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Analysis of Socio-economic Characteristics of Fuel Wood Marketers in Yola Metropolis, Adamawa State, Nigeria

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ABSTRACT The paper analyzed the socio- economic characteristics of fuel wood marketers in Yola Areas of Adamawa State, Nigeria. Primary data was used for the study. The data was collected using structured questionnaires administered to 120 firewood marketers sampled from the main towns of Yola North and Yola South Local Government areas of Adamawa State. Both descriptive and inferential statistics were employed to analyze the data. The result indicated that majority (40%) of the marketers were between the age of 21 and 40, 63 percent were males, 73 percent of the marketers were married while majority (66%) of them had household size of between 1 and 5 people. The result further indicates that 55 percent had no formal education while farming was the primary occupation of 65 percent. Also, 80 percent of the fuel wood marketers had less than nine years of marketing experience and 90 percent of them are not members of any community organisation. Regression analysis revealed that household size, numbers of bundle, primary occupation and marital status positively influenced firewood marketing and R^2 was 0.846 indicating that 85 percent of the variation in fuel wood marketing gross margin was explained by the socio-economic characteristics.

INTRODUCTION

Two of the major environmental problems of the world are the increasing amounts of the greenhouse gases in the atmosphere and the reduction in the worldwide arable land (Agro forest Today 1994). According to Nash and Cecilia (200l), concern about the use of firewood started in the 1970's and increased due to rise in the costs of fossil fuel and other sources of energy. Firewood demand was seen to be out-spacing sustainable supplies and catastrophic projection for the year 2000. An estimated 2000 million people in 1981 were dependent on firewood and other biomass fuel of which more than 100 million were unable to meet the minimum requirement. By mid-1980's however, the result of first evaluations of the firewood programmes were emerging and questions began to rise about the importance of wood lot programmes in addressing the problem. There was increasing realization that fuel wood use was having less impact on forest degradation than was previously assumed. In addition, the woodlots were not playing the hope-for role in meeting fuel wood demand and were doing little to increase rural supplier.

In the United States for instance, trees are either processed into timber or paper products. Few people rely on wood as a major source of energy. In many parts of the developing world, however, wood is a primary source of household energy. The global use of fuel wood has been growing in line with population growth. The annual growth in demand is between 3% and 4% depending on the country. Moreover, energy consumption in rural areas of Africa is still low and limited almost exclusively to fuel wood (Oronsanye 2003).

Sub-Saharan Africa shows a yearly increase in the trade, saw-logs, veneer logs and log for sleepers and other industrial wood and firewood. In the same vein, Nash and Cecelia (2006) showed that firewood usage was further encouraged by widespread assumption that by the end of the century much of Africa's woodlands would have been deforested to provide firewood for the poor. The belief that the fuel wood crises were a major factor in forest degradation had the most direct implications for forestry and environmental sustainability.

In the light of this, Nash and Cecelia (2006) outlined four main strategies which were put forward for dealing with firewood shortages: firewood substitution, and efficient storages, improved firewood production through better management of the existing resources and additional firewood resources through plantation and farm forestry.

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According to Edmond (2005), Nigeria agriculture faces series of challenges that are common across sub-Saharan Africa. These challenges are limited capital, small scale land holding, soil fertility, deforestation and unsustainable land use among others. Nigeria was once covered by widespread vegetation comprising of dense tropical forest in the south and savannah grassland in the north. A great percentage of this luscious vegetation has been cleared by the pressure mounted by human activities, presently, forest resources cover about 10 % of the nation's mostly of savannah woodland type. The southern rain forest is the sources of the country's timber resources, and covers only two percent of the total land area of Nigeria. It is being depleted at annual rate of 3-5%. The total change in forest cover from 1900-2000 stood at about 40 million hectares. Also, Mandie (2003) showed that population is growing in the country at the rate of 2.8% annually. And these forest areas are disappearing at the rate of 2.3% yearly (Edmond 2005).

World Bank (2000) revealed that firewood is the dominant source of energy for cooking and other activities as presented in Table 1.

Table 1: Major sources of energy for cooking

	Rural	*Urban*
Wood	73%	21%
Kerosene	11%	52%
Wood-imposed store	9%	12%
Others	7%	15%

Source: World Bank 2000

The principal environmental problem of Nigerian agricultural land is land degradation in form of erosion, soil fertility loss, severe moisture stress and deforestation resulting from firewood cutting and gathering, increasing intensity of land use systems combined with low technology (Oladebo 2003).

In the opinion of Oronsaye (2003), the destruction of trees and natural ground cover alters the water retention characteristics of the soil thereby reducing the productive of the soil. This low soil productivity has seriously affected farmers' yield in the study area that some of them have resorted to alternative activities like fuel wood marketing .According to Adebayo and Onu (1999), socio-economic characteristics affects decision making and level of use of conventional inputs and technology. Some of the relevant socio-economic characteristics of the farmers in this regard include: age, level of education, marital status, land ownership, access to credit among other things. Agro forest as a natural resources improves the socio- economic livelihood of rural people through income generation, improve human welfare, supply of food and nutrition, firewood, fodder for animal consumption as well as employment generation (Mandie 2003).

Furthermore, Nash and Cecelia (2006) indicated that the reasons for rise in the use of firewood include rural and urban poverty, low agricultural productivity inequalities in land holding and security of tenure, the collapse of traditional resource sharing produces, rapid urbanization, sharp division in the social – economic role of women and men and in some countries external pressure resulting in economic crises and war. The study was carried out to examine the influence of gross margin on the socio- economic characteristics of firewood marketers as well as the influence of socio-economic characteristics of the marketers on the business in Adamawa state of north- eastern Nigeria.

METHODOLOGY

Primary data was used for the study. This was obtained using structured questionnaires administered to 120 firewood marketers in Yola-North and Yola South local government areas of Adamawa state in 2009. Data were collected on the socio-economic characteristic of the marketers, such as age, marital status, educational level and primary occupation. Also, data on cost and returns on fire wood marketing were also gathered. A complete list of firewood marketers in the two LGAs was obtained from the fire wood marketers' association and 120 being 50 percent of the marketers were sampled for the study using simple random sampling technique.

Analytical Techniques

Descriptive statistics such as frequency counts, percentages and means were used in the study. While inferential statistics such as gross margin and regression analyses were used to interpret the data. In the analysis, gross margin was the regress and the repressors were the socio-economic characteristics. The implicit form of the equation is thus:

GM: $f(x_1, x_{2,} x_{3,} x_{4,} x_{5,} x_{6,} x_{7, + thi})$ (Oluwadare et al. 2009).

Where
GM = Represent the gross margin (regress)
x_1 = Age (yrs)
x_2 = Marketing experience (Yrs)
x_3 = Household size (numbers)
x_4 = Labour (man days)
x_5 = Bundles (numbers)
x_6 = Sex (D=1,if male, and 0 if male)
x_7 = Primary occupation
x_8 = Marital status (D = 1, if married and 0 if otherwise)
*D = Dummy variable

RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

Table 2 shows that majority (40%) of the respondents were between the age of 21 and 40. Age plays a critical role in the business of fire wood marketing; the more energetic an individual is the higher the possibility of his or her to perform better than the very young or very old marketers. This result also collaborate the finding of Afolabi (2001) and Ikurekong et al. (2009) who reported that age of marketers have positive impact on the business aggressiveness and flexibility in marketing activities.

Table 2 also revealed that, 63 percent of the respondents are males. Literature is replete with the male domination in labour demanding livelihood activities (Kwaghe 1999; Ani 2004; Fidelia 2005) all reported that males dominate firewood marketing and other agricultural activities that are labour demanding. Also Kwaghe (1999) opined that the fear of abuse such as rape, extortion and assault by unknown men in the process of gathering fuel wood in the forest may be responsible for the predominance of male in the industry.

Tables 1 further revealed that majority (73%) of the respondents were married. This result is in line with the findings of Taphone (2009) who reported that married people have more responsibilities such as the provision of foods, education and health and well-being of their spouses and children. This may be the reason why the business is dominated by the married people unlike the case for the singles who may not likely have other people to take care of beside themselves.

Table 2 shows that majority (66%) of the respondents has family size between 1 and 5 persons and 55% of the respondents had no formal education. This result shows that literacy level among the marketers is low. The preponderance of non-literates in high labour demanding livelihood labour was reported by Amaza (2000), who stressed that practitioners' level of level of education is inversely proportionate to involvement in labour demanding livelihood. This may be for the fact education helps to liberate the mind, could expose practitioners to several alternatives and helps in efficient use of information which could lead to better output and income.

The result also indicates that majority (65%) of the respondents were farmers by primary occupation. Since this industry is dominated by farmers, it means that firewood business will be markedly affected by season due to the attention and time it would receive. Farmers spend substantial part of their time on their farms during raining season, and are more likely to concen-

Table 2: Respondents' socio-economic characteristics

Variables	*Frequency*	*Percentage*
Age		
>20	10	10
21-30	30	30
31-40	40	40
41 <	20	20
Gender		
Male	63	63
Female	37	37
Marital Status		
Married	73	73
Single	19	19
Widowed/widower	6	6
Divorces/divorcee	2	2
Family Size		
1-5	66	66
6-10	31	31
11<	4	4
Educational Background		
Non-formal	55	55
Primary	26	26
Secondary	18	18
Tertiary	1	1
Main Occupation		
Farming	65	65
Trading	34	34
Hunting	1	1
Marketing Experience		
1-9	80	80
10-19	12	12
20-29	6	6
30<	3	3
Marketing Association		
Yes	10	10
No	90	90

Source: Field Survey 2010.

trate on fire wood marketing activities during the dry season.

Table 2 further reveals that only 10% are members of fire wood sellers' association. The low level of involvement in the association may be for the fact that there is a stringent government regulation that banned the indiscriminate cutting of trees for fire wood and so most marketers prefer to operate in isolation to avoid collision with government the low enforcement agents. Another plausible explanation for the low involvement in the association is for the fact that most of the marketers are new entrants into the business. This can be attested to by the fact in Table 2 that only 20% of the respondents had nine years of marketing experience and beyond. It is important to know that experience counts in business activities and that the more the number of years a marketer spends in business the more likely that such a marketer would know the intricacies of the business which could possibly enhance the gross margin, this too can make such a marketer to retain and stay longer in the business.

Multiple Regressions Analysis

Four functional forms were tried and linear functions gave the best fit, hence it was selected as the lead equation. It's explicit form is thus presented:

GM: = 1014.912 – 0.384X_1 - 46.273 X_2 - 9.413 X_3 + 6.9938X_5 (-1.975)*** (-1.264) (-1.094) (-2.081) ** (.310) 723.026X_6 + 543.691X_7 (11.1754)* (1.880) ***

F = 72.024*; $R2^6$ = 0.846

From the regression result, seven explanatory variables were used which include age, marketing experience, household size, sex, number of bundles, primary occupation and marital status. Four of these variables namely; household size, number of bundles, primary occupation and marital status all contributed significantly to the gross margin (Table 3).

Table 3: Regression analysis

Variables	*Parameter*	*Co-efficient*	*T-Ratio*
Constant			-1.957***
Age	X_1	-0.058	1.264
Marketing experience	X_2	-0.004	-0.094
No. in household	X_3	-0.096	-2.081**
Labour	X_4	0.14	0.310
Bundles	X_5	0.238	3.656*
Main occupation	X_6	0.715	11.175*
Marital status	X_7	0.090	1.880**

Source: Field Survey 2010

*, ** and *** indicate 1%, 5% and 10% level of significant

The variables included in the model have explained 85% of the variations in the dependent variable (gross margin) as reveal by the coefficient of multiple determinations (R^2) the regression is significant at 1% level as shown by the magnitude of F-statistics.

CONCLUSION

Based on the study, it has been revealed that, the socio- economic characteristics that influence firewood marketers' gross margin in the study area are: age, sex household size, educational attainment, marital status and primary occupation of the respondents.

The analyses showed that these socio-economic characteristics fitted into the regression model and influence the independent variable being the gross margin. This was indicated by the multiple determination regression equation R^2 which gives 85 percent.

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