

EMPIRICAL ANALYSIS OF TRADE BARRIERS AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

The impact of trade barriers on economic growth remains an issue that can only be resolved empirically, in view of this, the study investigates the relationship between trade barriers and economic growth in Nigeria over the period of 1970-2006. The study employed ordinary least square regression techniques. The period covered is 37 years. Data was collected on Gross Domestic Product (GDP) which is proxy for economic growth. Trade barriers are in form of tariffs such as import and export duties, quotas and bans. Due to unavailability of required data on import quota and unquantitative nature of ban, data was collected only on import duty and export duty which form tariff variable. Data was also collected on Aggregate export, Aggregate import and ratio of export to GDP. The result showed that Tariff barrier, Aggregate export and openness are positively related to economic growth while Aggregate import and Ratio of export to GDP are negatively related to economic growth. The empirical findings shows that trade barriers have positive and statistical impact on economic growth in Nigeria.

Keywords: Trade, Barriers, Growth and Development

INTRODUCTION

Background of the Study

The debate over the effects of free trade and trade protection in form of barriers on economic growth have occupied a central seat in international and development economics literature for more than a century now. The literature generated by the debate, especially since the 1960s concludes that although trade offers a long term benefit for developing countries, trade liberalization alone is not sufficient for economic growth as some have argued that erecting barriers to shield infant industries from all forms of competition abroad remain a major key to economic development in developing nations.

Despite the fact that, the arguments in favour of trade barriers came in many forms, none of these arguments is generally accepted by most economists. This is because empirical findings on the impact of trade barriers on economic growth have shown mixed results.

Trade barriers are often seen as a redress to the social and economic costs of trade or as a way of enhancing economic advantages. However in most cases economists argue that erecting barriers on trade imposes costs on the economy that exceed the benefit obtained. These costs can arise from insufficient resource allocation, intractable implementation and foreign retaliation.

The precise relationship between the twin sisters, trade barrier and free trade and economic growth has long remains a difficult theoretical issue that is being explored in a variety of ways. The question often asked by international and development economists is that which one lead to a faster economic development, is it free trade or trade protection? Economists are still in search for acceptable answer to this question.

Statement of the Problem

Nigeria has had one of the highest levels of domestic market protection in the world (World Bank 2006). High tariffs and pervasive import prohibitions and other forms of barriers have burdened consumers with high prices and have shielded producers from international competition. The recent adoption of ECOWAS common tariffs with its substantially lower duty rates promises to spur productivity, growth and to make international producers move agile in supplying in domestic and international markets.

In the last few years, there is more understanding in the world that industrialized countries protectionists trade policies are at the expense of developing countries. The World Bank, IMF, UNCTAD

have all change their focus from imposing trade liberalization in developing countries to eliminating tariff and non-trade barriers in the developed countries.

High tariffs, import quota and bans and other forms of barriers have been regarded as impediments to economic growth. Most critics of these barriers have focused on the higher costs of domestically produced goods.

More so, trade barriers undermine investors quest for stability and predictability, which intervention investors argue they value more highly than an optimal investment climate.

Many reasons have emerged as to why governments of nation impose trade barriers; one notable of those reason is the infant industries protection. It was widely conceptualized that protecting the local industries will shield such industry from competition abroad, by so doing the industries will develop, this development will have twinkling down effect on other part of the economy.

In the light of the above, and also in recognition of the fact that many researchers have shown that trade barriers could have a positive effect on growth (see for example Clemens and Williamson (2002) while lee (1996) show that trade barrier is negatively related to growth. We therefore find it necessary to ask the following questions:

What is the nature of the relationship that exists between trade barriers and Economic growth in Nigeria?

Does trade barriers lead to economic growth in Nigeria?

Objective of the Study

The main objective of the study is as follows:

To determine the nature of relationship that exist between trade barriers and economic growth in Nigeria.

To investigate if trade barriers actually lead to economic growth in Nigeria.

Statement of the Hypothesis

The working hypothesis for this study is as follows:

There is no significant relationship between trade barriers and economic growth in Nigeria.

Trade barriers do not lead to economic growth in Nigeria.

Relevance of the Study

The study will be relevant to the Nigeria society in the following ways.

It will provide an empirical evidence of the nature of relationship that exist between trade barriers and economic growth, this will in turn guide policy makers in their trade policies formulation.

It will contribute to literature

It will help us to know if trade barriers actually contribute to economic growth.

Limitation of the Study

Usually trade barriers are in form of tariffs such as import tariff and export tariff, quotas and bans. This study will be restricted to the tariff barriers only. This is due to unavailability of required data on import quota and unquantitative nature of ban.

Theoretical Studies

Few questions have been more vigorously debated in the history of economic thought, and none is more central to the vast literature on trade and development.

The prevailing view in policy circles in North America and Europe is that recent economic history provides a conclusive answer in the affirmative. Multilateral institutions such as World Bank, IMF and the OECD regularly promulgate advice predicated on the belief that openness generates predictable and positive consequence for growth. A report by the OECD (1998) states: "more open and outward oriented economies consistently outperform countries with restrictive trade and (foreign) investment regimes." According to the IMF (1997) "policies toward foreign trade are among the more important factors promoting economic growth and convergence in developing countries".

Basically international trade has been regarded as an engine of growth of any economy, either advanced or less developed economy. But the critical question that has been asked and vigorously debated in the history of economic thought has been "does trade restriction encourage economic growth"? The answer to this question has been found in the plethora of literature and such answer has appeared to be diverse in nature.

Think of a small economy that takes world prices of tradable goods as given. What is the relationship between trade restrictions and real GDP in such an economy? The modern theory of trade policy as it applies to such a country can be summarized in the following three propositions:

In static models with no market imperfections and other pre-existing distortions, the effect of a trade restriction is to reduce the level of real GDP at world prices. In the presence of market failures such as externalities, trade restrictions may increase real GDP (although they are hardly ever the first-best means of doing so)

In standard models with exogenous technological change and diminishing returns to reproducible factors of production (e.g. the neoclassical model of growth), trade restriction has no effect on the long-run (steady-state) rate of growth of output. This is true regardless of the existence of market imperfections. However, there may be growth effects during the transition to the steady state. (These transitional effects could be positive or negative depending on how the long-run level of output is affected by the trade restriction).

In models of endogenous growth generated by non-diminishing returns to reproducible factors of production or by learning-by-doing and other forms of endogenous technological change, the presumption is that lower trade restrictions boost output growth in the world economy as a whole. But a subset of countries may experience diminished growth depending on their internal factor endowments and level of technological development.

Taken together, these points imply that there should be no theoretical presumption in favour of finding an unambiguous, negative relationship between trade barriers and growth rates for the types of cross-national data set typically analysed.

However, Roderick (2000) noted two complications in the above models; first, in the presence of certain market failure, such as positive production externalities in import-competing sectors, the long-run levels of GDP (measured at world prices) can be higher with trade restrictions than without. In such cases, data sets covering relatively short time spans will reveal a positive (partial) association between trade restrictions and the growth of output along the path of convergence to the new steady state.

Second, under conditions of endogenous growth, trade restrictions may also be associated with higher growth rates of output whenever the restrictions promote technologically more dynamic sectors over others. In dynamic models, moreover, an increase in the growth rate of output is neither a necessary nor a sufficient condition for an improvement in welfare.

Since endogenous growth models are often thought to have provided the missing theoretical link between trade openness and long-run growth, it is useful to spend a moment on why such models in fact provide an ambiguous answer. As emphasized by Grossman and Helpman (1991) the general answer to the question "does trade promote innovation in a small open economy" is: "it depends." In particular, the answer varies depending on whether the forces of comparative advantage push the economy's resources in the direction of activities that generate long-run growth (via externalities in research and development, expanding product variety, upgrading product quality, and so on) or divert them from such activities. Grossman and Helpman (1991), Feenstra (1990), Matsuyama (1992), and others have worked out examples where a country that is behind in technological development can be driven by trade to specialize in traditional goods and experience a reduction in its long run rate of growth. Such models are in fact formalizations of some very old arguments about infant industries and about the need for temporary protection to catch up with more advanced countries.

Trade barrier and free trade have long been debated in economic theory and economic history. However, it is possible to say that the precise relationship between them and economic growth remains a difficult theoretical issue that is still being explored in variety of ways.

Arguments for Trade Barriers

Most often, some arguments have been advanced on the need for a country to erect a barrier for free flow of trade, and the argument are briefly discussed below.

Infants Industry Argument

Infant industry is an underdeveloped industry which may not be able to survive competition from abroad. The argument is that such industries should be shielded temporarily with high tariffs or quotas until they develop technological efficiency, economies of scale which will enable them to compete with foreign industries.

National Security Argument

This argument contend that a nation should be as self sufficient as possible in the production of goods needed for war and defense. On the face of it, this plea for protection seems persuasive, but on close examination, one will easily discover that it is political and military argument rather than economic one.

Diversified Economic Argument

According to "diversified economy" theorist, a nation should not put all her eggs in one basket. They contend that increased production is desirable because it enables a nation to build up a variety of industries for greater economic stability. A single-product economy is highly vulnerable to swings in demand-which may be permanent. However, the inefficiencies that may result from forced "unnatural"

diversification and consequent increase in cost which will more than offset any economic gain was overlooked by the theorist.

Wage protection Argument

Advocates of this argument contend that a high wage nation needed tariff or quota to protect their workers from the products of cheap labour abroad. In essence, they are saying that a high wage nation cannot compete with a low wage nation. The inherent problem with this argument is that it is assumed that labour is the only resource that is entering into production. In fact, labour is a resource that is combined in each nation with varying quantities of capital and land. As a result, the products of countries may often be characterized as labour-intensive, land-intensive or capital intensive, depending on the relative proportions of resources that are employed in production.

Employment protection Argument

Supporters of trade barriers often argue that tariffs or quotas are desirable because they reduce imports relative to exports, and thus encourage a favorable balance of trade. This in turn stimulates the export industries and help to bring about a higher level of domestic income, employment and production. However, like previous argument, it should be noted that any benefits in form of higher income and employment, are likely to last long.

Empirical Studies

Several of these empirical studies provided an affirmative answer that trade barrier is correlated with economic growth while others still show a negative relationship between trade barriers and economic growth, and positive relationship between trade liberalization (openness) and economic growth.

For example, Clemens and Williamson (2002) use an economic history approach to study the effects of protection on economic growth from 1860-1950. They employ a sample of 35 countries, using cross-sectional analysis. Their findings show that trade protection favored growth before the second world war, since growth after 1950 coincides with openness.

Mann (2003) also carried out a research on economic consequences of the globalized production and international trade of information technology (IT) hardware. Her results show that increased IT hardware trade between 1995 and 2002 generated a cumulative gain of 230 billion dollars to the USA economy. She concluded that trade openness is the key to economic growth.

Rodriguez and Rodrick (2000) on the study "Trade policy and economic growth", according to the researchers, there is a little evidence that lower tariff and non tariff barriers to trade have strong correlation with economic growth. In the study, the authors show that many researchers specify the notion of openness differently. In formulating their policy strategies, international organization and governments use heavily trade openness, but the empirical evidence from which openness was derived has no systematic support.

Dollar and Krany (2002) conducted a study on the impact of trade openness on growth performance, poverty and inequality in 73 developing countries. They used two criteria for identifying the developing countries that have globalized the fastest: by how fast the share of trade in GDP has risen; and second, by cuts in tariffs. By these criteria's, the top 1/3 of the 73 developing countries in the sample that liberalized the most, double their share of trade to GDP from 16% to 33% and tariffs by 22% point from 57% to 35%. The study concludes that trade liberalization improved growth performance.

Yamkaya (2003) examined the growth effect on 108 economies of a large number of measures on trade openness using economic models and regression, the result shows that on the basis of trade volumes, there is a positive and significant association between trade openness and growth. The findings also show that there is a positive and significant relationship between trade barriers and growth. He concludes that trade barriers in the form of tariff can actually be beneficial for economic growth.

Limitation of Previous Studies

All the available literature at our disposal was conducted outside the shores of this country. The studies were mostly cross-country based with no specific reference to Nigerian situation. Majority of the studies focus on trade liberalization rather than trade barrier. The studies showed mixed results in terms of the impact of trade barrier on economic growth; some show positive relationship while others show negative relationship.

The combination of all the above motivates us to delve into this study so as to fill the existing vacuum.

METHODOLOGY

The Model

Applied Econometric is concerned with the estimation of the parameters of economic relationships and with the prediction (by means of these parameters) of the value of economic variables. The relationships of economic theory which can be measured with one or another econometric technique are caused, that there are relationships in which some variables are postulated as causes of the variation of other variables (Koutsoyianis 1977)

Consequently, this research work adopted the ordinary least square (OLS) regression techniques.

Model Specification

We develop a compact form of our model as follows:

GDP	=	Gross Domestic Product
TARF	=	Tariff Levy on Import and Export
AIMP	=	Aggregate Import
AEXP	=	Aggregate Export
RTEXP	=	Ratio of Export to GDP
OPN	=	Openness

The linear form of equation (1) becomes

$$GDP = B_0 + B_1 \text{ TARF} + B_2 \text{ AIMP} + B_3 \text{ AEXP} + B_4 \text{ REXP} + B_5 \text{ OPN} + U_t \dots \dots \dots (2)$$

Where:

B_0 = Constant

$B_1 - B_5$ are the parameters

U_t = Random error

A long linear form of our model above will take the form of the following:

$$LGDP = B_0 + B_1 \text{ LTARF} + B_2 \text{ LAIMP} + B_3 \text{ LAEXP} + B_4 \text{ LREXP} + B_5 \text{ LOPN} + U_t \dots \dots \dots (3)$$

Techniques for Evaluation of Result

Evaluation based on theoretical criteria under this criteria is a priori expectation (signs and sizes) of the parameter estimates of the variables in the model which will be evaluated to check whether they conform to economic theory.

Evaluation Based on Statistical Criteria

The Coefficient of Determination (R^2)

Thus R^2 explains the total variation in the dependent variable (GDP) caused by variations in the explanatory variables.

The t- test

This test is used to test whether the variables included in the work are significant or not significant in determining the impact of tariff on GDP in Nigeria. Each element of B^* follows the t- distribution with n-k degree of freedom.

The f-test

This tests the overall significance of the regression in the model.

Test for Autocorrelation

This is to test whether the errors corresponding to different observations are uncorrelated. The test will adopt the Durbin- h statistics because of the presence of the lagged dependent variables as are of the regressors, which indicates that the model is an autoregressive model (Gujarati, 2004).

Model Justification

The choice of OLS for this work is guided by the fact that its computational procedure is simple and the estimates obtained from this procedure has optimal properties which include linearity, unbiasedness, mini variance and mean squared error estimation (Koutsoyiannis, 1977).

Data Source

The data for this study are secondary data CBN Statistical bulletin 2006. The period covered is from 1970-2006, which is period of 37 years. The data would be collected on Gross Domestic product (GDP) which is proxy for economic growth. Although trade barriers are in form of tariffs such as import duty and export duty, quotas and bans, due to unavailability of required data on import quota and unquantitative nature of ban, we shall collect data only on import duty and export duty which will form our tariff variable. Also from this, we discovered that there is unending argument as regard to the impact of on any economy, and trade liberalization in form of openness. This informs our choice of including the degree of openness into the model. Openness is the ratio of export and import over GDP. Data on aggregate import and export would be collected. These two variables shall be our control variables in the model. Import is the total volume of goods that come into the country, while export is the total volume of goods sent to overseas country.

Software Package

The work will make use of E-VIEW econometric software. The data will initially be loaded into excel worksheet, then from there, it will be imported into the E-VIEW software.

PRESENTATION AND ANALYSIS OF RESULT

The result of our estimation with the ordinary least square method is presented in a tabular form below:

Table 1

Variable	Coefficient	Std. Error	t-statistic	Prob
C	193428.8	385292.4	0.502031	0.6192
TARF	10.62395	3.210595	3.309029	0.0024
OPN	60636.98	17090.30	3.548035	0.0013
AEXP	2.350808	0.256627	9.158445	0.0000
AIMP	-0.562409	0.691790	-0.812977	0.4224
RTEXP	-111133.5	22587.27	-4.920182	0.0000

$R^2 = 0.983650$, $DW = 1.361$, $F\text{-stat} = 373.0102$

The dependent variable is GDP

STATISTICAL CRITERIA OF THE RESULT (First order Test)

The R^2 which is the coefficient of determination shows that the set of the explanatory variables used in the model adequately explain the pattern of behaviour of the dependent variable. In other words, about 98.4% of the variation in GDP is explained by the independent variables which conforms the goodness of fit of our regression model.

From the regression result, it is shown that the independent variables (tariff, openness, aggregate export, aggregate import and ratio of export to GDP) are jointly responsible for a very large percentage of the variation in the dependent variable (GDP).

The high value of DW statistics implies that there is no serial autocorrelation between the variables.

Interpretation of the Regression Results

The results are interpreted based on the empirical result obtained from the analysis therein. From the result, the constant term is positive, this conforms to a prior expectation because if other factors that contribute to gross domestic product are zero, there are other variables that can contribute in a positive or negative way to gross domestic product.

Tariff displayed 10.62395 as its coefficient implying that there is a positive relationship between tariff and gross domestic product. A unit increase in tariff will cause GDP to increase by 10.62395 units. More so, tariff is statistically significant. The implication of this result is that trade barrier contributes to economic growth in Nigeria. This findings is quite consistent with the findings of Clemens and Williamson (2002) who showed clearly that trade protection in form of tariffs are quite beneficiary and positively correlated with most developing countries.

The degree of openness is positively related to economic growth since it displayed coefficient of 60636.98, which implies that a unit increase in openness will cause GDP to increase by 60636.98 units.

The result showed a positive relationship between aggregate export and gross domestic product. The coefficient of aggregate export is displayed as 2.350308, which implies that a unit increase in aggregate export will cause GDP to increase by 2.350308 units.

The result shows that there is a negative relationship between aggregate import and gross domestic product. The aggregate import displayed coefficient of -0.562409 , which implies that a unit increase in aggregate import will cause GDP to decrease by -0.562409 units.

Again, ratio of export to GDP is seen having a negative coefficient of -111133.5 , implying that there is a negative relationship between ratio of export to GDP and gross domestic product. A unit increase in ratio of export to GDP will cause GDP to decrease by -111133.5 units.

The T-test Statistics

This is a test of significance of individual parameter estimates. The test was conducted at 5% level of significance and 31% degrees of freedom:

$N = 37$

$K = 6$

$DF = (n-k) = 37-6) = 31$

$t^* = 3.309, 3.548, 9.158, -0.813, -4.920$

$t(0.05) = 1.70$

-1.70

1.70

HYPOTHESIS

$H_0: B_s = 0$ (Null Hypothesis)

$H_1: B_s \neq 0$ (Alternative Hypothesis)

DECISION RULE

If the calculated t^* value from the empirical analysis is greater in absolute term than the theoretical t-value, we reject the null hypothesis (H_0) and conclude that changes in the particular explanatory variable has a significant influence on the dependent variable. But if the empirical or calculated t^* is less than the tabular value in absolute terms, we accept the null hypothesis (H_0) and conclude that the explanatory variable has no significant influence on the dependent variable.

In summary, if:

$t^* > t = \text{Reject } H_0$, but if,

$t^* < t = \text{Accept } H_0$

Table 2

Variable	t-cal	t-tab	Outcome
TARF	3.309	±1.70	SIGNIFICANT
OPN	3.548	±1.70	SIGNIFICANT
AEXP	9.158	±1.70	SIGNIFICANT
AIMP	-0.813	±1.70	NOT SIGNIFICANT
RTEXP	-4.920	±1.70	SIGNIFICANT

The above results in the table show that 3.309, 3.548 and 9.158 > 1.70, we reject the null hypothesis (H_0) that tariff, openness and aggregate export significantly affect GDP. While $-0.813 < 1.70$, we accept the null hypothesis (H_0) that aggregate import do not significantly affect GDP; and $-4.920 < -1.70$, we accept the null hypothesis (H_0) that ratio of export to GDP do not significantly affect GDP.

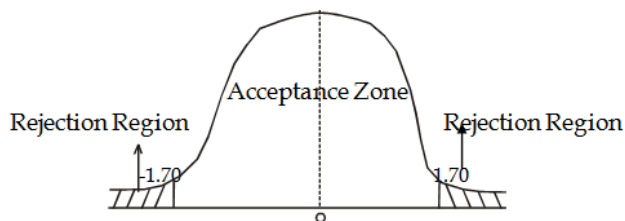
The F-test Statistics

The F-test is a test of significance of the entire regression plane. The test was conducted to see the joint impact of our explanatory variables on the dependent variable. The test was conducted at 5% level of significance.

Hypothesis

H_0 : $B_s = 0$ (Null Hypothesis)

H_1 : $B_s \neq 0$ (Alternative Hypothesis)



Decision Rule

$F_{cal} > F_{tab}$ = Reject H_0 , but if,

$F_{cal} < F_{tab}$ = Accept H_0

$df (k-1, n-k)$

$V_1 = k-1$

= 6 - 1

= 5

$V_2 = n-k$

= 37 - 6

= 31

$F_{cal} = 373.0102$

$F_{tab} = 2.53$

Since our $F_{cal} > F_{tab}$, we reject the null hypothesis (H_0), implying that the overall regression is statistically significant.

ECONOMETRIC CRITERIA OF THE RESULT (Second order Test)

The Durbin Watson Test

The Durbin-Watson test is a test of autocorrelation or serial dependence among residuals of a regression model, provided there is no lagged value of the endogenous variable in the model (Koutsoyannis 1997:215).

The Durbin-Watson test was conducted at 0.05 percent level of significance.

Given the following information

$N = 37$

$K = 6$

$dL = 1.13$

$du = 1.87$

$d^* = 1.36$

Decision Rule For Durbin Watson

Null Hypothesis	Decision	If
No positive autocorrelation	Reject	$0 < d < dL$
No positive autocorrelation	No decision	$dL \leq d \leq du$
No negative correlation	Reject	$4 - dL < d < 4$
No negative correlation	No decision	$4 - du \leq d \leq 4 - dL$
No autocorrelation, positive or negative	Do not reject	$du < d < 4 - du$

If the empirical Durbin-Watson value d^* is less than the theoretical or tabular upper Durbin-Watson value (du), that is, if $d^* < du$, we reject the null hypothesis (H_0) of no autocorrelation.

Since $(d^*) 1.36 < (du) 1.87$, we reject the null hypothesis (H_0) and conclude that there is autocorrelation.

Summary of Findings

Following the findings in this study, with the coefficient of TARIFF as 3.309029, it can be seen that trade barrier have a high significant positive impact on economic growth in Nigeria.

Also, it is so interesting to know that openness and aggregate export equally have 3.548035 and 9.158445 as their coefficients, implying that they also cause GDP to increase.

Aggregate imports have -0.812977 as its coefficient, implying that it is not statistically significant in the model. Ratio of export to GDP is statistically significant although it display -4.920182 as its coefficient.

Policy Recommendation

In the light of the above empirical findings from the analysis carried out, the following recommendations are proposed for a sound and effective trade policy in Nigeria.

Government should continue to enhance the present tariff in order to derive the optimal revenue derivable through tariff. If economic growth is to be achieved there must be some element of trade barrier in form of tariff as ration, prevention of dumping and discouragement of some certain goods.

CONCLUSION

Basically tariffs even though may serve as an impediment to free flow of goods is found to desire by the Nigerian economy if our findings are what to go by. Available evidence shows that it is a sine qua non for economic growth in Nigeria. Tariff has provided the Nigerian government with its second-largest source of revenue after oil exports. In its last major tariff version in March 2003, the Nigeria government cut duties on 230 tariff line items (mostly raw materials, base metals and capital equipment) to as low as 2.5 percent, while raising them on 30 tariff line items (largely plastic, rubber and aluminum articles) to as high as 65 percent.

Tariffs on agricultural products such as corn and rice were raised to 70 percent and 100 percent respectively. President Obasanjo announced in October 2004 that Nigeria will begin harmonizing its tariff structure with that of the Economic Community of West African States in January 2005 for implementation in July 2005. Items banned would remain so until sometime in 2007, when the bans would be replaced by tariffs.

The basic logic derived from the study so far is that, trade barriers in form of export duty and import duty has a positive impact on economic growth. We therefore conclude that the policy makers should pursue vigorously trade policy that accommodates all trade barriers.

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