Economic Importance and Marketing of Timber Species in Oyo Town

Adedokun, M. O., Ojo, T.M. and Dairo, G.S.
Department of Forestry and Wildlife Management, Federal University of Agriculture, PMB 2240, Abeokuta
Correspondence author: Ojo T.M.

ABSTRACT

This study examined the economic importance and marketing of timber species in Oyo town, Oyo state. Simple random sampling was used in selecting the respondents using structured questionnaire. Descriptive statistical tools and budgetary analytical technique were used to analyse the socio-economic characteristics of the respondent and the cost and return of sawn timber marketing respectively while gross and net profit were used to estimate profitability of sawn timber and marketing respectively. The results obtained revealed that all the sawmill crew were male (100%) and the marketers were female(100%) and mostly between the age of 31-40 (50%). The result also showed that majority were married (70%) with 95% of them having formal education. The timber species present in Oyo town include; *Gmelina arborea*, *Tectona grandis*, *Mansonia albissima*, *Afzeliaafricana*, *Milicia excelsa*, *Brackystegia leonesis*, *Mallotus oppositifollus*, *Cassia bicarpsularis*, *Daniella oliverii*, *Parkia biglobosa*, *Upaca guineensis*, *Chrysophyllum delevayi* and *Pyananthus anogolensis* which serve the following purposes; Furniture, boat buildings, exterior construction, veneer, carvings, constructions, carriage, sports, musical instruments, artificial limb, cabinetry, turned objects, panel doors. RORI recorded in this study with the sale of 1 x 12 is far higher than that recorded for 2 x 6, implying that the saw millers would be more willing to cut timbers into a 1 x 12 dimension because of its high income rate. *Milicia exelsa* was the most lucrative of all the timber species because of its high scarcity in the market, its ability to grow far beyond the height of 12ft and also because of its diameter at breast height (dbh) can give a round of "5" and above. The analysis of benefit-cost ratio for all the market forces gave BCR values greater than 1 (BCR>1), implying that timber business is profitable.

Keyword: Marketing, Profitability, Simple Random Sampling

INTRODUCTION

Nigerian forests are naturally endowed with plant and animal species (flora and fauna) and for this reason it has been protected for timber production. Timber can be described as wood in a form suitable for construction or carpentry, joinery or for reconversion to manufacturing purpose. Timber has been used as a building material for over 400, 000 years and it is very common and best known material for house construction including framing of floors, walls and roofs. According to Cunningham *et al.* (2005), timber accounts for about half of worldwide wood consumption. This exceeds the use of steel and plastic combined. The preference of timber

may not be unconnected to its renewability, abundance, accessibility, versatility, less energy input required for processing and relative cheapness (Lucas *et al.*, 2006). It is used throughout the world for many tasks, from simple structural application to highly finished and ornate decoration and it is the dominant industrial material in Nigeria (Fuwape, 2000). There are approximately 200,000 hardwood species and 1,000 softwood species in Nigeria, of the total number; only 2,300 tree species are commercially important (Oluyege, 2007). Different species of timber are used for different purposes in building and furniture industries. The projection of wood consumption of 4.704 and 0.688million/m^3 was made for the year 2010 for sawn wood and wood based panels respectively in Africa (FAO, 1991). The choice of wood species used varies, due to different features and characteristics of the wood, some of these features are wood strength, natural durability, colour (appearance), ease of machine and workability, cost, contraction, hardness and availability. In Central African Republic, for example, loggers harvest 15 to 18 timber species, and five species make up 90% of production; in Northern Congo, 18 to 20 species are harvested, but five species account for nearly 80% of production (ITTO, 2006). The major timber species exported from Africa include Mahogany (*Khaya senegalensis*), Obeche (*Triplochiton scleroxylon),* Afara (*Terminalia superb*), Abura *(Mitragyna ciliate)* Iroko(*Milicia excelsa),* Teak(*Tectona grandis)* (ITTO, 2006).

Due to scarcity of high quality species in the market a research was conducted by Famuyidein 2012 to assess the availability and variation of timber species in selected timber market in Oyo town over the past 40 years. However, the relevance of this study is to provide additional baseline data and among others; determine the species generating the products and hence, know how profitable the business is in the study area.

Materials and Method

The study was carried out in Oyo town, Oyo State where trade in sawmilling business is well pronounced. Purposive selection of major sawmills in Oyo town was done. These sawmills were

Sabo timber market, Owode timber market and Oroki timber market. Data were collected using a structured and pretested questionnaire. One hundred (100) copies of questionnaire were randomly distributed to timber marketers and saw millers in the study area. Descriptive statistical tools and budgetary analytical technique were used to analyse the socio-economic characteristics of the respondent and the cost and return of sawn timber marketing respectively while gross and net profit were used to estimate profitability of sawn timber and marketing respectively.

RESULTS

TABLE 1: Socio-Economic Characteristics of Timber Seller in Oyo Town, Oyo State.

VARIABLES	FREQUENCY	PERCENTAGES
Sex		
Male	65	65
Female	35	35
Age		
21-30	6	6
31-40	50	50
41-50	35	35
51-Above	9	9
Marital Status		
Single	16	16
Married	70	70
Widowed	9	9
Divorced	5	5
Level of Education		
Primary	45	45
Secondary	25	25
Tertiary	20	20
None	10	10
Household Size		
1-2	10	10
3-4	28	28
5-6	60	60
7-8	2	2
Religion		
Christianity	38	35
Muslim	62	52
Total	100	100

Field Survey (2017)

TABLE 2: Distribution of Respondents involved in the Processing and Marketing of Timber Species in the study area

Variables	Frequency	Percentage	Mode
Age of sawmill			11 and 47
11	35	35	
40	30	30	
47	35	35	
Ownership			
Private	100	100	Private
Government	0	0	
Others			
No. Of employees			
Types of machines in each sawmills	100	100	
Band saw, Circular saw, plainer machine	`100	`100	
Years of experience in sawn timber business			
1-10	45	45	
11-20	47	47	11-20
21-30	8	8	
Where do you source your logs from?			
Forest	100	100	
Mode of supply stock			
Direct from the forest	100	100	Direct from the forest
From other sawmill	0	0	
Types of marketer			
Wholesaler and retailer	100	100	Wholesaler and retailer
Means of transporting products			
Owned vehicle	0	0	
Hired vehicle	100	100	Hired vehicle

Field Survey (2017)

TABLE 3: TIMBER SPECIES AND THEIR USES IN THE STUDY AREA

Common name	Scientific name	Uses
Teak	*Tectona grandis*	Furniture, boat buildings, exterior

		construction, veneer, carving, carvings and other small wood projects.
Gmelina	*Gmelina arborea*	Furniture, constructions, furniture, carriage, sports, musical instruments and artificial limb.
Mansonia	*Mansonia albissima*	Furniture, veneer, cabinetry, furniture, boatbuilding and turned objects.
Apa	*AlfzeliaAfricana*	Furniture, panel doors, cabinetry.
Iroko	*Milicia exelsa*	Furniture, construction, joinery, panelling, floors and boats.
Cassia, iyaa, iru, Emido e.t.c.)	*Cassia bicarpsularis, Daniella oliverii, Parkia biglobosa, Upaca guineensis*	Furniture, panel doors, lintel board.

Field Survey (2017)

Table 4: SUMMARY OF THE COST AND RETURNS FOR THE TIMBER SPECIES.

		TFC(₦)	TVC(₦)	TC(₦)	TR(₦)	GP(₦)	ROR(₦)	RORI(₦)	BCR	PI
Gmelina	2 x 6	28,500	60,000	88,500	184,000	95,500	207.91	107.91	1.58	0.37
	1 x 12	28,500	60,000	88,500	297,600	209,100	336.27	236.27	3.80	0.74
Teak	2 x 6	28,500	60,000	88,500	184,000	95,500	207.91	107.91	1.90	0.47
	1 x 12	28,500	60,000	88,500	297,600	209,100	336.27	236.27	4.43	0.77
Mansonia	2 x 6	28,500	64,000	92,500	200,400	107,900	216.65	116.65	2.81	0.64
	1 x 12	28,500	64,000	92,500	304,800	212,300	329.51	229.51	6.75	0.85
Apa	2 x 6	28,500	62,000	90,500	192,000	101,500	212.15	112.15	2.43	0.59
	1 x 12	28,500	62,000	90,500	288,000	197,500	318.23	218.23	5.83	0.83
Iroko	2 x 6	28,500	68,500	97,000	300,000	203,000	309.28	209.28	3.22	0.69
	1 x 12	28,500	68,500	97,000	450,000	353,000	463.92	363.92	8.04	0.88
Others	2 x 6	28,500	57,000	85,500	156,000	70,500	182.46	82.46	0.98	-0.02
	1 x 12	28,500	57,000	85,500	216,000	130,500	252.63	152.63	2.62	0.62

Field Survey (2017)
TFC: Total Fixed Cost

TVC: Total Variable Cost
TC: Total cost
TR: Total Revenue
GP: Gross Profit
ROR: Rate of Return
RORI: Rate of Return on Investment
PI: Profitability Index

DISCUSSION

Timber processing and marketing provide socio-economic support for several people in Oyo town, Oyo state (100%) in terms of employment and family income. Log conversion into planks of different sizes in Oyo town, were done mainly by male (65%). This could be due to the fact that conversion processes of logs were tedious and require physical strength as confirmed in (Oladele *et.al*, 2013). The marketing activity of sawn timber was female dominated (35%) and this is in line with the study of Alfred and Akintade (2002), where they stated that sawn wood marketing was female dominated. About 50% of the respondents were between the age of 31-40 years. This means that majority of the timber processor and marketers are still in their active age and this serve as an advantage when moving around to source for timber species in the forest. This is in line with the result from the marketing performance of *Irvingia wombulus* (Usman *et al.*, 2005). Majority of the respondents were married (70%). Being married with children help them to be more diligent with their business as they tend to feed and train their children (Mafimimisebi *et al.*, 2000). From the study area, 10% of the respondents have a household of 1-2 people, 28% of the respondents have a household of 3-4 people, 60% of the respondents have a household of 5-6 people and 2% of the respondents have a household of 7-8 people. This implies that timber business is profitable enough to take-care a large household as well as smaller ones. From the result shown in table 1, majority of the respondent attained primary education (45%), while 25% attained secondary education, 20% attained tertiary education and only 10% had no formal

education. This implies 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. Hence, this study contradicts earlier study by Alfred and Akintade (2002) on wood marketing where majority of the sellers were illiterates. This study showed that Owode timber market is 47years (100%), Sabo timber market is 40years (100%) and Oroki timber market is 11years (100%). This shows that sawn timber business has been in existence for a long time in the study area. It was observed in this study that private ownership of sawmill has 100%, this means that all sawmills in Oyo town, Oyo state is owned privately with no governmental support. For the number of employee, all the respondents (100%) revealed that the number of employee depend on the nature or type of the saw mill but all saw mill must have a minimum number of eight (8) people in their saw mill crew before any operation can be carried out. For instance, Achiba memorial sawmill (Owode) which is the biggest of all the three saw mills in Oyo town requires large amount of employees compare to Sabo timber market which is the smallest saw mill. In terms of machines, band saw, chain saw and plainer machine were the machines seen in the study area. The study also revealed that 45% had between 1-10 years' experience, 47% had between 11-20 years' experience and 8% had 21-30 years' experience. Years of experience, is one of the factors that determine the level of profit made in sawn timber business. It helps in identifying stand with good rounds and also helps in having a good negotiation price for logging cost. Transportation means was strictly with the use of hired vehicle (100%), this agrees with the early findings of Alfred and Akintade (2002). The use of hired vehicle will increase the cost of timber which will eventually increase the price of the products. From the study, all the respondents (100%) ascertain that marketing channel can be from the saw millers to the wholesaler, from the wholesaler to the retailer and from the retailer to the final consumer or the marketing channel can also be from the saw millers directly to the retailer and from the retailer to the final consumer.

According to Table 3, Teak wood (*Tectona grandis*) is used for boat building, exterior construction, veneer, furniture, carving, turnings, and other small wood projects because it has a leather-like smell when it is freshly milled and hence, valued particularly for its durability and resistance to water. Gmelina wood (*Gmelina arborea*) is reasonably strong for its weight and because of its strength it is used in constructions, furniture, carriages, sports, musical instruments and artificial limbs. Once seasoned, it is a very steady timber and moderately resistant to decay and ranges from very resistant to moderately resistant to termites. Mansonia wood (*Mansonia albissima*) is easy to work with both hand and machine tools. It glues, turns, and finishes well, and also has good steam bending properties. It is commonly use in veneer, cabinetry, furniture, boatbuilding, and turned objects. African teak (*Milicia exelsa*) has strong dark brown hardwood, resistant to termites and is used for construction, furniture, joinery, panelling, floors and boats.

In table 4, RORI recorded with the sale of 1 x 12 is far higher than that recorded for 2 x 6, this implies that selling 2 x 6 is not as profitable as selling 1 x 12 and 2 x 6 might not be entirely sustainable. However, selling 1 x 12 is viable on all fronts. Hence, the saw millers would be more willing to cut timbers into a 1 x 12 dimension because of its high income rate. Selling Iroko was the most lucrative of all the timber species because of its high scarcity in the market, its ability to grow far beyond the height of 12ft and also because of its Diameter at Breast Height (DBH) can give a round of “5” and above.

The analysis of benefit-cost ratio for all the market forces gave BCR values greater than 1 (BCR>1), implying that timber business is profitable. Hence, this confirms the findings of Adegeye and Dittoh (1985) that Investment criteria require that BCR should be greater than one (BCR > 1) before a business can be termed profitable. Previously stated reports by Larinde and Olasupo, (2011) had shown that the wood trade is very profitable as an average wood marketer would be able to recoup investment with better returns in short

period of time. Of the timber woods, the selling price of Iroko tree would influence the price of other tree species because a larger gross profit is obtained from selling planks gotten from Iroko than selling planks of other tree species. Hence, it is evident because people are willing to pay more because of its scarcity in the timber market. Consequently, output from Iroko tree might later be a significant part of volume of price fluctuation of all timber species sold and would thus significantly influence the price at which timber wood is sold (Oladejo and Oladiran, 2014). The higher the rate of return on capital, the better for the success of the business (Larinde and Olasupo, 2011).

Conclusion

The availability of common timber species within Oyo town in Oyo State, Nigeria is now becoming scarce as a result of excessive logging and over exploitation of such species. Some of the endangered species include *Nauclea dideriichii* (Opepe) *Milicia excelsa* (Iroko), *Ceiba petandra* (Araba), *Mansonia albissima* (Albissima) and this is the major reason for the high price in purchasing timber. The government should of necessity review the forest policy to actually know the predicament against conservation and preservation of economic species that are facing extinction and forestry act should be enacted to curb the excesses of overexploitation in various forest reserves in State. Plantation of fast growing plantation species as a replacement for commercially popular species should therefore be encouraged as alternatives to decreasing availability of popular timber species so as to avoid running out of valuable and good quality timber species in the nearest future.

REFERENCES

Adegeye, A. J. and Dittoh, J. S. (1985). Essentials of Agricultural Economics. Impact Publishers Nig. Ltd. Ibadan. 113-119 pp.

Adeyoju, A. O., (1975). The non-Timber Forest resources of the high forest area of Nigeria. Nig. J. For., 1 (1): 12-16.

Alfred, S.D.Y and Akintade, S.S., (2002): Factor influencing marketing and profitability of wood. Nigeria Journal of Agriculture, Forestry and Fisheries, Vol. 4. Pp: 305.

Cunningham, P. W., Cunningham, M.A. and Saigo, B(2005): Environmental Science. A Global Concern. 8th Edition, Mc Graw Hill, 600p

Famuyide, K.M., (2012): Timber species availability and Variation in Ibadan and Oyo Timber Markets over the last forty years, *Elixir Bio Diver. 49 (2012) 10131-10136*

FAO (1991): High-valued markets for tropical sawn wood, plywood and veneer in the European community.pp212

Fuwape, J.A.,(2000): Wood utilization from cradle to the grave. Federal University of Technology Akure. Inaugural lecture series no 25, pp 1-33.

International Tropical Timber Organization. Status of Tropical Forest Management, (2006). ITTO Technical Series, No. 24, 2006. Pp 32

Larinde, S. L. and Olasupo, O. O., 2011. Socio-economic importance of fuel wood production in Gambari Forest Reserve Area, Oyo State. *Journal of Agriculture and Social* Research 11(1).

Lucas, E.,Olorunsola, A. and Adewole, N. (2006): Preliminary evaluation of Psidiumguajava Tree Branches for Truss Fabrication in Nigeria. Agricultural Engineering International: the CIGR Ejournal. Manuscript BC05010. Vol., 11pp.

Mafimimisibe, T. E.,Okunmadewa, I.Y and Adebayo,S.K., (2000): Structure Conduct and Performance of Sun-dried Meat Trade in Ibadan Metropolis. Journal of Technology and Education in Nigeria, Vol.5 no. 1 and 2 Pp 68-75

NPC (2006): National Population Commission 2006, Abuja, Nigeria.

Oluyege, A.O. (2007): Wood: A versatile material for natural development. Inaugural lecture series 45, delivered at the Federal University of Technology, Akure

Oladejo, J. A. and Oladiran, J. O., 2014. Marketing Analysis and Consumption Pattern of Tomato in Oyo State, Nigeria. *International Journal of Agriculture Innovations and Research* 2 (5): 2319-1473

Usman, J.M., Famuyide, O.O and Adu A.O., (2005): Marketing performance of irvingawombulus in different market locations in Ibadan, proceeding of the 30th Annual Conference of the Forestry Association of Nigeria, held at Kaduna 7-11 November, 2005,Pp568.