ECONOMIC ANALYSIS OF SAWN TIMBER MARKETING IN SAPELE LOCAL GOVERNMENT AREA, DELTA STATE, NIGERIA

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ABSTRACT

The study examined economics of sawn timber marketing in Sapele Local Government Area of Delta State, Nigeria. A multi-stage sampling technique was used to select 150 sawn wood marketers as respondents for the study. Data was collected with the aid of structured questionnaire. Descriptive statistics and gross margin analysis were used for the data analysis. Result showed that the mean age of the respondents was 36 years, 98.0% of the respondents were males and mean household size of 5 persons. Majority (73.3%) of the respondents had primary school education, while the mean marketing experience was 13 years. The calculated net revenue was ₦600,684.20. It was recommended that Government should endeavour to construct roads in areas where they do not exist and maintain the already existing ones for easy access to forest where these timbers were fetched. This will thus reduce transportation cost in order to boost the revenue of the marketers. Improved marketing efficiency should be pursued to help increase and sustain profit in sawn wood marketing.

Keywords: Analysis, Economics, Marketing, Sawn, Timber.

INTRODUCTION

Nigeria is blessed with agricultural resources. About 80% of the land is cultivable and about 9% of the land is forested (Nwandu, 2019). Timber is the most economically important product of the forest. Timber industry has the potential to improve economic performance and increase state and household revenues. In 2008, the export of industrial round wood, sawn wood and wood-based panels from developing countries accounted for US $ 13.1 billion (FAO STAT, 2010). Timber plays a significant role in the nation's socio-economic development with relevant benefits to human welfare. Its benefits ranges from its usefulness for interior and exterior decoration in homes and industries, production of electric poles, plywood, pulp wood, veneers and planks needed by building and construction industries (Adebara *et al.,* 2014). Timber is broadly classified into hard wood and soft wood. Hard wood comes from broad leaves trees. These trees have flowers and produce seeds such as nuts and fruits. Examples are Oak, beech and mahogany. Hard woods are denser than softwoods and are stronger and more durable. They are used for furniture making. Hardwood is much more expensive than soft wood. Soft woods come from cone bearing trees. Examples are pine, redwood and fir. Softwoods can be used for furniture and doors but are mostly used in construction for roof

trusses and stud partitions. Nigerian's timber sector contributes an estimated US $39 billion annually in foreign exchange by supplying wood fuel to meet 80% of the country's total energy needs (Idumah and Awe, 2017). The commercial wood fuel value chain that supplies cities and towns generates over 300000 full time jobs (Odetola and Etumnu, 2013). In Nigeria, the export revenue from timber industry grew at 4.1, 8.0 and 28.8 percent between 1950-60, 1960-70, and 1970-80, respectively (Aribisola, 1993). The Nigerian government policy on forest industries currently, is meant to increase the domestic value in the processing of wood products and has thus put a ban on the export of logs, rough sawn and clean wood except processed wood. These measures were put in place to make raw materials locally available for secondary processing mill to achieve the designed value-addition for export (Larinde *et al.,* 2010). Most firms targeted the local market for their products. Incidentally, the majority of them do not keep records of annual sales and volume produced, making it difficult to establish a market flow diagram (Odetola and Etumnu, 2013).

Timber marketing enterprise is one of the main economic activities in Sapele Local Government Area. This is obvious from the fact that timber market holds daily in the area. The greater percentage of the local people depends on the wood industry for their livelihood (some as harvesters, producers, transporters and marketers). Despite the significance of the timber industry, there is little or no study to access the cost and returns and the level of profitability or otherwise of this venture. This necessitates a comprehensive study on the economics of timber marketing in the study area. In view of these, this study will seek to evaluate the economics of timber marketing in Sapele Local Government Area of Delta State.

The specific objectives described the socio-economic characteristics of respondents in timber marketing business; examined the cost and return of timber marketing; evaluate the profitability in timber marketing; access the socio-economic determinant of profitability in timber marketing; and describe the constraints in timber marketing business in the study area. The null hypothesis stated that the socio-economic characteristic has no significant effect on the profitability of timber marketing business.

MATERIALS AND METHODS
The Study Area
This study was conducted in Sapele Local Government Area (LGA) in Delta State. It is well known for farming and trading activities as well as civil services jobs. It is located within 5°54 °N and 5°40 °E. It has a tropical climate and the annual average temperature is 26.6°C with an annual rainfall of 2406mm. It is a very important industrial center producing agricultural goods such as palm oil, timber, rubber among others.
Sampling Procedure and Size
Multi-Stage sampling technique was used to select sample for the study. The first stage was the purposive selection of five (5) communities with timber markets namely; Okirigwe, Gana, Ogorode, Amukpe and Sapele main town. These communities were purposefully selected based on the higher concentration of timber marketers in the area. Second stage was

the random selection of 25 timber marketers from each of the community markets selected giving a total of 125 timber marketer respondents used for the study.

Data Collection Method

Data was collected through primary sources by means of structured questionnaire personally administrated to the timber marketer respondents selected in the study area.

Analytical Techniques

Data was analyzed using simple descriptive and inferential statistical tools including tables, percentages mean, gross margin and regression analysis. In model specification, the gross margin analysis is:

GM=TR - TVC

where;

GM = Gross margin

TR = Total Revenue

TVC = Total variable

Profit function used in the study was determined using multiple regression analysis specified as:

$Y = x + \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_4X_5… \beta_{15}X_{15}$

where;

Y = (Profit from timber marketing Naira)

X_1 = Age

X_2= Sex

X_3 =House holder size

X_4= Marital status

X_5 = Schooling years

X_6 = Timber trade income

X_7 = timber marketing experience

X_8 = Storage cost

X_9 = Rent

X_{10} = Transportation cost

X_{11} = Marketing cost (Expenses)

X_{12} = Cost of Timber

X_{13} = Price of timber

X_{14} = Channel Status of marker.

RESULTS AND DISCUSSION

Socio-economic Characteristics of Timber Marketers

The socio-economic characteristic of sawn timbers marketers in the Study area was presented in Table 1. Majority (98%) of the respondents were males while 2.0% were females. This could be because the conversion processes of logs were tedious and require physical strength as confirmed in (Oladele *et al.*, 2013). About 51% of the respondents were between the ages of 31-40 years. This meant that majority of the timber processors and marketers were

still in their active age and this served as an advantage when doing the business of processing, marketing and sourcing for timber species from the forest. This was in line with the result from the marketing performance of *Irvingia wombulus* (Usman *et al*., 2005). Majority (55.3%) of the respondents were married being married with children help them to be more diligent with their business as they tend to feed and train their children. The mean household size was 5. This implied that there was enough labour from the household to utilize in the timber business. Cools *et al.* (2018) in their study observed that family size affects parents' labour market outcomes in the long run Majority of the respondents attained formal education (94.3%), while 5.7% had no formal education. This implied that level of education has nothing to do with the processing and marketing of timber though, it can promote the productivity level and aid better management. This study agreed with Cools *et al.* (2017).

Findings of Table 1 further revealed that 46.7% of the respondents had 11-15 years of experience in sawn timber marketing and processing, 27.3% had 6-10 years of experience while 20.0% and 6.0% had less than 5 years and 16 years above experience respectively. The implication was that years of experience, was one of the factors that determine the level of profit made in sawn timber business. Gollin (2018) found that there was a strong positive relationship between experience and labour productivity. Results also showed that 46.7% respondents businesses had been in existence between 16-20 years while 27.3% of the sawn mill business had been between 11-16 years in existence. Finding showed that sawn timber business had been in existence for a long time in the study area. The ownership structure showed that 98% of the sawn timber mills were privately owned without support from government. Similarly 91.3% were not members of timber associations. This made price for wood vary in the study area.

Table 1: Distribution of Socio-economic Characteristics of Timber Marketers

Respondents	Frequency	Percentage	Mean
Sex			
Male	147	98.0	
Female	3	2.0	
Age (Years)			
< 30	43	28.7	
31-40	77	51.3	36
41-50	23	15.3	
51 years and above	7	4.7	
Marital status			
Single	54	36.0	
Married	83	55.3	
Divorced/widow	13	8.7	
House hold size (Persons)			
1-6	99	66	
7-12	47	31.3	
13 and above	4	2.7	5
Education status			
No formal education	8	5.7	
Primary school	110	73.3	
Secondary education	28	18.7	
Tertiary education	4	2.7	
Timber sawning experience (Years)			
< 5	30	20.0	
6-10	41	27.3	15
11-15	70	46.7	
16 years and above	9	6.0	
Age of mill (Years)			
< 5	-	-	
6-10	29	19.3	
11-16	50	33.3	18
16 – 20	70	46.7	
20 years and above	1	0.7	
Ownership of sawn mill			
Private	147	98.0	
Government	3	2.0	
Members of association			
Yes	13	8.7	
No	137	91.3	

Effect of Socio-economics Characteristics of Timbers Marketers on Marketing Margin

Table 2 showed R^2 value of 0.765 which implies that 77% of the changes in the marketing margin of timber marketers were determined by the socioeconomic characteristics and other variables included in the model. Furthermore 4 of the variables were significant on their effect on marketing margin. These variables were: selling price, transport cost, education and age of sawmilled Selling price with a coefficient of 0.972 and a t-value of 2.802 showed

that selling price of sawn timber is positively related to marketing margin at 0.05 level of significant.

The implication was that a 1% increase in the selling price will increase the marketing margin of timber by 0.97. Transport cost with a coefficient of -0.15 and a t-value of -6.818 showed that the transport cost of sawn timber is negatively related to the market margin and it is statistically significant at 0.01 level. A 1% increase in the transport cost will decrease the marketing margin by 0.15. Education level with the coefficient of -51.822 and a t-value of -1.736 showed that educational level was negatively related to marketing margin at 0.1 level of significance. It could be deduced that an increase in education of the marketers will decrease the marketing margin all things being equal. The age of saw mill with a coefficient of 8.564 and a t-value of 2.953 showed that age of saw mill was positively related to the marketing margin at 0.05 level of significance. This implied that a 1% increase in age of saw mill will increase the marketing margin.

Table 2: Coefficients of Predictors of Socio-economic characteristics on Sawn Timber

Variables	Unstandardized coefficients			
	B	Std. Error	t	Sig.
Constant	-571.525	857.573	-.666	.506
Selling price	.972	.347	2.802**	.0006
Cost price	.411	579	.709	.479
Rent	.043	.549	.078	.938
Transport cost	-.015	.002	-6.818***	.000
Marketing experience	.098	.042	2.304**	.023
Storage cost	.147	.497	.295	.768
Sex	8.543	89.473	.095	.924
Marital status	9.209	36.410	.253	.801
House hold size	-17.249	28.350	-.608	.544
Education	-51.822	29.844	-1.736*	0.85
Age of Sawmill	8.564	2.900	2.953**	.003
Association Membership	9.909	33.522	.296	.768
Number of marketers	-10.262	9.945	-1.032	.304
Source of Log	7.997	96.435	-1.032	.934
R^2	0.645			
R	0.875			

Note: *** 1% (High significance level), **5% (Medium significance level); * 10% (low significance level)

Costs and Returns of Saw Timber

Table 3 showed the cost and returns of sawn timber by timber marketers. Findings revealed that selling price of 1 x 12 was highly profitable to the timber marketers as against the cost price of the same 1 x 12. This was followed by 2 x 6 which had a higher selling price. The implications were that selling 1 x 12 and 2 x 6 were viable on all fronts. Hence, the sawn timber marketers would be more willing to cut timbers into 1 x 12 and 2 x 6 dimensions because of its high income.

Table 3: Costs and Returns of Saw Timber

Type of sawn wood	Selling price	Amount (₦)	Cost price	Amount (₦)
2 x 6	2000	200,000	950	95000
1 x 12	2100	210,000	1000	100000
2 x 2 x 12	1500	150,000	300	30000
2 x 3 x 12	1100	110,000	400	40000
2 x 4 x 12	1200	120,000	500	50000
2 x 6 x 12	1500	150,000	1000	1000000
2 x 12 x 12	2400	240,000	1600	160000
Total Revenue		**1,180,000**		**575,000**

Marketing Margin of Sawn Timber Marketing

Table 4 showed the marketing margin of sawn timber markets. Although, many factors accounted for the cost incurred in marketing of sawn timbers by marketers, storage cost accounted for the highest (₦1994.00) followed by Marketing expenses (₦1103.60); Transportation cost (₦684.133), and rent (fixed cost) (₦534.07). The total variable cost was ₦575,000 and a total revenue for the sale of 100 units of sawn timber ₦1,180,000 with a gross margin of ₦600,684.20. The Return on was profitable business in the study area. These results corroborated with that of Aiyeloja *et al. (2011).* The Return on Investment (ROI) which was 1.037 indicated that the marketing of sawn timber was a profitable venture in the study area. Also this agreed with the work of Larinde and Olasupo (2011) that showed that the wood trade was very profitable and an average wood marketer would be able to recoup investment with better returns in short period of time.

Table 4: Costs and Returns of selling of 100 unit of Timber

Variables	Amount (₦)
Total sells revenue	1,180,000.00
Total cost of Timber	575,000.00
Transport	684.13
Marketing Expenses	1,103.60
Storage cost	1,994.00
Total Variable Cot	578,781.73
Gross Margins	601,218.27
Rent (Fixed Cost)	534.07
Net Revenue	600,684.20
ROI	1.037

Constraints Associated to Timber Marketing

Table 5 showed that types of specie sold was a major constraint encountered by sawn timber marketers as it scored 27.1%, which was the highest followed by seasonality 26.4%, transportation cost 22.0%, access to loan 12.9%, difficulty of getting timber from the forest 10.5% and lastly area of production 1.1%. The indication was that type of species sold, seasonality and transportation were major constraints that influences the marketing of sawn timber which in turn influence the price.

Table 5: Distribution on the Constraints Associated to Timber Marketing

Cause for change in sawn timber price	*Frequency	Percentage	Remarks
Seasonality	143	26.4	S
Types of Species Sold	147	27.1	S
Transportation Cost	119	22.0	S
Access to Loan	70	12.9	NS
Area of Production	6	1.1	NS
Difficulty of getting timber from the Forest	57	10.5	NS
Total	**542**	**100**	

*Multiple Response; S = Serious, NS = Not Serious

CONCLUSION AND RECOMMENDATIONS

The study shows that marketing of sawn timber in the study area was a profitable enterprise and had large number of buyers and marketers. If resources are efficiently utilized this could bring about the much needed boost in the sawn timber enterprise. This will eventually accelerate the economic development in the study area. The sawn timber marketing had the prospects of sustaining livelihoods in the study area and even help in the development of the economy of Nigeria. Recommendations include:

1. Government should construct roads and maintain the already existing ones for easy access to forest were these timbers are gotten and thus reduce transportation cost in order to boost the revenue of the marketers.
2. Improved marketing efficiency and sustainable timber supply are panacea to increased and sustainable profit in sawn wood marketing.
3. Sustainable supply of timber remained an issue begging for attention. So, there should be a regulatory framework on the sustainable management of timber, extraction from the forest, replanting of felled trees and planting of new trees. These will help in the sustainability of the supply of timber.
4. Adequate marketing facilities should be provided to help marketers increase their income. Sawn timber marketers should be able have access to loan.

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