth-Globalization Equation Dependent Variable: GDP

Independent Variables	Coefficient
Constant	470743.9 (2.91) ***
OPEN	-1103992 (-3.51) ***
FDI	9.936816 (3.45) ***
EXTR	-25.24910 (-1.05)
FEXR	687.3075 (1.63)
AVMP	186.3814 (3.21) ***
EXDST	0.896329 (9.69) ***
N	30
R ²	0.99
Adj. R ²	0.98
D.W	1.51
F-Stat	305.68

Source: Authors computations

Notes: Figures in parenthesis are t-values

*** Significant at 1%; ** Significant at 5%; * Significant at 10%.

Notwithstanding, the positive external reserves are normally good position of the balance of payments and is a sign of economic growth, a negative means a deflated external reserves. By implication, a rise of external reserves index by one unit leads to a fall in economic growth by - 25.3 units. Moreover, foreign exchange rate can carry any sign base on *apriori* grounds; since it is ambiguous it has a positive sign, meaning that a unit escalation in foreign exchange rate accelerates economic growth tremendously by 687.3 units (see Table 2).

Moreover, the average world prices (AVWP) coefficient exerts positive relationship with economic growth and it is significant at 1% level of significance. The sign of average world prices is theoretically ambiguous. Thus, this is positive, and in accordance with theoretical expectation. It also implies that a unit upsurge of average world prices has the propensity to improve growth by 186.4 units.

Furthermore, external debt stock (EXDST) coefficient exerts a positive relationship with economic growth, but this violet the *apriori* expectation of negative relationship. A possible explanation is the mounting of debt stock in Nigeria from 1986 to 2003. The country exited London club and Paris club credits in 2004. The debt borrowed has been use to infused growth in the economy. Also, external debt stock variable is statistically

significant at 1% level of significance. This implies a rise of external debt stock by 1% raises the gross domestic product by 89.6%.

In addition, the measure of goodness of fit is very high at 98.8%. Likewise, adjusted value of the coefficient of multiple determinations is 98.4% which is very high as well. All this suggests a very high degree of explanatory power of the independent variables. Moreover, the Durbin-Watson statistic value of 1.51 indicates the presence of autocorrelation. This signifies the need to conduct unit root test for this time series data. The F-statistic measures the overall significance of joint parameters in the model, its value stood at 305.7 which is greater than 2 according to the rule of thumb. This implies that all the parameters of the model are jointly significant at 1% level as indicated by its probability value (Table 2).

The results of unit root test are contained in Table I, II, III, IV, V, VI and VII. The results revealed that all the variables of the model are found to be stationary. The variables; GDP, FDI, EXTR and EXDST are found to be stationary at 5% and 10% level (see, Table I, III, IV and VII in the Appendix) respectively. While OPEN, FEXR and AVWP are found to be stationary at 1%, 5%, and 10% level (see Table II, V and VI in the Appendix) correspondingly. Furthermore, external reserves (EXTR) and foreign exchange rate (FEXR) are found to be stationary at level (d(0)), as indicated by their ADF results at levels less than the critical values in negative direction (Table IV and V in the Appendix). Whereas GDP, openness of the economy (OPEN), average world prices (AVWP) and external debt stocks (EXDST) are found to be stationary at first difference (d(1)), which is indicated by ADF results at all levels less than the critical values which is in negative direction.

The results of causality are contained in Table 3 below. The results revealed that OPEN does not granger cause GDP, but GDP granger cause OPEN. Also, the result revealed two-way causation existed between FDI and GDP; EXTR and GDP; EXDST and GDP; GDP granger cause FEXR, but both FEXR and AVWP does not granger cause GDP. It further indicated one-way causation between OPEN and EXTR, FEXR, AVWP which runs from OPEN to EXTR, FEXR and AVWP. Also, there is no causation discovered between OPEN and FDI, EXDST. In addition, the result depicts a one-way causation existing between EXTR and FDI, but runs from FDI to EXTR. More so, one-way causation exist between FDI and FEXR, AVWP, EXDST its runs from FDI to FEXR, AVWP and EXDST.

However, there is no causation existing between FEXR and EXTR. It is also observed that there is two-way causation between AVWP and EXTR and EXDST while one-way causation exists between EXDST and EXTR which runs from EXDST to EXTR.

Table 3: GRANGER CAUSALITY TEST

Sample: 1975 2004

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
OPEN does not Granger Cause GDP	28	1.03470	0.3713
GDP does not Granger Cause OPEN		4.17283	0.0284
FDI does not Granger Cause GDP	28	6.76436	0.0049
GDP does not Granger Cause FDI		2.71655	0.0873
EXTR does not Granger Cause GDP	28	6.57680	0.0055
GDP does not Granger Cause EXTR		2.78196	0.0828
FEXR does not Granger Cause GDP	28	1.02814	0.3735
GDP does not Granger Cause FEXR		3.07436	0.0656
AVWP does not Granger Cause GDP	28	1.75603	0.1951
GDP does not Granger Cause AVWP		6.05864	0.0077
EXDST does not Granger Cause GDP	28	2.16893	0.1371
GDP does not Granger Cause EXDST		9.25328	0.0011
FDI does not Granger Cause OPEN	28	1.22146	0.3132
OPEN does not Granger Cause FDI		0.99874	0.3838
EXTR does not Granger Cause OPEN	28	1.35626	0.2775
OPEN does not Granger Cause EXTR		4.62034	0.0206
FEXR does not Granger Cause OPEN	28	0.13915	0.8708
OPEN does not Granger Cause FEXR		6.69506	0.0051
AVWP does not Granger Cause OPEN	28	2.58826	0.0969
OPEN does not Granger Cause AVWP		3.66096	0.0417
EXDST does not Granger Cause OPEN	28	1.71433	0.2023
OPEN does not Granger Cause EXDST		1.40194	0.2664
EXTR does not Granger Cause FDI	28	0.73735	0.4894
FDI does not Granger Cause EXTR		2.45431	0.1081
FEXR does not Granger Cause FDI	28	0.50478	0.6102
FDI does not Granger Cause FEXR		4.22708	0.0273
AVWP does not Granger Cause FDI	28	1.82177	0.1843
FDI does not Granger Cause AVWP		20.0631	9.E-06
EXDST does not Granger Cause FDI	28	1.77729	0.1915
FDI does not Granger Cause EXDST		3.11291	0.0636

FEXR does not Granger Cause EXTR	28	1.62079	0.2195
EXTR does not Granger Cause FEXR		0.14154	0.8688
AVWP does not Granger Cause EXTR	28	3.85005	0.0361
EXTR does not Granger Cause AVWP		3.16591	0.0610
EXDST does not Granger Cause EXTR	28	3.17076	0.0608
EXTR does not Granger Cause EXDST		1.79417	0.1888
AVWP does not Granger Cause FEXR	28	4.52235	0.0221
FEXR does not Granger Cause AVWP		1.22825	0.3113
EXDST does not Granger Cause FEXR	28	0.67494	0.5190
FEXR does not Granger Cause EXDST		71.2829	1.E-10
EXDST does not Granger Cause AVWP	28	3.02257	0.0683
AVWP does not Granger Cause EXDST		3.24124	0.0575

Source: Authors computations

Again, result indicated that there is one-way causation between AVWP and FEXR which runs from AVWP to FEXR. Lastly, we discover lack of causation between some important variables of the model which pave way for conducting Johansen cointegration test.

In view of the above, the Johansen cointegration test result is presented in Table VIII of the Appendix. The result confirms the existence of long-run relationship between GDP, and the included variables as indicated by the TRACE-Statistic and the Max- eigen value. The TRACE-statistics results revealed that there are six (6) cointegrating equations at 5% level, while the Max-eigen value also indicates six (6) cointegrating equations at 5% level. This is indicated by TRACE–Statistics value of 2.6152 less than the critical value of 3.8415 signifying acceptance of the null hypothesis of at most six (6) cointegrating equations exist, this is also confirmed by the Max-eigen value. Therefore, there is long run equilibrium relationship between the variables.

5. Conclusion and Recommendations

This paper investigates how channels of globalization affect economic growth in Nigeria and it employs multi-dimensional econometric procedure in establishing the relationship. The models are: Ordinary Least Square (OLS); Granger Causality test techniques; Augmented Dickey-Fuller and Johansen Cointegration Techniques. The results of unit root suggested that some of the variables are stationary at level (EXTR and FEXR), while some at first difference (GDP, OPEN, FDI, and AVWP). Although causality test revealed that there is causation between some variables and no causation

between some with few cases of bi-directional causation. Furthermore, the cointegration result indicated the existence of long run relationship between the variables of the model with six cointegrating equations. The study further showed that openness and external reserve affect growth negatively whereas foreign direct investment, foreign exchange rate, average world price and external debt stock affect growth positively. Thus, this research is consistent with the findings of Stiglitz (2002) to some extent on the beneficial and none beneficial aspects of globalization and is not consistent with Dreher (2006), Dreher, *et al* (2008; 2010), Martens & Amelung (2010) and Martens, *et al* (2010). It also shows more positive effects of globalization than negative.

Consequently, for meaningful growth to be achieved in Nigeria, openness and external reserve should be reduced. However, foreign direct investment (FDI), foreign exchange rate (FEXR), average world price (AVWP) and external debt stock (EXDST) could be encouraged. Lastly, this research recommends the pursuance of policy aiming at reducing openness and external reserve, encouraging foreign direct investment, ensuring foreign exchange rate, average world price and external debt stock stability, as well as channeling external debt to productive sectors of the economy in order to achieve a sustained economic growth. Also, external reserve should be utilized in investment rather than kept as reserves. Hence, these measures could greatly promote growth.

Notes:

1. KOF index of globalization only measures three main dimensions of globalization; economic, social, and political with five sub-indices (for details see globalization.kof.ethz.ch) and the acronym for MGI is Maastricht Globalization Index.
2. The acronym for EY is Ernst & Young Global limited. 'Looking beyond the obvious: globalization and new opportunities for growth (see www.ey.com/GL).

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APPENDIX

Table I: Unit root test for GDP

Null Hypothesis: D(GDP) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.079977	0.0398
Test critical values: 1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

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

Table II: Unit root test for OPEN

Null Hypothesis: D(OPEN) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-7.223164	0.0000
Test critical values: 1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

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

Table III: Unit root test for FDI

Null Hypothesis: D(FDI) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.259545	0.0269
Test critical values: 1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

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

Table IV: Unit root test for EXTR

Null Hypothesis: EXTR has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
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	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.418733	0.0185
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

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

Table V: Unit root test for FEXR
 Null Hypothesis: FEXR has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.779417	0.0006
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

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

Table VI: Unit root test for AVWP
 Null Hypothesis: D(AVWP) has a unit root
 Exogenous: Constant
 Lag Length: 1 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.868895	0.0006
Test critical values:		
1% level	-3.699871	
5% level	-2.976263	
10% level	-2.627420	

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

Table VII: Unit root test for EXDST
 Null Hypothesis: D(EXDST) has a unit root
 Exogenous: Constant
 Lag Length: 0 (Automatic - based on SIC, maxlag=2)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.435507	0.0181
Test critical values:		
1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

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

Table VIII: Jonhasen Cointegration Test

Date: 05/07/13 Time: 21:28
 Sample (adjusted): 1977 2004
 Included observations: 28 after adjustments
 Trend assumption: Linear deterministic trend
 Series: GDP OPEN FDI EXTR FEXR AVWP EXDST
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.999538	596.1951	125.6154	0.0001
At most 1 *	0.999279	381.1859	95.75366	0.0001
At most 2 *	0.908016	178.6029	69.81889	0.0000
At most 3 *	0.865415	111.7909	47.85613	0.0000
At most 4 *	0.737577	55.63517	29.79707	0.0000
At most 5 *	0.426371	18.17679	15.49471	0.0193
At most 6	0.089170	2.615160	3.841466	0.1058

Trace test indicates 6 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.999538	215.0092	46.23142	0.0000
At most 1 *	0.999279	202.5830	40.07757	0.0001
At most 2 *	0.908016	66.81200	33.87687	0.0000
At most 3 *	0.865415	56.15574	27.58434	0.0000
At most 4 *	0.737577	37.45838	21.13162	0.0001
At most 5 *	0.426371	15.56163	14.26460	0.0310
At most 6	0.089170	2.615160	3.841466	0.1058

Max-eigenvalue test indicates 6 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Unrestricted Cointegrating Coefficients (normalized by b*S11*b=I):

GDP	OPEN	FDI	EXTR	FEXR	AVWP	EXDST
8.91E-07	0.161777	4.13E-06	1.37E-05	-0.019546	0.000757	-2.90E-06
1.56E-06	-1.088133	-8.89E-05	-4.30E-06	0.004486	0.001363	-1.64E-06
-1.48E-06	4.869430	9.12E-05	3.19E-05	-0.003516	-0.000848	1.80E-06
-1.08E-05	-1.058742	-3.56E-05	-0.000110	0.026973	0.002570	1.45E-05
-7.06E-06	8.399485	0.000104	-0.000697	0.020010	-0.001018	8.67E-06
5.28E-06	11.77643	4.37E-06	-0.000301	-0.005870	-0.002443	-3.75E-06
3.46E-07	-3.387110	6.15E-05	-0.000478	-0.004725	-0.000868	-4.41E-08