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INSTITUTE FOR SOCIAL AND ECONOMIC CHANGE  
BANGALORE

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# Trade Liberalisation and Exports in the Nigerian Economy: An Assessment

Philip O. Alege \*

## Abstract

Various policy measures have been taken by the Nigerian government since the advent of Structural Adjustment Programme (SAP) to improve the external trade sector. This paper appraises the journey so far. Thus, it develops a mixed quantitative-qualitative model designed to evaluate export responses to trade liberalisation policies.

This paper, hypothesising a full effect of trade liberalisation in the long run, has adopted the co-integration and error correction technique to estimate the model. The results tend to suggest that trade liberalisation is mildly effective. Thus, there are areas that raise some doubts about the potency of trade liberalisation to bring about the desired economic growth and development propelled by international trade. This model can be used to evaluate the effectiveness of policy shifts, and hence its appropriateness to provide a background for fine-tuning policy to achieve the overall economic objectives.

## Introduction

International trade is the life-line of the Nigerian economy with total trade representing about 26 per cent of the GDP in 1986, about 66.3 per cent in 1996 and 57.6 per cent in 2001. With these proportions of trade to GDP, it is obvious that securing and enhancing access to the world markets should be a vital element in Nigeria's external trade policy formulation and implementation. Thus, Nigeria started on the path of serious economic restructuring, particularly in the area of trade policy reforms, with the introduction of Structural Adjustment Programme (SAP) in 1986. A major platform of this is trade liberalisation popularised by commercialisation, privatisation and deregulation. Today, the growing extent and depth of globalisation and regionalisation has added impetus to the urgent need to bring about freer trade in goods and services.

Prior to SAP, Nigeria embarked on Import Substitution Industrialisation (ISI). However, theoretical considerations weighed heavily in favour of outward-oriented strategies. It was this that led to sustained agitation for a review of Nigeria's

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trade policy. Thus, national trade policy was then backed by seemingly conducive international trading environment as contained in General Agreement on Tariff and Trade (GATT) and World Trade Organisation (WTO) documents.

In testing whether trade liberalisation has achieved the desired objectives, many authors have carried out a micro-economic analysis of the impact of the policy shift (resulting from the positive effect of trade liberalisation) on firm performance, employment, productivity, output, mark-up price, and market structure (Epifani 2003; Wacziarg 2003; Fernandes 2002; Pamukcu 2000; Adenikinju and Chete 1999; and Krishna and Mitra 1998). A few others have considered the consequences of trade liberalisation on the macro-economic aggregate (Shafaedin 1994). This study intends to contribute to existing literature by providing further empirical evidence on the impact of trade liberalisation on export performance in Nigeria. It is expected that the study will also sharpen our understanding of the linkages between export and major macro-economic variables, thus providing the impetus for investigating the effect of trade liberalisation policies on exports. Hence, we construct a model designed to capture the effectiveness of trade liberalisation policy on Nigeria's exports.

The paper is structured as follows: Section 2 reviews the literature; Section 3 examines the framework for our analysis; Section 4 provides the estimation results and comments; and in Section 5, we conclude.

### **Nigeria's External Trade Sector: An Overview**

The economy of Nigeria is structurally dependent on trade relations with her major trading partners: Britain (her former colonial master) and other industrial nations. According to Alege (1995), this dependency, largely unidirectional, has fashioned the structure of resource allocation, domestic production, direction of exports and origin of imports. Thus, Nigerian export to African countries is very low; and even exports to members of ECOWAS are generally low with unaccountable trade seemingly taking a lion's share.

At Independence in 1960, the composition of Nigeria's export was mainly primary products such as cocoa, groundnut, cotton, palm oil, rubber etc. By the end of the following decade, crude oil export became the major foreign exchange earner and source of funding public expenditure. In this regard, in 1975, crude oil export earnings represented 91.6 per cent of total export and 71.9 per cent of government revenue. By 2002, oil and gas exports accounted for about 98 per cent of total export earnings and for about 83 per cent of federal government revenue. Non-oil export has taken a historical downward trend since the discovery of crude oil in commercial quantities in the early 1970s. By 1970, non-oil export stood at 6.17 per cent of the GDP and 0.69 per cent in 1985. In 2002, the share of non-oil export in the GDP has fallen to below 0.36 per cent. Manufactured products, a component of



non-oil export, suffered the same setback. The sector is being faced with stiff competition from the more efficient and low-cost international competitors.

The Nigerian imports mainly comprised consumer, intermediate and capital goods. However, over time, the import of finished consumer goods has also taken over the largest proportion of total imports. Similarly, the volume of total trade as a share of the GDP (i.e., the degree of openness) has been on the decline. In 1970, it stood at 32 per cent, 40 per cent in 1975 and fell to 20 per cent by 1986. It resumed an upward trend from 1988 to reach 86 per cent in 1995 and fell to about 58 per cent in 2001. By 1970 and early 1980s, the Nigerian economy was not exempted from the "Dutch-disease" phenomenon of crude-oil discovery. As the crude-oil price politics was taking a strategic position in the world economy, reshaping of the Nigerian socio-economic landscape was also taking place. Crude oil earnings boosted the average income of urban dwellers provoking a serious rural-urban movement. This led to high pressure on socio-economic infrastructure in the urban centres. The rural areas were depleted of the required manpower for the production of exportable crops. The situation was aggravated by the fact that these exports goods were mainly primary products with little or no value addition.

Meanwhile, the economy was faced with other macro-economic problems – slow growth, inflationary pressure, balance of payments deficit, growing external debt stock and government budget deficit. As a response, the government embarked on import substitution strategy and pursued a protectionist trade regime. Tariffs were prohibitive. Import licensing, quotas and bans were rampant and the domestic currency was particularly overvalued. Exports were under the control of the bureaucrats in the form of marketing boards. In addition, various incentives were put in place to encourage non-oil exports with little or no response.

In an attempt to stimulate economic growth concomitant with a viable balance of payments in the medium-run to long-run, the government, by 1986, embarked on a comprehensive Structural Adjustment Programme (SAP). A major component of this programme was trade liberalisation. The contention was that trade liberalisation would be accompanied by productivity, growth, technological advancement, increasing competition of resource towards more efficient firms.

In Nigeria, trade liberalisation has taken various forms, including tariff policy, investment enabling policies, institutional development and export promotion policies. Tariff policy structure was reviewed to stimulate competition and efficiency by reducing tariffs on consumer items relative to tariff of raw materials in intermediate and capital goods. The reduction of tariff on final consumer goods would expose domestic manufacturer to import competition while relatively higher tariff would attract investment into raw materials and intermediate goods production.

Import liberalisation has a continuity in policy design and implementation in Nigeria. In every budget of the Federal Republic of Nigeria, there is always import tariff adjustments, review of existing prohibited items either subtracting

one or adding another item(s). The export policy component of trade liberalisation consists of duty draw-back scheme, export expansion grant, manufacture in bond schemes, export preshipment inspection by private companies and the establishment of export processing zones (EPZs).

In the trade liberalisation package, investment enabling policy occupied a privileged position. Several policies were introduced in order to stimulate private participation in the economy and reduce influence of the government in productive activities. Some of these policies were: interest rate regime, guided privatisation, administrative and legal reform, review of laws inhibiting competition, capital market reform, multilateral and regional agreements and tax reforms.

Finally, the Nigerian version of trade liberalisation included several institutional changes in order to ensure effectiveness of the new trade policy. These institutions included establishment of Nigerian Investment Promotion Council, NIPC, which provided for a foreign investor to set up business in Nigeria with 100 per cent ownership. It also consisted of the establishment of Bureau of Public Enterprise (BPE), as well as membership of some multi-lateral and regional bodies. In this regard, Nigeria is a founding member of WTO and she is also a major player in ECOWAS Trade Liberalisation Scheme.

Despite almost two decades of trade liberalisation, the trade environment in Nigeria remains constrained. This paper intends to throw more light on this. In this regard, we have noted that several authors have been skeptical about Nigeria's ability to adequately respond and position herself in the world market largely due to domestic constraints. In this respect, we can mention Adalemo (1993), Adenikinju and Chete (1999), and Alege (1993). One of the issues as already stated is that Nigeria's export market sector is structurally dependent and is characterised by export of primary products, essentially crude oil, and declining proportion of agricultural products. Other points of discontent are the lopsidedness of the world trading system and a dominant mono-cultural sector: the peripheral economy syndrome.

### **Framework for Analysis**

Trade liberalisation is a policy mix designed to influence the target variables through some other intermediate variables. Thus, these policy instruments impact the aggregate means of production, the degree of openness of the economy, the exchange rate of the national currency and the general level of the economic activities. These variables contribute towards determining the actual level of real export supply.

In standard export models, world income which determines a country's purchasing power and the terms of trade (i.e., ratio of price of export to price of import) are often used as explanatory variables. In this paper, we introduce new

considerations that influenced the type of variables included in the model. Besides the terms of trade (TOT), we considered the gross domestic product (GDP) which explains the overall economic capability to respond to export demand. The degree of openness (OPN) is seen as a success factor in trade liberalisation effort and level of import which can be viewed as a factor of production. According to Carmicheal *et al* (1999), imports “take account of the situation in developing countries since they generally rely heavily on imports from the rest of the world for capital goods”. Our contention in this study is that import liberalisation policy will enhance imports and this, in turn, will promote export supply.

In specifying our export model, we assume non-linearity between export and the explanatory variables, non-restriction in parameters, a homogeneous function of degree one in price and a multiplicative error term. We then write the equation as:

$$X_t = \alpha \cdot Y_t^{\alpha_1} \cdot TOT_t^{\alpha_2} \cdot OPN_t^{\alpha_3} \cdot M_t^{\alpha_4} \cdot U_t \dots \dots \dots (1)$$

After log-linearising equation (1), we then introduce three dummy variables in the usual manner and four special dummy variables to capture structural changes in intercept and slopes respectively. Equation 1 then becomes:

$$x_t = \alpha_0 + \beta_0 D1 + \alpha_1 ye_t + \tau_1 Dye_t + \alpha_2 tot_t + \tau_2 Dtot_t + \alpha_3 opn_t + \tau_3 Dopn_t + \alpha_4 m_t + r_4 Dm_t + \beta_1 Dmac + \beta_2 DPOL + v' \tag{2}$$

$$v' = 1n\mu_t$$

where lower cases of variables represent their logarithmic transformation and the stochastic random term,  $v^i$ , and such that  $E(v_i) = 0$ ;  $E(v_i, v_j) = 0$  if  $i \neq j$  and  $E(v_i, v_j) = \sigma^2$  if  $i = j$ . The description of the variables in the models is contained in Table 1 while the expected signs and interpretations of the parameters have been shown in Table 2.

### Estimations and Results

#### Method of Analysis

The data used in this study were obtained from the Central Bank of Nigeria online through its website [www.cenbank.org/data.asp](http://www.cenbank.org/data.asp). The study covers the period 1970 to 2001. All variables have been deflated using the GDP deflator. The variables used in the model are as defined in Tables 1 and 2. We have adopted two econometric methods in this paper. The first is the multiple regression approach and the second is the cointegration and error correction technique. We have used the Microsoft software package.

**Table 1: Description of Variables**

Variables	Description of variables
X	Total export of goods and services.
NX	Total non-oil export.
Y	Output of tradable goods proxied by real GDP.
TOT	Terms of Trade proxied by nominal effective exchange rate.
M	Total imports of goods and services.
OPN	Degree of openness of the economy measured by $(X+M)/GDP$
DU..	Special dummy variable defined for each regressor as zero before trade liberalisation and the actual value of the variables after.
DMAC	Dummy variable to capture macroeconomic policy inconsistencies and it is defined to take the value 0 between 1970 and 1986 and between 1994 and 1998. It takes the value 1 between 1987 and 1993 and between 1999 and 2001.
D1	Liberalisation dummy: 0 before liberalisation and 1 after.
DPOL	Dummy variable designed to capture political instability in the economy. It takes the value 1 between 1970 and 1979 and between 1984 and 1998. It further takes the value 0 between 1980 and 2001.

**Table 2: Sign and Interpretations of Parameters of the Model**

Parameters	Description	Expected sign	Interpretation
$\alpha_0$	Measures efficiency	>0	
$\beta_0$	Captures shift in efficiency over time	>0	There may be positive changes
		<0	There may be negative changes
		=0	There may be no changes
$\alpha_0 + \beta_0$	-	=0	Liberalisation has no shift effect
$\alpha_0 + \beta_0$	-	>0	Liberalisation has positive shift effect
$\alpha_0 + \beta_0$	-	<0	Liberalisation has negative shift effect
$\alpha_i$	Export elasticity w.r.t. the variables	>1	Export function elastic
		<1	Export function inelastic
$\tau_i$	Shift in slope w.r.t. the explanatory variables to capture structural changes	<0	There may be negative changes
		>0	There may be positive changes
		=0	There may be no changes
$\alpha_i + \tau_i$	-	=0	The variables have no post-liberalisation effect on export
$\alpha_i + \tau_i$	-	>0	The variables have positive post-liberalisation effect on export
$\alpha_i + \tau_i$	-	<0	The variables have negative post-liberalisation effect on export



**The Ordinary Least Squares Estimates**

The results of the OLS estimation have been as shown in Table 3. From the table, it is apparent that the results are alluring. There is the indication of a "good fit" given by a high  $R^2$  and adjusted  $R^2$ , low standard errors and high F-statistics. Though not all the coefficients passed the standard statistical significance tests, one could be tempted to accept the overall result thereby concluding that a close relationship exists between the series (when in the real sense, they are actually casually related). To overcome the spurious nature of most OLS estimation, a general to specific cointegration technique has been further adopted. "Thus, the process of cointegration technique establishes the relations between the model series by overcoming the problem of spurious correlation" (Komolafe 1996: 312). The result of the latter has been found to be more robust.

**Table 3: Ordinary Least Squares Results**

Regressor	STATIC		DYNAMIC	
	LnX	LnNX	LnX(-1)	LnNX(-1)
Intercept	-22.1212 (-1.0510)	19.4116 (1.0203)	-18.9018 (-0.9015)	-2.1826 (-0.1228)
DI	8.1798 (0.2872)	8.2309 (0.3197)	41.3109 (1.3113)	43.5359*** (1.7959)
LnY	1.5903 (1.5695)	0.4735 (0.5169)	1.3568 (1.2998)	1.4300 (1.6332)
LnOP	-0.6357 (-0.9279)	0.2889 (0.4666)	-0.5324 (-0.8135)	-0.5746 (-0.9825)
LnEE	0.6016 (0.2485)	-4.0737*** (-1.8615)	0.5746 (0.2578)	-3.1932 (-1.7097)
LnM	0.7675* (5.5977)	0.1902 (1.5349)	0.3034 (1.3522)	0.1854*** (1.7624)
DULnY	1.1828 (-5.276)	-2.4832 (-1.2253)	-1.6395 (-0.6672)	-4.7010** (-2.5624)
DULnM	-0.7382*** (-1.882)	-2.4832 (0.9163)	-0.6341*** (-1.7725)	0.2475 (0.8284)
DULnEE	-1.0152 (-0.4122)	3.7775 (1.6968)	-1.1153 (-0.4920)	2.9930 (1.5786)
DULnOP	1.6419*** (1.8574)	0.0174 (0.0218)	2.0307** (2.3729)	1.0880 (1.4535)
DMAC	-0.4943 (-1.1712)	-0.3222 (-0.8447)	-0.4918 (-1.2863)	-0.3616 (-1.1284)
DPOL	0.0685 (0.2858)	0.2428 (1.1209)	0.0861 (0.3949)	0.1339 (0.7238)
Depend. Var. (-1)	-	-	0.4733** (2.4456)	0.3325** (2.5754)
	2.3781	1.7436	2.3162	1.7498
D-W Statistic	1.6477	1.8108		
Durbin-H Stat.			None	-3.6955
$R^2$	0.9898	0.9845	0.9918	0.9899
Adj $R^2$	0.9843	0.9760	0.9864	0.9832
SER	0.2987	0.2700	0.2706	0.2266
F-Statistics	176.8554	115.7407	181.7208	147.6476

\*\*\* significance at 10%

\*\* significance at 5%

\* significance at 1%

### **Model Estimation Using Cointegration Technique**

It has been established that, very often, time series data are non-stationary. In such cases, the residuals of these time-series regressions are correlated with their own lagged values, thereby violating one of the standard Ordinary Least Squares (OLS) assumptions. Thus, OLS estimates of these regressions are known to be biased and inconsistent and the standard errors are generally underestimated. Hence, the use of OLS technique will no longer be compatible with Gauss-Markov theorem (Wonnacott and Wonnacott 1979).

We suspect that the above may be the case in the present study and the probability of spurious regressions (Granger and Newbold 1974) using OLS technique is thus high. Hypothesising a full effect of trade liberalisation in the long run, we have adopted the cointegration and error correction model (ECM) to estimate the parameters of our model.

We observe, like Komolafe (1996), that in spite of some flaws, the ECM presents some attractions.

(a) **Time-Series Properties:** We begin by diagnosing the time-series properties of the variables employed in the model. In this respect, the Dickey Fuller and Augmented Dickey-Fuller tests statistics for the order of integration of the variables were used. Table 4 summarises the results of these tests. Thus, given that the absolute values for DF and ADF tests statistics are all lower than tabulated t-statistic at 5 per cent level, we conclude that the variables are random walks (i.e. non-stationary) indicating that the variables are I(1) series.

Testing the first-difference properties of these series, the DF and ADF tests statistics produce values that are significantly greater than the t-statistic at 5 per cent level of significance. Thus, differencing once produces stationarity for our variables, i.e., they are I (1) and, however, we observed that the results for ADF test statistics with the trend seemed contradictory with those of DF test statistics for three variables, namely, LnY, LnM and LnNX. On these, second differencing was carried out.

We noted that variables of different orders could not be cointegrated (Granger 1981). However, the above result on LnY and LnM appears non-severe since it is only in the case of ADF test statistic with trend that they are I(2) variables. Thus, we can conclude that the LnY and LnM variables reveal the weakness of unit roots test as it cannot discriminate between true and near true random walks. (Coughlin and Koedijk 1990).

We performed further analysis to test if the variables in the model are cointegrated. The result is shown in Table 5. From this table, we conclude that there is cointegration among the time series. Thus, even if we establish random walk (i.e., unit root) for them in the short run, the results above suggest that they are

**Table 4: Unit Root Test**

Variables	Dickey-Fuller Test		Augmented Dickey-Fuller Test	
	Without Trend	With Trend	Without Trend	With Trend
LnX	-0.27618	-1.9808	-0.12305	-1.7489
LnY	-0.75193	-1.3363	-0.77562	-1.4231
LnM	-0.16059	-1.8035	-0.08759	-1.5954
LnEE	0.95696	-1.8034	1.0504	-1.6584
LnOPN	-2.2125	-2.8539	-1.6222	-2.1034
LnNX	-0.13919	-1.9659	-0.09161	-1.9026
$\Delta$ LnX	-5.9902	-5.8822	-4.5526	-4.4810
$\Delta$ LnY	-5.1390	-5.0819	-3.3573	-3.3018
$\Delta$ LnM	-5.9907	-5.8819	-3.4255	-3.3578
$\Delta$ LnEE	-5.2647	-5.8222	-3.7098	-4.5513
$\Delta$ LnOPN	-7.4498	-7.3150	-4.4432	-4.4810
$\Delta$ LnNX	-5.57116	-5.5057	-3.1164	-3.0486
Critical Values				
• Level 5 per cent	-2.9627	-3.5671	-2.9627	-3.5671
• First Difference 5 per cent	-2.9665	-3.5731	-2.9665	-3.531

cointegrated in the long run. From the preceding conclusions, we can carry out the estimation using cointegration and error-correction model (ECM) to estimate our model.

**Table 5: Test for Cointegration Among the Variables**

Dependent Variable : Residuals of LnX; Regressors : LnY, LnOPN, LnEE, LnM

Test Statistic	Without trend	With trend
Dickey-Fuller	-4.6275	-4.5055
Augmented Dickey-Fuller	-4.7076	-4.5774
Critical value at the level of 5 per cent	-2.9627	-3.5671

(b) **Cointegration Regression and Error-Correction Representation:** In this subsection, we present the results and their interpretation. Both static and dynamic regressions were carried out as shown in Table 6. The table reports the long-run static cointegration regression and the possible ECMs. Table 7, which is computed from Table 6, presents the measure of magnitude and direction of shifts.

From Table 6, we observe that all the statistics conform to expectations:  $\text{Adj}R^2$ , F-Statistic, the standard error of regression and the diagnostic tests, notably the LM Ramsey's RESET, Normality and Heteroscedasticity. The coefficient of

$ECM_{t-1}$  is everywhere statistically significant at 1 per cent level and they have correct and expected signs. Given the inclusion of ECM being used, we are sure that we do not have the problem of spurious regression. Therefore, we can conclude that the estimates of the parameters respond to Gauss-Markov theorem.

Consider equations I and II: the static case. The intercept and the dummy variable (D1) to capture shift in intercept are not significant in equation I whereas in equation II they are significant at 5 per cent level. That the constant term is found to be insignificant is due to the fact that the long-run cointegration regression incorporates the constant term. However, the result means that shift in intercept in non-oil export is more pronounced than in total exports. In the dynamic case (equations III and IV), the conclusions are similar.

The GDP which measures overall economic activities is observed to have no effect on total export as well as non-oil export since the coefficients are not statistically significant. That export elasticity of GDP is less than the one that seems to be plausible in the Nigerian context. In the dynamic model, the coefficient of GDP in equation III is statistically significant at 5 per cent level. It shows that export supply is GDP inelastic. In equation IV, the coefficient of GDP is not statistically significant.

The degree of openness, OPN, measured by the share of trade in GDP, is observed to be statistically significant at 1 per cent level in equation I. In equation III (dynamic model), the coefficient is also statistically significant at 1 per cent level. Both signs are positive. This shows that trade liberalisation through openness has a positive and significant effect on total export in both static and dynamic specifications. The non-oil export estimates show that the coefficients are not statistically significant. This means trade liberalisation policies through openness only has plausible consequences on total export and not on non-oil export.

In this study, we have used exchange rate, measured as the nominal effective exchange rate of the naira as a proxy to the terms of trade. The theoretical expectation is that depreciation of a currency should encourage exports and discourage imports. In both static and dynamic forms of the models, the role of exchange rate (EE) seems compatible with theoretical underpinning going by the signs except in equation III. However, nowhere is the coefficient statistically significant. This implies that the exchange rate, though statistically not discernible within this model, is an important factor in the explanation of export behaviour.

The inclusion of import in the model is to explain its contribution to production of exportable goods and services in the economy. Except in equation I, the signs are correct but all the coefficients are statistically non-significant. The implication is that the import considered as a factor in the production process has no influence on exports, both total and non-oil. One explanation may be found in the fact that greater proportion of our imports is non-capital consumer goods and hence the results.



The qualitative variables have been included in our model to capture the effects of macro-economic policy inconsistency and political instability on exports following trade liberalisation. From our results, we can infer an inverse relation between export and DMAC. The negative signs of the coefficient of the variable indicate this. Though the coefficients are statistically non-significant, they tend to indicate that macro-economic policy instability, during the period of estimation, have negative effects of exports.

In the case of the dummy variable to capture political instability DPOL, the results indicate that political situation has a positive effect on exports, both total and non-oil. They are, however, non-significant in equations I and III. This confirms our theoretical expectation that stable political environment is an enabler for export growth.

Four independent variables have been considered in the study which we now characterise as liberalising factors in determining how effective trade liberalisation has been on export taking into consideration the liberalisation date. Thus, in Table 7, if  $\psi$  is positive and has (\*) sign, then we have a pro-liberalising factor. If  $\psi$  is negative and has (\*) sign, then we talk of anti-liberalising factor. And when  $\psi$  is either positive or negative but without (\*) sign, then we say that the variable is liberalisation neutral.

Thus, GDP has a pro-liberalising effect leading to higher export in both static and dynamic export models. But it has an anti-liberalising effect in the non-oil export supply. This again explains the mono-cultural nature of the Nigerian economy depending almost entirely on oil exports with a decreasing importance of non-oil exports. The latter are essentially agricultural exports and manufacturing. Therefore, the set of current policy mix to gear up exports of the non-oil leaves much to be desired. So far, all manners of incentives put in place have not brought about the desired positive change over time.

Similarly, the degree of openness has a pro-liberalising effect in both static and dynamic specifications for the export model and is liberalisation neutral for non-oil export in both equations. Again, this implies that it is the increase in the oil export as component of the export variable that explains the significant shift in export caused by the degree of openness. Here again, the policy mix designed to make the export sector freer in line with the prescriptions of the classical trade theories seems far from targets.

In the case of exchange rate, the signs are negative everywhere, of low magnitude and they are non-significant. This implies that exchange rate, following his model, is liberalisation neutral. This is not surprising given the observed constraints in the Nigerian economy. In effect, the Marshall-Lerner condition is not satisfied, as shown by Alege (1995). Thus, devaluation of the national currency will not bring about an improvement in the export of domestically produced goods.

**Table 6: Cointegration and Error-Correction Representation For Export Supply Model**

Regressor	STATIC		DYNAMIC	
	$\Delta \text{LnX (I)}$	$\Delta \text{LnNX(II)}$	$\Delta \text{LnX(III)}$	$\Delta \text{LnNX(IV)}$
Intercept	0.0377 (0.3291)	-0.3020** (-2.3346)	0.0212 (0.2021)	-0.3011** (-2.2362)
D1	4.0472 (0.1921)	57.0031** (2.4170)	7.8844 (-0.3930)	56.6266** (2.2298)
$\Delta \text{LnY}$	0.5808 (1.5663)	0.2469 (0.5838)	0.8271** (2.3084)	0.1292 (0.2724)
$\Delta \text{LnOPN}$	1.3918* (3.2366)	0.4738 (0.9321)	1.3208* (3.3523)	0.4937 (0.9341)
$\Delta \text{LnEE}$	0.0718 (0.3780)	0.0376 (0.1956)	-0.0828 (-0.4393)	0.0239 (0.0981)
$\Delta \Delta \text{LnM}$	-0.0916 (-0.0679)	0.15678 (1.0553)	0.1430 (1.0140)	0.1341 (0.8498)
$\text{DULnY}$	0.0989 (0.0525)	-5.3735** (-2.5769)	0.8584 (0.4885)	-5.3430** (-2.3961)
$\text{DULnM}$	-0.2813 (-0.9433)	0.4022 (1.1902)	-0.1501 (-0.0542)	0.3975 (1.1339)
$\text{DULnEE}$	-0.1986 (-0.9408)	-0.0845 (-0.3531)	-0.0115 (-0.0542)	-0.0939 (-0.3688)
$\text{DULnOPN}$	0.2772 (0.4916)	-0.0671 (-0.1028)	0.0137 (0.0258)	-0.0794 (-0.1168)
$\text{DMAC}$	-0.0753 (-0.2326)	-0.1440 (-0.4005)	-0.0336 (-0.1133)	-0.1383 (-0.3704)
$\text{DPOL}$	0.1617 (1.1740)	0.3677** (2.4123)	0.0951 (0.7336)	0.3893** (2.4228)
Depend. Var. (-1)	-	-	0.3185** (2.0977)	-0.0015 (-0.0099)
ECM	0.5698** (-2.7692)	-0.7101* (-4.2782)	-0.9000* (-3.6725)	-0.7106* (-4.1570)
$\sigma$	0.46166	0.44462	0.46166	0.44515
DW	1.62900	2.64490	-	-
Durbin-H	-	-	0.15330	-
$R^2$	0.87036	0.82546	0.89832	0.82893
Adj $R^2$	0.77885	0.70225	0.81571	0.68066

Contd.....

SER	0.21710	0.24261	0.19819	0.25156
F-Statistics	9.51080	6.69980	10.8738	5.59080
LM X <sup>2</sup> (1)	1.61580	6.78720	0.03003	6.34370
RESET X <sup>2</sup> (1)	0.52610	0.08228	0.16849	0.18073
Normality X <sup>2</sup> (2)	0.87835	0.48459	0.80906	0.40239
Heterosced. X <sup>1</sup> (1)	0.12615	1.20840	0.61902	1.06050
t***	1.725			
t**	2.086			
t*	2.845			

### Notes

- 1 Calculated t-ratios are in the parentheses
- 2 Routine F-Statistic test shows that the regressors are relevant in explaining the dependent variable if the value is greater than 4.43 at 1 per cent level.
- 3 Lagrangian Multiplier (LM) test of first order serial correlation at 5 per cent level of significance is 3.84.
- 4 Ramsey's RESET test, using the squares of fitted values, for functional form at 5 per cent level of significance is 3.84
- 5 Normality test of skewness and kurtosis of residuals at 5 per cent level of significance is 5.99
- 6 Heteroscedasticity based on the regression of squared residuals on squared fitted values is 3.84
- 7 t\*\*\*, t\*\* and t\* imply critical values of t-statistic at 10 per cent, 5 per cent and 1 per cent levels of significance respectively.

**Table 7: Measures of Magnitude and Direction of Shifts**

S/N0.	Sources of shift	I	II	III	IV
		$\Delta \text{LnX}$	$\Delta \text{LnNX}$	$\Delta \text{LnX}(-1)$	$\Delta \text{LnNX}(-1)$
1.	Intercept	+4.08	+57.30*	-7.86	+56.32*
2.	$\Delta \text{LnY}$	+0.68*	-5.12*	+1.69	-5.21*
3.	$\Delta \text{LnOPN}$	+1.67*	+0.40	+1.33*	+0.41
4.	$\Delta \text{LnEE}$	-0.12	-0.04	-0.09	-0.07
5.	$\Delta \text{LnM}$	-0.29	+0.56	-0.01	+0.53

### Notes:

- (\*) Either the variable and/or its dummy is significant at any level of the test
- $\psi_0 = \alpha_0 + \beta_0$   $\square_0$  : indicates direction of change in intercept
- $\psi_1 = \alpha_1 + \beta_1$   $\square_1$  : indicates magnitude of post-liberalisation effects on exports
- Calculations are from Tables 4 and 5

The inclusion of import as an explanatory variable is to capture the effect of imports as a factor of production. In effect, import liberalisation through reduction in tariff rates, gradual removal of non-tariff barriers (NTB), outright banning of certain goods were to ensure that our imports, following trade liberalisation, should be mainly in intermediate and capital goods. It is argued that imports of consumables would be brought to nil and, therefore, there would be a corresponding increase in the production of competitive import. Consequently, a higher component of intermediate and capital goods in total import would bring about an improvement in the production of tradable goods, which, in turn, can provoke increase in exports. However, our results appear to be far from expectations. Import as an explanatory variable is thus seemingly liberalisation neutral.

Table 7 also indicates that there was no shift in the intercept, i.e., efficiency parameter remains unchanged after trade liberalisation for total export equations. In the non-oil export, the reverse is the case. Though the values appear over-estimated, they tend to show a positive shift in intercept for the non-oil export equations. We then can conclude that there were improvements in efficiency parameters, which were likely to be caused by exogenous factors to the non-oil exports.

## Conclusions

In this paper, we have examined the effectiveness of trade liberalisation on exports. We introduced dummy variables in our model building in order to test if there was discernible change in export since the trade liberalisation date.

What flows from the study is as follows:

1. GDP and openness are pro-liberalising in total export, on the one hand. On the other, GDP is anti-liberalising and openness is neutral. This means that trade liberalisation has not achieved the desired effect in improving export of non-oil. The positive shift in total export may be due to oil export.
2. Depreciation of the naira exchange value has not provided the impetus for higher non-oil export and this is contrary to prescriptions.
3. Import does not explain supply of exportables which tends to indicate that Nigerian imports remain in consumables in spite of import liberalisation policies.
4. We observe from the results that there seem to be shifts in the efficiency parameter which is an indication that trade liberalisation policies have positive effects on export trade in Nigeria.
5. Policy inconsistencies have negative effect on export.
6. Political instability is anti-export drive.



The policy implications we can draw from this analysis is that the government should focus attention more on tangible factors; intangible factors (policies) in themselves are not sufficient.

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