



**ECONOMICALLY ACTIVE CHILDREN IN GHANA: THEIR
ACTIVITIES AND WELFARE DIMENSIONS**

BY

MANASSEH ATTA BOAHENE

(10347001)

**THIS THESIS/ DISSERTATION IS SUBMITTED TO THE UNIVERSITY
OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE
REQUIREMENT FOR THE AWARD OF MPhil ECONOMICS DEGREE.**

JULY, 2017

DECLARATION

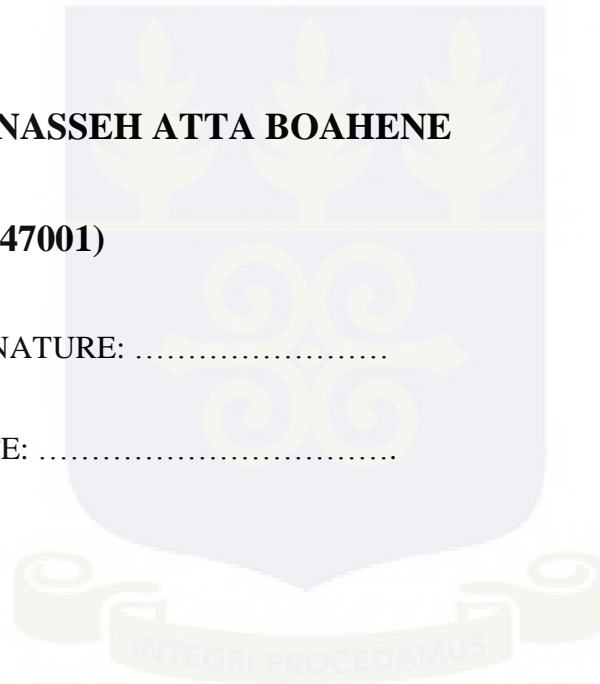
I, *MANASSEH ATTA BOAHENE*, hereby declare that this thesis is an original research undertaken by me under the guidance of my supervisors; and with the exception of references to other people's work which have been duly cited, this thesis has neither in part nor in whole been submitted for another degree elsewhere.

MANASSEH ATTA BOAHENE

(10347001)

SIGNATURE:

DATE:



DR. LOUIS BOAKYE-YIADOM

DR. NKECHI SRODAH OWOO

(SUPERVISOR)

(SUPERVISOR)

SIGNATURE:

SIGNATURE:

DATE:

DATE:

DEDICATION

This thesis is dedicated to the Lord God Almighty to whom be glory and all praise forever and ever; and to my parents, Pastor Joseph Nicholas Kuttin and Mrs Rosemary Kuttin for their love, support and advice; and finally to all my loved ones.

This thesis is also dedicated to all children who participate in economic activities in Africa and beyond.



ACKNOWLEDGEMENT

I am deeply grateful to the Almighty God whose grace, favour and mercies have brought me this far. My heartfelt gratitude goes to my supervisors, Dr Louis Boakye-Yiandom and Dr Nkechi Srodah Owoo, for their detailed and brilliant supervision, insightful comments and constructive critiques which have enriched this study.

Also, I duly appreciate the relentless efforts and assistance of David Aduhene Tano of the Department of Economics at the University of Ghana who played an important role in the success of this thesis. I also want to express my appreciation to my siblings; Jacinta Obeng Frimpong, Alpha Kuttin, Ephraim Atta Owusu, Omega Kuttin, Francis Counsellor Kuttin and Ebenezer Kuttin for their encouragement and advice. Special thanks to Esther Achiaa Boafo, Edna Sarfo, Enoch Randy Aikins, Philip Agyemang and James Abugre Atambilla for their love and assistance.

Finally, I say a big thank you to everyone who has contributed to my academic progress, not forgetting Dr Lawrence Boakye, Dr Harry Lawson Agbanu, Dr Abraham Nana Opare Kwakye and Dr Ben Willie-Golo of the Department for the Study of Religions at the University of Ghana for their fatherly role during my seven-year stay on the University of Ghana campus. To everyone who has assisted, supported or encouraged me I say thank you. God bless you and I love you all.

TABLE OF CONTENTS

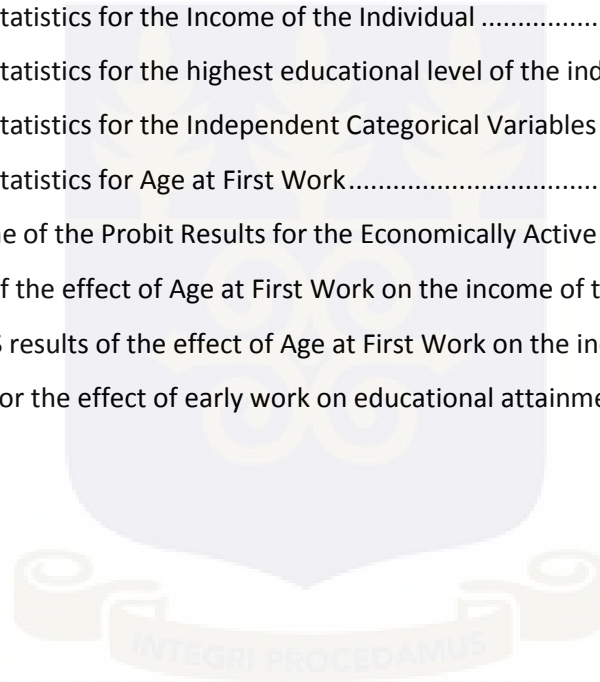
DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vii
ABSTRACT.....	viii
ACRONYMS	ix
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background	1
1.2 Statement of the Problem	5
1.3 Objective of the Study.....	6
1.4 Research Questions	7
1.5 Significance of the Study.....	7
1.6 Research Gap.....	8
1.6 Organization of the Study	9
CHAPTER TWO	10
OVERVIEW OF ECONOMICALLY ACTIVE CHILDREN IN GHANA.....	10
2.1 Introduction	10
2.2 Definitions and Theoretical Issues	10
2.2.1 Economic and non-economic activities of children in Ghana.....	10
2.2 Economic Activities of Children	12
2.3 Causes of Economically Active Children	14
2.4 Child Work and Child Labour	16
2.5 Conclusion	18
CHAPTER THREE	19
LITERATURE REVIEW	19
3.1 Introduction	19
3.2 A Review of Empirical Literature.....	19
3.2.1 Determinants of Child Work	19

3.3 Child work in Ghana	25
3.4 Conclusion	28
CHAPTER FOUR	30
THEORETICAL FRAMEWORK AND METHODOLOGY	30
4.0 Introduction	30
4.1 Theoretical Framework	30
4.1.1 The Bargaining Model	30
4.1.2 The Intra-Household Bargaining Model	31
4.2 Data Type, Source and Definition	34
4.3 Estimation technique	35
4.3.1 The econometric framework of the probit model	35
4.3.2 Model Specification	36
4.3.3 Estimation Technique	36
4.3.4 Justification for using the Probit regression model	38
4.3.5 Interpretation of Probit Coefficients	39
4.4 The Econometric Framework of the Ordinary Least Square Regression Model	40
4.5 Explanation of variables and their expected signs for the economically active children’s probit estimation	41
4.6 Measurement of the variables and their expected signs for the probit regression of the educational attainment of an individual	44
4.7 Measurement of the variables and their expected signs for the above Ordinary Least Square (OLS) regression	46
4.8 Conclusion	48
CHAPTER FIVE	49
PRESENTATION AND DISCUSSION OF RESULTS	49
5.0 Introduction	49
5.1 The data	50
5.2 Descriptive Statistics for the Dependent variables	51
5.2.0 The Regional distribution of economically active children between the ages of 5-14 years in Ghana	51
5.2.1 Occupational distribution of economically active children (5-14 years) in Ghana	52
5.2.1a The extent of Economically Active Children (EAC) in the Urban and Rural Areas	53

5.2.1b The Gender Distribution of Economically Active Children	54
5.2.1c Percentage of 5-14 year old children who are economically active or inactive.....	55
5.2.2 Income levels of Individuals who worked when they were children.....	55
5.2.3 Descriptive Statistics for the highest educational level of the individual.....	56
5.3.1 Descriptive Statistics for the Independent Categorical Variables.....	56
5.3.2 Descriptive Statistics for the age at first work variable	59
5.4 Estimation of Results	60
5.4.1 Determinants of Economically Active Child in Ghana.....	60
5.5 The Ordinary Least Squares result of the effect of age at first work in the income of the individual	66
5.5.2 Diagnostic tests	67
5.5.2a Test for heteroscedasticity.....	67
5.5.2ai Robust OLS results of the effect of Age at First Work on the income of the individual	68
5.5.2b Test for multicollinearity.....	69
5.5.2c Test for endogeneity	71
5.5.3 Interpretation of the OLS regression results	71
5.6 Probit results for the effect of early work on educational attainment of the individual.	73
5.7 Summary of Findings.....	76
CHAPTER SIX.....	79
SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS.....	79
6.1 Introduction	79
6.2 Summary and Conclusions	79
6.3 Policy Recommendations.....	82
6.4 Limitation of the study.....	84
REFERENCES.....	86

LIST OF TABLES

Table 2.1: Current activity status of population 5 – 14 years by locality and sex	11
Table 2.2: Currently employed children 5-14 years by occupation, locality and sex	13
Table 5.2.0 Regional distribution of economically active children aged 5-14 years.....	51
Table 5.2.1 Employed children 5-14 years by occupation	53
Table 5.2.1a The extent of Economically Active Children (EAC) in the Urban and Rural Areas	53
Table 5.2.1b The Gender Distribution of Economically Active Children (EAC)	54
Table 5.2.1c Frequency and percentage of economically active children (5-14 years).....	55
Table 5.2.2 Descriptive Statistics for the Income of the Individual	55
Table 5.2.3 Descriptive Statistics for the highest educational level of the individual	56
Table 5.3.1 Descriptive Statistics for the Independent Categorical Variables.....	56
Table 5.3.2 Descriptive Statistics for Age at First Work.....	59
Table 5.4 Binary Outcome of the Probit Results for the Economically Active Child.....	60
Table 5.5.1 OLS results of the effect of Age at First Work on the income of the individual	66
Table 5.5.2ai Robust OLS results of the effect of Age at First Work on the income of the individual ...	68
Table 5.6 Probit results for the effect of early work on educational attainment of the individual.	73



ABSTRACT

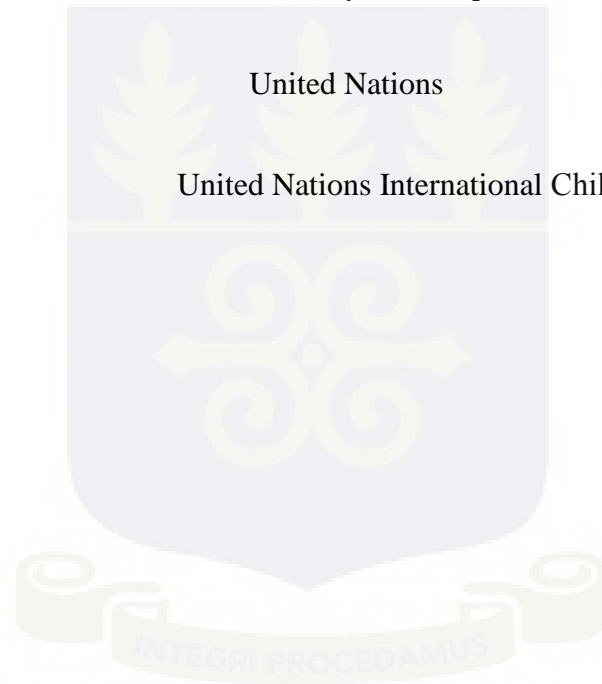
This paper examines the determinants of economically active children between the ages of 5-14-years in Ghana using data from the 2012/2013 Ghana Living Standards Survey. Moreover, the effect of early work experiences on the welfare of an individual who worked as a child is explored in terms of the income and the highest educational attainment of the individual at adulthood.

Using a probit model the paper finds out that variables such as mother's presence in the household, child's educational status, father's education, household's ownership of land, urban-rural residence, religion and regional dummies significantly influence the occurrence of child work. However, variables such as the gender of the child, father's presence in the household and the education of the mother were insignificant in determining child work. Also, individuals with early work experiences are less likely to attain higher educational levels of secondary education or above.

Using a robust OLS model, early work experiences reduce an individual's income at adulthood. Since child work reduces the income and higher educational attainment of an individual at adulthood, it is recommended that child work is discouraged and child schooling and skills development are encouraged especially in the rural households where child work is prevalent. The Ghanaian data confirm the negative role of early work experiences on the welfare of individuals at adulthood in terms of the income and higher educational attainment.

ACRONYMS

CWIQ	Core Welfare Indicator Questionnaire
EAC	Economically Active Children
GLSS	Ghana Living Standards Survey
GSS	Ghana Statistical Service
ILO	International Labour Organization
OLS	Ordinary Least Square
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund



CHAPTER ONE

INTRODUCTION

1.1 Background

The issue of children engaging in economic activities is not a recent development. Significant focus has been given to child workers all through the history of economics (Edmonds, 2007). Most of the early studies on child work in economics tackled the issue from the perspective of demand for labour. Adam Smith stressed that children are useful in communities with insufficient labour. This, therefore, stimulates parents in such communities to give birth to more children to add up to their labour force. Karl Marx, a renowned German economist and a philosopher posited that the industrial revolution brought forth child work. He further elucidated that the transition from manpower to machines in several production and manufacturing processes made manpower less needed. Therefore children were readily trained and employed to operate machines in various occupations. Malthus contended that the resultant effect of families not being able to provide their basic needs in the late 18th century is the prevalence of child labour (Edmonds, 2007).

The minimum working age is set at 15 years by International Labour Regulations (ILO, 2010; The Children's Act (Act 560), 1998). According to the International Labour Organization's Convention on the minimum age for employment, any economic activity which has the potential of destroying children's mental, physical or moral health and safety must be done by adults aged 18 years and above. A child below the age for completing compulsory schooling (15 years) must not be employed to work. Nevertheless, light work is permitted among children of the ages 13 years to 15 years on the condition that the work will not in any way be detrimental to the health,

safety and schooling of the children (ILO, 2010). This means that those children who are below 13 years of age must not participate in economic activities. The study focuses on child work and it examines the determinants of factors that influence the occurrence of child work among 5-14-year-olds and the welfare implications of child work on adults who worked during their childhood.

The working definition for economically active children for this study is represented in the 2012/2013 GLSS Labour Force Report as “children (5-14 years) who were engaged in any activity or work for pay (in cash or in-kind), profit or for family gain, for at least one hour in the seven days preceding the interview”. Two reference periods which are, last 7 days and last 12 months, are used in the GLSS 6. Such children find themselves in one sort of work or the other in the formal or informal sector, within or outside the household. Such work may include trade, roadside selling, agriculture, fishing, craft, mining, construction, food service activities and household enterprises.

Most studies use the term child labour to refer to the deleterious aspect of child work. According to Moyi (2011), the physical and sexual exploitation of children, long working hours, and low wages make up child labour. For Edmonds and Pavcnik (2005), the abusive use of children in hazardous work under severe conditions forms child labour. Galbi (1997) explains that any given work which prevents children from schooling and also negatively affects the health of children is child labour. Child labour simply means work that harms children or prevents children from being punctual at school. It is when persons who are below 15 years of age work, which may be inimical to their human development (ILO, 2010). Sometimes children may be required to combine schooling and working, be compelled to stop schooling in order to work or they may be seriously affected health wise such as in the case of minor and compounded headache, injuries

and other health challenges arising from the effects of the work they do, all of which are regarded as child labour.

The general assumption that all child work is detrimental may not be the case. For instance, a child below 13 years may be engaged in a work that is beneficial but it may be referred to as child labour because it violates the minimum age requirement for employment. The various work children engage in may be helpful or harmful based on the nature of the work and the welfare implications of the work, some of which may not be detrimental. Worst forms of child labour include illegal work like prostitution, trade in drugs and child soldiers.

Child work as a concept is broader which has child labour as a subset. Children are engaged in numerous activities across the world which vary among countries, cultures, societies and gender. However, it is not every work a child below 14 years does that can be said to be child labour according to the International Labour Standards. There are several exceptions which comprise of family activities or duties and monitored training of children. These activities may not be regarded as child labour but those children can be referred to as being economically active. Most culture deems it worthwhile for children to be trained in one skill or the other in order for them to be responsible in the future. Therefore children may be coached in petty trading, farming practices, family businesses or handicrafts. Nevertheless, the training of children to be economically active can turn into child labour when children are forced to do strenuous work, or when children work for long hours which may cause harm to them through injuries and health complications or impede their regular and active participation in schooling.

A common economic activity of children in Ghana is the brisk business done by children who take advantage of the toll booth and the usual vehicular traffic to sell sachet water, fruits,

plantain chips, and sweets to travellers and motorists. Even more disheartening is the fact that some parents force their children into this kind of work, caring less about the safety and future of these children. Unfortunately, most of these children have very little time to study after school, which affects their academic performance. Such children may eventually drop out of school and become full-time child labourers.

According to the GLSS 6 Labour Force Report, 31.1 percent of the survey population was made up of 5-14 years old children. The economically active children captured 25.2 percent. Girls within the age range of 5-14 years who live in the rural areas have a greater likelihood of being economically active than girls of the same age range in the urban areas.

The welfare effects of 5-14-year-old children who are involved in various sort of work make it somewhat surprising as to why certain parents usher their children of such tender and vulnerable age into work. Grootaert and Kanbur (1995) explain that poor parents push their children into early work as a means of survival for the family. According to Basu and Van (1998), unselfish parents due to severe economic hardship can be coerced to use their children as a money making instrument in spite of the fact that they really are concerned about the safety, health and happiness of their children. Ahmed (1999) posits, "there is by now a virtually unanimous view that poverty is the main, although not the only causes of child labour."

Severe poverty might however not cause parents to send 5-14-year-old children to work for long hours. Nevertheless, when short-term financial and economic hardships occur, extra income earned from children who are working is useful to the family for upkeep. Unfortunately, what commenced as a short-term work may end up as a permanent work when the parents of the

children focus more on the flow of income from the children's work or when the early exposure to work and petty income earnings cause children to be disinterested in schooling.

A critical assessment of the effect of age at first work on the income level of individuals later in life and on the educational attainment of individuals who engaged in child work is undertaken by the study.

The study on a whole focuses on economically active children who engage in child work.

1.2 Statement of the Problem

A child within the age group of 5-14 years who participate in child work that affects his or her education, health and safety is a social and national issue worth examining. The world is reported to have about 317 million children aged 5-17 years engaged in economic activities (UNICEF., 2007).

According to the labour force report of the sixth round of the Ghana Living Standards Survey, 31.1 percent of the survey population is made up of 5-14 years old children out of which 25.2 percent children are active in work.

The enormity of the figures of 5-14-year-olds who are reported to be economically active or working worldwide and in Ghana sounds the alarm for finding out why children of the age category of 5-14 years engage in economic activities. It is worth finding out some of the economic activities these children do and whether or not their geographical locations and gender do inform what sort of work has a higher likelihood to involve children. More importantly, some welfare implications of child work on the income and educational attainment at adulthood are worth exploring.

The issue of economically active children demands immediate attention because of the health and educational implications of children who are into economic activities. These children who are the future leaders are more likely to be affected by their early exposure to work especially in the event of the prevalence of hazardous work among children. More so, the accumulating evidence that children in economic activity suffer the most than adults at work triggers the urgent need to examine the various forms of work children engage in and their impact on the welfare of the children and to come up with helpful strategies and policy recommendations to address the negative aspect of child work.

1.3 Objective of the Study

The main purpose of this study is to explore some economic activities of 5-14-year-olds and to scrutinise the regional, occupational, rural-urban distribution, and gender dimensions of child work in Ghana. The effect of early work experiences on the income and educational attainment of individuals at adulthood will be examined by the study as well.

The specific objectives are:

- To examine the regional and occupational distribution of child work in Ghana.
- To evaluate the determinants of economically active children in Ghana.
- To scrutinise the welfare effects of child work.

1.4 Research Questions

- What is the incidence of child work across the various regions and occupations in Ghana?
- What are the gender dimensions of children's economic activities?
- What factors influence the likelihood of a child being economically active?
- What are the welfare effects of child work?

1.5 Significance of the Study

The availability and efficient utilisation of human capital and natural resources are the bedrock of development of nations. This makes the process of human capital development worthwhile in all nations. Since children are work-in-progress future labour force and leaders of every country, it is justifiable for children to be groomed well enough with adequate knowledge and skills to empower them to manage their own affairs in the absence of the older generation. For as much as children today are the labour force resource for the future, it is useful to understand how their early involvement in economic activities affects their human capital formation.

This study seeks to scrutinise the factors that influence the occurrence of child work among 5 to 14-year-olds and to evaluate the influence of child work on individual welfare in terms of income and educational attainment at adulthood.

The effects of child work experience on individual welfare later in life will be discussed in detail in this paper. The paper will focus on the effect of age at first work on the income and educational attainment of an individual at adulthood. The discussions will be useful and well informative to update policy makers on the welfare dimensions of children who are working at

the early ages of 5 to 14 years. Feasible strategies can then be adopted to tackle the menace of children working at an early age.

1.6 Research Gap

Studies on child work deal with issues such as determinants of child work and the relationship between child work, poverty and education. However, no studies have been done in Ghana on how early work experiences affect the welfare on individuals at adulthood in terms of their income and educational attainment. Therefore the research gap identified in studies on child work is the effect of early work experiences on the welfare of adults who worked when they were children. The study addresses the research gap by examining the effect of age at first work between 5-14 years on the welfare of adults measured by their income and educational attainments. The Probit and Ordinary Least Square regressions are used to address the research gap.

The study adds to the existing knowledge on child work by providing an econometric estimation and analysis on the effect of early work experiences on the welfare of adults who worked when they were less than 15 years. The study establishes a negative effect of early work experiences on the income and educational attainment of adults which suggests that early work experiences below 14 years must be discouraged and child education must be encouraged.

1.7 Organization of the Study

This thesis consists of six chapters. Chapter two discusses the general overview of economically active children in Ghana. Chapter three entails a thorough discussion of the literature review, summarising the empirical literature on child work that are available. The theoretical framework and methodologies for the study are examined in chapter four. Chapter five presents the results and discusses the findings. Chapter six deals with the summary of the findings, policy recommendation and conclusions. In addition, it discloses the limitations of the study and also gives recommendations for future studies.



CHAPTER TWO

OVERVIEW OF ECONOMICALLY ACTIVE CHILDREN IN GHANA

2.1 Introduction

This chapter discusses the various definitions and concepts of economically active children and child labour. The economic activities children do in Ghana are analysed in this chapter. The difference between child labour and child work is examined. Also, the current employment activities of children by occupation, locality and gender are presented in this chapter.

2.2 Definitions and Theoretical Issues

2.2.1 Economic and non-economic activities of children in Ghana

Economically active children are defined for the purpose of this study as children who are below 15 years of age and are into one sort of work or the other for wages, profit, to benefit the family or to receive non-monetary rewards. Most children do menial work to earn little incomes to support themselves and their families. The economic activities children engage in include diverse agricultural activities, fishing, craft, operating machines in manufacturing industries, working in factories, arranging bricks and blocks in construction work, food services, selling several items such as sachet water, toffees, biscuits, plantain chips, handkerchief, and most consumable as well as non-consumable items (GLSS 6 Labour Force Report, 2014).

Certain numbers of children are unemployed or not active economically. However, these children may be engaged in several activities which are equally important for the everyday upkeep of their families. Those activities are referred to as housekeeping activities, which are

non-economic activities because they do not yield any form of direct income or non-income payments. Those activities include fetching water, gathering firewood, washing and ironing clothes, running errands, washing dishes, sweeping the compound of the house, collecting food from the garden, taking care of the elderly, and their younger siblings.

From table 2.1 below, 31.1 percent of the 2012/2013 GLSS population was made up of 5-14 years old children. Economically active children captured 25.2 percent. 95.8 percent of the economically active children were working children involved in one form of economic activity or the other and 72.5 percent were economically inactive. Girls within the age range of 5-14 years who live in the rural areas have a higher likelihood to be involved in economic activities than girls of the same age range in the urban areas.

Table 2.1: Current activity status of population 5 – 14 years by locality and sex

Activity status	All			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 5-14	31.1	33.2	29.2	28.1	30.0	26.4	33.9	36.0	31.8
Currently active	25.2	25.5	24.9	14.8	13.6	15.9	34.4	35.4	33.4
Employed	95.8	95.5	96.1	96.2	95.7	96.7	95.6	95.5	95.8
Unemployed	4.2	4.5	3.9	3.8	4.3	3.3	4.4	4.5	4.2
Currently inactive	72.5	72.3	72.8	85.2	86.4	84.1	62.5	61.4	63.8

Source: Ghana Statistical Service (2012)

2.2 Economic Activities of Children

The 2012/2013 Ghana Living Standards Survey data give information on the various economic activities of 5-14-year-old children. According to the GLSS 6 report, out of the 31.1 percent of the survey population which was made up of 5 to 14-year-old children, 25.2 percent were active economically for one week before the interview.

Table 2.2 shows that 78.7 percent of 5 to 14-year-old children were into agriculture, forestry and fishing activities, which constitute the principal activities in the rural areas. Thus 88.6 percent represents the proportion of children who work in the skilled agric, forestry and fishing industry in the rural areas, which exceeds the 52 percent who are in the urban areas. Also, the ratio of males is greater than females in the urban areas as well as in the rural areas. Table 2.2 also depicts that 12.7 percent of 5 to 14-year-olds are involved in a wholesale and retail trade, with females taking the higher proportion than males in the rural and urban areas. Thus males are dominant in the rural areas as well as in the urban areas in the agriculture, forestry and fishing sector and females are also dominant in wholesale and retail trade, accommodation and food service activities than males in the rural and urban areas. Stated differently, males do have high participation rates in the market and low participating rates in domestic activities and females have high participation rates in domestic activities and low participation in work outside the home.

Table 2.2: Currently employed children 5-14 years by occupation, locality and sex

Occupation	Urban			Rural			Ghana		
	<u>Male</u>	<u>Female</u>	<u>All</u>	<u>Male</u>	<u>Female</u>	<u>All</u>	<u>Male</u>	<u>Female</u>	<u>All</u>
Service/sales workers	25.6	46.8	37.1	4.4	9.8	6.9	9.5	20.9	15.1
Skilled agric/fishery workers	65.6	41.8	52.6	90.8	83.5	87.4	84.7	70.9	78.0
Craft and related trades workers	3.8	5.9	4.9	1.2	2.4	1.8	1.8	3.5	2.6
Plant machine operators and assemblers	0.4	0.6	0.5	0.0	0.0	0.0	0.1	0.2	0.1
Elementary occupations	4.9	5.0	4.9	3.6	4.4	4.0	3.9	4.6	4.2
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: 2012/2013 GLSS 6 Labour force report.



2.3 Causes of Economically Active Children

It is a common ideology that parents who are very poor usually usher their children into economic activities in order to earn income which is useful for the subsistence of the family. Poverty is a major reason for children being forced into economic activities. "Poverty is what causes child labour" as proposed by Edmonds (2007). Basu and Van (1998) posit that poverty among parents is the fundamental cause of children engaging in economic activities. In view of this, they made a strong case against enacting laws to prohibit children from being economically active. According to Basu and Van (1998), the prohibition of children from active work should be enacted only when it will result in increases in adult wages so as to ensure that poor parents work and earn sufficient incomes to cater for their families. Therefore there will be no need for their children to work to earn extra income. Economic activities of children become critical in reducing the effects of potential job loss, a decline in family's income and inadequate parental earnings which are not enough to warrant family survival as analysed by Galbi (1997).

The level of family or household wealth also influences child work. Parents usually spearhead decisions on whether their children should be active in schooling or in economic activities. Families who live below the poverty line may not be able to finance all the expenses involved in enrolling their children in school. These expenses include school fees, studies fees, feeding fees, transport fares if only the child stays far away from the school, buying school uniforms, textbooks, exercise books, pens and pencils. When the income of the family is below the upkeep level, children in such households are treated as potential persons who must support the family to survive by engaging in one economic activity or the other. In effect, poor families who cannot cater for the education of their children may be left with no other option than to introduce their children to economic activities.

Family size is another factor that may lead children from low-income households into economic activities. Large households which are poor normally have lots of children participating in economic activities as compared to small households which are also poor, which indicates that the size of the family affects the economic activities of children. Because parents find it difficult to meet the demands of a large family size, they may compel their children to work in order to make ends meet for the family.

However, within the family, not every child is allowed to be economically active. The age and gender disparities of children influence children's economic activities. For instance, in certain rural setting, boys have a higher likelihood to go to school than girls. Okpukpara and Odurukwe (2006) observed that there was a higher likelihood of younger siblings to attend school than older siblings and also boys have higher school attendance than girls.

A critical and an unfortunate cause of economically active children is the death of the breadwinner of the family. An increasing number of children are coerced to be economically active so as to earn income to ensure the upkeep of themselves and their siblings when either or both of their parents die.

Parents who had early child work experiences may also influence child work. Aqil (2012) proposes that parents who worked when they were children have a higher likelihood of allowing their children to work as well, thus making child work a generational practice. In effect, individuals who work during their childhood turn out to be low-skilled and uneducated at adulthood. Hence the education of the parents plays a key role in the education of the children because it can enhance the likelihood of a child obtaining good education as explained by Aqil

(2012). According to Fasih (2007), child work produces uneducated and unskilled labour which affects the development of a country in the long-run.

2.4 Child Work and Child Labour

Child work is a term which captures all working activities children engage in. These activities may be economic such as farming, fishing, selling food and other items, working in factories, wholesale and retail trade, shop keeping or working in other households, to earn income or non-income benefits which are essential for the upkeep of their families. Child work also includes non-economic or housekeeping activities which usually do not yield extra income. These activities consist of running errands, fetching water, assisting in cooking, washing clothes and dishes, collecting firewood and food from the garden, ironing, cleaning, taking care of the elderly, the sick and children, as well as assisting younger siblings in doing their homework. Even though these activities do not yield any returns in monetary terms, the household would not function well without the help of children to do all these work.

Child labour is not easy to define because it is a phenomenon with different aspects, which differs in terms of purpose and context among different societies and countries. Child labour in simple terms means employing children, who are below the minimum age of work, in various economic activities, which affects their human capital formation.

The International Labour Organization (ILO) as an international organisation mandated to tackle child labour in member countries came up with a definition of child labour as “work that strips children of their childhood and future abilities, and are destructive to their development”. In other words, child labour is work children are not supposed to do because of their age and the

nature of the work, most of which are tedious and risky, coupled with safety and health implications of children (ILO, 2010).

Child labour according to international laws consists of three groups. The first group is the worst kind of child labour in which children are forced into prostitution, slavery and sexual exploitations as a result of child trafficking. The second group is child workers who fall below the minimum age clearly stated by international and national labour standards for that sort of work. Thus, such tasks have the potential of hampering the complete development and education of children. The last group is referred to as hazardous work which has to do with the kind of work which is precarious to children's well-being, owing to the nature or conditions of the work (ILO, 2010).

Child work and child labour are not the same. Child work encapsulates all activities, both economic and housekeeping work, done by children. However, child labour consists of the work children who are below the minimum age of work engage in, which is detrimental to their human development.

To regard all forms of work children do, ranging from economic activities to housekeeping activities, as child labour causes extreme simplification to the point of causing a misconception of what child labour means. Not all economic activities of children are considered as child labour. Children, who help in their parents' work in their free time, be it on vacations, weekends or after school, cannot be regarded as being engaged in child labour. The assistance of children in their parent's businesses is regarded as child labour only when the assistance obstructs those children's education or when those activities become dangerous to their physical development or health. Children who are learning one form of trade or the other may earn little incomes, but this

activity cannot be regarded as child labour. The delineating factor is that child labour violates the minimum age for work and it has potential threats to the safety and wellbeing of children. According to Aqil (2012) every work done by a child may not be detrimental to their health or be regarded as illegal, however, the nature of the work, as well as the number of working hours, determine whether the work falls under child labour or otherwise.

The ILO differentiates child labour from child work. It regards child labour as the unpleasant and injurious aspect of child work, which affects the safety and health of children, and must be eliminated while child work may include light work at home which spares children some time to study (ILO, 2010).

2.5 Conclusion

The distinction between child work and child labour has been established in this chapter. Child labour is a form of child work but not all child work is regarded as child labour. There is child labour once the work a child does interferes with his or her schooling, moral or physical development. Child work has good aspects such as equipping a child in agricultural, vocational, craft or trading skills. However, child labour is injurious to the safety and health of a child even though it may yield some benefits in the form of cash or in-kind.

CHAPTER THREE

LITERATURE REVIEW

3.1 Introduction

A critical evaluation of the empirical studies on economically active children is rendered in this chapter. The first section gives a review of empirical literature on child work worldwide while the latter part of this chapter reviews empirical literature on economically active children in Ghana.

3.2 A Review of Empirical Literature

3.2.1 Determinants of Child Work

Khan (2003) investigated the factors that influence child work in Pakistan. He used the logit model to examine the supply-side determinants of child work. The dependent variables were child schooling only, child work only, child work and schooling, and idle child. The independent variables were child age, child gender and educational level of the child, gender of the household head, household per capita expenditure and household size. The primary findings showed a positive link between parents' education and child schooling and a negative link with child work. Also, there is an inverse relationship between the size of the household and schooling. However, household size positively influences child work.

Kruger (2007) examined the definition of child work in Brazil in terms of economic activities on one hand and economic work plus housework on the other hand. The impact of housework on child work and schooling is examined with the use of general ordered logit models. The results are that if child work is defined to exclude house chores, by focusing only on economic

activities, then girls have a greater likelihood to be in school and are less likely to be economically active than boys. Thus, this result exhibits consistency with the literature on child work. However, if child work includes housework, there is a higher likelihood that boys will be schooling and girls will be working.

Other studies that examine the trade-off between child work and schooling are scrutinised. Tzannatos (2003) examined child labour and children's enrollment at school in the 1990s in Thailand. The logit model was used in the estimation to find out what influenced child labour and children's attendance at school. The findings were that the level of education of a child's parents affects the tradeoff between child work and schooling. A higher level of parental education increases schooling activities of children and reduces child work.

Cockburn and Dostie (2007) assessed child work and schooling by concentrating on household's ownership of assets and poverty in rural Ethiopia. They used multinomial logit and simultaneous equation models in their estimation techniques. They observed that household composition and ownership of assets are the primary causes of child work. The findings were that, the greater assets that a household has, the lesser the probability of children in the household engaging in child work. Such children are more likely to be schooling. Also, household composition, which refers to the number of adults, children, workers and non-workers in the household, influences child work. Thus household composition and ownership of assets lead to a tradeoff between schooling and working among children.

Toor (2005) estimated the occurrence of child work among 100 districts of Pakistan. The aim of the study was to test the hypothesis that the greater the occurrence of poverty and the lower the education achievement, the higher the incidence of child labour. Linear Multiple Regression was

used to estimate the link between child labour, poverty and education. The result was that there is a negative link between child labour and the rate of literacy among 10-14-year-olds.

Beegle, Dehejia et al. (2009) assessed the impact of child work on child working and schooling activities using a panel data from Vietnam for five years. The OLS and Instrumental variable regression were used to find the effect of child labour on schooling, health and labour market consequences. The results showed that child labour negatively affects the education of children. However, child labour leads to an increase in the likelihood of attaining work with wages for children who combine work and school. However, there were little significant impacts of child labour on health.

With evidence from the Labour Force Survey, Khalid and Shahnaz (2004) explored the socio-economic state of child workers in Pakistan. Child workers aged 10-14-years; household and child characteristics were used as variables to run the regression. By employing the estimation approach of cross tabulations with the use of the Labour Force Survey as the primary data, several findings were arrived at. To begin with, a greater percentage of 12 to 14-year-olds were child workers with most of them being males. Also, a greater proportion of the work children do was unskilled jobs. It was also observed that children who were working had technical training. More importantly, the level of parental education and occupation influenced child work decisions. Unfortunately, most children worked almost 40 to 50 hours each week.

Khan (2001) examined the activities children do with respect to those working in auto workshops. Children working in auto workshops were sampled and cross-tabulated. The socio-economic circumstances of working children, as well as the magnitude of their exploitation, were analysed. With the use of variables such as working children, employment situation, child and

parent characteristic, the results from the cross tabulation which samples child workers in auto workshops are outlined as follows. Child labourers are found both in light and heavy vehicle workshops. Also, the quota of child labourers working in auto workshop amounts to 30%. However, no child is bonded to work in auto workshops. 31% of children working in auto workshops come from households which have the head working in private jobs. Moreover, auto workshop child labourers work 11.45 hours on average daily, with most of such children unable to complete their primary education.

Chaudhary and Khan (2002) gather information on 125 children who are working in the city of Dera Ismail in Pakistan. The effect child labour on working children by taking into account children's hours of work, the health conditions of children as well as the attitude and behaviour of employees is examined. In order to know the main determinants of child labour, variables which include poverty, schooling, the size of family, literacy rate of adults and traditional factors are examined. Some findings which were obtained after cross tabulations of 125 child workers in Dera Ismail Khan, a city in Pakistan are outlined as follows. The main determinant of children working in Dera Ismail Khan is poverty. In addition, family size, fertility and the level of education of adults influence child labour supply. Also, the incidence of child work is relatively less serious among female child workers. It was also observed that there were harmful and poor working conditions which affected child workers by causing visual impairment, acute lung disease, defatation of bones and in extreme cases death among working children.

The cost of schooling and child work in rural Pakistan is examined by Hazarika and Bedi (2003). The Pakistan Integrated Household Survey data of 1991 which has information on children aged 10 to 14 years is used in the Tobit regression, Heckman Two Steps and Probit regression models. The various regression models included variables like the child and educational characteristics,

hours of work per week, controlling for community and regional characteristics with variables such as access to paved roads and access to canal irrigation. Some of the main results were that the cost of schooling has a positive relationship with child labour supply outside the household. However, the intra-household supply of child labour is insensitive to the cost of schooling. Moreover, child work outside the household and schooling of children are regarded as substitutes by parents. Hence an improvement in access to schools and reduced cost of schooling are effective ways of reducing children's involvement in labour.

Diverse activities of children especially schooling and working are scrutinised by Khan (2003). The study aims at finding out the extent to which changes in the income of the household, parents' educational level, parental unemployment and demographic factors affect child work positively or negatively. Sequential probit models are employed with the use of sample survey of two districts in Pakistan. The child work only, child in school, child schooling and working, and child neither schooling nor working were the dependent variables regressed against the child and household characteristics. The findings were that the birth order of a child negatively affects child schooling decisions only. Children who are males have a higher likelihood of schooling than females. There is a positive link between the income of the mother and the probability of combining schooling and working, and a negative relationship between mother's income and child neither working nor schooling. There is also a negative but significant impact of the household head's education on child's work. Children in the highest birth order group are more likely to be in the neither working nor schooling category.

Kulsoom (2007) accesses child work on a district level basis in the city of Rawalpindi. 15 male children are sampled from which the maximum likelihood estimates are calculated. The study seeks to evaluate demographic characteristics as the primary reason for the occurrence of child

work in the city of Rawalpindi. Children within the age range of 11 to 17 years, hours of work, child age, parent's age, child income, work experience, and the age of income earners in the household are among the variables used in the maximum likelihood estimation. Among the findings were that poverty turned out to be the main determinant of child work in Rawalpindi. Child's age positively influences child's involvement in working decisions. Also, household's ownership of assets negatively affects the decision of child's engagement in work.

The relationship between child work, schooling and wealth are explored by Hou (2010). With the use of variables such as children who work only, children who school only, children who are neither working nor schooling, household and community characteristics, household expenditure (income) and household's productive assets owned, several regressions were run. The estimation techniques used include the multinomial logit model which was used to evaluate the determinants of child work, especially wealth. By using data from 1998 to 2006, the fixed effects test was carried out. Also, cross-sectional and time series data were used for the regression analysis. It was found that the role wealth plays in influencing the working activities of girls in the rural areas is insignificant. Also, children who live in households which have agricultural land are unlikely to be found inactive. Households with any farm animals have a higher likelihood of letting children work. Children are more likely to be in school when they come from households which own land. Boys in the rural areas have a higher probability of working and they have a lower probability of being inactive even when they grow older.

3.3 Child work in Ghana

There have been strong disagreements recently in the literature in terms of what policy direction to implement in relation to child labour. This controversy has the role of poverty as its central idea as observed in the most theoretical literature. Canagarajah and Coulombe (1997) challenge the proposition that poverty is the main cause child work. They assert that the main originator of child work is not poverty. However, poverty could have an unintended influence on child work through sub-standard education which affects children. Nevertheless, Blunch and Verner (2001) reaffirm that the principal cause of child work in Ghana is poverty.

Canagarajah and Coulombe (1997) used the first three rounds of the Ghana Living Standards Survey (GLSS) to evaluate what determines child work and schooling decision among 7-14-year-old children in Ghana. They used bivariate probit models with different specifications to establish the findings that child work and schooling have a significant inverse relationship. This implies that when demand for child education is increased, the incidence of child work will reduce. Also, father's education is negatively related to child work with a stronger effect on girls than boys. Thus parental literacy reduces child work. Moreover, household characteristics were observed to have great influence on decisions of child work or schooling. For instance, there was a significant negative influence of the education of the father on child work, with the influence being greater for girls compared to boys. Another finding was that there was a positive but reducing effect of log per capita total expenditure on child work. They further concluded that poverty is not the main cause of child work, using the income level of the household to measure poverty.

Canagarajah and Coulombe (1997) allowed for the endogeneity of income status. Just as the income of the household is anticipated to have a negative effect on child work, similarly, a reversal positive effect may occur as child work yields wages which add up to household income as explained by Bhalotra and Tzannatos (2003). Because of the multidimensional nature of poverty, it can be measured from a different perspective apart from using income level of the household as a measure of poverty, which is accompanied with the problem of endogeneity.

Unlike Canagarajah and Coulombe (1997) who questioned the main causality of child work which is poverty, Blunch and Verner (2001) re-affirmed that poverty and child work are positively linked. They began with the proposition that, child work necessarily is not harmful. They found that poverty is linked to the evidenced gender gap in child work which is skewed towards girls.

Blunch and Verner (2001) revisit the relationship between child work and poverty in Ghana by focusing on a univariate probit model to estimate child work only. "Core Welfare Indicator Questionnaire" (CWIQ) data from Ghana in 1997 was used. They re-emphasize the negative relationship between child work and poverty. Because the popular view that poverty is the main cause of child work has been challenged by current research, they began from the proposition that child work may not always be harmful. By concentrating on child work that directly affects the accumulation of childrens' human capital, they identified that girls are the most vulnerable group. They found out that as a result of a cultural norm rather than discrimination, gender gap with respect to child work is related to poverty. Also, girls in both rural and urban areas have a higher likelihood to engage in harmful work than boys.

Ray (2002) examines the GLSS 1988/1989 data for Ghana with the aim of finding the determinants of child labour. Ray concentrated on household poverty as a possible cause of child labour, bearing in mind the Luxury Axiom by Basu and Van (1998). Child schooling, poverty and child labour are estimated using simultaneous equations, controlling for the endogeneity that exists between them. Also, the two-stage Heckman estimation procedure was used in estimating the determinants of child labour. The finding was that household poverty was not the primary cause of child work. The explanation for the finding was that in poorer communities there are fewer employment opportunities for children. Variables such as parent's educational level and access to quality school in the community were found to have a significant impact on the hours of work of children. Ray (2002) proposed that policies which seek to increase children's schooling and enhance the quality of schools would motivate parents to decide to educate their children rather than making them work.

What makes Ray's study different from that of Canagarajah and Coulombe (1997) and Blunch and Verner (2001) is that Ray (2002) corrected for endogeneity by deducting the contribution of the child to the household income from the total household income. There are two challenges with this approach. The first challenge is that it is not every economic activity of children that earns direct wages or income. Children who work on household farms and in other household businesses may not be paid in cash as is common in most developing countries as elucidated by Bhalotra and Tzannatos (2003). Therefore in such a situation, it is difficult to estimate child income in order to subtract it from household's income to correct for endogeneity. The second challenge is that, even if the estimates of child income are made and deducted from the total household income, the income of adults is endogenous in that adult and child labour supply are determined jointly as explained by Bhalotra and Heady (2000).

Boozer and Suri (2001) explored the preferences involved in child labour and schooling hours trade-off, excluding child work in the household. The GLSS for 1988/1989 from the World Bank was used for their study. They used the differences in regional rainfall trend as their source of exogenous differences in child labour. The Ordinary Least Squares regression was used to estimate the interrelation between hours of schooling and child labour. The findings were that by accounting for the differences in regional effects due to the different climatic trends in the Northern and Southern Ghana by month, a significant trade-off exists between schooling and child labour. Also, an hour increase in child labour causes a decline in hours of schooling by 0.38 or 38 minutes.

3.4 Conclusion

Most studies on child work establish at least four groups of factors which are likely to affect the decision of the household in terms of child work. The first group of factors is child-specific, which includes the age, gender and the educational level of the child. Grootaert (1998) notes that the direction and magnitude of the child-specific effects are country-specific, and are influenced by the wage trends, culture, the cost of schooling and labour market opportunities. The second group is the parental characteristics. Most studies show that when parents in the household are educated, their children are less likely to work such as Canagarajah and Coulombe (1997); Ray (2002); and Jensen and Nielsen (1997). Household characteristics make up the third group of factors. Child work is affected by the demographic decomposition of the household. Several empirical studies confirm that the gender of the household head, the gender and number of siblings, and whether the parents are present or absent in the household have significant effects

on child work as found in Canagarajah and Coulombe (1997); Huebler (2008). Community-level factors make up the fourth group which includes cultural norms, child wage rates, schooling cost, and opportunities in the labour market. These factors have significant influences on the incidence of child work as expounded by UNICEF., (2007) and Ndjanyou and Djiénouassi (2014).



CHAPTER FOUR

THEORETICAL FRAMEWORK AND METHODOLOGY

4.0 Introduction

This chapter discusses the theoretical framework of child work and the statistical techniques employed in determining the factors that influence the occurrence of child work in Ghana. This chapter as well examines the types and sources of data, model specification, variables employed for the study, prior expectations on the signs of the coefficients to be estimated as well as the estimation techniques of the models.

4.1 Theoretical Framework

4.1.1 The Bargaining Model

In order to explain the theoretical underpinnings of economically active children or child work, how the household behaviour is modelled which is closely linked to the formal study of child work is considered. Early studies by Rosenzweig and Evenson (1977) and Goldin (1979) used the model of bargaining of how households make decisions to concurrently explain decisions on household consumption and child work. Child work is explained by bargaining model.

There are two forms of the bargaining model by virtue of who the bargaining agents are. They are the Intra-Household Bargaining Model which has the child and parent in the family as the bargaining agents and the Extra-Household Bargaining Model which has the child's parents and the employer as the agents engaged in bargaining.

4.1.2 The Intra-Household Bargaining Model

Becker (1985) proposed that in the traditional household model, referred to as the unitary model, the household is regarded as one entity that makes decisions. The unitary model is valid if a household has one person who makes all the decisions on all matters of the household or if the utility function of all persons in the household are the same. Nevertheless, evidence abounds to show that the decision making in the household depends on household members' earnings and contribution to the household income (Strauss and Thomas, 1995). Thus, the household is a decision-making unit which is not without conflict, but it is a bargaining arena where the income contribution of an individual to the household depicts the individual's bargaining power (Grootaert and Kanbur, 1995).

Moehling (1999) used this model by clearly taking notice of child work. For simplicity, an assumption is made that a household is made up of a parent who is the 1st agent and a child who is the 2nd agent. With the assumption that an economy has just one good (x) and agent i consumes x_i . Another assumption of the Moehling model is that the agents of the household care about the consumption of other household members because the consumption pattern of one member in the household affects the consumption pattern of the other members. u_i is the utility function of person i .

The utility function of the household is a weighted mean of u_1 and u_2 , where the weight tied to the utility of the parent given as (α) , is dependent on the parent and child's income represented as y_1 and y_2 respectively. The weight of the child is given as $1 - \alpha$. Stated differently, in terms of the utility function of the household the amount of income generated for the household informs the amount of weight one obtains. Thus greater weight is assigned to income generated and smaller

weight is assigned to leisure and other non-income generating ventures. Therefore the decision problem of the household can be stated in a collective model as:

$$\text{Max } \alpha (y_1, y_2) u_1(x_1, x_2) + [1 - \alpha((y_1, y_2) u_2(x_1, x_2)]$$

Subject to $x_1 + x_2 \leq y_1 + y_2$.

The assumptions are that:

$$\frac{\partial \alpha}{\partial y_1} \geq 0, \frac{\partial \alpha}{\partial y_2} \leq 0, \frac{\partial u_1}{\partial x_1} > 0, \frac{\partial u_2}{\partial x_2} > 0, \frac{\partial u_1}{\partial x_2} \geq 0, \frac{\partial u_2}{\partial x_1} \geq 0$$

Where $0 \leq \alpha \leq 1$

Moehling (1999) used a household data from urban America to estimate this model and observed that children who work obtain a greater share of the resources of the household compared to children who are not working.

In order to use this model to also explain the involvement of a child in work, it is admitted that households make use of goods and services as well as leisure. To make matters simple, the assumption is made that the adults in the household work. If child work is given as “e”, where “e” is categorised as [0, 1] then the leisure consumed by a child is 1-e.

With the inclusion of child work, the utility of each person is a function of x_1, x_2 and e . This extends the initial model to what is called the "collective maximisation problem" which represents the new problem of decision making in the household. It is given as:

$$\text{Max } \alpha (y_1, y_2) u_1(x_1, x_2, e) + [1 - \alpha((y_1, y_2) u_2(x_1, x_2, e)]$$

Subject to $x_1 + x_2 \leq y_1 + y_2$.

This utility maximisation problem of the household may look simpler at a glance but it is a sophisticated household problem. This is because the income of the child y_2 is influenced by the kind of work a child does. Therefore it is not straight forward to regard y_2 as an exogenous variable.

This problem can be solved by treating the weight tied to the parent's utility which is α , as a price vector as explained by Browning, Bourguignon et al. (1994). Because wage rate is a price, α now becomes a function of the adult and child wage rate (w_1 and w_2) but not a function of y_1 and y_2 . This alters the budget constraint to:

$$x_1 + x_2 \leq w_1 + ew_2$$

With this, there is a non-complicated optimisation without the problem of simultaneity. This implies that the bargaining power of a person in a household is not dependent on the share of income a person contributes to the household but on the wage a person earns.

Maximising the household utility function subject to the budget constraint yields an expression for child work or labour supply as:

$$e^* = e^*(y_1, w)$$

This means that child work (e^*) is determined by the adult wage (y_1) and child wage on the labour market. If the adult wage is below the level of subsistence of a household, a child may be ushered into economic activities to earn income to support the household upkeep. This supports the luxury axiom by Basu and Van (1998) which explains that children engage in economic

activities when the incomes of the household and the incomes from other sources with the exception of child labour sources, are low.

Basu (1999) proposes that a complex model with several explanatory variables can be developed. This study seeks to add more exogenous variables to the simple child work supply function above and to find out the empirical implications of the new model and also to test the significance of the exogenous variables to child work.

4.2 Data Type, Source and Definition

This study makes use of secondary data for its analysis. The data is obtained from the 2012/2013 Ghana Living Standards Survey Round Six (GLSS 6). What makes the GLSS 6 unique is that it has a particular focus on labour force which is further widened to make room for a section on Child Labour. GLSS data sets are mainly collected to better appreciate poverty and household welfare levels in Ghana.

The probit model will be used to find the determinants of child work. In the estimation of the probit model, the study uses the 2012/2013 GLSS- round 6. The GLSS 6 is a national household survey which was done in Ghana from October 18, 2012, to October 17, 2013. It gathered detailed information on issues such as population characteristics, health, education, employment and time use, migration, housing conditions and household agriculture, among others. The 6th round of the GLSS captures 18,000 households in 1,200 enumeration areas (EAs), with 655 enumeration areas which represent 54.6% belonging to the rural areas while the urban areas is also made up of 545 enumeration areas which are 45.4%. Only 16,772 households out of the 18,000 households had successful enumeration which represents a response rate of 93.2%.

4.3 Estimation technique

The study makes use of two approaches to analyse the data; descriptive analysis and inferential analysis. The descriptive analysis provides insight into the current economic activities of 5-14-year-olds by locality and sex as well as the occupational distribution of child work across the various industries in Ghana; while the inferential aspect employs the use of regression analysis. With regards to economically active children, the analysis is done in two parts. The first part entails the determinants of factors that influence the occurrence of child work, and the second aspect deals with the effect of child-work experience on later incomes and educational attainment.

4.3.1 The econometric framework of the probit model

The probit model is used in estimating a model with a dependent variable which has a binary outcomes, such as economically active child or not, for this study. It usually takes on two values; a zero (0) if a child is not economically active, or a one (1) if a child is economically active, as follows:

$$\text{Economically Active Child} = \begin{cases} \text{yes} = 1 \\ \text{no} = 0 \end{cases} \quad 4.1$$

Here, instead of estimating the values of one and zero, the model estimates the probability (p) that economically active child = 1 as a function of the explanatory variables. If we represent economically active child by “EAC” then,

$$1 = \Pr(\text{EAC} = 1 | \mathbf{X}) = F(\mathbf{X}^1\beta) \quad 4.2$$

Thus the probability of economically active child = 0, that is ‘no’ is derived as $(1 - p)$, Where $F(\mathbf{X}^1\beta)$ is a cumulative distribution function of the standard normal distribution given as:

$$F(X^1\beta) = \Phi(X^1\beta) = \int_{-\infty}^{(X^1\beta)} \phi(z) dz \quad 4.3$$

As a result, the predicted probabilities are within the values of zero (0) and one (1). The probit model is estimated by Maximum Likelihood Estimation, and its errors (disturbances) are assumed to follow the standard normal distribution,

$$\Phi(\varepsilon) = \frac{1}{\sqrt{2\pi}} e^{-\frac{\varepsilon^2}{2}} \quad \text{with a variance of 1} \quad 4.4$$

The marginal effect for the probit model is derived as:

$$\frac{\partial y}{\partial x} = \phi(X^1\beta) \quad 4.5$$

4.3.2 Model Specification

Following from the theoretical framework which defines child work as a function of adult and child wages, other child and household characteristics will be added to the model to examine the determinants of economically active children.

4.3.3 Estimation Technique

The Probit model will be used to address the issue of the factors that are likely to influence children being economically active. The model is specified as:

$$EAC = \beta_0 + \beta_1 CC_i + \beta_2 HH_i + \beta_3 FE + \beta_4 ME + \beta_5 OF + \beta_6 OM + \beta_7 FP + \beta_8 MP + \beta_9 UrbRur + \beta_{10} Religion + \beta_{11} Region + \varepsilon_i$$

The Probit model is given as:

$$\Pr (EAC = 1 | CC_i, HH_i, FE, ME, OF, OM, FP, MP, UrbRur, Religion, Region) = \Phi (\beta_0 + \beta_1 CC_i + \beta_2 HH_i + \beta_3 FE + \beta_4 ME + \beta_5 OF + \beta_6 OM + \beta_7 FP + \beta_8 MP + \beta_9 UrbRur + \beta_{10} Religion + \beta_{11} Region + \varepsilon_i)$$

Where Φ = cumulative standard normal distribution function

EAC = economically active child or not

CC = vector of child characteristics (child age, age squared, gender)

HH = household characteristics (household size, age of the household head, age squared of the household head, gender of the household head, child's relation to the household head, adult wage rates in the household)

FE = educational attainment of the child's father

ME = educational attainment of the child's mother

OF = occupation of the child's father

OM = occupation of the child's mother

FP = father lives in the household with the child

MP = mother lives in the household with the child

Other variables included in the probit regression which is likely to affect child work are the residence, land ownership and religious affiliation. Therefore the probit model for this study is:

$$\Pr (IM | X) = f(c_age, c_gender, rel.hhh, hhsz, educstatus, FP, MP, FE, ME, OF, OM, land owned, urban-rural, religion and regions).$$

The probit model is also used to investigate the effect of age at first work on the educational attainment of individuals which is a dummy variable categorized as below secondary education (0) and above the threshold of secondary school qualification (1).

The dependent variable is the educational attainment of an individual which, in this study, has been specified to take two values; a zero (0) if an individual has an educational attainment which

is below secondary school qualification or one (1) if an individual has secondary educational attainment and above secondary educational attainment. It is specified as follows:

$$\text{Educational attainment of an individual} = \begin{cases} \text{secondary and above} & = 1 \\ \text{below secondary} & = 0 \end{cases}$$

The study will estimate the probability that the educational attainment of an individual=1 as a function of the regressors.

Estimation Technique

The probit model will be estimated to know the effect of age at first work on the educational attainment of individual controlling for other variables. The probit model is specified as:

$$\Pr (Educ_i=1|X_i) = (\text{AFW, Gender, Income of the individual, Mother's education, Father's education, Mother's occupation, Father's occupation})$$

Where,

Φ = cumulative standard normal distribution function

AFW = Age at first work

4.3.4 Justification for using the probit regression model

The dependent variable is assigned 1 if a child is economically active or 0 if otherwise. It is binary as it takes two values. The probit model is popularly used in binary response model of this nature. The probit model uses the cumulative normal distribution function to estimate the β_s .

The binary nature of the dependent variable makes it unsuitable to use the OLS method to estimate a linear function with a binary outcome. This is because the error term would not be normally (randomly) distributed. For the error term to be normally distributed, it must be between negative and positive infinity ($\pm\infty$). But the error term in the probit model takes the value of 0 or 1 for the dependent variable. This means that the variance of the error term depends on the regressors, implying heteroscedasticity as explained by Gujarati (2014). Thus, the assumption of the OLS method that the independent variables and the error term must not be correlated is violated in this model. This renders the OLS method inappropriate in estimating this model. The best options available are the probit or logit models.

Household income has a possibility of being endogenous with child work. Therefore, household income is proxied with the education of the father and the mother.

4.3.5 Interpretation of the Probit Coefficients

Some of the economically active children regressors are categorical and others are ratio variables. The probit coefficients are interpreted with regards to sign, significance, and the magnitude of the marginal effects.

For those that are ratio variables, a positive sign for the ratio variables such as income indicates that early work experience is more likely to increase the incomes of adults who worked in their childhood. If the income coefficient turns out to be negative, then it would be interpreted as early work experience is more likely to reduce the income levels of adults who worked in their childhood.

Considering categorical variables, the dummy approach of incorporating the categorical regressors is done with regard to a base or a reference group. For instance, the variable gender is

an indicator variable where an economically active child is either a male or a female. The study employs the dummy approach where a subcategory such as female, expressed as “female=0”, is used to indicate the reference group (this means that, females is the reference group with which other subcategories of the variable gender, males, will be compared to). Here the estimation is done considering whether other subcategories are more or less likely to be economically active compared to the reference group, females, and also examine if the difference between the dummy and the reference group is statistically significant.

The interpretation is done with regards to the sign and significance of the dummy variable. A negative sign for a dummy coefficient indicates that the dummy is less likely to influence a child to be economically active compared to the reference group, and a positive coefficient indicates that the dummy is more likely to determine economically active child than the reference group. If a dummy coefficient is found insignificant, then it means that the probability that, the dummy group would cause a child to be economically active in comparison to the reference group is not statistically different.

When estimating the probit model, it is also necessary to assess how a given unit change in the regressors (such as a 1-year increase in age) would affect the probability of a child being economically active ($Pr(EAC) = 1$). The marginal effects are estimated in the study as well.

4.4 The Econometric Framework of the Ordinary Least Square Regression Model

To answer the research question of the welfare effects of child work, the age at first work variable will be used. The OLS regression will be used to estimate the effect of age at first work on the incomes of adults who were economically active when they were children.

An individual level analysis will be carried out. Data on adults will be used. A sample of individuals who worked during their childhood (5-14 years) will be used. The OLS regression will have on the left-hand side, the income of adults who were economically active as children, and on the right-hand side age at first work, among other regressors.

The OLS model specification is given as:

$$\text{Income} = \alpha_0 + \alpha_1 \text{AFW}_i + \alpha_2 \text{Gender}_i + \alpha_3 \text{I_occup}_i + \alpha_4 \text{I_educ}_i + u_1$$

Where,

AFW= age at first work

I_occup_i= occupation of the individual

I_educ_i = education of an individual

4.5 Explanation of variables and their expected signs for the economically active children's probit estimation

Dependent Variable

Economically active children (EAC)

Economically active children captures 5-14-year-olds who are working for wages or working in family businesses and are unpaid, with the reference period being the previous 7 days or 12 months before the interview for the survey. The variable is coded 1 if a child is economically active, and 0 if otherwise.

Control Variables

The study seeks to investigate the factors that are likely to influence children to become economically active. Hence the demographic and socio-economic characteristics of the respondents are captured in the control variables.

The control variables are grouped into child characteristics, parental/ household characteristics, and community characteristics. The variables under each category are explained with their expected signs as follows.

Child Characteristics

Child Age

This variable captures child's age in completed years for 5-14 year group. The GLSS 6 collects information on children who are as low as 5 years old. The age for the completion of the free compulsory primary education is 14 years. Children are defined in several ways across various studies but they are most often regarded as above 6 years and below 15 years, or at times below 18 years (Bhalotra and Tzannatos, 2003: 48). Nielsen (1998) used 7-14 years for Zambia while Moyi (2011) used 6-17 years for Kenya. The UN convention informs the choice of the upper age limit which may be altered in accordance with culture-specific knowledge in terms of when children begin to decide on their own or live outside their parent's home.

Child Gender

The gender of a child influences the type of work he or she may be engaged in. Since boys are more likely to be economically active compared to girls as observed in Ray (2002) for Peru and Pakistan, male children who work are likely to contribute to household income because of their higher earning probability. Boys are more likely to be economically active than girls who are dominant in terms of household chores. Therefore the child gender variable is coded 1 for males and 0 for females. The variable is expected to have a positive sign.

Household/ Family Characteristics

Household Size

Household size affects child working decisions. Larger households may spend more in terms of expenses on goods and services than smaller households only if the larger households make enough income to cater for the total consumption expenditure of the household. Households with a majority of its members working can afford higher consumption expenditure because it earns a higher income. However, a large household with fewer people working negatively influences child work. Thus household size positively affects child work as children may have to work to contribute to the income of the household.

Child's Relation to the Household Head

This variable explains whether a child is the biological son or daughter of the household head or not. It is expected that children who are biologically related to the head of the household will work less and children who are not related to the household head will work more. This is because the household head mostly prefers their children to be in school to enhance their human capital development. Thus, there is a negative relationship between the child's relation to the household head and child work.

Educational Level of the Father

The educational attainment of the father is a dummy variable which is coded 0 if the father has no formal education or 1 if the father has formal education. The formal educational attainment of the father is expected to have a negative relationship with child work. This is because fathers with formal educational attainments are privileged to be employed to earn incomes sufficient enough to cater for the upkeep of the household.

Educational Level of the Mother

The educational levels of mothers are expected to earn them employment outside the home. When mothers are formally educated and employed their children may not be engaged in child work at early ages. A negative sign may be expected of the coefficient of the educational level of the mother.

4.6 Measurement of the variables and their expected signs for the probit regression of the educational attainment of an individual.

The probit model is also used to investigate the effect of age at first work on the educational attainment of individuals below or above the threshold of secondary school qualification.

Dependent variable

Educational attainment of an individual

The dependent variable is the educational attainment of an individual which takes two values; a zero (0) if an individual has an educational attainment which is below secondary school qualification and one (1) if an individual has secondary educational attainment or above secondary educational attainment.

Regressors

Age at first work

The age at which an individual started work for the first time in his or her life is captured by the age at first work variable. The variable is coded 1 if an individual started work for the first time

between the ages of 5-14-years and 0 if an individual's age at first work falls within the age range of 15-65 years. It is expected that an individual who starts first work below 15 years will have an educational attainment of below senior high school level.

Gender

The gender variable represents the sex of individuals who worked when they were children. It takes the value of zero (0) if the individual is a female and one (1) if the individual is a male. It is expected that males who worked as children will be less likely to have an educational level below secondary school than females. This is because females double up economic work with house chores which give them less time to study at home for those schooling, than males. The academic performance of girls is affected and so most females who work are likely to have an educational attainment below the secondary school.

Mother's education

The mother's education as variable measures whether a mother is educated or not. It is a dummy variable which is assigned zero (0) if an individual's mother has not attained formal education and one (1) if an individual's mother has attained formal education. It is expected that mothers with formal educational attainment will have their children attain an educational level of at least senior high or above. This is because such mothers appreciate the essence of formal education and they will ensure that their children have a higher educational level.

Father's education

Whether a father has attained some level of formal education or not is measured by the variable father's education. It is a binary variable which is assigned zero (0) if a father has no formal

education and one (1) if a father has formal education. The expectation is that the educational attainment of individuals will be positively related to the education of the father.

Mother's occupation

Mother's occupation is a categorical variable which measures the kind of work done by the mother. It is expected that some of the occupational categories of the mother would have either a positive or negative effect on the educational attainment of an individual.

Father's occupation

Father's occupation is a categorical variable which groups the work done by the father into professional, managerial, clerical, sales or service, agric or production. The occupation of the father is expected to influence the educational attainment of an individual.

4.7 Measurement of the variables and their expected signs for the Ordinary Least Square (OLS) regression

Dependent variable

Income

The income variable measures all payments, bonuses and commissions individuals received from work in the last seven days before the survey interview. It is a continuous variable which is measured in Ghana cedis.

Regressors

Age at first work

The age at first work variable measures the age at which an individual began to work for the very first time. The GLSS 6 captures a minimum age at first work of 5 years and a maximum age at first work of 65 years. Early work experience is expected to negatively affect the income of adults who worked in their childhood days.

Gender

Males are expected to earn more income than females. This is because males are engaged in economic activities more than females. Females engage in petty trading and other menial jobs which may not earn them much income than males who are more into the factory and other rigorous works which earn them much money.

Occupation of the individual

The occupation of the individual is a categorical variable which measures the main occupation of an individual. It is made up of categories such as armed forces, managerial, professional, technician, clerical, sales or service, agriculture, craft or related trade, plant or machine operator and elementary occupation. It is expected that these categories of the occupation of the individual will affect the income of the individual.

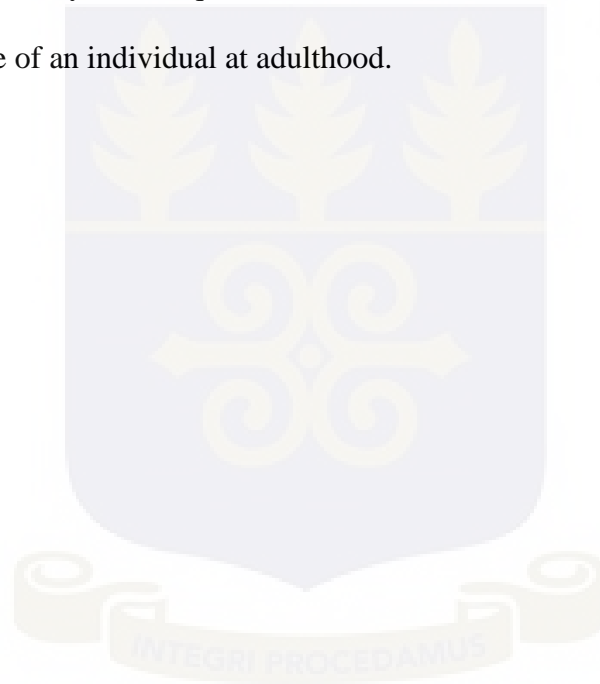
Educational status of the individual

This is a categorical variable which is coded zero if an individual has no formal education, one if an individual has basic education and two if an individual has at least secondary education. It is expected that individuals with at least secondary education will have higher incomes compared to individuals with basic or no formal education because an individual with at least secondary

education has a higher likelihood of obtaining better employment with better pay structures than an individual with no formal education or basic education.

4.8 Conclusion

The Probit models and the Ordinary Least Squares method are the main methodologies used in this study. The Probit models are used to find the factors that influence the occurrence of child work in Ghana as well as the effect of child-work experience on educational attainment at adulthood. The robust Ordinary Least Squares method is used to find out the effect of child-work experience on the income of an individual at adulthood.



CHAPTER FIVE

PRESENTATION AND DISCUSSION OF RESULTS

5.0 Introduction

In this chapter, the descriptive statistics for the dependent variables and the regressors used in the study are first presented. The dependent variables are the economically active child (EAC), which is a dummy variable for whether a child is economically active or not, the income level of an adult who worked as a child and the educational attainment of individuals later in life. The economically active child variable is considered as for whether or not a child within the age range of 5 to 14 years did any work for pay, profit or family gain or whether a child produced anything for barter or home use during the last seven days even if it was for one hour. The income variable is measured as the amount received from work including bonuses and commission. The educational attainment is a dummy variable which is coded zero (0) if an individual attained below secondary education and one (1) if an individual attained secondary education and above. Below secondary school attainment includes qualification such as kindergarten, primary, JSS/JHS, middle school and SSS/SHS whereas secondary school and above include educational levels such as secondary, vocational/ technical/ commercial, teacher training/ nursing, post-secondary diploma, bachelor degree and post graduate.

The regressors used in the study to find the determinants of economically active child include child age, child gender, child's relationship to the household head, father's presence in the household, mother's presence in the household, educational status, father's education, mother's education, household size, household residence, household's ownership of land, religion and regional dummies.

The regressors used to investigate the effects of age at first work on the income of the individual later in life include the age at first work variable, the education of the individual, and the occupation of the individual, controlling for the sex of the individual.

The determinants used in the probit regression to estimate the effect of age at first work on the educational attainment of individuals include variables such as; age at first work, gender of the individual, income of the individual, father's education, mother's education, father's occupation and mother's occupation.

5.1 The data

The data set used for the study is the 2012/2013 Ghana Living Standard Survey (GLSS 6). The variables of interest of the study are found in the GLSS 6. The summary is done by cross-tabulating the variables with the residence dummy to examine the presence of rural and urban differences. The summary of income is shown in the form of observation, mean, standard deviation, minimum and maximum.

The GLSS 6 captures 1,200 enumeration areas and 18,000 households which are a nationally representative sample. 16,772 out of the 18,000 households were enumerated successfully which represents a response rate of 93.2 percent.

Information was collected in details on the demographic characteristics of households, education, health, employment, housing conditions, household agriculture, income, expenditure among others.

5.2 Descriptive Statistics for the Dependent variables

5.2.0 The Regional Distribution of economically active children between the ages of 5-14 years in Ghana.

In estimating economically active children, children of the tender age of five years old are considered. This sounds extreme but it is very prevalent in the Ghana and the GLSS 6 data set reports of children of the age of five years engaged in work. Therefore for the purpose of this study only children in the age group of 5-14 years were selected. Table 5.2.0 below shows the regional distribution of economically active children aged 5-14 years. It can be seen from the table that the Upper East region recorded the highest number of economically active children with a figure of 2,407 which represents 17.52 percent followed by the Upper West region with 2,103 children which also represents 15.31 percent while Greater Accra recorded the lowest figure with 252 economically active children which represents 1.83 percent. The essence of the regional distribution of children to the analysis is that it provides a good coverage of the number of economically active children found in all the parts of the country.

Table 5.2.0 Regional distribution of economically active children aged 5-14 years

REGION	FREQUENCY	PERCENT
Upper East	2,407	17.52
Upper West	2,103	15.31
Eastern	1,933	14.07
Brong Ahafo	1,850	13.47
Northern	1,649	12.00
Volta	1,110	8.08
Ashanti	1,098	7.99

Western	781	5.68
Central	556	4.05
Greater Accra	252	1.83
Total	13,739	100
REGION	FREQUENCY	PERCENT
Western	781	5.68
Central	556	4.05
Greater Accra	252	1.83
Volta	1,110	8.08
Eastern	1,933	14.07
Ashanti	1,098	7.99
Brong Ahafo	1,850	13.47
Northern	1,649	12.00
Upper East	2,407	17.52
Upper West	2,103	15.31
Total	13,739	100

Source: Ghana Statistical Service, 2012/2013

5.2.1 Occupational distribution of economically active children (5-14 years) in Ghana

The distribution of economically active children in Ghana by occupation is presented in table 5.2.1. The table shows that 11,822 children between the ages of 5-14 years representing about 85.75 percent are into agriculture, forestry or fishery. The next occupation that employs more children is the sales or service work which has about 1,119 children representing about 8.12 percent. The occupation with the least child workers is the machine operator or assembling which has 21 child workers representing 0.15 percent.

Table 5.2.1 Employed children 5-14 years by occupation

Occupation	Frequency	Percent
Service or sales worker	1,119	8.12
Agric., forestry, or fishery	11,822	85.75
Craft or related trade	314	2.28
Machine operator or assembler	21	0.15
Elementary occupation	510	3.7
Total	13,786	100

Source: Author's compilation from the GLSS 6, Ghana Statistical Service (2012/2013)

5.2.1a The extent of Economically Active Children (EAC) in the Urban and Rural Areas

Section 5.2.1 discusses the extent of an economically active child (whether a child was involved in economic activities in the last one week before the survey interview) in the urban and rural areas.

Table 5.2.1a The extent of Economically Active Children (EAC) in the Urban and Rural Areas

Residence	EAC	Frequency	Percentage	Cumulative
Rural	Yes	11,851	85.96	85.96
Urban	Yes	1,936	14.04	100
	Total	13,787	100	

Source: Compiled by the author from GLSS 6 data

The above table presents the frequency and percentage of the rural-urban distribution of children who are economically active or not. Children in the rural areas are more engaged in economic activities relatively than children in the urban areas. From table 5.2.1a, 14.04 percent of children between the ages of 5-14 years in the urban areas participated in economic work seven days before the survey and 85.96 percent of children aged 5-14 years in the rural areas were economically active. A plausible reason for the high percentage of economically active children in the rural areas may be because most of the rural child workers are into agriculture which happens to be the main economic activity in the rural areas. Thus agriculture is the main activity of children in the rural areas.

5.2.1b The Gender Distribution of Economically Active Children

From the GLSS 6 data set, male children between the ages of 5-14-years old who are economically active are about 51.08 percent and female children of the same age cohort who are economically active are about 48.92 percent. Thus male children are more economically active than female children.

Table 5.2.1b The Gender Distribution of Economically Active Children (EAC)

Gender	EAC	Frequency	Percentage	Cumulative
Female	Yes	6,745	48.92	48.92
Male	Yes	7,042	51.08	100
	Total	13,787	100	

Source: Compiled by the author from GLSS 6 data

5.2.1c Percentage of 5-14 year old children who are economically active or inactive.

This section provides the frequency and percentages of children between 5-14 years who are economically active or inactive.

Table 5.2.1c Frequency and percentage of economically active children (5-14 years)

Children	Frequency	Percentage
Economically active	13,787	27.68
Non-economically active	36,020	72.32
Total	49,807	100

5.2.2 Income levels of Individuals who worked when they were children

Table 5.2.2 Descriptive Statistics for the Income of the Individual

Variable	Obs	Mean	Std. Dev.	Min	Max
Income (GH¢)	15,954	451.0183	1311.071	0	60,000

Source: Compiled by the author from GLSS 6 data

Income is measured as the amount of money received for work done which may take the form of pay, commission or bonuses. The unit of measurement of income is Ghana cedis.

From table 5.2.2 there are 15,954 observations of income received from the work of individuals who are adults. The mean income is 451.0183 while the minimum and maximum income received from work are 0 and 60,000 Ghana cedis respectively.

5.2.3 Descriptive Statistics for the highest educational level of the individual

The highest educational attainment of individuals who first worked when they were 14 years or below and those who first worked when they were 15 years or older are presented in table 5.2.3. Males tend to have a higher percentage of educational attainment below secondary school of 50.7 percent than females with 49.3 percent. Similarly, males have a higher percentage of educational attainment of secondary school and above with 62.47 percent than females with 37.53 percent.

Table 5.2.3 Descriptive Statistics for the highest educational level of the individual

Highest Educational Attainment	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Below secondary	23,662	50.7	23,009	49.3	46,671	100
Secondary & above	2,181	62.47	1,310	37.53	3,491	100
Total	25,843		24,319		50,162	

Source: Author's own compilation from GLSS 6.

5.3.1 Descriptive Statistics for the Independent Categorical Variables

Table 5.3.1 Descriptive Statistics for the Independent Categorical Variables

Variables	Total Percentage	Rural Percentage	Urban Percentage
Child Age			
5-10 years	65.75	66.99	62.22
11-14 years	34.25	33.01	37.78
Gender of the child			
Female	50.51	49.97	52.04
Male	49.49	50.03	47.96

Relationship to the household head			
Child	66.04	65.89	66.46
Grandchild	16.77	17.19	15.58
Distant relative	17.19	16.92	17.95
Child's educational status			
No formal education	8.24	10.22	2.63
Formal education	91.76	89.78	97.37
Father's presence in the household			
Father's non-presence	44.86	44.46	45.98
Father's presence	55.14	55.54	54.02
Mother's presence in the household			
Mother's non-presence	32.02	31.90	32.33
Mother's presence	67.98	68.10	67.67
Father's education			
No formal education	48.70	53.85	34.02
Formal education	51.30	46.15	65.98
Mother's education			
No formal education	65.01	67.14	59.03
Formal education	34.99	32.86	40.97
Household's ownership of Land			
Yes	59.62	66.27	40.78
No	40.38	33.73	59.22
Religious affiliation			
No religion	3.07	4.03	1.18
Christianity	69.59	67.25	74.19
Islam	27.33	28.72	24.61
Traditionalist	0.01	0.01	0.02

Source: Author's computation using data from GLSS 6

The summary of the explanatory variables in the GLSS 6 data presented in Table 5.3.1 above indicates that children between the ages of 5-10 years represent 65.75 percent which is more than children in the age range of 11-14 years who are about 34.25 percent. About 50.51 percent of children aged 5-14 years were girls and about 49.49 percent of 5-14-year-old children were boys.

While boys (50.03%) outnumber girls (49.97%) in the rural areas, girls (52.04) also are more than boys (47.96%) in the urban areas.

More than half of 5-14-year-old children in the rural areas of about 65.89 percent and children in the urban areas of about 66.46 percent were children of the household head. Grandchildren to the household head were about 17.19 percent for the rural sample and about 15.58 percent for the urban sample. About 16.92 percent of children from the rural areas and 17.95 percent of children from the urban areas were distant relative to the household head.

The rural sample has a higher percentage of children who never attended school of 10.22 percent compared to the children in the urban areas of about 2.63 percent. More children of about 97.37 percent in the urban areas attend school and 89.78 percent of children in the rural areas attend school. The availability and accessibility of most educational facilities in the urban areas than in the rural areas may explain the rural-urban disparities in the educational status of the child.

Father's non-presence in the household is relatively high in the urban sample with about 45.98 percent than the rural sample of about 44.46 percent. Also, mother's non-presence in the household is greater in the urban sample with a percentage of 32.33 than the rural sample of about 31.90 percent. The availability of job opportunities, transfer of workers in various jobs and death may account for the non-presence of father and mother in the household. The rural sample has most of the father and mother living in the household perhaps due to limited jobs in the rural areas that may keep parents away from the house. It is observed that more children live with their mothers (68.10 percent) compared to their fathers (55.54 percent).

About half of the fathers in the rural areas have no formal education and 34.02 percent of fathers in the urban areas also do not have any formal education. Mothers in the rural areas who have no

formal education (67.14 percent) are more than mothers without formal education in the urban areas (59.03 percent). The education of the fathers and the mothers is high in the urban areas than in the rural areas. The numerous educational institutions found in the urban areas may explain the differences in the educational level of fathers and mothers in the rural and urban areas.

Rural households tend to have a higher percentage of land ownership of 66.27 percent than urban households which has about 40.78 percent land ownership.

There are more people who do not have any religious affiliation in the rural areas of about 4.03 percent than those in the urban areas of about 1.18 percent. Christianity is dominant in the urban areas while Islam is also dominant in the rural areas.

5.3.2 Descriptive Statistics for the age at first work variable

Male adults and female adults who had their age at first work between 5-14 years amount to a percentage of 56.90 and 54.50 respectively. Thus there were more adult males who worked when they were children than adult females. Also, more individuals who worked at their first age of between 15-65 years were females (45.50%) than males (43.10 %).

Table 5.3.2 Descriptive Statistics for Age at First Work

Age at First Work	National	Female	Male
5- 14	55.67	54.50	56.90
15- 65	44.33	45.50	43.10

Source: Author's compilation from GLSS 6

5.4 Estimation of Results

This section presents the results from the Probit and OLS estimations. Section 5.4 deals with the determinants of an economically active child. Also, section 5.5 looks at the effect of age at first work on the income of the individual later in life while section 5.6 deals with the effect of age at first work on the educational attainment of individuals who worked when they were children.

5.4.1 Determinants of Economically Active Child in Ghana

The probit regression model is used to investigate which variables are significant in determining economically active child. The dependent variable which is economically active child is coded one (1) if the child was engaged in any economic activity in the last seven days before the survey interview and zero (0) if otherwise. Table 5.4 presents the findings from the probit model.

Table 5.4 Binary Outcome of the Probit Results for the Economically Active Child

Pr (Economically active child) = 1 yes	Coefficients	Marginal effects
Regressors	(Standard errors)	(Standard errors)
Child age (ref. cat. 11-14 years)		
5-10 years	-0.637*** (0.0261)	-0.214*** (0.00863)
Gender (ref. cat. Female)		
Male	-0.0345 (0.0255)	-0.0111 (0.00818)
Father's presence (ref. cat. Non-presence)		
Presence	-0.242 (0.626)	-0.0736 (0.178)
Mother's presence (ref. cat. Non-presence)		
Presence	-0.343*** (0.106)	-0.102*** (0.0286)
Child's educational status (ref. cat. No formal education)		

Formal education	-0.408*** (0.0452)	-0.139*** (0.0159)
Household size	-0.00329 (0.00494)	-0.00106 (0.00159)
Relationship to the household head (ref. cat. Child)		
Grandchild	-0.381*** (0.0908)	-0.129*** (0.0319)
Distant relative	-0.337*** (0.0904)	-0.115*** (0.0317)
Father's education (ref. cat. No formal education)		
Formal education	-0.0663** (0.0330)	-0.0213** (0.0106)
Mother's education (ref. cat. No formal education)		
Formal education	-0.0353 (0.0338)	-0.0113 (0.0108)
Household ownership of Land (ref. cat. No)		
Yes	0.0576** (0.0276)	0.0185** (0.00882)
Urban-rural residence (ref. cat. Rural)		
Urban	-0.698*** (0.0331)	-0.208*** (0.00855)
Religion (ref. cat. No religion)		
Christianity	-0.458*** (0.0752)	-0.157*** (0.0268)
Islam	-0.419*** (0.0785)	-0.144*** (0.0278)
Regions (ref. cat. Greater Accra)		
Western	-0.0545 (0.0822)	-0.0157 (0.0238)
Central	-0.127 (0.0843)	-0.0359 (0.0240)
Volta	0.135* (0.0771)	0.0412* (0.0231)
Eastern	0.418*** (0.0743)	0.135*** (0.0228)
Ashanti	0.213*** (0.0761)	0.0661*** (0.0230)
Brong-Ahafo	0.551*** (0.0749)	0.182*** (0.0230)
Northern	-0.00472 (0.0800)	-0.00138 (0.0234)
Upper East	0.423***	0.137***

	(0.0781)	(0.0241)
Upper West	0.0979	0.0295
	(0.0774)	(0.0230)
Constant	0.983***	
	(0.142)	
Observations	12,025	12,025

*Note: The dependent variable is the probability of a child being economically active. The figures in parenthesis are the standard errors of the estimates and ***, ** and * refer to the statistical significance of the estimates at 1%, 5% and 10% respectively.*

Log likelihood = -6823.5754

LR chi2 (23) = 1487.27

Prob > chi2 = 0.0000

Pseudo R2= 0.0983

Source: Author's compilation based on GLSS (6) data

Table 5.4 above presents the probit results of the probability of a child being economically active with respect to the child and household variables. The interpretation of the probit coefficients is done with respect to the significance, sign and the magnitude of the marginal effects. The presentation of the discussion of the probit results in table 5.4 is as follows:

For the age group, children between the ages of 5-10 years are less likely to be economically active compared to children aged 11-14 years, by 21 percent with a significance level of 1 percent. This might be because 5-10-year-old children are too young and more vulnerable than 11-14-year-old children even in petty economic activities as well as in agriculture and informal activities. It is, therefore, common to see 11-14-year-old children been engaged in economic activities than 5-10-year-old children. The study is, therefore, consistent with the findings of Okpukpara and Odurukwe (2006) that there is a higher likelihood for older siblings to be engaged in economic activities than younger siblings. The study also confirms the findings of Cummings (2016) that children who are older have a higher likelihood of participating in economic activities compared to younger children.

The gender gap that exists in the literature that girls are more likely to work than boys seems not to be a fairly well-established result. The results from the probit estimates suggest the gender of the child is insignificant in determining child work. The findings differ from the study (for Peru) by Sasaki and Temesgen (1999) that girls are more likely to work than boys to subsidise the human capital build-up of their brothers. Also, the result from the study contradicts the findings by Patrinos and Psacharopoulos (1995) that boys are more likely to be economically active than girls.

The relationship of the child to the household head proved to be a significant determinant of child work. The child was used as the reference category. With regards to the relationship to the household head, grandchildren of the household head are less likely being economically active than a child to the household head by 12.9 percent points which is significant at 1 percent. Also, a child who is a distant relative to the household head is less likely to be economically active compared to a child of the household head by 11.5 percent points. This is significant at 1 percent critical level. The study is inconsistent with the findings of Cockburn (2001) and Ndjanyou and Djiénouassi (2014) that children of the household head are less likely to work than children who are not biologically related to the household head. This result is better explained in instances where children work in family businesses where they handle money. Most household heads would prefer that their children work in their shops rather than distant relative children because of the trust they have in their children in handling their money.

The educational status of the child was significant in determining child work. For the educational status of the child, children who attend school are less likely being economically active by 13.9 percent points than children who do not attend school, holding other regressors constant. This is significant at a level of 1 percent.

The probit estimates further suggest that the presence of the mother in the household influences child work. Using mother's non-presence in the household as a reference category, children who live with their mothers are less likely to engage in economic activities by 10.2 percent points at a significance level of 1 percent than children who do not live with their mothers. The result is explained by the fact that most mothers living with their children or distant children will take care of the upkeep of those children in the household.

Empirically, it is fairly difficult to test directly the role of land ownership of the household in elucidating child work. Land as an asset is a major source of income for most rural households as land is used for various agricultural activities. The probit estimate shows that children from households that own land are more likely to be engaged in economic activities by 1.9 percent points compared to children in households that do not own land. This is significant at 5 percent critical level. One possible explanation for such a result could be that the main economic activity of households in the rural areas which is agriculture uses more children as workers on farm lands in instances where the household cannot afford to hire labourers to work on their farms. The result is consistent with the findings of Goulart and Bedi (2008) that the possession of land by households is linked to higher incidence of child work. Also, the result confirms the claim by Cigno, Rosati et al. (2002) that the richer a household is in terms of land, the more likely the demand for labour in the family will be high and hence children are more likely to be engaged on the family land mostly in agricultural activities. However, the result differs from the findings of Oryioe, Alwang et al. (2016) who observed that children are less likely to be put to work when the productive wealth of the household especially land increases.

Again the results from the study suggest that the religious affiliation determines child work. The role of religion in child work decisions cannot be underestimated in Ghana because the majority

of Ghanaians are attached to a religion. The probit results suggest that children who are Christians or Muslims are less likely to be economically active than children with no religion by 15.7 and 14.4 percent points respectively at a 1 percent significance level. This is explained by the prevalence of several Islamic and Christian basic schools in Muslim and Christian communities across the country. This is contrary to the findings of Canagarajah and Coulombe (1997) that religion does not influence the involvement of children in the labour market.

The urban-rural residence of a child affects child work. In the probit regression, the rural residence was made the reference category. It was observed that children in households located in the urban areas are less likely to be involved in economic activities compared to children in households in rural areas by 20.8 percent points. The results may be explained by the fact that many basic schools abound in the urban areas with easy accessibility as compared to the rural areas with limited basic schools which are difficult to access due to distance or financial constraint. The effect of residence predicted by the study is not different from the earlier findings by Nielsen (1998) for Zambia, and Ndjanyou and Djiénuouassi (2014) for Cameroon that children in the urban areas are less likely to be economically active than children in the rural areas.

The education of the father proved to be significant in determining the engagement of children in economic activities. By using no formal education as the reference category, the formal education of the father was significant in determining child work. According to the results fathers with formal education are less likely to engage their children in economic activities by 2.1 percent points. This is significant at 1 percent critical level. The results of the study is consistent with the findings of Dickson, Gregg et al. (2016) that an increase in the educational level of the father negatively influences the participation of children in the labour market.

5.5 The Ordinary Least Squares result of the effect of age at first work in the income of the individual

The OLS regression is used to investigate the effects of early work experience on the income of an individual at adulthood.

Table 5.5.1 OLS results of the effect of Age at First Work on the income of the individual

Natural log of Income Regressors	Coefficient (Standard error)
Age at first work (ref. cat. 15-65 years)	
5-14 years	-0.114*** (0.0282)
Gender (ref. cat. Female)	
Male	0.622*** (0.0290)
Individual's educational attainment (ref. cat. Basic)	
None	-0.0397 (0.133)
At least secondary school education	0.517*** (0.0283)
Individual's occupation (ref. cat. Elementary occupation)	
Armed forces	1.795*** (0.369)
Manager	1.585*** (0.0984)
Professional	1.651*** (0.0707)
Technician	1.288*** (0.0923)
Clerical	1.208*** (0.105)
Sales or Service worker	0.177*** (0.0596)
Skilled agric., forestry, or fishery worker	1.597*** (0.0595)
Craft or related trade	0.235*** (0.0622)
Plant or machine operator	0.556***

	(0.0728)
Constant	3.548***
	(0.0583)
Observations	12,302
R-squared	0.287

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5.5.2 Diagnostic tests

5.5.2a Test for heteroscedasticity

The Breusch-Pagan test and the White test for heteroscedasticity are presented below. The null hypothesis for the tests is that there is no heteroscedasticity (meaning the variance of the error term is constant) and the alternative hypothesis is that there is heteroscedasticity (the variance of the error term is not constant). From the Breusch-Pagan test, $\text{prob} > \chi^2 = 0.0000$ which is less than 0.05 which indicates that the regression is significant at 0.05 level. Thus there is a 95 percent confidence that the null hypothesis of no heteroskedasticity can be rejected and the alternative hypothesis of the presence of heteroscedasticity is accepted. Similarly, the white test has a p-value of 0.0000 which is highly significant and hence the null hypothesis of no heteroskedasticity is rejected and hence the conclusion is made that the variance of the model is not constant and thus the alternative hypothesis of heteroscedasticity is accepted.

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of x

Chi2 (1) = 29.31

Prob > chi2 = 0.0000

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroscedasticity	615.92	50	0.0000
Skewness	252.28	13	0.0000
Kurtosis	1.48	1	0.2241
Total	869.68	64	0.0000

Since there is heteroscedasticity in the OLS regression, a robust OLS regression is run to deal with the problem of heteroscedasticity. The result is presented as follows.

5.5.2ai Robust OLS results of the effect of Age at First Work on the income of the individual

Table 5.5.2ai Robust OLS results of the effect of Age at First Work on the income of the individual

Natural log of Income Regressors	Coefficient (Standard error)
Age at first work (ref. cat. 15-65 years) 5-14 years	-0.114*** (0.0282)
Gender (ref. cat. Female)	

Male	0.622*** (0.0290)
Individual's educational attainment (ref. cat. Basic)	
None	-0.0397 (0.133)
At least secondary school education	0.517*** (0.0283)
Individual's occupation (ref. cat. Elementary occupation)	
Armed forces	1.795*** (0.369)
Manager	1.585*** (0.0984)
Professional	1.651*** (0.0707)
Technician	1.288*** (0.0923)
Clerical	1.208*** (0.105)
Sales or Service worker	0.177*** (0.0596)
Skilled agric., forestry, or fishery worker	1.597*** (0.0595)
Craft or related trade	0.235*** (0.0622)
Plant or machine operator	0.556*** (0.0728)
Constant	3.548*** (0.0583)
Observations	12,302
R-squared	0.287

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5.5.2b Test for multicollinearity

The variance inflation factor (vif) is used to diagnose multicollinearity in the model. The rule of thumb says that a variable with a vif value greater than ten (10) suffers from multicollinearity

and demands further investigation. From the table below, since the vif values for all the variables are less than ten (10) or since the 1/vif values are less than 0.1 the model is free from collinearity.

Variables	VIF	1/VIF
Age at first work (ref. cat. 15-65 years)		
5-14 years	1.07	0.932962
Gender (ref. cat. Female)		
Male	1.28	0.779537
Individual's educational attainment (ref. cat. Basic)		
None	1.01	0.989454
At least secondary school education	1.23	0.812315
Individual's occupation (ref. cat. Elementary occupation)		
Armed forces	1.02	0.977290
Manager	1.43	0.700367
Professional	2.54	0.393842
Technician	1.52	0.658590
Clerical	1.38	0.727073
Sales or Service worker	4.70	0.212947
Skilled agric., forestry, or fishery worker	3.91	0.255592
Craft or related trade	3.21	0.311356
Plant or machine operator	2.08	0.479793
Mean VIF	2.03	

5.5.2c Test for endogeneity

The ivreg 2sls regression command was used in stata to find out whether endogeneity existed in the model. From the table below, it was concluded that there were no endogenous regressors in the model. Thus, none of the regressors correlates with the error term.

Instrumental variables (2SLS) regression

Source	SS	df	MS			
Model	5989.4385	4	1497.35962	Number of obs = 12302		
Residual	28438.1938	12297	2.31261233	F(4, 12297) = 647.48		
Total	34427.6323	12301	2.79876695	Prob > F = 0.0000		
				R-squared = 0.1740		
				Adj R-squared = 0.1737		
				Root MSE = 1.5207		

X	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AFW	.0480044	.0297513	1.61	0.107	-.0103129	.1063217
Gender	1.052376	.0282034	37.31	0.000	.9970933	1.10766
educlevel	.4882599	.0287104	17.01	0.000	.4319831	.5445367
I_occup	-.1810177	.0078835	-22.96	0.000	-.1964706	-.1655647
_cons	4.244145	.1004401	42.26	0.000	4.047267	4.441023

(no endogenous regressors)

5.5.3 Interpretation of the OLS regression results

The Ordinary Least Square regression shows a negative relationship between early work and one's income level at adulthood. This is significant at 1 percent critical level. Thus the study finds that the age at which a person works for the first time is statistically significant in affecting one's income level later in life. Thus, the result of the study is consistent with the study by Emerson, Ponczek et al. (2017) on child labour and learning which found evidence alluding to the fact that early work experiences before 14 years has a negative effect on the incomes of adults who worked during their childhood. However, Baum and Ruhm (2016) found out that when an individual has a working experience during the final year of the senior high school, after

5-11 years of graduation there is a predicted positive effect of the working experience on the labour market outcomes in terms of the income earnings of the individual. In brief, early work experiences may not always lead to higher incomes at adulthood. This is because individuals with early work experiences may not have had quality human capital formation in terms of education which enhances a person's chances of getting a well-paid job and high income at adulthood.

According to the OLS regression results, education significantly affects individual's income level positively. Thus, the educational attainment of at least secondary school education positively affects the income attainment of individuals at adulthood. This is significant at 1 percent critical level. However according to the study by Kingdon and Söderbom (2007) even though education plays a vital role in helping people to gain employment in highly paid jobs, its direct effects on earnings is low. Also, education raises wages by little margins only in jobs that pay wages and hence for most workers in Ghana, education does not directly increase earnings because self-employment and agriculture which make up about 82.5 percent of the employed workforce have very low returns to education as discussed by Kingdon and Söderbom (2007). This is similar to the findings of the study by Baffour (2015) that in the public sector, education plays a vital role in enhancing entry into profitable formal sector jobs, but there is no direct impact of education on earnings in the public sector.

The gender of the individual, whether male or female, significantly influences the income of the individuals. There is a positive effect of gender on the income of individuals.

The occupation of an individual affects one's income attainment. From the study, there is a positive relationship between the occupation of an individual and the income earnings of the

individual. The various occupation of an individual such as armed forces, manager, professional, technician, clerical, sales or service worker, agricultural workers, craft or related trade, plant or machine operator increase one's income at adulthood.

5.6 Probit results of the effect of early work on the educational attainment of an individual.

The table below shows the probit results of the effect of age at first work on the educational attainment of an individual at adulthood.

Table 5.6 Probit results of the effect of early work on the educational attainment of an individual.

Regressors	Coefficient (Standard error)	Marginal effect (Standard errors)
Prob (Educational attainment)=1 Sec. sch. & above		
Gender (ref. cat. Female)		
Male	0.327*** (0.0343)	0.0738*** (0.00756)
Age at first work (ref. cat. 15-65 years)		
5-14 years	-0.334*** (0.0387)	-0.0725*** (0.00787)
Mother's occupation (ref. cat. Professional)		
Managerial	0.385 (0.234)	0.140 (0.0865)
Clerical	-0.454	-0.139*

	(0.297)	(0.0819)
Sales/service	-0.465***	-0.142***
	(0.108)	(0.0369)
Agriculture	-0.756***	-0.209***
	(0.112)	(0.0378)
Production	-0.695***	-0.197***
	(0.18)	(0.0480)
Father's occupation (ref. cat. Professional)		
Managerial	0.384***	0.119***
	(0.0855)	(0.0278)
Clerical	0.273**	0.0823**
	(0.13)	(0.0416)
Sales/service	-0.0899	-0.0239
	(0.0585)	(0.0158)
Agriculture	-0.343***	-0.0821***
	(0.0612)	(0.0160)
Production	-0.129	-0.0339
	(0.0882)	(0.0227)
Income	6.57e-05***	1.50e-05***
	(1.00E-05)	(2.29e-06)
Mother's education (ref. cat. No formal education)		
Formal education	0.216***	0.0514***
	(0.0415)	(0.0103)

Father's education (ref. cat. No formal education)		
Formal education	0.0514	0.0118
	(0.0434)	(0.00994)
Constant	-0.424***	
	(0.118)	
Number of observation	9003	
Prob > chi2	0.0000	
Pseudo R2	0.1045	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The probit estimate in table 5.6 shows that age at first work significantly affects the educational attainment of individuals. Individuals whose age at first work falls within the age category of 5-14 years are less likely to have an educational attainment of secondary school and above than individuals who started their first work at age 15 and above. The marginal effect means that, if the age at first work changes from above 14 years to 5-14 years, the probability that the educational attainment of the individual being secondary education and above decreases by 7.25 percent. This is significant at 1 percent critical level. This is because individuals who worked during their childhood may not have been entirely devoted to schooling and so they may not have higher educational attainment.

From the results of the probit regression of the study, males are more likely to have an educational attainment of secondary school and above than females. Thus, if an individual is a male the probability of the educational attainment taking the value of one which means

secondary school education and above rises by 7.38 percentage points. This is statistically significant at 1 percent critical level. This result is contrary to the findings of the study by Ozier (2016) that men have less schooling completed than women.

The formal education of the parents especially the mother influences the educational attainment of the individual at adulthood. An individual whose mother is formally educated is more likely to have an educational attainment of secondary school and above than individuals whose mother has no formal education. This was found to be statistically significant at 1 percent critical level. Thus, when the mother's education variable changes from no formal education to formal education, the probability that the educational attainment of the individual taking the value of secondary school and above increases by 5.14 percent.

The income of the individual has a positive effect on his or her educational attainment of secondary education and above. This is because the individual with income has a higher probability of furthering his or her education than an individual without income.

5.7 Summary of Findings

The summary statistic shows that quite a number of children in the rural areas are economically active, which represents 85.96 percent than children in the urban areas of about 14.04 percent.

Several differences are observed among the categorical variables. While most parents of the children from the rural areas have no formal education (53.85 percent of fathers and 67.14 percent of mothers) more of their counterparts in the urban areas have formal education (65.98 percent of fathers and 40.97 percent of mothers).

In terms of asset ownership, the ownership of land by households tends to be a more rural phenomenon. Rural households own more land (66.27 percent) than the urban households (40.78 percent). Also, most individuals of about 55.67 percent had early working experiences when they were between the ages of 5-14 years while fewer individuals of about 44.33 percent had later work experiences when they were between the ages of 15-65 years. Thus more people tend to work in the early years of their lives.

Generally, the results of the economically active children estimation suggest that; the education of the child reduces the probability of a child being economically active. Household's ownership of land increases the likelihood of economically active children. Moreover, a child who lives with his or her mother is less likely to be economically active. Furthermore, children who live in the urban areas are less likely to be economically active than their counterparts in the rural areas.

Also, the ordinary least squares regression indicates that early age of work reduces the income earnings of individuals. The educational status of an individual positively affects the income of individuals. Thus, at least secondary school educational attainment is directly related to higher incomes. The occupation of the individual significantly increases the income of an individual.

From the probit results of the effect of early work experience on the educational attainment of an individual, the individuals with age at first work of 5-14 years are less likely to have an educational attainment of secondary school and above than individuals with their age at first work within the age range of 15-65 years. Also, males are more likely to have an educational qualification of secondary school and above than females. Mothers with formal education are more likely to have their children attain an educational level of secondary school and above

compared to mothers with no formal education. The occupation of the father and mother significantly affects the educational attainment of the individual.



CHAPTER SIX

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 Introduction

Child work remains a major challenge in the Sub-Saharan African (SSA) region because SSA has the highest incidence of child work in the world (ILO, 2010). Child work affects the human capital development and the earning potential of children. Early working exposure may hinder the higher educational attainment of individuals later in life. Unfortunately, the number of children involved in economic activities has negative repercussions for the families involved and the nation at large. Child work is not without health-related issues and the problem of human capital formation. Section 6.2 presents the summary of the study as well as the related conclusions drawn from the findings from the probit regressions and the ordinary least square regression. Some policy recommendations are given in section 6.3 and the limitation of the study is presented in section 6.4.

6.2 Summary and Conclusions

The government of Ghana has put in place a broad institutional framework which is aimed at dealing with the issues of child work. The framework includes the free compulsory universal basic education which ensures that children have access to free basic education. The school feeding programme is another framework that is aimed at increasing the enrollment, attendance and retention of children in the basic schools in order to reduce the incidence of child labour. In spite of the policy initiatives adopted by the various governments after the independence of

Ghana, most children between the ages of 5 and 14-years who are of the basic school age continue to participate in the labour market, which affects their human capital formation. Evidence shows that children in the rural and poor households are the ones that are affected the most.

The occurrence of economically active children in Ghana especially in the rural areas where most households are considered poor denies such children the right to basic education. Such children are exposed to various work hazards such as burns, cuts, sprains, skin and respiratory diseases, snake bites on the farms among others. Thus, the human capital development of the economically active children is affected which perpetuates poverty.

This study sought to examine the determinants of economically active children in Ghana as well as to explore the effect of early work experiences on individual welfare later in life in the form of income and educational attainment of secondary school and above using data set from the 2012/13 Ghana Living Standards Survey. The specific objectives were; to examine the regional and occupational distribution of child work in Ghana, to evaluate the determinants of economic activities of children in Ghana and to explore the welfare effects of child work in the form of income and educational attainment of individuals at adulthood.

The study could not establish the evidence that supports the gender gap in the literature that boys are more economically active than girls. From the premise that child work affects the human capital accumulation of the child, an attempt is made by the study in using a probit model to assess the determinants of economically active children in Ghana.

Based on the existing empirical and theoretical literature, some variables like child age, child gender, child's relation to the household head, household size, educational status of the child,

father's education, mother's education, father's presence in the household, mother's presence in the household, household's ownership of productive assets (land), residence, religion of the child and regional dummies were used in the probit regression to estimate the determinants of economically active children.

For the effects of early work on the welfare of individuals at adulthood in relation to income and educational attainment, variables such as age at first work, gender, mother's education, father's education, residence and regional dummies were used in the regression analysis.

The descriptive statistics indicate that 85.96 percent of children aged 5-14-years are economically active in the rural areas and 14.04 percent of children aged 5-14-years are economically active in the urban areas.

Economically active children in Ghana was found to be more of a rural phenomenon as the percentage of the economically active children in the rural areas (85.96 percent) is more than the percentage of economically active children in the urban areas (14.04 percent). The results also established that children from the rural areas are more likely to participate in the labour market.

Fathers with formal education have a significant influence on reducing the likelihood of child work. Thus, the more the father is educated the less likely his children will engage in economic activities. The results also indicate that the religious affiliation and the residence of the household head are important determinants of economically active children. Also, the variable for household ownership of land showed a significant positive relationship with economically active children.

The OLS estimates showed a negative relationship between age at first work and income. Also, at least secondary school education attainment positively enhances one's income earnings. Gender (male) and residence (urban) positively affect the income attainment of individuals.

The probit estimates of the effect of early work on educational outcomes indicate that individuals who work during their childhood are less likely to attain the educational qualification of at least secondary school education and above than those who first worked at the ages above 15-years. Other findings were that individuals whose mothers have formal education are more likely to have the educational attainment of at least secondary school education than individuals whose mothers do not have formal education.

6.3 Policy Recommendations

For the incidence of economically active children in Ghana to be reduced, targeting and changing economic incentives through poverty reduction for the poor households especially in the rural areas can be exploited. The findings from the descriptive statistics established that children from the rural areas are more likely to participate in the labour market at the expense of their human capital development. Therefore, the institutions responsible for dealing with child labour should be located in the rural communities where child labour is prevalent. The activities of children of basic school age must be strictly monitored by the workers of the institution. There must be laws in the rural areas to ensure that all children of basic school going age attend school when school is in session. Parents who allow their children to participate in economic activities during school hours must be sanctioned.

Also, the government and other stakeholders should ensure that the basic school education is “truly free and compulsory” for all children of basic school age across Ghana. Petty expenses in the basic schools such as extra classes fee must be scrapped off because they may deter the poor from enrolling their children in the basic school. There must be quality education in the basic schools to make it attractive even to the rich people in the society. This would encourage massive school enrollment and retention which reduces the incidence of child work.

Since our regression results show that child work decreases with the education of the parents, particularly the father, the study proposes that special focus must be given to parents with no formal education. The study, therefore, proposes that the local schools must be encouraged by the Ghana Education Service to frequently organise durbars, debates, drama and other extra-curricular activities in communities with most adults without formal education to attend in order to appreciate the essence of the basic schools. Such activities will sensitise the parents and adults on the essence of basic school education.

The study shows that the educational status of an individual positively affects his or her income at adulthood. Therefore, the recommendation of the study is that people must be encouraged to invest in the human capital development (education) of their children. Children must be allowed to attend school regularly and they must be given more time to do their homework after school in order to build their human capital. Also, since the study shows that children who are schooling are less likely to be economically active, parents must be sensitised on the need for child education and they must be encouraged to send their children to the basic school rather than to use them for economic activities.

The findings from the regression established that individuals who worked at the early age of 5-14 years are less likely to have an educational attainment of secondary education and above than with first working experiences at the age 15 years or above. This shows that early work affects the human capital development of individuals in terms of education. The study, therefore, recommends that the Ghanaians must be encouraged to embrace childhood education more than child work. The rural communities most especially, which have a lower level of education must be well equipped with educational facilities and they must be encouraged to patronise child education. Also, the traditional rulers and the local authorities must be engaged as major stakeholders in the effort of promoting child education. The importance of formal education must be reiterated to the rural people and they must be given support to educate their children.

6.4 Limitations of the study

Since the study made use of the secondary data the variables used in the estimations were solely based on the variables that were found in the 2012/2013 Ghana Living Standards Survey. The problem was that some equally important variables that were not found in the GLSS 6 data were not used in the regression estimations. For instance, a variable such as the nature and quality of basic schools in an area is crucial in determining whether a child will be economically active or not. Moreover, in spite of the fact that several important variables were used in the estimations, the issue of missing values in the dataset made it difficult for it to be used in the estimation.

Also, it would have been useful for the study to account for selectivity bias by using methods such as the Heckman selection model. This option, which would imply a major change in methodology, would be seriously considered in future work on this topic.

REFERENCES

- Ahmed, I. (1999). "Getting rid of child labour." *Economic and Political Weekly*: 1815-1822.
- Akarro, R. R. J. and N. A. Mtwewe (2011). "Poverty and its association with child labour in Njombe District in Tanzania: The case of Igima Ward." *Curr. Res. J. Soc. Sci* 3(3): 199-206.
- Ali, K. and A. Hamid (1999). "Major determinants of female child labour in urban Multan (Punjab-Pakistan)."
- Aqil, Zahid (2012). "Nexus between Poverty & Child Labour: Measuring the Impact of Poverty Alleviation on Child Labour". Good Thinkers Organization for Human Development, Kasur.
- Baffour, P. T. (2015). "Determinants of Urban Worker Earnings in Ghana: The Role of Education." *Modern Economy* 6(12): 1240.
- Basu, K. (1999). "Child labor: cause, consequence, and cure, with remarks on international labor standards." *Journal of Economic literature* 37(3): 1083-1119.
- Basu, K. and P. H. Van (1998). "The economics of child labor." *American economic review*: 412-427.
- Baum, C. L. and C. J. Ruhm (2016). "The Changing Benefits of Early Work Experience." *Southern Economic Journal* 83(2): 343-363.
- Becker, G. S. (1985). "Human capital, effort, and the sexual division of labor." *Journal of labor economics* 3(1, Part 2): S33-S58.
- Beegle, K., et al. (2009). "Why should we care about child labor? The education, labor market, and health consequences of child labor." *Journal of Human Resources* 44(4): 871-889.
- Bhalotra, S. R. and C. Heady (2000). "Child farm labour: theory and evidence."
- Bhalotra, S. R. and Z. Tzannatos (2003). *Child Labor: What have we learnt?*, World Bank, Social Protection.
- Blunch, N.-H. (2006). *Children's Work and School Attendance in Ghana. Children's Lives and Schooling across Societies*, Emerald Group Publishing Limited: 177-205.

Blunch, N.-H. and D. Verner (2001). "Revisiting the link between poverty and child labor: the Ghanaian experience."

Boozer, M. and T. Suri (2001). "Child labor and schooling decisions in Ghana." Manuscript, Yale University.

Browning, M., et al. (1994). "Income and outcomes: A structural model of intrahousehold allocation." *Journal of political Economy* **102**(6): 1067-1096.

Canagarajah, S. and H. Coulombe (1997). "Child labor and schooling in Ghana."

Chaudhary, M. A. and F. N. Khan (2002). "Economic and Social Determinants of Child Labour: A Case Study of Dera Ismail Khan, Pakistan."

Cigno, A., et al. (2002). "Does globalization increase child labor?" *World Development* **30**(9): 1579-1589.

Cockburn, J. (2001). "Child labour versus education: Poverty constraints or income opportunities?" Center for the Study of African Economies, Oxford University.

Cockburn, J. and B. Dostie (2007). "Child work and schooling: The role of household asset profiles and poverty in rural Ethiopia." *Journal of African Economies* **16**(4): 519-563.

Cummings, P. M. (2016). "Child Labor and Household Composition: Determinants of Child Labor in Mexico." *Asian Journal of Latin American Studies* **29**(3): 29-54.

Davis-Kean, P. E. (2005). "The influence of parent education and family income on child achievement: the indirect role of parental expectations and the home environment." *Journal of family psychology* **19**(2): 294.

Dickson, M., et al. (2016). "Early, late or never? When does parental education impact child outcomes?" *The Economic Journal* **126**(596).

Edmonds, E. V. (2007). "Child labor." *Handbook of development economics* **4**: 3607-3709.

Edmonds, E. V. and N. Pavcnik (2005). "The effect of trade liberalization on child labor." *Journal of international Economics* **65**(2): 401-419.

Emerson, P. M., et al. (2017). "Child labor and learning." *Economic Development and Cultural Change* **65**(2): 000-000.

Erola, J., et al. (2016). "Parental education, class and income over early life course and children's achievement." *Research in Social Stratification and Mobility* **44**: 33-43.

Fasih, T. (2007). *Analyzing the Impact of Legislation on Child Labor in Pakistan*. World Bank Policy Research Working Paper No. 4399.

Galbi, D. A. (1997). "Child labor and the division of labor in the early English cotton mills." *Journal of population economics* **10**(4): 357-375.

Ghana Statistical Service, (2013) " Report of the Sixth Round, Ghana Living Standards Survey 6" Ghana Statistical Service, Accra, Ghana.

Ghana Statistical Service, (2013) *Interviewer's Manual, Ghana Living Standards Survey 6*" Ghana Statistical Service, Accra, Ghana.

Goldin, C. (1979). "Household and market production of families in a late nineteenth century American city." *Explorations in Economic History* **16**(2): 111-131.

Goulart, P. and A. S. Bedi (2008). "Child labour and educational success in Portugal." *Economics of Education Review* **27**(5): 575-587.

Grootaert, C. (1998). *Child labor in Cote d'Ivoire: incidence and determinants*, World Bank Publications.

Grootaert, C. and R. Kanbur (1995). "Child labour: A review." Policy Research Working Paper **1454**.

Grootaert, C. and R. Kanbur (1995). "The lucky few amidst economic decline: Distributional change in Côte d'Ivoire as seen through panel data sets, 1985–88." *The Journal of Development Studies* **31**(4): 603-619.

Gujarati, D. (2014). *Econometrics by example*, Palgrave Macmillan.

Hazarika, G. and A. Bedi (2003). "Schooling costs and child work in rural Pakistan." *The Journal of Development Studies* **39**(5): 29-64.

Hou, X. (2010). "Wealth: Crucial but not sufficient—Evidence from Pakistan on economic growth, child labour and schooling." *The Journal of Development Studies* **46**(3): 439-465.

Huebler, F. (2008). Child labour and school attendance: Evidence from MICS and DHS surveys. Seminar on Child Labour, Education and Youth Employment, Understanding Children's Work Project, Madrid.

ILO (2010a) "Acceleration action against child labour" Global Report under the follow-up to the ILO Declaration on Fundamental Principles and Rights at Work; ILO, Geneva.

ILO (2010b) "IPEC action against child labour" Highlight 2010; ILO, Geneva.

Jensen, P. and H. S. Nielsen (1997). "Child labour or school attendance? Evidence from Zambia." *Journal of population economics* **10**(4): 407-424.

Khalid, U. and L. Shahnaz (2004). "Socio Economic Conditions of Child Labourers in Pakistan: Evidence from the Labour Force Survey."

Khan, M. A. (2001). *Child Labour in Dhaka City*, Hakkani Publishers.

Khan, R. E. A. (2003). "Children in different activities: child schooling and child labour." *The Pakistan Development Review*: 137-160.

Kingdon, G. and M. Söderbom (2007). "Education, skills, and labor market outcomes: Evidence from Ghana."

Koopmans, C. M., et al. (2007). "Induction of labour versus expectant monitoring in women with pregnancy induced hypertension or mild preeclampsia at term: the HYPITAT trial." *BMC pregnancy and childbirth* **7**(1): 14.

Kruger, D. I. (2007). "Coffee production effects on child labor and schooling in rural Brazil." *Journal of development Economics* **82**(2): 448-463.

Kulsoom, R. (2007). "Child Labor at District Level: A Case Study of Rawalpindi."

Maitra, P. and R. Ray (2002). "The joint estimation of child participation in schooling and employment: comparative evidence from three continents." *Oxford development studies* **30**(1): 41-62.

Moehling, C. M. (1999). "State child labor laws and the decline of child labor." *Explorations in Economic History* **36**(1): 72-106.

Moyi, P. (2011). "Child labor and school attendance in Kenya." *Educational Research and reviews* **6**(1): 26.

Ndjanyou, L. and S. Djiénouassi (2014). "Characteristics and determinants of child labour in Cameroon."

Nielsen, H. S. (1998). "Child labor and school attendance: Two joint decisions."

Okpukpara, B. C. and N. Odurukwe (2006). "Incidence and determinants of child labour in Nigeria: Implications for poverty alleviation."

Oryoie, A. R., et al. (2016). *Child labor and household land holding: Theory and empirical evidence from Zimbabwe.*

Ozier, O. (2016). "The impact of secondary schooling in Kenya: A regression discontinuity analysis." *Journal of Human Resources.*

Parliament of the Republic of Ghana (1998): *The Children's Act (Act 560).*

Parliament of the Republic of Ghana (2005): *Human Trafficking Act (Act 694).*

Patrinos, H. A. and G. Psacharopoulos (1995). "Educational performance and child labor in Paraguay." *International Journal of Educational Development* **15**(1): 47-60.

Ray, R. (2002). "The determinants of child labour and child schooling in Ghana." *Journal of African Economies* **11**(4): 561-590.

Rosenzweig, M. R. and R. Evenson (1977). "Fertility, schooling, and the economic contribution of children of rural India: An econometric analysis." *Econometrica: journal of the Econometric Society*: 1065-1079.

Sasaki, M. and T. Temesgen (1999). "Children in different activities: Child Labor and Schooling in Peru." Draft, World Bank, Washington, DC.

Strauss, J. and D. Thomas (1995). "Human resources: Empirical modeling of household and family decisions." *Handbook of development economics* **3**: 1883-2023.

Toor, I. A. (2005). "Child Labor's Link with Literacy and Poverty in Pakistan."

Tzannatos, Z. (2003). "Child labor and school enrollment in Thailand in the 1990s." *Economics of Education Review* **22**(5): 523-536.

UNICEF. (2007). *Progress for children: a world fit for children statistical review*, UNICEF.

Wahba, Jackline, 2000 Do market wages influence child labor and child schooling. University of Southampton, Dep. of Economics. 2002. (Working Paper).

World Bank (2000), *World Development Report 2000-2001*, World Bank, Washington, DC.

World Bank (2004); "Education for All (EFA) Fast Track Initiatives" Progress Report.

