

## ASSESSMENT OF RURAL MARKET PARTICIPATION AMONG FARMING HOUSEHOLDS IN KWARA STATE, NIGERIA

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### Abstract

**F**arming households participate in the rural markets to commercialize their farm produce. Rural market participation thus, improves welfare of the rural poor through the exchange of agricultural based goods for money. Inadequate knowledge about the factors affecting the decision whether or not farmer engages in rural market and the lack of information about the intensity of non-participation of farmers in rural markets may hinder effective planning for welfare of farming households. The study therefore determined the level of market participation among rural farming households, the determinants of decision to market participation among farming households and the factor affecting the intensity of non-participation of farmers in rural markets. Three-stage sampling technique was used for the study where 160 farming households were randomly selected across selected eight rural communities. Data were collected through personal interview using structured questionnaires. The data were analysed using descriptive statistics and double hurdle model. The results of the study revealed that 58% of the respondents were in rural markets with less than 30% of farm produce. This implies that, more than halve of respondents are involved in selling small quantity of farm produce at rural market. The decision to participate in the markets is determined by educational status ( $p < 0.01$ ), access to credit ( $p < 0.01$ ), market information access ( $p < 0.05$ ), commodities prices ( $p < 0.05$ ) and market surplus ( $p < 0.01$ ). The study further revealed that educational status, access to credit, market information access, commodities prices and market surplus reduced the intensity of non-participation in rural markets by 69%, 100%, 2.2%, 0.09% and 0.04 % among the rural households respectively. On the other hand, household size increased the intensity of non-participation in rural markets by 3% among the households. The study concluded that access to credit, market information and education can significantly increase the extent of market participation among poor farmers while household size would hamper the participation. Therefore, the study recommended that, farmers should be educated on the importance of commercializing more farm produce through rural market participation. Also, farmer should be encouraged to form cooperative to ease access to credit and market information. Besides, there is the need for awareness on the significance of family planning to improve market participation among farmers.

**Key words:** Farmers, Market surplus, Household size, Welfare and Double hurdle model

### 1.0 Introduction

About 90 per cent of Nigeria's food is produced by rural farmers who cultivate on small plots of land. Farming households participate in the rural markets to commercialize their farm produce because the livelihoods of about 90 percent of the rural population in Nigeria come from farming which constitute about 40 percent of the country's Gross Domestic Product (IFAD, 2012).

Rural Market participation plays important role towards economic development. This participation is not only to stimulate agricultural production but also to improve living standard of farmers. It is a local viable investment that encourages people to remain in rural areas and meet at best partial success. Increase in returns to agriculture and farming households are the consequences of market participation. A study emphasized that, market participation is being embraced by the provision of incentives to farming households. Consequently, capacity at increasing returns to agriculture and to its households is achieved and prompted with such expedition (Boughtonet. al., 2007).

Rural market participation is estimated in terms of farm produce commercialization and related to the percentage of output sold from total farm production. By this, it is thus, improves welfare of the rural poor through the exchange of agricultural based goods for money (Jagweet al, 2010). Farming households derived over sixty percent of their income by selling surplus in the rural markets (Rahman & Westley 2001). . According to Bahta and Bauer, (2007) describes the participation on the basis of volume of goods sold. Relatively, Olwande and Mathenge, (2012) stated that the extent of the participation on the basis of the proportion of the quantity produced and ended up being sold for enterprise rather than for subsistent purposes. Therefore, the participation would bebest understood either by the quantity of goods sold or value of goods sold (Rios, Shively, and Master, 2009). However, utilizing marketed crop value might open another room for studying market participation as market income gained would help to improve welfare of rural poor(Holloway, et al., 2005).

The real significance of market participation is to encourage farmers to sell farm produce and earn large farm income. There is still significant trade-offbetween farm income and off-farm income. For instance, farmer's off-farm income is accounted for about 50% of their total rural household income (Babatunde &Qaim, 2010).Consequently, the neglect of farming to off-farm activities in the market level among farming households could contribute to the 870 million people that are currently food insecure in the world (FAO, 2012). In summary, farmers perform equal responsibilities in farm and off- farm services would create detrimental effect on availability of food in the market.

By this, the disposable income of rural households increases which would allow the demand for variety ofgoods in the rural market. The process hereby inducing increased demand-side and supply-side of rural market as its relatively increases the avenue for more surplus to be marketed (Boughtonet al, 2007). Despite of the opportunities for farmers to increase food production and benefit from exchanging capacity and potential of rural market, there are still limitation in understanding the relevant socioeconomic factors needed to drive the affairs of consistent farm commodities commercialization in the rural market. In the rural areas, if farmers are the majority in the rural market therefore, sound rural development in terms of poverty reduction and food security will be achieved. The existing studies had examined the decision to market participation but never give attentionto determine the factors influencing non-participation of farming households in the rural market. Inadequate understanding

about the determinants for the decision to market participation and lack of information about factors influencing the intensity of non-participation in the rural markets might cause setback in the effective planning for poor farmers' welfare. In this case, the study has addressed the issues by providing answers to the following research questions:

What is the level of market participation among farming households in Kwara State?  
What are the determinants of decision to market participation among the households in Kwara State?

What factors affecting the intensity of non-participation in rural markets among the households in Kwara State?

The main objective of the study is to assess rural markets participation among farming households in Kwara State, Nigeria.

The Specific objectives are to:

- Identify the level of market participation among farming households,
- Assess the determinants of decision to rural market participation among farming households and
- Examine the factors affecting the extent of non-participation in rural market among farming households.

## **2.0 Literature Review**

### **Theoretical Framework**

Rural market participation brought about the systematic substitution of non-traded inputs with purchased inputs, the gradual decline of integrated farming systems, and the emergence of specialized high-value farm enterprises. Several models have been proposed to explain why limited market participation may exist. Limited market participation noticed due to how entry costs and/or liquidity needs that occurred (Yaron & Zhang, 2000).

The economic development and structural transformation of any economy usually recognized through potential marketing system which resulted in to a market-led paradigm of agricultural development during the 1980's (Reardon & Timmer, 2006) in which market liberalization policy agendas were widely promoted in Sub-Saharan Africa (SSA) and other low-income regions. According to Staatz, (1994) revealed that the standard process of agrarian and rural transformation therefore involves households' transition from a model of subsistence, in which most inputs are provided for and most outputs consumed internally, to a market engagement mode, with inputs and products increasingly purchased and sold off.

Markets offer households the privileged to specialize with regards to comparative advantage and thereby enjoy welfare gains from trade. Bought on et al., (2007) has viewed market participation as both a cause and a consequence of economic development. Accordingly, different approaches are noticed with the theory of market participation, including asset-based, agricultural developmental theory and Transaction cost theory approaches.

The asset-based theory was summarized by Omiti et al., (2009), who held that as the market share of agricultural output increases when input utilization decisions and output combinations are progressively guided by profit maximization objectives. For instance, market participation would be found positively correlated with transport

ownership (Heltberg & Tarp 2001) and with motorized transport (Renkow, et al., 2004). Meanwhile, productive assets have seen as influential determinants of agricultural production and market participation (Boughton et al. 2007). The relevant instrumental factors which suggest that the market participation would be productive only by a combination of human factors, capital endowment and infrastructure (Heltberg & Tarp 2001; Bought on et al. 2007).

In the case of the agricultural developmental theory approach, Lokman and Dumn (1998) viewed market participation to be important policy to improve economic conditions of rural households via increasing the proportion of marketed surplus and income. This explained to be a supportive instrument of structural adjustment policy such as to alleviate poverty by encouraging the production of more marketable surpluses.

Transaction cost theory approach discusses market participation on the basis of the gain received that are sufficient to compensate for the transaction costs.(Alain de & Sadoulet, 2005). More so, transaction costs increase as a result of poor infrastructure and weak institution consequently affect production and market participation decisions (Rio et al., 2009).

Quiet a study has conceptualized on the basis of market participation operation. Dorward et al., (1998) provide a comprehensive conceptual framework and set of empirical studies on the motivation and performance of rural markets as an induced institutional innovation in response to widespread rural financial market failure following market liberalization in SSA. Also, Benfica et al., (2002) provide a similar conceptual framework and analysis for recent agro-industrial investments. Two important distinctions affecting farmer participation in rural markets that emerge from this research are: 1) the potential for involuntary exclusion of small holders from participation in contract schemes; and 2) the potential for monopsony power on the part of a buyer in return for access to technology (inputs, credit and extension), resulting in lower financial returns and increased risk of financial loss for farmers. A key criterion for selection into contract farming schemes is whether a grower can signal the availability of complementary production assets to enable effective use of expensive inputs.

A third strand of the literature relevant to small holder market participation in the recent literature is on poverty dynamics and poverty traps which related to minimum asset thresholds. This study lay out the conceptual foundations for a dynamic asset poverty threshold that potentially separates those able to rise above the asset threshold and escape poverty from those caught in a low-level equilibrium, a "poverty trap" (Carter and Barrett, 2006). While examples of such poverty traps in agricultural systems are many and diverse, the interaction of markets and assets is often a common thread among them. Another example of a poverty trap is the vicious cycle of forced labour in Malawi (Dorward et al., 2004). The majority of rural households in Malawi lack sufficient land and capital to produce and/or store enough maize to see them through the hungry season. Since the hungry season coincides with the growing

season, food insecure households must divert labour from their own production to another work (off-farm wages employment) thus this reduce the commercialization of unavailable farm produce as well as farm market participation. The system is self-perpetuating as the same households find themselves food insecure in the next hungry season as a result of neglect of their maize fields.

### Empirical Framework of the Study

There are several literatures that have used double hurdle model as an analytical tools used for studying rural market participation. Double hurdle model is two stage procedure upon which market participation have mainly modelled, comprises of two systematic steps namely: probit and tobit models. The assumption that the households make, are of two separate tiers such as; one involves the decision to participate in the market which is necessary but not sufficient and secondly the intensity of participation which proved not only necessary but also sufficient. Explicitly, double hurdle model or two steps estimation procedure comprises the use of Logit/Probit and Tobit model.

The two models used to estimate the determinants of market participation on the basis of two predictive statements: firstly, the determinants of whether households participate in rural market or not and the determinants of the extent of market participation among farming households. These procedures have been applied in the various past studies by Maddala, (1988), Greene (1993), and Gujarati (1995). Studies by Govereh et al., (1999); Strasberg et al., (1999), Adejobi et al., (2006), Omiti, et al., (2009), Gani and Adeoti (2011), Olwande and Mathenge (2012), Agwuet al., (2012) had treated market participation with the double hurdle technique using different proxy to measure market participation. Some of the study have determine the market participation in terms of proportion marketable goods. To the best of our knowledge, Only Rio et al., (2009) had used sale index which instrumented in terms of proportional value of marketed goods but it was used in 2SLS model because of the study two-ways causality nature of research. This study we also follow the procedure of fitting data collected in to double hurdle model to analyze rural market participation with considering proportional value of marketed surpluses.

However, The following studies by Makhura, et al., (2001); Boughton, et al., (2007); Alene et al., (2008), Adenegan et al., (2012) and Bhatta and Arethun (2013) had used another two steps technique called Heckman model rather than double hurdle model. Heckman two-step model is a model that comprises of using first step as a probit and second step to be OLS model. Omiti, et al., (2009), emphasis that opinion is divided which of the two (Double hurdle or Heckman two-step) procedures reliable for analysing rural market participation. Even though the two procedures might be similar in the first stage which consist of binary response model (logit / probit) but there second stage are not the same.

In the second stage of the two procedures, where degree and extent of rural market participation are found, OLS is model used for Heckman model while Tobit is considered for second stage of double hurdle model. According to Kennedy (2003), said that Tobit model is considered appropriate and preferable in analysing market

participation as it build on maximum likelihood techniques. In contrast, Babatunde and Qaim (2010) reported that: OLS techniques are employed when all households are given with non-zero values of dependent variable. This implies that the utility of OLS model for any zero observations in dependent variable will lead to non-random sample selection which also lead to biased estimate. Bhatta and Arethun (2013), further emphasized that: the estimation of OLS model capable of excluding the non-participants from analysis and an attempt to include such zero observations will introduce a sample selection bias to the model. But, in an absence of index, the dependent variable that is continuous will require OLS model to be checked for selection bias through the estimation of inverse mill ratio (IMR) in the explanatory variables of the model.

In order to overcome this particular problem associated with OLS model, the analysis of rural markets participation through two steps procedure of the double hurdle would be appropriate. This was suggested and used by Olwande and Mathenge, (2012) which against the two step model of Heckman that was suggested by Wooldridge, (2002, pp 536-538). Technically, if Heckit specification was run using Maximum Likelihood Estimation (MLE) procedure without lambda, the results would be identical to Tobit-MLE selection models with iterations constrained to one. More over, the application of ordinary least square (OLS) model in rural market participation could virtually not fit because it is assumed that non-participation is a purely economic decision by households not to participate in market (Olwande & Mathenge, 2012).

The Tobit procedure stance to determine the MLE or maximum likelihood estimates, as well as the marginal effects. The marginal effects indicate the amount of the sales resulting from a unit change in the explanatory variables. The marginal effects account for the level of market non-participation using latent variable gap which is express as:

$$Y^* = (Z - y) / Z \dots \dots \dots (1)$$

With regards to equation 1, the latent variable considered to be used is sale index for analysing the determinant of market participation. The data available for market participation in the Tobit model tend to be censored at the lower limit of zero so as to determine the extent of market participation and Probit or Logit models would be adequate techniques for addressing probability of market participation (Tobin, 1958, Gujarati, 1995).

The function of double hurdle model specified as:

$$P(Y_i = 1) = 1 - P(Y_i = 0) = X_i \alpha + E) \dots \dots \dots (2)$$

$$Y_i = Z_i \beta + \mu \dots \dots \dots (3)$$

Equation 2, defines the market participation model where  $Y_i$  takes dummy response i.e. it equals to one, if a household has marketable surplus and equals to zero, if a household has no tangible marketable surplus.

In determining factors affecting the extent of market participation while controlling for other factors, equation 4 expressed that:

$$Y = \beta_0 + \beta_1 X_i + \mu_i \dots \dots \dots (4)$$

$$Y = 0 \text{ if } Y^* \leq 0,$$



$Y = Y^*$  if  $Y^* > 0$ .

$\beta$  = estimated parameter or coefficient

$X_i$  = the explanatory variables

$\epsilon_i$  = error term and is normally distributed with zero mean and constant variance.

The dependent variable  $Y$  equals 0 if the latent variable  $Y^*$  is below a certain threshold.

If the values of the latent variable are positive, the dependent variable is equal to the latent variable. The function will then be expressed as:

$$Y^* = \beta_0 + X_i\beta_i + \mu \dots \dots \dots (5)$$

With  $\mu / x$  Normal  $(0, \sigma^2)$   $(1) y \max(0, Y)$

The latent variable  $Y^*$  satisfies the classical linear model assumptions; in particular, it has a normal, homo-skedastic distribution with a linear conditional mean.

Equation (5) implies that the observed variable,  $Y$ , equals  $Y^*$  when  $Y^* > 0$ , but = 0 when  $Y^* \leq 0$  and censored.

This because  $Y^*$  is normally distributed,  $Y$  has a continuous distribution over strictly positive values. In particular, the density of  $Y$  given  $X$  is the same as the density of  $Y^*$  given  $X$  for positive values.

### 3.0 Materials and Methods

#### Study Area

The study is conducted in Kwara state. The state was created in May, 1967. Kwara state has sixteen (16) local government areas with a population of 2,371,089. The state shares local boundaries with Oyo, Ondo, Ekiti, Osun state to the South, Kebbi and Niger to the North, Kogi to the East and an international border with the republic of Benin to the west (Kwara State Government Diary [KWSG DIARY], (2006). Kwara state is located in the north central geographical zone and it has four main ethnic groups namely: Yoruba, Nupe, Fulani and Baruba. It has a land area of about 35,705km<sup>2</sup> and it is located between latitude 8° 5' – 10° 4' N and longitude 4° 55' - 6° 5' E (National Population Commission [NPC], 2006). The average temperature ranges between 27° and 35° C with a mean annual rainfall of 1,000-1,500mm. it has two main seasons: wet and dry. The natural vegetation cover consists of rainforest in the south and guinea Savannah to the North. The landscape comprises of hills, valleys and plains. The state agricultural activities were foreseen by sector such as Agricultural Development Programme which divided the state into four (4) agro-ecological zones across all the sixteen (16 LGAs) in the state (Kwara ADP, 1996).

#### Sampling Technique and Sampling Size

Three-stage random sampling technique was used for the study. The first stage was a random selection of one LGA's each from the four Agricultural Development Project Zones- Zone A, B, C and D. The second stage was a random selection of two rural communities from each of the LGA's Selected (Kaima, Lafiagi, Ilorin south and Ifelodun LGA of respective zone). The third stage involved a random selection of 20 farming households each from each community selected (Banni & Gwaria, Tsaragi & Patizdanu, Iloa & Fufu and Igbowu & Ita-olowo communities of randomly selected LGAs). A total of 160 respondents (farming households) administered questionnaires

designed for the purpose of this study.

#### Methods of Data Collection

The study was depended on rural households' level data. So, the data for the study was obtained via primary source. The primary data were collected through well-structured questionnaire relative to the study. The data collected was purely for cross sectional survey, as farm produce, sold or commercialized in rural markets immediately after harvest. Other materials used for this study were sourced from Newspapers, online journals, textbooks, Diary and Rural market reports.

#### Analytical Techniques

Analytical tools used to analyse the data collected from the study area include descriptive statistics (frequency, percentage and sale index) and double-hurdles model in respect to each objective of the study.

#### - Descriptive Statistics Specification

The descriptive statistical tools used through the estimate of Sale index of rural market participation. The sale index (for individual and merged samples) defines as:

$$\text{Sale Index}_i = \frac{\sum \text{Gross value of crops sold}_i}{\sum \text{Gross value of farm crops output}_j}$$

where house hold  $I$  produces  $j$  distinct crops, gross value of crop sales and expected gross value of farm outputs are in Naira (Rio et al., 2009).

#### - Double-hurdle Model (two-stage procedure) Specification

DHM involves the use of Logit / Probit and Tobit for hurdle A and B respectively such that:

Hurdle A, the Probit Regression Model, as it was suggested by Heckman, (1979), is expressed as:  $Y_i(0,1) = \beta_0 + \beta_i X_i + u$

Hurdle B, the Tobit Regression Model, as it was proved according to Tobin, (1958) is expressed as:  $Y^* = \beta_0 + \beta_i X_i + \mu_i$

$Y = 0$  if  $Y^* \leq 0$ ,

$Y = Y^*$  if  $Y^* > 0$ .

$\beta$  = Estimated parameter or coefficient

Where:  $Y_i$  = Probability of market participation (1= have marketable surplus 0= otherwise) for Hurdle A

$Y^*_i$  = Intensity of rural market participation (Sale index  $i$ )

$i = 1 \dots \dots \dots 15$

$X_1$  = Gender of respondent;

$X_2$  = Households Size of respondent (Number);

$X_3$  = Age of respondent (year);

$X_4$  = Education status of respondent;

$X_5$  = Farm experience of respondent (year);

$X_6$  = Farm size (ha);

$X_7$  = Contact with extension officers (1= yes, 0= otherwise);

$X_8$  = Member of Farm organization (1= yes, 0= otherwise);

$X_9$  = Member of co-operative society (1= yes, 0= otherwise);

$X_{10}$  = Access to credit (1 = have access, 0 = have no access);

X<sub>11</sub>= Access to Market Information (1= have access, 0= no access);  
X<sub>12</sub>= Commodities price ( );

X<sub>13</sub>=Market surplus (kg) ;  
X<sub>14</sub>= Market distance (km);  
X<sub>15</sub>= Market expenses ( ); and

u= while u is the stochastic error term. The model estimated using maximum likelihood method in STATA software.

**The research hypotheses for this study however express that:**

- The availability of marketable surpluses will increase the decision to rural market participation and
- The proportion of marketed surpluses will increase the extent of rural market participation.

### Results of the study

Rural market participation is the driving force for improving welfare of farming households in the rural areas: table 1 shows the level of market participation among farming households in the study area.

**Table 1: Level of market participation among farming households**

Gross value of sales (₦)	Expected value of produce (₦)	Average sale index(Z)	Respondent (%)
55072997	196995063	0.28	58

Source: Field survey, (2014)

Table 1 reveals the gross value of sales gotten from respondents in the rural market to be ₦55,072,997 under the study. The expected value of farm produce harvested by respondents in the study area was ₦196,995,063 which found to be larger compare to the value of sales. This is because not every harvested farm produce would have meant for selling. Some would be assigned for consumption while others for gift and stored for use as farm input (seeds). The sale index then determines the ratio of individual respondent sale's value to the expected farm produce value. The average of which resulted to 0.28. About 58 percent of the respondents only were found having 28% of the total value of their farm produce.

The participation and non-participation of farmers especially in the rural areas are associated with several factors. Table 2, expresses the result for the determinant of decision of market participation as hurdle A and the result for the factor affecting non-participation of rural market among farming households as hurdle B. Hurdle A was analysed through Probit model regression while hurdle B was analysed through Tobit model regression. The dispersion of the observations for both regression model was measured around the model regression line. The percentage of total variation of our dependent variable were explained by the coefficient of determination R<sup>2</sup> of both regression models as explained by study explanatory variables in order to measure the goodness of fit of our regression lines. These R<sup>2</sup> scored the Probit regression model 61 percent and 66 percent for Tobit regression model also express the goodness of fit of study regression model lines. The chi 2 of both hurdle A and hurdle B model were also expressed as 132 and 166 respectively thus it made the model fits tested and regarded the fit was being adequate. About two significant levels were noticed which include 1 and 5 percent respectively for the selection of most explanatory independent variables

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that were in the position to explain our dependent variable of our models. The parameters expressed by hurdle A for education status (6.883626\*\*\*), market surplus (0.0020519\*\*\*), access to credit (10.86722\*\*\*), commodities price (0.008182\*\*) and access to market information (0.7427923\*\*) were positively significant at 5 and 10 percent level of significant. On the other hand, those parameters were also expressed in hurdle B but negatively significant exceptfor households' size (.0299669\*\*\*) whose coefficient is positively significant at 1 percent.

**Table 2: Determinants of decision of market participation and factor affecting rural market non-participation among farming households (A & B hurdle respectively)**

Variables	Notations	Hurdle A		Hurdle B	
		Coeff.	Z	Coeff.	t ratio
Constant	β <sub>0</sub>	-27.44218	-3.98	3.010379	4.72
Gender	X <sub>1</sub>	-0.068596 <sup>ns</sup>	-0.15	-.0329256 <sup>ns</sup>	-0.36
Households size	X <sub>2</sub>	-0.280572***	-4.62	.0299669***	4.48
Age	X <sub>3</sub>	0.0122827 <sup>ns</sup>	0.49	-.0078524 <sup>ns</sup>	-1.54
Education status	X <sub>4</sub>	6.883626***	4.07	-0.6891704***	-5.22
Farm experience	X <sub>5</sub>	0.0500936 <sup>ns</sup>	0.58	0.0181351 <sup>ns</sup>	1.63
Farm Size	X <sub>6</sub>	-0.034157 <sup>ns</sup>	-0.23	-0.0036392 <sup>ns</sup>	-0.23
Extension visit	X <sub>7</sub>	0.1954327 <sup>ns</sup>	0.22	-0.0601985 <sup>ns</sup>	-0.26
Farm organization	X <sub>8</sub>	0.097926 <sup>ns</sup>	0.17	-0.0364872 <sup>ns</sup>	-0.34
Cooperative membership	X <sub>9</sub>	0.8361734 <sup>ns</sup>	0.59	-0.0238044 <sup>ns</sup>	-0.11
Credit access	X <sub>10</sub>	10.86722***	3.53	1.021749***	-3.23
Market info access	X <sub>11</sub>	0.7427923**	1.87	-0.0219026***	-2.66
Commodities Price	X <sub>12</sub>	0.008182**	1.89	-0.0009029**	-1.98
Market surplus	X <sub>13</sub>	0.0020519***	4.8	-0.0003828***	-6.49
Market distance	X <sub>14</sub>	0.0319618 <sup>ns</sup>	0.27	-0.0145978 <sup>ns</sup>	-0.79
Market expenses	X <sub>15</sub>	0.0000832 <sup>ns</sup>	0.72	0.0000107 <sup>ns</sup>	0.57
Chi <sup>2</sup>		132.84 (P<0.01)		143.79 (P<0.01)	
Log likelihood		-42.359878 (P<0.01)		-36.735095 (P<0.01)	
R Square		0.6106		0.6618	

Number of observation (obs) =160

Hurdle A = Farmer's decision to participate in rural market

Hurdle B = Intensity of non-participation of farmers in rural market

Significance's level:\*\*\* P<0.01, \*\*P<0.05, \*P<0.10, ns = not significant

For B: 93 left-censored obs at y<=0, 67 uncensored obs and 0 right censored obs

Source: Field survey, (2014)

#### 4.0 Discussion of the Findings

##### Level of Market Participation of the Households

The result from table 1 shows that only 58% of respondents participated in the rural markets in term of exchanging farm produce for money. This implies that more than average of these respondents was able to sell at least 28% of their total farm output in rural market. According to Jagwe (2012), stated in a study on socioeconomic determinants of commercialization among farmers that, there is a low level of orientation towards commercialization among small holders' farmers as the commercialization index of all the crops studied were never above 30%. This result was also in consonance with that of Rio, et al (2009), that more than average of rural farmers would be interested in commercializing their less than 30% of their market surplus in the market so that they can have large market share.

#### 4.0 The Determinants of decision to market participation

Table 2, hurdle A, shows that concordant  $R^2 = 0.61$ , which implies that 61% of markets participation's variability was explained by explanatory variables in the model, showing the model being in the state of good fit. The coefficient of education status was significant at 1% with positive sign. It meant that there was a positively significant relationship between education and probability of market participation among farmers. This submission was in conformity with our a priori expectation.

A positively significant (at 1%) relationship also exists between access to credit and probability of market participation among farmers. This implied that increase in credit accessibility leads to increase in farmer decision to market participation which was in support with a priori expectation. Coefficient of access to market information was statistically and positively significant at 1%. Suggesting that market participation will be improved by the increase in access to market information. This result was an important indication relate access to market information is extremely critical to the market participation decision among farmers, as it was also observed by Jagwe et al, (2010). This was also in accordance with our a priori expectation.

The coefficient of commodities price was another variable that was statistically significant at 5% level with positive sign. This signifies that there was a relationship between Commodities price and farmer decision to market participation. So it is concluded that market participation was a function of commodities price. And Market surplus had coefficient of the estimate been significant positively at 1%. This Indicates that there was progressive relationship between Market surplus and farmer decision to market participation. It was in consonance with the a priori expectation. The same result was also found by Adejobi, (2006) and Gani and Adroti, (2011), even though, Gani and Adeoti, (2011) based his study on whether the farmers were affected by poverty or not.

#### Factors affecting the Intensity of Non-participation in the Rural Market

Hurdle B from Table 2, reveals that 0.66 variation was explained by the explanatory variable. The algorithm expresses all left observations were censored. This is because they were observed as being participated in the rural markets. Education status of the respondents reduced the intensity of non-participation of households by 69% in the rural markets. The preference for high level of education is desirable to minimize costs of search and screening information and transaction cost in both factor and product market (Olwande & Mathenge, 2012). In relation to the above findings, a positive significant (1%) was also determined by access to credit and this implies that negative relationship exists between access to credit and the intensity of non-participation in the market. This follows our a priori expectation. Therefore, with increase in credit, there is reduction the intensity of non-participation of households by 100% in the market. Meanwhile, cooperative membership have been noticed to promote market participation by making farmers integrated in terms of ideas, experiences and affords access to sources of information regarding credit facilities, knowledge and skills, hitherto not known, with a view of improving their livelihood and stamping out poverty (Conroy, 2005).

Moreover, at 1% level of significant, that access to market information was expressed with negative sign. In this case, access to market information had negative influence with the intensity of non-participation of farming households in the rural markets. Moreover, increase in market information accessibility will discourage the intensity of non-participation of household by 2.2% in the study area. Commodities price was another regressor that was significant at 1% with negative sign. This meant that there was a negative association between commodities price and the intensity of non-participation of households in the market.

Hence, the more the commodities price the less the intensity of non-participation of households in the markets with an estimate of 0.09%. Also market surpluses had its coefficient negative significant at 1%. So, there was a negative relationship between market surplus and the intensity of non-participation of households in the rural markets. This implies that, with more market surplus available at households' disposal, the intensity of non-participation of households reduced by 0.04% in the markets. Adejobi, (2006) and Gani and Adroti, (2011) also got similar result as commodities price and market surplus were found important to determine the degree of market participation. Household' size was the only regressor statistically and positively significant at 1%. Indicating that positive relationship exists between households' size and intensity of non-participation in the among farming households.

The step construing the extent through which household size reduces non-participation in the rural markets among farming households by 3%. According to Alene et al. (2008) and Omitiet al. (2009) postulated that household size affects labour supply for production but on the hand it can make produce to be consumed than for market purpose, thus affect income. This implies that increase in household member tend to reduce quantity of marketable surplus.

#### 5.0 Conclusion and Recommendations

The study concluded that, more than 50% farming households took part in the commercialization of less than 30% of their farm product in rural markets. The determinants for decision to market participation include educational status, access to



credit, access to market information, Commodities price and Market surplus— all are coefficients that found positively significant. Meanwhile, cooperative membership was already noticed to promotes market participation by making farmers integrated in terms of ideas, experiences and affords access to sources of information regarding credit facilities, knowledge and skills, hitherto not known, with a view to improving their livelihood thereby stamping out poverty. Conversely, the factors influencing rural market non-participation were educational status, access to credit, access to market information, commodities price and market surplus because of their coefficients that is negatively significant. Only household size was positively significant factor that promotethe intensity of non-participation of farming households in rural market.

Based on the findings of this study, there is the need to encourage market participation among farmers necessary for rural development, this study makes the following recommendations:

- Farmers should be aware of the relevance of commercializing more of their products inorder to benefit from large market share and high price for their products.
- Policy must be directed toward enlightening the peasant farmers on the significance of family planning to increase their market surplus taken to the rural market.
- Smallholder farmers should form functional cooperatives to promote and ease their access to credit and market information.

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