



## Price Determinants of Sawn Wood in Bodija Plank Market, Ibadan Oyo State Nigeria

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### Abstract

#### Keywords:

Price, Determinants, Sawn wood, Species, Regression

*With the growing demand of sawn wood, self-imposed rules has led to tagging of price on sawn wood not considering the surrounding factors associated to the product. This therefore led to the analysis of the price determinants of sawn wood species in Bodija plank market Ibadan Oyo State Nigeria. Ninety copies of questionnaire were administered to the existing nine zones in Bodija plank market. Data collected were analyzed using descriptive and inferential statistics such as frequency, percentage and regression analysis. The result reveals that 78.8% of the respondents were male, 50.0% were between the ages of 41-50 years, 81.1% married with 38.9% of family size of 5 persons, 93.3% had one form of formal education with majority (54.4%) could not go beyond secondary education. Mahogany (*Melicia excelsa*) (28.9%) and *Gmelina arborea* (26.7%) were the mostly demanded sawn wood while *Mansonia altissima* (1.1%) was the least demanded sawn wood in the study. The variables; season (-0.476) and tree scarcity (0.289) were statistically significant and determinant variables in the price of sawn wood. The coefficient of determination ( $R^2$ ) was 0.80% which explains 80% level of variation. It was therefore concluded that season, government policy and scarcity of tree were the factors that influences price determinant of sawn wood in the study. Consequently, it is recommended that government should encourage her citizens to go into private tree plantation*

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### INTRODUCTION

Sawn wood refers to round wood that has been cut into planks or boards from log. It is a natural product from the forest which has been in use since man's existence and is often sorted out in various categories for efficient end uses. It is characterized by difference in appearances, colors, mineral streaks and so on. Sawn wood has unique mechanical properties which are of three natural perpendicular axis; Longitudinal, radial and tangential. The longitudinal axis is assumed parallel to the fiber grain, the radial axis is normal to the growth rings and the tangential axis is perpendicular to the grain but tangent to the growth rings. Sawn wood is durable and can be used for both interior and exterior structures and surfaces. The mechanical properties of wood and its availability makes it a natural material for building

structures, furniture, making tools, carpentry work, construction of ships etc. For efficient sawn wood usage, specific characteristics or properties must be considered which affects price tagging and the rate of demand of sawn wood in the market. Much of this can come from the biomass of the tree itself, but that requires investment in plant which is not always possible in an industry that is widely distributed among small scale producers. (Ramage *et al.*, 2017). Sawn wood is graded based on usable content according to certain standards achieved through grading and sorting out into different characteristics and properties. The defects permitted within each grade influence the appearance and performance of each individual piece of sawn wood (It is also important to recognize the variations within grades which determine both the cost price and the selling price accompanied with other factors (Ahec, 2008).

Among all the multifaceted uses of sawn wood in the wood based industries, the furniture industry is the greatest used of sawn wood. This is due to the large variety of furniture used by different classes of people. Furthermore, various factors such as increase in population, population mobility, availability of credit facilities, high level of literacy, increase in the number of households, and increase in the number of high income earners have led to increase in demand of various furniture items. This above points has led to the expansion of the wood based industry due to high rate of sawn wood demand (Olorunisola, 2000).

## LITERATURE REVIEW

In Nigeria, sawn-wood is used for various purposes across the country and its prices are fundamental pre-requisite for socio-economic development of the country. Of the semi-processed and processed wood categories, sawn-wood has the highest production and the highest demand and it is the most widely distributed in Nigeria (FAO, 1999) for construction purposes such as building and furniture. Many people engaged in sawn-wood marketing because of the regular profit from the enterprise which serve as a good mean of livelihood. (Kalu *et al.*, 2009) Thus, the importance of its price to the national economy cannot be over emphasized.

In ordinary usage, price is the amount of payment or compensation given by one party to another in return for goods or services demanded. In modern economics, prices are generally expressed in unit of some form of currency. (For commodities, they are expressed as currency per unit weight of commodity. Although prices could be quoted as quantities of other goods and services, yet it sometimes refers to the quantity of payment requested by the seller of goods or services, rather than the eventual payment amount Essays, (2018). This request amount is often known as asking price or selling price.

Price determinants are factors which determine the price of a particular commodity. In a purely socialized economy, the price of a certain good will be determined by society directly and not through other types of mechanisms such as market. The market price is determined mainly by competition and self-interest. Seller will want to raise price of a commodity solely for making more profit on his own not minding the factors surrounding the market. Setting the price of a product is one of the most crucial decision a seller must face, and one of the most difficult due to the number of factors that must be considered. Some of the factors that influence pricing decisions are; demand, competition, cost of production, political view, environmental factors, legal factors, packaging, and government policies. With the growing demand of

sawn wood, it is necessary to know the factors that influences price of sawn wood; in the bid to stimulate normal and affordable price so as to ensure steady availability of the product without any detrimental effect to the environment. The total wood consumed in Nigeria is estimated at 262,783-meter cube per annum. The trend of wood consumption was on the high side from 1995 to 2011. It was 58% in 1995, 70% in 2000, 52% in 2005, and 92% in 2010 and 2011 respectively (Orimoogunje, 2013). Wood work in terms of processing provides employments to numerous people therefore contributed massively to the local and national economy. Many related research studies have been conducted on marketing of agricultural exports in Nigeria. However, most of these efforts do not lay much emphasis on price determinants of timber products. This paper is gear to evaluate Price determinant of sawn wood in the study area

## MATERIALS AND METHOD

### Area of Study

The study was carried out in Bodija plank market (Iso pako) Ibadan north local government area, Oyo state. It has coordinates; 7° 26' 7" N 3° 55' 2" E. It is located in the southwestern part of Nigeria and it is bounded in the north by Iseyin and Oyo, in the east by Ikire, in the west by Eruwa, and in the south by Ogun state. Ibadan is 228m above sea level and has rainfall of average distribution of about 1250mm and 1800mm. Ibadan is blessed with two seasons; dry season begins from April while wet season begins from September. It also has a temperature that ranges between 27°C and 32°C with relative humidity of about 25%

### Data collection and analytical technique

Data were collected through administered of well-structured questionnaire. Primary data were collected from the Nine (9) zones of the market. Ten questionnaires were randomly administered to ten plank marketers in each of the zones making a total of Ninety plank marketers. Descriptive statistics such as frequencies, percentages and inferential statistic (regression analysis) were used in the analysis of the data.

Model specification in implicit form is specified as follows:

$$Y = f(X_1, X_2, X_3, X_4, X_5)$$

Where

Y = Change in price (Price fluctuation)

X<sub>1</sub> = Season (yes= 1, otherwise= 0)

X<sub>2</sub> = Government policy (yes= 1, otherwise= 0)

X<sub>3</sub> = Tree scarcity (dummy)

X<sub>4</sub> = Transportation (Naira)

X<sub>5</sub> = Levy (Amount)

## RESULTS AND DISCUSSION

The result of table 1 on Socio Economic characteristics of the respondents revealed that 78.9% of the plank marketers in the study area were males, this implies that majority of the respondents are male. This may be due to the tedious nature of sawn wood marketing which requires a lot of energy. This confirms to the finding of Ndaghu *et al.*, (2011) who stated that labour demanding livelihood are usually dominated by male. The result also shows that 50% of the plank marketers were between the ages of 41-50years old. This is an indication that most of the respondent in the study area are still in their active age. This is in agreement with Sekumade and Oluwatayo (2011) who stated that young and active people have the potential of striving better because young people have ability to take risk. It also shows that 81.1% were married, 10% were widow, 3.3% were divorced, 3.3% were widower while 2.2% were

single. Also, there is high percentage of married plank sellers in the study area. This shows that marketing of sawn wood serves as a means of livelihood. This support the findings of Aiyeloja *et al.*, (2013) who stated that sawn-wood marketing serves as a source of income and employment generation to forest stakeholders who engaged in the forest-related activities. The study further reveals that 38.9% had family size of 5, 22.2% had family size of 4, 18.9% had a family size of 3, 17.8% had family size greater than 5 while, 2.2% had a family size of less than 2. Finally, the results reveals that 54.4% had a secondary school certificate, 34.4% had just primary school certificate, 6.7% were not educated while 4.4% had tertiary education. This is an indication of some level of literacy among the plank marketers. However, majority of them had one form of formal education this conform to the work of Aderounmu, *et al.*, (2019)

**Table 1 Socio Economic characteristics of the respondents**

Variable	Frequency	Percentage
<b>GENDER</b>		
Male	71	78.8
Female	19	21.2
<b>AGE</b>		
20 – 30 years	6	6.7
31 – 40 years	18	20.0
41 – 50 years	45	50.0
Above 50 years	21	23.3
<b>MARITAL STATUS</b>		
Single	2	2.2
Married	73	81.1
Divorced	3	3.3
Widow	9	10.0
Widower	3	3.3
<b>FAMILY SIZE</b>		
2	2	2.2
3	17	18.9
4	20	22.2
5	35	38.9
Greater than 5	16	17.8
<b>EDUCATIONAL LEVEL</b>		
Primary	31	34.4
Secondary	49	54.4
Tertiary	4	4.4
No education	6	6.7
<b>Total</b>	<b>90</b>	<b>100</b>

Table 2 shows the rate at which sawn wood species are demanded, taking into considerations some of their special features and characteristics. 28.9% of the

sellers prefer to sell *Iroko* as demanded by the buyers because it is an indigenous tree species, very strong and it is one of the most popular sawn woods in the study area. 10.0% choose to sell *Omoh* because it is not easily attack by termites and other deteriorating

agents. *Gmelina* was preferred by 26.7% because it is most affordable and readily available sawn wood specie. Also, *Ayunre* and *Opepe* both amount to 6.7% even though they possess easy to nail characteristics yet they do break easily. Ire

and *Mansonia* are part of the sawn wood having low percentage because they are not up to twelve feet when cut. Thus, they are preferred by 3.3% and 1.1% respectively. The study also reveals that *Obobo* possesses some reasonable amount of durability which makes it preferred by 7.8% and 8.9% voted for *Ayin* because of its uses for furniture work. The above result explain that the plank sellers stock their market by considering the choice of their sellers and reasons (easy to nailed, durability,) for their trust on a particular sawn wood specie used either for building, furniture, and other purposes.

**Table 2; Sawn Wood Species Mostly Demanded in Bodija Plank Market, Ibadan**

Species	Frequency	Percentage
<i>Milicia excels</i>	26	28.9
<i>Cordia milleni</i>	9	10.0
<i>Gmelina arborea</i>	24	26.7
<i>Albizia zygia</i>	6	6.7

<i>Funtumia ebrifu</i>	3	3.3
<i>Mansoniaaltissima</i>	1	1.1
<i>Nauclea diderrichi</i>	6	6.7
<i>Ficus mucuso</i>	7	7.8
<i>Anogeissus leiocarpa</i>	8	8.9
Total	90	100

Table 3 shows the factors influencing price determinant of sawn wood in Bodija plank market Oyo State. The variables tree scarcity (0.289) and season (-0.476) were statistically significant at 5% and 1% respectively. This implies that increase in the seasonality of the plank will bring about reduction in the price of sawn wood and increase in the magnitude of the tree scarcity will result in increase effect on the price of sawn wood in the study. The result also shows high coefficient determination 0.80 (80% level of variation) which indicate that there is a strong relationship between the variables used. Therefore, any change in any of these factors will result in change in price of sawn wood in the study area.

**Table 3: Factors influencing price determinant of sawn wood in Bodija Plank Market, Ibadan**

Variables	Coefficients	Standard error	T-value
X <sub>1</sub> Season	-0.476*	0.073	-2.588
X <sub>2</sub> Govt. Policy	.144	0.040	1.120
X <sub>3</sub> Tree scarcity	.289**	0.054	1.614
X <sub>4</sub> Transportation	-.085	0.013	-.804
X <sub>5</sub> Levy	.021	0.022	.199
Adjusted R <sup>2</sup>	0.80		

Note= (\*\*), (\*) at 5% and 1% Significant level

Table 4 reveals that bad road which takes 40.0% is one of the major problems the sellers encounter in sawn wood business, 28.9% says they rarely get their profit back and 23.3% complained of low capital to stock when timber prices are lesser and also to get enough mechanizations which will make work easier and faster while 7.8% stated that fuel scarcity contributed to the problems faced in plank wood business.

**Table 4; Problems militating against Plank marketing in the study**

Constraint Percentage		Frequency
Bad road	36	40.0
Low profit	26	28.9
Mechanization	21	23.3
Fuel scarcity	7	7.8
Total	90	100

## CONCLUSIONS AND RECOMMENDATIONS

The study reveals that government policy and levy though positive and not significant, tree scarcity and seasonality ha a significant effect on the price of sawn wood, *Iroko (Milicia excelsa)* and *Gmelina arboreawood* species were in highly demanded in Bodija Plank Market, Ibadan. Therefore, there is need to look into the variables so as to bring checks and balances in sawn wood marketing for proper management and utilization since the demand for timber species is at the increase due to population growth. Emphasis should be centered on efficient afforestation programmes and incentives for farmers who are interested in plantation establishments and finally, there should be proper regulated policy on tax levied so as to encourage good management and utilization of the timber forest product.

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