



Economic Analysis of Sawnwood Marketing in Isokan Local Government area Osun State, Nigeria

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ABSTRACT: Sawnwood is wood that has been produced either by sawing lengthways or by a profile-chipping process and is greater than 6 millimetres. The study evaluates the economic analysis of sawnwood marketing in Isokan Local Government area of Osun state Nigeria using appropriate standard methods. The results showed that 67.5% of the respondents were males while 28.3% were females. Most of the respondents (50%) are in their active ages, a large percentage (51.2%) of the respondents got into the business of planks marketing by training and started its runs through bank loans. Eight (8) major wood species: *Albizia zygia*, *Blighia sapida*, *Cordia milleni*, *Gmelina arborea*, *Milicia excelsa*, *Nuclea diderrichii*, *Terminalia superba*, and *Triplochiton scleroxylon* were sold in the study area. The constraints faced by the plank market business are unavailability means of transportation, government tariffs, price fluctuation in purchase, scarcity of timber and bad roads. There is significant relationship between the socio economic characteristics and the constraints facing sawnwood marketing in the study area. Results showed that for every \$0.0022 invested into the sawn wood business, \$0.0055 is returned, this implies that timber marketing business is a worthwhile business. It is thus recommended that there is a need for sawn wood marketers to organize themselves into cooperative groups in order to secure loan and credit facilities from funding agency so as to ease the constraints faced by them to boost their returns.

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Forest has played a major role in the growth of human development compared to any other resources. Wood that is used as timber, fuelwood, pulp and paper is the most precious and marketable product obtained from most forests (Adedokun *et al.*, 2017). Nigeria's total forest plantation is estimated at 269,000 hectares. They consist of roughly 109,377 hectares of *Gmelina arborea* planted for supplying pulpwood to the pulp and paper industries of the nation and 159,623 hectares of other species mainly for industrial wood

production. The other species include *Tectona grandis*, *Terminalia ivorensis*, *Nuclea diderrichii*, *Triplochiton scleroxylon*, *Eucalyptus spp*, *Pinus spp*, and others of the meliaceae family (*Khaya spp*). All these plantations were often created at the cost of natural forests in forest reserves (National Forests Policy, 2006). It is frequently argued that wood is the world's most multipurpose raw material. Wood was the most widely used material for building and energy generation until the last half of the 19th century.

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Nigeria-based wood sector involves wood logging, sawmilling or sawn wood processing, wood-based panel products (plywood, fiberboard and particle board), furnishings, pulp and paper sectors, among others (Owoyemi, 2016). Sawnwood is an important forest products and sawmilling is an important industry in Nigeria. Sawnwood serves as the raw material for the wood-based industry and is produced and marketed locally across the Country in plank markets and sawmills. Its processing and marketing contributes to a sustainable livelihood in both rural and urban parts of Nigeria through employment and cash income (Ohwo *et al.*, 2014). According to the FAO (1999) sawn wood is the most produced and demanded among other semi-processed and processed wood categories and is the most distributed for construction purposes in Nigeria. Nigeria's sawmill industry is a significant sector because it is profitable. The total wood consumed in Nigeria is estimated at over 200,000m³ per annum, while the utilization and further processing of the wood provides employment to numerous people and thus contributes to the local and national economy. Uzowulu, (1990) The industry is an avenue to increase the nation's revenue with the potential of providing jobs and enhancing hundreds and thousands of individuals with income generation. This sector is also expected to continue to develop as the saw milling /wood-based panel industry has many potentials for industrialization (Adedokun *et al.*, 2017). Wood marketing enterprise is one of the main economic activities in Isokan Local Government area of Oyo State Nigeria. This is obvious from the fact that

wood market holds daily in the area, and a greater percentage of the local people depends on the wood industry for livelihood (some as harvesters, producers, transporters and marketers). Despite the significance of the wood industry, there is little or no study to assess the cost and returns and the level of profitability or otherwise of this venture, therefore this study evaluates the economic analysis of sawnwood marketing in Isokan Local Government area of Osun state Nigeria.

MATERIALS AND METHODS

Study area: Isokan is a Local Government area in Osun State, Nigeria which has its headquarters in the town of Apomu at 7°20'00"N 4°11'00"E. It has an area of 179 km² and a population of 103,177 at the 2006 census. The postal code of the area is 221. Isokan LGA consists of several towns and villages such as Ekpomu, Aronla, Akoogun, Odofin, Ladaru, Alabamejo, Ajebamidele, Onilewo, and Sunbare. The estimated population of Isokan LGA is 87,951 inhabitants with the area dwellers mostly comprised of members of the Yoruba ethnic group.

The Yoruba language is commonly spoken in the area while Christianity and Islam area the widely practiced religions in the area. Isokan LGA has a number of prominent traditional rulers and these include the Olukoyi of Ikoyi and the Alapomu of Apomu. Festivals held in Isokan LGA include the Osun-Ikoyi festival (Uzoagulu, 2011).

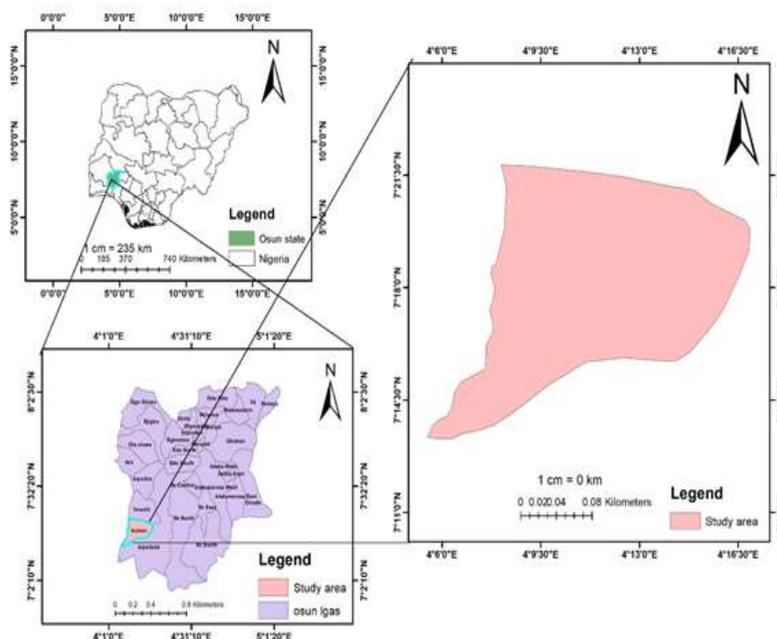


Fig 1: Map of the study area

Sampling technique: Purposive sampling was used to select three (3) plank markets in the study area. They are; Owode plank market, Apomu, Temidire plank market, Ikoyi, and Alhaji Olukuta, plank market, Apomu. Owode plank market has 206 sellers, Temidire plank market has 100 sellers while Alhaji Olukuta, plank market has 96 sellers. Fifty percent (50%) sampling intensity was used in selecting respondents in each plank market. 103,50 and 48 respondents respectively from Owode plank market, Temidire plank market and Alhaji Olukuta, plank market, making a total two hundred and one (201) respondents.

Data collection and procedure: Data was collected from both primary and secondary sources. Primary data was collected with the aid of well-structured questionnaire while secondary data was obtained from documents, journals, articles etc. to supplement the primary data.

Data analysis: Descriptive statistical tools such as mean, frequency and percentage distribution was used to analyze the results. Budgetary analysis was used to determine the degree of profitability of plank marketing in the study area. The cost and return analysis is show below

$$\text{Gross revenue (GR)} = \text{Total output} * \text{unit price} \quad [1]$$

$$\text{Gross profit (GP)} = \text{GR} - \text{VC} \quad [2]$$

$$\text{Net profit (NP)} = \text{GP} - \text{FC} \quad [3]$$

$$\text{Rate of return (ROR)} = \frac{\text{TR} * 100}{\text{TC}} \quad [4]$$

$$\text{Rate of return on investment (RORI)} = \frac{\text{Profit} * 100}{\text{TC}} \quad [5]$$

$$\text{Profitability index (P1)} = \frac{\text{GP}}{\text{GR}} \quad [6]$$

$$\text{Profit} = \text{TR} - \text{TC} \quad [7]$$

Where; TR = Total revenue; IC = Total cost; TVC = Total variable cost; TFC = Total fixed cost

RESULTS AND DISCUSSIONS

Table 1 shows the socio economic characteristics of the respondents in the study area. The tables revealed that 67.5% of the respondents are male while 28.3% were female. This shows that there are more of male gender than female gender in the plank market. This might be due to the fact that women are involved in domestic work while men engage in providing for the family needs.

This corroborated the findings of Birner and Allison (2006) who reported that males resilient to stress management makes it possible for them to engage in more tedious work than their female counterparts.

Table 1: Socio economic characteristics of the respondents

Socio economic Characteristics	Frequency N = 166	Percentage
Gender		
Male	112	67.5
Female	47	28.3
No Response	7	4.2
Age		
Below 20	3	1.8
21-30	12	7.2
31-40	83	50
41-50	61	36.7
Above 50	7	4.2
Marital Status		
Single	15	9
Married	100	60.2
Divorced	47	28.3
No Response	4	2.4
Household Size		
2-4	80	48.2
5-7	74	44.6
8-10	9	5.4
No Response	3	1.8
Ethnic Group		
Yoruba	129	77.7
Igbo	37	22.3
Level of Education		
No Formal Education	27	16.3
Primary Education	42	25.3
Secondary Education	76	45.8
Tertiary Education	21	12.7
Religion		
Christianity	52	31.3
Islam	98	59
Traditional	15	9
No Response	1	0.6

It was also indicated that 50% of the respondents are between the age of 31-40, followed by age 41-50 with 36.7% while the least are those below 20 with 1.8%. This is an indication that most of the respondents are within the active group and can still be able to source for income for livelihood sustenance. This is in line with Salawu (2001) who stated that highly productive age in agricultural and all forestry activities fall within the age of 31-50 years. The table also reveals that 60.2% of the respondents are married while 28.3% are divorced leaving 9% of the respondents single. This is an indication that respondents have responsibilities therefore, they source for means of sustaining livelihood. This however supported the findings of Jibowo (2000) that a high percentage of the rural population is married and due to the fact many of the

respondents are married, 48.2% of the respondents' household is between 2-4 while 44.6% have the household size of 5-7 while 5.4% of the respondents fall under the household size of 8-10. Yoruba ethnic group dominated the study area with 77.7% while 22.3% are Igbos. The highest level of education attained by the respondents in the study area is secondary education with 45.8% of the respondents, followed by those with primary education with 25.3% while the least is tertiary education with 12.7%. The result on education revealed, that a larger percentage

of the respondents have basic education at primary and secondary level while some do not have any formal education. Meanwhile, a few percentage of the respondents possess tertiary education. This however supported the findings of Awe *et al.*, (2011) that although education is an engine for development, it is not necessarily needed for the forest dependent communities as their most concern is the easy, cheap and readily available farm practice and non-timber forest products gathering in other to sustain livelihood.

Source: Field survey, 2022



Fig 2: Available Sawnwood in the Study Area
Source: Field Survey, 2022

Figure 2 showed the types of sawn wood at the plank markets, with Omo (*Cordia millenii*) as the most used wood species and this interpretes that it's the most lucrative of all wood species in the study areas followed by Iroko (*Milicia excels*), Isin (*Blighia sapida*), Gmelina (*Gmelina aborea*) while the least of the wood species used in the study area are Ahun (*Alstonia boonei*), Akomu (*Pycnanthus angolensis*), Apa (*Azelia Africana*) and Orindudu (*Anogeissus leiocarpus*). The trend of availability of the species on the markets can be attributed to the knowledge on the utilization of the species and the easiness to obtain by the dealers. With the many wood species and different timbers available, selecting timber is not an easy task as it seems to be and selecting the right material is a very important factor (Adebara *et al.*, 2014).

Wood specifies and users usually request for only the traditional species which has resulted in over-utilization of the preferred species (Ayarkwa, 1998).

It was observed that preference for particular products and species depended on a number of factors like financial capacity and taste of individuals and this was in line with the study by Ametsistsi *et al.*, (2009). Table 2 shows the uses of available wood species in the study area.

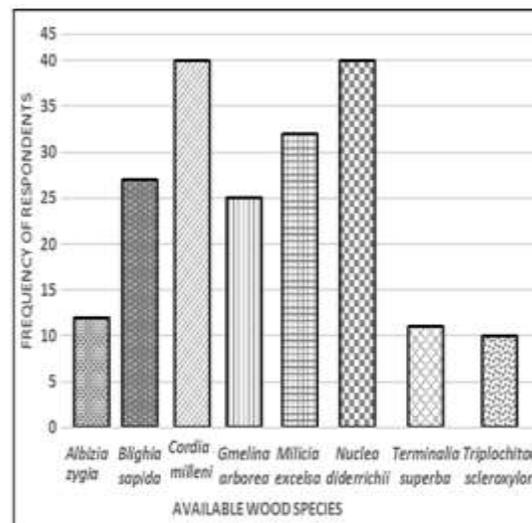


Fig 3: Major Wood sold species in the study area. Source: Field survey, 2022

The total variable cost of sawn wood in the study area account for 94.70 % of the total production cost. The percentage of the variable cost usually allows for flexibility. Fixed Cost incurred were observed rather low to the total cost because most of the machines used by respondents had purchased and been fixed assets at very low prices, compared to their present values as a result of inflation. Fixed Cost was obtained by

depreciation of fixed assets like land, machinery and equipment using the Straight Line Method of calculating depreciation.

Table 2: Uses of Available wood species in the study area

	Common name	Botanical name	Uses
1.	Ayunre	<i>Albizia zygia</i>	
2.	Isin	<i>Blighia sapida</i>	It is used for construction, furniture.
3.	Omo	<i>Cordia milleni</i>	Used for furniture, construction, carriage.
4.	Gmelina	<i>Gmelina arborea</i>	Used for furniture, construction, carriage, musical instruments
5.	Iroko	<i>Milicia excels</i>	Used for furniture, joinery, paneling, floors and boats.
6.	Opepe	<i>Nauclea diderrichii</i>	It is used for joinery, flooring and marine construction.
7.	Afara	<i>Terminalia superba</i>	Used for furniture, musical instruments.
8.	Obeche	<i>Triplochiton scleroxylon</i>	Used for lining of drawers, cupboard and in plywood manufacture.

Source: Field Survey, 2022

Revenue is obtained by multiplying the quantity produced (Qi) by the unit price of the output (Pi). For the sawnwood marketing, total revenue from sawnwood which was sold for an average price of ₦3, 500 per sawnwood in respective of wood species. From Table 3, the total revenue outweighed the total cost, and this shows a positive net return of about ₦501, 711.60kobo likewise the benefit cost ratio is

account for 2.48 and this is the ratio of total cost to total revenue. It can be used to measure the overall effectiveness of any business. It gives the profit per cost incurred during the business transaction.

Table 3: Estimates of the budgetary analysis for profitability analysis of Sawn wood in the study area

Cost Items	All Respondents (₦)
Fixed Cost	
Depreciation (Equipment's)	
Band saw, circular saw, saw doctor, plainer machine	19, 788.40
Total Fixed Cost (TFC)	19, 788.40
Variable Cost	
Cost of purchase	3, 500
Labour	200, 000
Others (transportation, other cost	150, 000
Total Variable Cost (TVC)	353, 500
Total Cost (TC)	373, 288.40
Total Revenue	875, 000
Total Variable Cost (TVC)	353, 500
Gross Margin (GM = TR -TVC)	521, 500
Net Profit (NI = GM - TFC)	501,711.6
Benefit Cost Ratio (TR/TC)	2.48

Source: Field Survey, 2022

However, the implication of this result is that for every ₦1.00 invested into the sawnwood marketing, ₦2.48kobo is returned, if all things being equal. This signifies that the enterprise is worthwhile; hence sawnwood marketing is encouraged in the study area. Therefore, sawn wood marketing is highly profitable in the study area and this corroborates Adedokun *et al.*, (2017) who reveals also that sawnwood production in all our major sawmill is a profitable enterprise.

Table 4: Constraints facing sawnwood marketing in the study area

Constraints	SD	D	NAD	A	SA	No Response	SD
Cost of Transportation			4.0(2.4)	123(74.1)	29(17.5)	10.0(06.0)	4.16 0.432
Scarcity of Timber		1.0(0.6)	3.0(1.8)	126(75.9)	26(15.7)	10.0(06.0)	4.13 0.441
Increase in price of Petrol			4.0(2.4)	112(67.5)	40(24.3)	10.0(06.0)	4.23 0.48
Weather Condition		1.0(0.6)	2.0(1.2)	94(56.6)	59.0(35.5)	10.0(06.0)	4.35 0.542
Low demand of Products		1.0(0.6)	1(0.6)	109(65.7)	45(27.1)	10.0(06.0)	4.27 0.5
Price fluctuation in purchase of timber	1.0.(0.6)		3(1.8)	113(68.1)	39(23.5)	10.0(06.0)	4.21 0.533
Bad roads			43(25.9)	75(43.2)	38(22.9)	10.0(06.0)	3.97 0.722
Government tariffs			5.0(3.0)	106(63.9)	45(27.1)	10.0(06.0)	4.26 0.506
Unavailability of means of transportation (Vehicle)		1(0.6)	2.0(1.2)	88(53.0)	65(39.2)	10.0(06.0)	4.39 0.552

SD-Strongly Disagree; D-Disagree; NAD-Neither agree or Disagree; A-Agree; SA-Strongly Agree; \bar{X} -Mean; SD-Standard Deviation
Source: Field Survey, 2022

Table 4 revealed a weighted mean of 4.23 out of the maximum obtainable of 4.00 which is higher than the standard mean of 2.5. This shows the constraints facing those that sell wood in the study area. Among

the constraints are: Unavailability of means of transportation (4.397>2.5); weather Condition (4.35>2.5); low demand of products (4.27>2.5); government tariffs (4.25>2.5); increase in price of

petrol (4.23>2.5), price fluctuation in purchase of timber (4.21>2.5), cost of Transportation (4.16>2.5) In recent times, our dependence on roads has resulted in a rapid deterioration of the road network, affecting the economy as goods and services are delayed and high transport costs translate to a high cost of goods and services in Nigeria generally and Anambra state in particular (Federal Ministry of Transport, 2011)., scarcity of timber (4.13>2.5) and bad roads (3.97>2.5). It was so evident that the aforementioned constraints affects majority of the respondents in the study area and these has drawn the business of sawnwood back in the study area even though many people have refused to quit the business since there is little profit attached to any small sales made.

Conclusion: This study has assessed the economic analysis of sawn wood species in plank markets from the study area. Majority of the respondents are in the business by training and some of them have been in the sawing business for over six years. It was revealed that Omo (*Cordia millenii*) is the most used wood species and the most lucrative of all wood species in the study area followed by Iroko (*Militia excels*), Isin (*Blighia sapida*), Gmelina (*Gmelina aborea*) while the least of the wood species used in the study area are Ahun (*Alstonia boonei*), Akomu (*Pycnanthus angolensis*), Apa (*Azelia africana*) and Orindudu (*Anogeissus leiocarpus*). Among the constraints faced by the plank marketers in the study area are; Unavailability of means of transportation, weather Condition, low demand of products, government tariffs, increase in price of petrol, price fluctuation in purchase of timber, cost of Transportation, scarcity of timber and bad roads. For every ₦1.00 invested into the sawnwood marketing business, ₦2.48kobo is returned, if all things being equal, and this reveals that the enterprise is worthwhile; hence encouraged in the study area. It is recommended that, Government should help the plank marketers with loans or grants in order to help boost their business for better returns in planks business. Government should help reduce the constraints affecting the plank marketing business by providing a good road network and more research should be made on the information on Economic analysis of sawnwood marketing in Isokan local government area Osun state, Nigeria.

REFERENCES

- Adebara, S.A., Hassan, H., Shittu, M.B. and Anifowose, M.A. (2014) Quality and Utilization of Timber Species for Building Construction in Minna, Nigeria. *Inter. J. Engineer. Sci.* 3 (5): 46-50.
- Adedokun, M.O., Olawunmi, A.T., Soaga, J.A., Oluwalana, S.A., and Molognhe, M.R., (2017). Economic Analysis of Different Wood Species in Major sawmills in Abeokuta, Ogun state, Nigeria. *J. Agric. Sci. Environ.* 17 (1) 73-82.
- Ametsistsi, G.K.D., Kyereh, B., Duah-Gyamfi, A. and Agyeman, V.K. (2009) Quality control and Standardization of Ghanaian Wood Products. Identify local market requirements for timber and wood Products and priority areas for standards and grading rules development. ITTO Project PD 318/04 Rev.
- Ayarkwa, J. (1998). New marketable Ghanaian timber Species for furniture and construction. GHANAIAN TIMBERS. Wood News Jul-Sep 98; 13-18.
- Birner O.A and Allison, A.S. (2006) Household Wealth Status and Natural Resources Use in the Kat River valley South Africa. *Ecol. Econ.* 57 (2): 306-317.
- FAO (1999). Global Forest Sector Outlook: The Implication of Future Wood Product Market Developments for Sustainable Forest Management. Committee on Forestry, item 6 of the Provisional Agenda Fourteen Session Rome. Pp 74.
- Federal Ministry of Transport (2011). A brief on the national transportation sector report of the Federal Republic of Nigeria. Abuja: Transport Planning and Coordination Department metropolis. *J. Trop. For. Res.* 16(1):46-57.
- Jibowo, A. A. (2000). Community level participation in rural development. The Nigerian Rural Sociological Association, pp. 3-10.
- National Forest Policy. (2006). Retrieved from www.fao.org/forestry/pdf Retrieved October, 2022.
- Oluwo, O. A., Ajewole, O. I. and Popoola, T. (2014). Spatial Price Transmission a Market Integration of *Grastantherapapaverifera* (A. Chev.) in Urban and Rural Sawnwood Market in Delta State, Nigeria. *J. Agric. For. Soc. Sci.* 12(2).
- Owoyemi, J. M., Zakariya, H. O. and Elegbede, I. O. (2016). Sustainable Wood Waste Management in Nigeria. Retrieved from <https://content.sciendo.com/configurable/co>

- nventpage/journal&002 fenviron& 002f44002f3
&002f3&002farticle-pl.xml date: 21/08/2022.
- Salawu, A.S. (2001). Negation in ekiti. *YORUBA: A J. Yor. Stud. Assoc. Nig.* 2, 102-119.
- Uzowulu, G.I. (1990): Effect of Labour Productivity in Furniture Industries in Ibadan. University of Ibadan, Nigeria. *Unpublished M.Sc. Dissertation*, Department of Forest Resources Management.

Uzoagulu, A. E. (2011). Practical guide to writing research project reports in tertiary Institutions (New Edition ed.). Enugu, Nigeria: John Jacob's Classic Publishers Ltd.

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