ANALYSIS OF THE EFFECT OF GLOBALISATION ON NIGERIAN RUBBER INDUSTRY

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ABSTRACT

The globalisation 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. Data were analysed 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 producers price would cause exporters to export more natural rubber. However, domestic consumption quantity and annual rainfall were dis-incentives 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, producers price, rubber, Nigeria.

INTRODUCTION

Exports play a dynamic role in the growth and development process of a nation's economy (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. The major agricultural exports include cocoa beans, palm produce (oil and 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 percent consumed domestically (Mesike, 2006). The 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 and Abolagba 2006). Available statistics indicated that agricultural export commodities contributed well over 75 % to total annual merchandise

exports (Ekpo and Egwaikhide, 1994; Olayide *et al*, 1980; 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.

However, 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 period, agricultural export earnings declined 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 aims 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.

METHODOLOGY

Secondary and primary data were used in this study. Secondary data covering 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 foe 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 factor associated with the fluctuations on the volume of rubber exports in Nigeria. The model was estimated using four various functional forms namely linear, semi-log, double-log and exponential; and they are expressed explicitly as follows:

$y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + u$ (linear)
$y = \log b_0 + b_1\log x_1 + b_2\log x_2 + b_3\log x_3 + b_4\log x_4 + b_5\log x_5 + u$ (semi-log)
$\log y = \log b_0 + b_1\log x_1 + b_2\log x_2 + b_3\log x_3 + b_4\log x_4 + b_5\log x_5 + u$ (double-log)
$\log y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + u$ (exponential)

where,
Y = quantity of rubber export (tonnes)
X_1 = quantity of rubber output (tonnes)
X_2 = 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 1 shows the result of the fieldwork carried out in Edo, Delta, Ogun and Ondo states. The results indicate 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:

1. access roads to the farms
2. provision of loan
3. disease control
4. improved extension services
5. replanting of aged rubber trees
6. price stability

Table 1. 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 2: Estimate of the factors associated with rubber export

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

The results obtained from the estimation of the four equations are shown in Table 2. 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 determination (R^2) of 94 % and in addition has a higher F-ratio and a lower standard error. The 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 producers price (x_2) exerted positive effects on the performance of export of natural rubber. In other words, a rise in the output and the producers' price will cause exporters to increase supply. The coefficients of these variables are the supply elasticities. This is to say that given the production constraint, the exporters are 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 dis-incentives 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. Though the domestic consumption serves as a dis-incentive to rubber export while both output and producers price positively affect export of natural rubber.

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