

**WILLINGNESS TO PAY FOR EXTENSION SERVICES DELIVERY AMONG CROP FARMERS IN KATSINA STATE, NIGERIA**

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**ABSTRACT**

The study investigates willingness to pay for extension service delivery among crop farmers in Katsina State, Nigeria. Primary data from a cross section of 260 farmers through multi stage random-sampling techniques were used. The data were analysed using descriptive statistics and probit model. The results from the socio-economics of the farmers show that majority of the farmers (76.4%) fall within the productive age of 31-50years. The crop farmers were male dominated (86.4%). The result from the probit analysis shows that the Age of the farmers were negatively significant ( $P < 0.01$ ) on the willingness to pay. This implies that the older the farmer the lesser the likelihood to pay for extension service. Farmer's income and proportion of commodity sold were positively significant ( $P < 0.01$ ). This implies that as the income of the farmers increase the more likelihood the farmer pay for the extension service. Also, as the proportion of commodity sold increase the more likelihood the farmer to pay for extension service. Land ownership is negatively significant ( $P < 0.10$ ), while the household size is negatively significant ( $P < 0.05$ ). These indicate that owning a land reduce the likelihood of payment for the extension service delivery. In addition, as the household size increases the likelihood to pay for extension service delivery decrease. The study concludes that farmers are willing to pay for extension service and also recommends that efficient machinery should be put in place on marketing of farmer's produce. Government should encourage Young people into crop farming.

**Keyword:** probit, multi-stage, willingness-to-pay. Katsina, Nigeria.

**INTRODUCTION**

The importance of extension service delivery in Nigeria cannot be over emphasised. Agricultural productivity had witnessed a notable support of research institution through the released of the research findings which were made available to the farmers at the grass root. This had facilitated farmers to identifying, analysing and applying research output to solve pragmatic problems relating to production, processing and marketing. Research outcome also creates awareness and opportunities for improvement of farm yields leading to increased income and better living standard Agbamu, (2005) In fact, it is not an overstatement to say that dissemination of agricultural information technologies is a key strategy for improving agricultural productivity and, hence, standard of living and livelihood. The increase in demand for extension delivery

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service over the years has been of great concern to the government under the authority of Agricultural Development Programme (ADP) in all States of the Federation to assist farmers with their basic needs.

The challenges of inadequate food production and distribution in Nigeria are partly due to performance and inadequate of public extension service. Oladele, (2008). The current ratio of 1:1189 extension agents to farmers cannot suffice the population of the farmers Abu, *et al.*(2011) This ratio is far from the recommended ratio of 1:75 extension agents to farmers for the developing countries. The efficiency and effectiveness of the public extension service is another serious issue that needs urgent attention. Government extension agent personnel lack necessary facilities that will enable them to function and cope with the demands of the rural farmers. Government funding and attention on research institutes had decreased over the years. Archaic methodology of the extension agent in transmitting research information to the farmers has made their effort of little effect Abu, *et al.*(2011). The above highlighted problems gave birth to this empirical study. Therefore, this research will answer the question of the factors responsible for their willingness to pay for private extension service delivery in the study area. The objective of this paper is to determine the willingness to pay for extension service delivery among crop farmers in Katsina State.

#### **MATERIAL AND METHODS**

The study area which is Katsina State was carved out of old Katsina State in 1987; it is made-up of 34 local Government Areas (LGAs) and the State is located in the North Western part of the country. It is bordered by Niger Republic in the North, Kaduna State in the South-West, Jigawa in the East. The climate is equatorial with distinct wet (rainy) and dry season with relatively low humidity. The dry season lasts from October to April, while the rainy season starts from May and ends in September. The mean annual rainfall is ranges from less than 500mm in the northern part to 1800mm in the Southern part, with a mean minimum temperature range of 15-17 during the harmattan (cold) season and 35-38<sup>o</sup>c during the dry season. The native people are predominantly Hausa and Fulani while Islam is their major religion, while Christians constitutes small proportions. Katsina State has a total population of 5,801,584 as at 2006 census (NPC, 2006). ([www.katsinastate.gov.ng](http://www.katsinastate.gov.ng)).

#### **DATA AND SAMPLING PROCEDURE**

Primary and secondary data employed for this study were obtained by the means of pre-tested structured questionnaire. Therefore two hundred and sixty structured questionnaire were administered for the study. A multi-stage sampling technique was used to draw a sample size of two hundred and sixty farmers from the population of two thousand and ten farmers. The first stage involves the random selection Funtua and Dutsinma agricultural zones out of three agricultural zones (Ajiwa, Funtua and Dutsinma zones) in Katsina State. Five blocks were randomly chosen from each zone to make a total no of 10 blocks. The third stage involves a random sampling of two cells in each block, to make a total number of twenty cells. Finally, thirteen respondents were randomly chosen from each cell to make a total of two hundred and sixty respondents in all. However, two hundred and fifty data were eventually used for the analysis; others were rejected because of the indiscretion of the information.

**ANALYTICAL METHOD**

Socio economic characteristics of the farmers were described using descriptive statistics such as means, median and percentages. Probit model was used to capture the factors influencing the farmer’s willingness to pay for extension service delivery. Willingness to pay was measures at nominal level as a dichotomous variable of 1 and 0. The relationships between the probability of the willingness to pay  $P_i$  and its determinants  $q$  is given as:

$$P_i = q_i + \mu_i \tag{1}$$

Where:  $P_i = 1$  or  $0$

$Q_i$  is a vector of explanatory variables and  $\beta$  is the vector of parameters.

The explanatory variables are:

$X_1$  = age in years,

$X_2$  = dummy variable for Sex (Male = 1, female = 0),

$X_3$  = dummy variable for educational level (educated = 1, not educated = 0),

$X_4$  = dummy variable for marital status (married = 1, others = 0),

$X_5$  = farm size in ha,

$X_6$  = farming experience in years

$X_7$  = household size in number of persons,

$X_8$  = number of extension contact per month,

$X_9$  = income in Naira,

$X_{10}$  = production of crop sold in percentages.

**RESULT AND DISCUSSION**

The results of the determinants of willingness to pay for extension service delivery are as shown in Table 2. The result shows that the chi-square value of 13745.20 is statistically significant ( $P < 0.01$ ). This shows that the model is fit for the study. From Table 2, it can be shown that age, marital status, farm size, farmer’s income, proportion of commodity sold, household size and land ownership are associated with higher likelihood of willingness to pay for extension service delivery among crop farmers in the study area. This implies that the more older the farmer the lesser the likelihood to pay for extension service delivery. In the same vein, marriage of the farmer tends to decrease the likelihood to pay for extension service. The result also reveals that as the size of their farms increase their likelihood to pay for extension service decreases. On the other hand, sex of the farmer, education, and experience of the farmer has no significant impact on the willingness to pay for the extension service delivery.

**Table 1. Socio-Economic Characteristics of the Farmers**

| Variables     | Frequency  | Percentage |
|---------------|------------|------------|
| <b>AGE:</b>   |            |            |
| 20 - 30       | 13         | 5.2        |
| 31 - 40       | 93         | 37.2       |
| 41 – 50       | 98         | 39.2       |
| 51 & above    | 46         | 18.4       |
| <b>Total:</b> | <b>250</b> | <b>100</b> |
| <b>SEX:</b>   |            |            |

|                            |            |            |
|----------------------------|------------|------------|
| Male                       | 216        | 86.4       |
| Female                     | 33         | 13.6       |
| <b>Total:</b>              | <b>250</b> | <b>100</b> |
| <b>EDUCATION:</b>          |            |            |
| PrimarySchool              | 44         | 17.6       |
| Secondary School           | 29         | 11.6       |
| Tertiary                   | 17         | 6.8        |
| Quranic School             | 160        | 64.0       |
| <b>Total:</b>              | <b>250</b> | <b>100</b> |
| <b>FARM SIZE:</b>          |            |            |
| Less than 2 hectares       | 42         | 16.8       |
| 2 - 5 hectares             | 115        | 46.0       |
| 6 - 9 hectares             | 90         | 36.0       |
| 9 - hectares& above        | 3          | 1.2        |
| <b>Total:</b>              | <b>250</b> | <b>100</b> |
| <b>FARMING EXPERIENCE:</b> |            |            |
| Less than 5 years          | 20         | 8.0        |
| 5 – 10 years               | 118        | 47.2       |
| 11 - 15 years              | 88         | 35.2       |
| 16 years & above           | 01         | 9.2        |
| <b>Total:</b>              | <b>250</b> | <b>100</b> |

Source: Data Analysis 2014.

The results further shows that farmer’s income and proportion of commodity sold were positively significant ( $P < 0.01$ ). This implies that as the income of the farmers increase the more likelihood they are ready to pay for extension service delivery. Also as the proportion of the commodity sold increase the more likelihood the farmer pay for the extension service. Land ownership is negatively significant ( $P < 0.10$ ). While the household size is negatively significant ( $P < 0.05$ ). This indicate that owning a land reduce the likelihood of payment for the extension service delivery. The result also shows that as the household size increase the likelihood to pay for extension service decrease.

**Table 2. Determinants of the Farmers Willingness to Pay**

| PARAMETERS       | Regression Coefficient | Standard Error | Z      | Significant |
|------------------|------------------------|----------------|--------|-------------|
| Age              | -0.5010                | 0.064          | -7.995 | 0.000       |
| Sex              | 0.007                  | 0.001          | 0.496  | 0.620       |
| Education        | 0.036                  | 0.019          | 1.904  | 0.057       |
| Marital Status   | -0.205                 | 0.020          | -10.43 | 0.000       |
| Farm Size        | -0.056                 | 0.012          | -4.768 | 0.000       |
| Land Ownership   | -0.118                 | 0.042          | -2.780 | 0.005       |
| Household Size   | -0.005                 | 0.002          | -3.382 | 0.001       |
| Extension Agents | 0.005                  | 0.006          | 0.927  | 0.354       |

|                                |                                |           |        |       |
|--------------------------------|--------------------------------|-----------|--------|-------|
| Contact                        |                                |           |        |       |
| Annual Income                  | 0.002                          | 0.000     | 21.084 | 0.000 |
| Proportion of commodity sold   | 0.005                          | 0.000     | 12.720 | 0.000 |
| Pearson Goodness -of- fit Test | <b>Chi-Square</b><br>(P<0.001) | 13745.199 |        |       |

**CONCLUSION**

The study concludes that age, marital status, farm size, farmers’ income, proportion of commodity sold, significantly affect the willingness to pay for extension services by the crop farmers. The study recommends that government should give incentives that will boost farmers’ productivity and efficient machinery should be put in place on marketing of farmer’s produce. The young people should be encouraged into crop farming.

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