

## **SOCIO-ECONOMIC ANALYSIS OF FACTORS ASSOCIATED WITH CHILD LABOUR USE AMONG CASSAVA FARMERS IN IMO STATE**

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### **ABSTRACT**

*This study focused on the socio-economic analysis of the incidence of child labour use among cassava farmers in Imo State of Nigeria. It is designed to empirically provide evidence-based knowledge to inform and influence policies in the direction of the use of child labour in cassava production. Multistage random sampling technique was adopted to select 115 respondents used for the study. Data was collected using structured questionnaire and analyzed using percentages, arithmetic mean and logit regression econometric procedure. The study found that majority of the respondents represented by 85% employed child labour in their cassava farm production. Those in age range of 15 – 17 were the least (8 %) employed as labourers. The study further found that the children spent an average of 5 hours a day working in cassava farms, with majority (62%) working between 4-6 hours/day while 15% worked for 1-3 hours/day. From the results, family size and farm size increased the probability of child labour use. The study concluded that the socio-economic characteristics of the farmers have significant effect on child labour use. It is recommended that large family-sized households should avoid the temptation of using their children as labourers in their farms*

*Key word: Cassava production, family size, farm size, child labour*

<http://dx.doi.org/10.4314/jafs.v11i1.1>

### **1.1 INTRODUCTION**

The incidence of child labour is a widespread and growing phenomenon in developing countries including Nigeria (Basu and Vapharm, (1998). Labour force participating rate for children aged 5 – 14 years vary greatly from country to country, ranging from close to zero in most developed countries to an average of 28 percent in Latin America and 40 percent in Africa, (Jayaraj and Subramanian, 1997; UNICEF, 2002).

According to Microsoft Encarta Encyclopedia (2005), child labour refers to the practice of employing children in factories; it denotes the employment of minors generally, especially in work that may interfere with their education or endanger their health. Hodges (2001) defined child labour as work that prevents children from attending and participating effectively in school or work performed by children under hazardous conditions that health, physical, intellectual or moral development are at risk. While International Labour Organization, ILO,

(1996) gives an international definition of child labour in the convention 138, as any economic activity performed by a person under the age of 15 years.

International Labour Organization ILO, (1996) further stated that child labour involved the exploitation of children for serfdom, servile marriage, pornography, armed conflict, etc. Child abuse refers to any act which amounts to making wrong and an excessive use of the child; any act which excludes sympathy and humaneness from the treatment which the child receives and an act which would amount to an insult on the child. Therefore, child labour is a form of child abuse.

Child labour exists in different sectors of the economy but for the purpose of this study more emphasis will be laid on the incidence of child labour in the agricultural sector of the economy. According to the Human Right Watch HRW (2006) most working children in rural areas are found in agriculture. So, it can be said that agriculture is the sector where the largest share of working children are found (ILO, 1996). Human Right Watch (2006) estimated that of the nearly 250 million children engaged in child labour around the world, the vast majority, about 70% or some 170 million are working in agriculture. So most working children are found in agriculture.

Child labour is an extensive and severe problem in Nigeria (ILO, 1998). This is explained by the fact that from a development perspective the problem of child labour is not one of the enforcement of the international labour standards but of poverty and household survival (Mwebaze, 2007). He revealed that majority of child labour especially in agriculture takes place in what he called “informal child-labour”, which according to him refers to children working in small family farms and shops.

In Nigeria, Labour Standards (2004) states that no child shall be required to do any form of work that constitutes the worst form of child labour which include most of the agricultural practices. Parents and farmers in particular are still indulging in child labour practice.

In the study area and Nigeria at large, cassava (*Manihot esculenta*) is one of the most important crops playing a dominant role in the economy. It supplies about 70 percent of the daily calorie intake of 50 million Nigerians (Ugwu,1996) and generate about 25 percent cash income from all food crops grown (Nweke,1994). Cassava which few decades ago was a subsistence food for the poor and animals in the tropics has grown to be a crop in high demand for food in several African countries. It is because of its use on industrial scale that cassava production and processing are now commercialized in many countries. In addition to providing food for the locals, cassava products are being exported to earn foreign exchange (Nweke, 1994). Added to this, its relative ease of production, very high yields and ability to stay underground after maturity gives cassava considerable advantage as a commodity that is being used by poor rural folks in Nigeria to fight poverty.

According to Nweke (1994) Nigeria is currently the largest producer of cassava in the world with an annual output of over 34 million tones of tuberous roots. Cassava is important not

just as a food crop but even more so as a major source of income for rural households. It is used by confectionary, textile and pharmaceutical industries.

It has its inherent characteristics which makes it attractive. It fits well into the farming system of small holder farmers in Nigeria thus providing food security. It is more tolerant to low soil fertility and more resistant to drought pest and diseases (Nwokocha, 2007).

To diversify the economic base of the nation through agriculture, the Federal Government picked cassava as one of the major crops to be cultivated. It was this intention that made the President to launch the “Presidential Cassava Initiative (PCI) in 2002, (Nwokocha, 2007).

Agricultural labour for cassava production is mainly organized around the families. There is a clearly defined division of labour along gender-lines (Ugwu,1996). Agricultural labour is essentially manual. It is labour intensive and it involves the use of rudimentary tools such as hoes and cutlasses. The government at the national level have attempted to ease the labour constraints problems and stimulate expansion of farms through tractor hiring services, but the tractors are either inaccessible to the poor who need them most or in the state of disrepair.

In view of high cost of tractor and their likely decline in availability, their use by poor farmers is almost out of question. Similarly use of work oxen is difficult because of tsetse fly infestation and the nature of the soil. Thus considerable effort in terms of family and hire labour are needed to clear land and prepare it for planting (Njoku,2004).

Family labour is mostly used as hired labour is expensive because of migration of able-bodied young men and women to the cities leaving an aging farm labour, Nweke, *et.al* (1996). After harvesting, cassava is processed into different forms. The labour required for this is equally organized among family members.

## **1.2 PROBLEM STATEMENT**

Child labour use is highest in agriculture worldwide; (ILO, 1996). It is used to produce such crops as cassava, cereals, cocoa, coffee, fruits, sugar, tea, tobacco and vegetables.

Amma, *et.al* (2000) observed that children are used in cultivation, harvesting, processing and storage of agricultural produce. Use of child labour has been attributed to poverty status of the household and parental education, Basu (1996), Mwebaze, (2007) and Rimmer, (1992). When children are forced to work long hours in the fields, their ability to attend school or acquire skills training is limited and so are the possibilities of economic and social mobility and advancement in later life (ILO, 2010).

Though there has been some research work carried out by IITA, (2002), Odosiona and George (2009), Sanko (1999) among others on child labour in agriculture, there is still gap in knowledge in understanding the incidence of child labour in cassava production. The extent to which they carry out farm operations and the socio-economic characteristics of the farmers that influence the use or non use of child labour in cassava production is yet to be ascertained in the study area. This study is therefore designed to empirically provide evidence-based

knowledge to inform and influence policies in the direction of the use of child labour in cassava production.

### **1.3: THE OBJECTIVES OF THE STUDY**

The broad objective of this study is to analyze the socio-economic factors associated with child labour use among cassava farmers in Imo state.

Specifically, the objectives are to:

- i. describe the socio-economic characteristics of cassava farmers in the study area;
- ii. determine the occurrence of child labour in cassava production in the study area;
- iii. determine the effect of socio-economic characteristics of the farmer on child labour use.

### **1.4: HYPOTHESIS OF THE STUDY**

The null hypothesis tested was that the socio-economic characteristics of the farmers do not significantly affect child labour use.

## **2.4 ANALYTICAL FRAMEWORK**

In order to analyze the effect of socio-economic characteristic of the respondents in the use and non-use of children in cassava production, there is need to employ a model that deals with the dichotomous dependent variable of child labour use or not. That is the theoretical basis for the choice of Logit model for the analysis of the main objective. The “Logit” itself from which the technique derives its name is the natural logarithm of odds, or the “log odds”. The odds indicates the relative probability of interest (Allan,(1986) and Eboh, (2009). The relationship of this behavioural dependent variable can be examined with that of the independent variables.

However, such models cannot be estimated by either multiple regression or the ordinary least square (OLS) techniques which may results in invalid parameter estimates and wrong magnitude of the effects of the independent variables on the dependent variables, the OLS assumptions that the variance of the error terms are constant and not correlated with the level of independent variables are violated.

Nonetheless, four commonly used approaches to estimate such models include: the linear probability model (LPM), logit model, probit model and the Tobit model (Gujarati, 2000). The LPM is not generally recommended because it provides predicted values that may fall outside the 0 – 1 interval, thus violating the assumptions of probability. Logit, probit and Tobit models give maximum likelihood estimates and overcome most of the short comings of LPM by providing consistent and efficient estimates. The logit model framework is however preferred among the other three model framework because it has been found to be efficient in explaining such dichotomous decisions variables (Gujarati 2000).

### 2.7.1 MODEL PRESENTATION

#### BINARY LOGISTIC REGRESSION

Binary logistic regression is a form of regression which is used when the dependent variable is dichotomous and independent variables are of any type. They are used to predict a dependent variable on the basis of independents to determine the percentage of variance in the dependent variable explained by the independents, to assess interaction effects and understand the impact of covariate variables.

It applies maximum likelihood estimation after transforming the dependent into logit variable (the natural log of the odds of the dependent occurring or not). Logistic regression estimates the probability of a certain event i.e. changes in the log of odds of the dependent and not changes in the dependent variable itself as the OLS regression does.

The probability of the event occurring is given by the relationship:

$$P_i = \frac{1}{1+e^{-z}} \dots\dots\dots \text{(Equation 2.1)i}$$

Where  $p_i$  = the probability of the event occurring which ranges between

0 -1

$z = B_1 + B_2 X_1$  (which ranges  $-\infty$  to  $+\infty$ )

$e$  = the base of the natural logarithm (approx. 2.72)

The probability of the event not occurring is given by the relationship  $(1-P_1)$ .

Odds ratio =

$$\frac{P_1}{1-P_1} = \frac{1+e^z}{1+e^{-z}P_1} = e^z \dots\dots\dots \text{(Equation 2.2)}$$

**Note**  $\frac{P_1}{1-p_1}$  converts the probability into odds of the event occurring (i.e. the ratio of the event occurring to the probability of the event not occurring (Gujarati 2000).

The log of odds is therefore given by

$$\begin{aligned} L_i &= L_n \left( \frac{P_1}{1-P_1} \right) \\ &= B_0 + B_1 x_1 + U_i. \dots\dots\dots \text{(Equation 2.3)} \end{aligned}$$

Where:

$L_i$  = logistic model

$\ln$  = Log of

$P_1$  = Probability of the event occurring

$B_0$  = Constant or intercept.

$B_i X_i$  = Coefficient of the independent variable.

$U_i$  = Error term.

### **3.1: THE STUDY AREA**

The study area is Imo State of Nigeria. It is one of the states in the present thirty-six states structure of Nigeria. The then Imo state was carved out of the former East Central State in 1976. In 1991, Abia State was created out of it; leaving the present Imo state which occupies the basin Imo River from which it derives its name (Imo ADP, 2000). The state is bounded on the east by Abia State, in the west by Anambra state and in the south by Rivers state. Imo state is situated in the southern eastern rainforest vegetation belt of Nigeria between latitude  $5^{\circ} 45''$  and  $6^{\circ} 35''$ N and longitude  $6^{\circ} 35''$ E and  $7^{\circ} 35''$ N (Ministry of lands Owerri, 1994). According to National Population Commission (2006) figures, the state has a land area of  $5,289.49\text{km}^2$  and a population of 3,929,563. It has an undulating topography in the south, which rises gradually towards the north and north eastern part giving rise to Okigwe rolling hills (Imo ADP, 2000). Owing to its climatic peculiarities, the state is ideal for human settlement, it is one of the densest areas in Africa (Iloeje, 1981). Similarly, the climatic situation of the state is conducive for agricultural activities such as growing of tree crops, arable crops, fishery and livestock activities.

### **3.2: SAMPLING TECHNIQUE**

A multi-stage random sampling was employed to ensure good spread of the respondents who are cassava farmers.

**Stage I:** From each of the three agricultural zones, Okigwe, Owerri and Orlu, three local government areas were randomly selected. This gave a total of nine local government areas that were selected for the study. The Local Government Areas are Okigwe, Ehime Mbano and Onuimo in Okigwe Agricultural zone. Owerri West, Owerri North and Mbaitoli Local Government Areas in Owerri Agricultural zone while Oru West, Ideato North and Ohaji Egbema Local Government Areas were from Orlu Agricultural zone.

**Stage II:** Communities who are known for cassava production were purposively selected for the study from the selected LGAs. From the list 13 cassava farmers who are registered with ADP were selected at random for interview. This gave a sample size of 117 respondents. Out of this, 2 respondents did not respond so the total respondents were 115. Also three trained enumerators from each of the agricultural zone were purposively chosen for the study.

### **3.3 METHOD OF DATA COLLECTION**

Data were collected from primary and secondary sources. Primary data were generated through a structured questionnaire for cassava farmers. Secondary data were sourced from relevant literature, such as ILO reports, journals, conference proceedings, text books and web sites of institutions.

### **3.4 METHOD OF DATA ANALYSIS**

Descriptive and inferential statistical tools were employed to achieve the objectives in this study. The objectives (i) – (ii) were analyzed using descriptive statistics namely percentages and arithmetic means. Objective (iii) was analyzed using logistic regression analysis approach while the hypothesis was equally tested with the same logit model.

The relationship between child labour use and socio-economic characteristics of the farmer was implicitly specified as follows:

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, e)$$

Where Y = a dichotomous variable measuring child labour use with a value of one for use and zero for non use.

X<sub>1</sub> = Age of the farmer in years

X<sub>2</sub> = Gender (dummy variable male = 0, female = 1)

X<sub>3</sub> = Marital status (dummy variable married 0, single 1).

X<sub>4</sub> = Farmers educational attainment in years

X<sub>5</sub> = Occupation (dummy variable, cassava farmers=1, others=0)

X<sub>6</sub> = Family size in number

X<sub>7</sub> = Farm size in hectare

e = stochastic or error term.

## **RESULTS AND DISCUSSION**

### **4.1 Socio-economic Characteristics of the Respondents**

This section analyzed the socio-economic characteristics of the farmers which include age, gender, and marital status, level of education attainment, occupation, family size and farm size.

Table 4.1 shows that the average age of the respondents was 49 years; 34% were aged 56 years and above while 12% were between the ages of 26-35 years. This tends to imply that relatively few youths were involved in cassava production in the study area. In terms of gender, the table shows that majority of the respondents (52%) were females while 48 % were males. This shows that more women than men engaged in cassava production in the

study area. This high proportion of women farmers is an indication of active participation of women in agriculture and is in agreement with Okorji, (1988), Chidebelu (1990), Ukoha (2003) and Uwaegbute and Oke (2004), who reported that the number of women in farm families that were engaged in agricultural work was higher than that of men. This preponderance of women in cassava farming not only makes it a female crop, but also increases the probability of child labour use in its production. In terms of marital status the table indicates that majority of the respondents (78 %) were married. The implication of this is that married couples in the study area were more involved in cassava production than the others. With regard to educational attainment, 24 % had no formal education while 31 % had primary education: majority of the farmers were literate and had a good educational background. The table further reveals that only 26 % of the respondents were full time cassava farmers, while 78 % were cassava farmers who were also involved in occupation such as trading, public service, etc. This finding tends to suggest that this majority who are not full time cassava farmers are likely to employ cheap and ready children as labourers in cassava production. The average family size of the respondents was 9 persons; majority of the respondents, 42%, had large family size of 6 to 10 persons. Large family size tends to predispose household heads to the use of child labour. The table further shows that the average farm size in the study area was 2 hectares, and the majority of the respondents represented by 70% had farm size of 0.1 – 2.0 hectares. This finding is in line with Uma (1989) who reported that structure of land holdings has become dualistic which lead to a few large and many small farms.

#### **4.2. OCCURRENCE OF CHILD LABOUR USE**

The occurrence of child labour use is discussed in this section. Table 4.2 shows the distribution of respondents according to those who used and those who did not employ child labour in cassava production.

Table 4.2 shows that majority of the respondents represented by 85% stated that they employed child labour in their cassava farm production. This implies that there is the incidence of child labour use in the study area. The result of this finding is in line with Human Rights Watch (2006), which estimated that of the nearly 250 million children engaged in child labour around the world, the vast majority about 70 percent are working on agriculture. The result is also in line with ILO (1998) which states that child labour is used for crops such as cassava, coffee, cocoa and other crops.

##### **4.2.2 AGE OF THE CHILDREN USED BY THE RESPONDENTS**

The age of the children employed by the respondents is presented in Table 4.3

Table 4.3 shows that majority of the respondents (40%) employed children whose ages ranged from 6 – 8 years as labourers. This means that from early childhood (6 years) this category of children had already started taking part in such economic activities as cassava production. This was followed by 30% of the respondents who stated that they employed as labourers children whose ages ranged between 9 – 11 years. Those in age range of 15 – 17

were the least (8 %) employed as labourers. It should be noted that children aged 6 – 11 years are expected to be in primary schools while those aged 12 – 14 years are expected to be in Junior Secondary Schools. This finding is in line with the work of Okpukpara and Odurukwe (2006) who observed that participation in work is highest among children in the 6 to 11 years age group.

#### **4.2.3 NUMBER OF HOURS SPENT DAILY BY CHILDREN ON THE FARM**

Table 4.4 shows that the children spent an average of 5 hours a day working in cassava farms, majority (62%) worked between 4-6 hours/day while 15% worked for 1-3 hours/day. Nelson (2002) commenting on long hours spent by children on the farm said that long hours of work affected the physical and mental development of children. Also some studies such as the work of Okpukpara and Odurukwe (2006) consider 20 hours of work per week as the critical threshold beyond which the education of the child starts being significantly affected.

#### **4.3 THE EFFECTS OF SOCIO-ECONOMIC CHARACTERISTICS OF THE FARMER ON CHILD LABOUR USE IN CASSAVA PRODUCTION**

Binary logistics equation was used to estimate this model. The estimated logistic regression that captures the effects of socio-economic characteristics of the respondents on the use or non use of child labour is presented in Table 4.5.

Table 4.5 shows that the model is significant ( $p < 0.05$ ) which means that the “goodness of fit” of the model is adequate. Two variables which yielded significant values were family size and farm size, with significant levels of  $p = 0.045$  and  $0.054$  respectively since they have P values  $< 0.05$ . The Wald statistics which is the test of whether the coefficients were equal to zero (defined as ratio of  $(B/Se)^2$ ) showed that family size and farm size had the value of 4.00 and 3.724 respectively indicating that they were significant. It should be noted that although education yielded no significant value, it had value of 1.88 which was greater than zero.

The odds multipliers which showed the impact of the predictor variables on dependent variable, (child labour use) showed that family size increased the odds ratio by 2.00 to 1 of child labour use. Also farm sizes increased it by 1.93 to 1 which is equally significant.

From the results, family size and farm size increased the probability of child labour use while the other variables had no effects on child labour use.

**Test of Hypothesis:** Socio-economic characteristics of the farmers have no significant effect on child labour use. The hypothesis was tested using binary logit regression procedure. The result indicated that socio-economic characteristics of the farmer had effect on use of child labour since two of the factors yielded significant coefficient (see Table 4.6). The others such as age, gender, education and marital status were not equal to zero meaning that they were not significant (see also Table 4.6). The model significance also shows that  $p = 0.04$  which was  $< 0.05$  (see Table 4.16) therefore the null hypothesis was rejected.

## **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Summary**

This study was primarily designed to empirically determine the socio-economic analysis of the incidence of child labour use among cassava farmers in Imo State of Nigeria. It became necessary because child labour prevents children from attending and participating effectively in school and cassava is a major source of income for rural households unlike other food crops in the study area hence the need to inform and influence policies in the direction of the use of child labour in cassava production.

Multistage random sampling technique was adopted to select 115 respondents used for the study. Data were collected using structured questionnaire which was analyzed using percentages, arithmetic mean and logit regression econometric procedure.

Eighty five percent of the respondents employed children whose average age was 10 years and they spent an average of 5 hours daily on the farm. This showed that the children were used to the extent that their right to education and other opportunities might have been denied, and they were also exposed to work hazards.

The logit analysis result showed that the logistic model significance of  $P = 0.04$  was significant showing that the goodness of fit of the model was adequate. The significant variables were family size and farm size which had positive effects on child labour use. The odds ratio of family size was 2.00 to 1 and farm size was 1.93 to 1 on the probability effect on child labour use. Although age had positive effect on the probability on child labour use, it was not significant. Gender, marital status and occupation were not significant.

The null hypothesis which stated that socio-economic characteristics of the farmer do not significantly affect child labour was rejected.

### **5.2 Conclusion**

There is the incidence of child labour use among cassava farmers in Imo State. These children start working from early childhood and spent many hours in the farm every day. This paints a picture of the burden placed on these young ones at their early childhood which is the best time for acquiring knowledge from formal education.

The socio-economic characteristics of the farmer such as large family size and farm size are the significant variables which affect the use of child labour and they had positive effects.

Having identified the incidence of child labour use among cassava farmers in the study area and knowing the hazard associated with this act, it is therefore necessary that all hands should be on deck to curb this menace of child labour in all sectors of the society.

### **5.3 Recommendations**

Based on the findings of the study, the following recommendations are made:

- Children should not be employed in cassava production to the extent that their formal educational pursuits are jeopardized; where the children have to be employed, it should be outside the school hours. Parents and government should jointly enforce this recommendation.
- Agencies and non-governmental organizations (NGOs) should be encouraged to invest in education, organize enlightenments programmes on the danger of child labour. The enlightenment programmes should to all intents and purposes include the message that large family sized households should avoid the temptation of using their children as labourers in their farms.
- Because child labour is a poverty-linked characteristics, such poverty alleviation measure as improved and targeted delivery of agricultural credit to cassava farmers is recommended. This will hopefully enable the farmers hire and pay adult labour as opposed to employment of cheap child labour.

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## APPENDIX

**Table 4.1: Frequency Distribution of the Respondents according Socioeconomic Characteristics**

<b>Socioeconomic Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age Range(Average Years</b>		
49)	14	12
26 – 35		
36 – 45	44	38
46 – 55	18	16
<b>Gender</b>		
Male	55	48
Female	60	52
<b>Marital Status</b>		
Single	90	78
Married	25	22
<b>Educational Attainment</b>		
No formal Education	27	24
Primary	36	31
Secondary	27	23
Tertiary	25	22
<b>Occupation</b>		
Farming	30	26
Trading	35	30
Civil Servants	42	37
Others	8	7
<b>Family Size(Average= 9)</b>		
1-5	37	32
6-10	48	42
>10	31	26
<b>Farm Size</b>		
<1	27	23
1-2	80	70
<3	8	7

**Source:** *Field Survey, 2010.*

**Table 4.2: Frequency Distribution of Respondents According to the Number that Used or did not Use Child Labour.**

<b>Options</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	98	85
No.	17	15
<b>Total</b>	<b>115</b>	<b>100</b>

**Source:** *Field Survey, 2010.*

**Table 4.3: Frequency Distribution of the Respondents According to the Age range of Children Employed**

<b>Age Range</b>	<b>Frequency</b>	<b>Percentage</b>
6 – 8	40	40
9 – 11	30	31
12 – 14	20	21
15 – 17	8	8
<b>Total</b>	<b>98</b>	<b>100</b>

**Average age = 10 years**

**Source:** *Field Survey, 2010.*

Table 4.4 shows the number of hours spent daily by the children on the farm

**Table 4.4: Frequency Distribution of the Respondents Based on the Number of hours/day children are employed in the farm**

No of Hours/Day	Frequency	Percentage
1 – 3	15	15
4 – 6	61	62
7 – 9	22	23
<b>Total</b>	<b>98</b>	<b>100</b>

**Average: 5 hours/day**

**Source: Field Survey, 2010.**

**Table 4.5: Parameter Estimates of socio economic effect on child labour use**

Variables in the equation	Logistic coefficients (B)	S.E	Wald statistics	Odds multiplier	P<(2)
Age	0.026	0.0252	1.06	1.03	0.301
Education	-0.098	0.0716	1.88	-1.37	0.170
Family size	0.295*	0.1476	4.00	2.00	0.045
Farm size	0.810*	0.4203	3.72	1.93	0.054
Gender	-0.411	0.6072	0.46	-0.68	0.498
Occupation	-0.011	0.3919	0.00	-0.03	0.976
Marital status	0.708	0.7252	0.67	-0.82	0.413
Constant	-0.899	1.6118	0.31	-.056	0.577

**Source: Field Survey 2010**

\* Value significant at 0.05 sig. level.

**Table 4.6: Model Chi-square test for the logistics model Tests result for the logistic model**

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<b>Hypothesis</b>	<b>chi-square</b>	<b>sign level of model <math>x^2</math></b>	<b>Decision</b>
1	15.96	0.04	Do not accept the null hypothesis

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**Source: Field Survey 2010**