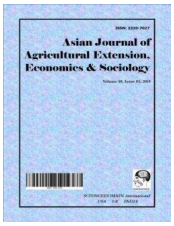

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Profitability of Charcoal Production and Marketing in Ibarapa Zone of Oyo State Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This study analyzed the profitability of charcoal production and marketing in Ibarapa zone of Oyo state using a structured questionnaire. A multistage sampling technique was adopted to select one hundred (100) respondents for the study. The descriptive statistical method and budgetary analysis were used for data interpretation. Charcoal marketing is dominated by middle or old age mostly females (71.7%), the business are funded from personal saving and support from cooperative society. The finding reveals that 48.5% of respondent had no formal education and economic analysis showed that marketers require ₦50,000-₦500,000 as working capital with a resultant profit of ₦300,000-₦500,000 per annum and charcoal marketing efficiency was 1.32. In Conclusion, charcoal marketing is profitable with net returns of ₦58,000 on 200 bags sold.

Keywords: Charcoal; marketing; profitability; efficiency.

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1. INTRODUCTION

Ibarapa is one of Yoruba Community found in Oyo State the South Western Part of Nigeria. It is predominantly Agrarian community and inhabited by Yoruba, Nupe Fulani Nomads and Ibo businessman. It is made up seven (7) principal towns knowing as Ibarapa Meje namely (Igangan, Eruwa, Ayete, Tapa, Idere, Igbo-ora and Lanlate [1].

Ibarapa people are predominantly farmers with a comparative advantage in the production of yam, cassava, sweet potatoes, melon and honey. Charcoal production in Ibarapa is also a major means of revenue generation and the buyers are from all parts of the country especially south-west and part of Northern state [2].

Prior to the discovery of electricity, coal has been the major source of energy for driving engines and turbines. it is projected that approximately 2.5 billion people in developing countries depend on biomass fuels to meet their household energy needs. For many of these countries, over 90% of total household fuel is biomass and will increase to about one-third of the world's population because of growth [3].

The successful production of any commodity can only be sustained if there is a link between the site of production and the market thus ensuring that what is produced get to the final consumer. It is a common site in Ibarapa to see charcoal production by an individual, group of people and cooperative societies in an attempt to generate a neater easy to package and transport a source of hydrocarbon for domestic and industrial uses. Charcoal conveyed in different sizes of vehicle ranging from small cars to heavy truck, in most cases conveyed from Ibarapa to Northern State, Southeast and to other neighbouring towns.

The production can be more organized and predicted quality where there is an abundance of specific tree species, however, when there is the scarcity of such trees a mixed of product is produced and its quality cannot be predicted since the input is heterogeneous. In a bag there could be a mixture of charcoal from 5 or more species of the tree leading to the difference in the quality of energy production and rate of combustion, all this are variables that affect the sales of charcoal [4].

Many studies had been carried out on the various source of energy generation and their contribution to the national economy. Type of energy used is related to the level of income and its availability. Low-income earner uses dirty energy sources like fuelwood, household on transition use both dirty and clean energy depending on their income at a particular time and can switch to any energy source [5,6,7,8]. According to the [3] village households and subsistence farmers depend mainly on biomass fuels than those in the city, more than half of household in Sub-Saharan Africa cities rely mainly on fuel, wood charcoal, or wood waste to meet their cooking needs. Urban women interviewed during household energy survey in Ethiopia, Chad, Madagascar, Mali, Niger and Senegal dislike cooking with wood, because it is difficult to kindle, dangerous for children, smoky and messy [9]. Charcoal is believed to lack most of these adverse effects and the priced is lower than LPG and kerosene [10].

It is a fact that charcoal is conveyed from production sites, in farms to the market for sales in different quantities. A market is a place where buyers and sellers meet to transact business on particular goods and services with mutual agreement by the parties associated with the exchange of goods, services and consideration. This can be effectively utilized when there is a proper understanding of the source of charcoal, how it is sold, where it is sold, means of conveyance, a destination of conveyance and cost of movement in Ibarapa zone of Oyo State.

Charcoal production has popularized Ibarapa zone due to the drift of buyers from different parts of the country to purchase the product as bulk purchasers. Most buyers were from Ibadan, Lagos, Onistha, Kano, Sokoto etc. where they eventually sell in packs to consumers.

The objective of this study is to examine the profitability of charcoal production and marketing and also to look at the major problems militating against the charcoal marketers in Ibarapa zone of Oyo State.

2. METHODOLOGY

2.1 Selection of Study Area

The Ibarapa area falls within latitudes 70.15' N and 70.55' N and longitudes 30E and 30.30' E. It is located approximately 120 Km north of the Lagos Metropolis and about 95 km south-west of the Oyo state capital (Ibadan). It border Kajola and Iseyin town in the north, Ibadan in the East,

the Yewas and Egbas in West and South. It occupies an approximate Land area of 2,496 km and consists mainly of Savannah forests situated along the southern border and in isolated patches along with river courses such as the Oyan and Ofiki. Most of the land lies at elevations ranging between 120 and 200 metres above sea level, but rocky inselbergs and outcrops can be seen rising to 340 meters, namely, Oke Idere, Asawo, Aako, Anko, Asamuni and others.

2.2 Data Collection and Questionnaire Design

The study was carried out with the use of primary data. The instrument used for collecting the primary data was a set of a structured questionnaire. The data collected include socioeconomic characteristics, marketing, nature of the business, ownership of the business, business working capital, income level and expenditure of the respondents.

2.3 Data Collection Methods

A multistage sampling technique was used in sample collection. In the first stage Ibarapa division in Oyo south senatorial district was purposively chosen, because it is major charcoal production. In the second stage, five towns with predominance production were randomly selected from the division which are Igbo ora, Igangan Igana, Idere and Eruwa, and 20 charcoal marketers each were randomly selected from the communities. A total number of hundred questionnaires were administered out of which 99 were retrieved.

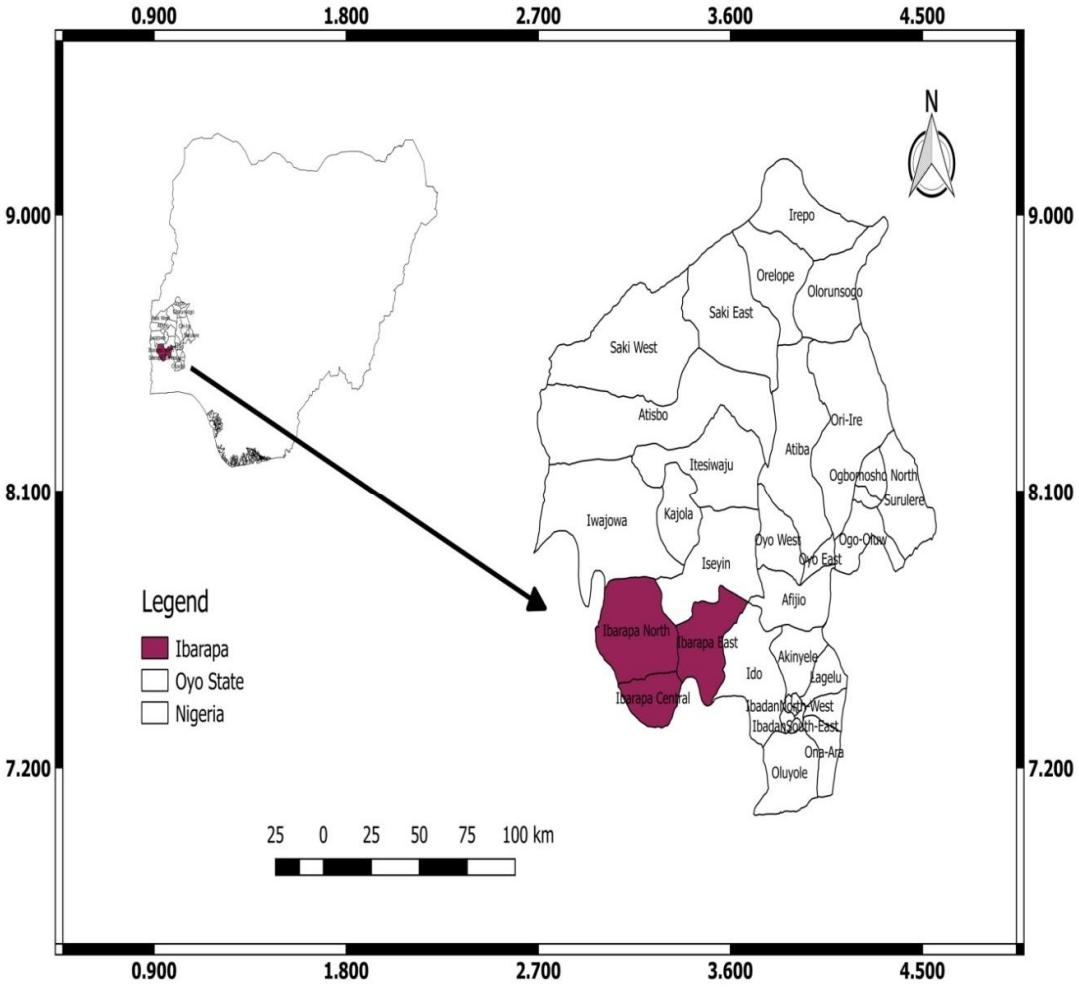

Fig. 1. Map of the study area

2.4 Data Processing and Tabulation

Data collected from the field were sorted and processed. Data were then subjected to analysis using the descriptive statistical method like frequency, percentage and budgetary analysis were used.

2.5 Analysis of the Data

The descriptive statistical method and budgetary analysis were employed in analyzing the data for the study. The following profitability measures were calculated:

$$RMCF = TVP - TC \quad (1)$$

$$RRTI = 100(RMCF/TC) \quad (2)$$

$$GM = TR - TVC \quad (3)$$

$$RRFC = 100\ (RFC/TFC) \quad (4)$$

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.

$$\text{Marketing efficiency} = \frac{\text{Total revenue}}{\text{Total marketing cost}}$$

3. RESULTS AND DISCUSSION

Table 1 reveals that 71.7% of charcoal marketers were females and 28.3% were males. This result shows that charcoal marketing was dominated by the female in the study area. It further reveals that 40.4% of the charcoal marketers were within the age group of 30-49 yrs while the age range of 50-69 yrs and 1-29 yrs accounted for 38.4% and 20.2% respectively.

The table further revealed that 48.5% of the marketers had no formal education, 30.3% and 19.2% had primary and secondary school education respectively.

The majority of charcoal marketer was married (74.7%) while 12.1% and 11.1% of the respondents were single and widowed.

The result reveals that 88.8% of the charcoal marketers were a sole proprietorship, 7.1% and 4.0% were partnership and cooperative. This result shows that the majority of the charcoal marketers were sole owners. Majority of the respondents 47.5% were Christian while 45.5% and 7.1% were Muslim and traditional worshipers respectively.

The result reveals that 77.7% of the respondent used personal savings as initial capital to set up their business 11.1% and 10.1% raised their capital from cooperative and friends and family respectively. The result reveals that 49.5% of charcoal marketers could mobilize 250,000 – 500,000 as their business operational capital, 35.4% mobilized 100,000-250, 000, 10.1% mobilized less than 100,000 as their business operational capital.

The result further reveals that 52.5% of respondents realized 300,000- 500,000 as annual income, 30.3% realized 200,001-300,000 as income while 10.1% and 7.1% were realized by 100,000-200,000 and above 500,000 as annual income. This result implies that the charcoal business is profitable in the study area.

Table 2 presented the budgetary analysis of 200bags of charcoal in the study area. The average revenue was ₦240,000, The total fixed cost was ₦3,000 and the total variable cost was ₦170,000. The gross profit was ₦58,000. The rate of return on investment was 31.87. The result implies that on every ₦100 invested ₦32 was realized by the marketers.

$$\text{Marketing efficiency} = \frac{\text{Total revenue}}{\text{Total marketing cost}}$$

$$\frac{₦240,000}{₦\ 182,000} = 1.32$$

Table 3 show that charcoal marketing in the study area is affected by several constraints, such as high cost of transportation (30.3%), poor storage facilities (18.2%), price fluctuation (16.2%), bagging (15.2%), Government policy (10.1%) and re drying of charcoal (10.1%).

3.1 Discussion on Socioeconomics Characteristics, Budgetary Analysis and Market Constraint

This result shows that charcoal marketing was dominated by the female in the study area, agreeing with [11] when they stated that women

are not only consulted but have a major role to play in the marketing of livestock and other related activities. It was further revealed that old or middle-aged people were mostly involved in

Table 1. Socio economics characteristics of respondents

Variable	Frequency	Precentage
Gender		
Male	28	28.3
Female	71	71.7
Total	**99**	**100**
Age of distribution		
1-29	20	20.2
30-39	40	40.4
50-69	38	38.4
70 Above	01	1.0
Total	**99**	**100**
Educational		
No formal education	48	48.5
Primary education	30	30.3
Secondary education	19	19.2
B.sc/NCE,HND	02	2.0
Total	99	100
Marital Status		
Single	12	12.1
Married	74	74.7
Divorced	02	2.0
Widowed	11	11.1
Total	**99**	**100**
Business ownership		
Sole proprietorship	58	58.9
Partnership	07	7.1
Cooperate	4	4.0
Total	99	100
Source of Fund		
Personal savings	77	77.7
Cooperative	11	11.1
Bank loan	01	1.1
Friend and Family	10	10.1
Total	**99**	**100**
Religion		
Christian	47	47.5
Muslim	45	45.5
Traditional	07	7.1
Total	**99**	**100**
Business operated capital		
Less than₦ 100,000	10	10.1
₦100,000-₦250,000	35	35.4
₦250,000-₦500,000	49	49.4
Above ₦500,000	5	5.1
Total	**99**	**100**
Annual income		
₦100,000-₦200,000	10	10.1
₦200,000-₦300,000	30	30.3
₦300,000,-₦500,000	52	52.5
Above₦ 500,000	07	7.1
Total	**99**	**100**

Field survey, 2019

Table 2. Budgetary analysis of 200 bags of charcoal

Cost items	
Cost of buying bag₦ 800	₦160,000
Cost loading per bag @₦20	₦4,000
Cost of transplanting	₦10,000
The total variable of fixed cost rent	₦170,000
Rent	₦3,000
Total cost	₦182,000
Total revenue sale price @1,200 per bag	₦240,000
Gross profit	₦58,000
Rate of return	₦131.87
Rate of retting in income	₦31.87
Profitability index	0.24

Table 3. Constraint facing charcoal marketing

Constraint	Frequency	Percentage
The high cost of transport	30	30.3
Government policy	10	10.1
Poor storage facilities	18	18.2
Bagging	15	15.2
Price fluctuation	16	16.2
The drying of charcoal	10	10.1
Total	**99**	**100**

Field survey, 2019

the marketing of charcoal. This could be due to the fact that younger one have migrated to urban centres in pursuit of greener pasture(better economy) with the hope of improving the level of income and living standard, this was attributed to the concentration of factories at peri-urban centres and the unpredictable weather and seasonal nature of production [12].

The results show that charcoal marketing did not require a high level of education. The low level of education could be attributed to the primitive nature of the business, its rural and crude nature thus agreeing with the finding of [13] that mental horizon of marketers is low, so also their capital outlay.

All members of the society embraced charcoal marketing as a means of job creation but dominated by married women probably to increase their household income, this result is in line with the findings of [12] who found out that married people dominate rural subsistence businesses.

There is no religion barrier (taboo) against charcoal marketing, it is generally embraced for sales and use. The result also agreed with the findings of [14] that 96% of snail farmers used their personal savings as a source of initial capital to start their business. The result agreed with the findings of [15] when he asserted that the amount of working capital for business enterprises often varies and determines the level of output and accruable profit margin. It was observed that charcoal marketing was dominated by rural poor women.

The marketing efficiency determined was (1.32) indicating that charcoal marketing was efficient [15] stated that marketing of a product is efficient when the ratio of total revenue to total marketing cost is greater than one) and inefficient if it is less than one.

4. CONCLUSION

Charcoal marketing was dominated by female and marketers of the age group of 30-49 yrs. The respondent sourced their capital from personal savings, and the majority of the respondents realized ₦300,000-500,000 as their annual income. The economic marketing efficiency was 1.32 which shows that charcoal marketing was efficient in the study area.

5. RECOMMENDATION

Based on the findings the following recommendations were drawn: Access to credit

facilities should be improved upon by encouraging the marketers to form cooperative societies so that they can mobilize sufficient working capital for new business. The government should repair all roads linking to production areas. The charcoal marketers are encouraged to buy in bulk. This will reduce marketing cost and thereby improve marketing efficiency. It could be concluded that operations like purchase and transportation can be done in groups to reduce operational cost.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Kola Abimbola. Yoruba culture: A philosophy. Account Iroko Academic. 2006;40.
2. Awoyemi TT, Amao AO, Fatogun. Household expenditure pattern on energy consumption in Ibadan Oyo State Nigeria. Journal of Economics and Rural Development. 2006;15(1):79–87.
3. IEA (International Energy Agency). World Energy Outlook, Paris. Organization for Economic Co- operation and Development (OECD); 2006.
4. Fawehinmi AS, Oyerinde OU. Household energy in Nigeria: The challenge of pricing and poverty in fuel switching. Journal of Energy and Development. 2002;27(2):277–284.
5. Hosier RH, Dowd J. A comparative multivariate analysis of household energy requirements in Australia, Brazil, Denmark, India and Japan. Energy. 1987;31.
6. Hosier RH, Dowd J. Household fuel choice in Zimbabwe: An empirical test of the energy ladder hypothesis. Resources and Energy. 1987;9:347–61.
7. Barnes DF, Floor W. Biomass energy and the poor in the developing world. Journal of International Affairs. 1999;53:237–59.
8. Heltberg R. Factors determining household fuel choice in Guatemala. Environment and Development Economics. 2005;10:337–61.
9. Mardon G. An assessment of tropical dry-land forest management in Africa: What are its lessons. Presented at the World Bank Seminar Communication for Village Power 2000, Empowering People and Transforming Markets. Washington DC, USA, 4-8 December; 2000.
10. Foster V. Measuring the impact of energy reform – Practical option. In Energy Services for the World's Poor. Energy and Development Report. Washington DC, USA, World Bank, 2002. 2000;34-42.
11. Souley YN, Sanni SA. Gender diversity in access and control of resources among integrated crop – livestock farmers in Southern Niger Republic. 23rd Annual Conference of NSAP. 2008;324–326.
12. Babatunde TO, Nwaokolo VM, Adesope AAA. Role of women in suitable agriculture in Boluwaduro Local Government Area of Ogun State. Paper Present at First Annual Conference on National Assiociation of Agricultural Technology (NAAT), Held at National Cereal Institute (NCI). 2005;12-19.
13. Fakoya E. O. Eniola. Identification of information needs of farmers in rabbit production on Ondo State. Proceeding of the 7th Annual of Conference of Animal Science Association of Nigeria. 2002;294–296.
14. Raheem AA. Economic analysis of snail production in Nigeria: A study in Ogbomoso North and South Local Government Areas in Oyo State of Nigeria. Unpublished PGD Thesis, Department of Agricultural Economics and Extension, Ladoke Akintola University of Technology, Ogbomoso, Oyo State; 2001.
15. Babatunde TO. Profitability and value addition of sawmills industry in Ijebu Division of Ogun State Nigeria. Journal of Research in Forestry, Wildlife and Environment. 2019;11(6):131–140.

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