COMPETITIVENESS OF NIGERIA GINGER EXPORTS: 1961-2016

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ABSTRACT

This study considered the trends, competitiveness and constraints of Nigeria ginger export from 1961-2016. The data were sourced from secondary sources. Quadratic trend model, unit root tests, generalized method of moments; revealed comparative advantage and autoregressive distributed lag models were used to analyze the data. The findings shows that ginger exports had a positive forecast and trend while United Kingdom and United States of America are the major importers of Nigerian ginger. Cost of exporting and time required for exports were statistically significant at 10% and 1% respectively and constrained the ginger exporters. Nigerian ginger exports became competitive within the era of the structural adjustment program with a mean of 0.084. Export friendly policies should be formulated and judiciously implemented to boost ginger exports from Nigeria.

Keywords: Ginger, Trends, Competitiveness and Constraints

Introduction

Ginger is an important tuber crop apart from its nutritional and medicinal benefits it is an economic crop that can contribute meaningfully to the economic growth and development of Nigeria. Ginger (Zingiber Officinale Roscoe) is a crop mostly grown in northern Nigeria with Kaduna State as the chief producer (Ayodele and Sambo, 2014). Other parts of Nigeria known for the production include Benue, Bauchi, Gombe, Nassarawa States among other states. Ginger is readily available in the local markets as a fresh ginger rhizome, powder ginger and dry ginger rhizome (Omeni, 2014). Nigeria produces an average of 50000 metric tonnes of fresh weight ginger per anum (Ezeagu, 2006) and about 10% is consumed locally while remaining 90% are exported. There are two major species of ginger grown in Nigeria which is the reddish and yellowish varieties. The ginger farmers in Nigeria are mainly smallholder farmers and are challenged by the unavailability of large hectares of land for mechanized farming. These farmers are widely regarded as poor due to their level of income, making it difficult for them to access enough credit facilities to finance their farming activities especially for the purchase of fertilizer and chemical required for farming. The challenge of the low price of the ginger products tends to repel most of the farmers from continuing the farming of ginger (NdaNmadu and Marcus, 2011). The price of ginger from Nigeria is unattractive and this has been attributed to the low quality of ginger from Nigeria which is not competitive in the international market.

Poor quality of ginger produced and supplied for exportation by farmers is one of the greatest challenges facing root and tuber exportation in Nigeria. This poor performance is attributed to low productivity, poor processing, and poor handling. They attract the lowest prices in the international market. Root and tuber export-oriented industries do not produce the product that measures up to international standard in terms of quality to withstand foreign competition and the Export Zones Authority have not looked into this aspect for export growth. Thousands of tonnes of ginger are being wasted, if adequately processed and exported, would have contributed a lot to Nigeria economy. The demand drivers for ginger in Nigeria are domestic and can vary from one state to the other. The export development challenges of ginger are that they involve a large and heterogeneous number of small-scale producers. Low intra-market integration for the

trade of ginger is a major concern in West Africa which translates into more variability and more uncovered risk for producers, as well as for traders and other stakeholders. Hence, when the intraregional market is not properly exploited, marketing potential are weakened, creating disincentives for regional investment for ginger production (Elbehri, Kaminski, Koroma, Iafrate and Benali;2013). Other challenges to international trade of ginger include the poor economic policy implementation especially in the areas of inflation control, interest and exchange rates, general category of transaction costs, which include weak attraction forces (cultural, historical, geographical) and strong opposing forces such as cumbersome, slow trade procedures and informal taxation at the borders as non- tariff barriers (Elbehri et al; 2013). Trade administrative procedures are usually costly (WorldBank, 2009); import/export procedures are more time consuming and costly, electronic breakdowns, poor capacity and coordination in the inspection services, red tape, delays in duty refunds and insufficient opening times all result in delays in the international trade of ginger.

Methodology
The study was carried out in Nigeria. Nigeria is a country located in West Africa along the Atlantic Ocean's Gulf of Guinea. Its land borders are with Benin to the West Cameroon and Chad to the East and Niger to the North. It is between latitudes 4^0N and 14^0N and longitudes 3^0E and 15^0E Meridian. Nigeria's equatorial position gives its tropical climate but this does not mean a single environment. It has a tropical climate with relatively high temperatures throughout the year annual average temperature varying from 35^0c in the North to 31^0C in the south. Temperature is highest from February to April in the South and from March to June in the North and lowest in July and August over most of the country(FOS, 1989). Nigeria has a land area of about 923,769km^2 (FOS, 1989), a north-south length of about 1450km and west-east breath of about 800km. Its total land boundary is 4047km while the coastline is 853km. The 1993 estimate of irrigated land by the Federal Ministry of Environment of Nigeria was 9570 km^2 and arable land is 35%; 15% pasture; 10% forest reserve; 10% for settlement and the remaining 30% considered uncultivable. (Boomie, 1998; Cleaver and Shreiber, 1994). Nigeria water bodies consist

of an area of about 13,000 sq. km while the remaining land is about 910,769sq km. Farming is the predominant occupation of the people; about half of the working population is engaged in agriculture, the majority of who are smallholder farmers. Cassava, yam, ginger, sorghum, maize, millet, and rice are among the major food and cereal crops in Nigeria. The country has been warned against food scarcity and famine in 2017 (FAO, 2017). This study adopted principally secondary data obtained from the Central Bank of Nigeria statistical bulletin, National Bureau of Statistics (NBS), Food and Agriculture Organization database, World Bank Statistical Bulletin, statistical reports and other sources for a period of 1961-2016. Quadratic trend model, generalized method of moments and revealed comparative advantage were used to analyze the data.

Model Specification
Quadratic Trend Equation
For measuring the acceleration or deceleration in the growth rate, quadratic trend equation was fitted and stated thus:

$$\ln h_m = a + b_t + f_t^2 + u_t \ .....\ ..... \ (1)$$

$$\ln h_l = a + b_t + f_t^2 + u_t \ .....\ ..... \ (2)$$

A positive significant value of f indicates acceleration while a negative significant value implies a deceleration. A nonsignificant value shows stagnation in the growth process. This is in line with Mbanasor, Nwachukwu, Agwu and Onwusiribe (2015) and Onyenweaku (2004).

Generalized Moments of Method (GMM)
The Generalized Moments of Method (GMM) were used in the estimation as adopted by Hamed, Hadi and Hossein (2014).

$$hl = b_1CE_1 + b_2DE_2 + b_3TE_3 + b_4ACC_4 + b_5LTT_5 + b_6LE_6 + e_i \ ... \ (3)$$

Export-Based Real Comparative Advantage (RCA) Index
In order to reveal the evolution pattern of changing competitiveness strength in the export of ginger, which represents the dynamics of export structure, the present study will employ Balassa (1989) export-based Real Competitive Advantage (RCA) index using the following formula:

$$\left[\left[RCAhl_j^i = [\frac{hl_i}{hl_{total}}] / [\frac{Gh_i}{Gh_{total}}] .... \ (4) \right]\right]$$

Where:

h= output of ginger in tonnes, h_l = export of potato in tonnes, h_m = ginger imports in tonnes, P_h= average price of ginger (in US dollars), G_h= world export value of ginger (in US dollars), CE= Cost to export (US$ per container), DE= Documents to export (number), TE= Time to export (days), ACC= Average time to clear exports through customs (days), LE= Lead time to export, median case (days), LTT= Lead time to import, median case (days), α = smoothing (weighting) constant, y = the series t is trend factor, e_t = the stochastic error term, t_{-1} = the lag length and t= time

Results and Discussion
Trend of Acceleration, Stagnation, and Decline in the Import and Export of Ginger
The export of ginger from Nigeria has been on the increase as illustrated in Figure 1 with some points of fluctuation. The trend in the export of ginger has been positive in line with the increase in the production of ginger. The forecast clearly shows that all things been equal ginger export will continue to increase. Nigeria imported the highest quantity of ginger in 1990 and 1997 an era of increased importation of consumer goods (Omoh, 2012). As shown in Figure 2 the importation of ginger into Nigeria will remain stagnant.

To examine the growth rate in production, import and export of ginger, a quadratic trend equation was fitted to the data with also the intent to establish whether the commodity experienced stagnation, acceleration or deceleration within the study period. The results of the analysis are presented in Table 1. The result presented in Table 1 showed that ginger imports, and export recorded positive and significant growth during the period. With compound growth rates of 0.86 in export, it implies that the output of ginger in tonnes and the level of exports have been growing over the years as Plotto, (2002) projected that ginger production in Nigeria will continue to grow resulting to increased exportation to Europe. But the importation of ginger with a compound growth rate of 0.06 and with the model been insignificant indicates that the import of ginger has experienced stagnation over the period of study. Given that the estimated time terms for ginger export had significant positive coefficient,

there is an indication of marked acceleration in the trend of ginger export in the study area. While given the estimated time terms for ginger imports had significant negative coefficient, there is an indication of marked deceleration in the trend of ginger import in the study area

Nigeria exports ginger to two main destinations which are the United Kingdom and the United States of America. This implies that America and Europe are a target destination for ginger exporters from Nigeria. Nigeria in the past has imported ginger products from most parts of Europe, Asia, and America.

Constraints militating against Ginger Export in Nigeria
Table 2 presents the estimation of the constraints in the export of ginger from Nigeria. The GMM model was found to be significant based on the value of j-statistics. The R-square value of 0.855 indicates that 85.5% variation in the dependent variable (ginger export) was accounted for by the independent variable included in the model. The cost of export was significant at 10% and negatively influenced the export of ginger from Nigeria; this implies that the increase in the cost of exportation decreases the quantity of ginger exports. These costs are due to abnormal practices, administrative barriers (abusive taxation, influence of peddling, red tape) and corruption of public officials (Soule, 2013). Time to exports was found to be statistically significant at 1% and negatively influenced the export of ginger from Nigeria. This result implies that the longer the time required for exports the more the delays in the quantity of ginger exported from the country. The number of documents required for the export of ginger was significant at 5% and positively influenced the export of ginger from the country against a priori expectation. The result implies that the documentation process for exporting in Nigeria is of international standard and does not pose as a constraint to the export of ginger from Nigeria. Lead time to export is the latency between the initiation and execution of an export process from initiation to execution which was significant at 5% and positively influenced ginger exports against a priori expectation. This implies that the time required for a ginger exporter to start the process of exporting to the time stipulated for the completion does not pose as a constraint to the export of ginger. Lead time

to import was significant at 1% and negatively affects the export of ginger from Nigeria. Import and export have a strong relationship. If the lead time to import into one's country is short it will encourage more imports which will pose a serious impediment to exports. The lead time to import into Nigeria generally poses a serious constraint to the export of ginger.

Export Competitiveness of Ginger
The real comparative advantage of Nigeria ginger exports was estimated and ratios presented in Table 3. The first Yaoundé convention in 1960 within EU/ACP (European/ African, Caribbean, Pacific) relation which was favourable to developing products for European industry which focused on palm oil, coffee, cocoa and cotton excluding any of the root and tuber resulted to the insignificant production of ginger for exports from 1960 -1981 which coincided with the era of the austerity measure in which Nigeria was not competitive in the export of ginger (Soule, 2013). The competitiveness of ginger exports began in the era of SAP (structural adjustment programme) which saw a significant competitiveness in the export of ginger. With the current era of deregulated economy, Nigeria has been more competitive in the export of ginger from 2010 – 2016. Policies that have supported the recent competitiveness of ginger export include Root and Tuber Expansion Program, Agricultural Transformation Agenda and the Anchor Borrower Program.

Conclusion
Ginger export has a significant growth in the period studied. The importation of ginger experienced stagnation in the period studied. Most of the ginger exported from Nigeria finds their way mainly to United Kingdom and United States of America. The significant constraints experienced by the ginger exporters are the time required to export, cost of export and lead time to import Based on the findings of this study there are several policy areas for action. The government should come up with a strategy to reduce the cost of exportation in Nigeria, as this is a significant constraint facing the exporters of ginger in Nigeria. The export documentation process is cumbersome as revealed by this study as it deters exporters of root and tuber crops. The number of documents and the procedure should be made to be easier and information

communication technology compliant. The time required for the exportation of ginger should be reduced as this will make it easier for the exporters to export ginger considering their shelve life.
There should be an outright ban on the importation of the ginger products as this impacts on the exports of ginger negatively. The borders should be closely checked to prevent smuggling.

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Table 1: Estimated growth equation in imports, and exports of ginger

Variables	B_0	b_1	b_2	R^2	R^{-2}	F
	(1.373)	(-3.153)**	(6.15)***			
ginger import	-144.701	19.8412	-0.2666	0.06199	0.00659	1.75129
	(-0.8925)	(1.512)	(-1.195)			
ginger export	1413.83	-253.19	7.79575	0.86936	0.86443	176.344***
	(2.38)*	(-5.266)***	(9.534)***			

Values in parenthesis are t-values; *,**and *** indicates that the values are significant at 10%, 5% and 1% respectively.
Source: FAO database and Index Mundi, 2016 computed using Eviews 9.5

Table 2: Generalized method of moment's analysis of the difficulties in the exporting of ginger

Variable	Coefficient	Std. Error	t-Statistic	
Cost to export	-7.645118	4.613355	-1.657171	*
Documents to export	3726.136	1089.598	3.419735	**
Time to export	-650.4075	175.6310	-3.703261	***
Lead time to export	2147.361	710.3883	3.022799	**
Average time to clear exports through customs	168.0809	420.0343	0.400160	
Lead time to import	-2119.265	446.3968	-4.747491	***

R-squared	0.855035	Mean dependent var		2566.673
Adjusted R-squared	0.840539	S.D. dependent var		3881.310
S.E. of regression	1549.908	Sum squared resid		1.20E+08
Durbin-Watson stat	1.803054	J-statistic		0.050262

*,**and *** indicates that the values are significant at 10%, 5% and 1% respectively.
Source: FAO database, World Bank Development indicators and Index Mundi, 2016 computed using Eviews 9.5

Table 3: Export competitiveness for ginger

	range	mean
1961 - 1967	0.000000	0.000000
1968 - 1974	0.000000	0.000000
1975 - 1981	0.000000	0.000000
1982 - 1988	0.585741	0.0836773
1989 - 1995	1.51178	0.773988
1996 - 2002	1.23013	1.07594
2003 - 2009	1.34299	1.05181
2010 - 2016	0.812063	1.15008

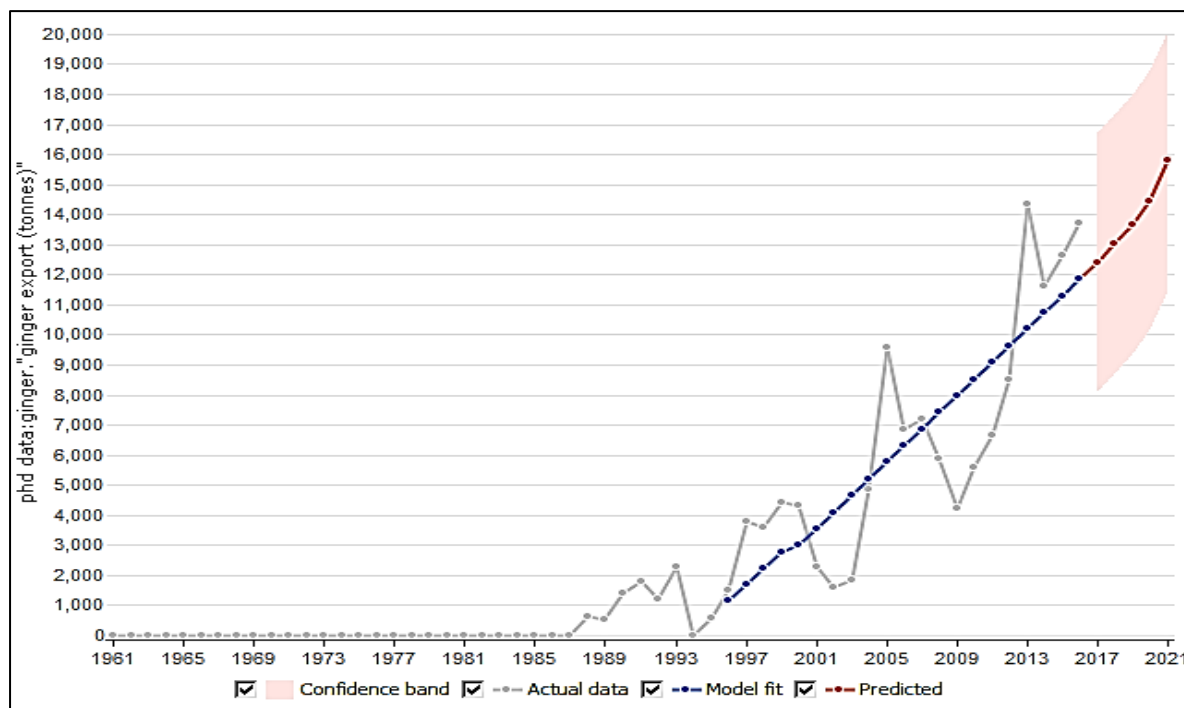Source: FAO database and Index Mundi, 2016 computed using Ms. Office Excel 2010

Figure 1: Trend of ginger exports
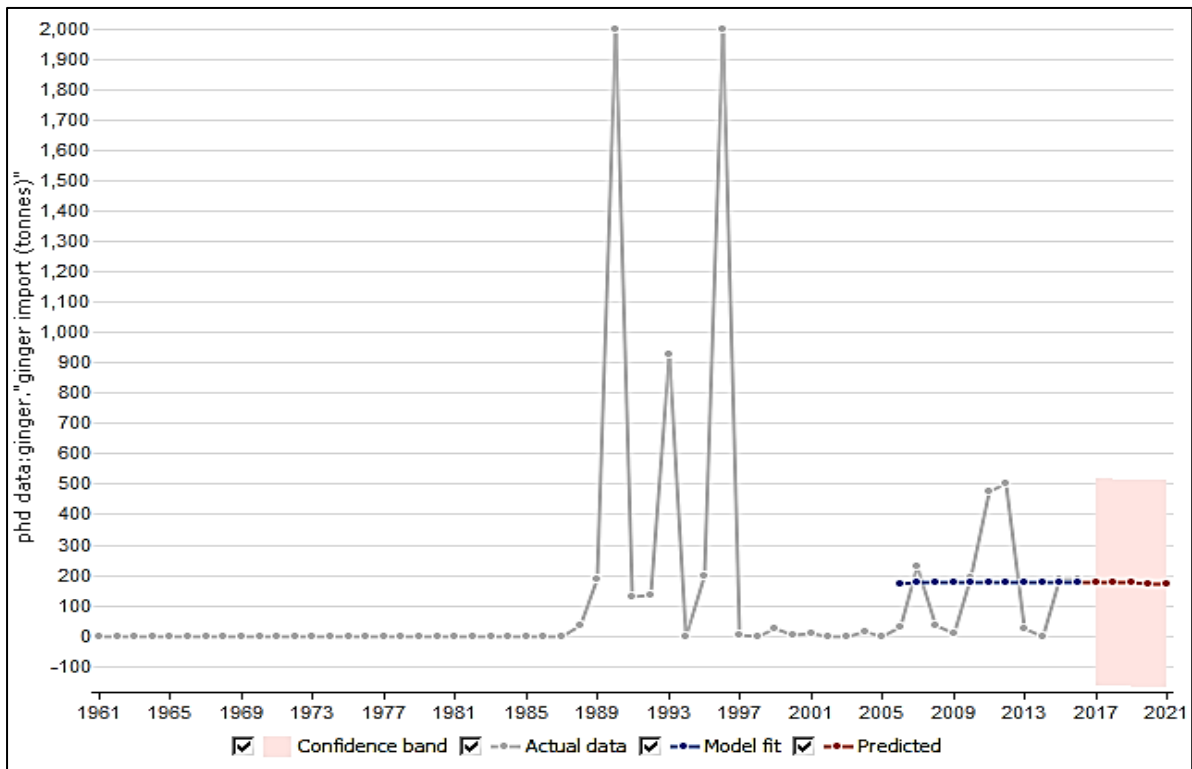Source: FAO database and Index Mundi, 2016 computed using GMDH Shell forecasting

Figure 2 trend of ginger imports

Source: FAO database and Index Mundi, 2016 computed using GMDH Shell forecasting

Figure 3 ginger export destination

Source: FAO database, Nigeria Export Promotion Council and Index Mundi, 2016 computed using Ms. Office Excel 2010
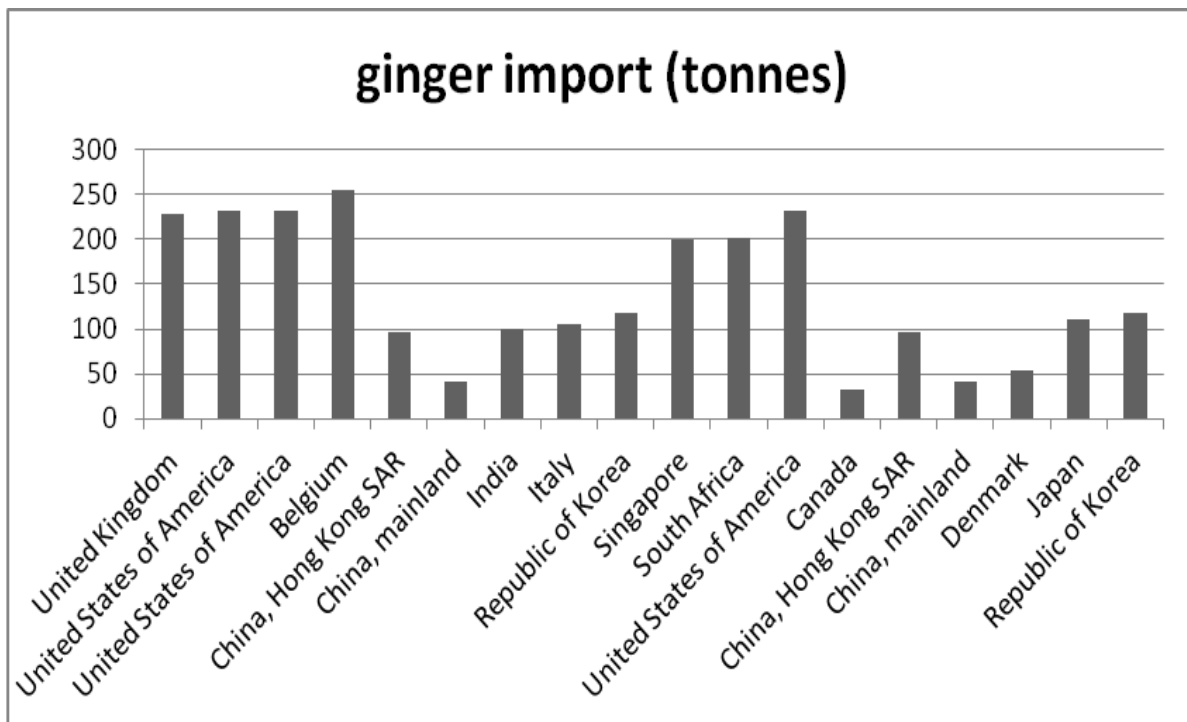
Figure 4 ginger imports destination
Source: FAO database and Index Mundi, 2016 computed using Ms. Office Excel 2010