Rural Economics and Development

TRENDS IN RICE SUB-SECTOR GROWTH AND TRADE POLICY: THE CASE OF NIGERIA

Ogheneruemu Obi-Egbedi
Department of Agricultural Economics, University of Ibadan
gheneobi@gmail.com

Abstract

Rice trade policies in Nigeria have been improvised and inconsistent over time, while insufficiency, poor yield growth, and other factors have characterized the rice sub-sector. Studies abound on achievement trends in the sub-sector, whereas the sub-sector growth under different epochs of trade policy (pre-ban, import quota, ban, and post-ban) has not been assessed. Therefore, the study described the trends in the rice sub-sector growth under different trade policies epochs from 1970 to 2004 in Nigeria. Data analysis was achieved using descriptive statistics and a growth estimation model to describe growth trends in rice yield, output, cultivated area, import, national consumption, and producer price. Sub-sector growth was mostly positive for output and cultivated area over the four trade policy epochs. The best mean growth in rice yield and national consumption, and maximum growth of output throughout the study period were achieved during the largely liberalized pre-ban epoch. The highest mean growth in output and cultivated area occurred in the import quota epoch, although the proportion of growth showed that land rather than yield accounted for the output growth. The only protectionist policy epoch that achieved a reduction in rice import growth was the import quota epoch. Growth in rice import was nonstop during the ban and the post-ban epochs, while producer price performed best under both epochs. Thus, policy options should favour trade liberalisation since rice yield was only enhanced during the liberalized pre-ban epoch. Appropriate producer support policies should complement the liberalized trade policy to enhance competitiveness of domestic rice farmers.

Keywords: Rice farmers, trade policy epoch, sub-sector growth, rice yield, liberalization.

Introduction

Rice is the chief staple and diet leader for the semiglobal populace (Wailes, 2003 and Griswold, 2006), accounting for twenty percent of calories consumed by the poor worldwide (FAO, 2004). In Africa, the per capita consumption has grown rapidly and the staple has developed in importance for food security (Akpokodje *et al.*, 2001). Nigeria surpasses other sub–Saharan African countries in terms of rice consumption, with a rise in demand of 10 percent annually, over the five decades of the country's history (WARDA, 2008). Between 1961 and 1975, national consumption increased by 67.5 percent. It further increased by 85.5 percent between 1975and 1990 and by 41.3 percent between 1990 and 2007 - Figure 1). The per capita consumption stands at 30.7 kg per year, which is about nine percent of overall calorie consumption (FAO, 2007). Rice expenditure is a chief constituent of household food expenses for many households in Nigeria (World Bank, 1991).

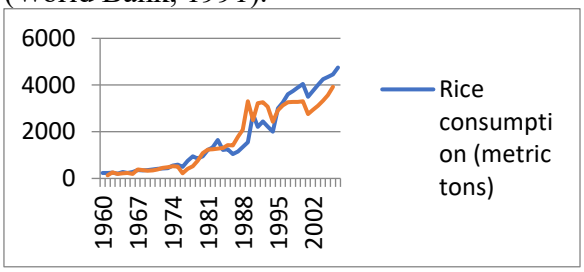

Figure 1: Nigeria 'rice output and consumption (1960-2006)

Source: FAO, 2008.

Nigeria's rice production is the largest in West Africa (FAO, 2008). Production has increased remarkably since 1961 as shown in Figure 2C. Between 1961 and 1975, production increased by 0.37 metric tons (Mt), by 2Mt between 1975 and 1990, and by 1.42Mt between 1990 and 2006. Although, the expansion of the rice cultivation areas mainly accounted for the increase. Similarly, the area under rice cultivation increased by 0.12 Million hectares (Mha) between 1961 and 1975, 1.04Mha between 1975 and 1990 and 1.32 Mha between 1990 and 2006 (FAO, 2008), as depicted on Figure 2B. According to UNEP (2005), annual growth of rice production and area under rice cultivation has been 9.3 percent and 7.9 percent, respectively, while yield has festered at 1.4 percent. Maximum yield overtime is less than 2.5 tons/ha, (See Figure 2A). This is mainly to the cultivation of traditional varieties, along with other production problems of inappropriate methods of cultivation, inadequate and costly inputs, undeveloped postharvest procedures, inept processing methods, and poor markets (UNEP, 2005). Mechanization is lacking for most farm operations resulting in high labour costs (Akpokodje *et al.,* 2001). Furthermore, small-scale rice farmers largely make up the sub-sector, operating farms of less than 2.5ha under various production systems including upland

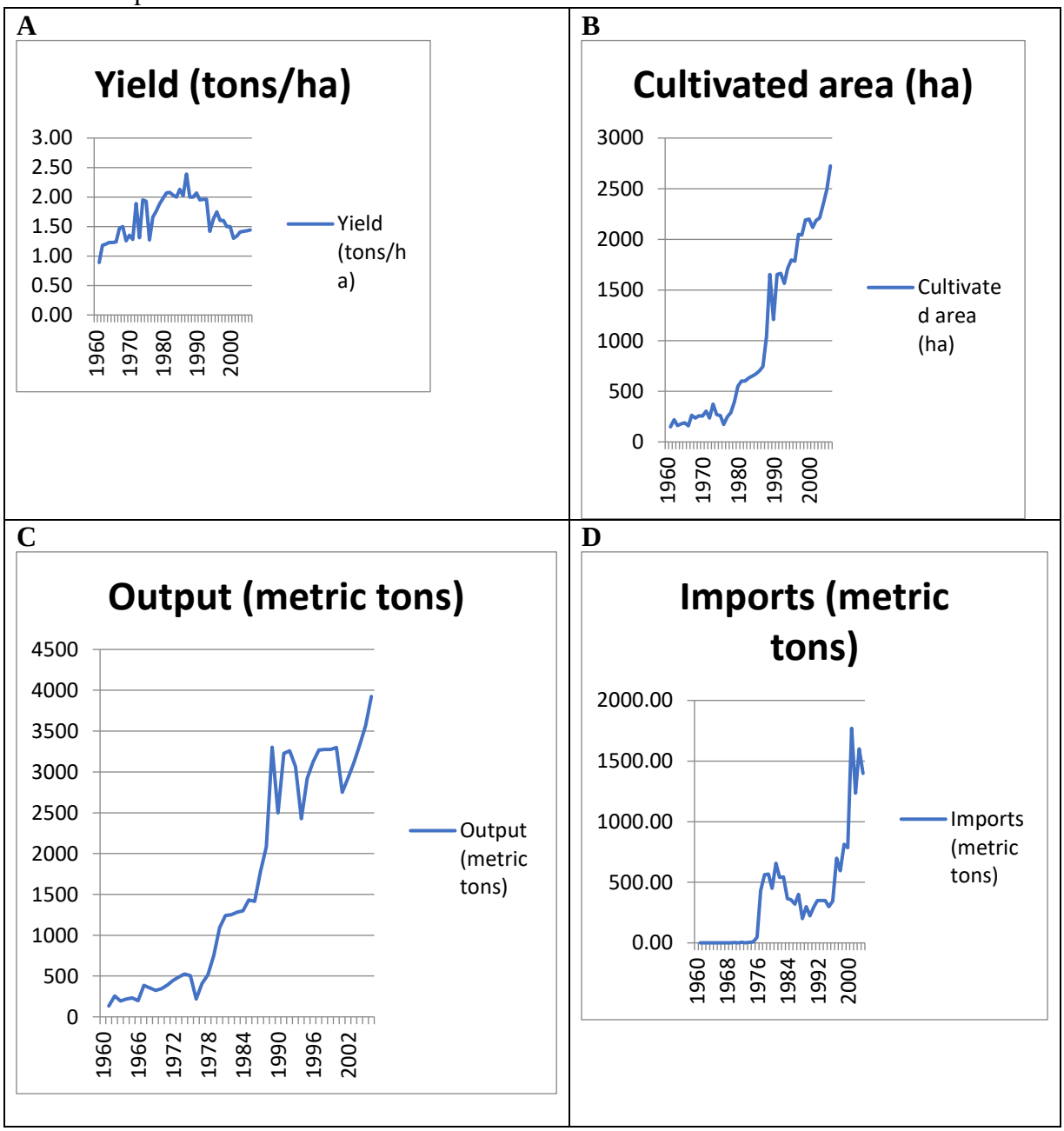

Figure 2: Nigeria's rice yield, cultivated area, output and import (1960-2006)
Source: FAO, 2008.

and lowland (which are mainly rain-fed), irrigated, deep water, and mangrove. Despite the country's production capacity and potential, self-sufficiency has continued to remain elusive, while rice imports have persistently increased (See Figure 2D).

1.2 Public policies for rice production and trade in Nigeria

Government intervention on rice over the years has mainly been through production and trade policies. Production policies has usually been directed at selected staple food crops, including rice. Some of the policies include the Nigerian Accelerated Food Production Programme (NAFPP) in 1972, National Agricultural Cooperative and Rural Development Bank in 1973, Agricultural Development Projects (since 1975), Operation Feed the Nation (OFN) in 1976, River Basin Development Authority (since 1977), Land Use Act (1978), Green Revolution in 1980, New National Agriculture Policy in 2001, National Economic Empowerment and Development Strategy (NEEDS) in 2002 and Seven-Point Agenda in 2007. The policies aimed to improve the production and productivity of locally cultivated agricultural crops, including rice. Increased production of rice was achieved, as can be seen on Figure 2A, however increased rice productivity has remained unfeasible overtime (see Figure 2C).

Government intervention in rice trade has been through the employment of both policies of protection and liberalization since independence. Protectionist policies have been the most used trade policies, especially tariffs and bans. Four significant epochs define the history of trade policy in the rice sub-sector since independence. These are the pre-ban, import quota, ban and post-ban epochs. The first epoch was the pre-ban, which spanned between 1970 and 1978. The period was mostly considered as a liberal trade policy epoch for rice. As can be seen on Figure 3, which shows the pattern of rice imports tariffs used since 1970.Tariffs were placed at 66 percent before 1974 but were dropped by 46 percent in 1974 and further reduced by 10 percent in the following year. The epoch was characterized by enlarged export revenue, an overvalued naira and low exchnge rate. Consequently, financing huge food imports became cheaper and more attractive than production. The overvalued naira lowered food import prices which weakened domestic prices. Huge food imports, especially rice was undertaken, and rice imports increased by about 100 times between 1975 and 1978 (FAO, 2007). The competitiveness of domestic rice was consequently eroded, and disincentive set in for local rice farmers (Daramola, 2005). Worse still, the government's direct involvement in the import, supply and sales of rice, which was subsidized to consumers, further served to depress rice producer prices and deplete the nation's foreign reserves, thereby setting the stage for economic decline in the mid to late 1970s.

The ensuing economic crisis led to the application of restrictive measures on rice imports. In late 1978, a ban on rice importation was placed for six months on packages of less than 50kg.Hence, from late 1978, quantity limits rather than tariffs were the rice trade measures applied. The epoch of quantity limits or import quota began in 1979 up till 1984. Protectionist trade policy measures quotas on imported rice characterized this epoch. Import licenses were approved for only a limited number of entities and government agencies. The ceiling for rice imports was set at 20,000 tons in early 1980, although the regulations changed even within the same year up till 1984.The quotas varied from merely issuing import license, which did not limit import quantity, to maximum allowable quantity allocations to license holders. Further tightening the protectionist stance of the government, a total ban on rice imports came into effect from 1985-1994 (see Figure 3). The epoch also witnessed the introduction of the Structural Adjustment Program (SAP) by the government in mid-1986 as a major economic policy which allowed for deregulation of the exchange rate and fallen the naira value.

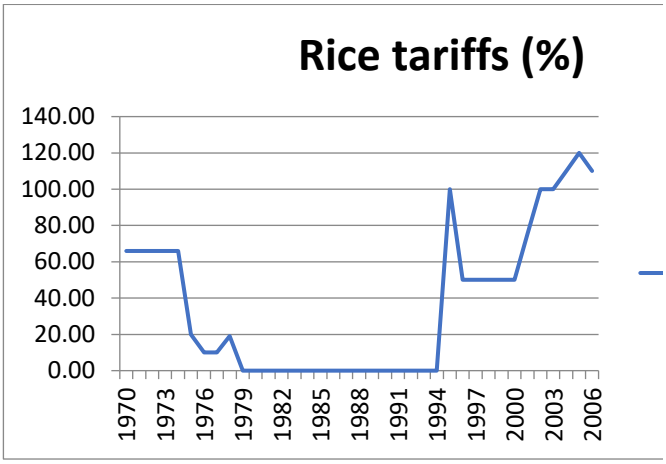

Figure 3: Rice import tariffs applied between 1960-2008

Source: Akande, *et al.* (2002), Daramola (2005), Obih *et al.* (2008) and Federal Government Budgets (2002-2006).

The post-ban epoch followed the ban lift on rice importation in 1995 up till 2004.The period was more relaxed towards rice trade, albeit with very high tariffs of up to 150 percent placed on the imports. Additionally, programs of government to help domestic producers were also implemented including, the Presidential Initiative on increased rice production processing and export, in August 2002.The programme aimed to boost household food security, farm incomes and rice sufficiency attainment. Furthermore, tariffs of up to 100 percent and other levies were placed on imported rice, while domestic producers and private rice processing companies were encouraged through other favourable policies. The country's move from total rice import ban to high tariffs on imports represented a change to a relatively more liberal trade policy. The action was a step towards globalization as campaigned by the World Trade Organization (WTO). As a member of WTO, Nigeria has committed to discontinuing and even eliminating agriculture trade distorting policies such as agriculture taxes and subsidies. This was the outcome of the Uruguay Round Agreement on Agriculture (URAA) and the Doha Development Agenda (DDA) trade negotiations in the periods of 1986-1994 and 2001-2006, respectively. The agreements aim to accentuate increasing market access for agriculture crops and livestock, especially as relating to developing countries. The trade negotiations are still ongoing although, several issues on domestic subsidies, tariffs and other trade protection measures remain unresolved among both developed and developing countries.

Despite the interventions of government, the demand-supply gap of rice still exists of about a quarter to half in proportion of production sufficiency (WARDA, 2008). Inexorably, sustained rice influx into Nigeria has persisted, while domestic rice yield has remained meagre and less competitive than its imported equal (FAO, 2007). The lack of consistent and sustainable trade policies have continued unabated in an improvised and offhand manner. Indications of offhand application of trade policy measures can be seen in the drop of tariffs from 109 percent to a total liberalization of imports in 2008 for a six-month period with zero percent tariff, followed by application of 30 percent tariffs in 2009 (Grains Report, 2010). Rice import tariff was increased to 100 percent at the beginning of 2013, indicating Nigeria's vacillation of trade policy measures between rice liberalization and protection (USDA, 2013). Moreover, policy inconsistency has negative implications for growth of the sub-sector which further affects producers' incomes, welfare and the entire economy (Obi-Egbedi et al., 2012). Therefore, it is imperative to assess the achievement of the rice sub-sector under the trade policies overtime to understand the implications for sub-sector growth in terms of yield, output, cultivated area, consumption, import and producer prices. Past studies only described the trend in the achievement variables rather than the growth rates (Akpokodje *et al.*, 2001; Daramola, 2005; Ezedinma, 2005; Umeh, 2005; Obih *et al.*, 2008). Furthermore, the existing studies did not describe trend based on the four epochs of trade policy; pre ban, import quota, ban and post ban. Thus, there is a knowledge gap on the rice sub-sector growth under the epochs of trade policy in the country's history. Therefore, the important question for which the study

seeks an answer is: What is the sub-sector growth trend of rice under the different epochs of rice trade policies applied in the country?

Materials and methods

Data obtained from secondary sources were used for the study. Information on import tariffs were obtained from statements of accounts and annual reports from Nigeria's Central Bank. The Food and Agriculture Organization Statistical Database (FAOSTAT) provided the source of the 35-year time series data from 1970-2004 on rice yield, cultivated area, output, import, consumption and producer price. The variables were used to assess the achievement of the sub-sector over the period under study.

Descriptive statistics and growth estimation model were used for data analysis of the study. Descriptive statistics such as mean was used to describe the sub-sector growth rates of the achievement variables across the different policy epochs. The achievement variables assessed were rice yield, cultivated area, output, import, national consumption and producer price. The pre ban, import quota, ban and post ban were the trade policy epochs assessed.

Following Shaums (2005), the growth estimation model was used to calculate growth rates for each achievement variable under study. Bar charts were used to compare the growth of the variables. The model is given thus:

$$\text{Growth rate} = \left[\frac{Y_{it} - Y_{it-1}}{Y_{it-1}}\right] \text{x} \quad 100 \quad (1)$$

Where:

i = Achievement variable under consideration

t = Specific year considered

Y_{it} = Specific value of achievement variable i in t

Y_{it-1} = Specific value of achievement variable i in the year before t

Results and discussions

Rice sub-sector growth in the pre-ban epoch (1970-1978)

Growth rates in sub-sector yield, cultivated area, output and import are shown on Figure 4. It can be observed that the growth of imports was much more than others during this largely liberalized pre-ban epoch. The highest growth of output, of 87.2 percent across the four policy periods of study was observed in the period, specifically in 1977. Moreover, Table 1, which shows the mean growth of the achievement variables, reveals that the second highest mean output growth of 11.5 percent was observed in this epoch, cultivated area growth was only 5.6percent. This means that output growth was twice the cultivated area growth, indicating productivity. The Table 1 also showed that the epoch recorded the highest mean growth in rice yield of 7.7 percent across all the four policy epochs. The growth of output and yield could expectedly be due to improved rice farmers efficiency in addition to enlarged consumption of the commodity. Furthermore, the substitution effect resulting from lesser market price of rice making rice less expensive compared to other staples, hence, its demand increased. This suggests that domestic rice production could demonstrate effectiveness in dealing with the challenge posed by competition from imported rice under liberalized policy. The growth in yield during this period attests to this.

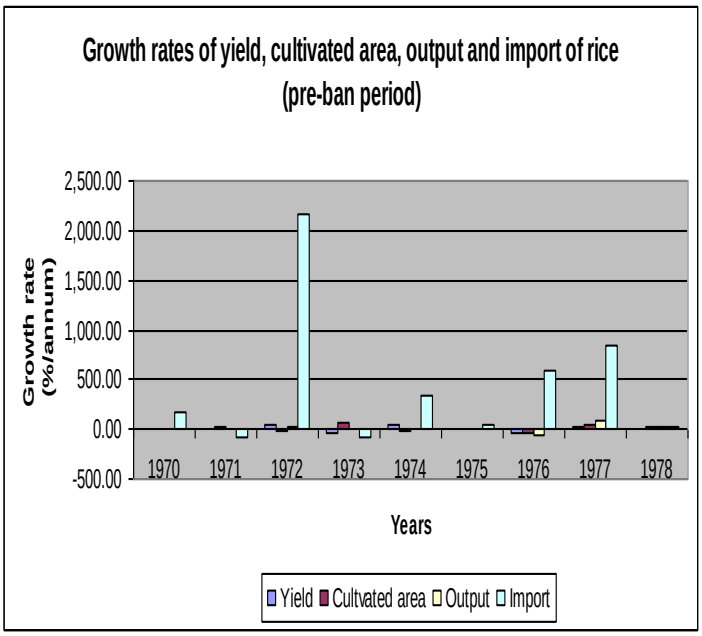

Figure 4: Growth rates in yield, cultivated area, domestic output and import in the pre-ban epoch.

Table 1: Average growth of rice sub-sector achievement variables across the trade policy epochs

Policy period	Yield (%)	Cultivated area (%)	Output (%)
Pre-ban			
1970-1978	7.7	5.6	11.5
Quota			
1979-1984	2.2	15.3	18.3
Ban			
1985-1994	-2.6	12.7	8.9
Post-ban			
1995-2004	0.3	3.3	3.6

Source: Author's calculations from FAO (2008) data

Growth rates in national consumption and producer price are shown on Figure 5. It is shown that national consumption grew much faster than producer price indicating that consumers were more favoured than producers in the epoch. Producer price had the highest growth of 28.0 percent in this period in 1971, while growth of national consumption was just 10 percent in the same year. On the average, as evidenced from Table 1, it can be seen that the mean producer price growth of 6.4 percent was least in the epoch, across all policy epochs, whereas national consumption had its highest mean growth of 16.4 percent. This further confirms that consumers were better off during this period than producers.

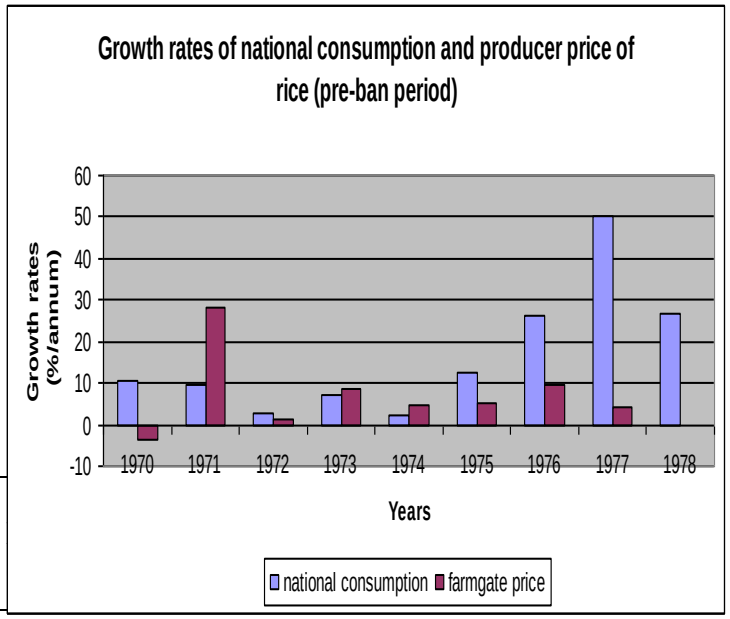

Figure 5: Growth rates of rice consumption and producer price in the pre-ban epoch

Rice sub-sector growth in the import quota epoch (1979-1984)

Growth rates in rice yield, cultivated area, output, and import in the import quota epoch are shown in Figure 6. It shows that imports mainly declined throughout the period, while yield, cultivated area, and output grew, although, the yield fell after the first three years. After 1980, however, the sector's performance declined as a result of the drought which occurred at that time (from 1981). The

fall in imports throughout the epoch indicates that the import quotas served to cut down Nigeria's rice imports. A maximum of 50 percent growth in imports was still observed in the epoch, indicating that the policy stance on import quota was not rigid but changed in an unpremeditated manner to allow rice imports into the country. Additionally, it shows that during this epoch, imports were specifically designed to supplement domestic output which were affected due to the drought (Daramola, 2005). According to Table 1, the mean growth rates for cultivated area and output were 15.3 percent and 18.3 percent, respectively, both having the fastest growth in the epoch. The result thus shows that farmers readily expanded cultivation in this period probably due to the policy protection. It also shows that the mean growth in the cultivated areas led to approximately the same proportionate growth in output, suggesting that cultivated areas accounted for the majority of the growth in output. This indicates that rice farmers were not as efficient in production relative to the pre-ban period. This is confirmed by the fall in yield in this epoch.

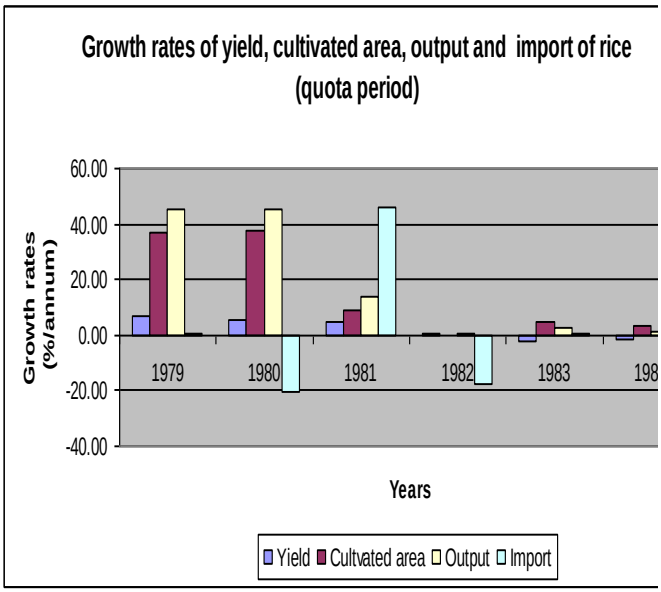

Figure 6: Rice yield, cultivated area, output and import growth rates in the import quota epoch

Growth rates in national consumption and producer price during the import quota epoch are shown in Figure 7. National consumption either grew only marginally or declined throughout the quota epoch. On the other hand, producer price growth was remarkable, despite competition from imports, especially in 1981. Growth in producer price persisted despite the yield decline in 1984, demonstrating that the growth was not due to yield but other reasons owing to the existing quota policy. The non-growth in producer prices which was experienced between 1982 and 1983 may have been due to the frequent trade policy changes of the government in this period. This shows that erratic and improvised policies may hurt the domestic producers whom the government seeks to protect under the same policies. Hence, the producers may not fully enjoy the benefits of the protection policies. Table 1 further shows that the mean growth of national consumption of 6.7 percent. relative to producer price growth of 13.9 percent designates that producers were more favoured during the import quota epoch than consumers.

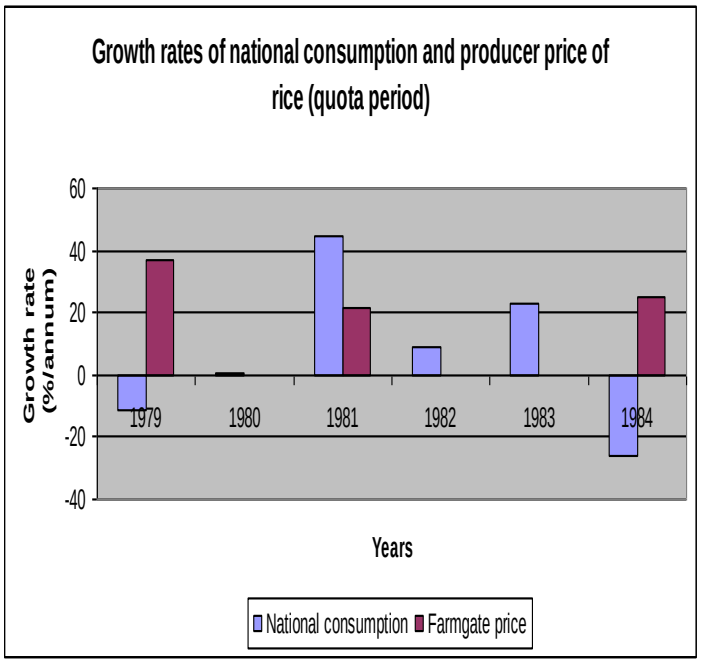

Figure 7: Rice consumption and producer price growth rates in the import quota epoch

Rice sub-sector growth in ban epoch (1985-1994)

Growth rates in rice yield, cultivated area, output and import in the ban epoch are shown on Figure 8. It can be observed that despite the extreme protection provided by the ban, yield's growth was not impressive, while imports continued to grow. Both cultivated area and output experienced the fastest growth in the ban epoch. The highest growth across the four policy epochs for cultivated area, of 58.7 percent occurred in 1989. Output also peaked in the same year at the same rate while no growth in yield was recorded that year. This may suggest that the policy protection occasioned by the ban induced the domestic producers to expand rice cultivation. Hence, the increase in cultivated area largely accounted for the increased output, rather than increased yield. Thus, inept production obtained in this epoch. The negative mean growth in yield of -2.6 percent further confirms this. The general decline of the sector in the latter part of the period was, however, also due to the problem of pest infestation which occurred at that time (FAO, 2008). The growth in rice imports in the ban period which peaked at 50.0 percent in 1989 is most likely indicates smuggling rather than a deliberate import policy as in the earlier policy epochs. This demonstrates the difficulty of enforcing a rice import ban. Moreover, effective complimentary policies aimed at helping local rice producers to make the most of the protection provided by the ban were lacking.

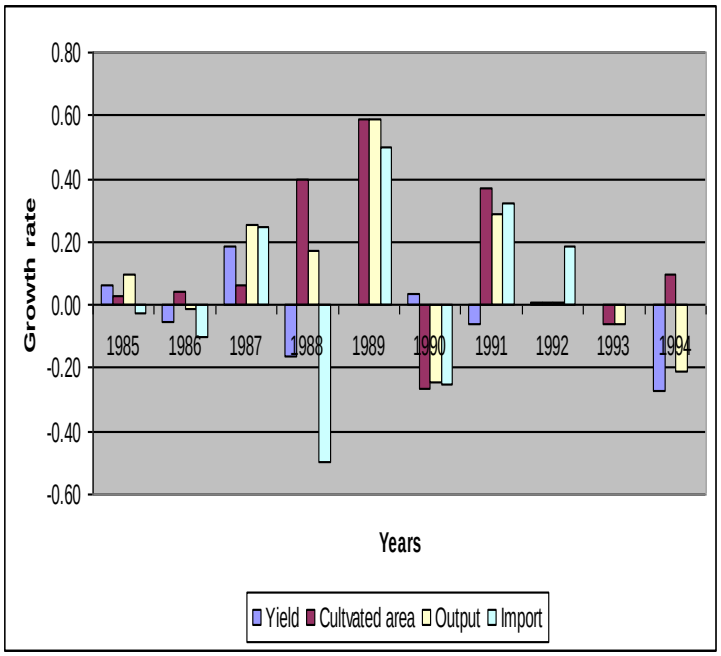

Figure 8: Rice yield, cultivated area, output and import growth rates in the ban epoch

Growth rates in national consumption and producer price in the ban epoch are shown on Figure 9. The Figure shows that the growth of national consumption was less than producer price growth throughout the ban epoch, except in 1989 and 1990. The highest growth in producer price of 131 percent was across all the four policy periods in the epoch. The highest producer price mean growth of 44.9 percent was also recorded in the period (see Table 1). The high producer price growth observed in the epoch was most likely denoted near-autarkic prices occasioned by the ban. Autarkic prices usually are not representative of efficiency in production. The unimpressive growth in national consumption during this epoch may have resulted from falling rice output as observed in 1993 and 1994. Additionally, the macroeconomic policy of SAP in use at the time laid a huge stress on the economy. Thus, rice consumption in the ban epoch was a reflection of declining domestic output, while smuggling of rice through the borders continued. This suggests further that producers were thus more favoured under the ban than consumers.

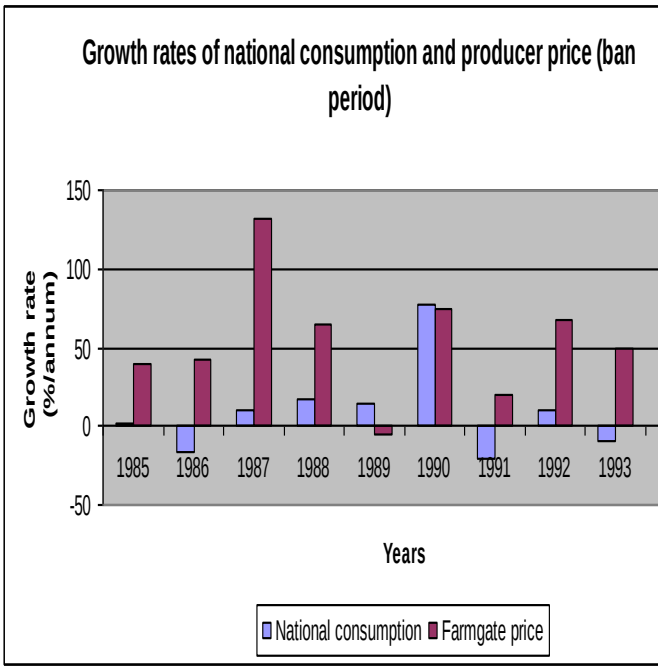

Figure 9: Rice consumption and producer price in the ban epoch

Rice sub-sector growth in the Post ban epoch (1995-2004)

The growth rates in yield, cultivated area, output and import in the post ban epoch are shown on Figure 10. The Figure reveals that only import grew impressively while others had either marginal or negative growth during the post ban epoch. Table 1 shows that the lowest mean growth of 3.6 percent and 3.3 percent for cultivated area and output, respectively, was recorded in the period. Moreover, yield grew at only 0.3 percent and imports by 23.7 percent. The notable growth of imports in the epoch demonstrates the fact that imports were not effectively curbed by using high tariffs as were applied during the epoch. Furthermore, adequate complementary policies were lacking which could help the local rice producers make the best use of the protection provided. Thus, protectionist trade policy alone may not be adequate to ensure increased performance of the rice sub-sector. The improved performance in the sub-sector from 2002 when the Presidential Initiative on rice was launched, attests to the importance of complimentary domestic policies in addition to trade policy to improve the rice sector's performance.

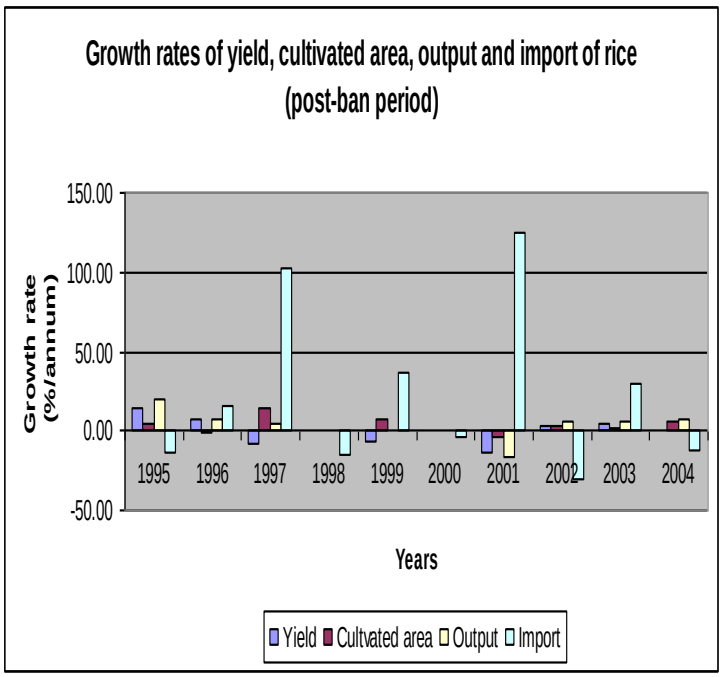

Figure 10: Rice yield, cultivated area, output and import in the post ban epoch.

The growth rates in national consumption and producer price in the post ban epoch are shown on Figure 11. The Figure shows an impressive growth for producer price, while national consumption maintained a positive but minimal growth, throughout the period. The impressive mean growth in producer price of 27.0 percent, despite the low productivity which bedeviled the sector at that time, indicates that the much growth in producer price was as a result of the high tariffs applied on rice imports. This also indicates that producers were more favoured than consumers in the post ban epoch. However, the growth in producer prices did not remain impressive throughout the epoch as was recorded in 2001 when the Presidential Initiative drive began, though growth remained positive.

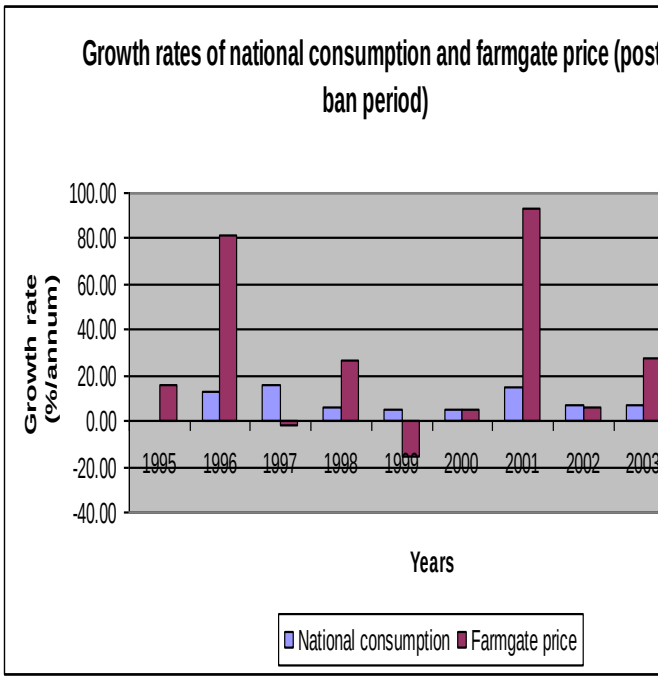

Figure 11: Rice consumption and producer price in the post-ban epoch

Conclusion

The rice sub-sector growth trends under the different epochs of trade policies from 1970 to 2004 in Nigeria were assessed in this study. The sub-sector grew in terms of output and cultivated area in all four epochs of trade policy. Rice yield and national consumption grew best in the pre ban epoch, and maximum growth of output throughout the study period was also achieved during the largely liberalized period of the pre-ban. The highest growth in output, and cultivated area was recorded in the import quota epoch, although the proportion of growth showed that land accounted for the growth in output. The only protectionist policy epoch that achieved a reduction in the growth of rice import was the import quota epoch. Growth in rice import still occurred despite the restriction on import occasioned by the ban and the high tariffs applied during the post-ban epoch. However, producer price performed best under the ban epoch when borders were closed to rice import and also under the high tariffs applied in the post ban epoch. Thus, it is concluded that the policy option of liberalization may improve rice yield and consumption. Increased productivity will invariably improve producer incomes. Hence, adoption of a more liberalized trade policy is recommended, while producer support policies to improve rice farmers' competitiveness should be implemented alongside the liberalised trade policy. The producer policies could include public procurement of farmers' output at fixed producer prices, provision of inputs to small scale farmers, increased support through extension services, and other market policies. Finally, more empirical research is needed to elucidate the influence of the different measures of trade liberalization and protection on the rice sub-sector, the farmers' and consumers' welfare, and the entire macroeconomy.

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