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PROFITABILITY AND VALUE ADDITION OF SAWMILLS INDUSTRY IN IJEBU DIVISION OF OGUN STATE NIGERIA

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ABSTRACT

The study focused on the profitability and value addition in sawmills industry in Ijebu Division in Ogun State. Data were collected by means of primary and secondary sources. The instrument used for the collection of primary data was a set of structured questionnaire. A multistage sampling technique was also used in sample enumeration. Descriptive and inferential statistical methods were employed in analyzing the data in the study. The finding showed that 46.7% of the sawmills were retailers and 29.3% were wholesalers of timbers. The mean operational capital among the timber traders was ₦2, 046 667.10 and the average annual income was ₦1,106 667.10 The budgetary analysis revealed that the total annual profit for timber traders ranged between ₦1,181,179.18 and ₦1,980 599.63 for 2012 to 2016. Rent, tax, cost of fuel, power and membership of association were important a determinant of profitability of sawmills business. The value added sales ratios to sawmill business were door (31%), table (34%), pupil chair (53%) and benches (39%). Pupil chair with 53% added more value to sawmill industries in Ijebu Division. High cost of energy, Inadequate credit facilities and high cost of transportation, Inadequate credit facilities and Government policy were some of the constraints faced by timber industries in the study area. The use of modern equipment and machines were needed to replace the outdated equipment in order to increase the output and profit. The level of access to credit facilities should be improved upon by encouraging respondents to form cooperative societies so that they can mobilize enough working capital for their business.

Keywords: Sawmill, profitability, value addition, timber traders

INTRODUCTION

Forests have arguably played a bigger role in the development of human societies than any other resources. The prime direct or marketable product of most forest today is wood used as timber, fuel-wood, pulp and paper. Globally, about 3.4 billion cubic meters of timber equivalent are provided from the forest yearly. After a 60% increase between 1960 and 1990, global wood consumption fluctuated but rose no further during the 1990s largely due to the more efficient use of timber and paper recycling (FAO, 2004). Wood is the most versatile raw material the world has ever known (Douglas, 1995). Throughout history, people relied on wood for needs varying from farming tools to building materials, from fuel to weapons of hunting and warfare. Wood remains virtually the most predominant material used for construction and energy generation until the last half of the 19th century (Douglas, 1995). People used timber in the construction of houses, barns, fences, bridges, furniture items and musical instruments. In contemporary times, wood is still widely used for constructional purposes. It is also a valuable industrial raw material for the production of pulp, paperboard, rayon, cellophane, photographic films, tannin, methanol, ethanol, wood adhesives and chemical derivatives. The ubiquitous nature of wood has made it a valuable material in every stage

of human development, thus man depends on wood right from the cradle to the grave (Douglas, 1995).

Sawmills account for 93.32% of the total number of wood based industries in Nigeria in 1997 (Fuwape, 2001). These mills are concentrated in the Southwestern part of Nigeria with Ekiti, Ondo, Ogun and Lagos states having the largest numbers. As evidence, demand for plank is rising in almost every part of Nigeria without a balanced supply. Availability of sawn wood has been discovered to be problem that can be attributed to the sawn wood production from the point of felling to the last stage of selling for wood sawmills industry to meet the demand of wood and to ensure the stability of the forest ecosystems.

Sawmill industry is characterized by small scale operation which constitutes more than 90% of the entrepreneurs in the sector. A major characteristic of the subsector is increasing number of operatives and decreasing performance. The capacity utilization in the industry is averaged 37% and the lumber recovery rate 40-60% respectively as a result of old equipment. According to Olorunnisola (2000), the annual rate of return is between 15.2% and 44.3%. Sawmills use outdated technologies while only less than 10% use advanced technologies. Although sawmill industry has grown from the pit sawing to circular saw head rigs, French manufactured CD4, CD5, CD6 horizontal band saws, mighty mite, brenta vertical, kernali brand, antiglo machine, jevo machine, primultini vertical and forestor (Omoluabi, 1994). There are only few established sawmills that use the Numeric Controlled (NC) devices. Technological improvement in this industry will impact significantly on log to plank conversion efficiency. Changes in the raw material characteristics such as decrease in log diameter in Nigerian forests also have a strong influence on conversion efficiency. Apart from energy supply, another major factor limiting growth in sawmill industry is scarcity of economic timber resources (Larinde, 2010; RMRDC 2003).

In Nigeria, round wood processing has reached the limits of available forest resources such that the future increase in wood production and revenue could be derived from further processing of saw wood rather than expansion in sawmill and exploitation of wood resources (Larinde, 2010). Consequently, Omoluabi (1985), Oyegade (1997) and Larinde (2008) recommended that efforts should be geared towards having most of the wood-based industries in Nigeria integrated to enable the utilization of wood waste or wood materials which are not suitable for sawmill for other value added products. The objective of this study was to assess the profitability and value addition in sawmills industries in Ijebu Division of Ogun State.

MATERIALS AND METHODS

Study Area

The study area is Ijebu division in Ogun State South-western Nigeria. The state borders Lagos State to the South, Oyo and Osun states to the North, Ondo State to the east and the Republic of Benin to the west. Abeokuta is the capital and largest city in the state. The research was carried out in Ijebu division of Ogun State in Western region of Nigeria. It is located in the tropical zone, approximately lying on latitude 2^0 $6^/$ and 3^0 $6^/$ East of the Greenwich meridian. Ogun State has a mean annual rainfall of about 1200mm and a mean monthly temperature of 10^0c to 24^0c during raining season which is appropriate for a successful plantation. Ogun has one Federal University; the Federal University of Agriculture, Abeokuta and two state government owned universities; Olabisi Onabanjo University, Ago Iwoye (formerly known as Ogun State University) and Tai Solarin University of Education (TASUED) Ijebu Ode. Other major cities and towns in Ogun State are Ijebu-Ode, Sagamu, Ijebu Igbo, Ilaro, Ayetoro and Ota.

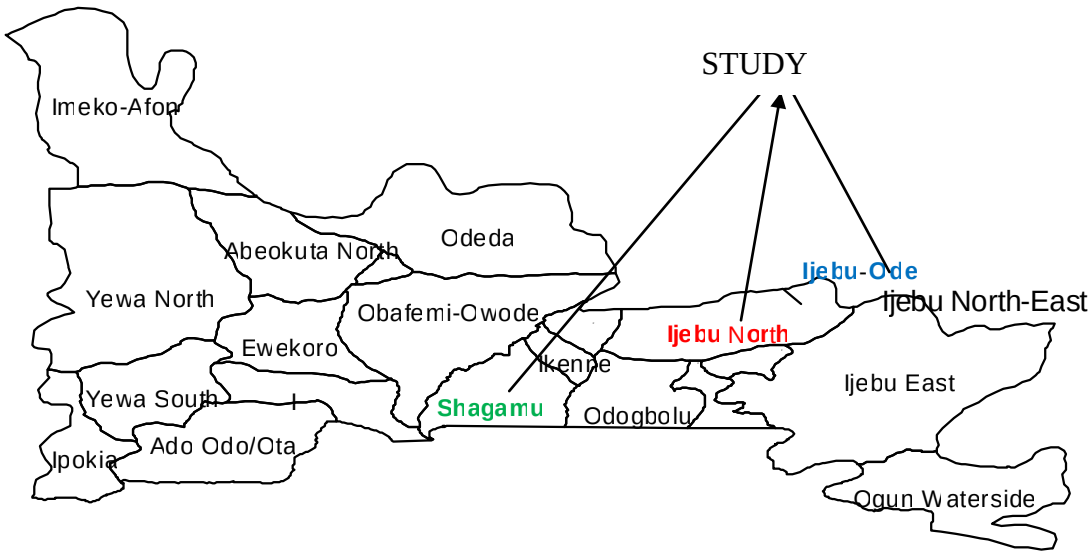

Figure 1: Map of the study area

Sampling Technique

The study area was Ijebu division in Ogun State South-western Nigeria. The instrument used for collecting data was a set of structured questionnaire. The data collected include information on the socio-economic characteristics of sawmill industry involved in timber processing and marketing, nature of business, ownership of business, business operation capital, number of workers, annual income, income level and expenditures. Secondary data as obtained from Ogun State Ministry of Forestry, National Bureau of Statistics, and Multistage Sampling–Techniques (MST) was used in sample collection. In the first stage, Ijebu division in Ogun East Senatorial District was purposively chosen because it has the largest forest coverage in the area. In the second stage, three Local Government Areas (LGA) were randomly selected from the divisions which are: Ijebu-Ode, Sagamu, and Ijebu North. These three LGAs were chosen because they house the highest number of sawmills and forest reserves in the area. In the third stage, five sawmills each were randomly selected from Ijebu-ode, Ijebu-north Local and Sagamu LGAs all in Ijebu division, respectively. The study sampled a total number of 75 respondents as follows: 25 timber sellers were randomly selected from the sawmills at Ijebu-Ode and Ijebu-North and Sagamu.

Table 1:-Distribution of Respondents in Ijebu Division LGAs

S/No	Local Government	Timber seller
1	Ijebu-ode	25
2	Sagamu	25
3	Ijebu North	25
	Total	**75**

Table 2: Sawmills elected in Ijebu Division LGAs

S/No.	Ijebu ode	Ijebu North	Sagamu
1	Arowosegbe Agba - sawmill Ejirin Road	Temidire cooperative sawmill, Station road Oru.	MC sawmill at Ijoku
2	Bolajoko sawmill Ejirin Road.	The Lord sawmill Station road Oru.	Sofowora sawmill at Eleja.
3	Araromi sawmill, Ejirin Road.	Simple I sawmill, Station road Oru.	Ojumeke-sawmill at Aiyegbami, Sagamu
4	Akeem Oshin sawmill Before bridge.	Popoola sawmill, Station road Oru.	Araromi sawmill at,Shotubo
5	Osoba sawmill After bridge	Wood Embasy sawmill Station road Oru.	Mayegun sawmill at Sagamu-Abeokuta toll gate.

RESULTS

Table 3 presents the results of the socio economic characteristics of the sawmills in Ijebu Division The result revealed that 90.7% of respondents were male and 9.3% were females. The result show that46.7% had primary education,34.7% had secondary school education, 13,3% of respondents had no formal education and5.3% had tertiary education, 29.3% of sawmills were wholesalers while 46.7% were retailers and 10.7% were producers and 13.3% operate both nature of business (wholesalers and retailers) the industry. The result shows that majority of the respondents were retailers in hardwood The results further show that 85.3% of the firms had regular supply of wood products while 14.7% of respondents had no regular supply of wood products. This result implies that the timber business is not a seasonal business which means they can source for their product at any season of the year. Also the results show that 60.0% and 37.3% of respondents transport their wood products by truck and lorry respectively, while 2.7% transport their products by car. The results again show that 41.3% of the sawmills were established between 7-9years ago, 29.3% were established between 4-6 years while 20.0% and 9.3% of hardwood sawmills were established between 1-3 years and above 10 years ago in hardwood timber industries. The results showed that 44.0% had access to ₦1,000,001 - ₦ 5,000,000 as working capital and 33.3% could mobilize ₦ 5,000,001 – ₦ 1,000,000, 18.7% had access to more than ₦ 5,000,000 while 4.0% of the firms had access to less than ₦ 500,000 as working capital.

The results showed that 53.3% had between 4-5 workers, 33.3% had 1-3 workers while 13.4% had more than 6 workers. The table also revealed that 46.7% earned ₦1, 000 001- ₦ 2,000,000 per annum, 30.6% earned ₦ 500,001 – ₦ 1,000,000 per annum, 16.0% earned more than ₦ 2,000,000 per annum while 6.7% earned less than ₦ 500,000 per annum.

Table 3: Social Economic characteristics of Respondents and wood supply in Ijebu Division sawmills

Variables	Frequency	Percentage
Gender		
Male	68	90,7
Female	07	9.3
Education of respondents		
No formal education	10	13,3
Primary education	35	46,7
Secondary education	26	34.7
Tertiary education	4	5.3
Nature of Business		
Wholesalers	22	29.3
Retailers	35	46.7
Producers	08	10.7
Both wholesalers & retailers	10	13.3
Total	**75**	**100.0**
Supply of product		
Regular supply	64	85.3
Not regular	11	14.7
Total	**75**	**100.0**
Means of Transportation		
Truck	45	60.0
Lorry	28	37.3
Cars	02	2.7
Total	**75**	**100.0**
Ownership of lorry/truck		
Own	45	60.0
Hire	30	40
Total	**75**	**100.0**
Year of establishment		
1-3 yrs	15	20
4-6yrs	22	29.3
7-9 yrs	31	41.3
Above 10 yrs	07	9.3
Total	**75**	**100.0**
Mean of Year of establishment	**6.3yrs**	

Table 3: continues

Capital for business operation		
Less than ₦500,000	3	4.0
₦ 5,000,001- ₦ 1,000000	25	33.3
₦ 1,000,001- ₦ 5,000,000	33	44.0
Above ₦ 5,000,000	14	18.7
Total	**75**	**100.0**
Mean Capital for business operation	₦ 2,046,667.10	
Numbers of workers		
1-3 workers	25	33.3
4-5 workers	40	53.3
Above 6 workers	10	13.4
Total	**75**	**100.0**
Annual income		
Less than ₦500,000	05	6.7
₦ 500,001 – ₦ 1,0000,000	23	30.6
₦ 1,000,001 – ₦ 2,000,000	35	46.7
Above ₦ 2,000,000	12	16.0
Total	**75**	**100.0**
Mean of Annual Income	₦ 1,106,667.10	
Nature of business ownership		
Private	75	100.0
Public	-	-
Total	**75**	**100.0**

Logit model result (Table 4) was used to examine the determinants of profitability in hardwood timber business. The log likelihood was -127.448 and the Chi-square value was 31.220.The four variables include rent cost (10%), Tax (5%), cost of fuel and power at (10%) and membership of association (1%) were found to be statistically significant at varying probability levels. The coefficient of cost of rent is negative (-0.320) and significant at 10%.

Table 5 shows the budgetary analysis of sawmills in Ijebu division of Ogun State. The average revenue for year 2012 to 2016 ranged between ₦1,525.927 and ₦2,151, 032 The mean total fixed cost was ₦554,932.65.The average total variable cost for 2012 to 2016 range between ₦ 631,622.12, and ₦ 749,644.74. The net profit for year 2012 to 2016 ranged between ₦ 1,181,179.18, and ₦1,980,599.63.The rate of return to investment is as follows 16.9%, 14.7%, 13%, 16.5%, and 16.4% ,thus implying that rate of return on investment also known as return to capital was high in sawmills in Ijebu division.

Table 4: Logit model-determinant of profitability in Ijebu Division sawmills

Independent variable	Co-efficient	Standard error	T-value	Marginal effect
Constant	3.425	1.102	3.109	0.631
Rent cost	-0.320*	0.190	-1.685	-0.589
Tax	0.217**	0.876	2.480	0.400
Cost of transportation	-0.322	0.293	-1.098	-0.592
Cost of fuel and power	-0.230*	0.133	-1.732	--0.424
Cost of labour	0.122	0.183	0.665	0.224
Membership of association	-2.676***	0.759	-3.525	-0.493
Regular supply of product	-0.907	0.317	-0.286	-0.167
Log likelihood	-127.448			
Chi-square	31.220			

* Significant at 10% level of significance; ** Significant at 5% level of significance
*** Significant at 1% level of significance

Table 5: Budgetary analysis of sawmill in ijebu division between 2012 - 2016

Year	2012	2013	2014	2015	2016
Transportation	41,261.22	45,627.30	33,324.7	39,383.7	47,2629
Labour	16,741.54	32,608.3	14,0644	16,803.8	18,872.2
Taxes	1701,35	3260.83	13,379	12,465.1	19976.77
Fuel & power	50,523.52	43,801.3	43915.7	48,113	53,459.4
Processing cost	241,337.20	259242.3	205.920	264515	285.428
Maintenance	25,195.13	26.975.1	25,995.5	42,723	34676.2
Rent	251,729.20	276,271	277,406	287207	285125
Membership due	3132.96	3,382.81	2873.44	4419.27	4844.27
Total variable cost	631622.12	691,168.94	616,878.74	715,62987	749,64474
Depreciation cost of saw machine	490217.58	490217.58	490217.58	490217.58	490217.58
Depreciation on generating set	35,215.05	35,215.05	35,215.05	35,215.05	35,215.05
Depreciation vehicle	29,500.02	29,500.02	29,500.02	29,500.02	29,500.02
Total fixed cost	554932.65	554932.65	554932.65	554932.65	554932.65
Total cost	1,186554.77	1246101.59	1171811.39	1270562.52	1304577.39
Total revenue	2010916.67	1833,854	1525927	2100000	2151032
Profit	824361.9	58775241	354115.61	829437.48	84645461
Rate of return on investment	1.69	1.47	1.30	1.65	1.64
Rate of return on fixed cost	3.62	3.30	2.75	3.78	3.87

Table 6 shows the value added sales ratio for furniture industry From the table, value added sales ratio 23% for set of chair, 40% for office chair 31% for door 30% for book shelf 27% for pulpit 34% for prayer desk, 53% for pupil chair, 28% for wardrobe, 22% for kitchen cabinet 36 % for lectern, 34% for table and 39% for benches. This result implies that furniture is an added value to the sawmill industry. Pupil chair with 53% added more value sales to the sawmill business in Ijebu division.

Table 6: Value addition to sawmill business Ijebu division

Product	Average Sales (₦)	Average Purchase (₦)	Value added/sales ratio
Set of chair	81,192.31	61,730.77	0.23
Office chair	41,192.31	24,576.92	0.40
Doors	9,500	6,538.46	0.37
Book shelf	14,730.77	10.307.69	0.30
Pulpit	22,461.54	16,423.08	0.27
Prayer desk	11,903.85	7,884.62	0.34
Pulpil chair	5,550	2,598.46	0.53
Wardrobe	68,756.92	49,500	0.28
Kitchen cabinet	82,307.69	64,230.77	0.22
Lectern	9,346.15	5,992.31	0.36
Table	2,134.62	1,411.54	0.34
Bench	1,246.15	765.38	0.39

Table 7 shows that sampled sawmills encountered inadequate credit facilities (30.7%), high cost of energy and power (37.3%), high transportation cost (22.7%) government policy (2.7%) inadequate facilities in the market (6.7%) as constraints. Other challenges encountered in the sawmills include the combination of Government policy and high transport cost (13.3%), as well as inadequate credit facilities and high transport cost government (33.3%),The result implies that the constraints facing the sawmill industry were prominent

Table 7 : Constraints faced by sawmill industry in Ijebu division

Constraint	Frequency	%
Government Policy	02	2.7
Inadequate facilities in market	05	6.7
High cost of energy and power	28	37.3
Inadequate credit facilities	23	30.7
High transportation cost	17	22.7
Government policy and high transport cost	10	13.3
Inadequate credit facilities and high transport cost	25	33.3

DISCUSSION

This result implies that the timber business is not a seasonal business which means they can source for their product at any season of the year. The result shows that majority of the respondent transported their products by truck in hard wood timber industry. Based on ownership of truck the result revealed that 60.0% of respondents own lorry/truck while 40.0% hire truck/lorry in the study area. The result shows that majority of the respondents owned lorry/truck to transport their product. This result is in agreement with Agbonlahor (2010) who found out that majority of smallholder timber mills in Ogun state had truck to transport their product The mean business operation capital was ₦2,046,667.1. This result is in agreement with Akanni and Adetayo (2011) which found out that the amount of working capital for business enterprises often determines the level of output and the accruable profit margin. The mean annual income for hardwood timber industries was ₦1, 106 667.10. This result is in contrast to Akerele (2013) which found out that annual income earned by rural farmers household in Abeokuta north Local government was well below the federal government approved minimum wage. This implies that the lower the cost of rent the higher the profitability of the marketers and since the cost of rent of a shop is

an integral part of marketing cost is decrease will increase the profitability. The tax was also significant at 5% and had a positive coefficient of (0.217). This implies that the higher the tax the higher the total marketing cost and this will reduce the profitability of the marketers. The coefficients of cost of fuel and power were negative (-0.230) and significant at 10%, this implies that the lower then cost of fuel and power the lower the marketing cost and the higher the profitability.

The coefficient of the membership of furniture making associations carries a negative sign (-2.676) and significant at 1%. This suggests that marketers who are members of associations incurred lower marketing cost than those that are non-members. The important reason here is that members usually spread to share the variable costs in marketing such as transportation cost and rents for space acquisition. Members usually contribute money to hire a vehicle jointly to production centres and few can also join in renting a space. All these ensure shared cost in marketing with the tendency of reducing their total marketing cost so as to increase their profit. This result agrees with Adejobi and Adegbite (2013) who observed that membership of association join together to shared transportation cost and rent for space acquisition in the marketing of some selected leafy vegetable in the area of Osun state.

Based on these findings, it can be said that, rent cost, tax, cost of fuel, power and membership of association are important determinants of profitability in hardwood timber industry in Ijebu division of Ogun state. This result implies that for every naira invested N13 - ₦17, The rate of return to fixed cost follow the same trend. On the bases of this result it can be said that sawmill industries were more profitable in Ijebu division in Ogun State. This is in agreement with findings of Babatunde *et al.*,(2007) who said that sawmill industries in Ijebu ode were more profitable. The sawmills industry had highest constraint in cost of energy and power. This is due to the epileptic power supply and invariably high cost of procuring diesel and petrol to power their machine and also their access to credit facility was poor due to high interest rates charged by the commercial banks high cost of transportation was also a major constraint resulting from bad road network in many rural areas and cities where they source their timbers and the available transport tend to exploit the respondents by charging exorbitant fare. This result corroborate the finding of Akanni and Adetayo(2011) who observed that access to credit facilities and high cost of energy affected the sawmilling timber industries in Ijebu division.

CONCLUSION

The findings from this study show that the majority of sawmill industry were retailers. The findings also show that majority of the industries owned Lorries and trucks to transport their products. It further revealed that furniture business was an added value to sawmill industry. It was observed that high cost of energy and power was the highest constraint faced by sawmill in Ijebu Division of Ogun state.

Recommendations

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

i. To improve the market equilibrium price and supply levels of hardwood timber business in Ijebu division of Ogun State, there is need to improve on the supply of energy for production processes.
ii. Access to credit facilities should be improved upon by encouraging the respondents to form a cooperative society so that they can mobilize sufficient working capital for new businesses.

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