

Analysis of Factors Influencing Import Demand in Nigeria

AlwellNteegah and Nelson Mansi

Department of Economic, University of Port Harcourt

Abstract: *This paper investigated the factors influencing import demand in Nigeria over the period 1980-2014. The large population size of Nigeria and the surge in importation of goods into the country over the years necessitated this investigation. The study identified real income level, real exchange rate, domestic price level, external debt stock, degree of openness and level of domestic investment as possible factors that influence import demand in Nigeria. In order to achieve our objectives data on the above independent variables and total import demand as dependent variable were sourced from secondary sources. Using the Ordinary Least Square (OLS) and cointegration/error correction mechanism, the study shows that: real income level, domestic price change, exchange rate all have negative and significant impact on total import demand in Nigeria, this implies that these variables significantly retarded total import demand in Nigeria over the period of this study. The result also revealed that degree of openness; gross capital formation and external debt have positive and significant implication on total import demand. This implies that these variables significantly spurred total import over the period of this study. The study therefore concludes that import demand has serious implication on the Nigerian economy over the period. Based on these results/findings, the study recommends: increase in real income (GDP), trade restrictions, review of conditions for foreign investments and a friendly investment climate as possible measures of growing the Nigerian economy.*

I. Introduction

Foreign trade and its implications on a country's economic progress have been of serious attention to scholars of economics and policy makers. This issue has indeed has been emphasized in the two-gap model constructed by McKinnon (1964) and Chenery and Shout (1966). Imports are crucial part of external trade and the import of productive commodities specifically, is important for domestic investment and economic progress. Evidence available generally points out that most low income countries and indeed Nigeria registered a continuous decline in their earnings from foreign exchange from the beginning of the 1980s and in recent years This development is linked largely to the decline of prices of goods produced by the country (crude oil and raw agricultural products) in the international market. In relationship with this factor, are two basic issues; viz: Foreign lending reduction likely due to the inabilities of some developing countries like Mexico to meet her debt obligations by 1982; The rise in external borrowing cost fueled by the deficit financing in the United States by the Reagan's administration then; and the exploitation and sales of crude oil by the United States of America one of the major buyer of Nigerian oil.

These scenarios fueled series of events in most oil exporting countries including Nigeria. Income from external trade transaction dropped retrogressively. It is necessary to point out that revenue from crude oil trade (export) has serious implication on government revenue in most low income countries producing and exporting crude oil. Fluctuations in the international market affect both exports and imports of low income countries and revenue from trade tends to be unpredictable and unsustainable as well. It is however not surprising that the crash of commodity exports prices in the early 1980s and recently from 2014 engendered fiscal crisis in Nigeria cumulating in huge extra budget spending as currently experienced in the country. This led to the introduction of catalogues of economic reform projects/strategies such as the import substitution industrialization (ISI) strategy, export promotion programme (export free zones), Structural Adjustment Programme (SAP) to mention but a few.

These strategies were expected to boost export and reduce imports to restore external balance and stimulate economic growth. However, imports demands by Nigeria kept escalating over the years. For instance, the value of non-oil imports trade grew from a mean value of ₦36.55 billion; representing 96.8% of total import into Nigeria within the duration 1970-1979, to ₦118.36 billion; representing 93.4% of aggregate import trade during duration 1980-1989, ₦3.48 trillion in the period 1990-1999; representing 79.9% of aggregate import trade and ₦19.33 trillion; representing 82.0% of aggregate imports trade for the duration 2000-2008. The latest value for *Imports of goods and services* (BoP, current US\$) in Nigeria was \$85,354,940,000 as of 2014.

The rising volume of import in Nigeria has agitated the thinking of scholars and policy makers and attempts have been made to try to identify the factors affecting import in Nigeria. Egwaikhide (1999) in a quest to examining factors influencing import demand, identified a rise in foreign exchange earnings and relative price

changes as the key factors of imports in Nigeria between 1953 and 1989. Ozo-Eson (1984) in his study included money supply and relative prices as the major factors affecting demand for imported goods into Nigeria over the period 1960-1979.

In examining the nature of Nigeria's imports trade and crucial variables influencing it during the duration 1970 - 2004, Abdullahi and Suleiman (2008) using the error correction model, they discovered that real income level (GDP) and the proxy used in measuring degree of openness greatly influenced demand for imports while real exchange rate and actual foreign exchange reserve were found to have less implication in influencing the nature of import trade in the Nigerian economy. While acknowledging that some studies have indeed been carried out in an attempt to identify the major factors influencing import demand in Nigeria, we are not sure that such studies have been to expose all the determinants. Moreover, there is the need to extend, update and deepen our knowledge on this matter given the important place the issue of import trade occupies in our economic management and the performance of the Nigerian economy. To examine the issue of import determinants, the paper seeks to address the following questions through empirical investigation: (i) what are the factors that influence imports demand in Nigeria? (ii) to what extent do the factors like: exchange rate, price level, external debt stock, degree of openness and gross capital formation influence import demand in Nigeria? The paper shall continue by reviewing relevant literature, followed by the methodology, results and discussions and concluding remarks.

II. Literature Review

The relationship between trade and macroeconomic stability are limited. Trade policy determines the functional openness of an economy but the trade balance is determined by the balance between national income and expenditure. According to Desai and Potter (2008), exchange rate overvaluation and fiscal deficits provide the crucial relationship between macroeconomic balances and stability. To them trade reforms if properly planned and executed can provide impetus for government to control inflation and can also influence the prevention of real exchange rate appreciation. Countries liberalizing trade often devalue their currency to compensate for the liberalization impact on the balance of payments. The potential inflationary effects of depreciation are likely to hamper the use of nominal exchange rate policy hence sustained trade liberalization is likely to involve some deterioration in the external balance until there is an export response (Desai and Potter, 2008),

Trade policy and macroeconomic stability are linked through trade taxes. It is pertinent that most developing economies like Nigeria depend so much on trade taxes and the sluggishness of possible non-trade tax reforms, fiscal effects must be taken seriously.

The theoretical basis of this paper is situated on the link between trade and macroeconomic stability. Nigeria's macroeconomic management depends so much on trade (import and export). For instance, revenue from oil export is crucial for execution of budget while trade policy with regards to import determine the level of industrial production and consumption in the country.

Myriad of empirical literatures exist on possible factors that influence import demand. The investigation by Hemphill (1974) is specifically interesting. In his study, he developed the stock adjustment import-exchange equation that has its foundation in the theory of balance of payments. Using information from eight low income countries, the result from the study indicated general compliance with the apriori theoretical relationship between aggregate import trade and foreign exchange revenue. The study therefore laid credence the position that revenue from foreign exchange transaction is a principal variable influencing demand for aggregate imports demand in low income countries.

Mwega (1993) studied the factors influencing demand for import in Kenya. Using yearly data over the duration 1964-1991, He finds an insignificant relationship between short-run relative price, level of real income and aggregate import demand elasticities for Kenya. However, total imports demand is significantly related to previous level of demand for imports, the lagged value of foreign exchange reserves and to revenue from foreign exchange. The study also confirmed the long run relationship amongst the variables given the correctness of the sign of the ECM and its significance at 5 percent. The study therefore concludes that in Kenya, the outcomes of the study suggest that strategies which directly stimulated export revenue.

In examining the demand for imports model for Macao, using two models: aggregate and disaggregated, Ho (2004) found using the Johansen-Juseluis (JJ) test that Macao's imports are cointegrated with some of the factors influencing it possessing correct signs in the separated model when; (a) a constant is introduced into the model and (b) both constant and trend are introduced into the it. However, the former case leads to the ECM result been unstable, while the later resulted to stability in the ECM results.

Bahmani-Oskooee et al (1998) also investigated the demand for imports relationship for 30 countries for the duration 1960 – 1992. Using annual data and employing the aggregate demand model by using Johansen-Juseluis (JJ) cointegration tests. Out of the 30 countries, 14 countries were found to have one cointegrating

equation and 12 of them are found to contain two cointegrating equations. In most of the results, the price and income elasticities were very high.

Dutta et al (2001) employed the total demand for import function to analyze the factors affecting India's import demand over the period, 1971-1995. Using Johansen (1988 and 1991) and JJ (Johansen et al 1990, 1992 and 1994) tests for cointegration to obtain the necessary cointegrating equations. Also, the Error Correction Model was estimated using the method of the general – to – specific, only one cointegrating equation was detected and built into the error correction model. The level of import was found to be rather price inelastic with calculated coefficient of -0.47. The income elasticity of demand value for import demand of two-years lag was more than one (unity), indicating that the demand for import varies higher than the variations in real national income. However, the coefficient of the calculated one-year lagged error correction term (ECT) was -0.12 which is of right sign for short-run adjustment while in the long-run disequilibrium occurs. It was also discovered from the study that all the key calculated coefficients in the model were statistically significant at 5 percent level.

In analyzing the long-run dynamics between Malaysian actual demand for imports and the composition of final expenditure demand approximated by actual final consumption expenditure, investment expenditure and export trade and prices of relative goods over the period of 1970-1998, Mohammad et al (2000) used the Johansen multivariate cointegration analysis and the Error Correction Model to evaluate the short-run responses of demand for imports and the factors influencing it. It was found from the results that only one cointegrating equation is detected from the model. This implies that the partial responsiveness of demand for imports with respect to expenditure on consumption was 0.72, investment expenditure 0.78 and exports 0.385. At -0.69, the import price was fairly insensitive. At -0.637, the Error Correction Model result, shows a speedy adjustment to long run dynamics implied by the one-period lagged ECT which was very speedy. The effect of expenditure on final consumption was statistically insignificant to import hence the ECM specification dropped out the effect of final consumption expenditure.

Osei (2012) analysed demand for imports and growth in the Ghanaian economy using the Ordinary Least Squares method and discovered from the result that the encouragement of export trade could lead to economic growth either through promotion of manufacturing of exportable commodities or real foreign exchange that enhance the importation of capital input assets. He further posits that such act of trade may encourage the efficiency of capital utilization.

In Nigeria, the pioneering study on demand for imports determinants was done by Olayide (1968) his attention was on some selected imports goods by Nigeria for the period 1948-1964. Results and findings from the estimated regression models revealed that terms of trade, real income (measured by GDP) and trade restriction index had relatively good estimates.

Ozo-Eson (1984) investigated the same phenomenon using a monetarist import demand model, thus incorporating real money balance excess supply into the traditional model for import demand. The estimated results from the analysis show that money supply and relative prices significantly affected aggregate demand for imports from 1960-1979 in Nigeria. Egwaikhide (1999) analyzed also the factors affecting aggregate imports and its major composition in Nigeria, utilizing yearly data over the period 1953 - 1989 and analyzing it using Ordinary Least Squares. The results of study indicate that variations in short-run availability of earnings from foreign transactions (exchange) relative prices and actual level of output significantly determined total imports growths during the period.

In examining the behavior of Nigeria's imports and important factors that determine it for the period 1970 to 2004, Abdullahi and Suleiman (2008) using the error correction model, they discovered that real GDP and measure of openness significantly determined import demand while real exchange rate and real foreign reserve were insignificant in determining the behavior of import in the country. Based on the results of the study, it was concluded that to raise aggregate imports, the implementation of a set of macroeconomic and sector-specific policies that relatively have implications on real income and trade openness is necessary. The studies above appeared to have a common trend in term of variables identified to have affected import demand and the methodology adopted in analyzing data sourced. This study deviated from others in terms of scope, exchange rate, price level; market size, external debt stock, trade openness, domestic investment and the level of financial deepening are factors to be examined in this study over the period 1980-2014.

III. Methodology

This study is situated on the trade theory which argues that countries with bigger export sector stand to gain more from trade than those with larger import sector. Nigeria over the years appeared to be import dependent with greater volume of raw materials for her industries and much of her consumable goods imported. Though in the production of some raw materials like crude oil and cassava, the country has comparative advantage, the relative effect of these commodities on the local economy had not been felt due to poor value chain. The country presently imports most staple foods like rice, beans and about 80 percent of her industrial

raw materials. Given this scenario, it is therefore necessary to determine the factors that influences import demand in the country.

Erlat and Erlat (1991), and Osei (2012) used the ordinary least square (OLS) method in the investigation of the factors influencing demand for imports while Dutta and Naasiruddin(2006) used the co-integration and error correction mechanism in their study of determinants of import demand in India. Though this study adopted the co-integration approach, it however, deviated from these studies in terms of the scope (variables, case study and time frame). In this study, we specify a functional nexus between demand for imports as dependent variable, and the independent variables: exchange rate, market size (real income), external debt stock, gross capital formation, trade openness, financial deepening and price level of Nigeria, over the period 1980-2014 as follows:

$$Imd = F (Exr, GDP, Eds, Gcf, Top, Inf,) \text{-----} 1.0$$

Where: Imd = import demand, Exr = exchange rate, GDP = market size/ real income level, Eds = external debt stock, Gcf = gross capital formation, Top = trade openness and Inf = price level. During estimation, parameters are introduced and a disturbance term “U” to accounts for variables not incorporated in the model but affect economic growth. Hence equation 3.1 above is transformed thus:

$$Imd_t = \alpha_0 (Exr_t)^{\alpha_1} (GDP_t)^{\alpha_2} (Eds_t)^{\alpha_3} (Gcf_t)^{\alpha_4} (Top_t)^{\alpha_5} (Inf_t)^{\alpha_6} e^{U_t} \text{-----} 1.1$$

After expressing equation (1.1) in log-linear form, the dynamic model is specified as follows:

$$\ln Imd_t = \alpha_0 + \alpha_1 \ln Exr_t + \alpha_2 \ln GDP_t + \alpha_3 \ln Eds_t + \alpha_4 \ln Gcf_t + \alpha_5 \ln Top_t + \alpha_6 \ln Inf_t + U_t \text{-----} (1.2)$$

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5,$ and α_6 are elasticities of exchange rate, real income, external debt stock, gross capital formation, trade openness and inflation rate.

Apriori expectation is that $\alpha_1 > 0, \alpha_2 < 0, \alpha_3 > 0, \alpha_4 < 0, \alpha_5 > 0,$ and $\alpha_6 > 0$. This implies that increase in exchange rate, external debt stock, degree of trade openness and inflation are expected to stimulate import demand while rise in income level (GDP) and domestic investment (gross capital formation) are expected to reduce import demand.

IV. Estimation Procedure

After conducting a correlation test, the ordinary least squares (OLS) was utilized in the analysis of the model being the best linear unbiased estimator. This is premised on the condition that the variables (in the model) in their behavior conform to the assumption of the classical regression model. Necessary precaution was taken to ensure that the model adheres to the principles of parsimony using the AIC (Akaike Information Criterion) and SBC (Swartz Bayesian Criterion). The stability test was conducted using the Augmented Dickey Fuller (ADF) and Philip Perron (PP) to determine the unit roots (time series) characteristics of the variables in the model. The level of integration of the residual error term of a set of non-stationary time series aggregate should be zero (ie $U_t \sim 1(0)$) in order to qualify as an error correction model. Using the Recursive residual and CUSUM tests, the stability test was carried out to find out the steadiness of the model across samples within the period under investigation.

Table 1: Descriptive Statistics

Variable	IMP	GDP	INF	EXR	EXD	GCF	OPN
Mean	2192.085	429.4766	20.50400	66.73036	1087.797	10.78857	8.286092
Median	837.4000	367.2000	13.70000	21.88610	595.9000	8.100000	5.098502
Maximum	10235.20	950.1000	76.80000	158.5500	4890.300	28.60000	30.04530
Minimum	6.000000	31.60000	0.200000	0.550000	1.866800	3.100000	0.057813
Std. Dev.	3097.224	214.2850	18.88773	64.09348	1356.963	6.887276	9.434786
Skewness	1.422746	0.820606	1.535651	0.253326	1.531148	1.200741	0.905394
Kurtosis	3.653929	3.019087	4.329581	1.239995	4.169815	3.244671	2.452923
Jarque-Bera	12.43149	3.928660	16.33433	4.891708	15.67142	8.497681	5.218275
Probability	0.001998	0.140250	0.000284	0.086652	0.000395	0.014281	0.073598
Sum	76722.99	15031.68	717.6400	2335.563	38072.89	377.6000	290.0132
Sum Sq.	3.26E+08	1561214.	12129.38	139671.1	62605857	1612.775	3026.516

Dev.							
Observations	35	35	35	35	35	35	35

The descriptive statistics result reported in *Table 1* indicates that total import demand has the highest mean value of N2192.085 billion. This is followed by gross domestic product with a mean of N429.4766billion over the period. External debt stock has a mean value of N1087.797 billion over the period while the mean for total domestic investment (gross capital formation) stood at N10.78857billion. The average inflation rate stood at 20.5 percent over the period while the mean degree of openness stood at 8.3percent and the average rate at which the Nigerian Naira exchanged to 1USD stood at N66.7.

During the period under review, the maximum total import demand stood at N10235.20billion and minimum value of N6.000000billion. Gross domestic product has maximum value of N950.1000billion and minimum value of N31.60000billion. External debt has maximum value of N4890.300billion and a minimum value of N1.866800billion while gross capital formation has a maximum value of N28.60000billion and a minimum value of N3, 100000 billion. The maximum value for trade openness stood at 30.05 percent and a minimum of 0.06percent. Inflation rate has the highest value of 76.8percent and the least of 0.20percent. Finally, exchange has a peak rate of 158.5 to 1USD and the lowest rate of 0.55 to 1USD over the period of this study. The above statistic indicates that the value of total import is more than the national income earn in Nigeria over the period. These statistics have further attest to the dependent nature of the Nigerian economy.

Table 2. Correlation Matrix

Variable	IMP	GDP	INF	EXR	EXD	OPN	GCF
IMP	1						
GDP	0.8025683	1					
INF	-0.307870	-0.2171090	1				
EXR	0.8203410	0.79356771	-0.37556579	1			
EXD	0.1350388	0.25213481	-0.16290696	0.59337241	1		
OPN	0.9198218	0.92329017	-0.31963662	0.88595746	0.24878675	1	
GCF	0.9225706	0.66746553	-0.29983862	0.74755667	0.06757035	0.80086683	1

The correlation result reported in *Table 2* indicates that gross domestic product (GDP), exchange rate, degree of openness and gross capital formation have positive and strong relationship with import demand while the relationship between import demand and external debt stock is positive but weak. Inflation on the other hand has negative and very weak relationship with total import demand. This result reveals that most of the explanatory variables have very strong and positive relationship with import demand.

Table 3: Unit Root Tests Result

Augmented Dickey Fuller (ADF) Test Statistic						Philip-Perron (PP) Test Statistic				
Variable	ADF Statistic	1%	5%	10%	Decision	PP Statistic	1%	5%	10%	Decision
Log(Imp)	-6.619894	-3.646342	-2.954021	-2.615817	i(1)	-6.568885	-3.646342	-2.954021	-2.615817	i(1)
Log(Gdp)	-5.515114	-3.639407	-2.951125	-2.614300	I(0)	-5.131480	-3.639407	-2.951125	-2.614300	i(0)
Log(Inf)	-4.956839	-3.639407	-2.951125	-2.614300	I(0)	-4.958408	-3.639407	-2.951125	-2.614300	i(0)
Log(Exr)	-5.149620	-3.646342	-2.954021	-2.615817	i(1)	-5.149620	-3.646342	-2.954021	-2.615817	i(1)
Log(Exd)	-4.130652	-3.646342	-2.954021	-2.615817	i(1)	-4.130652	-3.646342	-2.954021	-2.615817	i(1)
Log(Opn)	-5.786976	-3.646342	-2.954021	-2.615817	i(1)	-5.790111	-3.646342	-2.954021	-2.615817	i(1)
Log(Gcf)	-5.451089	-3.653730	-2.957110	-2.617434	I(1)	-4.652050	-3.646342	-2.954021	-2.615817	i(1)

The stationarity test result using the Augmented Dickey Fuller test approach reported in *table 3* indicates that income level (GDP) and inflation were stationary at level. This implies that they attained stability without differencing or at level. On the other hand, total import demand, exchange rate, external debt stock, degree of openness and gross capital formation attained stationarity at first difference. This implies that these variables were stable at order one.

The stability test conducted using the Philip-Perron test reported in *table 3* also reveals that income level (GDP) and inflation were stationary at level. This implies that they attained stability without differencing or at level. On the other hand, total import demand, exchange rate, external debt stock, degree of openness and gross capital formation attained stationarity at first difference. This implies that these variables were stable at order one.

The attainment of stability by the variables gives way for cointegration test. The test is carried out in order to ascertain if the variables have long run relationship or not. The result of the cointegration test using Johansen method indicates that there exist four (4) cointegrating equations under the unrestricted cointegration rank test (trace). On the other hand, the Johansen cointegration test result using the unrestricted cointegration rank test (Maximum Eigenvalue) reveal the presence of two (2) cointegrating equations. The existence of at least one cointegration equation gives way for the conduct or fitting of the long run equilibrium or the parsimonious error correction model. The result of the parsimonious error correction model is reported in *table 5*.

Table 4: Johansen Cointegration Results

Trend assumption: Linear deterministic trend				
Series: LOG(IMP) LOG(INF) LOG(GDP) LOG(EXR) LOG(EXD) LOG(OPN) LOG(GCF)				
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 *	0.817267	180.5021	125.6154	0.0000
At most 1 *	0.720076	124.4110	95.75366	0.0001
At most 2 *	0.621672	82.39422	69.81889	0.0036
At most 3 *	0.514551	50.31839	47.85613	0.0288
At most 4	0.366265	26.46992	29.79707	0.1153
At most 5	0.243905	11.41783	15.49471	0.1871
At most 6	0.064249	2.191397	3.841466	0.1388
Trace test indicates 4 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 *	0.817267	56.09106	46.23142	0.0033
At most 1 *	0.720076	42.01680	40.07757	0.0299
At most 2	0.621672	32.07582	33.87687	0.0807
At most 3	0.514551	23.84847	27.58434	0.1401
At most 4	0.366265	15.05209	21.13162	0.2853
At most 5	0.243905	9.226433	14.26460	0.2678
At most 6	0.064249	2.191397	3.841466	0.1388
Max-eigenvalue test indicates 2 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

The result in *Table 5* reveals that income level (real GDP), inflation rate, exchange rate at level, degree of openness at lag one and gross capital formation at lag one are negatively related to total import demand. This implies that increases in these variables significantly retarded total import demand over the period and vice versa. On the other hand, our result also shows that exchange rate at lag two, external debt stock, degree of openness at level and gross capital formation were found to be positively related to total import demand. This implies that increases in these variables spurred total import demand over the period of this study.

Table 5: Parsimonious Error Correction Model Result

Dependent Variable: DLOG(IMP)				
Method: Least Squares				
Sample (adjusted): 1983 2014				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.059114	0.029246	2.021270	0.0584
DLOG(INF)	-0.043396	0.015890	-2.731052	0.0137
DLOG(INF(-2))	-0.018183	0.013098	-1.388232	0.1820
DLOG(GDP)	-0.356840	0.071841	-4.967065	0.0001
DLOG(GDP(-2))	-0.110461	0.058225	-1.897127	0.0740
DLOG(EXR)	-0.183294	0.082662	-2.217391	0.0397
DLOG(EXR(-2))	0.245730	0.074672	3.290784	0.0041
DLOG(EXD)	0.107553	0.073215	1.469011	0.1591
DLOG(OPN)	0.926629	0.056925	16.27797	0.0000
DLOG(OPN(-1))	-0.601282	0.170047	-3.535978	0.0024
DLOG(GCF)	0.347833	0.094878	3.666094	0.0018
DLOG(GCF(-1))	-0.300565	0.127285	-2.361354	0.0297
DLOG(IMP(-1))	0.351029	0.147311	2.382918	0.0284
ECM(-1)	-0.916011	0.207908	-4.405839	0.0003
R-squared	0.956305	Mean dependent var		0.207561
Adjusted R-squared	0.924748	S.D. dependent var		0.373172
S.E. of regression	0.102369	Akaike info criterion		-1.420829
Sum squared resid	0.188630	Schwarz criterion		-0.779570
Log likelihood	36.73327	Hannan-Quinn criter.		-1.208270
F-statistic	30.30368	Durbin-Watson stat		2.048244
Prob(F-statistic)	0.000000			

V. Discussions of results and Findings

The parsimonious error correction model result reported in *Table 1.6* indicates that import demand is negatively but significantly related to income level (GDP) at initial level but not significant at 5 percent lag two. This implies that increase in import demand retarded national income level over the period of this study. This result is in tandem with Dutta and Ahmed (2006). Using OLS, they found import demand in India to be largely determined by real income (GDP) and less sensitive to import price changes. An increase in import demands may raise income leakages (increase expenditure on imported goods and services) thereby reducing domestic income and consumption. The persistent rise in total import demand over the period of this study may have contributed to the behaviour of this variable in this model.

The result also indicated that total import demand is negatively but significantly related to inflation rate at initial level but not significantly linked at 5 percent level to import demand at lags two. This implies that increase in import demand reduced prices of goods and services over the period of this study. This result is not in consonance with our apriori theoretical expectation but it is in tandem with the study by Egwaikhide (1999). He identified exchange rate, relative prices and real output as the salient factors affecting demand for imports in Nigeria over the period 1953-1989. Usually, an increase in import demands may raise prices of goods and services in the domestic economy thereby reducing domestic consumption. However, the importation of raw materials which have value added may stabilize prices in the domestic economy. Nigeria is a net importer of raw materials for her local industries. This may have accounted for the behavior of this variable in this model.

The error correction model result also shows that total import demand is negatively but significantly related to exchange rate at level and lags two. This implies that reduction in exchange rate has significant reduction in total import demand. This result is in consonance with apriori theoretical expectation and also in agreement with the work of Ozturk (1998). He found real exchange rate to have significant negative relationship with import demand in Turkey. Depreciation in foreign currencies in relation to domestic currency raises total import demand since foreign goods may become cheaper than locally produced goods. Nigeria under the exchange rate regimes of regulation and guided deregulation in the 1980s and 1990s subsidized her currency (a situation in which local currency was given higher value that does not reflect its true market value). This made foreign goods and services cheaper compared to the local currency hence increase in total import demand over the period.

External debt from our result was found to be positively but insignificantly related to total import demand. This result is in consonance with theoretical expectation. Increases in external debts may reduce domestic investment and production thereby increasing total import demand. Nigeria's debt profile has been on the rise since the early 1980s thus increasing debt services and reducing domestic investment and production. This development may have accounted for the behaviour of this variable in the model.

Total import demand was found to be positively related to the degree of openness at level but negatively linked to degree of openness at lag one. However, the variable was significant at 5 percent level at both lags. The first result is in tandem with our theoretical expectation while the second one deviated from it. This implies that trade openness has significant implications on total import demand. Globalization has turned the World into a global village hence information and resource flow freely across countries of the World. This development has turned most developing countries into dumping ground for foreign goods and services. The mix implications of trade liberalization may have influenced the outcome of this results.

The result further indicates that gross capital formation at level is positively and significantly related to total import demand while capital formation at lag one was found to be negatively and significantly influenced by changes in import demand in Nigeria over the period of this study. This implies that gross capital formation has mixed implications on import demand over the period of this study. Increase in gross capital formation (domestic investment) stimulates domestic production and retards import while reduction in capital formation/domestic investment and production spurred imports demand. The fall in domestic investment as a result of poor infrastructure may have contributed to the behavior of this variable in this model.

The estimated coefficient of the error correction term has the expected negative sign and significant at 5 percent. This implies that the independent variables responded speedily to long run changes in import demand model over the period of this study.

The coefficient of determination (R^2) of 0.93, used to measure the goodness-of-fit of the estimated model, indicates that the model is reasonably fit for prediction that is, the model explains about 93 percent of the systematic change in total import demand in Nigeria over the period 1980-2014. At 2.05, the Durbin Watson statistics reveal very low evidence of serial correlation. While the F-statistic of 30.3 indicates that the import demand model is statistically significant at 5 percent level. Furthermore, a stability of parameters in the growth equation reported in figures 1 and 2 are paramount.

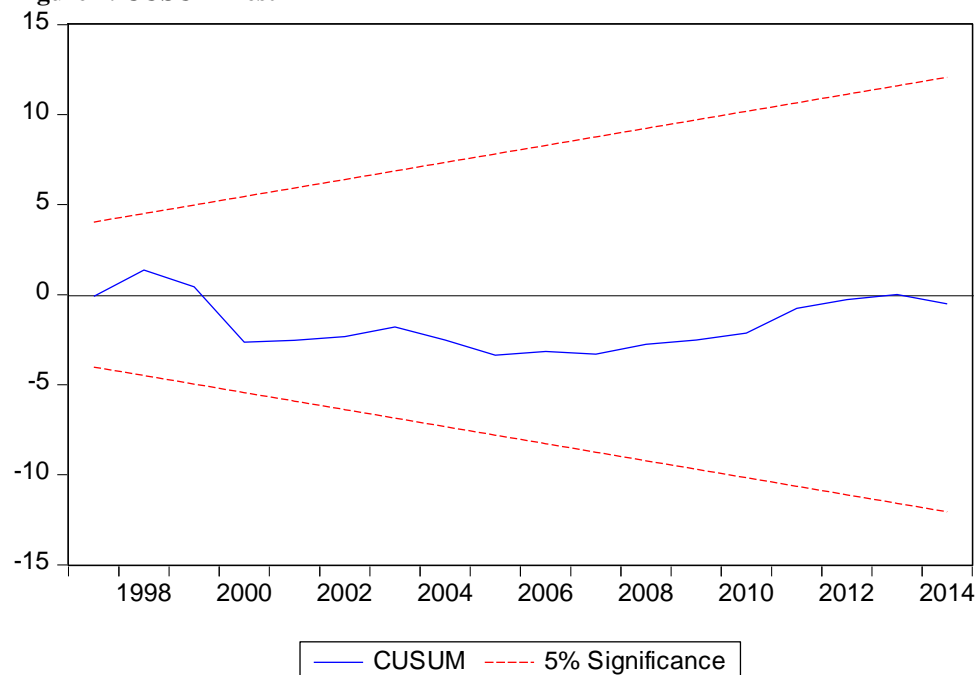
It is a standard practice to incorporate short-run dynamics in testing for stability of the long run parameters of the growth equation. To this end, this study applies the cumulative sum of recursive residuals (CUSUM) to the residuals of parsimonious model.

Stability Test- Results

Figure 1. Recursive Residuals Test



Figure 2. CUSUM Test



Source: Researcher's Computation

For stability of the short run dynamics and the long run equilibrium parameter of the growth model, it is important that the recursive residuals and CUSUM test stay within the 5 percent critical bound (represented by two straight lines whose equations are detailed in Brown et al 1975,) as shown in figures 1 and 2, neither the recursive residuals nor CUSUM of squares plots cross the 5 percent critical lines, therefore, the study concludes that the estimated parameters for the short run dynamics and long run equilibrium of the growth model during deregulation are relatively stable. In other words, a stable growth model exists over the entire sample period. From our results and findings, the study therefore concludes that there is no significant relationship between real income level (GDP), inflation rate, exchange rate, degree of openness, external debt stock, gross capital formation and total import demand in Nigeria over the period of this study. This implies that the above independent variables have significant impact on total import demand in Nigeria during the period of our investigation.

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