



DETERMINANTS OF CHILD LABOR IN MALAWI AND TANZANIA

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Abstract: *Using the Malawi Integrated Household Survey of 2009 and the Tanzania National Panel Survey of 2010, this study seeks to understand the factors that increase a child's likelihood of labor participation. A greater percentage of children in the Tanzania sample than those from the Malawi sample participate in child labor. Logistic regression analyses showed that, as hypothesized, the greatest influence on child labor observed at the individual level is the child's school enrollment status. Enrollment reduces the likelihood of engaging in child labor in both countries. When tested in the combined model older children in Tanzania remain at higher risk of child labor participation, school enrolled children in both countries are less likely to be child laborers and the rural based children in Tanzania have higher odds of being child laborers. At the household level, a father with at least a primary education in Malawi is associated with a lesser likelihood of participation. At the community level, living in a rural area drastically increases the odds for child labor participation in Tanzania. In view of these results, country specific solutions to prevent child labor maybe necessary, given the different predictors of child labor participation in each country.*

Keywords: *Malawi; Tanzania; child labor.*

1. Introduction

There is a growing consensus that child labor is an undesirable form of work and greater investments should be made in developing children's human capital (World Bank, 2002). There is, however, wide disagreement on how to tackle it. Child labor, also referred to as "harmful child work" is the focus of attention by governments, as well as international and national civic society organizations. The current situation faced by millions of children is deplorable and requires urgent international action. The latest report by the International Labor Organization (ILO) (2010) states that for over a decade it has been recognized as a key human rights issue, starting from 1996 when governments made fresh calls to end child labor.

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This research is an attempt to better understand the factors that lead to the likelihood that child labor will occur in two Sub Saharan African countries, namely Malawi and Tanzania. The literature has noted that there has been a shift in emphasis from mere quantification of child labor to an econometric analysis of its determinants (Bhalotra and Tzannatos, 2003). This research analyzes this issue from multiple levels because they all work in concert to constitute one's habitus – how people become who they are (Bourdieu, 1977).

Most research on child labor focused on predictors at a single level; either the family level (Buchman, 2000; Patrinos and Psacharopoulos, 1997) or the national level (e.g. Kis-Katos and Schultze, 2006). It is important to highlight that the determinants of child labor are multi-dimensional. In order to get in-depth theoretical underpinnings of why children engage in this practice, greater and more current information on the individual, household and contextual factors is required (Whitsel, 2010).

The focus of this paper is on Sub Saharan Africa, a region flagged as having the highest participation by children in the worst forms of child work (ILO, 2010). Malawi and Tanzania make excellent case studies for three reasons. The first is because they have been highlighted to have high rates of child labor (ILO, 2004; 2010; 2012). The second reason is simply because the data are available. The third reason is that these countries are a good reflection of Sub Saharan Africa. They have unique socio-economic characteristics that can be fertile ground for children engaging in work. Both Malawi and Tanzania have agro-based economies – the sector that provides the most employment for children; Tanzania also has mining (Bhalotra and Tzannatos, 2003). Studying Malawi and Tanzania will highlight key issues around child labor in the region and provide suggestions for policy amendments that could lead to the reduction and elimination of child labor in other countries (ILO, 2010). A comparison of the situation of working children in these two countries will provide a platform to better understand these key determinants.

The purpose of this research is to: 1) advance our understanding of individual determinants of child labor in two Sub-Saharan African countries namely Malawi and Tanzania; 2) to advance our understanding of household determinants of this phenomenon and 3) to investigate the effect of community characteristics in determining the likelihood of children participating in child labor. The analysis will utilize the Tanzania National Panel Survey (TNPS) (2008- 2009) (National Bureau of Statistics Republic of Tanzania, 2009) and the Integrated Household Survey of Malawi (2010-2011) (National Statistical Office of Malawi (NSO), 2011). These datasets contain information of 21,756 children aged 5-14 years. The study seeks to reveal the cardinal factors in explaining variation in labor and their level of aggregation. This research will apply quantitative methods, logistic regression models that make it possible to estimate effects of factors at individual, household and the community levels.

2. Brief Review of Literature

2.1. Definition of child labor

There is often confusion between child work and child labor. To begin with the definition of child work is as follows: child work often refers to certain types of light

work undertaken by children, such as helping parents care for the home and family for short periods in the day, or children working for a few hours before or after school or during holidays (ILO/IPEC, Ministry of Labor, Youth Development and Sports Republic of Tanzania and National Bureau of Statistics Republic of Tanzania., 2001). This is not considered to be harmful or child labor but is part of the growing up process for boys and girls, a means of acquiring basic survival and practical skills. Child labor refers to the employment of children in any work that deprives them of their childhood, interferes with their ability to attend school, and anything that is mentally, physically, socially or morally dangerous and harmful (ILO, 2010; 2012).

In its most extreme forms, child labor involves children being enslaved, separated from their families, exposed to hazards and illnesses and/or left to fend for themselves often at a very early age. Whether or not particular forms of “work” can be called “child labor” depends on the child’s age, the type of work and the number of hours worked (ILO, 2010; UNICEF, 1991). The specifics of the definition can vary from country to country, as well as among sectors within countries (Schmitz et al., 2004). Some in the literature define child work as that which is not harmful, and child labor as harmful work (ILO, 2010; Basu and Van, 1998).

A child’s age is often used as a parameter of what a child can and cannot do. The ILO’s Convention No. 138 specifies 15 years as the age above which normal circumstances a person may participate in economic activity (ILO-IPEC, 2004). The ILO’s Convention 138 has been used by most countries as a blue print for individual and specific national policy and practice with relation to child labor (Basu and Van, 1998). The translation of international law into national legislation varies. Malawi and Tanzania have translated the international conventions of child labor into their national laws. There are two main indicators that have been outlined in both Tanzania and Malawi’s legislation. Firstly, the minimum age of work is 14 although there are categories of some light work that can be permitted at age 12 (ILO/IPEC, Ministry of Labor, Youth Development and Sports Republic of Tanzania and National Bureau of Statistics Republic of Tanzania, 2001). In addition, children who prefer to work at the expense of schooling, for example, due to economic reasons, are in child labor (ILO, 2010; 2012). Children working for more than 4 hours in a day (at least 24 hours in a 6 day working week) would be considered to be in child labor (ILO-IPEC, 2004). In line with these parameters, this research will also utilize age 14 and below as the cutoff point for children who work. The minimum age of a child worker is 5 years and this is because data for younger children are not available.

2.2. Theoretical Viewpoints

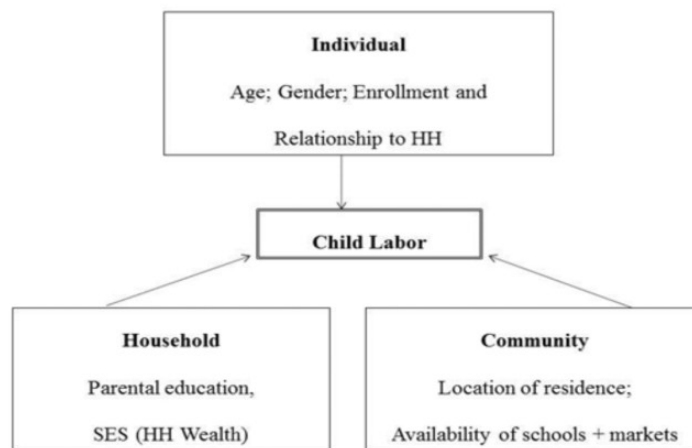
Contemporary discussion about addressing harmful child work activities focuses on the three outlined levels of determinants (individual, household and community) used in this study (Ainsworth, 1996; Basu, 1999). Because this research focusses on the reasons why the number of hours children work increase, it is best to align this research with the human capital model (Becker, 1964). Becker’s approach was fundamental in arguing for the augmentability of human capital.

Becker (1964) argues that individuals make choices of investing in human capital based on rational benefits and costs that include a return on investment as well as a cultural aspect. Examples of investments on children include education and the skills gained through work experience. The majority of child labor researchers have used Becker as the theoretical foundation (Bhalotra and Tzannatos, 2003; Ray 2000; Ainsworth, 1996). Becker (1964) explored the different rates of return for different people and the resulting macroeconomic implications. He also distinguished between general and specific education and its influence on job-lock and promotions to understand what influences children's activities.

Bourdieu's Structuration Theory argues that the complexity of people's activities is simultaneously shaping and being shaped by the social world (Bourdieu, 1977). He further states that children's habitus is influenced by their families, parents, friends etc. These characteristics are captured in the theoretical model in Figure 1 below. The manner in which this structuration translates into the lives of children is explained.

Figure 1 above shows that child labor is a result of a variety of factors from multiple levels, individual, household, and community. The research question is: what are the factors that increase the likelihood that child labor will occur in Malawi and Tanzania? Specific hypotheses are formulated on the three levels of determinants - individual, household and community factors.

Figure 1. Determinants of child labor used in this analysis



Source: Adapted from Webbink, Smits and Jong (2008)

2.3. Factors that determine children's labor activities

2.3.1. Individual factors

There are four determinants at the individual level and the first is age in years. Previous studies that tested the age variable included a linear term in age, which has been either positive or insignificant (Bhalotra and Tzannatos, 2003). In line with Cockburn and Dostie (2007) it is hypothesized that older children work more hours if there are younger children in the household.

The second variable in this level is gender. In line with a study by Bhalotra and Tzannatos (2003) the hypothesis that girls generally will be more likely to participate in child labor than boys will be tested. The third factor is school enrollment and here it is expected that enrolled children are less likely to become child laborers. Knowing their school enrollment brings out an important dynamic on the hours worked. For example, enrolled children are expected to work less. Huisman and Smits (2009) found that children of poor families who are not enrolled in school tend to work more.

The final variable on the individual level is the relationship of the children to the household head. This variable is important because of the structure of the African family and how this changes the crescendos of the African home and the outcome for the children's time use. Households in developing countries are large and complex and often contain not just vertical but also horizontal extensions (Bhalotra and Tzannatos, 2003). It is assumed that being a direct child of the household head is the basis for parental altruism and non –nuclear related children may, therefore, be more involved in (domestic) child labor (Ainsworth, 1996). On this basis, it is expected that children of the household head in both the Malawi and the Tanzania samples in this analysis will be less likely to become child laborers.

2.3.2. Household factors

There are two household factors to be tested in this research. The first is parental education. If parents are poorly educated, they are likely to engage in low skill labor i.e. agricultural labor (ILO, 2010). The likelihood that their children will do the same is high (Kieland and Maurizia, 2006; Bhalotra and Tzannatos, 2003). Explanation of Bourdieu's Structuration theory provided above puts this into perspective (Bourdieu, 1977). The second factor is the household wealth variable. The household wealth is measured through the family assets such as household assets and livestock as a measure of household socio-economic status or as a socio economic measure (Skoufias and Parker, 2001). It is expected that children with less educated parents are likely to become child laborers and the same for children who live in households that have below the average wealth.

2.3.3. Community factors

As for regional effects or residence of the children, it has been noted that there have been stark differences within countries (Bhalotra and Tzannatos, 2003). It is well documented, however, that rural areas support a higher incidence of child labor than do

urban areas. Reasons for a higher rural incidence include; the fact that relatively weak school infrastructure and lower rates of technical change in rural areas may discourage other activities such as school attendance (ILO, 2010). The second and third variables are the presence of a primary and secondary school. It has been shown that the availability of a primary and secondary school plays a role in school enrollment and employment of children (Baschieri and Falkingham 2007; Ersado 2004; Huisman and Smits 2009). The fourth variable at this level is the presence of a market. Where a market exists, the probability that child labor exists is higher. There is, however, a dearth of theory on the effect of the presence of markets in communities in direct relation to children's work (Whitsel, 2010).

2.4. Hypotheses

A total of ten hypotheses shall be tested in this study at the individual, household and community levels. There are four determinants at the individual level and the first is age in years. In line with this literature, it is hypothesized that older children will participate in child labor than younger children. The second factor in this level is gender. In hypothesis two it is expected that: female children work more hours than male children. The third factor is the school enrollment and hypothesis three states that non enrolled children are more likely to participate in child labor than enrolled children. The final factor on the individual level is the relationship of the children to the household head. It is expected that the direct children of the household head are less likely to participate in child labor than non-nuclear related children.

There are two household factors to be tested in this research. The first is parental education and it is hypothesized that children with parents who went to school are less likely to participate in child labor than children with at least one parent who never went to school. The second factor is the household wealth variable and so hypothesis six is that children who belong to a household in the poorest wealth group are more likely to participate in child labor than children in a higher wealth group. There are four hypotheses to be tested at the community level. Hypothesis seven is that children who live in rural areas are more likely to be child laborers than children who live in urban areas. Hypothesis eight is that children with access to a primary school are less likely to be child laborers than children who have no access. Hypothesis nine anticipates that children with access to a secondary school are less likely to be child laborers than children who have no access. The final expectation is that children with access to a market school are more likely to be child laborers than children who have no access.

2.5. The context and background of Malawi and Tanzania

2.5.1. Child work and child labor in Malawi

Malawi was established in 1891 and gained its independence from the British in 1964. This is a landlocked country south of the equator in Sub-Saharan Africa. It shares its borders with Mozambique, Zambia and Tanzania. The 2012 population estimate stands at 16,323,044. It is estimated that there are 82.7% Christians and 13% Muslims (2008 census). The life expectancy is 52.31 years and literacy rate is 74.8%. Malawi realized

some significant economic improvement in the last decade. Population growth, increasing pressure on agricultural lands, corruption, and the spread of HIV and AIDS are the major impediments for Malawi's growth and development. Malawi's economy is predominantly agro-based. Inflation, though decelerating, has been above the one digit level. The country's Gross Domestic Product per Capita (GDP per Capita) was about \$133 during the survey period (Central Intelligence Agency (CIA) World Factbook, 2012). Results from the Malawi National Child Labor Survey (2002) indicated that 23.3 % of all children aged 5-14 worked. Malawi has a high incidence of child labor (children working more than 24 hours a week) which is certainly one of the highest in Sub Saharan Africa. It was estimated that 45% of the child laborers to be between ages 10-14 and 55% between 7-9 years old. It is believed, however, that the actual numbers could be much higher.

In a damning article, transnational tobacco companies were exposed for using "child labor projects" to enhance corporate reputations and distract public attention from how they profit from low wages and cheap tobacco (Otañez, Muggli, Hurt and Glantz, 2002). The projects include building schools. Malawi finds itself in a very precarious situation because about 70% of their foreign earnings are from this crop and the multinationals such as Phillip Morris have grown too powerful for governments in countries such as Malawi (Collier, 2007). The tobacco tenancy system in this country is a major driver of child labor and poor working conditions for children. Landlords prefer to hire an entire household at the price of one farmer. Malawi has ratified 8 ILO conventions pertaining to children and young persons (Malawi NSO, 2011; ILO-IPEC, 2004).

2.5.2. Tanzania and child labor

According to the CIA World Fact Book (2012), shortly after achieving independence from Britain in the early 1960s, Tanganyika and Zanzibar merged to form the nation of Tanzania in 1964. Located in Eastern Africa, it shares its borders with Kenya and Mozambique. The life expectancy is 53.14 and the literacy rate is 69.4% (CIA World Factbook, 2012). Christian and Muslim groups are approximately equal in size, each accounting for 30 to 40 percent of the population. Tanzania is one of the world's poorest economies in terms of per capita income; however, its average 7% GDP growth per year between 2000 and 2008 stands on strong gold production and tourism. The economy depends heavily on agriculture, which accounts for more than one-quarter of GDP. The World Bank, the IMF, and bilateral donors have provided funds to rehabilitate Tanzania's aging economic infrastructure, including rail and port infrastructure that are important trade links for inland countries, however, poverty remains high (World Bank, 2002).

In 2001, it was estimated that at the time there were 11,965,146 children aged 5-17 years, accounting for 36.7% of the projected national population of 32.6 million (ILO-IPEC and Government of Tanzania, 2001). This report further stated that children reported to have worked in economic activities were 39.6%, while 47.8% were engaged in housekeeping activities. A majority of the children 79.9% were engaged in the

agricultural/forestry / fishing sector, followed by personal services 17.4%. A similar pattern was illustrated by sex, where three quarters of the girls and 84.3% of the boys were engaged in child work in the agricultural sector. In 1955 the Government of Tanzania passed the Employment Ordinance Cap.366 which prohibits the employment of children. The minimum age of work in this country is 15 years. Tanzania has put in place both national and sectoral policies to promote welfare, enhance education opportunities, and to protect the rights of children. Tanzania has ratified 8 ILO conventions pertaining to children (ILO-IPEC and Government of Tanzania, 2001).

2.6. Data

2.6.1. Malawi Integrated Household Survey (MIHS)

The data used in this study is the third Integrated Household Survey (IHS3) drawn from a nationally representative household survey (Malawi NSO, 2011). It was implemented by the Government of Malawi to monitor and evaluate the changing conditions of Malawian households in the period of March 2010 - March 2011. A sub-sample of IHS3 sample enumeration areas (EAs) was randomly selected prior to the start of the field work. Technical assistance was provided by the International Food Policy Research Institute (IFPRI) and the World Bank (WB) to provide a complete and integrated data set to better understand target groups of households affected by poverty.

The Malawi IHS contains individual data for each member of the household as well as household and community-level information. The sampling frame is based on the listing information and cartography from the 2008 Malawi Population and Housing Census (PHC); includes the three major regions of Malawi, namely North, Center and South; and is stratified into rural and urban strata. The IHS3 strata are composed of 31 districts in Malawi. The total sample is 12,271 households (768 EAs with 16 households sampled per EA). There is a total of 17 116 children between the ages of 5 – 14.

2.6.2. Tanzania National Panel Survey (TZNPS)

The second data set is the Tanzania National Panel Survey (TZNPS). (National Bureau of Statistics Republic of Tanzania, 2009). It is the first in a series of nationally representative household panel surveys that assembles information on a wide range of topics including agricultural production, non-farm income generating activities, consumption expenditures, and a wealth of other socio-economic characteristics. The first year of the survey was conducted over twelve months from October 2008 to October 2009. National Bureau of Statistics received management and technical support from the LSMS Team of the World Bank.

The sample size is calculated to be sufficient to produce national estimates of poverty, agricultural production and other key indicators. There are 7 of these zones in total on the mainland: North, Central, Eastern, South, Southern Highlands, West and Lake. The sample is constructed based on the National Master Sample frame which is a list of all populated enumeration areas in the country developed from the 2002 Population and Housing Census. Sample design was done in spring of 2008. In total, the target sample

is 3,280 households in 410 Enumeration Areas (2,064 in rural areas and 1,216 urban areas). There are a total of 4640 children between 5-14 years.

2.7. Measures

Tables 1 and 2 below list all the variables used in the analyses.

2.7.1. Dependent variable

The dependent variable used in this research is child labor. This is a dichotomous variable measuring whether a child is a laborer (1) or a non-laborer (0) based on the number of hours the child is reportedly working. A child was coded as a laborer if they worked more than 24 hours per week.

2.7.2. Independent variables

2.7.2.1. Individual level

The first independent variable is age and indicates age in years. For gender, girls were recoded as (1) and boys as (0). The relationship of children with the household head is measured with a dummy variable; (1) are direct children of the head and (0) represents a non-nuclear relationship (nephews, nieces, cousins, etc. are all recoded as (0)). The third variable was the enrollment status of the children which is also dichotomous. If children were enrolled in school they were coded as (1) and those not enrolled were coded as (0).

Table 1. Summary statistics for variables used in analysis,
Malawi N = 17 116

Variable		N	Min	Max	Mean	Std. Dev
Hours worked in a week		13496	0	97	2.70	6.98
Dependent Variable						
Child labor		4478	0	1	0.07	2.59
Independent Variables						
<i>Individual Level</i>						
Age	Year	17116	5	14	9.11	2.86
Female	1 = Female	17116	0	1	0.51	0.50
Relationship to HH	1 = Direct child of HH	17116	0	1	0.94	0.24
Child's Enrolment Status	1 = Enrolled	14325	0	1	0.98	0.14
<i>Household Level</i>						
Father's education	1 = Went to school	1876	0	1	0.83	0.38
Mother's education	1 = Went to school	1533	0	1	0.77	0.42
<i>Household wealth</i>						
< Average HH Wealth	1 = Below average wealth	17116	0	1	0.12	0.32
Average HH Wealth	1 = Average wealth	17116	0	1	0.64	0.48
> Average HH Wealth	1 = Above average wealth	17116	0	1	0.24	0.43

Variable		N	Min	Max	Mean	Std. Dev
<i>Community Level</i>						
Rural	1 = Rural	17116	0	1	0.93	0.25
<i>Schools</i>						
Primary	1 = Yes Available	16499	0	1	0.73	0.45
Secondary	1 = Yes Available	16333	0	1	0.09	0.29
Market	1 = Yes Available	17116	0	1	0.47	0.50

2.7.2.2. Household level

There were three variables at the household level. The first was the parental education. Parents who did not go to school were coded as (0) and those who ever went to any schooling (1). This was done for both mother and father and an additional dummy variable indicates whether at least one parent ever went to school. Because income data is lacking in the surveys, as is common in third world settings, household wealth was measured alternatively (Filmer and Pritchett, 1999). To measure household wealth the households goods were added together then families were divided into wealth categories.

Table 2. Summary statistics for variables used in analysis, Tanzania N = 4640

Variable		N	Min	Max	Mean	Std. Dev
Hours worked in a week		4552	0	156	9.74	13.73
Dependent Variable						
Child Labor		2827	0	1	0.19	0.39
Independent Variables						
<i>Individual Level</i>						
Age	Year	4640	5	14	9.37	2.88
Female	1 = Female	4640	0	1	0.50	0.50
Relationship to HH	1 = Direct child of HH	4640	0	1	0.72	0.45
Child's Enrolment Status	1 = Enrolled	3550	0	1	0.96	0.20
<i>Household Level</i>						
Father's education	1 = Went to school	6627	0	1	0.29	0.45
Mother's education	1 = Went to school	4447	0	1	0.18	0.39
< Average HH Wealth	1 = Below average wealth	4638	0	1	0.14	0.34
Average HH Wealth	1 = Average wealth	4638	0	1	0.66	0.47
>Average HH Wealth	1 = Above average wealth	4638	0	1	0.20	0.40
<i>Community Level</i>						
Rural	1 = Rural	4640	0	1	0.82	0.38
<i>Schools</i>						
Primary	1 = Yes Available	4640	0	1	0.85	0.36
Secondary	1 = Yes Available	4640	0	1	0.36	0.48
Market	1 = Yes Available	4640	0	1	0.32	0.47

The measure used in the analysis was coded as (1) if the families were in the lowest wealth quintile and (0) if in the higher wealth quintiles. For descriptive purposes, two additional dummy variables were created: Average household wealth – those in the middle 3 wealth quintiles (1) and the richest and lowest 40% (0) and above average wealth - the upper 20% (1) and the lowest 80% (0).

2.7.2.3. Community level

The first community variable was residence of the children; children living in a rural area are coded as (1) and those living in an urban are coded as (0). As for availability of primary and secondary schools, distance in kilometers was used to assign availability and a range of 0 to 2km is used to indicate “available in community” and coded (1). Anything 3 kilometers away or more was coded as (0) “not available in the community.” Two kilometers was used because it was a moderate estimate of the radius of an African village. The average is up to 10 km (Food and Agriculture Organization (FAO), 2008). The same measure of 2 kilometers as a radius was used to show the availability of a market in the community (1) representing yes available and (0) not available. The market variable was created by merging the daily and weekly markets together to indicate if at least 1 market is available. This was done to prevent multicollinearity. The summary tables of variables used in the analysis are found in Tables 1 and 2.

3. Methods

This research essentially utilized two steps to better understand how individual, household, and community level factors influence the likelihood that child labor will occur in Malawi and Tanzania. First, descriptive statistics were analyzed to measure differences of the number of hours worked between children of various individual, household, and community characteristics. These statistics show differences in the hours worked by children from the Malawi and Tanzania samples. The second stage of the analysis was to estimate 4 multiple logistics regression models using the SPSS software. In the first model, individual factors were run to estimate the likelihood that children will participate in child labor. In the second model household level factors were estimated and in the third model community level factors are run to estimate the likelihood that children will participate in child labor. The fourth model estimated all the factors at the three levels to understand their influence on child labor. The main equation contains the measures specific to each level; for example, the first model consisted of the child’s age, gender, enrollment status and the relationship of the children to the household head. The model was tested to see whether the observed differences in the influence of the different levels of factors on the likelihood that children in the samples will become child laborers were significant at least at the $p < .05$ level.

4. Results

4.1. Bivariate analysis

Several noticeable trends appear in the mean hours worked for children of various characteristics of interest, as displayed in Table 3 below. Children in the Tanzania

sample are working a mean of 9.7 hours per week, a figure more than three times the mean number of hours that children are reportedly working in Malawi per week (2.7 hours). The reported average hours worked by children in both country samples are below the 24 hour threshold at which child labor is officially recognized. There are 7% Malawian children in the sample who reported to work 24 or more hours and 19% in the Tanzania sample. Child laborers work 38.35 hours in Malawi and non-laborers work 5.51 hours or 32.84 hours less. In Tanzania, child laborers work 38.51 hours and non-laborers work 10.36 hours or 28.15 hours less. Child laborers in Tanzania work twice as much as those in Malawi. When analyzed by age, the highest number of hours worked in Tanzania is by 14 year old children who work 19.08 hours per week which is an extra 9.24 hours compared Malawian 14 year old children who work 9.84 hours per week. Correlation analysis (see Appendix A and B) shows a positive and significant relationship between child labor with age in both Malawi ($r = .03, p < .01$) and Tanzania ($r = .19, p < .05$) as hypothesized. Surprisingly Malawian girls in this study work 7.60 hours per week which is 1.61 hours less than boys. Tanzanian girls work an average of 14.68 hours per week and the boys work 15.21 or .53 hours more as expected. Correlation analysis as shown in Appendix A shows a surprisingly negative and significant relationship between child labor with gender in Malawi ($r = .06, p < .01$).

Table 3. Mean hours worked by children in Malawi and Tanzania aged 5 – 14

Variable	Malawi	Tanzania
Hours Worked Last 7d	2.70	9.74
Dependent Variable		
Child Labor	38.35	38.51
Non Laborer	5.51	10.36
Independent Variables		
Individual Level		
Age		
5	9.61	12.60
6	7.76	7.29
7	7.51	12.11
8	5.17	12.20
9	8.15	12.14
10	7.47	13.99
11	8.85	15.84
12	8.85	14.12
13	7.74	18.81
14	9.84	19.08
Female	7.60	14.68
Male	9.21	15.21
Direct child of HH	8.45	14.25
Non-Nuclear relationship	7.53	15.22
Enrolled in school	8.01	14.09
Not enrolled in school	14.52	28.47
Household Level		
Father went to school	6.79	14.99

Variable	Malawi	Tanzania
Father did not go to school	8.89	14.60
Mother went to school	7.45	14.38
Mother did not go to school	8.45	17.24
<i>Household wealth</i>		
< Average HH Wealth	9.60	17.32
> Average HH Wealth	8.12	14.63
Community Level		
Rural Location	8.20	16.03
Urban Location	9.49	10.25
Primary school available	8.73	15.20
Primary school not available	6.68	13.33
Secondary school available	10.65	14.13
Secondary school not available	8.06	15.40
Market available	8.66	16.28
Market not available	7.90	14.18

Enrolled children in the Malawi sample work 8.01 hours and the non-enrolled children work 14.52 hours or 6.51 hours less as expected. Enrolled children in the Tanzania sample work on average 14.09 hours per week compared to 28.47 hours for non-enrolled children or 14.38 hours more. As hypothesized correlation analysis shows a stronger relationship between child labor with school enrollment in Tanzania ($r = -.20$, $p < .01$) than Malawi ($r = -.04$, $p < .05$). At the household level, Malawian children with fathers who went to school work an average 6.79 hours and those who did not go to school work on average 8.89 hours or 2.1 hours more as expected. Tanzanian children in the sample whose fathers went to school work an average of 14.99 hours per week and those whose fathers never went to school work 14.60 hours or .39 hours more. As hypothesized, correlation analysis confirms these results and shows a negative and significant relationship between child labor with fathers who went to school in Tanzania only ($r = -.07$, $p < .05$). Correlation analysis between child labor with the mother's education factor for Tanzanian children also shows a negative and significant relationship ($r = -.07$, $p < .05$) as hypothesized.

At the community level, Malawian children who reside in a rural location work 8.20 hours and children in an urban area work 9.49 or 1.29 hours more which comes as a surprise. Rural based children in Tanzania work 16.03 hours and those from an urban area work 10.25 hours or 5.78 hours less. The rural location factor is positive and significantly related with child labor for Tanzania as hypothesized ($r = .13$, $p < .05$). Children with access to a primary school work 8.73 hours and those without access work 6.68 hours or 2.05 hours less which is unexpected. In Tanzania children with access work 15.20 and those without work 13.33 hours or 1.87 hours less. Correlation analysis for this factor for both countries shows a positive and significant relationship with child labor ($r = .06$, $p < .05$) which was unexpected. Children in the Malawi sample with access to a secondary school work 10.65 hours and those without access work 8.06 or 2.59 hours less which was unexpected. Children in the Tanzania sample with access to a secondary school work 14.13 hours and those without access work 15.40 or 1.27 hours more as expected. The correlation analysis shows a negative and

significant relationship between child labor with the secondary school availability factor for Tanzania ($r = -.05$, $p < .01$) as hypothesized. Finally, Malawian children with access to a market work 8.66 hours and those without access work 7.90 or .76 hours less as expected. Tanzanian children with access to a market work 16.28 hours and those without access work 14.18 or 2.1 hours. The results for both countries are confirmed by the correlation analysis which shows a positive and significant relationship between child labor with the market availability factor in Malawi ($r = .06$, $p < .01$) and Tanzania ($r = .05$, $p < .01$) as hypothesized. To gain more insight into these underlying processes, attention is now turned to the regression analysis results.

4.2. Multivariate analyses

Table 4 below displays estimates for the likelihood that 5-14 year old children who are working, will be engaged in child labor. The first model tests only the influence of individual level characteristics controlling for household and community factors on participating in child labor

(working 24 or more hours per week). The second model tests effects of the household factors controlling for individual and community characteristics. The third model tests the effects of the community level characteristics controlling for individual and household characteristics. Finally, Model 4 tests all the factors to determine whether or not children who work for some time will cross the 24 hour mark and will be engaged in child labor. There are differences on the effects of these factors on the children's participation in child labor.

4.2.1. Model 1

It is observed in the first model that older children in the Tanzania sample are more likely to be engaged in child labor than younger children ($p < .01$) as hypothesized. Surprisingly the age factor has no effect for children in the Malawi sample. Females are less likely to be engaged in child labor in the Malawi sample than boys ($p < .01$), but there is no significant differences between genders in Tanzania. The results of the Malawi sample are atypical for Sub-Saharan Africa. Previous studies found a greater participation of girl children in work or labor for the Sub Saharan African region (Nielsen, 1998; Canagarajah and Coulombe, 1998).

The next factor is school enrollment. The child's school enrollment factor is negatively associated with child labor in Malawi ($p < .05$) and Tanzania sample ($p < .01$) as hypothesized. In a test on the effect of a similar measure – child's innate schooling ability, bivariate probit estimates indicate that ability increases the probability of school attendance and reduces the probability of child labor amongst boys but has no effect amongst girls (Bhalotra and Tzannatos, 2003). These results support the study by Huisman and Smits (2009a) who found that children who are not enrolled in school tend to work more.

4.2.2. Model 2

Model 2 tests the effects of household factors namely; the parental education; indicating if the father and the mother ever attended school; and the wealth variable. It

is surprising to note that there is no significant variation among children based on these household variables in either Tanzania or Malawi although; the effect of father's education becomes a factor when the full model is analyzed, as described below. The household factors have no effect on child labor for both countries.

4.2.3. Model 3

In contrast to household factors, multiple community factors did have a significant effect. As hypothesized, children in the Tanzania sample who reside in rural areas will be more likely to be child laborers than children who reside in urban areas ($p < .01$). This was not the case for Malawi, and although it is not significant, the rural residence reduces the likelihood of being involved in child labor. As for school factors, availability of a primary school in the community is not associated with child labor in Tanzania, but leads to a higher likelihood of participation in child labor for children in the Malawi sample ($p < .05$) which comes as a surprise. It was expected that the availability of a primary school plays a role in school enrollment and employment of children thus reducing the odds of participating in child labor (Baschieri and Falkingham 2007; Ersado 2004; Huisman and Smits 2009). It is possible that the results seen in this study can be explained by the studies by (Eldrig, 2003; Otañez et al., 2002) who reported that children attend schools that are on the farms they are employed on.

Table 4. Odds Ratios of child labor for children aged 5-14 who work on the basis of individual, household and community level variables in Malawi and Tanzania

	Malawi Model 1.	Tanzania Mode 1.	Malawi Model 2.	Tanzania Model 2	Malawi Model 3	Tanzania Model 3	Malawi Model 4	Tanzania Model 4
Individual Variables								
Age	1.022 (0.024)	1.211** (0.025)					0.991 (0.050)	1.212** (0.052)
Female	0.642** (0.122)	1.194 (0.109)					0.857 (0.246)	0.875 (0.232)
Child's school enrollment	0.527* (0.273)	0.234** (0.206)					0.232** (0.438)	0.147** (0.404)
Child of household head	1.573 (0.331)	1.120 (0.123)					1.868 (0.358)	0.763 (0.268)
Household Variables								
Father's education			0.524 (0.256)	0.953 (0.299)			0.424* (0.365)	1.588 (0.383)
Mother's education			1.611 (0.355)	0.722 (0.240)			1.858 (0.387)	0.725 (0.288)
< Average HH Wealth			1.493 (0.313)	1.086 (0.290)			1.956 (0.338)	0.199 (0.341)
Community Variables								
Rural Location					0.833 (0.251)	3.573** (0.199)	0.511 (0.474)	6.080** (0.489)
Primary school available					1.454* (0.148)	1.310 (0.167)	1.560 (0.334)	1.808 (0.438)

	Malawi Model 1.	Tanzania Mode 1.	Malawi Model 2.	Tanzania Model 2	Malawi Model 3	Tanzania Model 3	Malawi Model 4	Tanzania Model 4
Secondary school available					1.066 (0.215)	0.680** (0.107)	1.547 (0.382)	0.655 (0.253)
Market available					1.499** (0.120)	1.363* (0.102)	1.240 (0.254)	1.361 (0.242)
Observations	4009	2438	1100	731	4043	2827	916	645

Notes: Standard errors in parentheses; significant at 5%; significant at 1%;

The odds of child workers, compared to child workers, participating in child labor are equal if they are 1.00, greater if more than 1 and less if less than 1.

For example, children enrolled in school are less likely than children not enrolled in both countries to participate in child labor.

In their studies, they reported that the tobacco companies were under immense pressure to play a role in the fight against child labor and in a guise to do that they built low quality schools but only as a token. The schools were built on the farms where the tobacco is grown. These tokenistic schools are of poor quality with unqualified teachers and lack of facilities and supplies. Unfortunately there is no measure of the quality of schools in this study and hence further investigation on the primary school factor and its effects on child labor are required. Otañez et al. (2002) also stated that children on these farm based schools spend more time working than in school. This could be the reason why children in the Malawi sample who have access to a primary school are more likely to be engaged in child labor. It should be noted that the effect does disappear in the full model.

Concerning secondary school, there is a reduction in the likelihood of children participating in labor in communities with a secondary school in Tanzania ($p < .05$) as hypothesized, but not in Malawi. The final factor at the community level is the market factor. If there is a market available in the community, children in the Malawi sample will be more likely to participate in child labor ($p < .01$). There is a similar effect for children in the Tanzania sample as the likelihood also increases ($p < .05$). The results for the market variable are as hypothesized for children in both samples.

4.2.4. Model 4

The full model highlights the effects of variables at the individual, household, and community levels which were reviewed above. School enrollment continues to be a leading factor in reducing the likelihood of participation in child labor, controlling for household and community factors. In Malawi and Tanzania children enrolled in school are less likely to be engaged in child labor ($p < .01$). There are also results that point to differences between the two countries. In Malawi, when the father has attended school, children are also less likely to be child laborers ($p < .05$), as hypothesized. When children live in households that are below average household wealth, they are more likely to be engaged in child labor ($p < .05$) as hypothesized. As for the Tanzania sample, two additional factors are significant. The first one is age. Older children are more likely to participate in child labor than younger children ($p < .01$) as hypothesized.

The second factor is the rural residence. Children who reside in rural areas in the Tanzania sample are much more likely to be engaged in child labor than their urban based counterparts ($p < .01$) as hypothesized. Clearly the rural residence factor has the greatest influence for children for the Tanzania sample.

5. Conclusion and Policy Implication

This study explored the individual, household, and community determinants of child labor for children aged 5-14 years in Malawi and Tanzania. The 2010 – 2011 Malawi Integrated Household Survey (IHS) and the 2008 - 2009 Tanzania National Panel Survey (TNPS) were utilized to reveal the factors that determine the likelihood that children will participate in child labor. There are differences between countries in predictors of child labor, but also some general findings. School enrollment is the most significant negative predictor of child labor in both Malawi and Tanzania. Hypothesis four states that school enrolled children are less likely to be child laborers. We find that children in both the Malawi and Tanzania samples who are enrolled in school are less likely to be engaged in child labor as expected. Huisman and Smits (2009a) also reported that children of poor families who were not enrolled in school tend to work more. When children are not enrolled in school, they are forced to invest their time elsewhere possibly being relegated to child labor. The global demand for education has grown significantly over the years and it has been declared that whilst it may not be the sole solution, its availability, positively impacts children's lives and can put an end to child labor (ILO, 2010).

The second general finding is support for the tenth hypothesis, where we find that the availability of a market in the community leads to greater likelihood that children from both the Malawi and Tanzania samples will engage in child labor. Our results confirm previous studies (Webbink et al., 2008; Whitsel, 2010). The study by Eldrig (2003) on child labor in Blantyre, Malawi revealed that there is higher incidence of child labor as children work in the markets helping their parents for extended hours with little or no schooling. Some children work unaccompanied under hazardous conditions. In communities where there are markets, work opportunities exist for children and this poses as strong competition for their time (Whitsel, 2010). Some parents may decide that the immediate benefit for their children is to engage in work and postpone or forfeit going to school all together. Overall there is a dearth of research on the effects of the presence of markets in communities in direct relation to child labor.

There are notable country level differences that exist as well. In Malawi, hypothesis two states that girls are likely to work more than boys and we find it to be negative and significant. Girls are less likely to be engaged in child labor than boys which is unexpected. There are studies that separated models by gender and the evidence has been fairly consistent for this factor showing that girls generally work more (Bhalotra and Tzannatos, 2003). A study of children in Pakistan found that girls worked more when the extra income from child labor was not required (Bhalotra, 2000a as cited in Bhalotra and Tzannatos, 2003). For our study, it could be cultural differences that explain why girls possibly work less as Malawi is a matriarchal society (CIA World Fact Book, 2012). For Malawi, the father's education factor is negatively associated with

child labor, which confirms the fifth hypothesis. When the father has been to school, the children are less likely to be child laborers as hypothesized. Earlier research from Cote d'Ivoire, Columbia and the Philippines also found that when parents had secondary education, this had a negative effect on child labor (Grootaert and Patrinos, 1999). Similar to our results, Canagarajah and Coulombe (1997) found that there is lesser likelihood of child labor participation when fathers had secondary level education. Interestingly, in Ghana they found that mother's education had no effect on child labor, a result that corresponds to ours.

Hypothesis eight states that when there is availability of a primary school there is a lesser likelihood of child labor participation. Contrary to this expectation, we find this factor to be significant and positive. Having access to a primary school in Malawi leads to higher odds that there will be child labor participation. It was reported that sometimes schooling and working decisions can be trade-off outcomes and that when there is an absence of a primary school children work more (Ersado, 2004). The availability of a primary school usually leads to an increase in school enrollment and a reduction in employment of children (Baschieri and Falkingham 2007; Huisman and Smits 2009). The possible explanation for our result is the same as was explained above. Eldrig (2003) and Ortanez et al. (2002) reported that children attend schools that are on the farms they are employed on and end up spending more time working and not learning. This could be the reason why primary school enrolled Malawian children are likely to work more.

As for the Tanzania outcomes, age at the individual level is found to be a significant factor in determining whether children will participate in child labor as hypothesized. In a study that compared working children in Africa and Asia, the age effect was nonlinear for African children, with hours spent on housework at first increasing more steeply with age than in Asia (Webbink, 2012). Cockburn and Dostie (2007) also found that older children work more hours especially if there are younger children in the household. With the structure of the African family, it is common for children to help care for their younger siblings (CIA World Fact Book, 2012). In confirmation, Webbink et al. (2008) found that firstborn children work more and help to support younger siblings by provide schooling support. With all this evidence the age effect of hypothesis one is significantly stronger for girls. Interventions will need to address older children to ensure that the burden of caring for their families is removed (ILO, 2010). It is of imperative importance that as children grow older, they complete investments in their human capital and that they remain children until they reach 18 years (UNICEF, 1991).

Hypothesis seven at the community level states that rural based children will work more. We find that rural based Tanzanian children are more likely to become child laborers than children who reside in urban areas. Previous research indicates that the outcome of parental decisions regarding labor engagement and educational participation of their children depends on the context in which the family lives (Huisman and Smits, 2009; Webbink, et.al. 2008). Contextual effects in these studies include the extent to which parents have education; the degree of urbanization and high community GDP. These factors are associated with the reduction of child labor. Bhalotra and Tzannatos (2003) reported the effects of urbanization on child labor to be

unclear. Our results are in line with Webbink (2012) who reported that children are less likely to be involved in hidden child labor if they lived in more developed and more highly educated areas. Access to a secondary school for children in the Tanzania sample leads to a lesser likelihood of child labor, as hypothesized. The reasons for this result are the same as those provided above for hypothesis eight on the availability of a primary school. Baschieri and Falkingham (2007) also found that the availability of a secondary school reduces the likelihood of child labor from occurring.

In summary, the greatest negative influence for child labor for both countries is the school enrollment factor. In view of this, our study has been instrumental in revealing that greater resources need to be invested in developing education further. Hence the ILO (2010; 2012) declarations of greater investments on education are still called for. When education is free and of good quality it has the potential to increase children's human capital and they are less likely to be participate in child labor (ILO, 2012). The surprising finding that the availability of a primary school in Malawi leads to higher odds of child labor participation requires further investigation. The secondary school availability factor for Tanzania reduces the odds that child labor participation will occur. This evidence only affirms that education is a key factor in reducing the likelihood of child labor participation hence educational investments remain a critical intervention.

The availability of markets in a community are a sign of a healthy and vibrant economy that often benefits children but when they are the ones working at the expense of other investments in their human capital, then that is a violation of their human rights (Becker, 1964; UNICEF, 1991). Policy makers need to ensure that there is adequate monitoring of child labor laws to ensure that children are not participating in market activities in a way that hampers their development. There is adequate child labor legislation in developing countries and Malawi and Tanzania are both signatories to international regulations that protect children. The pivotal issue for these two countries is enforcing child labor laws (ILO, 2010). Another important aspect of overcoming child labor is sustaining the fight in the midst of the global economic crisis. Greater effort must be put in ensuring that investments in the human capital of children do not erode. The momentum must not wane (ILO, 2010).

Missing data on key variables posed as a serious limitation to this study. These are some of the challenges of working with secondary data. Not all theoretically possible factors at the three levels were included in the analysis and this may lead to missing variable bias. Future research needs to test more complex and fully interactive regression models to explain variation determining the likelihood of child labor occurring. Independent data collection is necessary to better understand the constantly evolving and elusive nature of children's work. Despite its limitations, this study sheds light on the factors that can lead to child labor in the Malawi and Tanzania samples and reveals where efforts to fight child labor need to be concentrated. The suggestion, however, that child labor participation rates maybe declining based on the results of this study is encouraging. In view of these results, country specific solutions to prevent child labor maybe necessary, given the different predictors of child labor participation in each country.

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Acronyms:

CIA:	Central Intelligence Agency
EAs:	Enumeration areas
FAO:	Food and Agriculture Organization
GDP:	Gross Domestic Product per Capita
HH W:	House Hold Wealth
ILO:	International Labor Organization
IHS:	Integrated Household Survey
IPEC:	International Program on the Elimination of Child Labor
NSO:	National Statistical Office
TZNPS:	Tanzania National Panel Survey
UNICEF:	United Nations Children's Fund

APPENDIX A

Correlation calculations for child labor in Malawi

	Child laborer	Age	Female	Relationship to HH	Child's enrollment status	Father's education	Mother's education	<Average HH Wealth	Urban Rural Location	Primary school	Secondary school	Market
Child laborer	1.00											
Age	.03*	1.00										
Female	-.06**	-.01	1.00									
Relationship to HH	.02	-.02	-.01	1.00								
Child's enrollment status	-.04*	-.13**	.00	.02**	1.00							
Father's education	-.03	-.01	.00	-.03*	.06**	1.00						
Mother's education	.01	-.02	.00	-.04**	.06**	.50**	1.00					
<Average HH Wealth	.02	-.02	.00	.01	-.06**	-.14**	-.09**	1.00				
Rural Location	-.02	.00	.00	.12	-.02	-.18**	-.16**	.06**	1.00			
Primary school	.05**	-.01	.01	.00	.01	-.02	.00	-.03**	.02*	1.00		
Secondary school	.02	.01	.03**	-.02	-.02	.01	.09**	.08**	-.05**	-.08**	1.00	
Market	.06**	.01	-.02	.00	.07**	.14**	.09	-.05**	-.12**	.11**	.14**	1.00

*significant at 5%; **significant at 1%.

APPENDIX B

Correlation calculations for child labor in Tanzania

	Child laborer	Age	Female	Relationship to HH	Child's enrollment status	Father's education	Mother's education	<Average HH Wealth	Urban Rural Location	Primary school	Secondary school	Market
Child laborer	1.00											
Age	.19**	1.00										
Female	.01	-.01	1.00									
Relationship to HH	.00	-.01	-.03	1.00								
Child's enrollment status	-.20**	-.19**	.00	.07**	1.00							
Father's education	-.07*	-.02	.02	-.10**	.00	1.00						
Mother's education	-.07*	-.01	.03	-.12**	.01	.34**	1.00					
<Average HH Wealth	.04*	-.03	.00	.01	-.06**	-.13**	-.07**	1.00				
Rural Location	.13**	-.01	.01	.06**	.02	-.08**	-.14**	.07**	1.00			
Primary school	.06**	-.03	-.02	.02	-.01	-.03	-.06	.02	.33**	1.00		
Secondary school	-.05**	.01	-.02	.01	.00	.05*	.02	-.01	.08**	.28**	1.00	
Market	.05**	.01	.00	-.02	-.07**	.05*	-.04	.00	-.08**	.06**	.00	1.00

*significant at 5%; **significant at 1%.