DETERMINANTS OF CHILD FARM LABOUR IN RURAL HOUSEHOLDS OF OGUN STATE, NIGERIA

M. U. AGBONLAHOR[1]; S. MOMOH[1]; S. BAMIRE[2] AND J.T. OKE[2]

[1] Affiliated to the Dept. of Agricultural Economics, University of Agriculture, Abeokuta, Nigeria.
[2] Affiliated to the Dept. of Agricultural Economics, Obafemi Awolowo University, Nigeria. E-mail: **Muragbon@yahoo.com**, **muagbonlahor@unaab.edu.ng**

ABSTRACT

The study was carried out to determine the significant correlates, of child, households and community variables, which affect child farm labour involvement in Ogun State. A multistage sampling technique was used to select a total of 400 rural households from the State. The household survey involves an interview of 594 children, 400 household heads and a focus group discussion section in four locations. The data collected were analyzed using both descriptive and inferential statistics. The censored tobit model was used to ascertain the significant determinants of child farm labour intensity in the State. The study revealed that, an average of 5.26 hours of school time is spent per week on farm activities. This represents about 17 percent of total school time per week. The children were also observed to start assuming household and farm responsibilities as early as four years of age and on average contribute 29-30 hours of labor per week. Also, the child personal characteristics do not affect involvement in child farm labour. The household/head's socioeconomic variables (educational status, farm income, size of farmland and value of total household' durable assets) were significant and negative determinants of intensity of involvement in child farm labour. The school distance was also a major determinant and follows the same trend. The study recommends that reducing child labour will require facilitating access to credit, subsidizing the costs of labour and time saving farm machines such as tractor hiring cost; and that research efforts should be geared towards developing simple, affordable, and adaptable machines/implements, and other farm labour-saving devises.

Keywords: Child farm Labour, Rural households, socio-economic Determinants, tobit model

INTRODUCTION

Children represent the future of human race. In the less developed countries, those who grow to school age do so under a blanket of diseases, malnutrition, inadequate food and schooling. Under these circumstances children drift into the labor market. It is estimated that world wide, over 250 million children are involved in economic activities (Azer 1991; ILO, 1997). A majority of the working children are engaged in agricultural related work, although, it is generally agreed that it is unacceptable for children under specific age to do certain type of work. International Labor Organization, ILO (1997) defined child labour as labor furnished by persons below their official minimum age of employment, which is 16. The convention on Rights of Child, ILO (2002), defined children as the people below age 18 whose best interest must be taken into ac-

count in all situations. Nigeria ratified the Child rights Bill in 1990 and this reflect her commitments to eliminate child labour where it exists.

The Millennium Development Goals (MDGs) of the United Nations encapsulate increasing resource productivity in agriculture as part of its strategies, with key measurable indicators, to actualize most of the goals. It recommends States to embark on projects that target the rural areas, where the bulk of agricultural activities take place; and in doing this must as of a necessity first explore potential impediments to growth and development of the rural areas.

The CBN (2004) report on the distribution and profile of poverty in Nigeria indicates that the rural areas are worse off, and that the propensities of a household falling below the poverty line is higher in the rural areas. The report also indicated that rural households are of low educational level which dovetails into low incomes. In rural economies, the more equal the incomes and assets, the more powerful the growth effect in poverty reduction. As inequality increases; as a result of poor human capital development from child labour, the linkage of growth to the poor weakens, and in the most unequal incomes of rural economies, growth tends to bypass poor people completely (Edmonds, 2003). The quality of rural development is, thus, a basic determinant of the quality of the future social and economic development of a country. For the purpose of this study, child farm labour excludes involvement in house chores or after school paid or unpaid activities. Child labour is defined as any farm activity in which chil-

dren (less than 18 years) are involved that warrants loss in schooling days and/or time. It is defined to mean all farms or farm related activities that the opportunity cost is schooling for children between 7-17 years.

Developing economies are characterized by low levels of human capital development, which not only impedes present but also future productivity. In the light of this, Glick and Sahn (2000) reported that the elimination/reduction of human capital development impediments is a sure way of promoting economic growth and the elimination of poverty in developing countries. The process of building capacities to reduce poverty and vulnerability, thus, should involve enhancement of individual and household human capital assets. Programmes to alleviate poverty, therefore, must include the elimination of child labour as one of their objectives, especially under an agrarian economy; where economic and social development is wholly dependent on the human capital input that dominates the agricultural production landscape (Basu, 2002). Table 1 shows the distribution of child labour in the world economies. The proportion of child labourers to the total child population is highest in Sub Saharan Africa. The absence of high technical input (human knowledge and technologies), which is a major precursor of low productivity has been described as the outcomes of promoting child labour at the detriment of educational development (Fan, 2002; Blunch and Verner, 2001).

The emerging evidences on the magnitude and spread of child labour especially in farming households, has again beam the lights on the issue of labour productivity in agricultural production. The question highlighted bears on a present decision that

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affects a future outcome. Child labour has been shown to affects the intellectual development of the child, though, satisfying an immediate (short term) need, it will in a future period negatively influence the productivity of the factor of production (labour). In the light of these, the study will seek to answer the following research questions:

- What households, child and community variables/factors determine the decision to involve in child farm labour?
- What are the effects of these factors on child farm labour use intensity by the households?

Study Objective
To carry out an assessment of the determinants of child farm labour in rural households in Ogun state, Nigeria.

Specifically, the study will:

1. analyze the socio-demographic characteristics of children that are engaged in farm labour
2. analyze the economic and community related factors that affect the intensity of child farm labour use

METHODOLOGY
The study was carried out in the rural households of Ogun State. Ogun State commonly referred to as the gateway state is in South-Western Nigeria, and lies within the tropics. It is bounded to the West by Benin Republic; to the South by Lagos State and the Atlantic Ocean; to the East by Ondo State; and to the North by Oyo and Osun States. It was carved out from the old western region in 1976. It has an estimated land area of 16,409.26 square kilometers of which over 70 percent are suitable for arable crop production. The estimated human population is 3,138,570 (NPC, 2007) and it is characterized commercially, by a dual economic focus, the bourgeoning industrial sector and a dominant agricultural sector. Agricultural food crop production is the economic backbone of the state though cash crop production, fisheries and forestry are also common.

Data and Sampling Techniques
A total of 400 households were selected for the survey using the multistage sampling approach. 100 purely rural communities were selected from the 4 agricultural zones. 25 and 4 communities and households were respectively selected for the survey. Data were sourced from household head and the total census of children (7-17 years) in the household; a total of 594 children were interviewed. Also, focus groups discussion sessions were carried out in 4 locations (a community each from the four agricultural zones in the state) to complement data collected from the survey.

Analytical Technique
Past empirical studies have used different methodologies including linear regression models to estimate the determinants of technology adoption and productivity. Adoption was mainly expressed in terms of the percentage area cultivated by farm households to the new technology over total cultivated area. Non-adopters were often excluded from the study sample, thus resulting in sample selection bias and attendant biases in the estimated coefficients (Brown et al., 1994; Heckman 2000 and Herman, 2002). Yet, inclusion of non-adopters also yielded biased and inconsistent estimates since clustering of observations, due to the prevalence of zero-values

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of the dependent variable, violated the ordinary least squares (OLS) assumptions of a continuous dependent variable. Estimation of OLS with a dichotomous dependent variable was also inappropriate because resulting parameters would be inefficient due to the heteroscedastic structure of the error term. This limitation is overcome by using a censored sample Tobit model. The Tobit regression model was used to determine the significant factors (child, household and community) that affect child farm labour participation intensities. The Tobit specification jointly models the participation and intensity (hour's decision) of child farm labour. The model, which was first proposed by Tobin (1958), has the superior advantage over Probit by allowing simultaneous determination of the probability of participation and participation intensity and relevancies of independent variables. As submitted by Fan (2002), the Tobit model is not used for analysis under the following data conditions:

- If the dependent variables Y_j take negative values.
- If the dependent variable Y_j take only positive values.
- If the dependent variables Y_j are non-negative, with some of the Y_j's Zero, but all the Y_j's are integer valued.

In its simple form, a censored Tobit model can be expressed as shown below. The Tobit model assumes that the observed dependent variable Y_j for observations J=1,..,n satisfy the expression ,

$$Y_j = max(Y^*_{j,} 0) \text{ ----------------------------} 1$$
where the Y^*_j s are latent variables which is observed only when it is positive

$$Y^*_{j} = X_j(\beta)_+ \mu_j \text{ and } \mu_j \sim ND(0, \delta^2)$$
$$Y_j = Y^*_j \text{ if } Y^*_j > 0 : Y^*_j = 0 \text{ otherwise}$$
X_j is a vector of independent variables, β is a set of parameters to be estimated and μ_j represents the error terms that are normally and independently distributed, with Zero mean and constant variance (ND, 0, δ^2).

The Tobit equation is specified as:
Partic = f (chage, chwage, hhcome, spincom, chsex, hhsize, pps, noschild, heduc, meduc, btorder, remit, chhead, fmsize ,hhassets, hhage, motpres, schdist, µ). --2

where:

Partic = Dependent variable for participation in child farm labour (Proportion of hours spent on the farm per week of school hours)
chage = Age of child (years)
chwage = Community average of child wage per hour (Naira)
hhcome = Average monthly income of household head (naira/month)
spincom = Spouse income (naira/month)
chsex = sex of child (dummy; male=1, and female=0)
hhsize = total household size
pps = Presence of school of child's age in community (dummy; present=1, absent=0)
heduc = Educational qualification of household head (years spent in school)
meduc = Educational qualification of mother (years spent in school)
noschild = Numbers of children (7-17 years) in household
btorder = Birth order, position of child in total family
remit = Average monthly remittance to household (naira)
chhead = child of household head (dummy;

yes=1, and no=0)

fmsize = Total farm size (ha)

hhassets =Total value of household durable assets (naira)

hhage = Age of household head (years)

motpres = Presence of mother in the household (dummy; yes=1, and no=0)

schdist = Distance to school (Km) or trekking time to school

μ= Error term or unobserved variations

RESULTS AND DISCUSSIONS
Households' Characteristics and child's farm Labour distribution

The age range shows that most (about 44 percent) of the children interviewed for the study are within the age range of 14-17 years. The mean age of the children was found to be 12.88 $\pm$ 2.51 years. The range of household size also revealed that majority (about 94 percent) of the children is from households with 4-12 persons per household. However, the mean household size was found to be 8.35 $\pm$ 2.32 persons per household, indicating that the average household in the study area has large families, Table 2. The results also revealed that majority (about 75 percent) of the children interviewed were not involved in other economic activities apart from farming. This may be due to the non-availability of other income earning activities apart from farm and agriculturally related enterprises in the rural areas. On the first year of involvement in farm work, the study showed that majority (about 60 percent) of the children, started farm works as early as 5 years. The mean years of involvement in farm work was 7.6 years. This may be due to the fact that, farm activities in the area are taken as an integral part of the family livelihood and members are easily and quickly integrated into it as

shown in Table 3.

Incidence and determinants of child farm labour use intensity

The analysis on the proportion of weekly school time spent on the farm activities by the children as a measure of child farm labour participation intensity is also presented in the Table. The result revealed that the average hours spent on farm work of the weekly school hours (30 hrs) was about 5.26 hours. The implication of this distribution is that though there is regular school attendance (in terms of days/week), there is however a consistent rate of sacrifice of school time hours to farm work. The outcome of the farm work effect on school time as presented (Table 4.) provides an understanding of the children performance and academic development as a result of their farm involvement. Ayanwale (1998) in a similar study in Edo and Delta states in Nigeria, found out that an average of 7.55 hours of school time is spent weekly on farm activities and that, farm involvement was the reason for about 35.9 percent lateness to school by the children. Azer (1991) in a similar study in Egypt also found out that involvement of children in farm activities can result to as much as 25 percent of total absence from school.

The tobit model result showed that, out of the 18 independent variables modeled, 7 were significant, and were found to be important determinants of child farm labour participation. The generalized tobit model was found to be highly significant (at 1 percent probability level) as shown by the log likelihood ratio test, the probability chi-square test and the pseudo R^2-showing that the estimated coefficients are significantly different from zero Table 5. The pseudo R^2 shows that the identified deter-

minant variables will account for about 56 percent variations in household' child labour participation intensity. The significant factors are average income of household head (Hhcome), total value of household durable assets (hhassets) and the school distance (schdist) which was significant at 1 percent level. Others include the spouse income (spincom), educational level of the household head (heduc) and total farm size (fmsize) which were significant at 5 percent level, while presence of school of child's level (pps) was significant at 10 percent level. The negative effect of the head and spouse' income on child farm labour intensity may also be attributed to the fact that wealthier households can afford hired labour for farm production whereas poorer households depend solely on family labour (children). This as observed by Basu (2002) is the major reason for the high incidence of "child pining" in rural households. The negative income effect also fingers poverty as a major determinant of child farm labour. Child labor is often viewed primarily as a consequence of poverty. For example, the World Bank defined child labor as "one of the most devastating consequences of persistent poverty" (Fallon and Tzannatos, 1998). To some extent, the stylized facts bear out this view. In 1995, the incidence of child labor was 2.3 percent among countries in the upper quartile of GDP per capita, and 34 percent among countries in the lowest quartile of GDP per capita (Edmonds, 2003). The study revealed that the personal characteristics of the child such as age, sex and birth order (position) does not in any way affect their participation in child farm labour that interfere with child school hour. This agrees with the work of Brown et. al; (1994) in the Philippines, that the child character or birth incidence does not affect the use or non use as a farm factor in the home.

The community variables identified in the study were the average child wage and school distance. While child labour wage was not significant, there was a significant positive relationship between distance to school and child labour intensity. As observed by Lavy (1992) distance to school can represent a direct cost of schooling in terms of time and financial travel cost. The model shows that the longer the distance to school (trek time), the higher the incidences of child farm labour. This accord with the findings of Grootaert (1998) in a study carried out in Cote d'Ivoire.

CONCLUSION

It was established that child farm labour is prevalent in the rural farm sector of the State, and that this is indicated in the high rate of involvement of school time in arable crop farm, and that an average of 5.26 hours of school time is spent per week on farm activities. This represents about 17 percent of total school time per week. The study also revealed that while total child absenteeism or full-time farm work status is not common, child labour is reflected in a high rate of combination of school and work situations for most households. This was attributed to the fact that since, most farm works are carried out of family farms, these farms form an integral part of the family system which most time conflicts, in terms of farm labour demand, with the school time of the children. It was revealed that rural children work for a variety of reasons, and that the most important is household poverty. Children work to ensure the survival of their family and themselves.

Though the works are mainly on family farms and even in cases of paid employments children are not well paid, they still serve as major contributors to family income in the areas.

RECOMMENDATIONS

The following recommendations are proffered from the study to reduce child farm labour. Since household poverty was identified as the major cause of child labour in rural farms, and that most of the child work is on family farms, facilitating access to credit, subsidizing the costs of labour and time saving farm machines and technologies such as tractor hiring cost and agricultural chemicals will go a long way to free child labour intensification on family farms. There is also the need to intensify research efforts towards developing simple, affordable, and adaptable machines/implements, and other farm labour-saving devises. Sitting of schools in rural areas should be strategically planed to enable accessibility by many, and not subject to political whims.

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Table 1 : Distribution of Children in Economic Activities by Region in Year 2000

Regions	Levels (Millions)	% of Total	% in Total Child Population
5-14 Years Old	**211**		**17.6**
Industrialized Economies	2.5	1	2
Transition economies	2.4	1	4
Asia and the Pacific	127.3	60	19
Latin America & Caribbean	17.4	8	16
Sub Saharan Africa	48	23	29
Middle East and North Africa	13.4	6	15
15-17 Years Old	**140**		**42.4**
Industrialized Economies	115	8.1	31.3
Transition Economies	6.0	4.2	29.1
Asia and the Pacific	86.9	61.7	48.4
Latin America & Caribbean	10.3	7.3	25.0
Sub Saharan Africa	18.1	12.8	44.8
Middle East and North Africa	7.5	5.3	31.8
Total	**351**		**23**

Source: ILO (2002)

Table 2 : Socio-demographic characteristics of children interviewed

Socio-demographic characteristics	Frequency	Percent	Mean	Min.	Max.	Standard Deviation
Sex						
Male	384	64.6	Na	Na	Na	Na
Female	210	35.4				
Age range						
7-10 years	142	23.9				
11-13 years	193	32.5	12.8	7	17	2.51
14-17 years	259	43.6				
Child living status						
Child of household head	410	69.0	Na	Na	Na	Na
Not child of house-hold head	184	31.0				
Mothers' status						
Mother resident	385	64.8	Na	Na	Na	Na
Mother not resident	209	35.2				
Highest educational level of child (yrs)						
Primary 3	59	9.9				
Primary 4	49	8.3				
Primary 5	94	15.8	6.3yrs	2yrs	10yrs	2.94
Primary 6	103	17.3				
JSS 1	93	15.7				
JSS 2	86	14.5				
JSS 3	87	14.6				
SSS 1	23	3.9				
Schooling status						
Child in school	520	87.5	Na	Na	Na	Na
Child not in School	74	12.5				

Source: Analysis of Field Survey (2007)
Na. Not Applicable

Table 3 : Household farm and child's farm work distribution

Farm and Work Characteristics	Frequency	Percent	Mean	Min.	Max.	Std. Dev.
Farm size						
< 0.50 ha	134	22.6	0.93	0.23	2.60	0.6
0.50-1.00ha	276	46.5				
1.01-1.50ha	111	18.7				
1.51-2. 00ha	33	5.6				
> 2.00 ha	40	6.7				
Other Economic activities Apart from farming						
Not involved	448	75.4	Na	Na	Na	Na
Involved	146	24.6				
How long has child been on farm work?						
< 3 years	33	5.6	7.6	1	12	2.09
3-5 years	33	5.6				
> 5 years	354	59.6				
Estimates of Farm work value on family farm (naira/ week)	55	9.3	205.2	80	1287	116
< N100	121	20.4				
N100-N150	130	21.9				
N151-N200	45	7.6				
N201-N250	25	4.2				
N251-N300	218	36.7				
> N300						
Does the child works in other farms apart from family's						
No	526	88.5	Na	Na	Na	Na
Yes	68	11.4				

Source: Analysis of Field Survey (2007)

Table 4 : Child's farm work and schooling distribution

Work and Schooling Characteristics	Frequency	Percent	Mean	Min.	Max.	Std. Dev.
Numbers of days child was in school last week						
Twice	23	3.9	Na	Na	Na	Na
Thrice	53	8.9				
Four times	117	19.7				
Present throughout	401	67.5				
Hours on farm work per week						
< 5 hours	6	1.0				
5-10 hours	84	14.1	17.7	4	36	7.91
11-15 hours	209	35.2				
16-20 hours	92	15.5				
21-25 hours	138	23.2				
> 25 hours	65	10.9				
Work done last week was for						
Payment in cash	145	24.4				
Payment in kind	42	7.1	Na	Na	Na	Na
Own account	41	6.9				
Family farm	350	58.9				
None	16	2.7				
When was farm work done?						
During the day after house work	10	1.7				
Day and Evening full time	72	12.1	Na	Na	Na	Na
After school	312	52.5				
Before school	51	8.6				
Before and after school	149	25.1				
Payment method for farm work outside home						
Piece rate (contract)	450	75.8	Na	Na	Na	Na
Daily	37	4.7				
Weekly	15	2.5				
Combinations of these	23	3.9				
Not applicable	68	13.1				
Is there school for child's level in the community?						
No	459	77.3	Na	Na	Na	Na
Yes	135	22.7				

Source: Analysis of Field Survey (2007)

Table 5: Generalized Tobit estimates of determinants of child farm labour use intensities

Variable name	Variable identifier	Coefficient	t-statistics
Age of child (years)	Chage	0.00150	0.893
Community average of child wage per hour (Naira)	Chwage	0.37201	0.195
Average monthly income of household head (naira/month)	Hhcome	-0.63458***	4.120
Spouse income (naira/month)	Spincom	-0.04583**	-2.938
sex of child (dummy; male=1,female=0)	Chsex	-0.02835	0.482
Total household size	Hhsize	0.00182	0.030
Presence of school of child's level in community (dummy; present=1, absent=0)	Pps	-0.00815*	2.062
Educational qualification of head (years spent in school)	Heduc	-0. 0037**	3. 081
Educational qualification of mother (years spent in school)	Meduc	-0 .00122	1.206
Numbers of children (7-17 years) in household	Noschild	0 .00326	1.418
Birth order, position of child in total family	Btorder	0.00583	0.894
Average monthly outside remittance to household (naira)	Remit	-0.04071	1.853
Child of household head (dummy; yes=1, and no=0)	Chhead	-0.00314	0.643
Total farm size (ha)	Fmsize	-0.0532**	2.236
Total value of household durable assets (naira)	hhassets	-0.1461***	-2.994
Age of household head (years)	Hhage	0.0109	0.647
Is mother Present?(yes=1,and no=0)	Motpres	0.03529	0.662
School Distance(trekking time to school)	Schdist	0.03177 ***	5.193

Number of observations = 594   LR chi2(20) =   2479. Prob > chi2   =   0.0000
Log likelihood = -1181.9441   Pseudo R2   =   56.4461 left-censored Tobit (Ll=0)

Source: Analysed Data (2007)