

**The Poverty Hypothesis and Intergenerational Transmission of Child Labor: Evidence from Ghana**

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**Abstract**

This study seeks to find evidence to support the claim that Child labor in Ghana is mainly a poverty phenomenon and follows an inter-generational pattern. The two econometric approaches used show that poor households are more likely to send their children out to work. Furthermore, parents are more likely to send their children out to work if they were child laborers themselves. The study recommends that policy should focus on the reduction of poverty since it is a major determinant of child labor, this will automatically prevent the perpetuation of child labor into the next generation.

**Keywords:** Poverty Hypothesis, Intergenerational Transmission, Child Labor, Univariate Logit Model, Bivariate Probit Model, Ghana

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## **1 Introduction**

Ghana is among the countries with the world's largest proportion of working children. Data suggests that 24.3 percent<sup>20</sup> of the population aged 5-14 according to GLSS 6 (2012/2013) was economically active. Child labor in Ghana can be observed mainly in occupations such as: fisheries, mining, farming, quarrying, portering, hunting, etc. The issue of child labor is a major concern of the Government of Ghana, as it is for many other countries. The nation has gone beyond legislation to inaugurate institutions that would facilitate the actualization of child rights and development. Nevertheless the practice of child labor and its worst forms continues in Ghana.

Child labor is a threatening evil. It is particularly dangerous because it involves the sacrifice of a child's future welfare in exchange for immediate benefit; it is a difficult phenomenon to combat because it involves questions of power within the households. In most of the research work done on child labor, it is usually the economic implications that take center stage of the theoretical models. According to Jafarey and Lahiri (2000), economic theories of child labor have been based on some shared premises, firstly, that child labor is a socially undesirable phenomenon and as such its reduction is a commendable objective by any society. Secondly, there exist other more desirable activities that a child can engage in; these include school attendance and leisure. Thirdly, that the child labor decisions in most of the situations are not the prerogative of the children but of a parent. Parents are however not motivated by narrow self-interest but by a compassionate and rational outlook which takes into account the welfare of the whole household, including that of the child. As a result of this, the parent shares in the detrimental consequences of child labor through the introduction of a psychological cost of children working. If parents dislike child labor, then the decision to impose it upon their children must be based on the economic conditions facing the household (Jafarey and Lahiri, 2000). Many studies in the past that have attempted to give economic explanation to child labor have emphasized abject poverty as the singular most important factor underlying household decisions to engage children in market activity. However, in the words of Kailash Satyarthi<sup>21</sup>:

Children are employed not just because of parental poverty, illiteracy, ignorance, failure of development and education programs, but quite essentially due to the fact that employers benefit immensely from child labor as children come across as the cheapest option, sometimes working even for free.

He argued further that children are employed illegally and companies use the financial gain to bribe officials, creating a vicious cycle<sup>22</sup>.

There are diverging views from early researches on child labor. While some argue that child labor is totally harmful to the child in all aspect of the child's life and as such should be abolished, others argue that there are justifications for children being involved in the labor market hence abolishing is not the solution but addressing the causes can solve the problem. In

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<sup>20</sup> Average of the figures from the 1<sup>st</sup> to 3<sup>rd</sup> and 4<sup>th</sup> to 6<sup>th</sup> cycle report

<sup>21</sup> (one of the Nobel peace prize winners, 2014)

<sup>22</sup> <http://news.yahoo.com/pakistani-teenager-indian-childrens-activist-win-nobel-peace-090729703.html>

Ghana for instance, early researchers on child labor such as Ashagrie (1993), Canagarajah & Coulombe (1997) and Mensah et al., (2006) have the view that child work should have no place in the lives of children. On the other hand, others, like Sackey (2013) have the view that child labor should be discussed in the context in which the child is raised. Such diverging views pose a problem for policy makers. There are very few empirical evidence in the literature and none at all in Ghana on how child labor perpetuates poverty from one generation to another, or on how parents who were child laborers are likely to have their children work as well. It is in this direction that this study seeks to find answers to the following questions: Is poverty an important determinant of child labor in Ghana? Is child labor in Ghana an intergenerational phenomenon?

The remaining sections of this paper are organized as follows. Section 2 reviews literature on previous studies on Child labor. This is followed by the methodology adopted by the study in section 3 and presentation and discussion of the results in Section 4. Section 5 comprises concluding remarks and policy recommendations.

## **2. Literature Review**

### **2.1 Child Labor Definition**

Whether or not particular forms of “work” can be called “Child Labor” depends on the child’s age, the type and hours of work performed, the conditions under which it is performed and the objectives pursued by individual countries. The answer varies from country to country, as well as among sectors within countries. Official definitions of child labor also vary. Some countries officially define child labor as wage work (e.g. Pakistan) or market work that is harmful to the future well-being of children (e.g. Vietnam). This later standard is based on the precedent of the International Labor Organization's (ILO) C138, Edmonds (2008).

The International Labor Organization (ILO, 2002) defines the term “Child Labor” as work that deprives children of their childhood, their potential and their dignity, and that is harmful to their physical and mental development. It refers to work that is mentally, physically, socially or morally dangerous and harmful to children; and interferes with their schooling by: depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work. In its most extreme forms, child labor involves children being enslaved, separated from their families, exposed to serious hazards and illnesses and/or left to fend for themselves on the streets of large cities often at a very early age.

The ILO's Statistical Information and Monitoring Program on Child Labor (SIMPOC) is a body charged with tracking child labor around the world. Their definition of what exactly is "child labor" varies over time, in part because of controversy over what can be considered harmful. A child laborer is defined by SIMPOC as an economically active child under 12 that works 1 or more hours per week, an economically active child who is 14 years and below, who works at least 14 hours per week or 1 or more hours per week in activities that are "hazardous by nature or circumstance," and a child who is 17 years and below who works in an "unconditional worst form of child labor "(trafficked children, children in bondage or forced labor, armed conflict, prostitution, pornography, illicit activities), ILO (2002).

According to the Ghana Statistical Service (GSS), the term “child labor” does not encompass all economic activity undertaken by children. It refers to employment or work carried out by children that neither conforms to the provisions of national legislation, such as the Ghana Children’s Act, (1998), (Act 560), nor the provisions of international instruments such as ILO Convention Nos. 138 and 182, which define the boundaries of work undertaken by children that must be targeted for abolition.

The Ghana Children’s Act (Act 560), defines exploitative labor as “work that deprives the child of his/her health, education or development”. It sets the minimum age for admission into employment at 15 years for general employment, 13 years for light work and 18 years for hazardous work. The Act defines hazardous work as “work posing a danger to the health, safety or morals of a person”, and provides an inexhaustible list, including fishing, mining and quarrying, portage or carrying of heavy loads, work involving the production or use of chemicals, and work in places where there is a risk of exposure to immoral behavior.

## **2.2 Child Labor and the Poverty Hypothesis**

From the poverty side of child labor, there has been diverging views; some researchers argue that poverty is the main cause of child labor and others disagree to this claim. Amin et al. (2004), used income quintiles as a means of measuring family poverty and added child and family characteristics to their model. They estimated the likelihood that a child will work using separate logistic regression models for younger and older boys and girls in urban and rural areas. Their findings support the notion that a family's poverty status affects the probability that a child will work, and that keeping children away from work is a luxury these families cannot afford. This is also confirmed by Kufogbe et al. (2005) who examined the practice of child labor in fishing in selected communities in the Gomoa and Awutu-Efutu-Senya (AES) districts in the Central Region of Ghana. The results of the study showed that besides parental poverty and lack of support for provision of basic needs, children are easily attracted into fishing in order to provide basic needs such as school uniform, writing materials and bags, pencils and erasers for themselves. They also found out that fishing has become a “way of life” in which the children are naturally attracted to the landing beaches to gain access to income.

Bhalotra, (2003), investigated the hypothesis that child labor is compelled by poverty or that the child’s income contribution is needed by the household in order to meet subsistence expenditures. Using a large household survey for rural Pakistan, the study estimated labor supply models for boys and girls in wage work and identified a negative wage elasticity for boys and an elasticity that is insignificantly different from zero for girls. Thus, while the evidence was consistent with boys working on account of poverty compulsions, the evidence was ambiguous in the case of girls.

Ray (2000) also used data from Pakistan Integrated Household Survey of 1991 (PIHS) and the country’s poverty line, the findings from the study showed that when a “Pakistani household falls into poverty, it substantially increases its children's involvement in outside, paid employment by about 500 hours annually for each child” (Ray, 2000).

Some researchers disagree with the notion that poverty is the main cause of child labor; their main reason for disagreeing is because they do not find any evidence to support the poverty

hypothesis. Example of such researchers are Bhalotra and Heady (2005), who show that, household income has no significant impact on work for both boys and girls in Ghana, and also for girls in Pakistan. Dumas (2007), also found that in rural Burkina Faso children do not provide labor to meet households' subsistence needs and that child leisure is a normal good. The evidence from the study suggests that labor market imperfections are the main reasons for using child labor. This accord with the views of Nielsen (1998) and Canagarajah and Coulombe (1997), who do not also find a positive relation between poverty and child labor, and thus debunks the claim that poverty is the main determinant of child labor. Sasaki and Temesgen (1999) do not also find any significant relationship between household income per capita and child work.

### **2.3 Intergenerational Transmission of Child Labor**

There are few empirical evidence in the literature and none at all in Ghana on how child labor perpetuates poverty from one generation to another, or on how parents who were child laborers are likely to have their children work as well. One might argue that parents who worked as children are more likely to have under-invested in schooling and become poverty trapped and hence would expect their children to work as well. However, the effect of the parents being child laborers themselves has not been widely explored in previous literature. To the best of my knowledge, the only studies available on this issue are Wahba (2000) and Emerson and Souza (2003) using data from Egypt and Brazil respectively. The results from both studies showed that parents who were child laborers themselves are more likely to send their children out to work. For example, evidence from Wahba (2000), showed that children are twice as likely to work if their parents were child laborers.

In this study, the intergenerational transmission of low incomes or poverty is explored by testing whether parents who themselves worked as child laborers are more likely to send their children out to work or not. This study is different from those already done in Ghana in the sense that, it uses a data set that had its focus on child labor and as such provides very reliable information for policy purposes. The issue of whether child labor is an intergenerational phenomenon has not been established in Ghana, the study therefore contributes to the literature by providing an evidence to support this claim.

## **3 Methodology**

### **3.1 Theoretical Framework and Econometric Approach**

The theoretical framework of this paper follows the child labor trap model by Emerson and Souza (2003). For simplicity and without loss of generality, only a brief discussion of this framework is presented here. Interested readers may refer to Emerson and Souza (2003) for details.

The model assumes that each family consists of one adult and one child, and the adult values both current consumption and the educational attainment of the child. A child can go to school and/or work. The amount of time spent working detracts from the total educational attainment of the child and thus diminishes the child's earnings once he/she reaches adulthood. Therefore families with little education are more desperate for the contribution to current consumption the

child can provide through work than are families with high education and, thus, it is the low education families that will send their children to work while high education families will not.

In this model each agent lives for two periods (the childhood and the adulthood periods), and upon reaching adulthood each agent creates a child, making it a standard overlapping generations model. As noted by Emerson and Souza (2003), all adults are identical, as well as all children. The adult in each period makes the decision of whether or not to send the child to work. Adult wage is solely determined by the human capital accumulation from education as a child. It can therefore be shown (see Emerson and Souza (2003) for proof) that this model leads to an inter-generational link between child labor of the parents and their offspring. This paper therefore tries to provide evidence for this link using the Ghanaian data.

To test for this intergenerational transmission of child labor, the study uses two different econometric models. The first is a univariate logit model based on information about the child and his or her family with the assumption that the decision of the parent to send the child to work is independent of schooling decisions. The second is bivariate probit model to test the likelihood of children working and going to school given diverse individual characteristics. The second approach is also based on the assumption that children working and schooling decisions are Interdependent and do not follow a sequential process.

The univariate logit model is as follows:

$$P(Y_i = 1) = X_i\beta + \varepsilon_i \quad (1)$$

Where  $Y = 1$  if parent sends child to work and  $Y = 0$  if otherwise,  $X$  is a vector of explanatory variables.

The marginal effects (partial derivatives) of independent variables in the logistic model will be reported. The marginal effect of the probability of a particular independent variable is calculated as:

$$\frac{\partial Y}{\partial x} = \beta p(1 - p) \quad (2)$$

Where  $\beta$  is the logit coefficient,  $p$  is the probability that  $y$  equals 1, and  $(1 - P)$  represents the probability that  $y$  is 0 (Maddala 1988; Liao 1994; Allison 1999). The standard errors of the coefficients will be corrected for clustering since some children in the sample will be in the same households and therefore will not constitute independent observations.

The model to be estimated is as follows:

$$P(Y = 1) = \beta_1 \text{child}X'tics + \beta_2 \text{Parent}X'tics + \beta_3 \text{HH}X'tics + \beta_4 \text{Com}X'tics + \varepsilon \dots \dots \dots (3)$$

Where  $Y = 1$  if parent sends child to work and  $Y = 0$  if otherwise,  $ChildX'tics$  is a vector of child characteristics, this includes gender and age of the child.  $ParentX'tics$  is a vector of parent

characteristics such as mother and father’s educational level and parents being child laborers.  $HHX'tics$  is a vector of household characteristics such as household size, poverty level and religious background.  $ComX'tics$  is a vector of community characteristics such as location (urban or rural).

The bivariate probit model will allow for the existence of possible correlation between the disturbances of the two decisions (working and schooling). The model will also help to test for the existence of the interdependence between the two decisions and whether there is a significant difference between the joint estimation and univariate estimation. The set-up for the model is as follows:

$$P(Y_{i1} = 1) = X_{i1}\beta_1 + \varepsilon_{i1} \quad Y_{i1} = 1 \text{ if } Y_{i1} > 0; = 0 \text{ if otherwise} \quad (4)$$

$$P(Y_{i2} = 1) = X_{i2}\beta_2 + \varepsilon_{i2} \quad Y_{i2} = 1 \text{ if } Y_{i2} > 0; = 0 \text{ if otherwise} \quad (5)$$

$$E(\varepsilon_{i1}) = E(\varepsilon_{i2}) = 0 \quad ; \quad Var(\varepsilon_{i1}) = Var(\varepsilon_{i2}) = 1$$

$$Cov(\varepsilon_{i1}, \varepsilon_{i2}) = \rho \quad ; i = 1, 2, 3, \dots, n$$

Where the dependent variable in equation (4) is defined as 1 if the child is engaged in an economic activity in the labor market and 0 if otherwise, the dependent variable in equation (5) is defined 1 if the child attends school and 0 if otherwise.  $X_{i1}$  and  $X_{i2}$  are the exogenous explanatory variables determining the working and schooling decisions respectively.  $\rho$  is the coefficient of correlation between the two equations.

The models to be estimated are as follows:

$$P(Y_{i1} = 1) = \beta_1 childX'tics + \beta_2 ParentX'tics + \beta_3 HHX'tics + \beta_4 ComX'tics + \varepsilon \dots (6)$$

And

$$P(Y_{i2} = 1) = \delta_1 childX'tics + \delta_2 ParentX'tics + \delta_3 HHX'tics + \delta_4 ComX'tics + \mu \dots (7)$$

The variables in equations (6) and (7) are s explained above.

### **3.2 Data and Measurement of Variables**

The objectives of the study will be achieved by using the dataset drawn from the Ghana Living Standards Survey round six (GLSS6) conducted in 2012/2013. The Ghana Living Standards Survey is a nation-wide household survey which provides information in assessing the living condition of the Ghanaian households, It collects information on the demographic characteristics of the population, their education, health, employment and time use, migration, housing conditions and household agriculture, among others. The GLSS6 dataset focuses on Labor Force Survey (LFS) module with additional sections on Child Labor and Household Financial Services. A total of 18,000 households in 1,200 Enumeration Areas (EAs), consisting of 655 rural EAs (54.6%) and 545 urban EAs (45.4%) were selected for the survey. A total of 72,372 persons were

interviewed but the concern of this study is the persons aged 5-14 years and this comprised 19,522 making 26.9 percent of the total number of people interviewed.

In the GLSS6 questionnaire the child was asked to tell whether or not he or she was engaged in any work during the last seven days. This gives the variable for the working decision. For the schooling decision, the child was asked to tell whether or not he or she attended school during the last 12 months.

The intergenerational variables were generated from the main data using the age the parents started working. If a parent started working at the age of 14 and below, then he or she is considered to have been a child laborer.

The poverty status of the household is measured by using the absolute and extreme poverty line indicators. The methodology used by the Ghana statistical Service produced an extreme poverty line of \$1.10 per day and an absolute poverty line of \$1.83 per day. The absolute poverty line indicates the minimum living standard in Ghana while the extreme poverty line indicates that even if a household spends their entire budget on food, they still would not meet the minimum calorie requirement.

The definition of the rest of the variables and the basic statistics of all the variables used in the estimations are presented in the Appendix.

#### **4 Empirical Results**

There was an initial suspicion that there may exist some correlation between some of the explanatory variables such as the parents' educational levels, the household size, the poverty levels, the public school variables and the location. This suspicion was based on the fact that all these variables may be correlated with the household income, hence a correlation test was conducted for these variables. The result of the correlation test is presented in Table A.5 in the appendix. The test shows that there exists significant correlation between all these variables. These significant correlations may lead to multicollinearity in the estimations; hence individual and joint tests for the significance of these variables were further conducted after the estimations. The result of the test showed that these variables are individually and jointly significant; hence multicollinearity is not a problem as was suspected.

##### **4.1 The Univariate Logit Model**

In this sub-section, the empirical results of the marginal effect estimated from the results of the odds ratio from the logit estimations are presented. The performance of all estimations in terms of their predictive power is measured by the statistical significance of the Wald test. Table 4.1 presents the results for the univariate estimation.

The result from the estimation shows that child labor is an intergenerational phenomenon. This holds for all children either boys or girls and either living in the urban or rural areas. The results reveal that children whose fathers were once child laborers are 12.09 percent more likely to work than their counterparts whose fathers were not child laborers, also children whose mothers were once child laborers are 15.69 percent more likely to work than their counterparts whose mothers were not child laborers. This result is in accord with the findings of Wahba (2000) and Emerson and Souza (2003) who did a similar study in Egypt and Brazil respectively. They both found that

parents who were child laborers themselves are more likely to send their children out to work. The result therefore provides evidence to support the overlapping generation model built by Emerson and Souza (2003) which postulates that parents who were once child laborers are more likely to send their children out to work.

**Table 4.1: Univariate Logit Estimation for the Probability of Child Work. Marginal Effects for All Children, Boys, Girls, Urban and Rural**

<b>Independent Variables</b>	<b>All</b>	<b>Boys</b>	<b>Girls</b>	<b>Urban</b>	<b>Rural</b>
<b>Individual Characteristics</b>					
Sex	0.0126**	--	--	-0.0060	0.0217***
Age	0.1059***	0.0908***	0.1215***	0.0633***	0.1262***
Age2	-0.0034***	-0.0026***	-0.0042***	-0.0019***	-0.0040***
Inschool	-0.1045***	-0.13.47***	-0.0699***	-0.7640***	-0.1140***
<b>Parents Characteristics</b>					
DadCL	0.1209***	0.1293***	0.1159***	0.0736***	0.1418***
MumCL	0.1569***	0.1639***	0.1519***	0.1309***	0.1701***
Dadinhouse	-0.0630***	-0.0537***	-0.0739***	-0.0242*	0.0811***
Dadbasicedu	0.0277	0.0257	0.0315	0.0730***	0.0073
DadSecedu	-0.0213*	-0.0361**	-0.0082	0.0018***	-0.0346**
Dadhigedu	-0.0953***	-0.1149**	-0.0822**	-0.0677**	-0.0879*
Muminhouse	0.1025***	-0.0979***	-0.1059***	-0.0579***	-0.1266***
Mumbasedu	-0.0362**	-0.0509*	-0.0217	-0.0138	-0.0447*
MumSecedu	-0.0247*	-0.0084	-0.0383*	-0.0221	-0.0169
Mumhigedu	-0.1227*	-0.1649	-0.0558	-0.0227	-0.3333*
<b>Household Characteristics</b>					
HHsize	0.0024***	0.0014	0.0034***	0.0083***	0.0003
Verypoor	0.0315***	0.0469***	0.0124	-0.0164	0.0426***
Poor	0.0248***	0.0399***	0.0088	0.0245***	0.0252***
Noreligion	0.0026	-0.0096	0.0215	-0.0214	0.0097
Muslims	-0.0311***	-0.0467***	-0.0153	-0.0279***	-0.0366***
<b>Community Characteristics</b>					
Location	-0.0996**	-0.1042***	-0.0957***	--	--
Publicsch	0.0817***	0.0827***	0.0801***	0.0623***	0.000***
Coastal	0.0006	0.0150	-0.0129	-0.0391**	0.000***
Forest	0.1518***	0.1656***	0.1397***	0.0951**	0.325
Savannah	0.1409***	0.1591***	0.1246***	0.0860***	--
No of Obs.	19522	9,975	9,547	6,715	12,807
Prob > Chi2	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***
NB: *** significant at 1%, ** significant at 5%, * significant at 10%					

The very much argued about poverty hypothesis has been proved by the estimation to be one of the reasons for child labor in Ghana. It is obvious from the results that very poor households are 3.15 percent more likely to send their children out to work than the non-poor households (reference group); also, poor households are 2.48 percent more likely to send their children out to

work than the non-poor households; these results are highly significant and contradicts the findings of Canagarajah and Coulombe (1997) who found that poverty has no impact on child labor in Ghana. It should however be noted that the poverty hypothesis only holds for the boy child and not for the girl child, it has also been found that the hypothesis holds strongly for rural dwellers than for urban dwellers. Hence, we can say that the poverty hypothesis of child labor is mainly a rural phenomenon in Ghana.

The result of this study provides better evidence to support the poverty hypothesis because the data used had its focus on child labor and as such gives more reliable information. Furthermore, while other researchers like Canagarajah and Coulombe (1997) used welfare index as a proxy for poverty, this study uses poverty statuses measured by the absolute and extreme poverty line indicators.

Another very important determinant of child labor worth discussing is the educational levels of the parents. It has been shown by the results that parents' education is a very important determinant of child labor and that parent with high level of education are less likely to send their children out to work. The result shows that children whose fathers have a tertiary education are 9.5 percent less likely to work than those whose fathers have no education (reference group), also children whose mothers have a tertiary education are 12.27 percent less likely to work than those whose mothers have no education (reference group). This result confirms that of Canagarajah and Coulombe (1997) who also showed that fathers with very high level of education in Ghana were less likely to send their children to work.

The statistical significance of the Wald test for all estimations confirm the overall significance of the estimations. It is also obvious that the result from the separate gender and the separate location estimates confirm most of the findings from the pooled sample and these prove the robustness of the estimates although certain additional differences are observed.

#### **4.2 The Bivariate Probit Model**

In this sub-section, the results from the bivariate probit estimation are presented. Table 4.2 shows the coefficients and the P-values from the estimation. The coefficients of the explanatory variables only tell us the direction of the effect of each exogenous variable on the likelihood of a child working and schooling and not the magnitude of the probability. Table 4.3 shows marginal effects of the probability of combining work and schooling. As can be seen from Table 4.2, the coefficient of correlation between the errors in the two equations (equation for work and equation for school) is negative; this shows that there is a trade-off between working and schooling. Also, the likelihood-ratio test which is used to test whether the coefficient of correlation between the errors in the two equations is statistically different from zero has shown that the errors are significantly correlated. This justifies the use of the bivariate probit estimation to jointly estimate the two binary equations.

The results from the bivariate probit estimation confirm the findings from the univariate logit estimation. The result in Table 4.2 shows that children whose fathers and/or mothers were child laborers are more likely to be child laborers. Table 4.3 also shows that children whose mothers and/or fathers were child laborers are more likely to combine working and schooling. Those

children whose fathers were child laborers are 14.39 percent more likely to combine work and school, also those whose mothers were child laborers are 17.92 percent more likely to combine work and school than their counterparts.

**Table 4.2 Bivariate probit for factors that jointly determine child work and school**

Variables	Work		School	
	Coefficient	P> Z	Coefficient	P> Z
<b>Individual Characteristics</b>				
Sex	0.0179	0.437	0.0908	0.382
Age	0.3622	0.000***	0.2708	0.053*
Age2	-0.0109	0.000***	-0.0190	0.008***
<b>Parents Characteristics</b>				
DadCL	0.4936	0.000***	-0.1962	0.382
MumCL	0.6176	0.000***	-0.1743	0.382
Dadinhouse	-0.2479	0.000***	0.3925	0.023**
Dadbasicedu	0.0901	0.226	-0.2498	0.370
DadSecedu	-0.0844	0.059*	0.1230	0.472
Dadhiggedu	-0.3725	0.001***	0.3290	0.321
Muminhouse	-0.3989	0.000***	0.2008	0.255
Mumbasedu	-0.1319	0.084*	-0.3665	0.213
MumSecedu	-0.0988	0.103	-0.2134	0.308
Mumhiggedu	-0.3381	0.174	4.7802	0.999
<b>Household Characteristics</b>				
HHsize	0.0039	0.293	0.0549	0.013**
Verypoor	0.1176	0.001***	-0.7149	0.000***
Poor	0.1101	0.000***	-0.2358	0.112
Noreligion	-0.0229	0.740	-0.6766	0.017**
Muslims	-0.1296	0.000***	-0.1367	0.340
Schexp	-0.0000	0.740	0.0002	0.265
<b>Community Characteristics</b>				
Location	-0.3894	0.000***	0.2362	0.044**
Schdistance	0.0034	0.620	0.8319	0.000***
Publicsch	0.2910	0.000***	5.8695	0.993
Coastal	-0.0723	0.391	0.1157	0.621
Forest	0.5254	0.000***	0.0606	0.762
Savannah	0.4635	0.000***	-0.0191	0.934
Rho = -0.1974				
Likelihood-Ratio Test of rho = 0: Prob > Chi2 =0.0116**				
Wald Test: Prob > Chi2 =0.0000				
NB: *** significant at 1%, ** significant at 5%, * significant at 10%				

**Table 4.3: Marginal effects for the probability of Combining work and school**

<b>Variable</b>	<b>Marginal Effect</b>	<b>P &gt; Z </b>
<b>Individual Characteristics</b>		
Sex	0.0048	0.437
Age	0.0973	0.000***
Age2	-0.0029	0.000***
<b>Parents Characteristics</b>		
Dadchildlaborer	0.1439	0.000***
Mumchildlaborer	0.1792	0.000***
Dadinhouse	-0.0688	0.000***
Dadbasicedu	0.0251	0.243
DadSecedu	-0.0221	0.052*
Dadhigheredu	-0.0841	0.000***
Muminhouse	-0.1180	0.000***
Mumbasicedu	-0.0335	0.066*
MumSecedu	-0.0252	0.089*
Mumhigheredu	-0.0772	0.099*
<b>Household Characteristics</b>		
Householdsize	0.0010	0.293
Verypoor	0.0327	0.001***
Poor	0.0304	0.000***
Noreligion	-0.0061	0.738
Muslims	-0.0338	0.000***
Schexp	-0.0000	0.764
<b>Community Characteristics</b>		
Location	-0.0998	0.000***
Schdistance	0.0009	0.620
Publicsch	0.0761	0.612
Coastal	-0.0189	0.379
Forest	0.1471	0.000***
Savannah	0.1286	0.000***
NB: *** significant at 1%, ** significant at 5%, * significant at 10%		

With respect to the Poverty Hypothesis, estimates from the bivariate probit estimation have proven that indeed poverty is one of the main causes of child labor. The result from the Table 4.2 shows that while very poor households are more likely to send their children to work, they are less likely to send them to school. From Table 4.3, the poverty status of the household was found to significantly affect the probability of children to combine working and schooling. The table shows that, very poor households are 3.27 percent more likely to make their children combine work and school.

## **5 Conclusion and Policy Recommendations**

The purpose of this study was to find evidence to support the claim that child labor in Ghana is mainly as a result of poverty and that it follows an intergenerational pattern, that is to say parents who were once child laborers are more likely to send their children out to work. The two

econometric approaches (univariate logit and bivariate probit models) used showed that poor households are more likely to send their children out to work than non-poor household, also children from poor household are more likely to combine working and schooling activities. The separation of the data into gender and location further showed that the poverty hypothesis holds in the rural areas of Ghana and not in the urban areas, also, poverty affects the decision to send boys out to work but not that of girls. Furthermore, it was shown by both approaches that child labor in Ghana follows an intergenerational pattern, thus parents are more likely to send their children out to work if they were child laborers themselves.

On the basis of these findings, the following recommendations are made; since children who are child laborers now are more likely to send their own children out to work when they become adults and their children will do same to their children, the cycle will continue and the effects of child labor will continue to harm the country, a drastic measure has to be taken now to eradicate child labor from the country. Many policies and legislations have been implemented already in Ghana but it seems these policies do not aim at the most important determinant of child labor which according to this study is poverty. Policy should therefore focus if not on the eradication of poverty, at least on its reduction; this will automatically solve the issue of child labor and prevent it from perpetuating into the next generation.

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## **APPENDICES**

**Table A.1: Definition of Variables used in Estimations**

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### **Dependent Variables**

Works: 1 if the child worked; 0 if otherwise

School: 1 if child attended school; 0 if otherwise

### **Individual Characteristics**

Sex: 1 if child is a boy; 0 if a girl

Age: age of the child in years

### **Parents Characteristics**

DadCL: 1 if father was a child laborer; 0 if otherwise

MumCL: 1 if mother was a child laborer; 0 if otherwise

Dadinhouse: 1 if father lives in the house; 0 if otherwise

Dadnoedu: 1 if father has no education; 0 if otherwise (reference group)

Dadbasicedu: 1 if father has only basic education; 0 if otherwise

DadSecedu: 1 if father has only secondary education; 0 if otherwise

Dadhighedu: 1 if father has a tertiary education; 0 if otherwise

Muminhou: 1 if mother lives in the house; 0 if otherwise

Mumnoedu: 1 if mother has no education; 0 if otherwise (reference group)

Mumbasedu: 1 if mother has only basic education; 0 if otherwise

MumSecedu: 1 if mother has only secondary education; 0 if otherwise

Mumhigedu: 1 if mother has a tertiary education; 0 if otherwise

### **Household Characteristics**

HHsize: number of people living together with the child in the house

Schexp: total expenditure on school

Verypoor: 1 if house hold is very poor i.e. lives below the extreme poverty line; 0 if otherwise

Poor: 1 if house hold is poor i.e. lives below the absolute poverty line; 0 if otherwise

Nonpoor: 1 if house hold is not poor i.e. lives above the absolute poverty line; 0 if otherwise (reference group)

Noreligion: 1 if household has no religious believe; 0 if otherwise

Christians: 1 if the household members are Christians; 0 if otherwise (reference group)

Muslims: 1 if household members are Muslims; 0 if otherwise

Traditionalist: 1 if household members are traditionalist; 0 if otherwise

### **Community Characteristics**

Location: 1 if community is located in the urban area; 0 if rural

Publicsch: 1 if child attends public school; 0 if school is a private school

Coastal: 1 if community is coastal by nature; 0 if otherwise

Forest: 1 if community is forest by nature; 0 if otherwise

Savannah: 1 if community is savannah by nature; 0 if otherwise

Accra: 1 if the community is not characterized by any of the ecologies; 0 if otherwise (reference group)

Schdistance: number of hours a child spends to go to school and back

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**Table A.2: Descriptive Statistics of dependent variables**

Variables	All		Boys		Girls	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Works						
Yes	4,953	25.37	2,648	26.55	2,305	24.14
No	14,569	74.63	7,327	73.45	7,242	75.86
Total	19,522	100	9,975	100	9,547	100
School						
Yes	17,284	88.54	8,844	88.66	8,440	88.40
No	2,238	11.46	1,131	11.34	1,107	11.60
Total	19,522	100	9,975	100	9,547	100

Source: Constructed by Author from GLSS 6 (2012/13)

**Table A.3: Descriptive statistics of Independent continuous and discrete variables**

Variable	Household size	Age	Expenditure on School	Distance to and from school
Mean	6.929	9.405	147.054	0.428
Linearized Standard Deviation	3.248	2.847	339.055	1.529
Minimum	1	5	0	0
Maximum	29	14	11,990	50

Source: Constructed by Author from GLSS 6 (2012/13)

**Table A.4: Descriptive Statistics of independent categorical variables**

	Variable	Frequency	Percent	Cumulative
<b>Sex</b>	Female	9,547	48.90	48.90
	Male	9,975	51.10	100
<b>Parent Characteristics</b>				
<b>Dad was a child laborer</b>	Yes	6,005	30.76	30.76
	No	13,517	69.24	100
	<b>Total</b>	19,522	100	
<b>Mum was a child laborer</b>	Yes	6,800	34.83	34.83
	No	12,722	65.17	100
<b>Both Parents were Child laborers</b>	Yes	4,439	22.74	22.74
	No	15,083	77.26	100
<b>Dad In house</b>	Yes	12,963	66.40	66.40
	No	6,559	33.60	100
<b>Mum In house</b>	Yes	15,618	80.00	80.00
	No	3,904	20.00	100
<b>Father Educational level</b>	No Education	5,846	29.95	29.95
	Basic	3,870	19.83	49.78
	Secondary	6,085	31.16	80.94
	Tertiary	3,721	19.06	100
<b>Mother Educational level</b>	No Education	6,474	33.26	33.26
	Basic	4,331	22.18	55.44
	Secondary	4,830	24.74	80.18
	Tertiary	3,887	19.91	100
<b>Household Characteristics</b>				
<b>Religious Background</b>	No Religion	629	3.23	3.23
	Christians	13,666	70.00	73.23
	Muslims	5,215	26.71	99.94
	Traditionalist	12	0.06	100
<b>Poverty Status</b>	Very Poor	3,516	18.01	18.01
	Poor	4,207	21.55	39.55
	Non Poor	11,799	60.44	100
<b>Community Characteristics</b>				
<b>Location</b>	Urban	6,715	34.40	34.40
	Rural	12,807	65.60	100
<b>Ecological Zone</b>	Coastal	2,161	11.07	11.07
	Forest	7,370	37.75	48.82
	Savannah	8,762	44.88	93.70
	Accra	1,229	6.30	100
<b>School Ownership</b>	Public	12,711	65.11	65.11
	Private	6,811	34.89	100

*Source: Constructed by Author from GLSS 6 (2012/13)*

**Table A.5: Correlation test for Suspected Linearly Correlated Variables**

<b>Variables</b>	<b>Household Size</b>	<b>Location</b>	<b>Dadhigher-edu</b>	<b>Mumhigher edu</b>	<b>Public sch</b>	<b>Nonpoor</b>
<b>Householdsize</b>	1.0000					
<b>Location</b>	-0.1977*	1.0000				
<b>Dadhigheredu</b>	-0.0710*	0.1006*	1.0000			
<b>Mumhigheredu</b>	-0.0278*	0.0608*	0.1131*	1.0000		
<b>Publicsch</b>	0.0554*	-0.2299*	-0.0495	-0.0416*	1.0000	
<b>Nonpoor</b>	-0.2762*	0.3507*	0.0721*	0.0314*	-0.134*	1.0000

**NB:** \* significant at 5%