

ECONOMIC ANALYSIS OF RATTAN FURNITURE PRODUCTION IN OYO STATE, NIGERIA

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ABSTRACT

The study was carried out in five (5) Local Government Areas of Ibadan metropolis of Oyo state Nigeria. One hundred and fifty (150) rattan producers were randomly selected from the Local Government Areas. Data were collected with the use of a well structured questionnaire and some analytical techniques such as descriptive statistics, budgeting and regression were used for the study. The results show that cane furniture producers were predominantly males out of which (6%) had primary education, 12% had secondary, 52% had technical, while 30% had post technical education. It also revealed that the annual average net margin on rattan furniture making was ₦39884.76; which implies that the enterprise is profitable. The regression result showed that, the coefficient of multiple determination (R^2) was 0.7699, which implies that 77% of the variations in revenue is explained by the independent variables. The study revealed that inadequate fund, poor pricing by customers, inadequate raw materials, police harassments, and poor market are some problems faced by the producers.

Key words: Rattan Furniture, Production, Ibadan, Oyo State

INTRODUCTION

Nigeria's forest provides a number of products and services that play important roles in our national economy and general wellbeing. Apart from products, forests are known for a multiplicity of benefits that they provide for both subsistence and trading. The growing awareness of the forest and its ecosystem and the roles which the non timber forest products play in their socio economic development have contributed to the recognition of minor forest products which deserves relabeling as non timber forest products (FAO 1986; FAO, 1991; Pantanella, 2005; Edafe, 2008)

The forest also provides the raw materials for many small scale processing industries such as furniture making, oil processing firms and cane furniture (Arnold, 1994). Rattan is regarded as one of the minor forest products. Minor forest products are not accounted for in the sector analysis and measurement of gross domestic product (GNP) (Okafor *et al*, 1994; Tom and Khamphone, 2002). Rattan is a spiny climbing plant that has a large number of species with important commercial value (Wong and Mankaran, 1985). However, there are four (4) varieties of rattan in West Africa; (*Calamus*, *Eremospata*, *Laccosperma*, *Ontocalamus*).

Rattan is predominant in the coastal areas and forest reserves, which are regarded as weeds by foresters. Panayotan and Ashton (1992) said that, out of about 600 species of rattan known in the world today, only about a dozen have commercial value. Rattans are monocotyledon plant. It has no cambium; once a rattan had developed it does not increase in diameter with age (Dranfield, 1988). The products of rattan are harvested from the natural forest. The maturity of the rattan products is assessed through experience by visually observing the looseness of basal sheath and the removal of the thermally leafy sheaths (Abd- Latif Mohmod *et al*, 1987).

It is reported that the demand for rattan is increasing, and much cane are being processed in many parts of Africa (Sunderland *et al.*, 2001). The increased demand has led to a significant decline in wild stocks and considerable local scarcity, particularly around urban centres (Profizi, 1986; Morankinyo, 1996; Sunderland, 1998; Sunderland 1999, Defo, 1999; Oteng-Amoako and Obiri-Darko, 2000). Very limited data are available on current or recent rattan exports from countries in Africa (Oteng- Amanko and Obiri-Darko, 2000). There have been reports of exports of raw cane from China and Nigeria to southeast Asia (Sunderland, 1999) and of a flourishing export trade from Nigeria to the Republic of Korea (Morakinyo, 1995). Most of the harvesting and transportation for trading is undertaken as a secondary occupation by individuals, usually farmers and hunters. The harvesting provides them with extra revenue (Edafe, 2005). The development of a wide network of logging roads through many forest areas in West and Central Africa has resulted in increased rattan exploitation.

Therefore, the study focuses on the following objectives to:

- 1 identify the socio economic characteristics of the people that engaged in rattan furniture production the study area.
- 2 examine factors that contribute to the efficiency of resource use, and
- 3 examine the cost and returns of rattan furniture production in the study area.

MATERIALS AND METHODS

The Study Area

The study was conducted in Ibadan metropolis of Oyo State, Nigeria. The area is about 9,756km² and comprises of 5 Local Government areas namely: Ibadan North, Ibadan North East, Ibadan North West, Ibadan South West and Ibadan South East.

Data Collection

Cross sectional data were collected from the rattan furniture producers using purposive sampling technique. Thirty (30) respondents were interviewed from each of the five local government areas, making a total of 150 respondents. Information collected were on the socio - economic characteristics of the producers such as age, marital status, years of furniture making experience, educational level, and gender. Information was also collected on costs and revenue and problems encountered by the respondents.

Analytical techniques

Descriptive statistics such as percentages, means and frequency tables were used to analyze the data on socioeconomic variables. The gross margin analysis was used to determine the profitability of rattan furniture producers.

The model used was:

$$\text{Gross Return} = P_Q X_Q = A \text{-----eq}^n 1$$

$$\text{Total variable cost (B)} = P_1 X_1 + P_1 X_2 + P_1 X_3 + \dots + P_1 X_n \text{-----eq}^n 2$$

$$\text{Total fixed cost} = D - P_1 F_X \text{-----eq}^n 3$$

$$\text{Gross Margin} = \text{Gross Return} - \text{Total Variable Cost}$$

$$GR = \sum P_{qi} X_{qi} - \sum P_i X_i$$

$$= A - B = C = P_Q X_Q - \sum (P_1 X_1 + P_2 X_2 + \dots + P_n X_n) \text{-----eq}^n 4$$

$$\text{Net return} = \text{Gross Margin} - \text{Total Fixed Cost}$$

$$= C - D = P_Q X_Q - (P_{X1} + P_{X2} + \dots + P_n X_n) - P_1 F_X \text{-----eq}^n 5$$

Where F_X = Fixed input

$X_1 \dots X_n$ = the variable inputs

P_Q = Price of output

P_1 = Price of input

Multiple regression analysis was used to determine the contribution of each of the independent variables to the variation of revenue earned by the producers.

The model of the multiple regression is

$$Y_1 = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, \mu) \text{-----eq}^n 6$$

Where :

Y_1 = Total Revenue from cane in Naira

X_1 = Experience in years

X_2 = Age of respondent in years

X_3 = Educational status in years

X_4 = Total cost of material in naira

X_5 = Family Labor in mandays

X_6 = Cost of hired labor naira

X_7 = Land rent in naira

μ = Error term.

The data were fitted into four different functional forms linear, semi log, double log and exponential form. The suitable production function was selected based on statistical and theoretical plausibility of R^2 , F-ratio and coefficients of the estimated parameters.

RESULTS AND DISCUSSION

The socio-economic variables investigated are reported in Table 1.

Table 1: Socio-economic characteristic of the respondents

Characteristics	Frequency	Percentage
Age (yrs)		
20 – 30	3	2.00
31 – 40	135	90.00
>40	12	8.00
Total	150	100.00
Sex		
Male	150	100.00
Female	0	0
Total	150	100.00
Marital status		
Single	33	22.00
Married	114	76.00
Divorced	3	2.00
Widowed	-	-
Total	150	100.00
Family size		
1-2	42	28.00
3-4	42	28.00
5-6	57	38.00

>7	9	6.00
Total	150	100.00
Educational status		
Primary education	9	6.00
Secondary education	18	12.00
Technical education	78	52.00
Polytechnic/ NCE	42	28.00
University education	3	2.00
Total	150	100.00
Experience(yrs)		
0-5	54	36.00
6-10	51	34.00
11-15	24	16.00
16-20	15	10.00
>20	6	4.00
Total	150	100.00
Nature of enterprise		
Sole proprietorship	132	88.00
Small enterprise	12	8.00
Joint enterprise	6	4.00
Total	150	100.00

Source: Field survey (2009)

The average age of the respondents was 37 years indicating that a high proportion of young respondents were involved in rattan production. Majority of the respondents (90%) were within the age range of 31- 40 years. The result showed that the production was mostly done by married people (76%), which was an indication of the need to cater for family. The business was dominated by males with a few of them being assisted by their wives. The average family size was five persons. The highest percentage falls between 5-6 family size (38%) which indicates that the business is capable of meeting the need of all respondents irrespective of their family sizes. Furthermore those with large family sizes have been found to be more productive because of the use of family labour, which invariably reduce the cost of labour (Brando and Feder, 1995;

Amanor, 2001) Most of the respondents were well educated this has contributed positively to their productivity. About 82% had higher educational status, thus increasing their skill and understanding. Also about 70 percent of the respondents have experiences ranging between 1-10 years, while 30 percent had above 11 years. A high number of respondents had few years of experience as a result of the influx of new artisans into the business due to its high profitability and self employment potential. The distribution of respondents according to the nature of enterprise shows that majority (88%) were sole proprietorship, which indicates that the business is easy to operate by one person as it requires little capital to start and maintain it.

Table 2 shows the distribution of respondents' cost and returns in terms of their experience.

Table 2: Distribution of respondents' annual returns in relation to their years of experience per respondents

Experience (years)	Frequency	% distribution	Gross return(N)	Variable cost(N)	Fixed cost(N)	Gross Margin(N)	Net Margin(N)
1-5	54	36	6609.00	1554.44	88.16	5054.82	4966.65
6-10	51	34	6012.66	463.32	236.86	5549.35	5312.50
11-15	24	16	1581.25	5376.21	319.98	10475.04	10155.07
16-20	15	10	26438.40	12748.80	190.29	13689.60	13499.31
20- 30	6	4	43400.00	3418.00	288.33	29982.00	29693.67

Source: Field survey (2009)

Years of experience has been found to be highly correlated with skill in any enterprise. The higher the years of experience, the higher the net margin (Table 2). Therefore, the few respondents (6) with 20- 30 years of experience had the highest returns of ₦26,693.67 representing 4% of the respondents. Respondents with between 1 and 5 years of experience had the lowest net returns of ₦4,966.65 representing 36% of the respondents. This shows that the more one remain in the business the higher the returns ceteris paribus.

Table 3 shows the distribution of respondents' returns in relation to their level of education.

Table 3: Distribution of respondents' annual returns in relation to their level of education per respondents

Level of education	Frequency	% distribution	Gross return(N)	Variable cost(N)	Fixed cost(N)	Gross Margin(N)	Net return(N)
Pry/ Sec	27	18	9,583.70	514.67	188.75	9,069.04	8,880.29
Technical	78	52	3,830.74	157.50	85.12	3,673.23	3,588.22
Polytechnic	42	28	9,133.88	5773.65	252.65	3,360.23	3,107.58
University	3	2	117,360.00	16,060.00	4,065.30	101,300.00	97,234.67

per respondents

Source: Field survey (2009)

The years of education is considered substantial enough to enhance the capabilities of reading information and good communication with clients. However, the level of education undoubtedly places a limitation to the extent the business manager can understand information considered to involve complex technicalities or processes that could afford manager opportunities of accessing production incentives. This is reflected in the net return of respondents who had university

education. Though few (2%), their annual return of ₦97,234.67 was the highest. This could be due to the fact that the knowledge acquired through education gave widened horizon in business opportunities. However, those who had primary/secondary school education (18%) were found to have greater net return ₦8,880.29 than the respondents who had Technical (52%) and Polytechnic (28%) education with ₦3,588.22 and ₦3,107.58 respectively (Table 3). The respondents who had primary /secondary education have long been in the business than their counterparts who had Technical and Polytechnic education who ventured into the rattan business because white collar job is not available for them after school. This brings about the disparity in their annual net returns. However, the more the respondents with Technical and Polytechnic education remain in business and acquire more experience, the higher the net income which is possible to outshoot respondents with primary/secondary education in no distant future.

Enterprise Productivity Analysis

The results of the regression analysis are presented in Table 4.

Table 4: Result of Multiple Regressions on the Determinants of Revenue

Variables	Variable measurement	Coefficient	T- value
K	Constant	1283106**	0.0672
X ₁	Experience in years	44196***	0.2685
X ₂	Age of respondents in years	-416336***	0.0006
X ₃	Level of education in years	-9.182542	0.8679
X ₄	Cost of materials in naira	0.10042	(0.3439)
X ₅	Family labour in mandays	2099.23	0.1215
X ₆	Hired labour	-23.83	0.6165
X ₇	Land rent	8.5161**	0.0844
R ²	0.7699		
F	4.543		
Prob > F	0.005		

Source: Data Analysis, 2009

***, **, represent significant level at 1 and 5 percent respectively.

Linear functional form gave the highest R² value of 0.7699 and was chosen as the lead equation. The result implies that about 77% of the variations in the revenue of respondents were explained by the independent variables. Years of experience were positive and significantly (P>0.01) affecting the net income generated from rattan business. This implies that a unit increase in year

of experience, net return will increase by ₦44,196. Age was significant ($P < 0.001$) but negatively affect net returns. This means that as age is increasing, the needed energy to meet the demand would reduce and consequently, reduction in the net income. Rentage was positive and significantly ($P > 0.05$) affecting net returns. This implies that as more space is being acquired to expand the business, net returns will be increasing though at a marginal level (Table 4).

CONCLUSION AND RECOMMENDATIONS

The result of the study shows that rattan production is a profitable venture. However, it can be concluded that factors such as experience, age and rentage on land play important roles on the profitability of the enterprise. The budgetary analysis shows that one can be self employed under the rattan furniture production since it involves little capital investment.

Therefore, awareness and mass educational programme should be made to publicise the importance of cane furniture as a profitable business. This can also serve as a substitute for wood furniture and reduce forest exploitation. Government should also incorporate arts and crafts of which rattan cane production is an important aspect into Nigeria's educational curriculum.

A policy should be put in place in form of empowerment programme by providing capital or source of capital affordable to the rural farmers and also provide ready market for the products. Also, enlightenment programme should be put in place to show the importance of this non- forest wood. Hence, deforestation would be minimized. In addition, a policy could be formulated by the government to have a plantation of rattan.

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