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DETERMINANTS OF CHILD LABOR PARTICIPATION AND ITS IMPACT ON THEIR EDUCATIONAL ACHIVEMENT IN ADDIS ABABA, THE CASE OF GULLELE SUB-CITY

BY

MIHRETU BELAYNEH

JUNE, 2021

ADDIS ABABA, ETHIOPIA

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THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ST. MARY'S UNIVERSITY IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE MASTERS OF ART DEGREE IN DEVELOPMENT ECONOMICS

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APPROVAL OF BOARD EXAMINERS

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DECLARATION

I declare that this MA thesis is my original work, and has never been presented for the award of any degree in this or any other university and all source of materials used for the thesis have been duly acknowledged.

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ENDORSEMENT

This thesis has been submitted to St. Mary's University, School Of Graduate Studies for examination with my approval as a University advisory.

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ACRONYMS

ATT   Average Treatment Effect on Treatment

CSA   Central Statistics Authority

FEDO   Finance and Economic Development Office

ILO   International Labor Organization

PSM   Propensity Score Matching

SIMPOC Statistical Information and Monitoring Program on Child Labor

SOS   School of Reasons

UN-CRC United Nations Convention on the Rights of Child

UNESCO United Nations Educational, Scientific and Cultural Organizations

ABSTRACT

Child labor is participation of child in any paid or unpaid jobs and full time work to sustain oneself or add to family income. This study was initiated with the objective of identifying determinants of child labor participation and its impact on their educational achievement in Addis Ababa, case study of Gullele sub city. For the purpose of the study a cross sectional data were collected from 204 sample child laborers were selected by multi stage sampling procedure from four woredas and interview is also made with concerned staff of the children's right protection office. Primary data from child laborers were collected through structured questionnaire. In this study both descriptive statistics and econometric model were used. For estimating the determinants of child labor participation logit model has been used and propensity score matching (PSM) has been employed for estimating the effect of child labor participation on educational achievement. Result from Logit estimation revealed that child labor participation which is found to be significantly affected with age of the child, age of household head, household size, monthly Income of child's parent, sex of the child, educational level of child's father, marital status of household head and children higher price expectation price in the future Propensity Score Matching (PSM) was put in place to examine impact of child labor participation on children educational achievement. The result indicated that participation showed statistically significant and negative impact on children educational achievement. From policy point of view policy makers should focus on Children's are more exposed to child labor with increase in age. So, government should not focus only at a very early age but also, until they fully enjoy their childhood stage.

Key words*: child labor: children educational achievement; Logit model; propensity score matching, Addis Ababa,*

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Child labor is participation of child in any paid or unpaid jobs and full time work to sustain oneself or add to family income. However, all work done by children is not child labor, rather when the work interferes with moral, physical, mental, educational, spiritual and social development of a child (Musandrire, 2010). Wodon (1999) discussed that child labor termed as a disinvestment in human capital formation.

Child labor is a worldwide problem causing mainly from socio economic status of household head (save the children, 2003). Even though the fact that the international labor conventions and different nations legislations to protect children from economic exploitation, the practice still continues to prevail and becoming a structural part of many economies in both the formal and informal sectors throughout the world especially in developing countries(Assefa, 2000).

The future and progress of any country depends on an educated youth and if a child is not properly socialized then s/he will not be able to grow as confident and literate citizen. Early in the morning when the children put on different kind of cloths and began to go to school for the sake of knowledge; we feel special kind of joy through their innocence. But there are also children who cannot go to school due to financial problems, they only watch others to go to school and can merely wish to seek knowledge (Bisrat 2014).

In today's world child labor participation becomes a widespread and growing phenomenon especially in developing countries. However, it has been very difficult to get the exact figure of children engaged in labor in many countries partly due to the hidden nature of the problem and differences in definition of who is considered child and what constitute labor (Kebebew, 1998). ILO defines all those under 18 as children. According to it, labor is defined as economically active, when a person works on a regular basis for which he/she is remunerated or that results in output destined for market. But in the Ethiopian context where labor market is missing, this definition is too restrictive.

For over a decade, child labor has been recognized as a key issue of human rights at work together with freedom of association, the right to collective bargaining, the abolition of forced labor, and non-discrimination in occupation and employment. However, despite the large social reform movement that has been generated around this issue, more than 200 million children worldwide are still in child labor and a staggering 115 million at least, are subject to its worst forms. With regard to children aged 5-14 in economic activity, the Asian-Pacific region and Latin America and the Caribbean experienced a decrease. In contrast, for the same age group, the number of children in economic activity is increasing in Sub-Saharan Africa. The situation is particularly alarming in Sub-Saharan Africa, where one in four children aged 5-17 is child laborer, compared to one in eight in Asia and one in ten in Latin America and the Caribbean (ILO, 2010).

There is a great hue and cry in developed countries against child labor in developing countries. Children are not allowed by law to work. But widespread child labor is a fact of life in developing countries. The reason for increasing child labor is that it is not as simple a phenomenon as it appears to be and requires a comprehensive consideration of family as well as of socio-economic conditions in developing countries, which are the causes behind ever increasing child labor (Karamat et al, 1993).

According to the ILO, 168 million children worldwide are engaged in child labor as of 2013. Of these 168 million children, 85 million are engaged in what the ILO deems "hazardous work." The sub-Saharan African region has the second highest number of child laborers in the world; about 59 million in 2012. Children aged 5 to 17, or 21.4 percent, are involved in child labor while 10.4 percent are engaged in hazardous work. Only one out of five children involved in child labor is paid for his or her work. The majority of children in child labor perform unpaid family work. The 10 countries that are listed as the worst countries for child labor in 2012 included Pakistan, Afghanistan, North Korea and Myanmar. The other six countries were all in Africa: Sudan, Democratic republic of Congo, Somalia, Ethiopia, Burundi and Zimbabwe. About 60 percent of children in Ethiopia are engaged in some form of child labor. Many of these children work in the mining industry; an industry that poses some of the biggest dangers for child laborers. Many parents in impoverished countries push their children to work out of necessity. Unable to sustain their families on their own income, the parents feel that they have no choice but to push their children into child labor (Matt, 2014).

Like other developing African countries, child labor participation is sever in Ethiopia; where children below the working age are participation for the sake of earning minimum wage for long hours. Ethiopia is one of the developing countries with high incidence of child labor; the work participation rate of children is one of the highest in the world. Children start participating in work activities at a very young age and spend longer hours on various housekeeping and/or other productive activities. This indicates the extent of child labor in the country at cost of schooling (Beliyou, 2003).

It is generally agreed that the development of human capital is one of the inputs necessary for economic growth and development. In this regard, education is believed to have enormous importance. However, if children are made to participate in work activities that leave them with little time and energy to attend schools and/or to concentrate on their studies, child work means forgone human capital and off course much of the recent concern over child labor stems from the beliefs that it has a detrimental effects on human capital formation.

1.2 Statement of the Problem

Child labor participation in developing countries continues to be a controversial issue, which is often debated at international forums. In fact, it is not a new phenomenon, as it was practiced extensively in Europe, particularly in Britain, during late eighteenth and early 19th century (Mahendra, 2013). Especially, in the sub Saharan Africa and South Asian countries typically school enrolment is low and child labor is wide spread. And child labor in these countries affects school performance as children miss important lessons and fall behind academically (Ravinder, 2009).

Many child laborers do not attend school at all. Others combine school and work but their education is affected. Lacking adequate education and skills, as adults' former child laborers are more likely to end up in poorly paid, insecure work or to be unemployed. In turn there is a high probability that own children will end up in child labor. Breaking this cycle of disadvantage is a global challenge and education has a key role to play (ILO, 2015).

The United Nations Open Working Group on Sustainable Development Goals lists the elimination of child labor as an important component of sustainable development.

Child labor has the potential to undermine economic growth through its impact on child development, wages, and technology adoption.

Working children depress economic growth in the short run by depressing the wages of unskilled labor, worsening poverty, and discouraging the adoption of skill intensive technologies. In the long run, work today depresses child development and leaves a country with a substantive share of the future adult labor force poorly positioned to take advantage of new opportunities for growth. Because of this it is a must to take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers, and by 2025 end child labor in all its forms (Edmonds, 2015).

Previous studies (Udry, 2003: Priyambada et al., 2005: Sakurai, 2006) showed that child labor is rooted in poverty and its relation to education is often considered two sides of the same coin. It is a result of current poverty and a cause of continued poverty for the children who sacrifice their education in order to work. It interferes with the human capital development of children by either forcing children to drop out of schools or making learning process in schools ineffective.

Poverty and the need of poor families for income are the most important factors that push children to engage in working activities (Gebremedhin, 2013). Mahendra (2013) discussed that household size, household income and gender of the child significantly affect child labor and educational achievement is significantly affected by child work load (Yibeltal et al., 2014).

It is a general consensus that human capital accumulation is the way out from poverty and hence to ensure economic growth and development in any nation. Education is believed to have a special place in such endeavor. The problem is that if children are compelled to start work at their early ages and toil for longer hours means that their ability to attend school is seriously impaired (Bisrat,2014).

Gebremedhin (2013) and Temesgen (2015) conducted their research on the effect of child labor on education at Mekelle and Jimma towns respectively. Both of them employed cross sectional data which was analyzed by descriptive statistics. But in this study no one who study determinants of child labor participation and impact on their educational achievement directly and more weight is given for econometric ways of analysis. Besides, Children's working expecting higher cost price in the future and parent's debt were included in our analysis as explanatory variables that no one dealt with.

Finally, since studies which have been done previously assessed the determinants of child labor participation and its impact on education achievement separately; this study will bring and combine the different determinants of child labor participation and its impact on their educational achievement simultaneously.

1.3 Research Questions

In view of the above discussion, three questions are posed which the study seeks to address:

❖ What are the labor conditions under which children are participating

❖ What are the factors affecting child labor participation?

❖ What is the extent of child labor participation in the study area?

❖ What is the impact of child labor participation on their educational achievement?

1.4. Objectives of the Study

1.4.1. General Objective

The general objective of the study is to examine the determinants of child labor participation and its impact on children educational achievement in Addis Ababa town, particularly in Gullele sub city

1.4.2. Specific Objectives

More specifically, the study will have the following specific objectives:-

❖ To identify the labor conditions where children are participating as laborer

❖ To identify factors affecting child labor participation in the study area

❖ To analysis the extent of child labor exploitation in the study area

❖ To examine the impact of child labor participation on their educational achievement

1.5 Scope and Limitation of the study

The effects of child labor can be seen from different dimensions like from psychological, moral, health, emotional development and education. However, this study only will be assessed the major determinants of child labor participation and its impact on children educational achievement in Addis Ababa town on children aged between 7-17. The scope of the study was delimited only in Addis Ababa town since there is data, financial as well as time constraint to conduct the study in a vast and broad manner.

Moreover as a limitation of the study, factors affecting child labor participation in and its impact on children education achievement, only covers one town and the data will be used cross sectional. The researcher has encountered number of limitations. Some of challenges were lack of relevant data concerning child labor participation and type of activities practiced in the study area, shortage of time and financial constraint that hindered in order not to deeply and widely discuss with concerning office.

1.6 Significance of the Study

The future of every nation lies in her children and this can only be realized if the children are well equipped with the necessary skills to enable them take over from the aging population. Child labor from literature available indicates that it depends to a great extent on the income of the family and the educational level of parents concerned.

This study is expected to throw more light into the problem of child labor in our society especially in the study area. It also seeks to bring awareness of the issues to the local community and how to address them. Furthermore, it is expected that findings from the studies will help authorities concern to know the magnitude of the problem in the study area and this can help to minimize the effects of the problem of child labor on education. Though there are already existing legislations on child labor and education the study will help to re-enforce the need for appropriate enforcement mechanisms to safeguard the participation of children at the expense of their future. The research findings will also add to the existing stock of knowledge**.**

1.7 Organization of the Thesis

The study will be presented in five chapters. The first chapter begins with introduction which encompasses background of the study, statement of the problem, research question, research hypothesis, objective, significance, and scope of the study. Chapter two provides review of related literature while the third chapter deals with the methodological of study. The fourth chapter presents the major findings from the study. The last chapter concludes and puts forward policy implications.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Viewpoints of Child Labor participation

2.1.1 The Labor market perspectives

The labor market perspective is mostly concerned about the possible impact of child labor on adult labor markets. It argues that the relationship between child labor and adult employment is a negative relationship. This labor market perspective points out that adult unemployment and child servitude worsen working class poverty due to the reason that child labor would succeed adult labor. Since child labor increases the supply of work force in the labor market, it will reduce salary rates and increase adult joblessness. The perspective advocates policies that discourage economic participation of children in order to protect adult employment and wages. This labor market perspective argues that the state has the highest responsibility in eradicating child labor by using compulsory education and minimum prohibitions on work (Bachman, 2000).

2.1.2 the "Human Capital" Perspective

In this perspective child labor observes in relation to the economic development. Child labor is primarily caused by under development. Low income and poverty are driving forces behind the occurrence of child labor. Proponents argued that the solution to the problem of child labor is to eradicate poverty and its causes. Proponents proposed that one of the most effective ways to break the cycle of poverty is by providing better income option for the future children by promoting policies and activities that develops their economic progress (Bhalotra, 2003). The perspective strongly argues that the removal of children from work should be accompanied by adjustment programs for their rehabilitation, education and direct support. This perspective observes economic development as the best treat for the problem of child labor. It is not against child work that can contribute to their development and helpful to them and their families.

2.1.3 the "Child Centered" Perspective

This perspective states that children must have a stable and nurturing environment. It recognizes children as persons with rights and voices of their own and puts their interests first without

filtering them through prior adult agenda. The perspective strongly argues that there is a need to actively participate children in community development to ensure that their interests are met.

The child-centered perspective observes child labor as work which undermines children's wellbeing and development. It gives support for policies that guarantee children's rights, welfare and development. This perspective strongly emphasizes on the need to make national policy which is more accountable for children (Boyden 1998).

2.1.5 The ILO Concept and Definition of Child Labor

Child labor carries a negative connotation, and there is a clear indication in which the existing ILO conventions for the idea that any statistical definition of child labor must refer to activities that are child welfare reducing. Although the ILO convention contains no express definitions of "child labor" nor "employment", the goal of abolishing "child labor" makes it clear that it must refer to activities in which child participation makes the child worse off in some sense. The reference by ILO convention to "employment or work" suggests that the convention may encompass all forms of economic activity, including work outside of a conventional employment relationship, such as self employment.ILO Convention No. 182 on the worst forms of child labor, which provides that children under the age of 18 years can legitimately work, provided that they have attained the applicable minimum age, and the work concerned is not hazardous or another worst form of child labor. Cross country studies on child ages 10-14 of child labor universally define child labor as the economically active population.

Convention No. 138 explicitly introduces a distinction between child labor and light work: National laws or regulations may permit the employment or work of persons 13 to 15 years old age on light work which is: (a) Unlikely to be harmful to their health development; and (b) Not such as to prejudice their attendance at school, their participation in vocational orientation or training programs approved by the competent authority or their capacity to benefit from the instruction received (Article 7, Section 1).

The current criteria for identifying child labor used by the ILO's Statistical Information and Monitoring Program on Child Labor (SIMPOC) for its global child labor estimates is (i) a child under 12 who is economically active for 1 or more hours per week, (ii)a child 14 and under who is economically active for at least 14 hours per week, (iii) a child 17 and under who is economically active for at least 43 hours per week and (iv) child 17 and under who participates in activities that are "hazardous by nature or circumstance" for 1 or more hours per week.

A child 17 and under who participates in an "unconditional worst form of child labor" such as trafficked children, children in bondage or forced labor, armed conflict, prostitution, pornography, illicit activities.

The ILO (2006) estimates that there were 217.7 million child laborers in the world in 2004 under this definition. Light work is used to characterize the market work of children aged 12-14 that is non-hazardous and for less than 14 hours per week. Child work is an aggregate that pools child laborers with children engaged in light work. One of the most effective methods of ensuring that children do not start working too young is to set the age at which children can legally be employed or otherwise work. The main principles of the ILO's convention concerning the minimum age of admission to employment and work listed below.

(A) **Hazardous Work**: any work which is likely to jeopardize children's physical, mental, moral, health, safety should not be done by anyone under age of 18.

B) **Basic Minimum Age**: the minimum age for work should not be below the age for finishing compulsory primary schooling, which is generally taken as 15. In general, ILO defines all those under 18 as children. Accordingly, labor is defined as "economically active," when a person works on a regular basis for which he/she is remunerated or that results in output destined for market.

To sum up child labor may take different forms depending on the effects on normal child development. One of the form; "hazardous work" that jeopardize "the health, safety, or morals of young person's". This group is also called worst forms of child labor. And according to ILO convention No. of 182, Article 2, this group includes activities like handing chemicals, carrying heavy loads, mining, quarrying or enduring long hours.

The darkest category of child labor relates to those children caught up in criminal activities such as prostitution, production of pornography or pornographic performances, forced recruitment of children for military conflict, slavery (such as bonded labor), or trafficking (which involves the removal of a child from its home, often involving deception and payment, for a wide range of exploitative purposes). These categories are beyond the reach of statistical surveys. The other categories are those children whose tasks are not hazardous but are more substantial than permitted light work (Edmonds, 2008).

2.2 Theories and Models of Child Labor participation

Despite there exist a growing empirical literature on child labor, finding theories on the issue is not as such simple as long as writings on the area are very little. After reviewing few papers on the area here, we put some of the theory and model which will be used as base for our study.

2.2.1 Theories of Child Labor participation

The Human Capital Theory

The Human Capital Theory is based the on neo-classical theory of endogenous growth. It assumes that people are productive resource. Hence higher education will lead to higher productivity. Basic proposition behind this theory is that parents make trade-off when allocating their children's time, especially for education and labor. Their decision is based on family economic and social conditions. Time spent on accumulating human capital affects child labor. A parent's decision regarding the investment in their child's human capital depends on return to schooling. If the return from schooling is high the number of working children would reduce.

Risk Theory

Poor household faces shocks and risks such as unemployment, natural disasters effecting income like draught and flood, war etc. The income shocks could be severe among the household who do not have enough reserve resources to meet such shocks. These household are more likely to supply child labor if they remain unable to borrow to smooth their present consumption need. Literature often points out that in extreme cases household could sell the future hours of their child work to overcome the present income shocks. At the macro level, Behrman (1999) found out that macroeconomic instability has played a major role in the low education attainment level in the early 1980s for the Latin American and Caribbean countries. Duryea (1988) discussed that the parent's unemployment reduces the probability of grade advancement among the children. According to Jacoby (1997) working on the data of rural India provides evidence that parents withdraw children from school during unexpected decline in crop income.

2.2.2 Models and Perspectives of Child Labor participation

The Basic/static Model

The two assumptions that are crucial and also founded in the basic static model of labor market with child labor are the Luxury Axiom and the Substitution Axiom (Tzannatos, 2003).

Humphries (2010) Substitution Axiom argues that "adults and child workers are substitutes subject to some adult equivalency correction".

This Axiom argues that it is always possible to replace adult labor with Children and since adult labor cost more; some employers aiming to maximize profit would switch to children.

The Poverty model (Luxury Axiom) argues that parent or household send their children to work because of poverty and that children's "non work, school attendance or leisure" is a luxury commodity household cannot afford.

Humphries (2010)"poverty is the main cause of child labor even though it may have some other non economic causes and could also be affected by the changing conception of child hood.

Alfred Marshall also noted some effect of child labor. In Marshall's view, "the moral and physical misery and disease caused by excessive work under bad conditions reached their highest period in the first quarter of the 19th century and that the most valuable of all capital is that invested in human beings. According to Marshall, if faculties of children are not developed well, they would not be able to realize the importance of developing the faculties of their own children, hence, limiting their ability or power to do so.

The Cultural (norm) Model

Albert Hirschman argued that the decision of whether or not to send one's child to work has, to some extent, something to do with social norms. A parent's decision to send a child to work makes that parent incur a social stigma cost. If the society or area of residence has lots of child labor, the stigma cost is smaller and it may even be advantageous to each parent to send their child to work.

Unitary Versus Collective Household Models:

The decision-making process within the household is modeled either as the domain of one individual or as a bargaining process between members of the household. In both sets of models, households maximize total welfare through the allocation of resources among the members of the household according to the weight assigned to each household member. In unitary models, formalized originally Becker (1964) the weights are assigned by one person. In collective models, the weights are determined by the bargaining power of the individuals which may vary depending on factors such as how much money the individual brings in and what his/her fall back options are.

Bhalotra (2004) Households' models also differ in the assumptions made regarding the preferences of the decision maker(s). If the decision makers are altruistic, the child's utility enters into their utility function, resulting in a negative weight on child labor.

In this framework child labor is a manifestation of constrained household resources and is a consequence of poverty.

In general, economic theory suggests that as income increases, child labor supply should fall as long as leisure is normal good. However, child labor is a direct or indirect source of a household income and thus income is indigenous will respect to child labor supply.

2.3 Causes of Child Labor

There are a number of factors which contribute to child labor. Child labor is employment of children when they are too young to work on wages or when they are employed for jobs unsuitable or unsafe for them. It is pervasive problem throughout the world, specially, in developing countries. Africa and Asia together account for over 90% of total child employment. The most important and the primary cause for child labor is poverty (Basu et al., 1998). Likewise, in Pakistan, most children under the age of 15, who constitute 45% of the country population, live below the poverty line. Since people are economically handicapped, they are not able to fulfill the basic needs of their families. They dream to fulfill their basic needs of food, shelter and health, but, they can't and the better irony of poverty bounds them to send their children to start wage labor at very early age of their life (Kousar et al., 2005).

The school related factors that do make children to work are: Cost of education, distance of schools and need for pocket money. In spite of human rights instruments which commit states to provide free and compulsory education at primary level, schools fees continue to be levied. There is strong evidence that these costs along with the need to work are the most important causes of children not attending or dropping out of school, (UNESCO, 2004). On distance of schools, argues that children engage to full time work either because they have no access to school within a convenient distance or the schools are such of low quality that parents do not see the advantages of enrolling their children in them (Mandan et al., 2003).

In industrialized world many teenagers take vacation jobs as kitchen helpers, servers, beach life guards etc to raise pocket money, (Black, 1995).Another reason why children are preferred to adults is that they are uniquely suited for work (Fife, 1993). .

Child participation and child labor in our society is growing fast. There are different socio-economic factors which are responsible for its spreading and prevalence. These factors include poverty, illiteracy, unemployment, lack of family planning, dissatisfaction from education system, absence of social security and many others ((Gulraz, 2010).

2.4 Impact of Child Labor participation

Child labor has a negative impact on both education and health of children in particular and economic development of a country in general. Child labor is widely recognized as a major hindrance to reach the education for all goals by restriction the right of millions of children to access and benefit from education. Large numbers of child laborers are denied the fundamental opportunity of attending school, while those who combine work with schooling are often unable to fully profitable from education. Child labor and the achievement of education for all are negatively related. The former is barriers for the achievement of education for all. At national level, higher incidence of child labor is generally associated with lower values in education development Index, which is yardstick for achievement of education for all. Child labor leads to reduced human capital formation which is important for countries development. In countries where child labor is a common phenomenon many children are excluded on a permanent basis from the education system (i.e., high levels of child labor translate in to large numbers of out-of-school children). This, of course, puts a downward pressure on overall school attendance rates (Blanco et al., 2008).

The impact of child labor on mental and moral development are more elusive but include psychological stress, lack of opportunities to develop cognitive skills and costs involved in being denied time for recreation and the chance to go to school as well sound adult guidance (Black, 1995). Working long hours, child laborers are often denied basic school education, normal social interaction, personal development and emotional support from their family. When the children are not able to develop their cognitive skill they lack the academic will. This makes them to perform poorly academically. For this type of pupils, the school becomes terrible environment, not fit for their interests. Child laborers are often mistreated by their parents, guardian or employers. Instead of understanding some of their incapacities as being caused by their age and inexperience, the employers, parents and guardians force these children to work like chattel. If work leaves a child with insufficient time or energy to devote to studies, then child labor has a negative effect on schooling because it perpetuates poverty by displacing them from schooling.

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2.5 Child Labor participation and Schooling

There is a strong negative relationship between child labor schooling and there is a tradeoff between child labor and human capital formation since a longer hour working children have little or no time to spend elsewhere, including school attendance and studying, with likely adverse impact on their educational achievement. It also lower expected returns on education which in turn discourage regular school attendance, thereby creating a fertile ground for intensive use of child labor (Getenet et al., 2007).

Compulsory education has a vital role to play in reducing child labor. Getting children out of work and into school could provide an imputes for poverty reduction and the development of skill needed to boost growth , generate jobs, and create more inclusive societies. However, the linkage between child labor and education are two- way .Firstly, poverty forces many households to withdraw children from school and send them to work. But many children are working at list in part because education is unaffordable, inaccessible, or seen as irrelevant .Secondly, failures in education policy can increase the number of children withdrawn into labor markets. It allows that strategy for eradication of child labor has to tackle the underlying source of the problem in integrated fashion, combining the more stringent enforcement of rules and incentives to combat poverty with improved education provision (Gordon, 2011).

 In Ethiopia as in several sub-Saharan African countries, a large number of individuals enter the labor market below the age of 15 and with little or no formal education .Weather child work represent good or bad, an important consequence of these is youth unemployment which is taken as on source of unemployment in the labor market of Ethiopia which in turn discourage schooling for future generation as educated current generation become jobless (Guar cello et al., 2007).

2.6 The Situation of Child Labor in Ethiopia

There is no reliable research finding that clearly sheds light on the trend and nature of child labor in Ethiopia. However it is evident that it has been customary in Ethiopia that children have always been part of the productive and reproductive role of societies since the time of immemorial. The fact that there have not been legal or customary laws in the long history of the country that define the age that should have been categorized as working force, has made the society to continue to use children's labor to sustain families both socially and economically.

The available scanty information in relation to child labor in the country reveals a disturbing picture. Like in many other sub-Saharan African countries, a large number of children in Ethiopia join the labor force usually below the age of 15. This ranks the country among one of the countries with highest rates of child labor in the world. A survey conducted in 2001 has reported that one-half of all Ethiopian children within the age of 5 to 14 years were engaged in one or another form of child labor. Though the available literature on the pattern of child labor in Ethiopia shows existence of a strong correlation between different forms of child labor and vulnerability to different forms of violence, the situation of child workers in Ethiopia and the nature of the work that they are forced to be engaged in have been not yet adequately studied. The few studies conducted on violence against child workers in Ethiopia provide only blurred information that is not sufficient to understand fully the extent of the problem and its impact at national level. This therefore has impeded the development of a viable strategy to address the actual problems that resulted from child labor in the country (SOS, 2008).

Despite the limitation of obtaining reliable statistical data to establish the number of children who are in the labor force and exposed to child labor in Ethiopia, the National Child Labor Survey conducted in 2001 shows that the total number of children in the age group of 5-17 was 18,197,783. Out of this data it was indicated that nearly 9,483,611 children had been involved in productive activities of the country in different sectors of the economy.

According to the data nearly 52.1% of the total children population in the country is engaged in the active workforce. Desegregated data by education status of children aged 5-17 years indicate that 43.9% have attended formal education while 56.1% have never gone to school. Of those children currently attending school, 87.8% have attended formal education while 12.2% have attended informal education. The majority of the children attending formal education have completed elementary education only. The current school status of children aged 5-17 years indicated that the majority, about 61.7%, are not at school or have dropped out of school for various reasons (SOS, 2003).

2.7 Empirical Literature Review

The major determinants of child labor participation are rooted in the family, community and the society at large and poverty and migration accounted mostly to put pressure on children to engage in laborious works. More specifically, there are other determinants which are death and instability of one's parent and family, low level of education, lack of awareness on the rights of children, divorce, land scarcity and others (Kelemu et al., 2016).

Child labor participation and children's participation in schools and concludes that, child labor became a major problem in primary education and its causes are closely associated with poverty and socio-cultural viewpoint of the society, which value children as an economic asset of their families. As a result of this, children were forced to drop their schooling or not got the chance to go to school. Their study tells, children were expected to perform both domestic activities (such as cooking, fetching water and fire wood, caring siblings and washing) and productive activities (like cultivating, planting, weeding, harvesting, and keeping cattle and goats). Their finding also indicates that child labor affects the physical, social, emotional, educational and health conditions of the working child. Depending on their finding they recommend that, there should be collaborative effort of all governmental, non-governmental and family's effort in the fight against child labor, so as to ensure children's school participation (Eshetu and Teferi, 2014).

Students who work both outside and inside the home have a heavy work load, possibly tire themselves physically, and have less time and energy to devote to their studies than students who do not work or who only work in one location. Each additional hour that a student works lowers school achievement. Students who work 7 hours or more per day experience the most harm to their school performance, but the harm is modest with at most a 10 percent decrease in their achievement test scores relative to students who do not work (Eduardo G. et al., 2009)

Khan am (2006) parental decisions regarding child's time use in schooling and work influenced by parent education level, non-labor income, house hold composition ,income, price of child school and age of child. Higher level of education of parents creates positive effect on their child schooling, as parental income is a positive function of their human capital. Educated parents are more likely to earn more income through farm production or wages that tend to increase schooling for their children. In other way, the level of parental education, especially mother's education, is input of human capital of children.

Assefa (2002) discussed that children are part of economic life of societies and earlier industrial revolution increase the proportion of children in the work force which is the worst for developed countries. However, today the problem is largely a phenomenon of developing countries. He specified as child time allocation activities is dependent of child specific character and parental, household, environmental, technological and cultural characteristics. According to his study age and gender of the child, cultural factors, the educational status of the household head, the distance to school and the quality of education are important determinants affecting the choice between school attendance and work participation.

The levels of children's work are significantly and inversely correlated to the number of years that a child will spend at school. They also observe that the data for both boys and girls and is regardless of grade repetition, resulting in lower levels of human capital accumulation. There is a significant inverse correlation between levels of economic activity of children aged 7-14 and youth literacy rates in the 15-24 age group. This finding suggests that the consequences of child labor can be critical not only in terms of human capital accumulation in general, but also in acquiring key educational basic competencies such as the ability to read and write. The absence of these basic skills will leave youth and adults with very restricted options besides working in low remunerated jobs, recreating the conditions for the perpetuation of poverty, inequality and social exclusion. School attendance rates tend to decline with higher levels of economic activity. The study also revealed that there is an inverse correlation between the number of working hours and children's capacity to attend school. Non-economic activities such as household chores also play a role, but less so in terms of their effect (Blanco et al., 2008).

Kausar (2010) discussed that the impact of child labor on Pakistan's economy applying OLS technique examined the negative relationship between child labor and literacy rate for both 10-14 years age children and 15 years and above, while per capita income did not show any significant result. The study also proved that the negative relationship between household size and child labor.

A Study on child labor in three major towns of southern Ethiopia (in Hawassa, Arab Minch and Wolayita Sodo) (Solomon et al, 2011) by surveying total of 323 child laborers (whose age is between 5-18) concludes about 42.0% of children were below the age of 14 years and were engaged in employed labor. The reasons for child labor included poverty (60.7%), loss of parents (17.3%), disagreement with parents(8.4%), parental separation (6.5%), shortage of food (5.3%) and displacement due to war (1.5%). Almost all of the respondents' parents had a low level rank occupation with 64.0% having a monthly income of less than 50 birr and 79.0% of the respondents reported that they were from poor families. Among the respondents, 51.1% were domestic child laborers, 22.6% were street child laborers and 18.3% were working in private organizations. Two-thirds of the child laborers were working for more than 10 hours a day and 82.0% of them had a daily income of less than five birr. About half of them stayed in the job for more than two years and most of them did not visit their parents or relatives for long periods of time. Eighty-four percent of them reported previously encountering one or more health problems. Malaria-like illnesses and diarrheal diseases were the major health problems reported. About 19.0% of them were sexually active, yet 22.6% of them have never heard about HIV/AIDS. About three-quarters of them did not attend any kind of health education program. The majority (77.4%) of them had never heard of the Conventions on the Rights of the Child (CRC).

Temesgen (2015) discussed that low rate of school attendance is due to high frequency of late-coming, absenteeism and dropout, lack of active participation in classroom activities, lack of doing homework, low academic achievement with greater emphasis on grade promotion and lack of opportunity to participate in diverse co-curricular activities to enrich their academic experiences. Educational achievement in primary school is significantly affected by work load at home, distance from the school, satisfaction of teachers and counseling office. This shows that how child labor or workloads at home for children have impact on their educational achievement. In other way, supportive books at home, head of household educational level, age of the student, household size have not significance effect on educational achievement (Yibeltal et al., 2014).

Mahindra (2013) and Terefe Adamu (2016) found that household size, household income and gender of children significantly affect child labor supply. Household with large family size may find difficulty in meeting the household requirements and hence, resorts to shifting some children to formal labor market.

The income variable also has an impact on child labor supply. Lower income households are more likely to send their children to labor market.

Moyi (2010) discussed that a number of factors are responsible for the high incidence of child labor in developing countries, they considered child labor as a consequence of poverty-related factors including economic stagnation, illiteracy, powerlessness, war, famine, orphan hood, rapid spread of HIV/ADIS and deficient economic and educational policies for child labor. It is argued that households that do not have enough resources to sustain the family, have no a choice but forced their children to work as laborers to make ends meet. In such cases, size of the household is important in determining children's labor activities and educational opportunities. High fertility increases the chances that children from large families have to do work to support household income.

To sum up, all studies discussed above did not include the variables like, children's parents who take debit and future price expectations of child laborers as determinants of child labor participation. So this study tries to include those variables which are not studied before.

2.7.1 Variables that Determine Participation of Children in Labor Market

A. Poverty:

A study on Ethiopia revealed that both poverty constraints and income opportunities played important roles in the decision to send children to school or to work. It is also found that work and school conflict substantially but not entirely (Cockburn, 2001).

In both rural and urban areas child labor is in one way or another attributable to poverty at local and national level. The national child labor survey conducted by the central statistics agency (CSA) provides data on the distribution of child work between rural and urban areas and among regions in the country due to the pressure created by poverty. About 52% of the children were reported to be engaged in productive activities. Girls were mainly engaged in domestic activities (e.g collecting firewood and water, food preparation, washing clothes) while boys were involved in productive activities (cattle herding, weeding, harvesting, plugging, petty trading, wage work). The participation rate in productive activities was 62% for boys and 42% for girls. For domestic activities, this figure was 222% for boys and 44% for girls. In rural areas, children were more frequently engaged in productive activities than in domestic activities, where as in urban areas the opposite was true.

In rural parts of the country household poverty is caused by large family size increasing fragmentation of farm land that ultimately leads to low family income. The situation in urban areas is also so severe that, lacks of employment opportunities that lead to low family income deprive parents to send their children to school. Instead they tend to encourage and even some times force their children to enter into the labor market in their early age so as to enhance the household income to sustain the families. Considering the extreme poverty in both rural and urban conditions, the use of child labor in on farm and off farm activities and in other sectors of the economy has become not a matter of choice (Tassew, 2005).

B. Costs of Schooling:

Child schooling is not determined by demand side factors alone, rather there are hosts of supply side factors which have a very pronounced effect. Among these supply side factors, influence of cost of schooling is very significant. Even though parents are not volunteer to involve their children in child work activities, in situation where the expenditure on schooling is very high they obliged not enroll their children because they do not afford the fee. In rural Ethiopia context where the available school is a government schools there are no tuition fees.

However, parents are expected to pay for registration, learning materials and uniforms. His average expenditure per enrolled child is significant in the work equation for girls with 0.09% reduction in the probability of engaging in work only. (Tseganesh, 2011).

The issue of child labor is motivated by its detrimental impact on the normal development of laboring children in general and on their education performance in particular (Bhalotra, 2003).

C. Returns to schooling:

A better understanding of the nature and trade-off between child labor and schooling in Ethiopia is essential to be able to inform policy aimed at curbing the high incidence of child labor. Ethiopia is the country of the young will children under 15 years accounting for 44% of the population. According to the country's recent survey on the child labor that 85% of child in Ethiopia were found to be engaged in some kind of labor activity during school (CSA, 2001).

D. Parents education level:

The most important characteristic of the parents is his/her education level (years of schooling).

As expected, it is negatively related to the likelihood of children particularly boy and older children, working as his/her main activity. The likelihood of a child working falls by 1.7% with each additional years of schooling of the parents. (Cockburn, 1999).

Better education background of parents is likely to favor child schooling as the decision makers become main aware of the benefits of investing in human capital and better educated parents will be well informed about the detrimental impacts of child labor on the overall development of children(Dessy, 2000).

Children in household with formal schooling level of up to grade six are more likely to enroll to school only and less likely to specialize in work by 7% each, whereas, those in household having formal school of above grade seven has greater probability of being in school only (12%) and reduced the probability of specializing work only (7%) (Tseganesh, 2011)

E. Domestic work and Market work:

Based on the study on rural Ethiopia by using probit model, of Beliyou (2003) discussed that children are more likely to engage in market activities. Other studies which confirm this result is obtained by Jensen etal (1997), Canagarajah etal (1997), and Cockburn (1995). Unlike the findings for market work where male children are more likely to participation, the probability of domestic work participation is higher for female children.

Muller (1984) finds that boys specialize in household production any girls in domestic work when the number of cattle increases.

F. Household head's characteristics:

Gender as well as age of the head had an insignificant impact on child labor participation in rural Ethiopia (Cockburn, 1999). On the other hand, children from household headed by a person with at least primary education are less likely to involve in work activities (Beliyou, 2003).

To the extent of female headship signifies aspect of ill being or insecurity, for example, children in female headed households may tend to have greater work burden to generate resources to generate resources to sustain the family. There may be opposite effect. Canagarajah et al (1977), for example, reported a negative association between female headship and work participation, with stronger effect for girls. Very young children (age 4-7), particularly boys, are more likely to work in male-headed households. The age of the household head does not appear to a have much importance on children's time use. (Cockbun, 1999)

Female headed households in highlands are likely to be discriminated against provision of assets mainly land which is the most important asset for survival restricting their earning potential (Assefa, 2002).

Even though the age of the head had no such pronounced effect on child time allocation decision, children in male headed households were more likely to engage in work only, would have more significant effect on boys. (Tseganesh, 2011)

G. Child's characteristics:

It is interesting to note that compared with children age 7-9, children age 9.1-12 and 12.1-15 are more likely to participate in domestic work activities including water/firewood fetching, care taking, and other activities. Being a biological child, a direct offspring of household head, is also found to increases the likelihood of participation in domestic work activities.

As Cockburn's et al (1999) study's result on child labor supply detrimental on rural Ethiopia revealed the strong positive and significant effect of age on the probability of a child working and boys are 4.8% less likely than girls to have work as main activity. These sex differences increase with age. age of the child affects child labor hour positively and significant at 1%. Child characteristics of age statistically affect the number of hours worked by children's and it has positive sign (Terefe Adamu, 2016).

H. Family Asset:

In non-monetized rural economies, household assets became the potential indicators of household wealth without going into detail, as the variables value which indicates wealth increase, the probability of being child laborer decrease. Thus, as land size, number of plots of land owned numbers of livestock in standard unit, and constructions increase, the level child labor decrease (Tseganesh, 2011).

An inverse association is reported between land ownership and the likelihood of school attendance and the direct relationship between land ownership the direct relationship between land ownership and the likelihood of child labor participation (Jense et al.,1997: Cockburn ,1999: Assefa, 2002).

I. Household composition:

Among the household composition variables, only the number of infants and the number of boys appear to influence child time use. The presence of infants significantly and strongly increases the likelihood of a child working (roughly 6.2% for each additional infant), probably due to increased household demand for domestic work or in order to substitute for the mother's over activities. This effect is particularly strong for girls and younger children (Cockburn, 1999).

Beliyou's (2003) study result imply that an inverse relationship between the number of dependents and children's market work participation. While having a large number of young children increase the demand for care taking, large number of school aged children makes the competition over resources Stiffer, making school attendance less of an option for at least some of the children.

2.8 Conceptual frame work

The conceptual frame work below shows the linkages between the independent and dependant variables. Parental socio-economic status the , Education levels parents, household size, employment status of household head, marital status of household head, age of child, sex of child, age of household head are independent variables which affects child labor participation and can cause a change to the performance of children in school.

Figure 2.1: A conceptual framework showing how sets of independent and dependent variables influence child performance in class

Independent

Independent	Child labor participation	Performance in Class
➢ Age of child ➢ Sex of child ➢ Sex of household head ➢ Age of household head ➢ Parental Social economic status ➢ Education levels of the parent. ➢ Employment status of household head ➢ Marital status of household head ➢ Parents debt	Child labor participation	Performance in Class
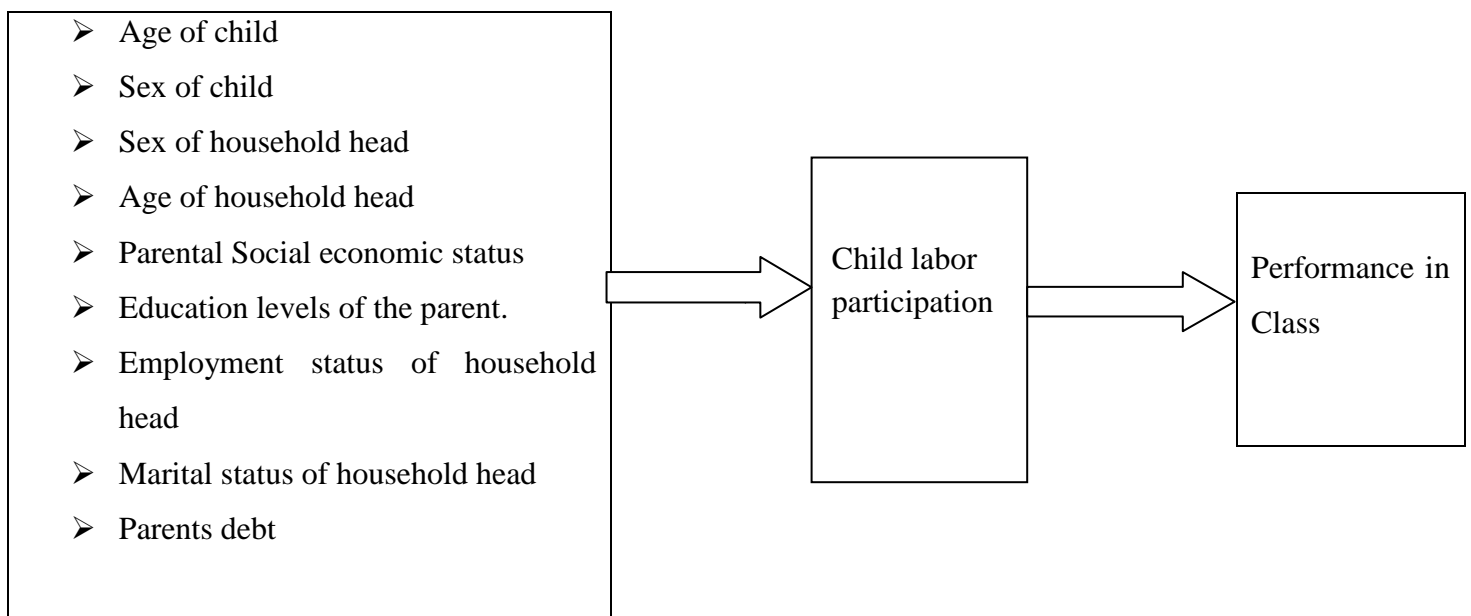
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Approach and Design

The research design that adopted in this study was both descriptive and explanatory research. The researcher used descriptive research to describe the demographic characteristics child labor in Gullele Sub City. The study employed explanatory design to identify the determinants of child labor participation and its impact on educational achievement. In this study both qualitative and quantitative methods were used simultaneously. Quantitative data were used for any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generate or use numerical data. In contrast, the Qualitative data were used for any data collection technique (such as an interview) or data analysis procedure (such as categorizing data) that generate or use non-numerical data.

3.2 Data sources and Data collection Methods

The study used primary data. The primary sources of data derived from the respondents' response that respondents had given during the survey and the data were used to obtain information related to demographic characteristics of the households and children and issues related to child labor and educational achievement. The data collected using a structured questionnaire.

Information obtained using the survey questionnaire includes:

Child labor characters like sex, age, place of birth, total working hours per week, and semester cumulative result. Household income, household size, education level of the household (child's father and mother or nuclear family back ground) and religion, sex, age, employment, marital status of the head household and other important variables also part of the survey.

Interview for Children's Right Protection and Labor and Social Affairs Office reason for the existence child labor, the extent of child labor and how to solve the problem of child labor participation. Children's semester cumulative results were obtained from self reported information of the child. In case where, children's are unable to tell the score correctly, it is a must to contact either their parents or their school for getting appropriate answers

3.3 Target population and Sampling

The target population is child laborers in Gullele sub city. According to Gullele sub-city women and child affairs and education office (2013) total number of children whose age is between 7-18 is 30,006. In Gullele sub-city, there are ten woredas and it is not possible for conducting a survey by including all the woredas. So that taking sample is an appropriate way. Therefore, the study selects four woerdas using multi-stage simple random sampling technique. Four woredas were selected purposively through the discussion with officials of Gullele administration, women and child affairs office, social and labor affairs office and education office in the Gullele sub city Therefore, the four woredas purposely selected for the study include woreda,01,04,05,and 07 because in these woreds there were many children participating in child labor activities. From four woredas there were 204 respondents after they were selected using simple random sampling. For sample size determination we can use the following formula following Yamane (1967).

$$n = \frac{N}{1 + N(e)2}$$

Where; n = sample size

N = number of child laborers in the study area

e = is the desired level of precision (e = 7% or 0.07)

$$n= \frac{30,006}{1+30,006(0.07)2} \quad n=204$$

3.4 Methods of Data Analysis

Both descriptive statistics and econometric techniques were employed to describe, analyze and interpret the result of the determinants of child labor participation and its impact on their educational achievement. In the descriptive part, the discriminate analysis such as simple tables, frequencies   percentages and chi2 square analysis was used.

3.5 Econometric Model Specification

According to Gujarati (1995), three types of models have been proposed in the econometric literature for estimating binary choice models: the linear probability, logit and probit models represented by linear probability function, logistic distribution function and normal distribution function, respectively.

These functions will be used to approximate the mathematical relationships between explanatory variables and child labor participation situation that is always assigned qualitative response variables. \\

According to Hosmer and Lemeshow (1989) the major point that distinguishes these functions from the linear regression model is that the outcome variable in these functions is dichotomous. Besides, the difference between logistic and linear regression is reflected both in the choice of a parametric model and in the assumptions. Once this difference is accounted for, the methods employed in analysis using logistic regression follow the same general principles used in linear regression.

According to Hosmer and Lemeshow (1989), there are two primary reasons for choosing the logistic distributions: from mathematical point of view; it is an extremely flexible and easily used function; and it lends itself to a meaningful interpretation. The interest of the study with regard to this objective is to analyze the determinant child labor participation. For this study, analytical model selected is binary logit model which significantly identifies child labor participation.

Binary choice models are appropriate when the decision making choice between two alternatives (child labor participation and none participating). Child labor participation is a dependent variable, which takes a value of zero or one depending on whether or not a children is participating in labor or not (i.e. participate in child labor =1 and do not participating in child labor=0).

Following Gujarati (1995), the logistic distribution for the child labor participation can be specified as:

$$\text{pi} = \frac{e^{zi}}{1+e^{zi}} \tag{1}$$

Where pi =was the probability that an children is participating labor activities for the ith children and ranges from 0 to 1.e = Represents the base of natural logarithms and

Zi= is the function of a vector of n- explanatory variables(x) and expressed as

$$Zi = \beta 0 + \sum \beta i x i + \mu i \tag{2}$$

Where β0= is the intercept

βi = is regression coefficients to be estimated,

xi= is Variables and μi is a disturbance term

1-Pi   was represent the probability of do not participating in labor force and can be written as:

$$1 - pi = \frac{1}{1+e^{zi}} \qquad\qquad (3)$$

Then odds ratio can be written as

$$\frac{pi}{1-pi} = \frac{1+e^{zi}}{1+e^{-zi}} = e^{zi} \qquad\qquad (4)$$

Equation (4) was indicates simply the odds ratio. It was the ratio of the probability that the children is participating in labor force (Pi) to the probability that children is do not participating in labor force (1-pi)

Finally, by taking the natural logarithm of equation (4) the log of odds ratio could be written as:

$$Li = Ln\left(\frac{pi}{1-pi}\right) = Ln(e^{\beta 0} + \sum jn = 1\beta jXij = Zi = \beta 0 + \sum jn\beta jXij = 1 + \mu i \qquad (5)$$

Where Li was log of the odds ratio, which was not only linear in X ji but also linear in the parameters.

The second model used in this study was to estimate the effect of child labour participation on educational achievement which is measured by test scores of children's in a semester. To analyze the effect of child labor on student's educational achievement using test score in a semester is preferable (Shimada, 2010), (Aturupane, 2007), (Eduardo, 2009) and (Tassew and Aregawi, 2015). Propensity score matching (PSM) has been used for estimating the various determinants of child labor participation on educational achievement.

Propensity Score Matching (PSM)

The children were matched on the basis of probability, or propensity score, to non participation. The propensity is defined as the conditional probability of receiving the treatment given the pre-treatment variables (Rosenbaum and Rubin, 1983; Heckman, 1997).

Let Di denote a dummy variable such that D equals 1 if children i participating and 0 otherwise, the propensity score can be defined as;

P(X) = Pr (Di=1/X) = E (Di/X) (1)

The logit model was employed to estimate propensity scores. Gujarati (1995) stated that the logit model estimates the probability of the dependent variable to be 1. The specification of the logit model in this study is specified as:

P(Di=1/x) =p (participation status) = X'β +ε $\qquad\qquad$ (2)

Where i is number of observation,

P (Di) is the probability that the children participating labor activities,

X' is explanatory variables indicating demographic and socio-economic attributes of children,

β is a vector of logit index (coefficient), and Ɛ is the stochastic (error or disturbance) term.

ATT is the difference between the outcome variables of being treated and its counter factual (an outcome variable is children's average score (children cumulative result). The average treatment effect on the treated (ATT) is given as;

$$ATT= E (Y1/D=1)-E (Y0/D=1) \qquad\qquad (3)$$

Where E (Y1/D=1) is the adopters before they adopt technologies and it is reasonably be approximated by the output level of non-adopters during data collection.

E (Yo/D=0) = is a counter factual and is not observed E is mathematical expectation operator.

D is dummy variable that takes the value 1 if the individual is treated 0 otherwise. Now, the outcome of treated and non- treated individuals might differ leading to selection bias. To clarify the mean outcome of a program, we can further specify ATT as:

$$ATT= \{E [Y1/D=1]-E [Y0/D=0]\}-\{E [Y0/D=1]-E [Y0/D=0]\} \qquad\qquad (4)$$

Where; E [Y1/D=1]-E[Y0/D=0] is the selection bias which will be equal to zero if the program was given randomly and at the event where participants and non-participants did not differ . The validity of the result of the PSM method depends on the satisfactions.

The two assumptions are: Conditional Independence Assumption (CIA): meaning outcomes of the adopters and non-adopters are independent of the treatment status or after controlling for observable characteristics. The treatment assignment is "as good as random", and Common support condition (CSC): Entails the existence of sufficient overlap in the characteristics of the treated and untreated units to find adequate matches (common support). Several matching methods have been developed to match adopters with non-adopters of similar propensity scores. Asymptotically, all matching methods should yield the same results. However, in practice, there are trade-offs in terms of bias and efficiency with each method (Caliendo, 2008). Here, nearest neighbor matching (NNM), stratification matching and kernel matching were used.

3.6 Description of Variables

Dependant Variables

Child labor participation**:** It is a dummy variables that assumes a value of " 1" if the child is participating in child labor" 0" if the child is not participating child labor. Child labor participation can be affected by many factors like age of child. sex of child, monthly income of parents, household size, age of household head, educational level of child's fathers and mothers, employment status of household, marital status of household head and other factors.

Explanatory Variables

1. Age: -It is it is a continuous variable, defined as the children's age at the time of the study measured in years. Children have to work more as they get older; however the rate of increase declines with children's age. At their early age children are not physically, mentally and morally matured to work but, as age of children increase their responsibility also increase. So it is expected that when the age of the child increases it will have positive effect on child labor.

2. Sex:- It is a dummy variable that assumes a value of "1" if the child is male "0" if they are female. According to (Mahindra, 2013) child labor for male is higher than female. Contrary to this, studies by others shows female participants are higher than those of males. Since, different affected by researchers have different explanations because of getting different sign on gender nothing can be said about the sign of this variable a priori

3. Monthly income of child's parent: It is a continuous variable and operational as the total monthly income of the household. Household income significantly affects child labor negatively (Mahindra, 2013).It is the significant factor; as parent income level increase, the amount of money available for spending also increase. These in turn reduce child labor. So that it is expected that higher income affects child labor negatively (higher income leads to low participation of child labor).

4. Household size: This is a continuous variable measured by numbers and it refers to the total number of family members of the household. A household with high number of dependents in the family will lead to higher child labor participation. It is expected that household size will have positive impact on child labor.

5. Age of the household head: When the age of the household head increases or gets older they are not competent for participating in work activities and financing household expenditure is not

possible if they do not sent their child to work. So that when household head of the child gets older child labor participation increases and expected to have a positive sign to the variable. 36

6. Educational level of the child's mother: It is hypothesized that the more educated the mother of the child is expected to have a negative effect on child labor participation as compared to less educated child's mother.

7. Educational level of the child's father: It is hypothesized that the more educated the father of the child is expected to have a negative effect on child labor participation as compared to less educated child's father.

8. Marital status of the household head : Under normal condition household who is not married have high tendency to sent children's in work other than sending them to school and it is hypothesized that household head who is married have a negative impact for the variable as they care for children's than household head who do not have marriage. The sign is positive for divorced, widowed and single household head.

9. Child's biological relationship with the household head: Children's who have biological relationship with the head of the household will not spent much time in work in comparison with who do not have biological relationship with the head of the household.

10. Debit: It is hypothesize that child's parent who take debit have a great tendency to sent their child to work as compared to those parents who do not take debit. So that parents of the child with debit have a positive effect for the variable.

11. Employment status of the household head: Employed household head has less tendency to sent children's to work as compared to unemployed household head and has a negative impact on child labor hour if the household head employed and the opposite is true if unemployed.

12. Sex of the household head: Child laborers with female household head have a negative effect for the variable child labor hour in comparison with male household head.

13. Children's working expecting higher price in the future: It is assumed that children's who expect higher price in the future will spend more time in work than those who do not expect higher price and it have a positive effect on child labor participation.

Table 3.1.A summary of explanatory variables, their measurement and hypothesis (expected sign)

Description of the Variable	Measurement	Expected sign
Age of child (AGE)	Years	Positive
Sex of child (SEX)	Binomial , 1=male, 0=female	Positive
Monthly income of child's parent(MINC)	In birr	Negative
Household size(HHS)	The number of families in the household	Positive
Age of the household head(AGEHHD)	In years	Positive
Educational level of the child's mother(FAEDU)	Multinomial,1= illiterate , 2= primary school completed, 3=secondary school completed, 4= above secondary school	Negative
Educational level of the child's father(MAEDU)	Multinomial,1= illiterate , 2= primary school completed, 3=secondary school completed, 4= above secondary school	Negative
Marital status of the household head(MSHHD)	Dummy1= single,2=married,3=divorced, 4= widowed	Positive
Employment status of the household head(ESHHD)	Multinomial, 1= self employed 2,=government employed, 3= private employed, 4=un employed	Negative
Children's working expecting higher price in the future(HPE)	Dummy 1 if the child works because of expecting higher price in the future; 0 if not	Positive

Sex of the household head(SEXHHD)	*Binominal, 1= male, 0= female*	*Negative*
Parents debt	*Dummy, 1 if the parents of the child take debt; 0 otherwise*	*Positive*
Child's biological relationship with the household head(CBRHHD)	*Dummy, 1 if the child's biological relationship with the household head, 0 other wise*	*Positive(-)*

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CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Descriptive Statistics

In this part of the study we analyzed the data which was collected from primary sources. The primary data were collected by using questionnaire for the respondents. A Sample of 204 child laborers who combine work with school was selected for this study. Out of the total respondents 66 (32.35) are females and 138 (67.5%) are males.

Therefore, this part portrays the background characteristics of respondents, information of respondents' family and explains the various determinants of both child labor participation and educational achievement in Gullele sub-city.

Table 4.1.Demographic Characteristics of the Sample Respondents

Sex of child	Percent
Male	67.65%
Female	32.35%
Age of child	
7-10 years	8.33%
11-13 years	34.80%
14-17 years	56.86%
Sex of household head	
Male	58.33%
Female	41.67%
Age of household head	
25-39 years	11.27%
40-59 years	45.59%
60-79 years	42.16%
80 and above years	0.98%

Household size	
1-3	24.02%
4-7	66.67%
Above 7	9.31%
Are you working because of expecting higher price in the future	
Yes	25%
No	75%
Are you working for paying family debt?	
Yes	14.71%
No	85.29%
Child's biological relationship with the head of the household	
Biological relationship	27.45%
No biological relationship	72.55%
Total sample size = 204	

Source: Own survey (2021).

According to data collected from sample respondents showed that the majority of the respondents 67.65% were male and 32.35 % were female children in the study area. It implies that male respondents' are higher in number than female.

As it was shown on the above table majority of children engaging in child labor participation with the age of 14 up to 17 years which accounts 56.86% followed by children whose age is 11 up to 13 years which accounts 34.80%. The remaining children engaging in child labor participation with the age of 7-10 years which accounts 8.33%.

The age of child has positive relationships with child labor, because the data shows as 8.33 % of child labor are within the age range of 7-10, whereas 34.80% are in the range of 11-13 and 56.86 % of Child labor increase with increase in age of the child

As it observed from the table above, regarding the Sex of the household head of the child 58.33% are males and 41.67% are females. This indicates Male household head is more than that of female household head as it was portrayed by the table above.

As it was shown the above table the age categories for most of the head of the household fall under 40- 59 years which accounts 45.59% followed by 60-79 and 25-39 which accounts 42.16% and 11.27% respectively. The remaining 0.98% represents household head whose age is 80 and above.

As it was shown on the above table it is easily noticeable that 66.67%, 24.02% and 9.31% of the respondents have 4-7, 1.3, and above 7 household sizes respectively. This indicates that majority of the respondents' or child laborers' household size fall under the category of 4-7 followed by 1-3 and when the household size increases the number of hours spent on work increases and time for reading and recreation decreases.

As it was shown on the above table 25% of children's who expect higher price in the future will spend more time in work and 75% children's who do not expect higher price 75%.

As it was observed from the above table 72.55% of child laborers have no biological relationship with the head of the household, while 27.45% of them have biological relationship with the head of the household. this implies that most of child laborers are biological relationship with the head of the household. Generally child labor is practiced not only children's with biological relation with head of the household but also practiced who do not have relation with head of the household.

Figure 4.1: Showing respondent's parents (mothers and fathers of the child) educational level

It was necessary to examine the family status of child laborers to know whether this had any impact in forcing children to engage in working activities.

In the survey, information on education level of parents was collected from every child worker that participated in the survey. The purpose was to understand the impact of educational level of parents in influencing children to take up in working exploitation.

Figure 4.1 :(a) father's educational level
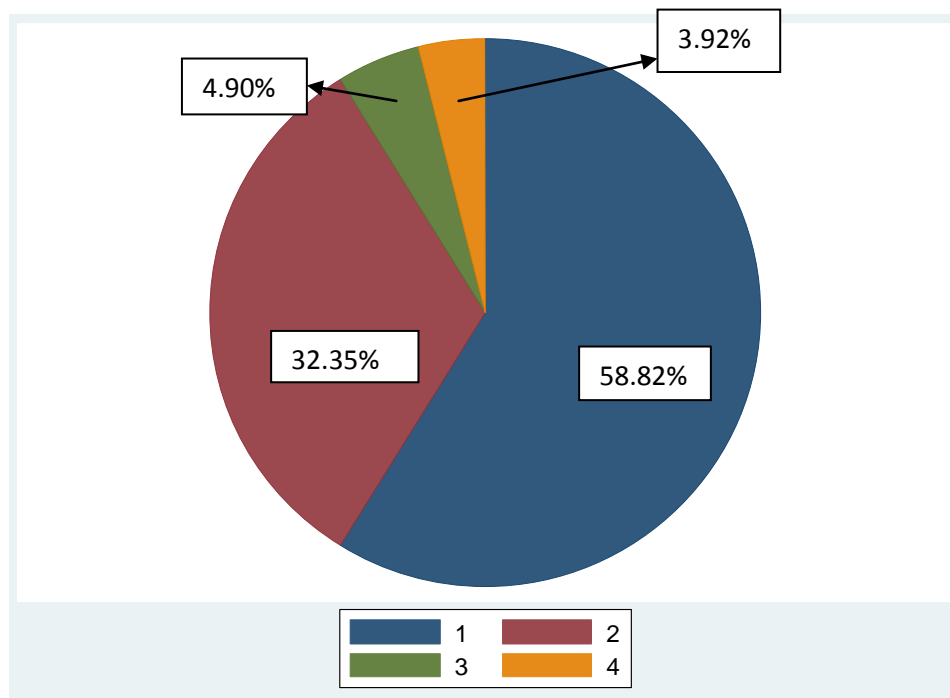
Source: Own survey (2021).

Note: 1= illiterate   3= secondary school completed

2=primary school completed   4= above secondary school

As it was observed from the figure 4.1 represents educational status of the parents of the child workers. Overall, about 58.82% of the fathers of child workers and 62.85% of the mothers of the child workers were found to be illiterate. Among the illiterate parents, mothers registered slightly higher illiteracy level than fathers. As indicated in figure about 32.35% of the fathers and 29.90% of the mothers were primary school completed. 4.90% of the fathers, 4.90% of the mothers and 3.92% of the fathers, 2.94 % of the mothers are secondary school completed and above secondary school respectively. This indicates that the majority of the child workers that participated in the survey come from illiterate families and families with poor educational background and the number of working children declines with the increase in the educational level of the parents.

Figure 4.1(b) mothers educational level
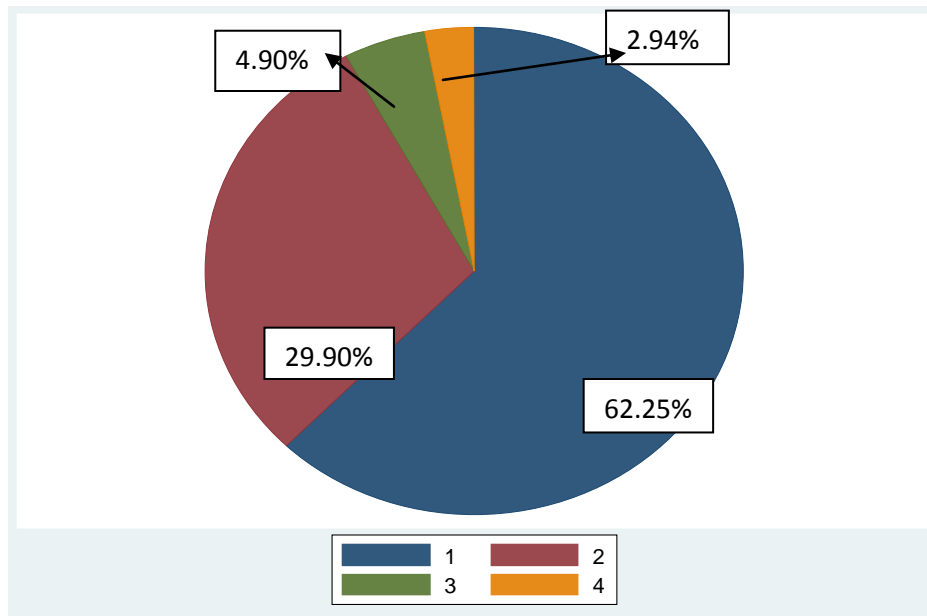

Source: Own survey (2021)

Note: 1= illiterate   3= secondary school completed
         2=primary school completed   4= above secondary school

Figure 4.2: Marital Status of the Household Head

As it is clearly shown from the figure (4.2) 56.86%, 33.82%, 6.37% and 2.94% represents the marital status of the head the household who was divorced, married, single and widowed respectively. From this one can say that the majority of the respondent's household heads are divorced. This implies that divorced household heads are sending their children's to work highly. As it was observed from the above figure, though the second marital statuses of household heads are married, they send their children in work place.
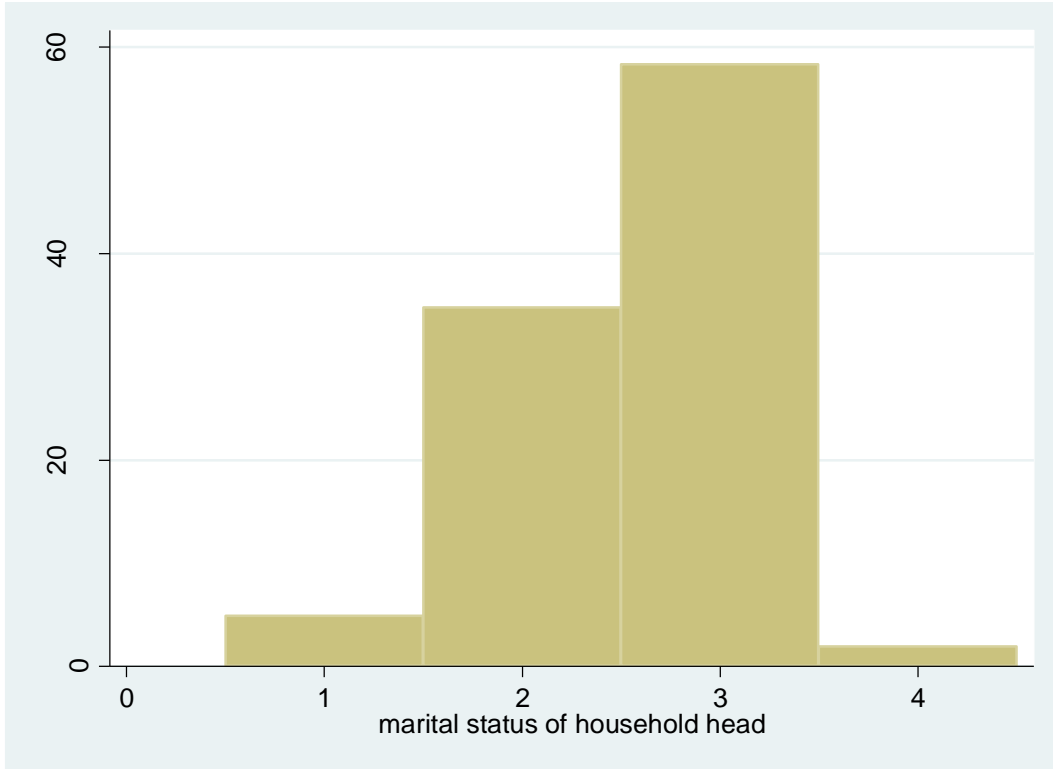
Source: Own survey (2021)

Note, 1= single, 2= married, 3= divorced, 4= widowed

Figure 4.3: Employment Status of the Head of the Household

From the above figure we infer that most of the household head are self-employed 68.63%, followed by government employees, unemployed and private organization employees accounting 16.18%, 8.33%, 6.8% respectively. This implies that child labor participation is high for self-employed household head than the others.
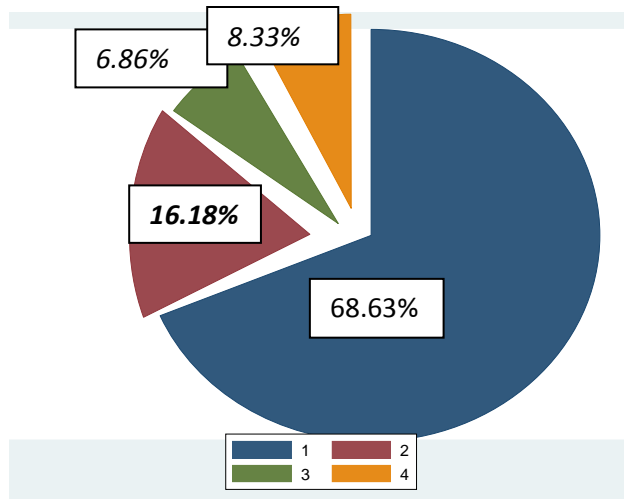
Source: Own survey (2021)

Note, 1= self employed, 2= government employed, 3= private employed, 4= unemployed

Figure 4.4: Monthly Income of the Child's Parent

As it was observed from the figure monthly income of the child's parent most of them have a monthly income between 1001-2000 birr accounts 35.78% followed by 2001-3000 birr, < 1000 and above 3000 which accounts 26.96%, 23.53%, 13.72% respectively. From this Children's participate in labor activities because of the reason that their parents earn low income. Added to this, parents with high income will not send their child in to work as compared with parents with low income. Shortly, students enrolled in the higher grade level live in families with higher family incomes. Higher family income is associated with higher demand for education and income has a positive effect on students' test score.
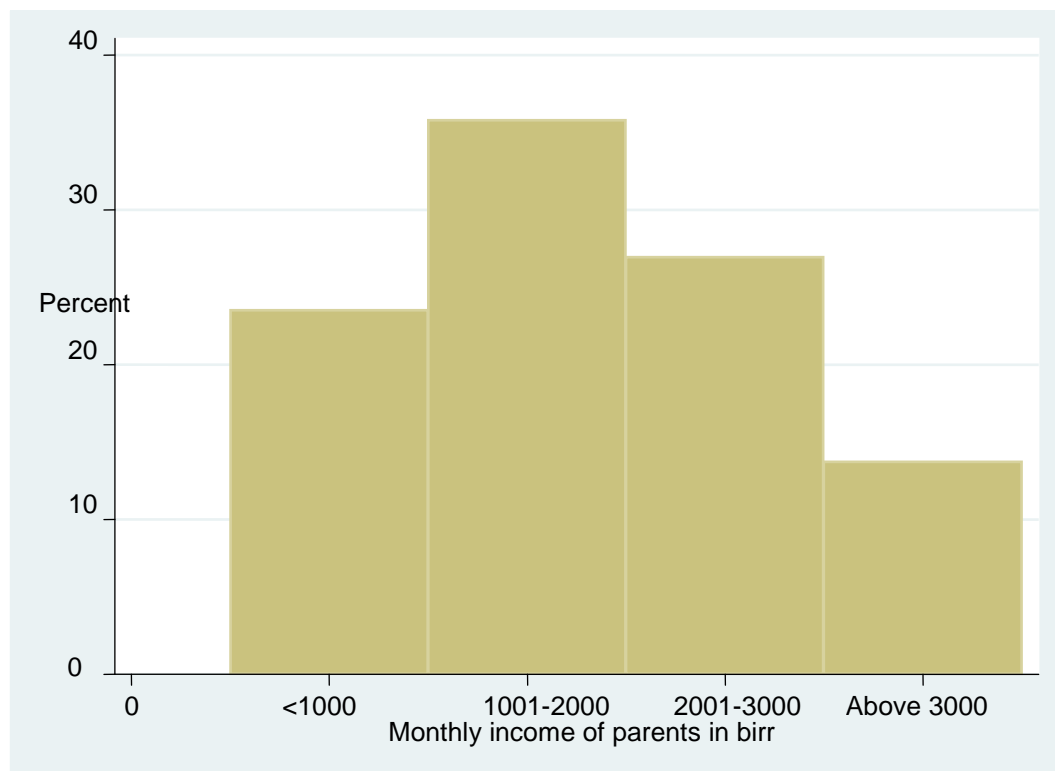
Source: Own survey (2021)

Table 4.2: The Type of Works that Children Participate

The type of work that children's engaged	Percentage
Weaver activities	26.96
Street vendors	15.20
Shoeshine	12.25
Lottery selling	6.37
Household chores	8.33
Shop keeper	1.47
Taxi conducting (`Weyalla`)	3.92
Garage	0.98
Others	3.43
Do not participating child labor	21.07
Total	100

Table 4.2 contains information about the type and extent of work that children participate in the study area. As represented by the table above 26.96% of the respondents' were working as a weaver activities followed by working in street vendors 15.20%, as shoe shine 12.25%, working because of household chores 18.33%, Working in lottery selling 6.37%, taxi conducting 3.92%, shop keeper 1.47% and working in garage 0.98%. In addition to this 3.43% of children working in other labor activities and 21.07% of children are do not participating in labor activities. From this information we can deduce that most of the participants working in weaver activities, street vendors and shoeshine.

Table 4.3: Reasons why Children's work

Why do you work?	Percentage
For supplementing family income	17.65
Because no one looks after me	38.24
For paying family debt	7.35
Peers influence	12.75
to help family in the work place	7.84
For developing my skill	10.29
Expecting higher price in future	5.88

Figure 4.3 contains the opinions expressed by respondents on the reason why children are engaged in any form of work. As it was shown on the above table 38.24% of the respondents said that, they were engaged in work because of no one looks after me, about 17.65% of them said, we are working for supplementing family income.

Together with this, they also reported that they are working because of peer's influence 12.75%, for developing my skill 10.29%, to help family 7.84%, in the work place, for paying family debt 7.35% and expecting higher price 5.88%.

Table 4.4: Children's response for the reasons of low cumulative result

Reasons for low cumulative result	Percentage
Low attitudes parents for education	26.96
Lose of parents follow up	24.02
Being source of income for parents	22.06
Working with in the house	9.31
Working with outside the house	8.33
Lose of teachers follow up	2.94
Because distance from the school is far	0.49
Others	5.88
Total	100

Source: Own survey (2021)

The above table presents children's response for the reasons of low cumulative result. As it was shown on the above table out of the total respondents' 26.96%, 24.02%and 22.06% of them said that, low attitudes of parents for education, lose of parents follow up and source of income for parents are the main reasons for scoring low result.

 Close to these, working with in the house 9.31%, working without the house 8.33% and lose of teachers follow up 2.94% are the factors that affect cumulative result. They also reported that other 5.88% reasons that affect children's cumulative result. From this we concluded that for the most of the respondent's low cumulative result have been scored due to low attitudes of parents for education, lose of parents follow up and source of income for parents.

Figure 4.5: Displays Children's Average Score

The figure shows that respondents semester average cumulative result. As it was shown on the above figure most of the respondents' 57.84% of them reported that their semester average score is between 50 -59. About 21.08 %, 14.22%, 5.39% and 3 1.47% of the children reported their semester average score as satisfactory, poor, very good and excellent respectively. From this we can concluded that most of child laborers average score is under fair and even though some children's score good results together with work, this does not represents the score of most of the

students. The reality is children's participation in different types of work affect their schooling highly as compared to those students who are not participating work.
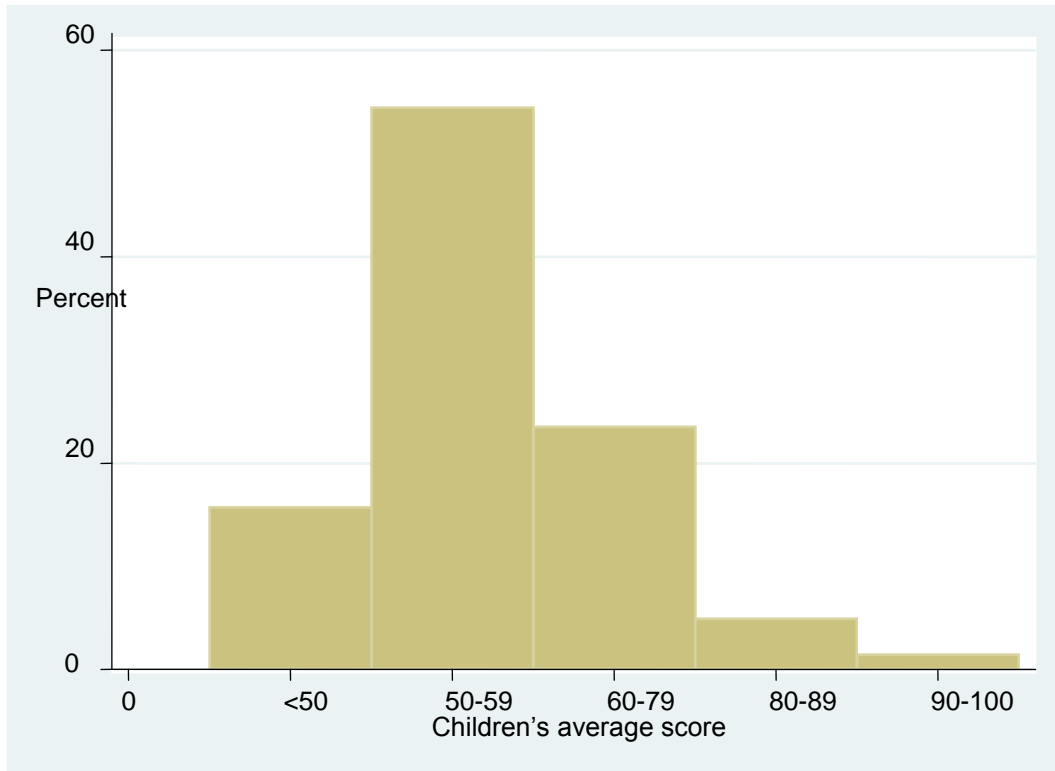
Source: Own

source :own survey 2021

Table 4.5: Descriptive and inferential analysis results of variables

Participants		Non participants	chi2 analysis
Children related Variables	Percentage	Percentage	
Age of child 7-10 years	6.37	1.96	Chi2=3.8948, pr =0.065*
11-13 years	27.94	7.35	
14-17 years	45.10	11.76	
Total			
Sex of child Male	50.98	17.16	Chi2=5.9323, pr=0.087*
Female	27.94	3.92	
Higher price expectation: Yes	18.63	6.37	Chi2= 0.0689, p= 0.967
In the future No	60.29	14.21	

Parents related variables		
Sex of household head: Male	49.50	8.82 Chi2= 0.1127, pr= 0.737
Female	29.41	12.25
Age of household head: 25-39	7.35	3.92
40-59	33.82	11.7 Chi2=2.0274,pr=0.067*
60-79	36.76	5.39
80 and above	0.98	0
Household size 1-3	18.62	5.39
4-7	51.14	15.19 Chi2=6.4761, pr =0.002***
Above 7	8.82	0.49
Employment status of household head:		
Self employed	42.15	14.22
Government employed	22.05	2.45 Chi2=5.0664, pr=0.095*
Private employed	7.84	2.45
Un employed	4.90	1.96
Pensioner	1.96	0
Marital status of household head: single	4.90	1.47 Chi2= 6.4102 , pr=0.049*
married	23.52	10.29
divorced	47.05	9.31
widowed	2.94	0
Mothers educational level: illiterate	37.25	12.75
Primary school	30.39	7.35 Chi2=2.0274, Pr = 0.096*
Secondary school	7.84	0.49
Above secondary	2.94	0.49
Monthly income of parents: <1000 birr	20.59	2.94
1001-2000 birr	27.94	7.84 Chi2=6.2970, pr= 0.007***
2001-3000 birr	20.10	6.86
Above 3000 birr	10.29	3.43
Fathers educational level: illiterate	36.27	10.29Chi2=5.4211, p=0.0012 ***
Primary school	30.39	8.33

	Secondary school	7.35	1.96
	Above secondary	2.94	0.49
Parents debt:	Yes	67.65	17.65 Chi2=4.2565, Pr=0.098*
	NO	11.27	3.43
Biological related with household head :	Yes	20.10	7.35 Chi2=0.0205, p= 0.850
	No	58.82	13.73

Source: Computed from survey data, 2021

Note: *** Significant at 1% level, ** Significant at 5%, * Significant at 10%

 According to the above table 4.5, the chi-square test of age of child and age of household head (chi2= 2.8948, P= 0.065* and chi2= 2.0274, pr= 0.067*) shows that, age of child and age of household head had significant relationship with the participation of child labor at l% probability level, which is consistent with the positively hypothesized relationship with child labor participation (Table 4.5). Therefore, this implies that, respondent' age had significant role on participation of child. According to the result, sex of child was found to be significant at 10% probability level, with (chi2= 2.9323 and p= 0.087*). This implies that, male respondents had a capability to participate in labor activities than female.

As shown on the above table, the chi2 square result of household size was (chi2= 6.4762,   pr= 0.002***).This implies that household size was found to be significant at 1% level of significance and had significant relationship with participation of child labor. From the above result, the chi2 square result of child's father and mother educational level were (chi2= 5.421, pr=0.0012*** and chi2=2.0134,   pr= 0.096*) respectively. This indicted that, educational back ground of child parents had a significant association with participation in labor activities. Employment status of household head, marital status of household, income of parents and debt had a significant association with the participation of child labor with (chi2=5.0664, p=0.095*, chi2= 6.4102, p= 0.049**, chi2= 6.2970, pr= 0.007***and chi2= 4.2565, pr=0.098*) respectively.

Generally, age and sex of child, age of household head, household size, educational back ground of parents, employment and marital status of household head, monthly income of parents and debt had significant relationship with participation of child labor based on chi2 square analysis. On the other hand, sex of household head, children biological related with parents and children higher price expectation had no a significant relationship with the participation of child labor based on chi2 square analysis.

According to the interview done with the supervisor of children's right protection office and other stuff who working with the same staff in Gullele sub city, they put their ideas by saying "child labor is a serious problem and it has a negative effect on educational achievement and due to this further investigation and assessment is needed for solving the problem".

From the interview the reason for the existence child labor participation are lack of social awareness, low standard of living, migration and child's parents are not informed well about the difference between child labor and child work. From the government side nothing is done to create awareness about the negative impact of child labor at individual, community and national level. Child's right is not given much emphasis and even the law is taken and ratified from ILO without amending it.

Child labor and education have a negative relationship. As it was observed in the town children's are working beyond their capacity for long time, so that their interest for schooling is low. Added to this, there are also child laborers who do in shop and in baby keeping and stays for long time. Because of this and other reasons a number of children's registered low level of academic achievement.

They also asked if something is done in the town to solve or at least to minimize child labor and their response is explained here after. As the office is established recently nothing is done to create awareness other than giving support for some orphan's children's by collaborating philanthropist and the support is not include all of the children's who are in need of support. In sum, to attain sustainable development strict laws that prevent children's from participating in labor activities should be enacted. Intensive discussion and awareness creation program should be created for the community about the problem that their children's are going through and its associated risk.

4.2. Econometric Analysis

The method of analysis used in this study has been discussed in chapter three. The estimation of child labor participation equation has been done by using Logit model. However, the second model i.e. effect of child labor participation on school achievement has been estimated by propensity score matching (PSM). Each of the two models is presented here below.

4.2.1 Determinants of child labor participation

As explained in the previous chapter the expected factors that determine child labor participation were sex of the child, age of the child, household size, monthly income of child's parent, educational level of child's mother and father, marital status of the household head, child's biological relationship with the head of the household, child's parent who takes debit, employment status of the household head, age of the household head, sex of the household head and child laborers who work expecting higher price in the future. The logistic regression results see below table.

Table 4.6: Logit estimation result

Logistic regression   Number of obs   =   204

                                                      Wald chi2(13)   =   58.3

Log likelihood =-49.980777   prob>chi2=0.0000

Child labor participation	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
Age of child	.3484544	.3905447	2.29	0.059 *	1.113908 .4169991
Sex of child	2.276363	.8625012	2.64	0.008***	5858918 3.966834
Sex of household head	-.365372	.5286604	0.69	0.489	-.6707834 1.401527
Higher price expectation in the future	1.687167	.8532992	2.08	0.088*	.0147314 3.359603
Household size	.2376151	.2413161	2.18	0.025**	710586 .2353559
Fathers educational level	-.7002527	.2953853	-2.37	0.018**	-1.279197 -.1213083
Mothers educational level	- .3122381	.4301782	-0.73	0.468	-.5308956 1.155372
Age of household head	.7225121	.3542365	2.04	0.041**	.0282212 1.416803
Marital status of household head	.8806821	.4072997	2.16	0.031**	.0823892 1.678975
Parents debt	-.5845576	.6931216	-0.84	0.399	-1.943051 .7739357
Employment status of household head	-.0785841	275736	-0.28	0.776	-.6190167 .4618486
Parents income	-.8318035	.3116714	-2.67	0.008***	-1.442668 -.2209388
Biological relationship with household head	-.258975	.645942	-1.20	0.524	-06700273 -.1236596
_cons	-5.939722	2.452565	-2.42	0.015	-10.74666 -1.132784

Source: own estimations (2021)

Note: *** significant at 1%; ** significant at 5%; * significant at 10%.

As displayed in the above table seven variables out of thirteen found to be significant to determine child labor participation. Age of child and children higher price expectation in the future (HPE) are statistically significant at 10 % level of significance, household size, educational level of child's father, marital status of household head and age of the household head are statistically significant at 5 % level of significance while Sex of the child and monthly income of child's parent are statistically significant at 1% level of significant.

As the econometric result indicated, age of child is significant and positively affects child labor participation. As the age of child increase, the probability of children whose participating in different working activities also increase. This result is coincide with the finding of (Terefe Adamu 2016).When the age of child increase by one year, the probability of children who participating labor activities increase by 0.348.

Sex of child has significant and positive effect on child labor participation. This result suggested that male children's are more probability to participating in child labor activities than female child. Mahindra (2013) found that female child's are more participating in labor activities than male child's do.

Household size has significant and positive effect on child labor participation. The positive sign showed that as the household size increase children participation in labor activities also increase. When household size increases parents are unable to finance all the expenditure for their living so that they push their children's to work at the cost of schooling. Household size increase by one child, the probability of children who participating labor activities increase by 0.237. This result is coincide with the finding of (Terefe Adamu ,2016) and (Mahendra, 2013).

Education of father is negative and significant ($p<0.05$) parental factors which affect child labor participation. The negative sign showed that as the level of education of child's fathers grow up the participation of children in labor activities become lower. This means that there is inversely relationship between level of education child's father and child labor participation because as father educational level higher and higher, the child's father has enough awareness about child labor participation. This result is coinciding with the finding of (Cockburm, 1999).

Age of household head have a significant at 5% and a positive effect on child labor participation. When the age of the household head increases or gets older they are not competent for participating in work activities and financing household expenditure is not possible if they do not sent their child to work. So that when household head of the child gets older, child's participating in labor activities participating increases. The finding contradicts that age of the household head had an insignificant impact on child labor participation (Cockburn, 1999).

 Marital status of household head is significant at 5% and positive effect on child labor participation. Under normal condition household who is not married have high tendency to sent children's in work other than sending them to school and household head who is married have a negative impact for the variable as they care for children's than household head who do not have marriage. The positive sign showed that as marital status of household head (divorced, widowed and single) increase, the probability of children's who participating in labor activities become also increase. This result is contradicts with the finding of (Terefe Adamu, 2016).

Income of parents is significant at 1% level of significant and negative effect on child labor participation. As parent income level increase, the amount of money available for spending also increase. These in turn reduce child's participating in labor activities. So that higher income affects child labor negatively .Household income significantly affects child labor negatively (Mahindra, 2013). When household income increase by one birr, the probability of children who Participating labor activities decrease by 0.831.

Children higher price expectation in the future (HPE) is significance at 10% level of significance and positive effect on child labor participation. The positive sign showed that children's who expect higher price in the future, the probability children's participating in labor activities than those who do not expect higher price in the future.

 Wald chi2 (13)   = 58.37(measures goodness of fit) = represents 58.37 % of total variation of the dependent variable is explained by the model or independent variable. 58.37% of total variation the child labor participation explained by the independent variables.

The remaining variables like child's biological relationship with the household head, debt, sex of the household head, employment status of the household head and mother's education found to be insignificant for determining child labor participation.

4.2.3 The impact of child labor participation on Educational Achievement

Estimating propensity score

The Logit model results calculated individual propensity scores that were used to match participants and do not participating in child labor. Propensity score matching is a way to "correct" the estimation of treatment effects controlling for the existence of these confounding factors based on the idea that the bias is reduced when the comparison of outcomes is performed using treated and control subjects who are as similar as possible. Since matching subjects on an n-dimensional vector of characteristics is typically unfeasible for large n, this method proposes to summarize pre-treatment characteristics of each subject into a single-index variable (the propensity score) which makes the matching feasible (Shadure, 2009).

 Before assessing the impacts of participation, the quality of matches were tested in order to check for the fulfillment of common support condition and ensure that the distribution of the variables between the participants and non-participants is balanced. The density distribution of estimated propensity scores for the two groups of children is presented in Figure 4.6. The figure demonstrates that the condition for common support is fulfilled because of substantial overlap in the propensity score distributions for the two groups. In addition it also indicates a good comparability between the participants and non-participants. The existence of common support enables us to compute the impact of child labor participation on selected outcome variables. The result of the analysis is portrayed inn figure 4.6.
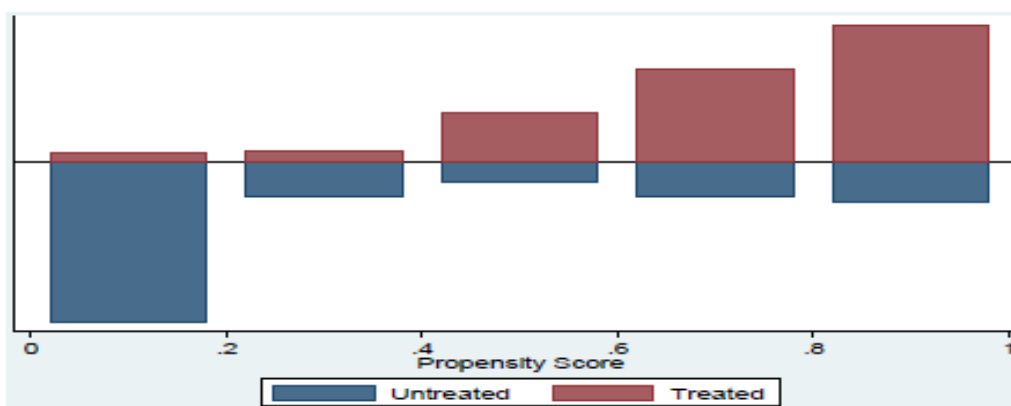
Figure 4.6: propensity score distribution and common support for propensity score estimation of participants and non participants.

Propensity score matching (PSM) constructs a statistical comparison group that is based on a model of the probability of participating in the treatment, using observed characteristics. Participants are then matched on the basis of this probability, or propensity score, to nonparticipants. The average treatment effect of the program is then calculated as the mean difference in outcomes across these two groups. The validity of PSM depends on two conditions: (a) conditional independence (namely, that unobserved factors do not affect participation) and (b) sizable common support or overlap in propensity scores across the participant and nonparticipant samples (Shadure, 2009).

Average Treatment Effect on the Treated (ATT): the impacts are estimated using various estimators, including: kernel matching, stratification method and Nearest-neighborhood matching technique

Table 4:7: Matching Methods to Measure Impact of child labour participation on their educational achievement

Outcome variable	Matching method	ATT	Std.Err	z-value	p>/z/
Children educational	Nearest Neighborhood matching	-2.35	0.98	-2.54	0.016**
Achievement	kernel matching	- 3.60	0.80	-2.65	0.039**
Average test score	Stratification matching	-4.32	0.76	-2.26	0.045**

Source: Own survey result, 2021

***, **, * significant at1%, 5% and 10% level significance respective

Table 4.20 presents results from the PSM model that was estimated for comparison purposes with the treatment effect model results. Three matching estimators, the nearest neighbor kernel matching and the stratification matching algorithms were employed for outcome variables as robustness checks. The three estimators result indicates that child labor participation has a statistically significant impact on the children educational achievement. Participants got less average score as compared to non-participants. In this respect, the difference between participants and nonparticipants in average core is significant at 5% significant level.

 ATT results of these algorithms show that participation in the child labor participation decreased children average score result by point 2.35, point 3.60 and point 4.32 for nearest neighbor, kernel and stratification matching method respectively.

The average income estimated using the inverse-probability weights matching algorithm is higher than that of the other two matching algorithms.

There is a strong negative relationship between child labor schooling and there is a tradeoff between child labor and human capital formation since a longer hour working children have little or no time to spend elsewhere, including school attendance and studying, with likely adverse impact on their educational achievement. It also lower expected returns on education which in turn discourage regular school attendance, thereby creating a fertile ground for intensive use of child labor (Getenet et al., 2007).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary

This study is conducted in order to assess factors affecting child labor participation and its impact on their educational achievement in Addis Ababa case study of Gullele sub city.

This study used cross sectional data that were collected from 204 sample child laborers and interview is done supervisor of children's right protection office together with the available staff. The data collected from respondents were analyzed by both descriptive statistics and econometric analysis. For econometric analysis Logit and PSM (propensity score matching) estimation technique has been employed. The result from descriptive statistics shows the most common sectors that child labor is common include weaver activities, street vender, shoe shine, lottery selling, shop keeping, household chores, taxi conducting and other labor activities. Child laborers working as a weaver activities take the first rank followed by working as street vendors. The reason for children's participation in labor activities is to supplement family income, to help their family in work place, for paying family debit, for developing their skill, because of peer influence, because no one looks after them and expecting higher price in the future.

Logistic regression model was used to identify factors affecting child labor participation. Variables such as age and sex of the child, household size, age of household head, marital status of household and children's higher price expectation in the futurewere found to have positive effect on child labor participation while monthly income of child's parent and educational level of child's father showed statistically significant and negative effect on child labor participation..

Propensity score matching model (PSM) was employed to examine impact of child labour participation on outcome variable of children educational achievement. The model showed statistically significant and negative effect outcome variable.

5.2. Conclusions

Childhood is the most attractive stage in human life where child is free from any work load. But, in reality this becomes history and children found in both developed and developing countries prone to injurious (exploitative) work which denied their opportunity of physical and mental growth. It is the responsibility of parents to provide everything their children's need to attend their education, but in cases where they were unable financially, they allowed or even sent their children to work for pay.

Theoretical review reveals that, most of children in developing countries throughout the world are engaged in domestic form of work, within and outside the house. Likewise, in Addis Ababa Ethiopia, specifically in our case study Gullele sub city, children mostly participate in weaver activities, street vender, shoe shine, lottery selling, weaver activities, shop keeping, household chores, garage work, and taxi conducting. Child laborers working as a weaver activities take the first rank followed by working as street vendors. Our finding reveals that, child labor participation is strongly determined by sex of the child, age of children, household size, and monthly income of parents, educational level of the child's father, marital status of household head and age of household head. Child labor participation statistically significantly affected their educational achievement. In addition, child labor participation negatively affects the outcome variable or educational achievement. The most appropriate measure to reduce child labor is poverty eradication, provision of education and heightening campaigns against child-labor. Therefore it was concluded that child-labor negatively affected participation in primary schools in the study area

5.3. Recommendations

The findings of the study identified major factors affecting child labour participation and its impact on their educational achievement in Gullele sub city. Based on the findings, the following recommendations are forwarded.

✓ Parent should be aware of the impact of child labor participation on their educational achievement through reducing their ability to perform schooling activities.

Parent's income level is one of the determinants of child labor, therefore it is better for the government to give subsides and credit facility for the poor, and to expand (strengthen) poverty reduction program in order to achieve its goal of achieving quality education for all.

In order to facilitate poverty reduction program, child labor participation which is the most obstacle for development should be reduced by strengthen the earlier started population growth control program. This is because; household size has a significant positive impact on child labor hour and indirect but negative impact on child school achievement. It is better for the government to strongly put a limit on the number of children birth within a household.

Children's are more exposed to child labor with increase in age. So, government should not focus only at a very early age but also, until they fully enjoy their childhood stage.

Largely, the long lasting solution to curb the problem of child labor and promote human capital accumulation is overcoming poverty.

As long as the study is conducted only in Gullele sub city by taking four woredas to perform the study to achieve the goal set, it cannot represent the problem of child labor participation in other towns of the country, since large socio-cultural diversity and difference among regions and towns will not yield the same findings. Thus, the study should be extended to other areas of the country to support and supplement the findings of the study.

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Appendix 1: Survey questionnaire

SAINT MARY"S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF DEVELOPMENT ECONOMICS

Questionnaires responded by family of child laborers in gullele sub-city

SECTION 1: INTRODUCTION

This Questionnaire is prepared by a post graduate student in **Saint Mary's university** to deal with his master thesis for partial fulfillment of Masters Degree in development studies. The main purpose of this questionnaire is *Determinants of Child Labor participation and it's Impact on children Educational Achievement in Addis Ababa, the Case of Gullele sub-city*

Dear respondents, your valuable information has great role on the accomplishment of the research. Therefore, I kindly request you to give a response honestly and I want to assure you that the information you provide would be used purely for academic purpose.

Thank you in advance for your cooperation and dedicating your time!

Mihretu Belayneh

Instructions

- ✓ No need of writing your name
- ✓ Make a circle for a question with alternatives and fill the blank space after reading the questions carefully.

SECTION 2: GENERAL INFORMATION

Date _____

Woreda of the respondent _____

i. Background Information of The Child

1. Age of the child: ☐ 7-10 ☐ 11-13 ☐ 14-17

2. Sex of the child: ☐ male ☐ female

3. Place of birth: ☐ Addis Ababa ☐ Out Addis Ababa

4. The type of work that you participate

☐ Street venders ☐ Weaver activity

☐ Lottery selling ☐ Wood work

☐ Taxi conducting ☐ Shop keeper

☐ Shoe shine ☐ Other (specify)_____

5. Your current grade level: ☐ 1-4 ☐ 5-8 ☐ 9-12

6. Are you working because of expecting higher price in the future? ☐ Yes ☐ No

ii. Back Ground Information of the Family

7. Are your parents alive? ☐ Yes ☐ No

8. If your answer for question no. 7 is yes, what is the sex of the head of the household?

☐ Male ☐ Female

9. What is your household size? ☐ 1-3 ☐ 4-7 ☐ 8-10

10. What is the educational level of your mother?

☐ Illiterate

☐ Completes primary education

☐ Completes secondary education

☐

60

Above secondary education

11. What is the educational level of your father?

☐ Illiterate ☐ Completes secondary education

☐ Completes primary education ☐ above secondary education

12. What is the Age of the household head in years?

☐ 25-39 ☐ 40-59 ☐ 60-79 ☐ 80 and above

13. Are you the son or the daughter of the household head?

☐ Yes ☐ No

14. Marital status of the household head_____

☐ Single ☐ Married ☐ Divorced ☐ Widowed

15. Religion of the household head: ☐ Muslin ☐ Orthod ☐ Protest ☐ Others

16. Are you working for paying family debit?

☐ Yes ☐ No

17. Is the household head is employed?

☐ Yes ☐ No

18. If your response for question number 17 is yes what is the employment status of the household head

☐ Self employed ☐ Private organization employee

☐ Government employee ☐ Others (specify)_____

☐ Pensioner

19. How much is the monthly income of your parents? _____

20. How much is the monthly expenditure of your parents? _____

iii. Children's Working Conditions

21. Are you working for wage?

☐ Yes ☐ No

22. If your answer for question no.21 is yes, how much is your weekly income? _____

23. If your answer for question no.21 is yes, do you contribute to the family/HH income?

☐ Yes ☐ No

24. If your answer for question no. 23 is yes, how much do you give to them on average weekly?

_____

25. How long do you do per week (for how many hours you are engaged in work per week)?

_____

26. How many days do you work per week? _____

27. Do you work more than 8 hours per day? ☐ Yes   ☐ No

28. If your response for question no.27 is yes, are you paid over payment (par time payment)?

☐ Yes   ☐ No

29. Why do you work?

☐ For supplementing family income   ☐ because no one look after me

☐ Peers influence   ☐ because no one look after me

☐ For developing my skill   ☐ for paying family debit

☐ To help family in the work place

☐ Because of expecting higher price in the future

☐ Others (specify)_____

30. Which do you prefer?

☐ Work   ☐ school   ☐ both

31. Do you think your current job has any contribution to your future carrier?

☐ Yes   ☐ No

32. If your response for question no.31 is yes, how it will be?_____

_____

33. Have you injured because of work?

☐ Yes   ☐ No

34. If your response for question no. 33 is yes, explain briefly to what extent or how you are harmed because of participating in work._____

_____

iv. Educational Status of the Children's

35. What is your interest for education?

☐ High   ☐ Medium   ☐ Low

36. Does your work clash with your class schedules?

☐ Yes   ☐ No.

37. If your response for question no.34 is yes, on average how many days within a week you absent from the school? _____

    ☐ One day   ☐ Two days ☐ Three days

38. On average how long do you read and do home work per week?

☐ 1-5 hours

☐ 6-10 hours

☐ 11-15 hours

☐ 16- 20 hours

☐ 21-25 hours

☐ More than 26 hours

39. On average how long do you recreate per week?

☐ No recreation time

☐ 1-5 hours

☐ 6-10 hours

☐ 11-15 hours

☐ 16- 20 hours

☐ 21-25 hours g) more than 26 hours

40. What is your total score (cumulative result) in the first semester of 2013 E, C.?

<50   ☐ 5-59   ☐ -79   ☐ -89   ☐ -100

41. If your score is low and less than half, what is the reason behind that?

☐ Low attitude of parents for education   ☐ Lose parents follow up

☐ Being a source of income for parents   ☐ Lose teachers follow up

☐ Working with in the house

☐ Working outside the house

☐ Others (specify)_____

Appendix 2: Table 4.19: Logit estimation result and discussion

Logistic regression

Number of obs = 204

Wald chi2(13) = 58.3

Log likelihood = -49.980777

Prob > chi2 = 0.0000

CLP	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Age	.3484544	.3905447	2.29	0.059 *	1.113908	.4169991
Sex	2.276363	.8625012	2.64	0.008***	.5858918	3.966834
Sexhhd	-.365372	.5286604	- 0.69	0.489	-.6707834	1.401527
Hpe	1.687167	.8532992	2.08	0.088*	.0147314	3.359603
HhS	.2376151	.2413161	2.18	0.025**	710586	.2353559
Faedu	-.7002527	.2953853	-2.37	0.018**	-1.279197	-.1213083
Maedu	.3122381	.4301782	0.73	0.468	-.5308956	1.155372
Agehhd	.7225121	.3542365	2.04	0.041**	.0282212	1.416803
Mshhd	.8806821	.4072997	2.16	0.031**	.0823892	1.678975
Debt	-.5845576	.6931216	-0.84	0.399	-1.943051	.7739357
Eshhd	-.0785841	.275736	-0.28	0.776	-.6190167	.4618486
Minc	-.8318035	.3116714	-2.67	0.008***	-1.442668	-.2209388
Brchhd	-.258975	.645942	-1.20	0.524	-06700273	-.1236596
_cons	-5.939722	2.452565	-2.42	0.015	-10.74666	-1.132784

Note: *** significant at 1%; ** significant at 5%; * significant at 10%.

Source: own estimations (2021)

Appendix 3: Figure 4.3: propensity score distribution and common support for propensity score estimation of participants and non participants