Child Farm Labour in Rural Households of South-West, Nigeria

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Abstract
This paper investigate the level of child labour participation in cassava production in south-west, Nigeria. A multi stage random sampling technique was employed to select the sample respondents. Data were collected with the aid of well structured questionnaires to elicit information from 252 sampled respondents. Data were analyzed using both descriptive and inferential statistics. Result shows that there are structural differences in the choice of child activity options across gender and age categories. School and work activity status revealed that school enrolment of girls was 10.53% compared to boys of 25%. Also, 53.9% of the boys further their education beyond primary school level compare to 39.5% of the girls. Results further showed that while more boys were engaged in farming operations than the girls, more female children combined schooling with work. Using multinomial logit model to examined the relationship between schooling and labour force decisions, it was revealed that some variables such age of the child, biological child, quality of shelter lived, availability of schools and parents' education have a positive significant effect on schooling decision of a child while time spent on farm and cassava farm size have a significant negative relationship on child's schooling decision. Based on the above, it is recommended that for effective policy formulation to reduce child labour, all these important variables must be taken into consideration.
Keywords: child labour, participation, agriculture, Nigeria

INTRODUCTION

Child labour is a persistent problem, found throughout most of the developing world, and to a lesser extent in developed countries. The availability of detailed and reliable child labour statistics and their analysis on a continuing basis are particularly important for establishing policy priorities and targets, formulating and implementing interventions, and monitoring policies, regulations and programs aimed not only at the minimization of the negative consequences of child labour in the short term, but most importantly at the eventual elimination of the practice

International Labour Organization, ILO (2002) defined child labour as labour furnished by persons below their official minimum age of employment, which is 15.

The International Labour Office reports that children work the longest hours and are the worst paid of all labourers (Bequele and Boyden 1988). They endure work conditions which include health hazards and potential abuse. Employers capitalize on the docility of the children recognizing that these labourers cannot legally form unions to change their conditions. Such manipulation stifles the development of youths. Their working conditions do not provide the stimulation for proper physical and mental development.

Child labour is most concentrated in Asia and Africa, which together account for more than 90 percent of total child employment. Though there are more child workers in Asia than anywhere else, a higher percentage of African children participate in the labour force.

Since the adoption in 1999 of ILO Convention 182 on the worst forms of child labour and the adoption in 2001 of ILO Convention 184 on safety and health in agriculture, there has been a growing awareness of the need to research the extent and nature of children's agricultural work to determine the types of activities that place children at risk. With the vast majority (70%) of the world's working children in agriculture, these two international standards provide important guidance for addressing the needs of children engaged in hazardous work in this sector.

The labour and school outcomes of children have received increasing attention recently, especially with the emergence of the problem of child labour. According to the ILO, about one in seven of the world's children participate in labour activities, with significant regional differences (Basu, 1998)

In the empirical literature on child labour and schooling, there is a tendency to narrow the discussion and analysis of the determinants of children's activities to two non-leisure activities—market labor and schooling (Durryea, 1999).

Previous studies (Siddiqi and Patrinos (1995) ;Patrick et.al., (2000); Nkamleu and Kielland (2006) conducted on child labour in agriculture have all highlighted the long hours of work, meagre wages, and dangerous conditions in which children work. Another major concern for many developing countries is that a child working in agriculture may be held in debt bondage by his or her employer, either to repay fees for being trafficked from another country or to serve as repayment on a family debt. Psacharopoulos (1997) opined that if the parents have irregular employment, this creates the need for additional or more stable income sources to be provided by children. Studies by Lloyd and Blanc (1994) and Grootaert (1998) revealed that child, parent and household characteristics as well as school characteristics (i.e., expenditure in school and distance to the school) are

important variables affecting whether children participate in economic activities.

Child labour is found predominately in the informal sector in Nigeria. In rural areas, children are found working in agriculture, herding and on family farms. They are seldom employed by state-owned commercial agriculture plantations, which are responsible for much of the agricultural production for export (U.S Embassy-Lagos, 1995).

Nigeria is characterized with small- scale farmers whose farm size averaged less than 4 ha. These farmers lack large sum of capital to commercialized their farms and generally use family labour which compose mainly their wives, children and relatives. Family labour - mainly that of their children who are mostly under-aged (7- 15 years) are use for farming operations. These children school hours are often substituted for all these farm work which are generally stressful to undertake for these tender children. These lost school hours bring them educationally backward to their peers in the developed world. Children represent the future of human race.

This study will be imperative in helping to ascertain the determinants of child labour and schooling in farming households in Nigeria. It will provide a necessary statistics involving child labour and schooling pattern in the agricultural sector which policy makers and administrators can use for effective planning and legislation.

The specific objectives of this study are to:

i. describe the level of child labour participation in cassava production .

ii. examine the schooling pattern of children involved in the cassava farming.

iii. model the determinants of child labour and schooling in the area

MATERIALS AND METHOD

Study Area

This study was carried out in South Western Nigeria. South West Nigeria falls on the latitude 6^0 to the North and latitude 4 ° to the south. It is marked by longitude 4 ° to the West and 6 ° to the East. The geographical location of South West covers about 11 4,271 kilometer square, that is, approximately 12% of the country land mass. The total population is 15,456,789 and more than 96% of the population is Yorubas (NPC, 2006). The Zone is bounded in the North by Kogi and Kwara states. East by Edo and Delta states, South by the Atlantic Ocean and West by the Republic of Benin. The Zone comprises six states (Oyo, Osun . Ondo, Ogun, Ekiti and Lagos) out of which Oyo and Ogun states were randomly selected. The choice of the zone is based on its prominence in the cultivation of cassava, it is in fact the largest producer amongst the five geo-political zones of the country.

Sampling Procedure

A multistage random sampling technique was employed for this study. The first stage is the random selection of two states of Oyo and Ogun from the six states that make-up the South -West geo-political zone of the country. The second stage was a random selection of three local government areas that are prominent in the production of cassava. Thus, Oluyole, Ona - Ara and Lagelu Local Governments were selected from Oyo state and Abeokuta North, Odeda and Ifo Local Governments were selected from Ogun State. The third stage was random selection of five rural communities from each of the selected LGA. The final stage was random selection of nine households from each of the communities selected. Hence, a total of 270 households were interviewed using a well structured questionnaires. However, eighteen respondents were dropped for inconsistence information.

Source and Type of Data: Primary Data were collected with the aid of structured questionnaires from the household heads. Data were collected on income, farm size, family labour, hired labour, number of children and their ages, level of education of their children, time spent in farming activities and schools. Secondary Data were sourced from journals and paper presentations.

Method of Data Analysis: descriptive statistics such as frequency, percentages, means, standard deviation were used to analyze the level of child labour participation and the schooling pattern of children involved in various cassava farming activities.

The multinomial logit model was employed to model child labour and schooling pattern in the cassava production. Instead of having two dichotomous alternatives (0, 1) as in the bivariate probit, the Multinomial Logit has S possible states or categories that is s = 1, 2,3...,S. that are exclusive and exhaustive (Nkamleu and Coulibaly, 2000). In this analysis, the four categories considered are given below:

Not working on cassava farm and not going to school (None).

Going to school and networking on cassava farm (School only).

Working on cassava farm and not going to school (Work only).

Working on cassava farm and going to school (School and Work).

The multinomial logit model is used to estimate simultaneously the determinants of 'work', 'study', combining both, or doing neither. This followed a framework adapted from Khanam, 2004, Coulombe, 2005, Nkamleu, et al., 2000 and given as; Let $Y\,i$ denote the polytomous variable with multiple unordered categories.

Suppose there are j mutually exclusive categories and i_1 $i2$..... j, P_1 P_2... Pi are the probabilities associated with j categories. In this case, we have four categories ($j = 4$);

$j = 0$ If the child neither work nor school (doing nothing),

j = 1 If the child attends school only,
j = 2 If the child works only.
j =3 If child works and attends school (combined).
Here, we consider neither work nor school as reference category.
The empirical model is expressed as:

$$\mathbf{Y_i = \alpha_0 + \delta_i X_i + \beta_i D_i + \sigma_i E_i + \gamma_i K_i}$$

Where Yi can be i equal to 1,2,3,4 for No school/no work, school only, work only and school/work categories and X_i, D_i, E_i and K_i represent child, parent, farm and community characteristics respectively

X_i: Child characteristics
X_1 = age of the child in the household (in years)
X_2 = biological child of the household head (yes = 1, otherwise = 0)
X_4 = child working with dangerous tools like cutlass (yes = 1, otherwise = 0)
X_5 = child helping to apply agrochemicals (yes = 1, otherwise = 0)
X_6= Time child spent on farm in hours

D_i = Parents' characteristics
D_1 = age of household head in years
D_2 = gender of household head (male = 1, female = 0)
D_3 = years of schooling of household head
D_4 = Dependency ratio per household in percentage
D_5 = years of schooling of mother
D_6 = Shelter lived in by household (modern = 1, 0 otherwise)

E_i = Farm characteristics
E_1 = cassava farm size in hectares
E_2 = Farm income per annum in naira (₦)

K_i: Community characteristics
K_1= availability of primary school in the community (yes = 1 , otherwise = 0)
K_2= availability of secondary school in the community (yes = 1 , otherwise = 0)
K_3 = state dummy (oyo =1, ogun = 0)
$\delta, \beta, \sigma, \gamma$ are the parameters that are estimated.

RESULTS AND DISCUSSION

The result on Table 1 shows that children aged between 9-11 years constituting 50% for boys and 45 % for girls are more in child labour force than any other age categories. Most of the children (74.2%) belong to biological parents. 50.8% of the children spent an average of 3 hours per day working on cassava farm. This is in agreement with Fallon and Zafiris (1998) that twenty hours of work per week is considered as the critical threshold beyond which the education of the child starts being significantly affected. The result also indicated that 70.2% and 75.4% of the children worked with dangerous tools and helped in applying agro-chemicals. This result was corroborated by the findings of ILO/ SIMPOC,(2002) ; Nkamleu and Kielland (2006) that children applying chemical substances are exposed to not only immediate physical injuries but also risk for serious developmental harm. Results further revealed that boys spent a great number of years in school (primary and secondary) than girls. This implies that parent care more about male education than female education which put the female at disadvantaged.

Table 2 shows the gender distribution of child labour participation in various cassava farm operations. Male children were engaged more than female children in almost all the farming activities across age classification. Also, children ages between 14 – 17 years participated in all the activities more than other age categories. While more male children aged 14-17 years are involved in field preparation, planting and weeding, female children in the same age category participated more in harvesting, transportation and processing of cassava produce. This implies that children in this age categories are matured and lived under the control of their parents. In chemical application, while more female (25.5%) between the ages 14 – 17 years applied pesticides, 15.45 % male were also involved in pesticides application. However, almost equal percentage of male and female applied fertilizer. Children applying chemical substances are exposed to immediate physical injuries such as skin burn. When gender differentiation were considered amongst the children; male children participated more than their female counterpart in all farm operations. This result corroborated the findings of Nkamleu and Kielland (2006) that women and female children are to some extent constitute only the adjustable labour on the farms. They will be pulled away from their usual tasks in housework when cassava farming demands it.

Table 3 indicate that 28.9% and 25.8% of the boys and girls were neither attending school nor work. Among this category, children ages between 6-9 years has the highest percentage i.e 13.8% for the boys and 12.26% for the girls. This may be attributed to a delayed in school enrolment among children in rural Nigeria. There were more boys of all age categories observed in the school only option than girls. This established the importance attached to male-child in traditional African society. The same similar results were observed for work only option.

However, result shows that more female children combined schooling with work across age categories than male children.

In the multinomial logistic model, three separate models were analyzed for female, male and both gender to emphasize the gender dimension on child labour. The marginal effects from the model measures the expected change in probability of a particular choice being made with respect to a unit change in an independent variable.

School only option

Table 4 revealed that age of the child, biological child, time spent on the farm, child help to apply chemicals, education of household head, education of child mother, availability of secondary school and age of household head are the relevant and significant determinants of girls attending school only.

Also, for the boys model, age of the child, biological child, time spent on farm, farm income, education of household head, education of child mother, shelter lived by household, cassava farm size, availability of secondary school, age of household head and dependency ratio are the significant determinants of boys attending school only.

The age of the child is positive and significant at 10% in all children, while it is significant at 10% and 1% for girls and boys respectively. The marginal effects shows that if child age increase by 1 unit it result in increasing probabilities of schooling by 0.018 unit, 0.014 unit and 0.019 unit for all children, girls and boys respectively. This result corroborated the findings of Cockburn (2001) who reported that the probability of a child attending school increases rapidly with age relative to the probability of child working or being inactive.

Being biological children of the parent result in 0.346 unit, 0.118 unit and 0.165 unit increases in probabilities of girls, boys and both gender being sent to school relative to neither work nor school than non – biological child. This conformed with Case and Albeidieger, (2002) that a child under the tutelage of a guardian tends to be at disadvantage of attending school.

The time a child spent on farm has a negative correlation with school only. This implies that a unit increase in the number of hour spent on the farm by girls, boys and all children result in 0.038 unit, 0.035 unit and 0.030 unit decreases in probabilities of attending school only. This result confirmed the finding of Canagarajah and Coulombe, (1998) that the time spent on farm inversely related to time spent in school.

Education of the child's father significantly influence the school decision of the child. A unit increase in the year of education of child's father result in 0.014 unit, 0.018 unit in the school attendance of girls and boys respectively. This result corroborated the findings of Nkamleu and Kielland (2006) that farmer education had a positive effect on child schooling as the only alternative at 1% level of significance. The result also agreed with the findings of Grootaert, (1998) that low parental education should be used as a targeting variable for intervening in child issues. Also, a unit increase in the year of education of the child's mother result in 0.06 unit and 0.018 unit increases in the probabilities of girls and boys going to school. This result also supports the findings of Andvig, Canagarajah and Kielland, (2001) who reported that in an African setting, educational background of a child's mother is imperative to the schooling decision of such child.

The quality of house lived by the households also significantly influence the school decision specifically for the boys at 1%. The shelter that an household is living is a proxy of wealth and living standard status of such household. If a household moved to a better shelter, it result in 0.043 unit increase in the probability of the boys attending school only relative to neither going to school nor work on the farm.

A unit increase in the farm size cultivated for cassava production reduces the probability of attending school only relative to neither work nor school for boys by 0.067 unit . However, the variable though positive but have no significant effect for the girls.

A unit increase in the number of available secondary school result in 0.038 unit and 0.348 unit increases in the probabilities of girls and boys attending school only respectively. This result corroborated the findings of Andvig, (1997) that the distance and location of a school positively influence a child to opt for school rather working on the farm.

Age of the household head positively influence the schooling decision of the child. An additional unit in the age household head result in 0.05 unit and 0.01unit increases in the probabilities of school only for girls and boys respectively.

A unit increase in the number of dependant result in 0.055 unit and 0.182 unit increases in the probabilities of boys and girls attending school only. However the variable is not significant for the girls.

Work only

Table 5 shows that coefficients of the estimates of the child age, time a child spent on farm, child handled crude tools, applied agrochemicals, age of the household head, dependency ratio of the household were positive and significant determinants of the girls working only decision, while biological child, educational attainment of child's father and child's mother, gender of the household head, shelter lived by household and availability of secondary school were negatively significant with girls working only decision.

Also, Table 5 revealed that age, time spent on farm, child handling crude tools, applying agrochemicals and cassava farm size were positively significant to the boys working on the farm relative to neither working nor schooling. However biological child, educational attainment of child's father and child's mother, quality of

shelter lived by the household, availability of both primary and secondary school were negatively significant with working only option.

The marginal effects show that a unit increase in the age of the girls and boys resulted in 0.012 unit and 0.13 unit increases in the probabilities of working on the farm relative to neither schooling nor working for the girls and boys respectively. This result corroborated the findings of Nkamleu and Kielland (2006) that school only, work only and combine school and work tends to be high as a child ages.

Being a biological child significantly reduces the probability of work for both genders which is larger for the boys (0.69 unit) than the girls (0.35 unit). This agree with the findings of Khanam (2004) that if a child is the son (daughter) of the head of household, he (she) is more likely to specialise in study and less likely to specialise in work. A unit increase in the number of time spent on the farm by the girls and boys result in 0.34 unit and 0.13 unit increases in the probabilities of working on farm only by girls and boys respectively.

Also, a unit increase in the frequency of using of crude tools by girls and boys raises the probabilities of working only by 0.009 unit and 0.45 unit for girls and boys respectively. As observed by Khanam, 2004, use of crude implement under harsh and unfriendly weather has adverse effect on the fragile body of a child. Also, a unit increase in frequency of girls and boys applying agrochemicals on the farm increases the probabilities of the girls and boys working on farm only by 0.134 unit and 0.57unit respectively.

Education of the child's father has a negative effect on the child work which is significant for both genders but has a larger effect for boys (0.22 unit) than girls (0.055 unit). In a similar vein, education of the child's mother has a negative effect on the child working only option which is significant for both genders but has a larger effects on the girls (0.78 unit) than the boys (0.44 unit). This result supports the findings of Canagarah and Coulombe, (1997) and Coulombe, (1998) that parent level of education negatively affects the likelihood of child labour

An improved and better quality shelter is a good proxy for household wealth which significantly reduces child labour. This has considerably larger effects for girls (0.987unit) than boys (0.457 unit).

Cassava farm size significantly increase the probability of work only for the boys by 0.564 unit and girls by 0.453 unit though the variable is not significant for the girls. This implies that an increase in the cassava farm size increases the likelihood of child labour. This support the finding of Kedebe (1990) that as farm size increases, farmers need more labour inputs. This result also agreed with that of Chamarbagwala (2004) who reported that household ownership of land, especially in rural areas, could increase a child's likelihood of working because children are more likely to be engaged in agricultural activities (seasonal or full time) if their parents own and cultivate land.

A unit increase in the number of available of secondary school also significantly reduces the working only option of the girls by 0.376 unit and boys by 0.28 unit. This implies that availability of schools in the area will increase school enrolment of children and reduces child labour. This is in agreement with the findings of Moyi (2010) that establishment of a school in the rural settings will improve the school entry of children in such area

A unit increase in the age of the household head significantly increases the probability of the girls and boys working on the farm rather than doing nothing by 0.126 unit and 0.082 unit respectively. This result corroborated the finding of Grootaert and Kanbur, (1995) that an advance age farmer tends to be weak in performing laborious farm activities and then delegate the younger members of the household to perform such activities.

A unit increase in the number of dependant significantly increases the probability of girls child labour by 0.987 unit and boys child labour by 0.52 unit though not significant for boys. As affirmed by Nkamleu and Kielland, (2006) a large household has more problems to solve (sickness, diseases, shelter and food) which leaves them with insufficient capital to send all the children to school. Patrinos and Psacharopoulos (1997) argued that children from larger households are more likely to work, as a consequence of resources per person being smaller in larger households.

Schooling and Working

Table 6 revealed that for girls and boys model, the parameter estimates of child age, biological child, education attainment of the household head, mother's education, gender of the household head, quality of shelter lived by the household, cassava farm size, availability of primary and secondary schools and dependency ratio are significant and positively related to the combine school and work category while the time spent of the farm, handling of crude tools and applying agrochemicals are negatively significant with the combine school and work category.

The marginal effects revealed that a unit increase in the age of girls and boys result in corresponding 0.243 unit and 0.123 unit increases in the probability of combining schooling and working relative to neither doing nothing. Being a biological child of the parent increases the probability of combining schooling with work for the girls and boys by 0.118 unit and 0.368 unit respectively.

A unit increase in the number of hours a child spent on farm reduces the probability of such child combining schooling with work. The effect is larger for girls (0.38 unit) than boys (0.216 unit). In the same vein, a unit increase in the frequency of handling crude tools reduces the probability of combining schooling with work for girls (0.589 unit) and boys (0.175 unit) and both genders (0.081 unit) respectively. Also, a unit in the frequency

of applying agrochemicals reduces the probability of combining schooling and work for girls (0.987 unit) , boys (0.132 unit) and both gender (0.041 unit).

A unit increase in the educational attainment of the child's father increase the probability of combining schooling with work for children. The effect is much larger for the boys (0.587 unit) than the girls (0.135 unit). Also child's mother education is positively related to the child combining schooling with work. It raises the probabilities of combining schooling with work for girls (0.033 unit) and boys (0.161 unit) respectively. This result support the findings of Cartwright and Patrinos (1999), Nkamleu and Kielland, (2006) that educational status of a parent impact on the educational attainment of a child.

Gender of household head is positively related to combining schooling with work for the children. If a household head is male, the girls has 0.098 unit probability of combining schooling with work while the boys has 0.30 unit probability of combining schooling with work than a female headed household. This implies that a male headed household is better positioned to allow his children to combine schooling with work rather than doing nothing. An additional unit to cassava farm land held by household result in 0.241 unit and 0.67 unit increase in the probabilities of combining school and work on the farm by girls and boys respectively.

A better and improved quality shelter as a proxy for wealth status of household increases the probability of combining schooling with work for girls and boys by 0.965 unit and 0.012 unit respectively.

A unit increase in the number of available primary and secondary schools in the proximity of the area, increase the probability of girls combining schooling and work by 0.156 unit and 0.762 unit while it increase the probability of boys combining schooling and work by 0.014 unit and 0.098 unit. This result supports the findings of Moyi (2010) that establishment of a school in the rural settings will improve the school entry of children in such area. It also agreed with the findings of Blunch and Verner (2001) in Ghana which found that distance to the nearest primary school is significantly correlated with child labour for rural children.

A unit increase in the dependency ratio of the household result in 0.029 unit , 0.095 unit and 0.325 unit increases in probabilities of girls, boys and both genders combining schooling with work.

CONCLUSION AND RECOMMENDATION

This study investigate the determinants of child labour and schooling among cassava farming households. It was found out that there is structural difference in the choice of child activities options across gender and age categories. More male children participate in all farming activities than female. Also, children aged 6-9 years are more in no school, no work (idling) category. This delayed in school enrolment may result in loss of human capital formation which may have negative effect on the future of these young generation. Further, the study revealed an inequality in gender enrolment as more male participated in school only option than their female counterpart which may be due to the believe of the household head that girls will marry early and leave home thus put them at the disadvantaged against their male counterparts.

The econometric estimation revealed that child age, biological child, education attainment of child's father, mother's education, gender of the household head, quality of shelter lived by the household, cassava farm size, availability of primary and secondary schools and dependency ratio, time spent of the farm, handling of crude tools and applying agrochemicals are the relevant and significant determinants of child labour in the study area.

Based on the above, the study recommend an improvement in the school structure, building of more schools in the rural areas, free and compulsory education up to the secondary school level, public enlightenment campaign on the need to increase school enrolment in general and girls in particular. Also, government should intensify public enlightenment on adult literacy programme to the parents and guardians to make them understand the need for girl-child education. Lastly , vigorous campaign by all concerned agencies on the importance of family planning.

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APPENDIX

Table 1: Socio-economic characteristics of Children

Variables	**Frequency**	**Percentages**	**Mean**	**Std. deviation**	
Age of child in years	**Boys**	**Girls**	**All**	**Mean**	**S.D**
6 – 8	11 (8.6)	6 (4.8)	17 (6.7)	10.94	2 82
9 – 11	64 (50.0)	56 (45.2)	120 (47.6)		
12 – 14	45 (35.2)	46 (37.1)	91 (36.1)		
15 – 17	8 (6.2)	16 (12.4)	24 (9.5)		
Parent -Child relationship					
Non biological child	38 (29.7)	38 (29.7)	65 (25.8)		
Biological child	90 (70.3)	97 (78.2)	187 (74.2)		
Average time child spent on farm in hrs/day					
1 – 3	73 (57.0)	55 (44.4)	128 (50.8)	2.92	1.55
4 – 6	45 (35.2)	40 (32.3)	85 (33.7)		
7 – 9	8 (6.3)	15 (12.1)	23 (9.1)		
10 – 12	2 (1.8)	14 (11.3)	16 (6.4)		
Children working with dangerous tools					
No	47 (36.7)	18 (14.5)	65 (29.8)	0.74	0.44
Yes	81 (63.3)	106 (85.5)	187 (70.2)		
Children helping to apply agro-chemicals					
No	57 (44.5)	5 (4.0)	62 (24.6)	0.44	0.51
Yes	71 (55.5)	119 (95.0)	190 (75.4)		
Years spent in school					
1-3	9 (7.0)	15 (12.1)	24 (9.5)	7.57	2.87
4-6	50 (39.1)	60 (48.4)	110 (43.7)		
7-9	50 (39.1)	43 (34.7)	93 (36.8)		
10-12	19 (14.8)	6 (4.8)	25 (10)		

Source: Field survey, 2011

Table 2. Distribution of child labour participation in cassava production by gender

	Age of Boys				Age of Girls			
	6 - 9	10 - 13	14 - 17	All	6 - 9	10 - 13	14 - 17	All
Field Prep	37(30.08)	37(30.1)	69(56.1	143(62.4)	28(26.4)	28(26.2)	30(28.3)	86(34.4)
Planting	43(34.96)	51(41.5)	74(60.2	168(66.7)	15(14.2)	17(16.0)	67(63.2)	99(39.3)
Weeding	43(34.96)	50(40.7)	74(60.2	167(66.3)	14(13.2)	15(14.2)	61(57.6)	90(35.7)
Pesticides appl.	19(15.5)	19(15.5)	19(15.4	57(22.6)	6(5.66)	8(7.55)	27(25.5)	41(16.3)
Fertilizer appl.	21(17.07)	28(22.7)	31(25.2	80(31.7)	8(7.55)	8(7.55)	27(25.5)	43(17.1)
Harvesting	40(32.52)	53(43.1)	74(60.2	127(66.3)	16(15.1)	16(15.1)	80(75.5)	112(44.4)
Transportation	45(36.59)	53(43.1)	74(60.2	172(68.3)	16(15.1)	16(15.1)	80(75.5)	112(44.4)
Processing	41(33.33)	49(39.8)	69(56.1	159(63.1)	13(12.3)	16(15.1)	66(62.3)	95(37.7)

Source: Field survey, 2011 Figures in parentheses are percentage

Table 3. Distribution of School pattern of Children involved in cassava production

	Age of Boys				Age of Girls			
	6 - 9	10 - 13	14 - 17	All	6 - 9	10 - 13	14 - 17	All
No school, no work	17(13.82)	10(8.13)	10(8.13	37(28.91)	13(12.3)	10(9.43)	9(8.49)	32(25.81)
School only	15(12.20)	9(7.32)	8(6.50)	32(25.0)	4(3.77)	8(6.45)	1(0.94)	13(10.49)
Work only	5(4.07)	3(2.44)	4(3.25)	12(9.38)	3(2.88)	2(1.89)	2(1.89)	7(5.65)
School and Work	14(11.38)	8(6.25)	25(19.5	47(36.72)	30(28.3)	22(17.7)	20(16.1)	72(58.06)

Source: Field survey, 2011 Figures in parentheses are percentage

Table 4. Determinants of child labour and schooling amongst cassava farm households showing schooling only

	Girls		Boys		Both Gender	
Variables	Marg. effects	P values	Marg. effects	P values	Marg. Effects	P values
Age of child	.014*	0.126	.019***	0.000	.018*	0.081
Biological child	.346**	0.012	.118**	0.042	.165**	0.035
Time child spent on farm	-.038**	0.049	-.035*	0.081	-.030**	0.046
Child handled crude tools	.028	0.838	.021	0.776	.062	0.421
Child applied chemicals	.009**	0.011	-.023	0.942	-.032	0.609
Farm income	9.84e-3	0.938	1.76e-3*	0.058	9.72e-3	0.469
Educ Att. of child's father	.001***	0.001	.009***	0.005	.002*	0.061
Educ Att of child's mother	.006**	0.045	.018*	0.155	.005**	0.447
Gender of household head	-.069	0.155	.345	0.729	.025	0.670
Shelter lived by household	.022	0.638	.043***	0.005	.055	0.459
Cassava farm size	.023	0.176	- .067**	0.020	-.034	0.602
Availability of sec sch	.038**	0.002	.348*	0.079	-.267	0.013
Availability of pry sch	.307	0.142	.433	0.597	.401***	0.007
Age of household head	.005**	0.012	.001*	0.063	.001	0.302
State dummy	-.139	0.056	-.245	0.292	-.204	0.010
Dependency ratio	.182	0.803	.055***	0.000	.062	0.164

* significant @ 10%, ** significant @ 5%, *** significant @ 1%. Base category: neither schooling nor working
Source: Computation from field survey, March, 2011.

LR chi^2(48) = 95.7 LR chi^2(14) = 63.43 LR chi^2(48) = 108.82
Prob > chi^2 = 0.0001 Prob > chi^2 = 0.0179 Prob > chi^2 = 0.0000
Log likelihood = -80.670139 Log likelihood = -114.67119 Log likelihood = -221.30031
Pseudo R^2 = 0.3724 Pseudo R^2 = 0.2166 Pseudo R^2 = 0.197

Table 5: Determinants of child labour and schooling amongst cassava farm households showing working only

	Girls		Boys		Both Gender	
Variables	Marg. Effects	P values	Marg. Effects	P values	Marg. Effects	P values
Age of child	0.012*	0.072	0.13**	0.049	2.16e-2**	0.046
Biological child	-0.350*	0.086	-0.69*	0.096	-1.46e-3**	0.030
Time child spent on farm	0.34**	0.043	0.13*	0.083	7.07e-4	0.485
Child handled crude tools	0.009*	0.076	0.45***	0.009	1.53e-3***	0.001
Child applied chemicals	0.134**	0.050	0.57**	0.024	7.81e-4	0.570
Farm income	4.50e-4	0.753	0.98	0.806	3.27e-8	0.255
Educ Att. of child's father	- 0.055**	0.032	- 0.22***	0.007	- 5.77e-4**	0.011
Educ Att of child's mother	-0.780*	0.088	-0.44***	0.001	- 3.24e-4	0.454
Gender of household head	0.467	0.455	0.87	0.306	-.1.50e-4	0.435
Shelter lived by household	- 0.987**	0.046	- 0.457**	0.045	-.2.32e-2**	0.060
Cassava farm size	0.453	0.152	0.564*	0.098	4.22e-3	0.248
Availability of sec sch	-0.376*	0.098	-0.280***	0.000	7.75e-4	0.889
Availability of pry sch	0.878	0.998	- 0.564***	0.000	.025***	0.000
Age of household head	0.126**	0.015	0.082**	0. 019	.7.38e-2**	0.034
State dummy	1.983	1.000	-5.46e-2	1.987	-.012	0.122
Dependency ratio	- 0.987*	0.076	- 0.520	3.875	-.1.75e-3	0.893

* significant @ 10%, ** significant @ 5%, *** significant @ 1%. Base category: neither schooling nor working
Source: Computation from field survey, March, 2011.

Table 6: Determinants of child labour and schooling amongst cassava farm households showing combined schooling and working

	Girls		Boys		Both Gender	
Variables	**Marg. Effects**	**P values**	**Marg. Effects**	**P values**	**Marg. Effects**	**P values**
Age of child	.243*	0.073	.012**	0.013	.006**	0.053
Biological child	.118**	0.048	.368*	0.074	.148**	0.048
Time child spent on farm	- .380**	0.046	- .216**	0.027	-.005**	0.020
Child handled crude tools	- .589*	0.079	- .175*	0.071	-.081*	0.073
Child applied chemicals	-.987*	0.092	-.132*	0.077	- .041**	0.062
Farm income	7.65e-5	0.221	.176	0.158	.340	0.117
Educ Att. of child's father	0.135*	0.089	.587**	0.046	.025**	0.065
Educ Att of child's mother	.033**	0.014	.161**	0.012	.008**	0.016
Gender of household head	.098*	0.079	.030*	0.099	-.016*	0.088
Shelter lived by household	.965**	0.048	.012**	0.042	.113**	0.024
Cassava farm size	.241**	0.028	.077*	0.670	.213**	0.011
Availability of sec sch	.156*	0.091	.014**	0.045	.196*	0.072
Availability of pry sch	.762*	0.060	.098**	0.016	.362***	0.009
Age of household head	.203	0.211	.765	0.819	-.003***	0.001
State dummy	.453	0.916	.976	0.492	.169	0.198
Dependency ratio	.029*	0.087	.095**	0.040	.325**	0.036

* significant @ 10%, ** significant @ 5%, *** significant @ 1%. Base category: neither schooling nor working
Source: Computation from field survey, March, 2011.