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# Does trade promote growth in developing countries? Empirical evidence from Nigeria

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## Abstract

This paper examines the impact of trade on economic growth using in Nigeria as a case study. Theoretical postulations assert the positive effect of trade on economic growth, but empirical evidences are inconclusive. While some studies find trade to be beneficial to all countries engaging in it, others argue that trade has only benefitted developed countries at the expense of less developed ones. Contributing to this argument is the core of this study. This study makes use of the ordinary least square techniques to examine the effect of trade on economic growth in Nigeria using data from 1980 to 2010. The result of the study shows that trade, foreign direct investment, government expenditure and exchange rate have a significant positive impact on economic growth in Nigeria. Based on the finding, we recommend that government should create an enabling environment that would facilitate trade and foreign direct investment. Efforts should also be geared towards improving expenditure and ensuring exchange rate stability.

**Keywords:** Trade, Growth, Developing countries, Nigeria

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## **1. Introduction**

The role of foreign trade in economic development is considerable. The classical and neo-classical economists attached so much importance to foreign trade in a nation's development that they regarded it as an engine of growth. Over the past several decades, the economies of the world have become greatly connected through international trade and globalization. Foreign trade has been identified as the oldest and most important part of a country's external economic relationships. It plays a vital and central role in the development of a modern global economy. Its impact on the growth and development of countries has increased considerably over the years and has significantly contributed to the advancement of the world economy. The impact of foreign trade on a country's economy is not only limited to the quantitative gains, but also structural change in the economy and facilitating of international capital flow. Trade enhances the efficient production of goods and services through allocation of resources to countries that have comparative advantage in their production. Foreign trade has been identified as an instrument and driver of economic growth (Frankel and Romer, 1999).

The basis for foreign trade rests on the fact that nations of the world do differ in their resource endowment, preferences, technology, scale of production and capacity for growth and development. Countries engage in trade with one another because of these major differences and foreign trade has opened up avenues for nations to exchange and consume goods and services which they do not produce. Differences in natural endowment present a case where countries can only consume what they have the capacity to produce, but trade enables them to consume what other countries produce. Therefore countries engage in trade in order to enjoy variety of goods and services and improve their people's standard of living.

Over the past decades the volume of foreign trade between nations of the world has increased considerably. Particularly, Nigeria has witnessed a sharp rise in the volume and value of trade with other nations of the world. Foreign trade statistics according to EIU Country Report of 2009 reveals that in 2007, total export was valued at \$61.8 billion (free on board) while import was valued of \$38.7 billion (free on board). Further breakdown of the composition of import and export shows that fuel and mining products, agricultural products and manufactures account for 97%, 2.2% and 0.8% of total export respectively while machinery, agricultural products and fuel and mining products account for 72.3%, 23.7% and 4% of total import respectively. According to statistics released by the National Bureau of Statistics, Nigeria's total trade figure for the second quarter of 2009 was ₦ 2, 210.3 trillion. Though, this figure reflects a decline of 37.9 % when compared with the corresponding period in 2008, it indicates an increase of 11.9% over that of the first quarter of 2009 and this trend is expected over the long term due to the persistent call for increased trade liberalization to foster economic growth across the world.

There has been increasing interest in the study of foreign trade and its benefits particularly to developing countries. Until recently, there has been a general consensus that every country benefits from trade. However, recent empirical investigation has shown that less developed countries has not benefitted from trade as much as their developed counterparts. Besides, the poor state of these economies in terms of gross domestic product, per capita income, unemployment, human capital and poverty level despite several decades of participation in trade has further heightened the trade-development debate. For instance,

Nigeria's volume of trade has increased significantly over the years without a corresponding and major increase in growth and development. While the classical and neo-classical schools of thought see foreign trade as beneficial to growth and development, other schools/authors hold that foreign trade has only contributed to international inequality, a situation where developed countries have become richer at the expense of less developed ones. Empirical studies have also not been conclusive. For instance, according to Appleyard et al. (2006), there is a common misconception that China's economic growth is taking place at the expense of its many trading partners-Nigeria being its largest trading partner in Africa. However, in contrast to the above assertion, a critical overview of the impact of Chinese investment and trade on the growth and development of Nigeria as explicated by Nabine (2009) shows that in the short term, the bilateral trade doesn't contribute to Nigeria's economic growth but the long-term relationship can enhance Nigeria's economic growth.

The difference in opinion and empirical findings on the impact of foreign trade on economic growth is of serious concern, especially in developing countries; and necessitates further researches. This is the gap that this paper fills. The study contributes to the debate on the impact of trade on economic growth using Nigeria as a case study. The objective of this study is to investigate whether foreign trade promotes or hinders economic growth. This study will also identify other factors that influence economic growth in Nigeria. The paper is structured as follows: Section one is the introduction. Literature review is the focus of section two. The third section is on data source, model specification and methodology. The results are presented and discussed in section four while the final section is devoted to summary of findings, conclusions and policy implications.

## **2. Trade-growth debate: a review of empirical evidence**

International trade brings welfare and efficiency gains to all countries irrespective of their initial conditions, level of development, technological abilities and natural resources endowments (Krugman and Helpman, 1988). Empirically, the effect of foreign trade on economic growth has been an important and controversial subject for several decades. A number of studies, using different approaches, have found growth to be enhanced by trade openness, or liberalization (Krueger, 1978; Feder, 1983; Ram, 1985 and 1987; Balassa, 1978 and 1985; Dollar, 1992; Edwards, 1998; Ben-David et al., 2000; among others). On the other hand, some studies like Singer (1950), Prehisch (1962), Kavoussi (1985), Singer and Gray (1988), Sachs (1987 and 1989) and Taylor (1991) have argued that trade or trade expansion may not be beneficial for the economic growth of all countries at all times. Frankel and Romer (1999) find significant impact of trade openness on level of per capita income. They posit that trade possibilities enhance growth through greater capital stock, stock of education and higher total factor productivity. They, however, warned explicitly against drawing inferences for trade policies based on their results as it brings different factors into play. Cooper (2001) addressed the influence of foreign trade and investment on growth via inequality and distribution of income in developing countries. He argued that survey of theory and empirical evidence are inconclusive. He states that there are

no compelling theoretical reasons to believe, in general, that trade promotes growth and empirical works supporting a connection at country level has been heavily criticized on methodological grounds (Rodriguez and Rodrick, 2000). He further argued that it would be difficult to believe that trade liberalization has not contributed significantly to the growth of the world economy in the second half of the 20<sup>th</sup> century. He concluded that trade was a product of economic growth; and that the world economy would have grown as rapidly as it did even if trade barriers are as high as they were in the 1950s implying that other factors aside trade also promotes growth. Rodriguez and Rodrik (2000) provided a critique of the various studies that concluded that liberal trade fosters growth. They found fault with the various data, variables, specifications and methodology adopted by most of these studies on the ground that they were based on anecdotes and case studies. They, however, supported Dollar and Kraay (2000) that debunked the generalizations of these studies by using international economic data for over 100 countries. In another study, Michael and Ruhwedel (2005) examined the link between production variety and economic growth using panel data for 14 transition countries. Their results show that open economies attain higher economic growth than closed ones. They attributed the gap to the role of international trade and co-operation. Coe and Helpman (1995) using time-series data show that trade affect economic growth positively through technological transfer. Similarly, Bayoumi et al. (1999) assert that research and development, its spillover and trade play important roles in promoting economic growth both in industrial and developing countries. The results of Coe and Moghadam (1993) suggests that trade and capital have positive influence on growth in France. Lin (2000) investigated the relationship between trade and economic growth based on China's national data for the period 1952-1997. The results reveal that the growth rate of export, growth rate of import, growth rate of the volume of trade and labour force growth were positively related to economic growth. Maddison (1998) showed that the gradual trade liberalization and capital flows in the OECD countries stimulated Western Europe's reconstruction, recovery and catch up growth. Also, the outward orientation, gradual trade liberalization and inward investment in some East Asian countries like China, Hong Kong and Singapore have significantly contributed to their sustained economic growth. Drabek and Laird (1998) noted that developing countries with progressively more liberal trade policies are those with growing ratios of trade, inward investments, and national income and its growth rates. Earlier studies by Singer (1950) and Prehisch (1962) disagreed with the widely held notion that free market and trade would solve the development problem in poor countries. They calculated the net terms of trade of developing countries and found that the terms of trade of these countries have worsened over the years. They concluded that the division of labour between rich countries and poor ones has brought about a state of underdevelopment in less developed countries. Moreover, Appleyard et al. (2006) noticed that there is a common misconception that China's economic growth is taking place at the expense of its many trading partners-Nigeria being its largest trading partner in Africa. Contrarily, a critical overview of the impact of Chinese investment and trade on the growth and development of Nigeria as explicated by Nabine (2009) shows that in the short term, the bilateral trade doesn't contribute to Nigeria's economic growth but the long-term relationship can enhance Nigeria's economic growth.

A number of empirical studies on the relationship between export and economic growths have found export growth to be associated with increase in output or GDP (Michaely, 1977; Tyler, 1981 and Balassa,

1985). Michaely (1977) used simple regression and correlation analysis to investigate the relationship between exports and growth. He found that in less developed countries, there was a weak correlation. He, however, raised an important issue as to determine the minimum level of development a country has to attain in order to benefit from trade. As a follow-up on Michaely (1977) work, Tyler (1981) worked on a sample of 55 developing countries. He confirmed the positive relationship between expansion of exports and increase in production. In his analysis, he observed that it is necessary for some countries to achieve a minimum level of development in order to benefit from export expansion, especially of manufactured exports. This conclusion was later supported by Jude and Pop-Silaghi (2008) in the case of Romania. Rana (1988) questioned Balassa (1985)'s finding that the contribution of exports to growth has increased in the post-1973 period compared with the pre-1973 period. He argued that Balassa's analysis used heterogeneous samples. He used a balanced sample of 45 developing countries and found that the contribution of export, although significant but reduced in the post-1973 period. Also, some studies built on the import-growth relationship have found positive impact of import on growth especially through the impact of technology imports in the production process of developing countries (Perreira, 1996). Grossman and Helpman (1991) demonstrated the importance of imports of foreign technology in the growth process of a country. He explained that the importation of foreign equipments creates a more efficient production system, increases productive capacity, global output, technological capacity development and economic growth.

International trade also impacts the economic growth of countries through the attraction of foreign direct investment (FDI). According to Lall (2000) and Te Velde (2001), the main channels through which FDI contributes to economic growth are technology transfer, capital accumulation, access to international market, job creation and managerial and marketing practices; and Blomstrom and Kokko (2003) added that trade and FDI can only facilitate growth after the minimum level of human capital, infrastructure and technology have been met (Karbasi et al., 2005). Karbasi et al. (2005) analyzed the role of FDI and trade in promoting economic growth in 42 selected developing countries. They argued that FDI, human capital, trade and domestic investment are important source of economic growth for developing countries. They found a positive significant relationship between trade and growth. They concluded that the contribution of FDI to economic growth is enhanced by its positive interaction with human capital and sound macroeconomic policies and institutional stability. This point is also confirmed by Jude and Pop-Silaghi (2008) who concluded that the FDI induced a false effect on growth in the Romanian economy when other factors of growth are omitted. In the same vein, Fogel (2006) opined that for China to achieve the desired objective of quadrupled rate of GDP by 2020, improvement in quality of education, political stability and institutions' quality should be the key major priorities. Fosu and Magnus (2006) examined the long-run impact of FDI and trade on economic growth in Ghana between 1970 and 2002. They found a long-run relationship between economic growth and its determinants in the model. The results showed a positive and negative growth effect of trade and FDI respectively. This result is in agreement with Jude and Pop-Silaghi (2008) for Romania.

### 3. Data and research methodology

This study relies heavily on data collected from secondary sources. The data were collected from Statistical Bulletin of the Central Bank of Nigeria. The data covers the period from 1980 to 2010. The variables of interest in this study are: gross domestic product (GDP), foreign direct investment, value of import and export trade, exchange rate and government expenditure.

The econometrics model is derived from a production function in which the level of a country's productivity depends on FDI, total value of trade, exchange rate and government expenditure. The mathematical model will be based on the methodology adopted by Jude and Pop-Silaghi (2008) for Romania and Karbasi, Mohamadi and Ghofrani (2005) for 42 developing countries with some slight adjustments based on relevance to Nigeria and availability of data. The technique of analysis is the ordinary least square (OLS) regression method.

The dependent variable in this model is economic growth which is proxied by Gross Domestic Product. The explanatory variables include foreign trade which is measured by the sum of total import and export, foreign direct investment, exchange rates and government expenditure. The dependent and explanatory variables except exchange rates were in Million Naira; but they were logged so as to bring the data to the same level.

- The variables are coded as thus:
- Economic Growth measured by GDP – LOGGDP
- Foreign Trade measured by the sum of import and export – LOGTT
- Foreign Direct Investment – LOGFDI
- Government Expenditure – LOGGEXP
- Exchange Rates - EXCHR

Hence, the mathematical form of the model is stated as follows:

$$\log\text{GDP} = f(\log\text{TT}, \log\text{FDI}, \log\text{EXCHR}, \log\text{GEXP})$$

$$\log\text{GDP} = \beta_0 \pm \beta_1 \log\text{TT} + \beta_2 \log\text{FDI} + \beta_3 \log\text{EXCHR} \pm \beta_4 \log\text{GEXP} + \mu$$

where,

$\beta_0$  is the constant of the model,

$\beta_1, \beta_2, \beta_3,$  and  $\beta_4$  are the coefficients of the explanatory variables, and

$\mu$  is the stochastic error term that captures the effect of other variables not included in the model.

The signs of these variables are based on apriori expectation. That is, the direction of the relationship between the respective independent variables and the explained variable is according to their relationship in standard economic theory.

Therefore, based on economic theory, the following should be expected.

$$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$$

This study uses the ordinary least square technique. This technique will emphasize regression and correlation analysis which will help to derive estimates of the parameters as well as determine the nature, direction and degree of the relationship between the explanatory and dependent variables. Specifically, the mode of the technique is the single equation regression model. The ordinary least square method produces the best linear unbiased estimates.

#### 4. Results and analysis

The analysis was conducted with the use of the E-views software, and the results in mathematical form are presented below.

$$\text{Log GDP} = 2.197 + 0.560 \log \text{TT} + 0.323 \log \text{GEXP} + 0.338 \log \text{FDI} + 0.004 \log \text{EXCHR} + e$$

|          |       |       |       |       |       |
|----------|-------|-------|-------|-------|-------|
| <i>t</i> | 6.016 | 6.159 | 3.219 | 3.896 | 3.853 |
|----------|-------|-------|-------|-------|-------|

Adjusted R<sup>2</sup> = 0.84 F-statistic = 1683.65 DW = 1.755

The result presented above shows the effect of foreign trade on economic growth in Nigeria. The explanatory variables include total trade, government expenditure, foreign direct investment and exchange rate. Looking at the sign of the coefficients of these variables, we found that they all satisfy a priori/ economic expectation. The positive signs depict a positive relationship between the variables and gross domestic products, which is in line with economic theory. The constant (2.197) represents the value that GDP will assume if all the variables are zero. That is, if there is no trade, foreign direct investment, government expenditure and exchange rates, the gross domestic product of Nigeria will be 2.197. It was also discovered that a unit increase in foreign trade, other things being equal, will increase GDP by 0.56 and vice-versa. Similarly, a unit increase in government expenditure will increase GDP by 0.323 and vice-versa. A unit increase in the value of foreign direct investment, other variables held constant, will lead to 0.338 increases in GDP. Finally, a unit increase in the exchange rate will increase GDP by 0.004.

To evaluate the significance of the parameter estimates and the explanatory variables, we use the t-test. We found that the explanatory variables are significant because the table value at 5% level of significance and 28 degree of freedom is 2.048, which is less than the critical t-values of all the variables. The adjusted R-square of 0.84 depicts a high explanatory power of the model. This means that 84% variation in GDP is as a result of variation in trade, foreign direct investment, government expenditure and exchange rates. The F-statistic which measures the overall significance of the regression model shows that the model is significant. The Durbin-Watson statistic shows that the possibility of a serial correlation in the equation is low. This is because the value is close to 2.

## 5. Conclusion and policy implication

This paper examines the impact of trade on economic growth in Nigeria. It also looks at the effect other factors has on economic growth. From this study, we found that foreign trade exerts a significant positive effect on economic growth in Nigeria. FDI, government expenditure and exchange rate also positively impact on economic growth in Nigeria.

Based on these findings, we recommend that government should create an enabling environment that would facilitate the attraction of foreign direct investment into the country. The government should also initiate appropriate economic policies that would improve Nigeria's trade status. Expenditure on projects and infrastructures that would facilitate trade and economic growth should be encouraged, and the monetary authority should give priority to exchange rate stability.

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## Appendix

Dependent Variable: LOGGDP

Method: Least Squares

Date: 07/20/12 Time: 11:17

Sample: 1980 2010

Included observations: 31

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.    |
|--------------------|-------------|-----------------------|-------------|----------|
| C                  | 2.197393    | 0.365238              | 6.016332    | 0.0000   |
| LOGTT              | 0.560313    | 0.090980              | 6.158625    | 0.0000   |
| LOGGEXP            | 0.032286    | 0.147725              | 3.218552    | 0.8288   |
| LOGFDI             | 0.337987    | 0.086760              | 3.895651    | 0.0007   |
| EXCHR              | 0.004149    | 0.001077              | 3.853497    | 0.0008   |
| R-squared          | 0.896449    | Mean dependent var    | 13.70148    |          |
| Adjusted R-squared | 0.845857    | S.D. dependent var    | 2.168054    |          |
| S.E. of regression | 0.139547    | Akaike info criterion | -           | 0.945244 |
| Sum squared resid  | 0.467361    | Schwarz criterion     | -           | 0.709503 |
| Log likelihood     | 18.70603    | F-statistic           | 1683.650    |          |
| Durbin-Watson stat | 1.755352    | Prob(F-statistic)     | 0.000000    |          |