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Trend analysis of nigerian rice sub-sector indices: lessons for rice self sufficiency in nigeria

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ABSTRACT: This study was undertaken to empirically examine the trends of rice consumption, rice production, rice import and rice area harvested in Nigeria over the period of 1960 to 2011 with the special interest on drawing up lessons for achieving rice self sufficiency in Nigeria. Secondary data were employed in this study and were analysed using descriptive statistics notably graphical analysis. It was noted that rice consumption is growing faster than rice production in Nigeria and therefore, the growing trend of rice importation to meet local demand will incessantly continue leading to a steady loss of revenue in importing rice. It was recommended that adequate policies aimed at boosting rice production through increase in rice productivity other than just the expansion of rice area harvested should be embraced by all the stakeholders in the Nigerian rice subsector so as to achieve rice self sufficiency in line with the agricultural transformation agenda of Nigeria.

Keywords: Trend;Rice; Consumption; Production; Import; Area harvested

1. INTRODUCTION

Nigeria currently doubles as the largest rice producing nation in West African sub-region and the second largest importer of rice in the world, this anomaly is attributed to the inability of its local production to meet up with its demand which has been soaring at a very fast rate over the years. Nigeria's rice consumption is projected to reach 35 million tonnes by 2050 from five million tonnes currently, rising at the rate of 7 per cent yearly due to population growth [1].

Nigeria is the largest consumer of rice in the West African region and its demand for rice has been soaring at a very fast rate over the years [2]. A combination of various factors seems have triggered the increase in the demand for rice. According to [3] rising demand was partly the result of increasing population growth. Also, increased income level following the discovery of crude oil in Nigeria led to a rise in demand for the commodity. The most important factor contributing to the shift in consumer preference away from traditional staple and towards rice is rapid urbanization and associated changes in family occupational structure. Statistics from a rice consumption survey in 2003 showed that people in large cities like Lagos, Abuja and Makurdi (per capita consumption of 64, 64 and 72 kg/annum) consume significantly more rice than people in the rural areas, and the vast majority of the rice consumed in cities is imported [4]. As women enter the work force, the opportunity cost of their time increases and convenience food such as rice which can be prepared easily rise in importance. Similarly as men work at greater distances away from their homes in urban setting, more meals are consumed from the market where the ease of rice preparation has given it a distinct advantage. These trends have meant that rice is no longer a luxury food in Nigeria but has become a major source of calories for the urban poor [5].

In a bid to address the demand-supply gap of rice in Nigeria, government have at various times come up with policies and programmes such as the Federal Rice Research Station (FRRS), established in 1970; National Accelerated Food Production Project (NAFPP), established in 1972; the National Cereals Research Institute (NCRI), launched in 1974; World Bank-Assisted Development Programs, set up in 1975; Operation Feed the Nation (OFN), started in 1976; the River Basin Development Authorities (RBDs), established in 1977; and Abakaliki Rice Project (ARP), established in 1978 and in recent times, the Presidential Initiative on Rice (PIR), established in 1999; the National Program for Food Security (NPFS); the first phase of which was launched in 2001 and the National Rice Development Committee(NRDC). It is observed that these policies have not been consistent.The fluctuations in policy and the limited capacity of the Nigerian rice sector to match domestic demand have raised a number of pertinent questions both in policy circles and among researchers [6].

The Nigerian rice sector has witnessed some remarkable developments, particularly in the last ten years. Both rice production and consumption in Nigeria have vastly increased during the aforementioned period [7]. However, the demand for rice has continued to outstrip production given the shift in consumption preference for rice especially by urban dwellers. Therefore, rice has become a strategic commodity in the Nigerian economy and has continued to attract the attention of all tiers of government, n on-governmental agencies, policy makers, researchers and other stakeholders in the rice industry in an effort to address the widening demand-supply gap situation of rice in Nigeria. In view of the foregoing, it has become imperative to examine the trends in the indices(rice consumption, production, import and area harvested) of the Nigerian rice sub-sector over the years so as to be able to make relevant inferences for attaining rice self sufficiency in Nigeria.

2. METHODOLOGY

2.1 OVERVIEW OF STUDY AREA

The study area is Nigeria. Nigeria is a vast agricultural country ―endowed with substantial natural resources‖ which include: 68 million hectares of arable land; fresh water resources covering about 12 million hectares, 960 kilometres of coastline and an ecological diversity which enables the country to produce a wide variety of crops and livestock, forestry and fisheries products [8].The country lies between 4°N and 14°N, and between 3°E and 15°E. Nigeria is located within the tropics and therefore experiences high temperatures throughout the year. The mean for the country is 27°C. Average maximum temperatures vary from 32°C along the coast to 41°C in the far north, while mean minimum figures range from 21°C in the coast to under 13°C in the north. The climate of the country varies from a very wet coastal area with annual rainfall greater than 3,500 mm to the Sahel region in the north western and north eastern parts, with annual rain fall less than 600mm.

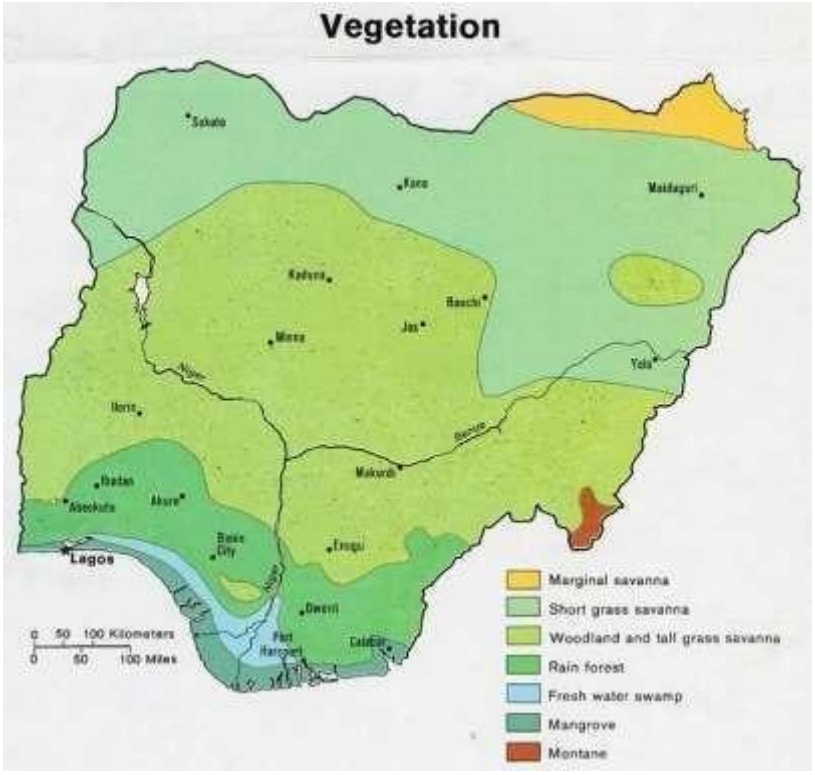

Figure 1: Map of Nigeria Showing Vegetation Zones
Source: [9]

2.2 Data Collection and Sources

Secondary data on the indices of Nigerian rice sub-sector namely rice consumption in metric tonnes(MT), rice production in metric tonnes(MT), rice import in metric tonnes(MT) and rice area harvested in hectares(HA) were utilized in this study. The data utilized extended over a period of fifty two years(1960 – 2011). The data were collection from United States Department of Agriculture Foreign Agricultural Services(USDA FAS) database of production, supply and distribution [10].

2.3 Analytical Procedure

Descriptive statistics such as mean, median, skewness, kurtosis and graphical analysis was employed in the analysis of the data in this study. Eview 7.2 was the statistical package utilized to perform the descriptive statistics.

3. RESULTS AND DISCUSSION

4.

3.1 SUMMARY OF DESCRIPTIVE STATISTICS

The summary of some important descriptive statistics of the Nigerian rice sub-sector are presented in Table 1. Rice consumption index has a mean of 1756712MT, positively skewed, platykurticand its errors are not normally distributed based on the Jarquebera statistic(4.887051), rice production index has a mean of 1136019MT, positively skewed, platykurtic with a Jarquebera statistic of 5.577622 indicating that the residuals are not normally distributed. Rice import index has a mean of 631019.3 HA, positively skewed, mesokurtic but not normally distributed. The area harvested of rice has a mean 1113.154, positively skewed, platykurtic and also not normally distributed.

Table 1: Descriptive Statistics of Nigerian Rice Subsector Indices

Statistic	Consumption (MT)	Production (MT)	Import (MT)	Area Harvested (MT)
Mean	1756712	1136019	631019.3	1113.154
Median	1293000	664000	388000	690.000
Maximum	4970000	2700000	2300000	2451.000
Minimum	204000	202000	1000	179.000
Std. Dev.	1451602	845472.4	686544.3	863.1256
Skewness	0.625815	0.336210	0.967424	0.304007
Kurtosis	2.169950	1.543244	2.712221	1.378290
Jarque – Bera	4.887051	5.577622	8.290642	6.499191
Probability	0.086854	0.061494	0.015838	0.038790
Sum	91349000	59073000	32813001	57884
Observations	52	52	52	52

Source: Authors Computation

3.2 ANALYSES OF TRENDS

The trend in milled rice consumption presented in Figure 2 shows that milled rice consumption has increased significantly over the years from 240 metric tonnes in 1960 to 850 metric tonnes in 1980 and 2757 metric tonnes in 1990 to 4970 metric tonnes in 2010 and this attributed to consumers preference for rice over other food items. However, the consumer preference for rice is largely for imported rice. As noted by [11], rice preference studies indicated that most Nigerians prefer imported rice which has mainly long and slender grains because of its ease of preparing rice recipes, cleanliness and acceptable odour as opposed to some local rice varieties which contain dirt, grits and sometimes foul odour and to improve the consumer acceptance of Nigerian rice, emphasis should be placed on good processing methods. The inability of domestic production of rice to keep pace with the increase in rice consumption over the years has resulted into a demand-supply gap for milled rice in Nigeria. In order to meet the increasing demand for milled rice, Nigeria has had to resort to importation of milled rice which has increased from 1000 metric tonne in 1960 to 394000 metric tonnes in 1980 and 2300000 metric tonnes in 2010 as shown in Figure 4. This continual dependence on rice importation in meeting the domestic demand for milled rice has constituted a great drain in the foreign exchange earnings as the country spends well over 300 billion naira in the importation of rice to meet local demand.

Although there has been an increase in rice production over the years as shown in Figure 3, it has not kept with the growing trend of rice demand in Nigeria. It is worth noting that the increase in rice production over the years is largely attributed to expansion of land area harvested other than the increase in rice yield. Therefore, area extensification as shown in Figure 5 is largely contributed to the increasing trend of rice production other than the increase of rice productivity in Nigeria. This call for designing appropriate polices for achieving increase in rice productivity so as to meet local demand and produce surplus for export.As noted by [12], locally produced rice has the potential to meet food (especially rice) demand of consumers in Nigeria if efficient production practices are employed.

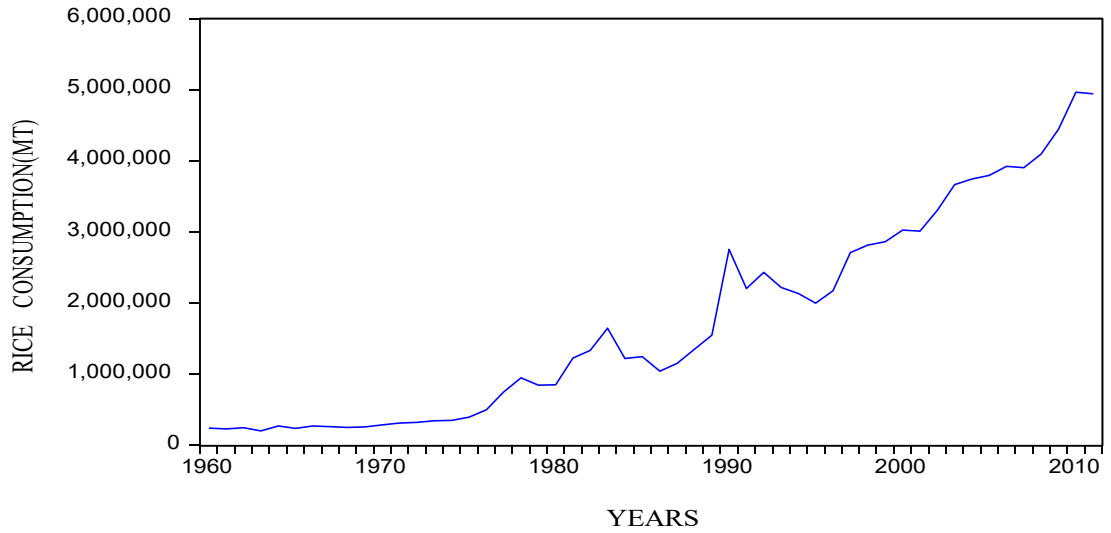

Figure 2: Trend of Rice Consumption in Nigeria

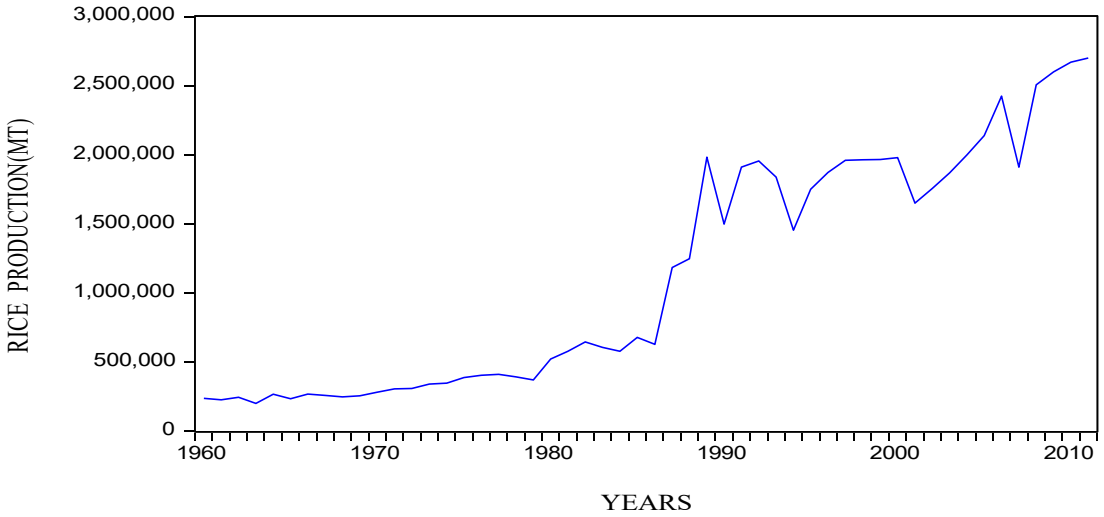

Figure 3: Trend of Rice Production in Nigeria

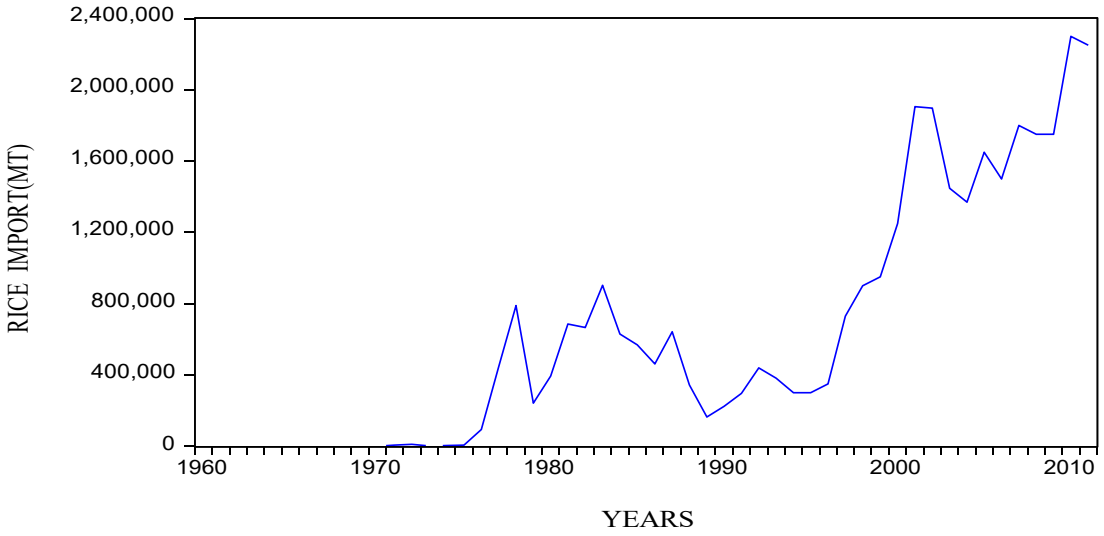

Figure 4: Trend of Rice Import in Nigeria

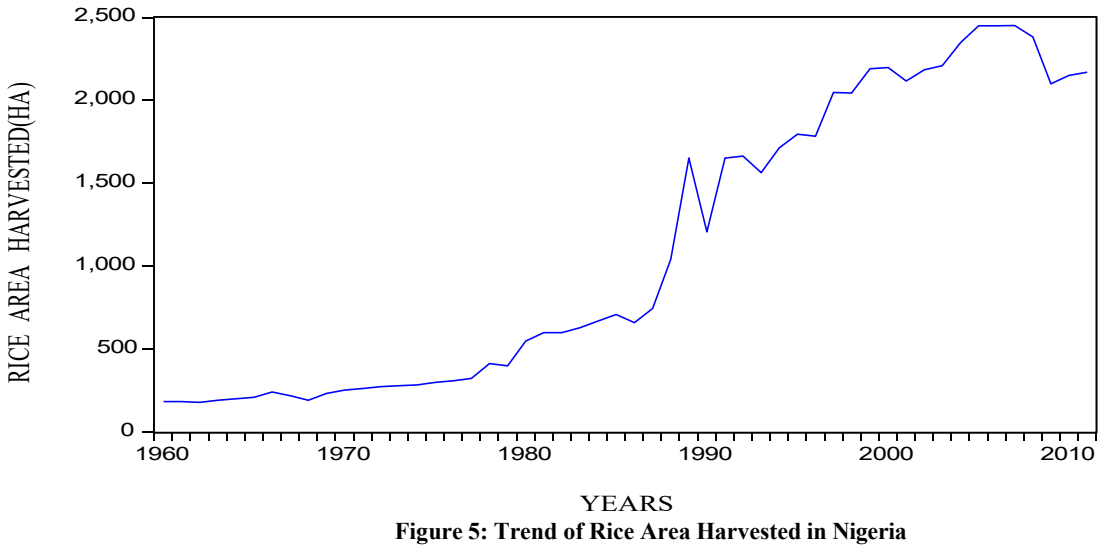

Figure 5: Trend of Rice Area Harvested in Nigeria

3.3 LESSONS FOR RICE SELF SUFFICIENCY IN NIGERIA

It has been established that rice consumption is growing faster than rice production in Nigeria and therefore, the growing trend of rice importation to meet local demand will continue to soar if appropriate measures are not put in place to halt this unpalatable scenario in Nigeria. The drive to achieve rice self sufficiency and even produce surplus for export is realizable. One viable option is to pursue policies aimed at rapidly increasing rice production through increase in rice productivity other than just the expansion of rice area harvested. This requires the availability of improved rice varieties for cultivation by farmers, effective extension service delivery, adequate tariff regime to discourage rice importation, availability of improved facilities for rice processing among other relevant measures.

4. CONCLUSION AND RECOMMENDATION

This study examined the trends of the basic economic indices of the rice sub-sector in Nigeria using secondary dataset. Graphical analysis was principally used to show the trends of the indices(rice consumption, rice production, riceimport and rice area harvested). It was observed that rice production have increased over the years but the increase have not been able to match the trend of rice consumption and this have continued to spur the need for rice importation to meet local demand. This continuous trend of rice importation is an unhealthy practice for the economy as the country continues to lose foreign exchange. It is recommended that adequate policies aimed at boosting rice production through increase in rice productivity other than just the expansion of rice area harvested should be embraced by all the stakeholders in the Nigerian rice subsector so as to achieve rice self sufficiency.

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