



Full Length Article

Analyzing the Effect of Trade Liberalization Policy on Nigerian Rubber Industry

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ABSTRACT

The liberalization of trade has exposed Nigerian rubber to the fluctuations in global rubber prices and the instability in the natural rubber prices has been a disincentive for rubber production and exports. Underlying factors in the export of natural rubber as a sub-sector of agriculture are investigated using secondary data from Nigeria during 1960–2004 and primary data from 120 farmers and analyzed using descriptive statistics and multiple regression. Result revealed that output and producers price exerted positive effects on export supply, that is a rise in output and producer's price would cause exporters to export more natural rubber. However, domestic consumption quantity and annual rainfall were disincentives to rubber exporters. Rubber producers also experienced a multiplicity of problems, which centered on inputs used in rubber production and aged rubber trees.

Key Words: Export; Domestic consumption; Output; Producer's price; Rubber; Nigeria

INTRODUCTION

The usual channels through which trade policy reform or liberalization could bring benefits are through improved resource allocation within and across industries (static gains) and through technical change, learning and growth leading to improved productivity growth (dynamic gains). However, there is another channel by which trade liberalization can be expected to provide major benefits to the performance of developing countries, namely through its competitive effect by fostering domestic competition on domestic pricing. If this channel were to be more widely recognized, then trade policy may be viewed as another effective policy to promote competition. In Nigeria, the government is committed to the entrenchment of competition in the economy. It is being increasingly recognized that effective liberalization and pro-competition policies can enhance the country's domestic production and access to international market especially in the context of globalization. In this connection the Federal Government of Nigeria is intensifying actions on its deregulation and privatization policies and has established an Advisory and Regulatory Authority on competition to deal with all forms of anti-competition practices, mergers and acquisitions in the conduct of business in Nigeria.

Agriculture continues to play a significant role in the Nigerian economy. It contributes about 40% of the GDP, plays key role in the supply of food, provision of employment, generation of income, supply of raw materials to the agro-industrial processing and manufacturing sector

and foreign exchange earnings through exports. In view of its large size and economic importance, various policy reforms, which sought to liberalize the economy and entrench competition over the last two decades especially since the introduction of the Structural Adjustment Programme (SAP) in 1986, were quite visible in the sector. Prior to the inception of SAP in 1986, several policies aimed at providing support for the agricultural sector turned out to be regarded as anti-competitive. The policies were introduced in the past due to market failures in the allocation of resources and the need to achieve sustained growth and equitable development in the country. They included: price control (administered output prices for export commodities), guaranteed minimum price for grains, input subsidy, centralized marketing and export monopoly.

With the economic crisis witnessed in the country in the early 1980s, it was argued that both the market and the government have failed in their basic responsibilities, and that solution to the economic management problems would emerge if there was greater reliance on market mechanisms in the conduct of economic activities. Thus, when the SAP was introduced in July 1986, the main policy elements were: (i) adoption of a realistic exchange rate, (ii) deregulation and greater reliance on market forces, (iii) trade liberalization, (iv) removal of subsidies on public sector goods and services, (v) privatization and rationalization of public enterprises and a general reduction of the government sector and (vi) strong demand management policies (particularly tight monetary & credit policies). In the agricultural sector, these translated into the following policy measures such as

product price decontrol since the inception of SAP, desubsidization (withdrawal of subsidy on agricultural inputs & services), abolition of commodity boards, privatization and commercialization of agricultural and agro-industrial enterprises. Exports play a dynamic role in the growth and development process of a nation's economy (Von Joachim, 2003; Mesike, 2006). Similarly, Maizels (1968), Massel (1970) and Glezakos (1973) have also argued that the stunted growth of the less developed countries was a consequence of export instability. In Nigeria, agricultural exports have played a prominent role in economic development by providing the needed foreign exchange for other capital projects before the 1970s. Major agricultural exports include cocoa beans, palm produce (oil & kernel), groundnuts and natural rubber. However, since the mid-seventies, palm oil and groundnuts are no longer exported. In fact, Nigeria has since become a net exporter of palm oil. Natural rubber though still exported, has been facing a dwindling performance in terms of aggregate output and export quantities. Nigeria average production of rubber was about 157.56 tonnes from 1970 to 2003 with 70.38% consumed domestically (Mesike, 2006). Bleak performance of the sector manifested in the cutting down of rubber trees and their replacement with food crops (Mesike, 2006).

It is an established fact that agricultural sector is vital for any economy that must grow and develop. The export trade sub-sector is even more important to generating foreign exchange to make possible the importation of farm machineries and other capital goods required for industrialization and general development (Mesike & Abolagba, 2006). Available statistics indicated that agricultural export commodities contributed well over 75% to total annual merchandise exports (Olayide *et al.*, 1980; Ekpo & Egwaikhide, 1994; Oyejide, 1998). Nigeria also ranked very high in the production and exportation of some major crops in the world in the 1940s and 1950s. For instance, Nigeria was the largest exporter of palm oil and palm kernel, ranked second to Ghana in cocoa and occupied third position in groundnut. Olayide and Essang (1976) observed that Nigeria export earnings from major agricultural crops contributed significantly to the Gross Domestic Product (GDP). Similarly, Ekpo and Egwaikhide (1994) observed a long-term relationship between agricultural exports and economic growth in Nigeria.

The introduction of petroleum in the mid-1960s into the nation's export scene changed the composition and structure of the export trade. In 1960, oil contributed just 2.6% to the foreign exchange earnings. This geometrically increased to 58.1% in 1970, 87.2% in 1972 and 1975. Revenue generated from oil thus increased from N4, 565.1 million (about \$7,412 million) in 1975 to N728, 265.3 million (94.4% increase, about \$33,412 million) in 1995. On the other hand, share of agricultural sector in foreign earning steadily declined from an average of 9.11% in the 1970-1975 to 1.76% between 1995 and 1997. Olomola (1995),

Yusuf (2000) and Mesike (2006) attributed this decline in Nigeria's agricultural earnings to the discovery of crude oil and rural-urban migration.

With the present situation in the oil market, it has become necessary for the country to reconsider its agricultural commodity export position. This study was aimed at to examine the current position of rubber exports in Nigeria, with a view of identifying the factors associated with its growth and discovering the role of some important external variables in determining the nations competitiveness in the world market for natural rubber.

MATERIALS AND METHODS

Secondary and primary data were used in this study. Secondary data over the period 1960-2004 were collected from various sources on the following variables: export quantities; domestic output; domestic prices; world prices; exchange rate and annual rainfall. Secondary data used for the analysis were obtained from Central Bank of Nigeria (CBN) publications such as Annual Report of Statement of Accounts, Economic and Financial Review and Statistical Bulletin. Other sources were Federal Office of Statistics (FOS) Annual Abstract of Statistics and Trade Survey, United Nations Trade Year Book, International Financial Statistics (IFS) Year Book and the Food and Agriculture Organization (FAO) Trade Year Book of various issues. However, for each of the variables used, data were obtained from the most consisted and up-to-date source(s).

Data from primary sources were obtained through field surveys using a set of structured questionnaires administered on both small and large scale producers of rubber selected from Delta, Edo, Ogun and Ondo states. A total of 120 farmers were interviewed using a random procedure. Both descriptive and quantitative models were used in the analysis of the data collected. The descriptive analysis was used to describe the problems constraining rubber production and marketing in Nigeria, while quantitative analytical tool in form of regression analysis was used to determine the factors associated with the fluctuations on the volume of rubber exports in Nigeria. The model was estimated using four functional forms namely linear, semi-log, double-log and exponential; and they are expressed explicitly as follows:

$$\begin{aligned}
 Y &= b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + u \quad (\text{linear}) \\
 y &= \log b_0 + b_1 \log x_1 + b_2 \log x_2 + b_3 \log x_3 + b_4 \log x_4 \\
 &+ b_5 \log x_5 + u \quad (\text{semi-log}) \\
 \log y &= \log b_0 + b_1 \log x_1 + b_2 \log x_2 + b_3 \log x_3 + b_4 \log x_4 \\
 &+ b_5 \log x_5 + u \quad (\text{double-log}) \\
 \log y &= b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + u \\
 &(\text{exponential}).
 \end{aligned}$$

Where,

- Y = quantity of rubber export (tonnes)
- X₁ = quantity of rubber output (tonnes)
- X₂ = average producers price (N/tonne)

- X_3 = average world price (N/tonne)
 X_4 = exchange rate (Naira to one US Dollar)
 X_5 = average domestic consumption (tonnes)
 X_6 = annual rainfall (millimeter/annum)
 U = error term.

RESULTS AND DISCUSSION

Problems of rubber producers in Nigeria. Table I show the result of the fieldwork carried out in Edo, Delta, Ogun and Ondo states. The results indicated that rubber producers face a multiplicity of problems. Majority of the respondents (about 88.2%) reported that lack of credit/loans affects rubber production. These problems seem to have caused other problems such as the inability to maintain the rubber farms leading to inadequate latex yields. These producers suggested measures to improve rubber production in the country, which included: access roads to the farms, provision of loan, disease control, improved extension services, replanting of aged rubber trees and price stability.

The results obtained from the estimation of the four equations are shown in Table II. The double-log production function was chosen as the lead equation and was used for further analysis, because it gave a "better fit" with a coefficient of multiple determinations (R^2) of 94% and in addition has a higher F-ratio and a lower standard error. The

Table I. Problems of Rubber Producers in Nigeria

| Problems | Percentage of farmers reporting it |
|--|------------------------------------|
| Lack of credit/loans | 88.2 |
| Lack of access road to the farm | 67.4 |
| Inadequate extension services | 52.3 |
| Diseases of trees | 37.4 |
| High cost of fertilizers and chemicals | 86.9 |
| Aged rubber trees | 71.6 |
| Untrustworthy hired labourers | 62.8 |
| Instability of rubber price | 66.1 |
| Lack of subsidized inputs | 56.1 |

Table II. Estimate of the factors associated with rubber export

| Variables | Linear | Semi-log | Double-log | Exponential |
|--------------------------------|---------------------------|---------------------------|---------------------------|----------------------------|
| Constant | 0.416169 (0.176195) | 4.438675 (1.604934) | 2.917611* (17.68093) | -58.81523 (-0.494237) |
| Output (x_1) | 0.981680* (69.51205) | 1.466331* (6.961530) | 0.021255* (21.54288) | 73.44080* (8.103105) |
| Producers price (x_2) | 3.73E-05 (1.4540367) | 0.113257 (1.602610) | 5.50E-06* (3.072835) | 10.44919* (3.436274) |
| World price (x_3) | 5.75E-06 (0.271306) | -0.020565 (-0.153235) | 9.85E-07 (0.665025) | 3.015813 (0.522245) |
| Exchange rate (x_4) | -0.023350 (-0.540009) | -0.226701 (-499868) | 0.002125 (0.703376) | -20.06569* (-3.085288) |
| Domestic consumption (x_5) | -0.975595* (-60.10350) | -0.302976* (-6.780251) | -0.020795* (-18.33726) | -15.85924* (-8.248236) |
| Annual rainfall (x_6) | 8.83E-05 (0.088062) | -0.866621* (-2.875738) | -7.56E-05 (-1.079725) | -32.18087** (-2.481757) |
| R^2 | 0.995 | 0.730 | 0.943 | 0.775 |
| F-Value | 1397.88 | 20.87 | 123.17 | 26.31 |
| Standard error | 1.62 | 0.25 | 0.11 | 10.65 |

The value in parenthesis is the computed t-values. *(**) Significant at 1% (5%) level

balance of 6% was as a result of excluded variables and errors in estimation. An examination of the overall lead equation shows that all the explanatory variables were correctly signed. Thus it is correct to say that the output (x_1) and the producer's price (x_2) exerted positive effects on the performance of export of natural rubber. This implied that a rise in the output and the producers' price will cause exporters to increase supply. The coefficients of these variables are the supply elasticity. Thus given the production constraint, the exporters were more induced by the output and producers price to supply for export. The negative signs of coefficient x_5 and x_6 show the extent by which average domestic consumption and annual rainfall that they respectively represent were disincentives to export though x_5 was significant.

CONCLUSION

The study revealed that rubber output quantity; the producer price and the domestic consumption quantity significantly affect the Nigeria rubber exports. Although the domestic consumption serves as a disincentive to rubber export both output and producers price positively affect export of natural rubber.

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