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COST AND RETURN STRUCTURE IN SAWMILL INDUSTRY IN IJEBU ODE, OGUN STATE, NIGERIA

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ABSTRACT

The study focused on the cost and return structure in the timber industry in Ijebu Ode, Ogun State. The study made use of both the primary and secondary data. The instrument used for collecting the primary data was a set of structured questionnaire. A Multistage Sampling Technique was used in sample enumeration. Descriptive and inferential statistical methods were employed in analyzing the data in the study. The finding showed that 32.6% of the industries were retailers while 30.4% were wholesalers of timbers and both had regular supply of the products. The working capital among the timbers business was ₦3,641,905.6 and the average annual income was ₦1,682,064.2. The budgetary analysis revealed that the total annual profit for timber traders ranged between ₦1,273,103.63 and ₦2,394,341.77 for 2010 to 2014. . Government policy, high cost of transportation, inadequate credit facilities and high cost of energy and power were some of the constraints faced by timber industries in the study area. The use of modern equipment and machines are needed to replace the outdated equipment in order to increase the output and profit.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 the respondent to form cooperative societies so that they can mobilize enough working capital for their business.

KEY WORDS: Cost and return, Timber, Industry, Structure, Constraint

INTRODUCTION

Timber is by far the highest-valued forest product in most forests. In 2008, the export of industrial round wood, sawn wood and wood-based panels from developing countries accounted for US$13.1 billion (FAOSTAT, 2010). Timber is the most economically important product of the forest. Sawmill is a critical industry whose performance not only has direct implications for present livelihood but also for the future generation. Timber industry has the potential to improve economic performance and increase state and household revenues. The realization of these opportunities, however, depends critically on the efficiency of utilization and exploitation of products. The upholstered furniture frame industry has traditionally been recognized as a market for low-grade timber and this industry has recently experienced a change from hardwood timber to plywood as the primary raw material. In Nigeria today, timber management is at crossroads because the guiding principles of managing the forest sustainably are no more with us (Adetula, 2008). Challenges like illegal activities in the forest, declining manpower and capacity in Forestry Department, inadequate forest patrol, lack of returns from timber felling accruing to local people, outdated forestry laws and regulations and population pressure leading to increased clearing of forest land for cultivation of arable and tree crops are such that pose grave threat to sustainable forest management (SFM) in the country (Adetula, 2008).

Sawmill is a critical industry whose performance not only has direct implications for present livelihood but also for the future generation. Sawmills consume the vast majority of the industrial round wood produced in Nigeria. Most existing sawmills comprise old and poorly maintained horizontal band saws that are manually pushed against stationary logs. This technology is outdated it is unsuitable for the smaller logs available today, its lumber recovery is estimated at only 40-45%, and it does not allow sawing for grade. For example, Nigeria'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 (FAO, 2005). The commercial wood fuel value chain that

supplies cities and towns generates over 300 000 fulltime jobs. Several studies on log conversion efficiencies in the saw mills processing centre showed that the total volume of solid wood in a typical saw log is less than 35 percent when converted into sawn timber (Badejo and Giwa, 1983, Larinde 2006, Akande et al 2007). Timber trade accounts for a larger proportion of total Agricultural share of international economics which contributes to socio-economic development (Toledo, 2006). This has important implication for economic growth and development, since it favourably affects the terms of trade. 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 (Singh, 1983). The export value earnings from timber is obtained from products like log, sawn wood, veneer and pulpwood (Kalu and Okojie, 2009). Traditionally, Thus, there is need to measure the financial performance of timber industry firms, value addition is unavoidable. So far, the existing empirical research on whether value addition improves corporate performance remains inconclusive since no clear positive correlation between the firms' size or their presence in timber industry businesses and their economic performance has been found up to now (Kolo and Vogt, 2003

The furniture industry is strategic in the use of planks from the saw mills. It forms the major market for wood products in Nigeria and protects the continued existence of primary wood industries such as sawmills and ply mills. The capacity utilization of the furniture industry companies in Nigeria. Wooden furniture represents the major market for wood products in Nigeria. Many of the industries suffer from high cost of production due to energy cost and lack of patronage. One of the major specialties of furniture makers in Nigeria is wooden door; which is very popular in the country. 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 sawn wood except processed wood. These measures were put in place to make raw materials locally available for secondary processing mill to achieve the desired value-addition for export. Further processing of timber will ensure economic value of timber and other forest products to be fully harnessed (Larinde *et al*., 2010). It will also reduce the ecological impacts of utilization on the forests for sustainable management. The wood-based industry in Nigeria suffers from production inefficiency as a result of poor integration, poor cost and returns database and non reinvestment of profit (Larinde, 2008). Therefore, this work assess the cost and return structure and major constraints in the timber industry in the study area.

MATERIALS AND METHODS

Study Area

. The research was carried out in Ijebu Ode of Ogun State in Western region of Nigeria. It is located in the tropical zone, approximately lying on latitude 2^{o} 6' and longitude 3^{o} 6' of the Greenwich meridian. Ogun State has a mean annual rainfall of about 1200mm and a mean monthly temperature of 10^{o}C to 24^{o}C during raining season which is appropriate for a successful plantation.

METHODOLOGY

The study was carried out with the use of both the primary and secondary data. The instrument used for collecting the primary data was a set of structured questionnaire. The Secondary data was obtained from Ogun State Ministry of Forestry, National Bureau of Statistics, Internet facilities and published Journal articles.

Experimental Design

Multistage Sampling Techniques was used in sample collection. In the first stage, Ijebu division in Ogun East Senatorial District was purposively chosen. The reasons being that it has the largest forest coverage area. In the second stage, one Local Government Area was randomly selected from the division which is Ijebu-Ode, This LGA was chosen because it housed the highest number of Saw-mills and forest reserves in the area. In the third stage, ten Saw-mills were selected which are Arowosegbe Agba, Bolajoko, Araromi, Akeem Oshin, Osoba, Titilayo, Kuku, Agbomola, and Obileye Sawmill. Ten (10) timber seller were randomly selected from it each sawmill.

Data Collection

The data collected include information socioeconomic characteristics, marketing, nature of business, ownership of business, business working capital, number of workers, income level and expenditure.

The following profitability measures were calculated:

$RMCF = TVP - TC$ …….. (1)

$RRTI = 100(^{RMCF}/_{TC})$……..(2)

$GM = TR - TVC$..…….....(3)

$RRFC = 100\ (^{RFC}/_{TFC})$ ……. (4)

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,

RFC = Return on fixed cost (Gross margin),

RRFC = Rate of return on fixed cost.

Data Analysis
Descriptive, inferential statistical method, Budgetary analysis, were employed in analyzing the data for the study.

RESULTS
Table 1 presents the results of the socio economic characteristics of the timber industry. The results shows that 33.7% of the sawmill industries were wholesalers while 55.8% were retailers 7.4% were producers and 3.2% both retailers and producers. This result shows that the majority of the respondents were retailers in the timber industry in Ijebu Ode.
The results further show that 89.5% of the sawmill industry had regular supply in the timber industry while 10.5% of the sawmill industry had no regular supply of their products. This implies that the timber business is not a seasonal business.

About 62.1% and 31.6% transport their products by truck and lorry respectively, while 6.3% transported their products by car. Based on ownership of truck, the result revealed that 65.3% of respondents own lorry/truck while 34.4% hire truck/lorry to transport their products.

The results again show that 44.2% of the sawmill industries were established between 1-3years ago, 31.5% were established between4-6years back, while 15.8% and 8.4% of timber industries were established between7-9 years and above 10years back. The mean year of establishment of sawmill industry in Ijebu Ode was found to be 5.8years. The results showed that 32.6% had access to between ₦1,000,000 - ₦ 5,000,000 as working capital and 50.5% could mobilize ₦ 5,000,000 – ₦ 1,000,000, 4.2% had access to more than ₦ 5,000,000 while 12.6% of the industry had access to less than ₦ 500,000 as working capital. The mean business operation capital for timber industry was ₦ 3,641,905.6.

The results showed that 56.8% had between 1-3 workers, 34.7% had 4-5 workers while 8.4% had more than 6 workers in the sawmill industries. This result implies that the majority of the sawmill industry had between 1-3 workers and this could contribute to the output of their production. The table also revealed that 13.7% earned ₦1,000,001 - ₦ 2,000,000 per annum,53.9% earned ₦ 500,001 – ₦ 1,000,000 per annum,6.3% earned more than ₦ 2,000,000 per annum while 26.3% earned less than ₦ 500,000 per annum. The mean annual income for the sawmill industries was ₦ 1,682,064.2.

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 small holder timber mills in Ogun state owned their trucks for transport purposes.

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.This result implies that the sawmill industry are more profitable in the study area. 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.

Table 1: Social Economic characteristics of Sawmill Industries in the Study Area

Variables	Frequency	Percentage
Nature of Business		
Wholesales	32	33.6
Retailers	53	55.8
Producers	07	7.4
Both	03	3.2
Total	**95**	**100.0**
Supply of product		
Regular supply	85	89.5
Not regular	10	10.5
Total	**95**	**100.0**
Means of Transportation		
Truck	59	62.1
Lorry	30	31.6
Cars	06	6.3
Total	**95**	**100.0**
Ownership of lorry/truck		
Own	62	65.3
Hire	33	34.7
Total	**95**	**100.0**
Year of establishment		
1-3 yrs	42	44.2
4-6yrs	30	31.5
7-9 yrs	15	15.8
Above 10 yrs	08	8.4
Total	**95**	**100.0**
Mean of Year of establishment	**5.8yrs**	
Business operation capital		
Less than ₦500,000	12	12.6
₦ 5,000,001- ₦ 1,000000	48	50.5
₦ 1,000,001- ₦ 5,000,000	31	32.6
Above ₦ 5,000,000	04	4.2
Total	**95**	**100.0**
Mean of business operation capital	**₦ 3,641,905.6**	
Numbers of workers		
1-3 workers	54	56.8
4-5 workers	33	34.7
Above 6 workers	08	8.4
Total	**95**	**100.0**
Annual income		
Less than ₦500,000	25	26.3
₦ 500,001 – ₦ 1,0000,000	51	53.9
₦ 1,000,001 – ₦ 2,000,000	13	13.7
Above ₦ 2,000,000	06	6.3
Total	**95**	**100.0**
Mean of Annual Income	**₦ 1,682,064.2**	
Nature of business ownership		
Private	95	100.0
Public	___	___
Total	**95**	**100.0**

Cost and Return Structure of Sawmill Industry

Table 4 shows the budgetary analysis of sawmill industries in Ijebu division of Ogun State. The average revenue for the industry for year 2010 to 2014 ranged between ₦2,429,782.64, and ₦3,286,857.74. The average fixed cost for the industry ranged between ₦343,636 and ₦772,727.27.The average total variable cost ranged between ₦447473. 48 and ₦548879.61. The net profit ranged between ₦ 1,273,103.63 and ₦2,394,341.77.

The rate of return on investment were 29.9%, 20.6%, 23.6%, 31.5% 36.8%. thus implying that rate of return on investment (also known as return to capital) was high in timber industry in Ijebu division. This result indicates that for every naira invested, ₦21 – ₦37 was realised and 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 Ode in Ogun state.

Table 2: Budgetary Analysis Of Sawmill Industry in Ijebu-Ode

Year	2010	2011	2012	2013	2014
Variable cost					
Transportation(₦)	38,534.62	35,661.54	32,55769	30,480.77	32,923.08
Labour(₦)	13,055.77	18,057.69	11,853.85	12,832.69	14,142.31
Taxes(₦)	151,385.00	1,261.54	2,038.46	3,038.46	4,360.38
Fuel & power(₦)	45,209.62	39,157.69	33,503.85	40,373.08	48,242.31
Processing cost(₦)	167,100.00	184,538.46	142,207.69	178,076.92	197,615.38
Maintenance(₦)	21,771.15	22,117.31	23,280.77	25,536.54	22,442.3
Rent(₦)	184,153.85	234,846.15	223,461.54	241,000.00	22,442.31
Membership due(₦)	2,905.77	3,228.85	3,661.54	3,538.46	4,115.38
Total variable cost(₦)	4,4743.48	538,869.23	472,565.39	534,876.92	54887961
Fixed cost					
Depreciation cost of saw machine(₦)	272,727.27	245,454.05	218,181.8	190,909.9	163,636.36
Deprec. Cost on furniture Machine & tools(₦)	266,666.67	213,333.33	160,000.00	106,666.67	53,333.33
Deprec. On generating set(₦)	33,333.33	26,666.67	20,000.00	13,333.33	6,666.67
Deprec. On vehicle(₦)	200,000.00	180,000.00	160,000.00	140,000.00	120,000.00
Total fixed cost(₦)	772,727.27	665,454.05	558,181.8	450,909.9	343,636.36
Total cost(₦)	1,220,200.75	1,204,323.28	1,030,747.19	985,786.82	892,515.97
Total revenue(₦)	3,043,855.3	2,477,426.91	2,429,782.64	3,107,998.19	3,286,857.74
Total Profit(₦)	1,823,654.55	1,273,103.63	1,399,035.45	2,122,211.37	2,394,341.77
Profitability indicator(₦)					
Rate of return on investment	2.99	2.06	2.36	3.15	3.68
Rate of return on fixed cost	3.94	3.72	4.35	6.89	9.56

Constraints facing the Timber industry

Table 3 shows that timber industries in Ijebu ode encountered several constraints. About 17.9% of the timber business operators had inadequate credit facilities, 16.8% incurred high transportation cost while about 5.3% complained of unfavourable government policy about timber business.

The result implies that the constraints facing the timber industry were significant. The timber industries encountered with high 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 position of Akanni and Adetayo (2011) who observed that access to credit facilities and high cost of energy affected the sawmilling timber industries in Ijebu Ode.

Table 3: Constraints Facing the Timber Business

Constraint	Frequency	%
Government Policy	**5**	**5.3**
Inadequate facilities in market	6	6.3
High cost of energy and power	22	23.2
Inadequate credit facilities	17	17.9
High transportation cost	16	16.8
Government policy and high transport cost	15	15.8
Inadequate credit facilities and high transport cost	14	14.7
Total	**95**	**100**

CONCLUSION

In the context of the results obtained from this study sawmill industry are important sources of income to many households in Nigeria and the study area in particular. It is however experiencing major setbacks .The identified constraints to the development of timber industry need to be addressed if the industry must move forward .For instance ,problem of inadequate credit facilities may be addressed by coming together of the timber business men and women to form cooperative societies so that they can have access to sufficient credit facilities that could be mobilized for their business operations.

Adequate investment should also be made in the energy and power sector so that the timber industry operators can profitably and sustainably keep on operating their businesses. This will also lower the cost of operation and unit cost of the production.

RECOMMENDATIONS

Based on the findings and conclusion drawn from this study, the following recommendations were made; To improve the market equilibrium price and supply levels of timber business in Ijebu ode of Ogun State, there is need to improve on the supply of energy and power for production processes in the study area. .

Furthermore, Nigeria government should put a policy on forest timber industries to increase the domestic value in the processing of wood product and this will put a ban on the export of logs, rough sawn and clean sawn wood expect process wood. This measure will make raw material locally available for secondary processing mill to achieve desired value addition for export and further processing of timber will ensure economic value of the timber and other forest product to be fairly harnessed

References

Adetula, T. (2008): Challengers of Sustainable Forest Management in Ondo State: Community Based Forest Management System as a Panacea. – In: Onyekwelu, J.C.,

Agbonlahor M.U(2010): Productivity dispersion and resources of Technical in efficiency in smallholder timber mills in Ogun state Nigeria. *Journal of Humanities, Social Sciences and Creative Arts*.pp 49-60.

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* pp. 64-79 Vol. 8, 2011.

Akerele E.O (2013): Consumption, Savings and Investment pattern among rural farming household in Abeokuta north local government area Ogun state, Nigeria:

College of agricultural sciences Olabisi Onabanjo University. *Journal of agricultural management and rural development* (JAMARD) Vol 4, No 1 pp 42.49.

Babatunde T.O, Babatunde O.O, Adekola P.J, Ojo M.O, Adeniji R.T and Shitu A.J (2013): Marketing of some selected non timber forest products in Boluwaduro local government area of Osun state. *Journal of Qualitative Education Vol 9: 2* pp 167-176.

Badejo S.O and Giwa, W (1983) "Volume assessment and economic importance of sawmill wood waste utilization in Nigeria." Forestry Research Institute of Nigeria bulletin.28pp.

FAO, (2005). Microfinance and Forest-based Small-Scale Enterprises, p. 246, FAO, Rome.

Kalu, C. and Okojie, C. E. E. (2009). Economic Contributions of Forests in Nigeria, 1970 - 2000, *Research Journal of Social Science*, Vol. 4: 59 - 73.

Kolo C. And Vogt P. (2003): Strategies for growth in the media and communication industry; does size realy matter?. *The international journal on media management* Pp. 251-261.

Larinde S.L (2008): Techno-economic analysis of secondary processing of saw wood into furniture part in a vertically integrated sawmill in Ibadan Nigeria. Unpublished Ph.D Thesis.

Larinde S.L (2010) Secondary processing and the Nigerian saw mill industry: Issues, challenges and opportunities. In S. Kolade Adeyoju and S.O Bada (Eds) *Readings in sustainable tropical forest management*. Pp 277-291

Larinde S.L Akande J.A, Agbeja B.O and Ntabe E (2010) prospect for wood product. Trade under the new partnership for Africa's development. *Journal of Agriculture and Social Research (*JASR) 10(1); Pp. 7-16.

Singh,S. (1983). Sub-Saharan Agriculture Synthesis and Trade Prospects, World Bank Staff working paper No. 2: 157- 608.

Toledo, D. (2006). Developing a sustainable trade ITTO Tropical Forest Update, 16 (3): 15-17.