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ECONOMIC ANALYSIS OF WOOD MARKET IN KAJOLA LOCAL GOVERNMENT AREA OF OYO STATE, NIGERIA

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ABSTRACT
This study focused on Economic Analysis of wood market in Kajola Local Government Area of Oyo State. Multistage sampling was used in this study. Budgetary and Gini coefficient were used for the data analysis. Result showed that 54.0% engaged in the business were female 49.0% was in age group between 41-50 years, 57.0% are SSCE holder and 55.0% had 5-7 employees also 99.0% were private. The result also revealed that among the timber species that were common in the market include, *Terminalia superba* (Afara) has the highest percentage of 29.4%, and *Azandiranta indica* (Dongoyaro) has the least percentage. Moreover, the budgetary analysis of the plank vendor was revealed, the average revenue for the year 2016-2020 ranged between #21,120,100- #30,240,000, the net profit ranged between #13,432,033- #20,523,753. The result also show the market efficiency of the business from 2016-2020 was 2.75%, 2.93%, 2.41%, 3.16% and 3.11% respectively. Furthermore, the result show the market structure and conduct of the market and also show the constraints facing the market, ranging from inadequate power supply, high cost of transportation, insufficient species and Government policy. It was recommended that Government should encourage private tree plantation so as to make available more trees since demand for wood is at increased and also they should improve the market price and supply level of timber business in Kajola Local Government.

KEY WORDS
Profitability, timber, market, economics.

Wooden based industries have contributed to the economy of Nigeria and it was mentioned through (Adeyoju, 2001) that during 1963 wood primarily based industries employed 17.5% of the labour force in the country, and 17.4% of the indigenous skilled and unskilled labour. A sawmill may be described as a timber processing industry geared up with diverse wood processing machines. The machine encompass band noticed and round saws. In sawmill enterprise, the timber must be transformed into various sizes as a way to maximize profit and also satisfy the demand of the human being.

Sawmill is a critical enterprise whose performance not most effective has direct implementation for gift livelihood but enormous majority of the industries spherical wooden produced in Nigeria. Maximum existing sawmill contain old and poorly upkeep horizontal

band saws which can be manually pushed against stationary logs. The economic wooden fuel value chain that materials cities and towns generate over 3 000 000 fulltime jobs, numerous studied on log conversion efficiencies in the sawmill processing center showed that the total volume of strong wood in typical saw log is much less than 35% when converted into sawn timber (Larinde, 2006), (Akande, 2007). Traditionally, as a consequence, there may be need to measure the financial performance of timber industry.

A forest is a large area dominated by trees. Hundreds of more species definitions of forest are used throughout the world, incorporating elements such as tree density, tree height, land use, felony status and ecological feature (Johnson, 2013) food and agricultural company definition. Forest covered 4billion hectares.

Nigeria forests are naturally endowed with plant and animal species (flora and fauna) and for this reason it has been included for wooden manufacturing. Timber may be defined as wooden in a shape suitable for construction or carpentry, joinery or reconversion to manufacturing purpose. Wood has been use for building materials for over 400,000 years and it is very not unusual and great recognized material for residence creation along with ramming of flooring, partitions and roofs. According to (Cummingham et al; 2005) wood bills for approximately half of worldwide wood consumption.

As a result, the primary recognition of this work is to evaluate the profitability of various wooden species in Kajola Local Government of Nigeria.

METHODS OF RESEARCH

The study was conducted in Kajola local Government area Oyo State, Nigeria. It is located on latitude of $8^{0}02'$ 1.90''N and longitude of 3^{0} 20 51. 32''E.The headquarters of Kajola LGA is situated in Okeho town. LGA includes: Ilero, Ilua, Ayetoro-Oke, Isemi ile, Iwere-Oke, Ilaji-Oke. It has an area of 609km^2 and a population of 200,997 at the 2006 census (UNDP, 2006et al, 2005). It has an estimate landmass of about 4,320 square kilometer. It is bounded in the south by Ibarapa Local Government, in the west by Iwajowa LG and Republic of Benin; and in the North by Ifesowapo LG and in the Northwest by Itesiwaju LG. Rainfall figures over the state vary from an average of 1200mm at the onset of heavy rains to 1800mm at its peak in the Southern part of the State to an average of between 800mm and 1500mm at the northern parts of the state.

Primary and secondary data were used in this study. The primary data was collected through the use of structured questionnaire to gain pertinent facts in characteristics involved in wood processing and economics evaluation which include nature of business, enterprise operation capital, annual income, earning level, cost etc. Secondary records was obtained from Oyo state Ministry of Forestry, National Bureau of statistics.

Multistage sampling was used in this study. In the first stage, Kajola local government was purposely chosen. The motive being that it has the largest forest coverage and housed the highest saw-mills and forest reserves in the area, secondly, ten saw-mills were randomly selected from the local government, thirdly, ten (10) wood marketers (sellers)were randomly selected from each sawmill. Altogether one hundred (100) questionnaires were administered in the study area.

The data was analyzed using descriptive analysis and budgetary evaluation. This following profitability measures were calculated:

$$RMCF = TVP - TC \quad (1)$$

$$RRTI = 100\left(\frac{RMCF}{TC}\right) \quad (2)$$

$$GM = TR - TVC \quad (3)$$

$$RRFC = 100\left(\frac{RFC}{TFC}\right) \quad (4)$$

Rate of return (ROR) and Rate of return on investment (RORI) are two alternative profitability measures that were used in comparing the extent of profitability in the study area:

$$\text{Rate of Return (ROR \%)} = \frac{TR}{TC} X \frac{100}{1}$$

$$\text{Rate of Return on investment (RORI \%)} = \frac{TR-TC}{TC} X \frac{100}{1}$$

Where: RMCF = Return to management capital and family labour or net income; TVP = Total value product; TVC = Total variable cost; RRTI = Rate of Return on investment; TC= Total cost (Gross margin); RFC = Return on fixed cost (Gross margin); RRFC = Rate of return on fixed cost.

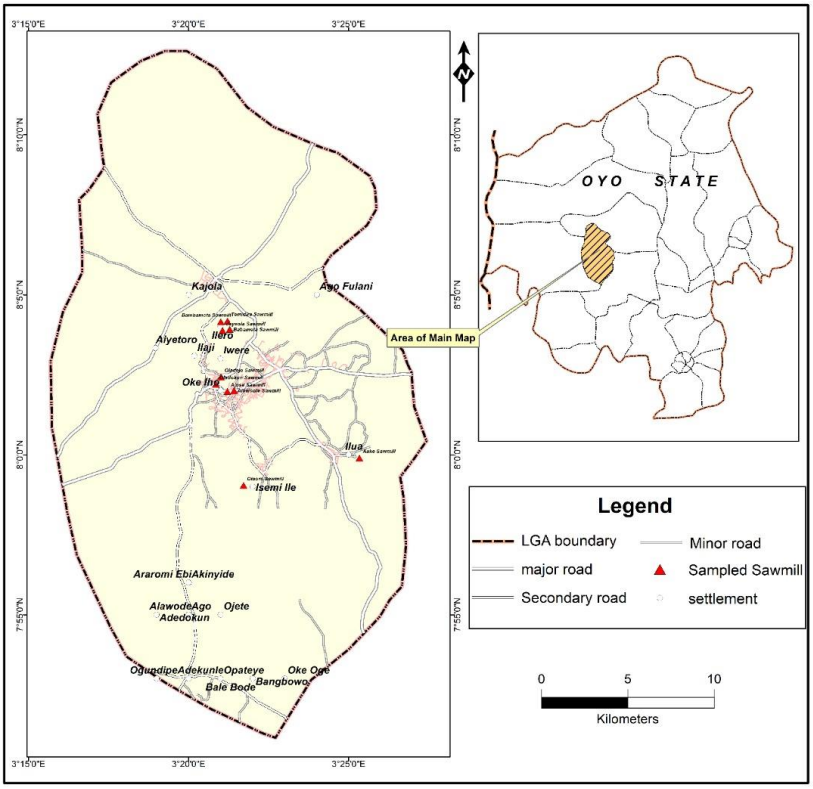

Figure 1 – Study Area

RESULTS AND DISCUSSION

The result revealed that 30.0% are of age 31-40yrs while 49.0% are of age 41-50yrs and 20.0% are of age 51yrs above. The result display that majority were adult. This result corroborates the findings of (Akanni, 2012) which stated that those in the age range of 41-50 are efficient and have power to produce work. The result revealed that most of plank sellers were female (54.0%) which means majority of the respondents was female and they have power to carry out the task. This corroborate with (Alfred and Akitade, 2002) when they opined that timber marketing were dominated by female and the result disagree with (Olawumi and okunlola, 2015) when they stated that majority of the timber marketers in Ondo sawmill were male. The result also again show that 56.0% transport their product by truck, 42.0% by lorry and 2.0% by car, Which means majority of sellers transport their product by truck. This result shown is in agreement with (Agborlahor, 2010) who found that majority of small holder timber mills in Ogun state owned their trucks for transport purpose. The result further show that 9.0% had between 1-3years experience, 27.0% had between 10 years above experience while 42.0% had between 7-9 years' experience. This result suggests that 57.0 % had secondary education, 27.0% and 11% have primary and tertiary education respectively while 2.0% had no formal schooling for most market stake holders confers a wide range of opportunities and advantages for success in life compared with illiteracy. (Babatunde, 2019) based totally on a previous, it is expected that higher levels of educational attainment by a market dynamics and thus better profit from use of sound business principle

and wise business decision. This result revealed that 14.0% had between 1-4 employees, 29.0% had 8 and above workers and 55.0% had 5-7 workers in the industry. This result implies that majority of the plank vendor had 5-7 workers and contribute to the output of their product. The result revealed that 99.0% of the saw mill are private while 1.0% they public.

Table 1 – Socio-Economic Characteristics of the Respondents

VARIABLES	FREQUENCY	PERCENTAGES
AGE	N=100	
Below 30years	1	10.0
31-40years	30	30.0
41-50yrs	49	49.0
Above 51years	20	20.0
GENDER		
Female	54	54.0
Male	46	46.0
MEANS OF TRANSPORTATION		
Truck	56	56.0
Lorry	42	42.0
Car	02	2.0
YEARS OF ESTABLISHMENT		
1-3years	9	9.0
4-6years	22	22.0
7-9years	42	42.0
Above 10years	27	27.0
EDUCATION BACKGROUND		
No formal education	03	3.0
Primary school	27	27.0
Secondary school	57	57.0
Tertiary education	11	11.0
NUMBERS OF WORKERS		
1-4 Workers	14	14.0
5-7Worker	55	55.0
8 and above	29	29.0
NATURE OF BUSINESS		
Private	99	99.0
Public	1	1.0
BUSINESS OPERATIONAL CAPITAL		
#300,000	7	7.0
#300,000-#500,000	48	48.0
#500,000-#1,000,000	36	36.0
#200,000 and above	9	9.0

Table 2 – Identification of Wood Species

Variable		Frequency	Percentage	C.F.
COMM ON NAME	BOTANICAL NAME			
Afara	*Terminalia catapa*	30	29.4	29.4
Araba	*Ceiba Pentandra*	21	21.6	52.0
Dongoyaro	*Azadirata indica*	1	1.0	53
Iroko	*Milicia excels*	6	5.9	58.9
Igi Obi	*Cola spp*	14	13.7	72.6
Oro	*Antiaris Africana*	8	7.8	80.4
Teak	*Tectonia grandi*	19	18.6	100

Source: Field survey, 2021.

Table 3 – Budgetary Evaluation of the Plank Seller

Variable cost	2016	2017	2018	2019	2020
Transportation	1,876,000	2,230,000	2,650,000	2,916,000	2,212,000
Labour	297,560	342,700	367,780	411,360	455,200
Fuel	2,232,600	586,036	2,962,000	2,284,00	2,674,00
Maintenance	395,600	116,550	374,000	111,600	333,400
Rent	10,400	10,600	10,800	10,800	10,800
Processing	2,244,000	2,654,000	2,876,000	3,196,000	3,398,000
Taxes	5000	5,000	5,000	6,000	6,000
Total variable cost	7,061,160	7,944,886	8,825,580	8,935,750	9,089,440
Fixed cost	2016	2017	2018	2019	2020
Saw machine	321,467	321,467	321,467	321,467	321,467
Generating set	211,235	211,235	211,235	211,235	211,235
Vehicle	94,105	94,105	94,105	94,105	94,105
Total fixed cost	626,807	626,807	626,807	626,807	626,807
Total cost	7,687,967	8,571,693	9,452,387	9,562,567	9,716,247
Total revenue	21,120,000	25,080,000	22,840,000	30,240,000	30,240,000
Profit	13,432,033	16,508,307	13,387,613	29,277,433	20,523,753
Rate of return of investment	2.75	2.92	2.42	2.85	3.11
Rate of return of fixed cost	33,7	40.0	36.44	43.46	48.24

Source: Field survey, 2021.

Table 4 – Market Efficiency

n/n	2016	2017	2018	2019	2020
Total revenue(#)	21,120,000	25,080,000	22,,840,00	30,240,000	30,240,000
Total cost(#)	7,687,987	8,571,693	9,452,387	9,562,567	9,716,247
Market efficiency (#)	2.75	2.93	2.41	3.16	3.11

Table 5 – Computation of Gini Coefficient for Timber Sellers in Kajola Local Government (‘000)

Income sales	No of seller	% of seller	Freq.	% of seller	Total sale	% of total seller	of sale	XY
500-1000	15	15	15	6.12	15,5000	5.7	5.7	0.856
2,000-2,500	35	35.0	50	20.41	80,000	29.3	35.7	0.1225
3,000-3,500	30	30.0	80	32.65	97,500	35.7	70.0	0.210
4000-4,500	20	20.0	100	40.82	80,000	29.3	100	0.200
Total	100	100	245	100	273,000	100		0.13885

Table 6 – Distribution of Respondent towards Conduct of the Market

Variable	Frequency	Percentage
OWNERSHIP		
Cooperative society	16	16.0
Partnership	18	18.0
Sole proprietorship	66	66.0
Total	100	100.0
SUPPLY OF PRODUCT		
Regular	99	99.0
Not regular	01	1.0
Total	100	100.0
TYPE OF BUSINESS		
Retailers	8	8.0
Wholesaler	25	25.0
Both	57	57.0
Producers	10	10.0
MEMBERSHIP OF ASSOCIATION		
Yes	98	98.0
No	02	2.0
Total	100	100.0

Source: Field survey, 2021.

Table 7 – Constraints Facing the Timber Business

Constraints	Frequency	Percentage
Inadequate power supply		
Yes	99	99.0
No	01	1.0
High cost of transportation		
Yes	99	999.0
No	01	1.0
Insufficient species		
Yes	87	87.0
No	13	13.0
Government policy		
Yes	40	40.0
No	60	60.0
Inadequate credit policy		
Yes	85	85.0
No	15	15.0

Source: Field survey, 2021.

7.0% had access to less than #3000, 000 to start their business, 36.0% had access to #500,000-#1,000,000, 48.0 had access to #300,000-#500,000 etc. This result is in agreement with (Adetayo, 2011) which found out that amount of working capital for a business enterprise often determines the level of output and accurate profit margin.

Terminalia catapa had the very best percent within the market with (29.4%), followed by *Ceiba pentandra* (21.6%) while *Azadirata indica* had the least percentage (1.0%). This implied that, *Terminalia catapa* and *Ceiba pentandra* are most common species in the markets than other species. This is contrary to the findings of FDF (2000), which stated that, in south west Nigeria, the common tree species encompass Afara (*Terminalia superba*), Apa (*Afzelia Africana*), Opepe *(Nauclea diderrichi)*, Ita (*Lophira alata*) amongst others.

The budgetary analysis of timber market in Kajola Local Government of Oyo state. The average revenue for the year 2016-2020 ranged between #21,120,100- #30,240,000.

The net profit ranged between#13,432,033 –#20,523,753. The rate of return investment was 27.5%, 29.2%, 24.2%, 28.5% and 31.1%. This result indicates that for every Naira invested (Also known as return to capital) was high in the wood market in Kajola Local Government. #28 – #31 was realized and the rate of return on fixed cost follows the same trend. This implying that the rate of return on investment was high in wood market in Kajola Local. It can be said that timber market in the study area was more profitable in the study area. This result agreed (Babatunde et *al;* 2017) who found out that the timber industries in Ijebu Ode were profitable.

The market efficiency of the business from 2016-2020 was 2.75, 2.93, 2.41, 3.16, and 3.11 respectively. The result implies that the market was efficient. The year with the highest efficiency was 2019 with the value 3.16. This result is in line with (Sambeet *el al;* 2015) who stated that sawmill market in Benue is efficient with high financial returns on the investment by the marketers. According to (Ozogwu,2002), the market efficiency ranges from 0% to infinity. If marketing is 100% (unity), it shows that the market is efficient, whereas if marketing is greater than 100% then there is excess profit. Also if marketing is less than 100% there is inefficiency.

Gini coefficient was applied to measure the relative degree of income distribution among the timber sellers. The values of Gini coefficient greater than 0.3445 are high indicating inequitable distribution of income sales (Dillion and herdeker 1993). The Gini coefficient for timber marketer in the study area is 0.86115. This value indicate higher level of concentration and consequently high in the market structure.

66.0% were sole proprietorship, 18.0% was partnership respectively. The result also showed that 1.0% of the timber marketers did not have regular supply of the product while 99.0% had regular supply in the business. This means that the business is not a seasonal business, which means they can source for their product at any season. The result further revealed that 98% of the marketers were retailers while wholesalers were 25% and 57.0% operate both types of business. This result show that the majority of the respondents were both retailers and wholesalers this show that the market nature is tending towards monopoly with majority combining both retailers and wholesalers business together. The result further show that 9.8% belongs to association while 2.0% did not belong to any association, this show that the majority of the marketers belong to an association. This means that before any of the wood marketers is allowed to the market he/she must belong to association, like (Sawyers association, Timber contractor association & Pullers association). The market structure also helps for price fixing of their product, this lead to high profit accruing to the stake holders in the market at the expense of the buyers who will find it difficult to haggle prices of these products. Therefore the timber marketing is not controlled and determined by forces of demand & supply. This usually results into imperfect market structure since the timber sellers are the price marker signifying monopoly. This is in contract to (Sambe *et al*; 2016) who stated that sawmill structure in Benue tends towards oligopoly.

Timber industries in the study area encountered several constraints. It reveals that 99.0% has inadequate power supply while 1.0% did not have .The result also show that 99.0% has high cost of transportation while 1.0% did not have. The result revealed that 8.3% has insufficient species while 12.7% did not have. Furthermore the result also show that 39.2% of the planks seller has low Government policy and 58.8% did not have; 8.5% has inadequate credit facilities while 14.7% did not have. These results corroborate the prospect of (Adetayo, 2011) who observed that high cost of energy, transportation, insufficient species and inadequate credit facilities affected the timber industries in Ogun State.

CONCLUSION

From the context of the result obtained from the study, 57% had the secondary school education while 54% engaged in the business were female. *Terminalia superba* had the highest frequency which means that they are dominant in the area. Moreover, the result revealed that 2019 had the highest profit.

Finally, the major constraints facing was in inadequate power supply, high cost of transportation and government policy.

Based on the findings and conclusion drawn in this study, the following recommendations were made:

- To improve market price and supply level of timber business in Kajola Local Government and there is need to improve on the supply of energy, adequate credit policy, Government policy and sufficient species for production processes in the study area;
- Government should encourage on private tree plantation so as to make available more trees since the demand for timber is increased.

REFERENCES

1. Adeyoju, S.K. (2001). Forestry for national development: A critique of the Nigeria Situation. Proceedings of the 27th Annual conference of the forestry association of Nigeria, Abuja FCT. pp. 34-42.
2. Akande, S .W (2007): Estimation of cost return structure and technical efficiency in sawmilling industry in Ijebu division Ogun State, Nigeria. J. Forest. Res. Manage. 8: 64-79.
3. Akanni. K.A and Adetayo A.O (2011): Estimation of cost return structure and technical Efficiency in sawmilling industry in ijebu division Ogun state, Nigeria. Journal of Forestry research and management. vol.8, pp. 64-79.
4. Agbonlahor M. U (2010): productivity dispersion and resources of Technical in efficiency Small holder timber mills in Ogun state Nigeria. Journal of Humanities, Social Sciences and Creative Arts. pp 49-60.
5. Babatunde T.O; Babatunde O.O; Adejumo A.A and Okeleke S.O (2017): Cost and return structure in sawmill industry in Ijebu-ode, Ogun state. Journal of research forestry, wildlife and environment. vol. 9 (3) September, 2017.
6. Cummingham et al (2005): Productivity dispersion and resources of Technical in efficiency in smallholder timber mills in Ogun State Nigeria J. Hum. Soc. Sci. and Create. Art. 49-60.
7. Johnson**,** S.R (2013).Forestry and the Nigerian Economy, University Press, Ibadan, Nigeria, 308 p.
8. Larinde S.O (2006) Plantation Forestry and Forest Conservation. The Environmentalist. 10: 127-134.
9. Olawumi, A. C.and Okunola (2015): Development of the Nigerian Particle Board Industry. Ph.D. Thesis Department of Forest Resources Management. University of Ibadan. 317 p.
10. Sambe LN, Tee NT, Dagba BI (2016). Profitability Analysis of Timber Trade; Potentials for Growth and Development of the Nigeria Sawmilling Industry. Nigeria Journal of Forestry. 23 (1): 85-90.