



ECONOMICS ANALYSIS OF BAMBOO MARKETING IN ANAMBRA AGRICULTURAL ZONE OF ANAMBRA STATE, NIGERIA

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ABSTRACT

The study examined the economics analysis of bamboo marketing in Anambra Agricultural zone of Anambra State, Nigeria. The study looked at the profitability of bamboo marketing in the study area, ascertain the constraints faced by bamboo marketers and determine the sources of funds, labour and transportation mode in bamboo marketing. Data were collected from 60 respondents, (40 retailers and 20 wholesalers), who were selected purposively from four major markets in Anambra Agricultural zone using snowball sampling method. The four major markets in the zone were Otuocha, Oye-Olisa, Eke-Igwe Nteje and Oye-Farm at Igbariam. Data were analyzed using descriptive statistics, gross margin (GM) and 3 types Likert scale. About 38.6 % of the bamboo marketers in the study area sources fund from co-operative societies, 30% of the marketer's sources fund from family members and relatives, 41% of the marketers use their personal bus and truck for transportation of bamboo to either shop or place of request. Majority of respondents were found to utilize hired labour (36.6 %) to harvest bamboo from the forest, 26.6 % use hired and family labour for the harvest. The total revenue generated in bamboo marketing in Anambra Agricultural zone by both wholesalers and retailers are ₦80,500,300 and ₦9,674,054 respectively. High cost of bamboo, high cost of transportation, high demand, poor sales, poor storage facility and bad weather are the constraints in bamboo marketing. Bamboo marketers should be encouraged to gain knowledge production through seminars and workshops to increase profit in the area.

Keywords: Bamboo, Marketing, Agricultural zone, Anambra

INTRODUCTION

Bamboo is a drought tolerant, evergreen, perennial woody plant that belongs to the grass family, Poaceae. Bamboo is an important Non-Timber Forest Product (NTFP) which occurs in a wide variety of climatic and edaphic conditions and it is one of the fastest growing plant species in the world which can be raised easily, quickly and substantially harvested in three to five years cycle (Mishra, 2015). According to Ffan (2003), some of the species of bamboo that have been identified in Nigeria include *Bambusa vulgaris* and *Oxytenanthera abyssinica*; the former attains a height of between 14 - 20 metres at maturity with a girth of about 20cm while the later reaches between 8 - 12 metres at maturity. In Nigeria, Bamboo is found in a number of states particularly in the southern part of the country. According to a report by Raw Materials Research and Development Council (2004), the most endowed states in terms of bamboo occurrence are observed to be Ogun, Oyo, Osun, Ondo, Edo, Delta, Rivers, Akwa Ibom, Cross River, Abia, Ebonyi, Enugu, Anambra and Imo States and at least 10% of the natural vegetation in these states is dominated by bamboo, with existing bamboo clumps showing appreciable gregarious growth that is contiguous over large areas. The report also indicated pockets of bamboo clumps in Niger, Taraba and Plateau States as well as within the Federal Capital Territory. Bamboo has attracted significant attention over the last two decades as a result of its environmental, economic and aesthetic values. In Africa, Asia and Latin America, it is closely associated with indigenous culture and knowledge and is widely used for housing, forestry, agroforestry, agricultural activities and utensils (FAO, 2007). The unique properties of bamboo make it a special economic resource for a variety of uses and poverty alleviation. It grows rapidly and can be harvested on yearly basis without damaging the soil where it grows. Bamboo can

grow on marginal land, not suitable for agriculture or forestry, or as an agroforestry crop and it has a relatively light weight because the culms are hollow, and unlike wood, it can be easily harvested and transported without specialized equipment or vehicles (FAO, 2007). Bamboo processing into crafts is done by local people especially by those in the lowest stratum of the society to generate income which they use for household spending.

Bamboo acts as a valuable pioneer crop to rehabilitate degraded landscapes. This miraculous grass also brings hope to alleviate poverty in rural communities. Bamboo is recognized as an industrial raw material globally and has tremendous potentials for the economic development in Nigeria Ladipo *et al*, (2017). These potentials of the abundant Nigeria's bamboo resources are used for house construction, household items, biofuel, charcoal, pulp and paper, irrigation and drainage, pipes, textiles and materials, chemical and pharmaceutical products Eugene *et al* (2014)

Bamboo (*Mbusa vulgaris*) played a significant role in the socio-economic development of India. It contributes to the economy of the country. Bamboo is one of the commercially cultivated crops in India and it is considered as "poor man's "timber (FAO 2019).

Potentials of *Mbusa vulgaris* grown in southeast Nigeria for the manufacture of wood cement composite panels revealed that bamboo can be used to produced cement composite panels which is suitable for load bearing construction, partitioning and flooring in building Mengstu *et al*, (2023). INBAR (2016) using the available United Nations data, revealed that the global export value of bamboo commodities increased to \$4.3 billion in 2005 from \$2.8 billion in 1995, with furniture export growing steadily from \$1.3 billion to \$2.4 billion.

Africa has 83 bamboo species belonging to 30 genera, out of these species, 20 bamboo species are indigenous, the remaining 63 species are mainly introduced (exotic) from another region (Asia, America, or Africa itself) (Mengstu *et al*, 2023). Nigeria has two varieties of bamboo, *bambusa vulgaris* and *oxystenantha abyssynica*. *Bambusa Vulgaris* are grown in Anambra River basin, southeast, Nigeria and can be used to produce cement composite panels which is suitable for load bearing construction, partitioning and flooring in building (Eugene *et al* 2014). Bamboo creates a wealth of opportunities for rural economies. The environmental benefits of bamboo are already well-known. This perennial grass grows incredibly fast and renews itself more quickly than any other crop. It produces more oxygen than an equal area of trees and it has a tensile strength comparable to steel. As a natural resource, bamboo provides an excellent alternative to deforestation and to plastics and synthetics for reforestation and land restoration. Bamboo acts as a valuable pioneer crop to rehabilitate degraded landscapes. This miraculous grass also brings hope to alleviate poverty in rural communities. The study looked at the following objectives (i) determining the sources of fund, labour and transportation mode in bamboo marketing, (ii) to determine the profitability of bamboo marketing in the study area and (iii) to ascertain the constraints face by bamboo marketers in the study area.

MATERIALS AND METHODS

Study Area

The study was conducted in Anambra Agricultural Zone of Anambra State; Nigeria. Anambra State is one of the five states of the Southeast geopolitical zones of Nigeria. The state lies between latitude 5°38'N to 6°47'N and longitude 6°36'E to 7°21'E. The state is in the north bounded by Kogi State, in the South by Imo State, in the east by Enugu State and in the west by River Niger and Delta State. The State has twenty-one local government areas (LGA), four agricultural zones with four market days. Each of the market's days is identified as four Igbo market days, namely Eke, Oye, Afor, and Nkwo. The four market days made up one week in Igbo land of Nigeria tradition. It is located in a warm tropic region of the rain forest of the South eastern Nigeria. And, it experiences an average monthly rainfall of 25mm between May and July and 2.5mm between December and January. In addition, the study area being located in plain terrains with beautiful climate and favorable vegetation is noted for agricultural activities.

Sampling Procedure and Sample Size

Four major markets in the zone were purposively selected Otuocha market, Oye-Olisa market, Eke-Igwe Nteje market and Oye-Farm market at Igbariam. Eke Otuocha market was purposively selected for four major reasons: First, it is more strategically located near River Omambala where it is easily accessed by people of the zone and outside the zone through the river and or roads. Secondly, Otuocha is the headquarters of Anambra East LGA. Thirdly, Eke Otuocha is one of the biggest and good representatives of markets in the zone where bamboo is demanded and supplied, Fourthly Eke Otuocha is closer to the airport for transportation through air. Eke-Igwe

Nteje was purposively selected because it is one of the biggest markets in the zone and because Nteje is the headquarters of Oyi LGA. Oye-Olisa Ogbunike was purposively selected because it is one of the biggest assembly markets in Oyi LGA and because Ogbunike is one of the important town communities in Anambra State with important land marks which include a cave and biggest building materials market in the state. The last one (Oye farm) was purposively selected because it is the only farm settlement market of the study area and in Anambra State of Nigeria.

From each of the four markets mentioned in the study area 10 retailers and 5 wholesalers were selected through Snowball Sampling Method (SBSM) which gives a sample size of 60 respondents (40 retailers and 20 wholesalers).

Data collection

Primary data were collected using a well-structured questionnaire and interviewed section using two sets of interview schedule (one for the wholesalers and the other for the retailers).

Data were analyzed using descriptive statistics, gross margin (GM) and 3 types Likert scale

Analysis. Gross margin is the difference between total variable costs (TVC) and total revenue (TR)

$$GM = TR - TVC \quad (1)$$

Other variables assessed for the analysis were the: total fixed costs (TFC), total variable costs (TVC), total costs (TC), net return on investment (NROI) and net marketing income (NMI). The NROI is the ratio of net marketing income to the total cost.

$$NROI = NMI/TC \quad (2)$$

The NMI on the other hand is the difference between gross margin and TFC.

$$NMI = GM - TFC \quad (3)$$

The business enterprise with higher NROI is noted to be the most profitable. The line calculation method was used to calculate the annual depreciation values of bamboo marketing assets. The annual depreciation Values were determined using this mathematical formula:

RESULTS AND DISCUSSION

Table 1 showed that 38.6 % of the bamboo marketers in the study area sources fund from co-operative societies, 30% of the marketers' sources fund from family members and relatives, 28.3% source fund from micro finance bank and the remaining 5% from commercial banks.

Majority 41% of the marketers use their personal bus and truck for transportation of bamboo to either shop or place of request, while 25% uses wheelbarrow as means of transporting the bamboo to point of delivery in the study area, others 16.6% uses motorcycle and commercial bus as transportation means respectively, which may be very expensive from point of harvest to the shop or place of request.

The majority of respondents were found to utilize hired labour (36.6 %) to harvest bamboo from the forest, 26.6 % use hired and family labour for the harvest, 20 % uses family labour only, it may be to save cost, while the remaining 16 % use community labour.

Table 1: Respondents' distribution according to sources of fund, labour and transportation mode of bamboo marketing

Respondent	Frequency	Percentage
Source of fund		
Family members and relatives	18	30.0
Co-operative societies	22	38.6
Micro Finance banks	17	28.3
Commercial banks	3	5.00
Total	60	100
Mode of Transportation		
Personal bus and trucks	25	41.6
Wheel barrow	15	25.0
Motorcycles/Tricycles	10	16.6
Commercial vehicles	10	16.6
Total	60	100
Source of labour		
Family labour	12	20.0
Hired labour	22	36.6
Family & hired	16	26.6
Community labour	10	16.6
Total	60	100

Source: Field Survey, 2018

Costs and returns of bamboo marketing

Table 2 shows the profitability of bamboo marketing in Anambra Agricultural zone. A total of ₦4,923,000 was spent by the wholesalers on variable cost alone. The highest amount for wholesale variable cost was spent on purchase at ₦3,001,500 and the lowest amount was spent on security dues of bamboo from vehicles. The total fixed cost was at ₦2,522,300. The highest amount that was spent on fixed cost is ₦1,246,600 which is on monthly store rent while the lowest amount of ₦400,000 was spent on association due. Also, they spend huge amount of money renting store and on transportation of the bamboo from forest to the location of their shops.

For the retailers, a total of ₦1,783,720 is spent on variable cost. The highest amount spent on any marketing variable is

also on purchase of bamboo, and the lowest amount is interest on loan ₦30,500. The total fixed cost is ₦1,241,300. The highest amount of ₦620,000 is spent on association due, and the lowest is also spent on loan interest at ₦30,500. The total revenue generated in bamboo marketing in Anambra Agricultural zone by both wholesalers and retailers are ₦80,500,300 and ₦9,674,054 with net marketing income of ₦928,207.1 and ₦57,038.9 respectively. This means that bamboo wholesales in the area is highly profitable, this is in agreement with (INBAR 2016) which reveals that domestic market for bamboo and rattan products in major producing countries is estimated very high. The net returns on investment for the wholesalers and retailers are at 0.80 and 0.61 respectively.

Table 2: Marketing costs and returns of bamboo Marketing

Marketing Variables	Wholesale (₦)	Total cost (%)	Retail (₦)	Total cost (%)
Variable cost:				
Purchase	3,001,500	21.36	800,220	10.54
Loading	320,500	21.13	92,000	3.33
Transportation	500,000	2.33	79,500	2.81
Security dues	150,500	14.37	432,000	5.26
Off-loading	450,500	13.90	150,000	5.36
Storage	500,000	14.87	200,000	5.73
Total Variable Cost (TVC)	4,923,000	87.96	1,783,720	56.55
Fixed cost:				
Monthly store rent	1,246,600	7.95	300,000	4.00
Association due	400,000	5.86	620,000	4.65
Interest on loan	200,200	2.28	30,500	2.34
Cost of wooden table	675,500	3.27	290,800	5.08
Total Fixed Cost (TFC)	2,522,300	12.0	1,241,300	72.01
Total revenue (TR)	80,500,300		9,674,054	
Total Cost (TC = TVC + TFC)	7,445,300		542,420	
Gross Margin (GM = TR - TVC)	80,008,000		7,890,334	
Net Farm Income (NFI = TR - TC)	793,055,000		9,131,634	
Mean Net Farm Income (NFI = NFI/n)	928,207.1		57,038.9	
Net Return on Investment (NROI = NFI/TC)	0.80		0.61	
OME (TC/TR)	0.130		0.135	

Source: Field Survey, 2018

Constraints of bamboo marketing in Anambra Agricultural Zone

Table 3 shows constraints of bamboo marketing in Anambra Agricultural zone. The variables identified to be the main constraints are shown by three likert type, high, moderate and low. According to the mean score the decision rule 3.0. The table showed that the constraints as identified by the respondents are high cost of bamboo (\bar{X} = 4.5), high cost of transportation (\bar{X} = 4.3), poor harvest control bamboo (\bar{X} = 2.5), high demand (\bar{X} = 3.5), poor sales (\bar{X} = 4.3), labour intensive (\bar{X} = 2.7), poor storage facility (\bar{X} = 4.3) and bad weather (\bar{X} = 3.6). high cost of bamboo, high cost of transportation, high demand, poor sales, poor storage facility

and bad weather are significant. These agrees with Ogunwusi and Onwualu (2013) which state that a number of problems are constraining industrial development of bamboo thereby impending potential of bamboo to generate income and alleviate poverty in developing countries, including Nigeria. The result is in agreement with Asiru *et al.*, (2017) which state that Nigerian government must invest massively in research on cultivation and utilization of bamboo; also, cottage industries that are transforming bamboo into different products must be supported with grants that must be properly monitored in order to ensure that the funds are not diverted to other uses. In order to ensure sustainable development in the bamboo sector, there must be reliable data on bamboo resources, management and uses in Nigeria.

Table 3: Shows the constraints of bamboo marketing in Anambra Agricultural Zone

S/N	Constraints of bamboo marketing	High	Moderate	Low	\bar{X}	Std.	Sig
1	Lack of bamboo	24	22	14	4.5	3.16	S
2	High cost of transportation	35	13	12	4.3	3.12	S
3	Post harvest control	14	25	21	2.5	2.96	NS
4	High demand	31	15	14	3.5	2.83	S
5	Poor sales	19	21	20	4.3	2.41	S
6	Labour intensive	21	21	18	2.7	2.16	NS
7	Poor storage facility	11	19	30	4.3	2.04	S
8	Bad weather	19	13	28	3.6	2.03	S

Source: Field Survey, 2018

CONCLUSION

This study found sources of funds, labour and mode of transportation as a major factor considering the marketing of bamboo in the study area. These whole sellers and retailers' variables play significant role in the marketing channel of the business in the study area. constraints as identified by the respondents are high-cost purchase of bamboo, high cost of transportation, poor harvest control, high demand, poor sales, poor storage facility and bad weather are major constraints faced by the bamboo marketers in the study area.

The total revenue generated in bamboo marketing in Anambra Agricultural zone by both wholesalers and retailers are ₦80,500,300 and ₦9,674,054 with net marketing income of ₦928,207.1 and ₦57,038.9 respectively shows that bamboo business in the study area is very lucrative and profitable because of the value – chain in the business. It cannot be over-emphasized that bamboo is an eco-friendly plant that has many uses and Nigeria as a country must tap into it and use it to create employment for her teeming youths, majority of whom are unemployed. Bamboo is a renewable natural resource with both economic and environmental benefits. For any appreciable progress to be made, we must look beyond the traditional uses of bamboo as scaffolds, yam stakes, fence, construction materials for thatched houses etc. As a country that wants to diversify her economy

RECOMMENDATIONS

More value-chain should be thought in bamboo production and marketing in the study area through extension officers, seminars, training and workshops. The constraints can also be overcome through interventions from government, stakeholders and policy makers in the study area state.

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