Contributions of Sawn Wood Trade to Livelihood Sustenance in Sapele Local Government Area of Delta State, Nigeria

***Ohwo, O. A. and Ogoha, E.**

Department of Forestry and Wildlife, Delta State University,
Asaba Campus, Asaba, Delta State, Nigeria

*Kes4ever2002@yahoo.com; oghenekevweabigail@gmail.com

Abstract

The study was designed to evaluate the contributions of sawn wood trade to livelihood sustenance in Sapele LGA of Delta State. A purposive sampling technique was used to select 45 respondents from the study area while a semi-structured questionnaire was used to obtain data for the study. Descriptive statistics were used to analyze the demographic data, regression analysis to determine the effect of demographic characteristics on profit levels, while data on financial returns were analyzed using profitability analysis tools. The business was dominated by married male who were selling various species of sawn wood. Triplochiton scleroxylon (malvaceae) was the most traded, while Milicia excelsia (moraceae), Khaya ivorensis (meliaceae), were among the least traded. Highly significant (P < 0.1) relationships were observed between profit levels and demographic characteristics. Profitability analysis of the trade showed that majority of the respondents had net incomes of ₦601,000 - ₦800,000, with net profit margin, gross profit margin as well as rate of return on investment (RORI) being 46% - 55% showing that there were high levels of financial returns from the trade. It was concluded that Income from the business contributed significantly in sustaining livelihoods of the respondents.

Keywords: Sawn wood trade, livelihood sustenance, sawn wood species and financial returns.

Introduction

Sawn wood is one of the most important forest products consumed both domestically and for export (Kalu, and Owolabi, 2001). It comes in different dimensions, and is often sorted into various categories for different and efficient uses (Kalu, and Owolabi, 2001). Sawn wood trade involves the exchange between a wood buyer and a seller at a given price for profit maximization (Ohwo and Adeyemi, 2015). It entails the sum total of business activities involved in the production and movement of sawn wood from point of production to the consumers (Bauer and Yameh, 1993). In Nigeria, sawn woods are marketed locally in saw-mills and wood sheds with saw-mills accounting for about 93.32% of total number of wood-based industries in Nigeria (Fuwape, 2001). Locally, sawn wood processing and marketing contribute to livelihood sustainability through employment and cash income generation in the rural and urban communities of Nigeria (Ohwo, 2016).

Despite the fact that forests contribute to the Gross Domestic Product (GDP) of the country, most of the revenue generated is not properly captured, thus giving an impression of a decline in overall percentage contribution of the sector to national GDP. Reports have shown that sawn wood trade contributes to livelihoods globally (Laarman and Sedjo, 1992; Giliba, 2010) and in Nigeria (Sekumande, and Oluwatayo, 2011; Aiyeloja, 2013).

However, the specific contributions of this trade to livelihood sustenance in Sapele Community of Delta State is unknown.

Evaluation of the contributions of sawn wood trade to livelihood sustenance in Sapele community is important to economic growth since a large portion of the total agricultural share of international economy is accounted for by sawn wood which contribute to socio-economic development of a country (Izekor and Izekor 2011). Studies have shown that sawn wood marketing is a profitable business with good financial returns, hence has prospects for sustaining livelihoods (Izekor and Izekor 2011; Aiyeloja, 2013; Ohwo, 2016), but these studies did not capture data from Sapele community and as such, results obtained may not be operative in the community. This study therefore aims to evaluate the contributions of sawn wood trade to livelihood sustenance in Sapele with a view to ascertaining some specific roles the trade plays in the livelihoods of the citizenry.

Methodology

The study was carried out in Sapele Local Government Area (LGA) of Delta State, Nigeria. Sapele is located on latitude 8^{o}14'N and longitude 8^{o}45'E, and lies along the Benin River, which aids transportation of round woods for processing in about 45 saw-mills within the area. Sapele has been a centre for saw milling since 1925 (Aribisala, 1993). Its plywood and veneer- manufacturing plant is one of the largest in Western Africa (Ogunwusi and Olife, 2012).

Data Collection and Analysis

A purposive sampling technique was adopted for the study based on the prevalence of the saw-mills, sawn wood traders and marketing in the area. Data were collected using a semi-structured questionnaire. Forty-five (45) copies of the study instrument were administered to sawn wood traders in the area. Data were analyzed using descriptive statistics, profitability analyses such as net income, net profit margin, gross profit and rate of return on investment as well as multiple linear regression models.

Net income was obtained from the deductions of total costs incurred in obtaining sawn wood from gross income (total revenue) as follows:

$$\mathrm{NI} = \mathrm{TR} - \mathrm{TC} \quad \ldots\ldots(1)$$

Where NI = net income; TR = total revenue; TC = total cost

Net profit margin was obtained as:

$$\mathrm{NPM} = \mathrm{GS} - \mathrm{SD} \times 100 \quad \ldots\ldots(2)$$

Where GS = gross sale; SD= sales deductions.

Gross profit margin was computed as:

$$\mathrm{GM} = \mathrm{TR} - \mathrm{COGS} \quad \ldots\ldots(3)$$

Where TR= total revenue; COGS = cost of goods sold.

Rate of Returned Investment (RORI) was estimated using:

$$\mathrm{RORI} = \frac{\mathrm{TR}}{\mathrm{TC}} \times 100 \quad \ldots\ldots(4)$$

Where TR = total revenue; TC = total cost.

The relationships between the level of profitability and some demographic characteristics were tested using multiple linear regression of the form:

$$Y = \mathrm{a} + \mathrm{B}_1\mathrm{X}_1 + \mathrm{B}_2\mathrm{X}_2 + \ldots\ldots + \mathrm{B}_n\mathrm{X}_n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where Y = level of profitability; X_{1-n} = demographic characteristics; a = regression constant; B_{1-n} = coefficients of independent variables (demographic characteristics).

Results and Discussion

The demographic characteristic of the respondents (Table 1) shows that majority (53.3%) of the respondents were within the ages of 31-50 years and male (55.6%).Those married were 44.4%.

Table 1. Demographic characteristics of respondents

Variables	Frequency	Percentage (%)
Age		
19-30	10	22.3
31-50	24	53.3
51 and above	11	24.4
Total	**45**	**100**
Gender		
Male	25	55.6
Female	20	44.4
Total	**45**	**100**
Marital status		
Single	14	31.1
Married	20	44.4
Widowed	4	8.9
Divorced	7	15.6
Total	**45**	**100**
Religion		
Christianity	34	75.6
Islam	11	24.4
Total	**45**	**100**
Education		
No formal education	2	4.4
Primary	5	11.1
Secondary	7	15.6
Tertiary	31	68.9
Total	**45**	**100**
Family size		
2-5	9	20
6-10	32	71.1
10 and above	4	8.9
Total	**45**	**100**

Source: Field survey, 2016.

In terms of educational attainment, 68.9% of the respondents were University graduates, with 71.1% having family sizes of 6 to 10 persons. The age distribution of the respondents

showed that the sawn wood business in Sapele was dominated by youths, with their inherent ability to move around and source for products for the purpose of transacting business (Aiyeloja, 2013). The high involvement of male participants in the business may be attributed to the energy-demanding nature of the business, which corroborates the assertion of Sekumande and Oluwatayo (2011) and Aiyeloja *et al.* (2012). The large involvement of University graduates in the sawn wood business in Sapale may be attributed to the fact that the business requires some degree of literacy due to measurements and simple calculations involved in sawn wood processing as observed by Izekor and Izekor (2011), and the large proportion of unemployed University graduates in Nigeria.

The results for the level of livelihood sustenance through sawn wood trade, presented in Table 2, showed that sawn wood trade was the major occupation of the respondents, with different levels of involvement in the trade, but with majority (35.6%) of the respondents engaging in the sawn wood business in association politics. About 57.8% had been in the business for 1-10 years, while 44.4% of the respondents were engaged in the business because of its potential for high profit returns. The profitable nature of the business may have attracted individuals with higher educational status as a result of unemployment, and due to the increased income from the trade compared to income from white collar jobs as asserted by Sidiku and Oyerinde (2010).

Furthermore, majority (37.8%) of respondents started sawn wood business with an initial capital ranging of ten to a hundred thousand Nigerian Naira (₦10,000 – ₦100,000), obtained mainly from personal savings. Most (53.3%) of the respondents' sources of income were mainly from sawn wood trade. This agrees with the findings of Giliba (2010), who reported that a large number of household in the forest regions of Tanzania generated substantial income from selling forest products. Expenditure on food by the respondents shows that majority (66.9%) of the respondents sourced their food from the markets, with 55.6% spending about ₦5,000 – ₦10,000 weekly on food. Also, most (67.7%) of respondents have children in higher institution and spends about ₦151,000 and above on school fees yearly. Majority (31.1%, 33.3% and 51.1%) of the respondents sourced their products from saw mills in Sapele, transported their products by hired trucks and had 2 business outlets respectively. However, majority (37.8% and 37.8%) of the respondents had weekly and monthly profits ranging from ₦5,000 – ₦10,000 and ₦10,000 – ₦20,000 from sawn wood sales respectively. Employment status of the business shows that majority (48.9%) of the respondents employed between 4 and 6 labourers, with 33.3% having children as staff in the business. The formal educational attainments of the labourers shows that majority (64.4%) of them were Senior School Certificate (SSC) holders and were within the ages of 21 and 25 years. In terms of salary scale, majority (73.3%) of the respondents paid their labourers from ₦5,000 – ₦10,000. These findings agree with the report of Laarman and Sedjo (1992).

Regression analysis in Table 3 on the effect of demographic characteristics (age, gender, number of shed, educational level, salaries of labourers and family size) on profit levels of the respondents shows that there was a significant and positive relationship between profitability in sawn wood business and socio-economic characteristics of respondents at 10% level of significance with r, r-square and adjusted r-square values of 0.587, 0.438 and 0.412 respectively.

Regression results show that family size, age, gender, and salaries of workers did not influence ($P>0.05$) the profit margins of sawn wood marketers.

Table 2. Livelihood sustenance of respondents

Variables	Freq.	%	Variables	Freq.	%
Primary Occupation			**Yearly expenditure on school fees**		
Sawn wood traders	45	100	₦10,000 – ₦50,000	24	53.3
Secondary occupation			₦51,000 - ₦100,000	10	22.2
Bench miller	8	17.8	₦101,000 - ₦150,000	6	13.3
Saw miller	1	2.2	₦151,000 above	5 **(45)**	11.2 **(100)**
Timber contractor	14	31.1	**Sources of Products**		
Farmer	6	13.3	Sawmills in Sapele	14	31.1
Sawn wood politics	16 **(45)**	35.6 **(100)**	Sawmills outside Sapele	13	28.9
Occupation of spouse			Sawmills outside Delta State	12	26.7
Business	18	40.0	Timber contractor	5	11.1
Civil servant	21	46.7	Chain sawing	1 **(45)**	2.2 **(100)**
Farming	5	11.1	**Mode of Transportation**		
Artisans	1 **(45)**	2.2 **(100)**	Personal truck	9	20.0
Years in business			Hired truck	15	33.3
1-10	26	57.8	Raft	10	22.3
11-20	12	26.7	Truck and raft	11 **(45)**	24.4 **(100)**
21-30	6	13.3	**Number of Market outlets**		
31 and above	1 **(45)**	2.2 **(100)**	1 Outlet	13	28.9
Reasons for Entering Business			2 Outlets	23	51.1
Unemployment	9	20	3 Outlets	9 **(45)**	20.0 **(100)**
Family business	20	44.4	**Profit from sawn wood sales**		
Friend's advice	4 **(45)**	8.9 **(100)**	**Weekly**		
Initial capital			₦5,000 - ₦10,000	17	37.8
₦10,000 – ₦50,000	17	37.8	₦ 11,000 - ₦15,000	13	28.9
₦51,000 - ₦100,000	17	37.8	₦16,000 - ₦20,000	5	11.1
₦101,000 - ₦150,000	3	6.6	₦21,000 and above	10 **(45)**	22.2 **(100)**
₦151,000 and above	8 **(45)**	17.8 **(100)**	**Monthly**		
Source of initial capital			₦ 10,000 - ₦20,000	17	37.8
Personal savings	24	53.3	₦21,000 - ₦30,000	16	35.6
Family	5	11.1	₦31,000 - ₦40,000	3	6.7
Friends	8	17.8	₦40,000 and above	9 **(45)**	20 **(100)**
Loan	8 **(45)**	17.8 **(100)**	**Status of employee**		
Other source of income			**Size of Labour**		
Yes	21	46.7	1-3	20	44.4
No	24 **(45)**	53.3 **(100)**	4-6	22	48.9
Source of food			7-10	3 **(45)**	6.6 **(100)**
Market	30	66.7	**Children as Staff**		
Farm and market	15 **(45)**	33.3 **(100)**	Yes	15	33.3
Proportion of food bought			No	30 **(45)**	66.7 **(100)**
Everything	11	24.4	**Educational Qualification**		
More than half	19	42.3	No formal education	6	13.3
Half	15 **(45)**	33.3 **(100)**	Primary	10	22.2
Weekly expenditure on food			Secondary	29 **(45)**	64.4 **(100)**
₦5,000 – ₦10,000	25	55.6	**Age of employee**		
₦11,000 - ₦15,000	10	22.2	15-20	4	8.9
₦16,000 - ₦20,000	3	6.7	21-25	27	60.0
₦21,000 and above	7 **(45)**	15.5 **(100)**	26-30	9	20.0
Children in higher institutions			31 and above	5 **(45)**	11.1 **(100)**
Yes	30	67.7	**Salary scale**		
No	15 **(45)**	33.3 **(100)**	₦5,000 - ₦10,000	33	73.3
			₦11,000- ₦15,000	7	15.6
			₦16,000 and above	5 **(45)**	11.1 **(100)**

Source: Field survey, (2016). N.B.: Figures in parentheses represent frequency and percentage total.

However, educational status and number of business outlets significantly ($P < 0.10$) affected the profit margins of sawn wood sales. This may be because educational status

affects skills acquisition and book keeping activities positively in small scale businesses. Sawn wood of various species were traded (Table 4), and are mostly stocked in the market outlets and saw mills in the study area. *Triplochiton scleroxylon (malvaceae)* was the most traded while *Milicia excelsia (moraceae)* and *Lophira alata (ochnaceae)* were among the least traded. Factors affecting buyers' preference of sawn wood included quality (durability, resistance to fire and insect attack, aesthetic value and high profits), availability and price. This corroborates the finding of Aiyeloja *et al*. (2011) that durability, workability and availability influenced buyers' preference for wood species in Oyo and Osun States of Nigeria. Species such as Sapele wood (*Entandrophragma cylindricum*), Lagos wood (*Khaya ivorensis*) and utile (*Entandrophragma utile*) belonging to the family of *Meliaceae* were prominent among the preferred species but were among the least traded because of excessive exploitation leading to scarcity of these species, hence they were among the least traded. Tree species of this family are known to produce quality hard wood suitable for housing and industrial construction globally (Aiyeloja, 2013).

Table 3. Effects of demographic characteristics on profit level

SV	SS	df	Mean square	F	P
Regression	92907803053.58	5	154846489.26	2.922	0.10
Residual	298153514775.40	39	8058203093.93		
Total	391061408428.98	44			

Significant at 0.1 probability level. Dependent variables: Profitability; Predictors (constant): age, gender, number of shed, educational level, salaries of labourers and family size

Table 4. Species of sawn wood traded in the study area

Common name	Botanical name	Family	Trade name	Freq.	(%)
African maple	*Triplochiton scleroxylon*	Malvaceae	Obeche	10	22.3
Bahia	*Mitragyna ciliata*	Rubiaceae	Abura	8	17.8
Scented mahogany	*Entandrophragma cylindricum*	Meliaceae	Sapele	6	13.3
African Blackwood	*Dalbergia Melanoxylon*	Fabaceae	Mpingo	5	11.1
White afara	*Terminalia superba*	Combretaceae	Limba/A	4	8.9
African green heart	*Cylicodiscus gabonensis*	Leguminosae	Okan	4	8.9
African Oak	*Milicea excelsia*	Moraceae	Iroko	3	6.7
Black afara	*Terminalia ivorensis*	Combretaceae	Idigbo	1	2.2
Teak	*Tectona grandis*	Lamiaceae	Thekka	1	2.2
African mahogany	*Khaya ivorensis*	Meliaceae	Lagos wood	1	2.2
Bilinga	*Nauclea diderichii*	Rubiaceae	Opepe	1	2.2
Iron wood	*Lophira alata*	Ochnaceae	Ekki	1	2.2
Total				**45**	**100**

Source: Field survey (2016); Freq. = Frequency.

Profitability analysis (Table 5) of sawn wood trade showed that majority (51.2%, 37.8% and 57.7%) of the respondents had net incomes that ranged from ₦601,000 – ₦800,000, net profit margins of 46% - 55%, and gross profit margins of 46% - 55% respectively. The high net profit and gross profit margins are an indication of how the traders are able to sustain the business. This corroborates with Aiyeloja, (2013) in his report that the level of

sustainable profit margin from timber trade goes a long way in sustaining livelihood of the traders. The Rate of Return on Investment (RORI) was high for majority (57.7%) of the respondents ranging between 46% - 55%. The management implication of this is that for every one naira spent in the business there will be a return of 46% to 55%. This is in line with the findings of Izekor and Izekor (2011) that sawn wood business earns good financial returns to marketers.

The result of the annual profit of the respondents is presented in Table 6. It shows that the minimum annual cost of wood per trader was ₦402,000, and maximum was ₦1,380,000 with a mean value of ₦724,831.33. The revenue from sales of sawn wood showed a minimum annual revenue of ₦1035000, a maximum annual revenue of ₦3,002,000 and a mean annual revenue of ₦1470362.22. The net income had a minimum value of ₦369,000, and a maximum of ₦1,880,000 with a mean annual profit of ₦797419.77. These are an indication that sawn wood trade is a profitable business in the study area, corroborate the findings of Aiyeloja (2013) and Ohwo (2016).

Table 5. Profitability of sawn wood traders

Variables	Frequency	Percentage
Net incomes		
201,000 – ₦400,000	1	2.2
401,000 – ₦600,000	11	24.4
601,000 – ₦800,000	23	51.2
800,000 and above	10	22.2
Total	**45**	**100**
Net Profit Margins		
26% - 35%	1	2.2
36% - 45%	11	24.4
46% - 55%	17	37.8
56% - 65%	12	26.7
66% and above	4	8.9
Total	**45**	**100**
Gross profit margins		
26% - 35%	1	2.2
36% - 45%	5	11.1
46% - 55%	26	57.7
56% - 65%	13	28.8
Total	**45**	**100**
Rate of return on investments		
26% - 35%	1	2.2
36% - 45%	13	28.8
46% - 55%	26	57.7
56% - 65%	4	8.9
66% and above	1	2.2
Total	**45**	**100**

Table 6. The annual profit margin of all respondents in the study area

	Cost of Sawn wood (₦) '000	Total Revenue (₦) '000	Gross Profit (₦)'000	Net Sales (₦)'000	Net Profit (₦)'000	NPM (%)	GPM (%)	RORI (%)
	1,200	2,075	875	847	1,611	52	42	57.8
	568.9	1,278	709.1	315.9	814	38	55	44.5
	622.3	1,320	697.7	469.3	856	54	53	47.1
	468	1,265	797	315	801	39	63	36.9
	502.3	1,103	600.7	299.3	699	43	54	45.5
	634	1,315	681	381	851	45	52	48.2
	702	1,340	638	449	876	51	48	52.3
	703.4	1,150	446.6	450.4	686	65	39	61.1
	484	1,220	736	331	756	43	60	39.6
	402	1,035	633	299	571	52	61	38.8
	504.3	1,236.5	732.2	301.3	772.5	39	59	40.7
	1,340	2,925	1,585	1,087	2,461	44	54	45.8
	1,285	2,900	1,615	1,002	2,336	42	55	44.3
	988	2,001	1,013	735	1,537	47	51	49.3
	672	1,269	597	469	805	58	47	52.9
	589	1,327	738	406	863	47	56	44.3
	601	1,256	655	398	792	50	52	47.8
	432	1,070	638	279	606	46	59	40.3
	517	1,190	673	334	726	46	57	43.4
	609.8	1,235	625.2	406	771	52	50	49.3
	711.01	1,160	448.99	458.01	696	65	39	61.2
	633.5	1,320	686.5	430	856	50	52	47.9
	568.7	1,127	558.3	365.7	663	55	49	50.4
	632	1,315	683	429	851	50	51	48.0
	1,200.5	2,875	1,674.5	947	2,111	44	58	41.7
	1,600.9	3,002.9	1,402	1,297.9	2,238.9	57	46	53.2
	910	1,980	1,070	657	1,316	49	54	45.9
	712.8	1,269	556.2	509.8	805	63	43	56.1
	748.5	1,377	628.5	545.5	913	59	45	54.3
	562	1,255	693	397	791	47	55	44.7
	468	1,060	592	365	596	61	56	44.1
	572	1,170	598	469	706	66	51	48.8
	502	1,225	723	349	761	45	59	40.3
	468	1,170	702	315	706	44	60	67.5
	832	1,320	788	429	856	50	59	61.4
	768	1,137	369	515	673	76	32	34.8
	802	1,305	503	549	841	65	38	45.9
	1,005	2,885	1,880	752	2,221	33	65	53.4
	1,380	3,001.9	1,621.9	1,097	2,007.9	54	54	52.9
	895	1,675	780	692	1,211	57	46	49.4
	672.5	1,269	596.5	519.5	805	64	47	46.0
	680.5	1,377	696.5	477.5	806	59	50	47.0
	702.5	1,525	822.5	449.5	1,061	42	53	52.7
	508	1,080	572	405	616	65	52	47.1
	617	1,170	553	514	706	72	47	52.8
Total	**32,617.41**	**66,166.3**	**35,883.89**	**23,490.61**	**46,004.3**			
Max	**1,380,000**	**3,002,900**	**1,880,000**	**279,000**	**571**			
Min	**402,000**	**1,035,000**	**369,000**	**1,297,900**	**2,461**			
Mean	**724,831.33**	**1470362.22**	**797419.77**	**522013.55**	**1,840.17**			

NPM = Net Profit Margin; GPM = Gross Profit Margin; RORI = Rate of Return on Investment

Conclusion

This study has shown that sawn wood marketing has great prospects for sustaining livelihoods by serving as an alternative source of employment in a developing economy such as Nigeria where there is a large percentage of unemployed. Sawn wood business was the major source of income to the traders with high rates of financial returns on investment. The income from the business contributes to sustaining livelihoods of the respondents. In order to sustain sawn wood business, the traders should be intensively educated on the

need to establish forest plantations, and sustainable utilisation of forest resources in order to have regular access to wood, while providing a green environment for the benefit of man and the forestry sector.

References

Aiyeloja, A. A. (2013). Sustaining livelihood through sawn wood marketing in Port-Harcourt, Nigeria. *International Journal of Science and Nature* 4(1) 84 – 89.

Aiyeloja, A. A, Ogunsanwo, O. Y and Asinyabi, A. P. (2011). Determinants of preference for lesser known species among cabinet-makers in Oyo and Osun States, Nigeria. *Small-scale Forestry* 10(1):37-51.

Aiyeloja, A. A., Oladele A. T and Ezeugo O. E. (2012). Evaluation of Non-timber forest products trade in Ihiala Local Government Area, Anambra State, Nigeria. *International Journal of Science and Nature* 3(2):366-372.

Aribisala, O. A. (1993). Raw materials revolution and impacts on industrialization in Nigeria. Mednet Publications Ltd, 1 – 4Pp.

Bauer, P. T. and Yameh, B. S. (1993). Economics of marketing reform. *In: Abbot*, J. C. Agriculture and Food Marketing in Developing Countries. Selected Readings, CPA/CAB/Publication Series, 108-132Pp.

Fuwape, J. A. (2001). The impact of forest industry and wood utilization on the environment. *Journal of Tropical Forest Resources* 17(2): 78-90.

Giliba, R. A. (2010). Non-timber forest products and the contribution to poverty alleviation and forest conservation; *Tanzania Journal of Human Ecology* 3 (2):73-78.

Izekor, N. D. and Izekor, O. B. (2011). Analysis of sawn timber enterprise in Benin metropolis, Edo State. *Nigeria Journal of Agriculture, Food and Environment* 7(2): 19-23.

Kalu, C. and Owolabi, A. T. (2001). Assessment of sawn wood grading standards in Benin City, *Journal of Agriculture, Food and Environment* 7(3): 14-19.

Laarman, J. G. and Sedjo, R. A. (1992). Global forests; issues for six billion people (McGraw Hill: New York).

Ogunwusi, A. and Olife, I. (2012). Enhancing productivity of forest industry through industrial clusters concept. *Industrial Engineering Letters* 2(8):19-29.

Ohwo, O. A. (2016). Price differences and causal factors in marketing of selected sawn wood species in Delta State, Nigeria. *Journal of Agriculture & Food Environment* 3 (1): 83-92.

Ohwo, O. A. and Adeyemi, A. A. (2015). Price transmission and market integration of sawn wood of *Poga oleosa* (pierre) in Delta State, Nigeria. *Nigerian Journal of Agriculture, Food and Environment* 11(3):114-122.

Sekumande, A. B. and Oluwatayo, I. B. (2011). Economic analysis of plank production in Gbonyin Local Government Area of Ekiti state, Nigeria. *International Journal of Agricultural Economics and Rural Development* 4(1): 36-42

Sidiku, N. A and Oyeride, O.V. (2010). Analysis of sawn timber market in Ondo State, Nigeria. *In: Climate Change and Forest Resources Management: The Way Forward*. Proceedings of the 2nd Biennial National Conference of the Forest Products Society of Nigeria (Onyekwelu, J. C., Adekunle, V. A. J. and Oke, D.O., eds). 26th-29th April, 2010. 339-346Pp.