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Food Import Demand and Domestic Food Production in Nigeria

Ibrahim Muhammed[1] & Ibrahim Iliyasu[2]
[1]&[2]Department of Economics, Umaru Musa Yar'adua University, Katsina -Nigeria
Corresponding Email: ibrahim.iliyasu@umyu.edu.ng

Abstract
This paper aimed to determine the factors that drive food import demand in Nigeria, using time series data for the period 1981-2019. Autoregressive Distributed Lag (ARDL) approach was employed to assess the short run and long run impact of some selected variables. Findings from the study suggest that in the short run, food import demand decreases with the increase of domestic food production, pointing to its substituting role in the economy. Income, import price and trade openness are also significant factors that contribute to the increasing demand for imported food in Nigeria. Also the positive impact of foreign exchange reserve in explaining food import demand underscores the role of the reserve in financing food import. It is concluded that policies that target sustained increase in domestic food production rather than food import ban, would be more effective in tackling the surge in food import demand in Nigeria.

Keywords: Food Import Demand, Domestic Food Production, ARDL Model
JEL Classification: Q11, Q17, Q18

1. Introduction

Across many regions of the world, local food production and supply are limited compared to the quantity and compositions demanded. Estimate shows that 72-78 percent of the world populations could not meet their food demand for basic grains, locally (Kinnunen, Guillaume, Taka, D'Odorico, Siebert, Puma & Kummu, 2020). It is also argued that by 2050 the number of people to rely on food import globally will be between 1.5 and 1.6 billion (Prajal, Matthias, Dominik & Juergen, 2014). Nigeria like many other countries has consistently relied on food import to meet its excess demand over domestic production. By 2016 over 71 percent of Nigeria's import was food and other non-oil items (Nigerian Office for Trade Negotiations [NOTN], 2018). Policy response in the past such as, import substitution strategy agricultural credit schemes and the recent protectionism efforts were all phased in to improve local production, with the long run goal of cutting back on import demand.

However, despite such policies, the long run trend shows the gap between food import and domestic production remains wide.

The aim of this paper is to examine the impact of domestic food production on controlling the surge in food import demand in Nigeria. Although there are recent empirical works on food import demand in Nigeria, most of them specifically examine single commodity, notably rice (Yusuf, Yusuf, Adesope & Adebayon2020; Onu, Simonyan & Onyenweaku 2017; Rahji & Adewumi 2008; Ogundele 2007). Other studies like Metu, Okeyika & Maduka (2016) and Adeniyi & Adeyemo (2014) that considered aggregate food items chose to limit their method of analysis to descriptive statistics. All these points to the need for further analysis into the food import demand function in Nigeria.

Furthermore, most of the reviewed studies do not factor in the potential effect of domestic food production in Nigeria food import demand function; whereas, recent policy actions of the Nigerian government points to import substitution through increase in domestic food production capacity. We believe studies like this will prove useful in policy making. It's on this basis the paper investigates whether improvement in domestic food production had helped in substituting food import demand in Nigeria by empirically testing the past data from 1981 to 2019.

Following this introduction and the stylized fact on Nigeria's domestic food production and import, the rest of the paper is organised under the following sub-headings: section two is the literature review, section three contains the methodology, section four presents the results of the analysis and section five conclude and offer policy recommendations based on the study findings.

1.1. Stylize Facts on Nigeria's Domestic Food Production and Import

Figure 1 shows three clear stylized facts: Firstly, Nigeria has persistently complement domestic food production and supply with import. Secondly, the widest gap between domestic food production and import occurred in 1981-1985 and 2007-2015 periods; with highest food import and domestic food production recorded in around years 2014 and 2016 respectively. Thirdly, domestic food production could have possibly substituted imported food in 1986-2006 and 2016-2019 periods. Overall, the paper argued that, various government policies and programs initiated in the past such as: Agricultural Credit Guarantee Scheme (ACGS, 1977); Green Revolution (1980); Structural Adjustment Program SAP (1986); Directorate of Food and Rural Infrastructure (1986); National Agricultural Development Funds (2002); FADAMA projects (2005); Agricultural Transformation Agenda (2011) and Anchor Borrower Program (ABP, 2015) and so on could not make Nigeria food

self-reliant nations, but have moderately succeeded in boosting domestic production and curtailing the volume of import at some points in time.

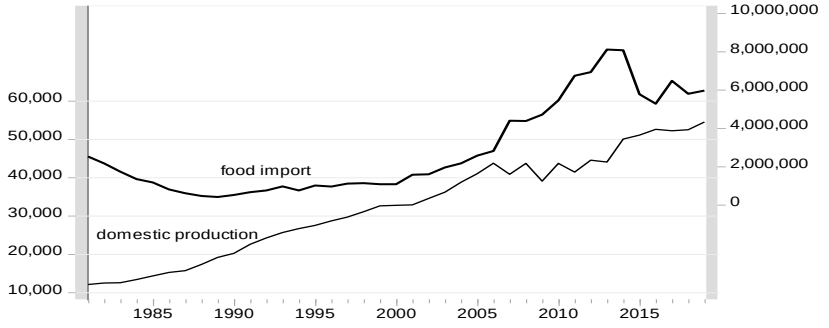

Figure 1: Trend of Nigeria's domestic food production and import 1981-2019
Source: Authors' Plot with data from FAO

2. Literature Review

2.1 Empirical Literature

D'Odorico, Carr, Laio, Ridolfi and Vandoni (2014) studied the global patterns of food trade and evaluate the dependency of food security on imports. The findings show that, about 23% of the food produced for human consumption is traded globally, this has helped doubled the amount of food calories traded across borders between 1986 and 2009. Likewise, the number of links in the trade network has increased by more than 50%. In addition, global food production has increased by more than 50% in the same period. Kinnunen, et al. (2020) argued that only about 22–28% and 11–16% of world populations could satisfy their demand for temperate cereals, rice, tropical cereals, pulses; and tropical roots/maize within 100 km of their residency. This implies, global food trade enable food flows from food surplus region to food deficit region thereby averting food scarcity. Porkka, Guillaume, Siebert, Schaphoff and Kummu (2017) posited that food security of 1.4 billion people has become dependent on imports globally. Kim and Sophia (2014) added that, millions peasants and small-holder farmers have improved their livelihoods and well-being through food trade**.** Contrarily, Suweis, Carr, Maritan, Rinaldo and D'Odorico (2015) observed that increase dependence on global food trade has weakened global food system resilience making it increasingly unstable and susceptible to conditions of crisis.

On the determinants of food import demand, Mwangi (2021) analysed a panel data set of 37 sub-Saharan African countries on agricultural import, using augmented gravity model. The study found

that, GDP, membership to regional trade agreement, inflation and quality of governance encourage agricultural imports in these countries. On the other hand, population growth and transport cost affect imports negatively. Hyuha, Williams and Grace (2017) examined the determinants of import demand in Uganda using multiple regression models. Their findings indicate that domestic production of rice; population growth and price are significant factors that influence rice import in the country. The study also recommends that policy action should be geared towards supporting rice farmers in order to increase its supply and stabilize prices. In another study, Baiyegunhi and Sikhosana (2012) investigated the determinants import demand for wheat in South Africa. The study revealed that income, import price and domestic wheat production significantly affect the demand for imported wheat in the country.

Abdullahi (2021) examined the determinants of food import demand in Africa using Nigeria as a case study. The study employed ARDL bound testing approach to cointegration. Results from the study showed that population growth and domestic food production influence food import demand in both short run and long run, while exchange rate appeared to be insignificant factor.

Vaughan, Afolami, Oyekale and Ayegbokiki (2014) examined the structure and trends of Nigeria's food import bills, secondary data was analysed using descriptive statistics and time series regression. Evidence shows that based on current price an average of ₦1.923 trillion worth food is imported per annum, which translate in to about ₦1.0 billion worth of food per day for the period 1990-2011. Further results reveals that the country had overall positive trade balance within the period, but annual food import bill was in multiples of five times of the export. Abdulmalik and Njiforti (2018) investigated the determinants of demand for agricultural import in Nigeria 1981-2015. An ARDL model was developed and estimated. Results show that both in the long run and short-run, growth in real gross domestic products and external reserves accretion increased demand for agricultural import. Conversely, depreciation of exchange rates and improved capacity of agricultural products processing decreased demand for agricultural import.

Metu, Okeyika, and Maduka (2016) evaluated food security situation in Nigeria from 1991 to 2015 using descriptive statistics. Findings show that Nigerian population growth at the rate of 3.2% while the growth in food production has been less than one. Thus, domestically produced food in Nigeria fall short the growth in the population, this shows that demand for food (population) is greater than the domestic production and supply and Nigeria has to depends on food importation to augment domestic food production. Furthermore, Adeniyi and Adeyemo

(2014) conducted a quantitative analysis of some selected food imports to Nigeria: rice, wheat and sugar; using descriptive statistics, regression and correlation analysis. Evidence indicates that variation in the quantity of the selected food items are explained by exchange rate, population, domestic food production index, national income and external reserves.

Onu, Simonyan, and Onyenweaku (2017) investigated the determinants of rice production and import in Nigeria over 1970-2016 period, using co-integration and error correction econometrics techniques. Results showed that domestic rice production is determine by rice import, area harvested of rice, rice consumption, government capital investment in agriculture, value of rice imports, rice domestic price, labour force in agriculture and trend variable. While, the level of rice import is determine by Quantity of domestic rice production, quantity consumed of rice, world rice price, nominal exchange rate, domestic rice price and population. The ECM indicated a feedback of about 88.2 % and 85.4% of the previous year's disequilibrium from long-run elasticity of the factors influencing domestic rice production and import respectively.

Yusuf et al., (2020) examined the determinants of rice import demand in Nigeria, using a dynamic model of long-run and short-run relationship. Result showed that rice consumption, price of meat, price of maize, local rice quantity, demography development and stock variance are statistically significant determinants of rice import. Ogundele (2007) examined the appropriateness of various trade policy instruments such as tariff, import restrictions, outright ban on import in reducing rice importation base on the robust determinants of import demand for rice in Nigeria between 1960 and 2007, utilising dynamic modeling approach. Evidences confirmed the existences of long run equilibrium relationship among the variables included in the model. Further, exchange rate, per capita income and local output of rice were the most statistically significant determinants of rice import demand.

Rahji and Adewumi (2008) examined the supply response and demand for local rice in Nigeria between 1960 and 2004, using OLS and 2SLS techniques to estimate a system of equations parameters. Results indicate that land area allocated for local rice production is determined by expected price of output, agricultural wage rate and by the partial adjustment coefficient. The long run and short-run supply response elasticity are 0.077 and 1.578 respectively. The difficulty of supply response to changing economic conditions is indicated by the partial adjustment measure of about 0.049. Furthermore, price and income elasticity of demand for local rice obtained are 0.841 and 0.3378 respectively, making both inelastic. Base on the results the authors argue that Nigeria ban on rice importation is a step in the right direction.

Akinleye (2009) examined the determinants of domestic food demand, specifically the effect of changes in price and income on the availability of food nutrients to Northern Nigerian households. Price and income elasticity of demand were computed using linear approximation of the strict 'almost ideal demand system' (AIDS) developed by Huang. The findings show that yam, maize and guinea corns are the foods that would have the greatest implications for the nutrient status of the households.

From the foregoing, could domestic food production substitute imported food in Nigeria? Existing empirical evidences are less clear, This study therefore, attempt to extend the existing literature and shows that domestic food production substitute imported food only in the short-run but not in the long-run.

2.2 Theoretical Framework

The theoretical basis for this study is the overall import demand model pioneered by Hemphill (1974), and further expanded by Moran (1989). The idea is to modeled import demand on the basis of general consumer demand theory postulations, where import demand depends on domestic income and the ratio of import price to domestic price of commodities. The earlier model posits that, import demand functions are related to foreign exchange constraints. The model therefore included lagged level of international reserves and foreign exchange receipt as key elements in the import demand function. The model was specified as follows:

$$M_t = b_1F_1 + b_2R_{t-1} + b_3M_{t-1} \quad (1)$$

M_t and M_{t-1} refers to the real import and lagged real import respectively. F is the foreign exchange receipt and $_{Rt-1}$ denotes lagged level of international reserve. However, the Hemphill model did not take into account relative price and domestic income. Moran (1989) therefore expanded the model to include the variable and estimated as follows:

$$M_t = b_1F_1 + b_2R_{t-1} + b_3M_{t-1} + b_4\left(^{p_m}/_{p}\right) + b_5\,Y_t \quad (2)$$

Where: $b_1, b_2>0$; $0\leq b_2, b_3\leq 1$; $b_4\leq 0$

In the model, (p_m/p) and Y_t denote the relative price and domestic income respectively. The Moran (1989) model is very important because it included income and relative price which are important determinants of import demand in developing countries like sub-Sahara Africa (Ayodotun & Farayibi 2016).

3. Data and Methodology

3.1 Data Sources and Measurement of Variables

Six variables, namely: Food Import, Domestic food production, GDP Per capita, Relative import Price, Foreign exchange reserve, and Trade Openness were put to empirical testing. The study covers the

period 1981 to 2019. Total food import and domestic food production are readily published in US Dollars on the website of Food and Agricultural Organisation (FAO). While, GDP per capita and foreign reserves are sourced from World Bank, World Development Indicators (WDI) and Central Bank of Nigeria (CBN) statistical bulletins (2019) respectively.

The variable trade openness is measured as the total trade as a percentage of GDP. It is also sourced from WDI. Lastly, relative price which refers to the price of the import commodities compared with the domestic commodities price is measured as the ratio of import value index to the GDP deflator. That is, import value index is used as a proxy to import price while GDP deflator is used as proxy to domestic commodity price. Both are sourced from WDI website.

3.2 Model Specification

Empirically, this study adapted the total import model for modelling food import demand in Nigeria where domestic food production (close substitute to imported food) is hypothesised to play significant role and openness is added as a control variable. Thus, the estimated model becomes:

$$LnFM_t = \beta_0 + \beta_1 LnDF_t + \beta_2 LnY_t + \beta_3 LnRP_t + \beta_4 LnFR_t + \beta_5\, LnOPEN_t + u_t \quad (3)$$

Where FM denotes food import, DF domestic food production, Y denotes income per capita, RP represent relative price: the ratio of import price to domestic price. The rest are FR and OPEN which denotes foreign exchange reserve, and trade openness respectively. ln refers to the natural logs as taken in all the variables and μ_t refers to the error term. The emphasis on domestic food production is to take care of Nigeria's agricultural crisis and gauge the effectiveness of government import substitution policies in boosting domestic production capacity. The variable was also useful in related study by (Safoulanitou & Ndinga 2010).

The estimation technique for the empirical model is the Autoregressive Distributed Lag Model (ARDL). The ARDL model has advantage over the conventional Johansen and Juselius (1990) cointegration techniques in the sense that the ARDL uses a single reduced form equation (Pesaran & Shin, 1995). We specified and estimated three equations as traditionally done in ARDL model as follows:

(a) The conditional error correction equation:

$$\Delta LnFM_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta LnFM_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LnDF_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta LnY_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LnRP_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta FR_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta LnOPEN_{t-i} + \theta_1 LnFM_{t-i} + \theta_2 LnDF_{t-i} + \theta_3 LnY_{t-i} + \theta_4 LnRP_{t-i} + \theta_5 LnFR_{t-i} + \theta_6 LnOPEN_{t-i} + u_t \quad (4)$$

The null hypothesis for no cointegration among variables in equation (4) is H0: $\delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$ against the alternative hypothesis H1: $\delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6 \neq 0$.

(b) The long run equation – which is estimated on finding evidence of co integration among the variables

$$LnFM_t = \theta_0 + \sum_{i=1}^{p} \theta_1 LnFM_{t-i} + \sum_{i=0}^{p} \theta_2 LnDF_{t-i} + \sum_{i=0}^{p} \theta_3 LnY_{t-i} + \sum_{i=0}^{p} \theta_4 LnRP_{t-i} + \sum_{i=0}^{p} \theta_5 LnFR_{t-i} + \sum_{i=0}^{p} \theta_6 LnOPEN_{t-i} + u_t \quad (5)$$

(c) the short run model

$$\Delta LnFM_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta LnFM_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LnDF_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta LnY_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LnRP_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta FR_{t-i} + \sum_{i=0}^{p} \beta_6 \Delta LnOPEN_{t-i} + \Phi \mathrm{ECM}_{t-1} + e_t \quad (6)$$

Where ECM is the error correction term and Φ represents the speed of adjustment.

4. Results and Discussion

4.1 Unit root test

Prior to the ARDL model estimations, a unit root test was conducted to determine the stationarity of the variables. Results from Augmented Dickey-fuller (ADF) and Phillips-Perron (PP) tests in table 1 show that two variables, namely, relative price (RP) and domestic food production are *I*(0) while the rest of the variables are *I*(1). The mixture of the order of integration therefore justifies the use of ARDL estimation method.

Table 1: Unit Root Test Result

Series	**ADF test statistic**		**PP test statistic**		
	Level	**First Difference**	**Level**	**First Difference**	**Remarks**
lnFM	-0.143427	-4.374891*	-0.644979	-4.440243*	I(1)
lnY	-0.779671	-4.227461*	-1.084932	-4.227461*	I(1)
lnRP	-3.237409*		-3.552184*		I(0)
lnFR	-1.468328	-3.875725*	-0.919785	-6.752068*	I(1)
lnOPEN	-1.892148	-7.389263*	-1.892148	-7.402534*	I(1)
lnDF	-2.697711**		-3.420448*		I(0)

Note: * and ** indicates significance at 5% level and 10% level respectively

Source: Authors' estimation using Eviews 10

4.2 Cointegration Test

The Bound test in table 2, confirmed the existence of co-integration among the variables. The F-statistic value of 7.64, which is above the upper bound of 3.38 at the 5% level of significance, rejects the null hypothesis of no equilibrating relationship. In essence, long run relationship exists among the variables.

Table 2: ARDL Bound Test Result

Test Statistic	**Value**	*K*
F-Statistic	7.648199	5
Critical Value Bounds(Restricted intercept and no trend)		
Significance level	**I(0)**	**I(1)**
10%	2.08	3
5%	2.39	3.38
2.50%	2.7	3.73
1%	3.06	4.15

Source: Authors' estimation using Eviews 10

4.3 Interpretation of the Results

The results for the long run and short run parameters estimates are reported in Table 3 and 4 respectively. The significance of an error correction term (ECT) in table 4 provides the evidence of causality among the variables in at least one direction. The lagged error term (ECT_{t-1}) in the results is negative and significant at 5% level. The coefficient of -0.68353 indicates that 68% of the deviation from the long run path of the variables is corrected each year; this point to the quick adjustment of the variables to restore any imbalances in their long run path.

Table 3: Summary of Long run Parameters Estimates

		Independent Variables			
	lnDF	lnY	lnRP	lnFR	lnOPEN
Dependent Var: lnFM	2.012949* (3.624245)	1.159468* (7.809095)	0.307618 (1.96754)	-0.41994* (-3.77683)	0.887215* (3.659764)

Note: t-statistics are reported in parenthesis, *indicates significance level at 5%

Source: Author' estimation using Eviews 10

Table 4: Summary of Short run Parameters Estimates

Dependent Variable d(ln**FM_t**)			
Independent Variable	**Coefficient**	**Std. Error**	**t-Statistic**
d(lnDF)t	-0.93489	0.301562	-3.10014*****
d(lnDF)t-1	-1.66156	0.409694	-4.05561*****
d(lnY)t	0.563171	0.125576	4.484692*****
d(lnY)t-1	0.077333	0.122685	0.630336
d(lnY)t-2	0.43041	0.120417	3.57429*****
d(lnRP)t	-0.03643	0.071022	-0.51295
d(lnRP)t-1	-0.26506	0.073054	-3.62822*****
d(lnFR)t	-0.06545	0.04454	-1.46949
d(lnFR)t-1	0.160736	0.046496	3.456984*****
d(lnOEN)t	0.202831	0.069517	2.917707*****
d(lnOPEN)t-1	-0.19241	0.065685	-2.92921*****
ECT_{t-1}	-0.68353	0.080902	-8.44886*****
R-Squared	0.844215	*Sum sq Residuals*	0.225606

***indicates significance at 5% level**

Source: Author' estimation using Eviews 10

Results in table 3 and 4 indicate that domestic food production turned out to be a significant driver of food import demand in Nigeria, in both long run and short run. A one percent increase in domestic food production will increase food import demand by about 2 percent in the long-run and decreases it in the short-run by about 0.93% percent and 1.66% respectively. To reconcile the conflicting long-run and short-run relationships, the paper argued that increased in the quantity of domestic food production has to match the quantity of import food for government import substitution strategy to succeed in the long-run. The fact that food import decrease with the increase in domestic production suggests that, the recent campaign for home-grown-food, by government, may be very effective in reducing food import, but only pursued sustainably.

Somewhat similar results were reported by (Adeniyi & Adeyemo 2014; Metu, et al. 2016; Abdulmalik & Njiforti 2018).

The results further show that, per capita GDP is positively significant in both the long run and short run model, in the current period. The long run results shows a highly elastic response of food import demand to changes in per capita GDP, while in the short run, a 1% increase in the per capita GDP leads a 0.5% increase in the food import demand. This finding underscores the role of income in the demand for food import in Nigeria, and is line with the apriori expectation. Similar works by Safoulanitou and Ndingi (2010); Ayodotun and Farayibi (2016) have reached the same conclusion for food import demand in Congo and Sub-Sahara Africa respectively.

On the other hand, relative price (the ratio of import price to domestic price) is significant only in the short run. It is found that the previous value of the relative price is an important determinant of the current value of food import demand in Nigeria. It turns out that a 1% increase in relative price leads to 0.3% decrease in the food demand for import. The positive sign of per capita GDP coefficient and the negative sign of the relative price in the short run conform to the theoretical assumption of the general consumer theory. That is the demand function is homogenous of degree zero in prices and income. In literal terms, the results suggest that when food import price rises without corresponding increase in income, consumers respond by cutting back on the demand for food import. In the long run, it is shown that food import is a necessity in Nigeria since import price is not a significant factor in the food import demand. However, the long run effect of foreign exchange reserve turned out to be counterintuitive since its increase leads to the decrease in food import demand.

Both foreign reserve and trade openness turned out to be significant drivers of food import demand in the short run and long run analysis. In the short run, the results indicate that a 1% increase in the previous year foreign reserve leads to 0.2% increase in the food import demand of the current year. These points to the expectations that the availability of foreign exchange reserve in Nigeria affects the volume of food import into the country. The significance of the lagged value also intuitively suggest that the short term fluctuations in foreign exchange reserve affects the perceptions of policy makers in framing future policies. The result also shows that in the long run a 1% increase in the foreign exchange reserve causes the food import demand to decrease by 0.4%.

Trade openness is also significant in the long run and short run. However, it has much impact in the long run as 1% change in trade openness leads to 0.8% change in the demand for food import. The

positive sign relationship indicates that trade openness encourages import of food items in Nigeria. This also explains the long term effects of trade liberalization on the food import demand in Nigeria. Similar results were found in studies by Harvey and Sadegah (2011). The short run result is however, mixed indicating a positive relationship in the current period and a negative in the previous period, with the food import demand. Such finding may further indicate that importers take time before they adjust to new trade policies.

4.4 Post Estimation Tests

The model has passed diagnostic tests for Serial correlation, Normality, Heteroskedasticity and stability of perimeters, as presented in table 5, figure 2 and figure 3. The Breusch-Godfrey statistic and Breusch-pagan-Godfrey statistic have confirmed the absence of serial correlation and equal variance respectively. The Jarque-Bera statistic of 0.110154 also satisfied the assumption of normality. In addition, both CUSUM and CUSUM of Squares plots are within the 5% range and thus the model was stable within the sample under consideration.

Table 5: Diagnostics Tests

Diagnostics Test		**Statistic**	**Prob.**
Serial Correlation Test (Breusch-Godfrey)		1.26764	0.3083
Heteroskedasticity Test (Breusch-pagan-Godfrey)		0.863867	0.6166
Jarque-Bera Normal		0.110154	0.946412

Source: Authors' estimation using Eviews 10

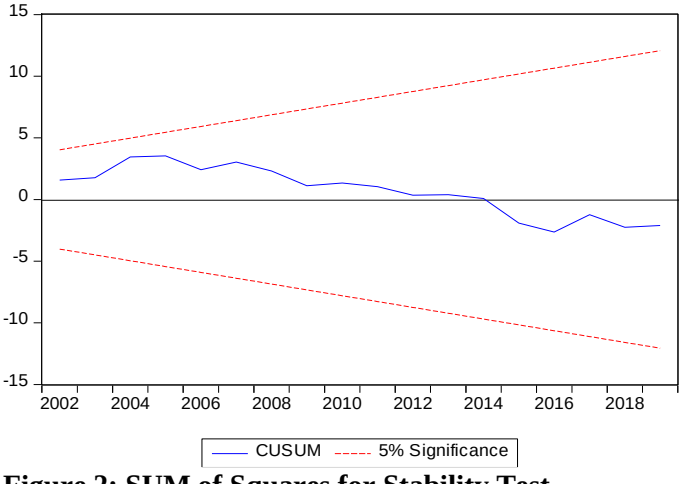

Figure 2: SUM of Squares for Stability Test
Source: Authors' plotted using Eviews 10

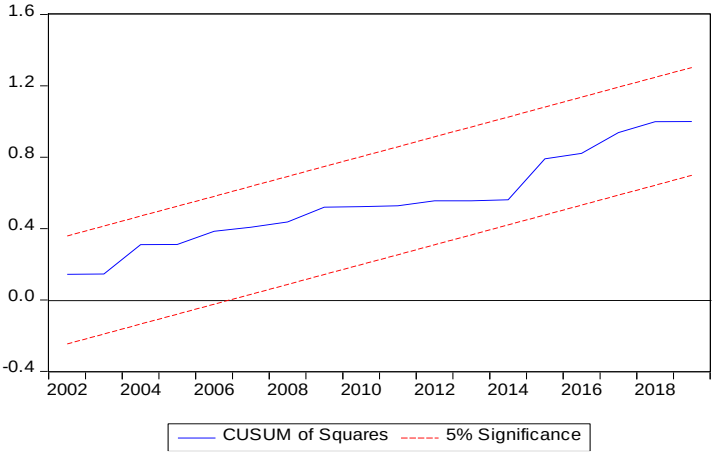

Figure 3: CUSUM of Squares for Stability Test
Source: Authors' plotted using Eviews 10

5. Conclusion and Policy Implications

The aim of this study was to analyze some economic factors that are capable of driving the surge in food import demand in Nigeria. Five variables are used, reliantly from theories and previous studies. Domestic food production, Per capita GDP, and foreign exchange reserve have turned out to be significant in explaining the food import demand in Nigeria, in both short run and long run. Relative price appeared to be significant only in the short run. Some conclusions and policy implication can be drawn from the findings. One, increase in domestic food production has to be sufficiently large to serve as a substitute for imported food in the long-run, the observed short-run substitution effect could be trivial and might be a result of artificial barrier to food import. Also, import price could only determine food import in the short run, Therefore policies aim at raising import price to discourage import will be ineffective. Two, the positive impact of foreign exchange reserve in explaining food import demand underscores the role of the reserve in financing food import.

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