Economics of Firewood Marketing and the Factors that Affect Energy use by Households in Abakaliki Metropolis, Ebonyi State

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Abstract

This study analyzed the economics of firewood marketingand the factors that affect energy use by households in Abakaliki metropolis, Ebonyi State. Data were obtained from 120 respondents through systematic random sampling technique using questionnaire and interview schedule respectively. Both descriptive and inferential statistical tools were used in data analysis. The result of the analysis shows that profit of N36,000 was realized in fuel wood marketing. The result in the factors that affects use of fuel wood were identify to include; high Cost of Kerosene (20%),distance from the filling station(16%), low per capital income(14%),Kerosene scarcity(6.25%),family size(7.50%), technological advancement(9.75%),government policy(10.50), low level of education(9.00) and traditional consideration(6.25). Fuel wood marketing is an important economic activity in the study area. Therefore, all and sundry should assist in eliminating obstacles militating against its profitability.

Keywords: *cost and returns,factors affecting fuelwood use.*

I. INTRODUCTION

In the developing world, wood fuels continuous to dominate as primary source of energy. Amous as cited by Muyeye (2004). African's energy consumption mix is dominated by traditional fuel such as firewood, charcoal, crop residual, which make up about 67% of final energy consumption, compared to only 3% in OECD countries (US Department of Energy, 1999).According to of Nzeh and Eboh (2007), forests contribute directly and indirectly to rural household livelihoods through the generation of income and employment from the sale and exchange of gathered and unprocessed non-timber forest products such as fuel wood. In fact, Africa is the largest consumer of biomass energy (firewood, animal wastes, charcoal, agricultural wastes) when calculated as a percentage of overall

energy consumption. In Tanzania for instance, 84% of Cuban households use wood fuels for energy and biomass makes up 92% of total primary energy (Boberg, 1993; Mapako and Dube, 2003). Africa has the highest per capita wood fuel consumption of $0.89m^2$ per years compared to other continents, Amous as cited by Muyeye (2004). The wide spread use of wood fuels in Africa, and in the developing world in general has linked to several environmental problems. The use of wood to supply energy to urban household is a more imminent environmental concern compared to the use of fuel wood in rural areas. The intensive harvesting of wood to supply urban markets leading to localized compacts is associated with the high involvement compare to their rural counterparts(CIFOR 2003; Chidumayo, 1997). They all act as economic agents, with consumers seeking to maximize utility from energy consumption that indicates fuel wood, and traders seeking to maximize profit through selling fuel woods, thus, urban fuel wood consumption presents a typical linkage between urban economic activities and the environment, in which the consumption needs of urban consumers have implications on the environment through the extraction of wood land resources.The over reliance of this natural resources for source of energy for household and economic activities is given a lot concern. Hence,this study was embarked to *determination of cost and return in marketing of fuel wood and the factors that affect energy use by households in Abakaliki metropolis in Ebonyi state.*

II. METHODOLOGY
A. The Study Area

The study area of the research is Abakaliki LGA. Of Ebonyi State. Abakaliki Local Government Area is among the thirteen (13) L.G.A's in Ebonyi State. The area was chosen by the researcher because it encompasses of both urban and rural settlements giving a good representation of small and medium enterprise.

It comprises of five (5) autonomous communities namely Amachi, Amagu, edda, Okpiutumo and Nkaliki-Unuhu. Abakali is located between longitude of 11^0 east of the green wich meridian and latitude 5^0 North of the equator. The land mass in Abakaliki is flat and devoid of hills. The soil type is lateritic clay at the top, lime stone occurs abundantly at the lower layer of the soil profile (Eze, 1991). Consequently, the soil is conducive for the growth of cereal and leguminous crops.

The population of people living in Abakaliki metropolis is 161, 723 in which 72, 443 and for male while 79, 280 are for females (NPC, 2006), with a land mass of about 5189km. geographically, Abakaliki Local Government Area is bounded on the east by Cross River State, in the West by Ezza North L.G.A, on the North by Ebonyi L.G.A, and in the South by Ikwo L.G.A. It has climate typical of the tropical zone with seasonal variation of hot and cold weather. The animal rain fall is heavy mainly between the month of May and September.

In Abakaliki Local Government four (4) markets are prominent. They included Abakpa main market, Rice mill, the Eke-Aba and timber shed. The majority of the workers in Abakaliki and civil servant, traders and students thus, it is an important consumption areas. Abakaliki is the leading commercial area in Ebonyi State because other local governments in Ebonyi State carry their products to the Abakaliki market to sell in order to make huge profit.

The major occupation of the people in farming especially the arable crops like yam, and rice other subsidiary farming profession are rearing of domestic animals and traditional fish culture practice on their various water bodies distributed in the area**.**

B. Population, Sampling Procedure and Data Collection:

Systematic sampling techniques were adopted in the study. Based on the official map of the area four communities was selected randomly from the five communities in the local government. Three villages was randomly selected from each community and ten respondents were randomly selected for interview in each of the 12 villages selected to make a total sample of 120 respondents which comprise 120 retailers. Data for analysis were collected from primary source using questionnaire and interview schedule. The data used was collected based on the socio-economic characteristic of the urban fuel wood users, cost and returns of firewood marketing factors that affect energy use and constraints to efficient fuel marketing. Both descriptive and inferential statistics was used to analyze the data collected. Descriptive statistics such as the mean, frequency distribution, tables and percentage were used to analyze objectives (iv) and (ii), objectives (v) was analyzed using Likert scale and (iii) was analyzed using the gross margin and efficiency analysis, respectively, while objective (i) was analyzed using the tool of multiple regression.

C. Variable Specification/Model Specification

To determine the cost and returns and to obtain the profitability of fuel wood marketing, the model is stated thus:

GM = TR-TC

Where GM = Gross margin

TR = Total revenue

TVC = Total variable cost

II = profitability = GM-TFC

GM = Gross margin

TFC = Total fixed cost.

III. RESULTS AND DISCUSSION

Table 1: Analysis of Cost and Returns of Marketing one Truck Load of Fuel Wood in the Study Area

Varieties	quality	price (N)	total cost (N-)
A result	1 truck load	120,000	120,000
Total		**120,000**	
Variable cost		8,000	8000
Cost of loading		40,000	40,000
Cost of transportation		70,000	7,000

Cost of splitting of logs	20,000	20,000
Rent and storage cost (per moths)	5000	5000
Cost of Revenue (per annum)	1000	1000
Miscellaneous expenses	3000	3000
Total		**84,000**

Sources**:** Field Survey, 2011

TR (Total Revenue) = N 120, 000
TVC (Total variable cost) = N84000
TC = TVC, because FC = 0
GM (cross margin) = TR-TVC
$$= N120,000\text{-}N84,000$$
$$= 36,000$$
Profit (x) = GM- TFC but TFC =0
$$36000\text{-}0 = N36000$$

Table 1 show the total amount of thirty six thousand naira (36,000) was realized is a profit for marketing of one truck load implying that fuelwood marketing is highly profitable in the study area.

Table 2: Percentage Distribution of the Respondent Based on Factors that Influence their use of Fuel Wood in the Study Area.

Factor	Frequency	Percentage
High cost of kerosene	80	20.00
Distance from the filling station	64	16.00
Low per capital income	59	14.75
Kerosene scarcity	25	6.25
Family size	30	7.50
Technological advancement	39	9.75
Government policy on climate change	42	10.50
Low level of education	36	9.0
Tradition consideration	25	6.25
Total	**400***	**100**

Source: Field survey, April 2011

*indicate multiple responses.

Table 2 shows that most (20%) of the respondents used fuel woodas a substitute to kerosene because of high cost of kerosene. Far distance of filling station (16%).This is because most them leave far from the fuel station and had no means of sourcing kerosene as an alternative to fuel wood.Low per capital income (14.75),this implies that most people use fuel wood because they cannot afford the modern energy due to their low income level. Kerosene scarcity (6.25%),this implies that most people use fuel wood because of the unavailability of kerosene.Family size(7.50%),this implies that that the more the family size the more mouth to be fed, hence the preference for the lesser energy source like fuel wood than kerosene. Government policy of climate change (10.5%), this implies that government policy that encourages fallen of trees increases the use 0f fuel wood while the revise is the case when government policy discourages the fallen of trees. Technological advancement (9.75%), this implies that with the invention of modern energy like electrical and solar energy, a lot of people have resorted in the use of more advance source energy than fuel wood. Level of education (6.25%),this implies that the more educated a person is, the more his quest for advance source of energy. The result further shows traditional purpose to be (6.25%), imply that some people believed that food cooked with fuel wood taste better than those cooked with modern energy like kerosene and electric stove. All these factors influence the respondent's use of fuel wood in the study area.

IV. CONCLUSION AND RECOMMENDATIONS

i.   A total electrification policy for urban areas should be pursued in order to increase household energy welfare and as well as minimize the contribute of fuel wood in the household energy consumption.
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iii. Government and non-Government organization should assist wood sellers in terms of loan provision and low revenue charge.

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