

CHILD LABOUR,
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INEQUALITY AND
RURAL/URBAN
DISPARITIES:

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Preface

This paper is one of a series of Young Lives Project working papers, an innovative longitudinal study of childhood poverty in Ethiopia, India (Andhra Pradesh State), Peru and Vietnam. Between 2002 and 2015, some 2000 children in each country are being tracked and surveyed at 3-4 year intervals from when they are 1 until 14 years of age. In addition, 1000 older children in each country are being followed from when they are aged 8 years.

Young Lives is a joint research and policy initiative co-ordinated by an academic consortium and Save the Children UK, incorporating both inter-disciplinary and North-South collaboration. In Ethiopia, the research component of the project is housed under the Ethiopian Development Research Institute, while the policy monitoring, engagement and advocacy components are led by Save the Children UK, Ethiopia.

Young Lives seeks to:

- produce long-term data on children and poverty in the four research countries
- draw on this data to develop a nuanced and comparative understanding of childhood poverty dynamics to inform national policy agendas
- trace associations between key macro policy trends and child outcomes and use these findings as a basis to advocate for policy choices at macro and meso levels that facilitate the reduction of childhood poverty
- actively engage with ongoing work on poverty alleviation and reduction, involving stakeholders who may use or be impacted by the research throughout the research design, data collection and analyses, and dissemination stages
- foster public concern about, and encourage political motivation to act on, childhood poverty issues through its advocacy and media work at both national and international levels.

In Ethiopia, the project has received financial support from the UK Department for International Development and Canada's International Development Research Centre. This support is gratefully acknowledged.

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Abstract

The Ethiopian Government has emphasised the intensification of agricultural activities in order to increase livelihood options and provide better safety nets for the poor (e.g. through food or cash-for-work programmes).

Drawing on a sample of 1999 households with at least one child aged 6 to 17 months in 2002, and from additional household data collected from 3115 children aged 7 to 17 years from twenty sentinel sites, the Young Lives Project sought to understand the impact on child labour and child schooling of public policy interventions formulated within the PRSP, and how changes are mediated through gender and rural-urban differences.

These were the key findings: children were commonly involved in fetching water, firewood and dung both for household use and sale, although they were more likely to attend school when there was adequate household labour. School attendance was significantly lower in rural than in urban sites, while dropout rates were dramatically higher in rural areas. Maternal education levels significantly decreased the likelihood of children combining work and school. Increased land and livestock ownership led to a greater demand for child labour and reduced school enrolment. The involvement of households in more diversified activities increased the demand for labour which is frequently met by children, particularly boys, with girls commonly substituting for their mothers.

In light of the above, Young Lives recommends the following measures to help reduce child labour and increase schooling:

- introducing cash transfers and credit provisions to poor families to offset school costs especially for older and rural children, and to cushion the adverse impact of household shocks;
- improving school availability in rural areas and strengthening the policy focus on female education, including investment in adult literacy programmes;
- introducing credit measures to facilitate labour transactions;
- modernising domestic and farm technologies to reduce labour intensity;
- rationalising livestock raising patterns;
- improving women's productive work opportunities while simultaneously ensuring that their care work burden is reduced by considering subsidized community childcare arrangements or preschool services;
- introducing safety nets, particularly for female-headed households;
- improving community infrastructure, especially energy and water sources and affordable transportation;
- reducing vulnerability to shocks such as drought through investing in irrigation schemes.

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I. Introduction¹

Although the importance of addressing childhood policy as part of broader poverty reduction efforts is increasingly acknowledged (at least rhetorically) by donors, governments and civil society actors, the inclusion of detailed child-sensitive policies in national poverty strategies is still all too rare. While easily observable child indicators, such as infant mortality, nutritional status and child schooling are included, less obvious impacts of broader economic development strategies on children's wellbeing remain largely invisible (Heidel, 2004). Content analysis of 23 interim and final Poverty Reduction Strategy Papers (PRSPs), for example, revealed that most lack not only any comprehensive strategy to address the needs of poor children and their families, especially caregivers, but they also frequently overlook important elements of children's experiences of poverty, including child trafficking, sexual exploitation, access to HIV/AIDS prevention and education (Marcus *et al.*, 2002). Moreover, while the PRSP policy framework places considerable emphasis on civil society consultations, children and young people have often been marginalised or completely excluded from such processes (Minujin *et al.*, 2005).

This paper analyses the extent to which the Ethiopian Sustainable Development and Poverty Reduction Programme (SDPRP)² (2002-2005) is making a difference to poor children's lives, and how changes are mediated through gender and rural-urban differences. Specifically, it is concerned with the impact of one key pillar of the PRSP, the Agricultural Development Led Industrialisation (ADLI) policy, on child enrolment and child work (paid and unpaid).³ The underlying assumption is that, because labour is abundant and capital scarce, new livelihood opportunities should be labour-intensive and agriculture-based. However, given imperfect labour and credit markets, the demand for labour may in the short term be met by involving children in either paid or non-paid work. Our hypothesis is that the promotion of labour-intensive agricultural activities, while augmenting aggregate economic development, could be detrimental to child wellbeing without precautionary social risk management measures. In order to create a win-win situation where both national economic development and children's rights (socio-economic, civic and cultural) are realised within the PRSP framework, a deep understanding of the individual-, family-, community- and policy-level factors affecting child labour and child schooling is required.

Theoretically, child labour and educational participation are the result of household decisions shaped by poverty (determined by the availability of assets, inputs, credit and insurance), labour and credit market imperfections, and parental education levels. However, while this poverty hypothesis suggests that there could be a positive correlation between expenditure/wealth and child schooling, liquidity constraints and imperfect labour markets may result in the opposite relationship (Bhalotra and Heady, 2003; Nielsen, 1998). In other words, in the absence of perfect access to credit and the imperfect substitution of hired labour for family labour, livestock ownership and the cultivation of larger land holdings may in fact lead to greater demands for child labour than schooling (Coulombe, 1998). In addition, parental education levels may affect child labour independently of income if parents do not

1 This paper is one of a series of Young Lives Project working papers. For further information and to download all our publications, visit www.younglives.org.uk

2 Ethiopia's PRSP is known as the SDPRP.

3 The Rural Development Policy Paper explicitly explains that it will not prioritise the promotion of a non-agricultural employment programme priority because it implies urban employment. Although the New Coalition for Food Security policy framework discusses non-farm activities, the focus remains rural and agriculture-dominated.

value education, or are unconvinced that the return to schooling may offset any income lost due to school attendance.

The effect of these elements may be mediated by the structure of the household (household composition) and societal/cultural norms. The number of siblings, birth order, dependency ratio, number of able-bodied adults, gender composition, and household size all influence the household's labour supply (Bhalotra and Heady, 2003). For instance, labour market opportunities available to women may influence the substitution of children for women's domestic and care work. Cultural norms may also have an impact on child labour independently of income and education if specific tasks (either household or outside the home) are culturally designated as children's (or girls' or boys') work, such as cattle herding or water collection in the case of Ethiopia.

The main objective of this paper is to investigate the key determinants of child labour and child schooling in order to understand the possible impact on households and children of public policy interventions formulated within the PRSP in order to improve national development and achieve the Millennium Development Goals (MDGs). Specifically, the following research questions are addressed:

- Does the SDPRP's labour-intensive agricultural production focus lead to greater pressure on children to stay at home and carry out agricultural, domestic and 'care economy' (Elson, 1996) tasks while their parents work?
- How significant is the level of parental (paternal or maternal) education on decision-making about children's school attendance in the context of scarce resources?
- Is there a gender difference in time spent on labour (income or non-income generating) and school enrolment rates? If so, what factors are likely to contribute to this gender disparity?
- Do children in female-headed households (due to women's more limited access to assets and land ownership) have greater pressures to forgo educational opportunities in order to engage in paid or unpaid labour than those in male-headed households?

The paper follows Becker's (1981, 1965) theory of household production, but is modified to include the impact of certain constraints on households' ability to maximise their capacities. These constraints are: time (of parents and children); budgets; production; credit and market conditions. Within this framework, the paper develops a multinomial logit (multiple choice) econometrics model whereby the dependent variable is different combinations of work and schooling: school only; work and school; work only; minimal work (i.e. neither work nor school).

The empirical data is based on a household survey of 1999 families in 20 *woredas* (sub-districts) carried out as part of the Young Lives international longitudinal survey in 2002, and follow-up qualitative fieldwork on child schooling and labour in five *woredas* in early 2005. The qualitative research involved focus group and key informant discussions with local officials, community leaders, teachers, families and children. The research captures the experiences of poor children in five regional states, covering more than 90 per cent of the Ethiopian population. They encompass diverse livelihood patterns, cultural and religious traditions, human development levels and ethnic compositions and provide valuable information about the impact of macro-level poverty eradication/development policies in diverse contexts.

The paper is organised as follows. Section 2 reviews theoretical and empirical literature on the relationship between child labour and schooling in developing country contexts. Section 3 presents the theoretical framework used in the paper. Section 4 analyses national-level data on Ethiopian child labour and education. The Young Lives data and method of analysis are discussed in Section 5, while the results are presented in Section 6. Section 7 concludes with the key policy implications of our findings and maps how children can be better mainstreamed into the second round of the PRSP policy framework (2005-10).

2. Literature review on child schooling and child labour

A large literature on the factors that influence parents' decision to educate their children in both developed and developing country contexts points to the importance of the following variables: the socio-economic environment of the home; the school environment; individual child characteristics; village and community factors; and policy and programme factors (Tilak, 1989; Walters and Briggs, 1993; Burney, 1995; Bredie and Beeharry, 1998).

2.1 Socio-economic environment of the household

The socio-economic status of the household encompasses household asset endowment and income, gender of the household head, parents' educational levels, occupation and labour market participation, and the size and composition of the household (Walters and Briggs, 1993; Burney, 1995; Bredie and Beeharry, 1998; Canagarajah and Nielsen, 1999).

a) Household assets and income: The probability of a child being enrolled in school is influenced by the household's asset endowment (Mooock and Leslie, 1985; Walters and Briggs, 1993), but the relationship is neither linear nor fully predictable. According to Burney (1995) there are three possible effects of asset endowment on child schooling. The first is the "pure wealth effect" of assets, which has a positive impact. The second is the "opportunity cost effect" of assets, which has a negative effect because the productivity of child labour increases because of greater assets. The "bequest effect" of assets, which refers to investing in a child's future, is a third factor and has an indeterminate effect.

Studies in Africa (Canagarajah and Nielsen, 1999) and Asia (Burney, 1995) show controversial or mixed effects of *farm ownership* on the probability of child schooling. For example, a higher endowment of small livestock showed negative effects on enrolment in Botswana (Chernichovsky, 1981, cited in Mooock and Leslie, 1985), while Walters and Briggs (1993) found a higher probability of school enrolment for children from households who own their own home.

Although variable by country, region and location, household types, gender of the child and the level of education considered, a number of studies have found that *household income* has a significant positive effect on the probability of child school enrolment (e.g. Mooock and Leslie, 1985; Burney, 1995; Bredie and Beeharry, 1998). The impact of higher income on school enrolment was greater for farming than non-farm households and, for each household type, the impact of higher income was greater for the enrolment of male compared to female children (Burney, 1995). Similarly, Basu and Van (1998) found that child labour reduced child schooling among the poorest households. However, children of land-rich families are more likely to be in work instead of attending school compared to children of land-poor households, indicating that asset ownership and child schooling could be negatively related, or that asset ownership and child labour could be positively correlated. Possible reasons for this so-called "wealth paradox" include credit market imperfections which might result in child labour and low school enrolment (e.g. Ranjan, 1999, 2001; Jafarey and Lahiri, 2002) and labour market imperfections that could lead to child labour and a negative impact on child schooling (Bhalotra and Heady, 2003).

In the case of Ethiopia, however, Cockburn (2001) found that access to, or ownership of, assets that are used in child work activities (or that complement child work) may reduce the probability of a child attending school. While land quality increases the relative probability of children's enrolment, ownership of small livestock reduces the probability of school attendance among younger boys because child labour is deemed more important for animal herding than crop production activities. This trend is in turn reinforced by credit constraints on farmers to hire additional labour and the fact that hired labour is usually an imperfect substitute for more flexible family (child) labour.

Similarly, the household's distance from fuel-wood and water sources may influence school enrolment decisions because of the implication for household labour demand: children's time can be used for fetching firewood and water at the expense of attending school or doing homework. In Côte d'Ivoire, the chances of enrolment for boys decreased when the household's distance from a fuel-wood source increased (Appleton, 1991; Bredie and Beeharry, 1998). The same study indicates that the household's distance to water sources also affects the likelihood of children completing primary schooling.

b) Parental occupation: The chances of school enrolment were greater for children from households headed by civil servants and, particularly in the case of girls, increased in accordance with the status of parental occupations in Asia (Tilak, 1989). The relationship between education and ownership of family-owned businesses (usually in urban areas), however, appears mixed. While Appleton (1991) and Bredie and Beeharry (1998) found that children were less likely to go to school if parents valued their current contribution more than the potential benefits from schooling, other studies found increased school attendance in households with non-farm businesses (Canagarajah and Coulombe, 1998; Canagarajah and Nielsen, 1999).

c) Household composition: Household size influences the amount of resources and time invested by parents in child schooling (Tilak, 1989; Walters and Briggs, 1993). Resource limitations may therefore force large family households to discriminate among their children, but there were differential impacts on girls versus boys and younger versus older children (Burney, 1995).

Greater adult labour endowment that can substitute child labour in a household was found to significantly increase the probability of child enrolment, especially at secondary levels in Tanzania (Bredie and Beeharry, 1998). Similarly, in Asia, Tilak (1989) found that the number of years of schooling for boys increased in proportion to the number of working sisters, while in Côte d'Ivoire, Coulombe (1998) found that the probability of child schooling increased with higher numbers of female siblings in the 7-14 age group. The number of females in the 15-59 age group also had a similar effect on child school attendance. However, the probability of school attendance was found to be lower in Ghana when the number of older household members (over 60 years of age) increased (Canagarajah and Coulombe, 1998, cited in Canagarajah and Nielsen, 1999). The presence of preschool age children was also found to have a negative effect on girls' enrolment in Nicaragua (Rosati and Rossi, 2003) and in Botswana (Chernichovsky, 1981, cited in Moock and Leslie, 1985).

d) Parental education and expectations: The impact of parental education on child enrolment has been much studied and has also been used as an indicator of the intergenerational multiplier effect of schooling (World Bank, 2004). Overall, higher parental education levels have a strong positive impact on school enrolment (Moock and Leslie, 1985; Tilak, 1989; Bustillo, 1989; Walters and Briggs, 1993; Burney, 1995; Bredie and Beeharry, 1998; Handa, 1999; Ravallion and Wodon, 2000; Ray, 2003), but

the significance of the impact may vary depending on the way the variable is defined, the gender and age of the parent and child, and other conditioning factors.

Some researchers have investigated the impact of fathers' and mothers' education separately (e.g. Moock and Leslie, 1985; Bustillo, 1989; Burney, 1995; Ray, 2003). In some developing country studies, paternal education is assumed to have an indirect influence through income provision, while maternal education has a direct influence through child rearing and educational supervision (Burney, 1995). In particular, maternal education levels were found to have a significantly positive impact on the probability of girls' school enrolment compared to that of boys (Bustillo, 1989). When household heads were educated and working, the gender disparity of enrolment was narrow and, for some age groups or education levels, was even better for females (Tilak, 1989). In Ghana, the education of adult females, compared to that of adult males, was found to have a significantly positive effect on the number of years a child stays in school (Ray, 2003). However, in the Philippines (Smith and Cheung, 1982) and in Taiwan (Hermalin, Seltzer and Lin, 1982), gender disparities in educational participation were found to be significantly affected by fathers' educational levels.

In terms of the gender of household heads, Bredie and Beeharry (1998) found that male heads favour boys' education and that, in general, the level of investment in children's education was higher than with female heads. In rural areas of Côte d'Ivoire (Grootaert, 1998; Coulombe, 1998) and in Ghana (Bhalotra and Heady, 2003), the rate of school attendance was lower in female-headed households and especially so for girls.

Parental expectations of the value of schooling are also identified in the literature as influencing the decision to educate children. While expectations of future earnings were found to be a significant determinant for post-primary schooling, Bredie and Beeharry (1998) note that research on this variable at the primary school level in the African context is inconclusive.

2.2 School factors

School factors were cited in many studies as constituting more important determinants of educational enrolment than the socio-economic status of the home environment (Heyneman and Loxley, 1983, cited in Tilak, 1989). In particular, improvement in school factors was found to have a greater impact on lower income and rural children (Bustillo, 1989), and to have differential effects on the enrolment of children by gender (Tilak, 1989). The most commonly studied school features include the availability and quality of school facilities, proximity and costs, staffing, and school type (Tilak, 1989; Bustillo, 1989; World Bank, 2004).

a) Physical access: Expansion of primary schools, through public expenditure or private investment, reduces one of the supply-side constraints on household enrolment decisions (Handa, 1999; World Bank, 2004). Improving access, or the level of provision in general, significantly influences the level of enrolment, although its impact may be variable by level of schooling and region (Bredie and Beeharry, 1998).⁴

If a school is close to a child's home, the likelihood of enrolment is high for both girls and boys. With an increase in physical distance, girls' participation in schooling is lower due to logistical problems and associated safety risks (Tilak, 1989). Enrolment rates at the primary school level for boys and girls are

4 However, empirical evidence is mixed. A Tanzanian study, for example, indicates that there was no significant influence of per capita government expenditure on primary schools on the probability of child enrolment (Bredie and Beeharry, 1998).

also affected by the availability of secondary schools (Lavy, 1996, cited in Handa, 1999). In the case of Mozambique, improved access augmented boys' enrolment over that of girls (Handa, 1999).

b) Costs/financing: Costs of schooling, both direct (e.g. user fees, school uniforms, transport) and indirect (e.g. child work-related), are among the factors that influence parental decisions about child education (Bustillo, 1989; Bredie and Beeharry, 1998; World Bank, 2004; Kattan and Burnett, 2004). Overall, African case studies indicate that the probability of enrolment in primary school was less influenced by direct costs than opportunity costs, although the results showed mixed patterns. In cases where direct costs matter, the impact was found to be more significant for poor households than rich households as poorer families tend to have more children and limited budgets. Some studies also found that the direct costs of schooling were higher for girls than for boys, which may reduce the chance of schooling for girls (Tilak, 1989).

Studies indicate that user fees in primary education are a major constraint to enrolment and school completion for millions of children around the world (Colclough, 1996, cited in Oxaal, 1997; Kattan and Burnett, 2004). According to Colclough (1996), when primary school fees were introduced in Malawi, enrolment initially declined and, although rates later rose, the pace was slower than before fees were introduced. When fees were removed, enrolment increased quickly again. However, Kattan and Burnett (2004) raise the concern that removal of primary education fees may have its own drawbacks when fees make up a substantial share of the budget for improving access or quality of schooling, unless the deficit is covered from alternative sources.

In terms of indirect or opportunity costs, Bredie and Beeharry (1998) indicate that the probability of enrolment is lower for children with higher opportunity costs in relation to household income and the expected benefits of schooling. In general, the characteristics of the child, social norms and labour market features condition the level of opportunity costs for each household and lead to varying decisions regarding child schooling (World Bank, 2004). While in Madagascar opportunity costs were slightly higher for girls than for boys (Bredie and Beeharry, 1998), some Latin American cases indicate that girls have lower opportunity costs compared to boys (Bustillo, 1989).

c) Quality and relevance: Commonly cited school quality indicators are staffing, school pass rates, physical facilities and relevance. In rural Mozambique, the size, level of training and composition of teaching staff were important determinants of household enrolment decisions (Handa, 1999). Increasing girls' enrolment in school is positively associated with a higher proportion of female teachers in schools and this association is more important in traditional societies and at higher schooling levels (Tilak, 1989). In rural Mozambique, the number of trained teachers was found to have a positive and statistically significant impact on the likelihood of primary school enrolment (Handa, 1999). Gender composition and training factors, especially the proportion of trained female teachers, were found to have a positive and significant influence on enrolment.

Female pass rates (rather than male pass rates) were also found to have a significant positive effect on the probability of enrolment, perhaps because female pass rates serve as better proxies of school quality because girls' overall performance in school tends to be poorer than that of boys (Handa, 1999).

Improvement in the quality of school facilities is also associated with higher school enrolment. Improved school facilities were found to contribute significantly to faster enrolment growth in the case

of Ghana (World Bank, 2004). Handa (1999) found that improvements in the quality of classrooms are associated with a higher probability of female enrolment in Mozambique, while availability of toilet facilities in school was found to be an important consideration for parents when sending girls to school in Bangladesh (Oxaal, 1997). The literature also suggests that parents may prefer to send their daughters to girls-only rather than co-educational schools, because of fears that contact with boys and male teachers may lead to inappropriate sexual activity or physical abuse (Oxaal, 1997). Such decisions are, however, conditioned by other factors such as availability and cost.

Relevance of the curriculum is a related education quality variable that influences households' perception towards schooling. An OXFAM (1999) participatory study in Mozambique (cited in Handa, 1999) indicated that the more applicable subjects in the curriculum are to daily family life, such as language and accounting, the greater the probability of sending children to school.

2.3 Individual child characteristics

Child characteristics such as gender, age and birth order, employment opportunity status, nutrition status, and participation in preschool programmes have also been the focus of empirical investigation (Mooock and Leslie, 1985; Ray, 2003; World Bank, 2004). First, gender differences in households' decisions regarding child schooling are related to differences in preferences, returns or both (Alderman and King, 1998). The literature indicates the co-existence of higher returns to female schooling but low parental investment in girls' schooling. Studies from Ghana (Ray, 2003) and Nepal (Mooock and Leslie, 1985) indicate (controlling for other characteristics) lower chances of enrolment for girls than boys.

The age of the child was found to be a significant determinant of enrolment in Nepal (Mooock and Leslie, 1985), with older children having a higher probability of enrolment than young ones. However, according to De Vreyer (1993), cited in Bredie and Beeharry (1998), the birth order of the child matters. Households invest less in the education of their first-born than in that of their other children.

A study by Glewwe *et al.* (1999) in the Philippines indicates that the enrolment of malnourished children in primary school was delayed because they appear physically small at their minimum age of enrolment. Probability of school enrolment in Nepal was found to be related to the nutritional status of the child, although the results may vary depending on the type of nutritional status indicator used (Mooock and Leslie, 1985). For instance, haemoglobin level used as a measure of acute malnutrition was not a significant determinant of the probability of enrolment. However, the height-for-age and weight-for-height indicators were positive and had a significant influence on the probability of enrolment. They also found that the effect of chronic malnutrition, such as height-for-age, was stronger than the acute malnutrition indicators such as weight-for-height and haemoglobin levels.

2.4 Village and community factors

Among the village- or community-level factors, higher village literacy was found to have a significantly positive influence on child schooling in Pakistan, although the impact was differentiated by gender, age cohort and household type (Burney, 1995). Its effect was insignificant for boys from non-farm households in the age category of 17 years and above. Participation of children in school in general, and that of girls in particular, was significantly influenced by the level of urbanisation in Asia (Tilak,

1989). Studies in Ghana show more enrolment in urban compared to rural areas (World Bank, 2004). This could be due to a higher concentration of public and private schools in urban areas.

Socio-cultural factors such as attitudes towards women's education, religious and marriage institutions, race and ethnicity, and class systems all influence the educational participation of children, especially girls, through their effect on societal value systems and gender roles (Tilak, 1989). For instance, in societies where daughters have a greater role in supporting parents during old age, investment in girls' education is higher. In Ghana, school enrolment was much higher for children from Christian families than those from families practising indigenous religions (Canagarajah and Coulombe, 1998), while in Côte d'Ivoire school attendance was higher for children from Christian families than for those from Muslim families (Coulombe, 1998; Canagarajah and Nielsen, 1999). In countries where the legal age of marriage is lower, such as in some Asian countries, enrolment rates are lower for girls, mainly in post-primary school education (Tilak, 1989).

2.5 Policy and programme factors

At a macro level, investment in expansion of schools and improving the accessibility and coverage of the education system enhances enrolment (World Bank, 2004). Universal primary education policies in East Asian countries reduced significant disparities between males and females in education (Tilak, 1989). School enrolment subsidies in the form of food rations to households in rural Bangladesh reduced the incidence of child labour and led to a small improvement in school participation rates (Ravallion and Wodon, 2000), while in Pakistan school enrolment increased with a reduction in the cost of schooling (Hazarika and Bedi, 2003). In Asia, programmes that reduce parental schooling expenditure, such as textbook schemes, scholarships and supplementary feeding programmes, significantly increased female enrolment (Tilak, 1989).

2.6 Research lacunae

The literature on child schooling and labour identified the following as important factors shaping parental choices about children's schooling and/or labour: wealth; ownership of productive assets; parental occupations; individual child characteristics; gender composition of the household; and birth order. However, it does not provide conclusive evidence about relative impacts.

We learn from the literature review that ownership of productive assets such as land and livestock can affect child schooling in various ways. It can have a negative effect on schooling because larger asset holdings—especially livestock for which children are traditionally responsible—may compel households to forgo the income that child work brings. In the absence of a perfect labour market, land and livestock ownership can also have a negative effect on child schooling and child work. Owners of land and livestock who are unable to hire productive labour may have an incentive to engage their children instead of sending them to school. Similarly, if households do not have access to credit, or if they cannot use their assets to access credit to employ labour, they will often use their children to generate work. While the income effect (income contribution of assets) tends to increase child enrolment and reduce child work, the productivity effect (if access to assets raises the returns from child work) tends to reduce child enrolment and increase child work.

We found that the effect of economic shocks and parental occupation on child schooling and labour is not well explored in the literature, especially in terms of empirical evidence. Therefore, the key contributions of this paper are to determine the effects of asset ownership (e.g. land and livestock), economic shocks, parental educational levels and occupations, liquidity constraints and gender composition on child schooling and labour in Ethiopia. In addition, we consider the effects of social relations (such as social capital, both cognitive and structural), birth order and community factors as mediating variables.



3. Theoretical framework

This section presents the general framework followed in this paper, which is based on a modified version of Becker's (1981) household production model.⁵ We adopt this framework to analyse the determinants and the relative importance of factors affecting child schooling and/or work because the model is able to encompass both demand- and supply-side aspects of education/child work. That is, it facilitates an analysis of the income and substitution effects of supply-side factors of child work and demand-side factors for child education, as well as the net effects (income and productivity effects) of variables shaping child schooling and child work decisions. With this household model, it is also possible to include constraints (liquidity and labour market constraints) that households may face.

Becker's model states that a household may try to maximise utility, subject to income, time, production, cash, labour and other constraints. The utility of the household is composed of family members' leisure and composite consumption goods (i.e. food and non-food expenditures) as well as children's schooling. Utility is also composed of "utility shifters" such as social norms, tastes and altruistic motives. Goods can be purchased from the market and/or produced. The time used to produce composite consumption goods can be supplied by parent or child labour, while household income can be earned by selling goods produced in a household enterprise or by working as a wage labourer. Although roles differ widely across country contexts, both parents and children allocate their time between market work, farm and home production, domestic and caring work (including child rearing), education and leisure.

The central outcome of a household's constrained utility maximisation decision-making within the context of imperfect capital and labour markets is that children will go to school and/or work depending on the availability of household time for work and leisure, income, assets, labour market conditions, wages for adults and children, and preference shifters such as parents' education and social norms. Using this model as a framework, it is possible to estimate child labour and child schooling based on the main attributes a household possesses such as physical, social and human capital endowments, household composition, labour, capital market conditions and social norms.

The poverty hypothesis (Bonnet, 1993) states that an increase in parents' wages raises the supply of labour and increases household income. If child education is viewed as a normal good, child schooling will be increased and child labour reduced. If domestic and caring work is seen by society as mothers' responsibility, an increase in the wages of mothers/caregivers will increase their involvement in the market in order to generate more income, but resulting in less time available for domestic and caring work. Hence, children's working hours at home may increase and result in lower school enrolment. Conversely, an increase in children's wages or household work increases the opportunity costs of child education and reduces child schooling.

Caregivers' (predominantly mothers or female adults) market work may have both positive and negative impacts on human capital formation. On the one hand, caregivers may withdraw from market or farm work to increase the time available for childcare when the number of children in the family increases. On the other hand, this decline in family income may create an incentive to withdraw older children from school and allow them to work to substitute for the loss in income.

An increase in land holding or other family assets, such as livestock, in a situation of perfect land, credit and labour markets, is likely to raise income and hence increase the ability to afford child education and reduce the need for child work, i.e. an income (wealth) effect (Basu and Van, 1999). However, in the context of imperfect capital and labour markets, households may have to rely on internal assets, such as children's labour, instead of investing in longer-term human capital development.

When households face budget constraints or lack access to credit to educate their children, they are in effect being denied access to loans that could augment their future income (assuming that children's higher education will translate into higher earnings in the long-run). To relax budget constraints, parents may send their younger children to school while the older children go to work and earn an income (Cigno and Rosati, 2000). However, this pattern may be mediated by family size and birth order. Birdsall (1991) found that in some cases households with liquidity constraints invest in the education of their first born child (when family size is small) and of their last born (when family size is large).

In the case of economic shocks, households may follow a diversification strategy in their investment in children in order to reduce the family's exposure to shocks. This may result in parents sending their children to work so that they can earn an income immediately and build human capital through on-the-job training (Levison, 1991). Other research, however, has shown that a decline in economic activities may reduce current employment opportunities relative to the future, and thereby also lower opportunity costs of children's education. Consequently, parents may decide to increase their investment in education. If, however, parents who are constrained by lack of credit face economic shocks, this may have the opposite effect, i.e. they may withdraw children from school and involve them in low-paying jobs for survival (Jacoby and Skoufias, 1997).

4. Child labour and child schooling in Ethiopia: national-level data

To complement the Young Lives data, we draw on the Ethiopian Central Statistics Authority (CSA) report on child labour, which provides a nationally representative data set. This is particularly important as Young Lives data are not derived from a nationally representative sample, even though it is strong in terms of coverage of variables related to child work and schooling. The Young Lives Project over-sampled the poor⁶ and, because the research sites are located relatively close to main roads for logistical purposes, the Young Lives sample sites do not capture extremely remote areas. In this section, using the CSA child labour report of 2002, we analyse participation rates of children in schooling and work and the relationship between child work and wealth (proxied by household expenditure), and disaggregate by rural-urban and regional categories.

Enrolment in formal and informal schooling

According to the 2002 CSA Child Labour Survey report on child attendance in formal and informal schooling, about 33 per cent of children aged between 5 and 17 years attended formal school, while 5 per cent of children attended informal schools such as religious schools (Table 4.1). About 56 per cent of children had never attended school. The dropout rate during the survey year was 5 per cent, with boys dropping out more than girls. School attendance increased with age, with 36 per cent of children between 7 and 12 years old attending school. The main reasons given for not attending school, in order of importance, were:

- children are too young (31.9 per cent);
- children are needed to help with household chores (18.7 per cent);
- a school is not available for them (10.4 per cent);
- children are needed to generate household income (9.5 per cent);
- parents cannot afford schooling (8.7 per cent); and
- families do not permit schooling (7.5 per cent).

In Addis Ababa, however, the main reason for children not attending school was that their families could not afford it. This seems reasonable given that residents in Addis Ababa have to pay higher school fees and transport costs to send their children to school, whereas in other sites children typically walk to school. Lack of schools is not the main reason in Amhara, Tigray, SNNP, Oromia and Addis Ababa Regions where the Young Lives sample is located, but it is the main problem in regions such as Afar and Somali.

Table 4.1: Status of (formal and informal) school attendance of children aged 5-17 years in 2001

Category	% Attending formal school	% Attending informal school	% Dropouts
Urban	74.3	5.8	0.1
Rural	27.2	4.5	0.2
Region			
Tigray	35.7	4.9	0.4
Afar	27.8	6.1	0.0
Amhara	31.3	3.7	0.3
Oromia	32.4	5.6	0.2
Somali	25.0	7.9	0.1
Benshangul-Gumuz	44.1	1.3	0.4
SNNP	30.1	3.5	0.2
Gambella	56.3	1.5	0.5
Harari	60.4	8.5	0.1
Addis Ababa	79.3	8.4	0.1
Dire Dawa	53.0	16.5	0.4
Age			
5-6	6.0	5.7	0.1
7-12	35.8	5.0	0.3
13-14	49.1	3.6	0.2
15-17	42.8	3.6	0.3
Sex			
Male	36.9	5.9	0.3
Female	29.9	3.5	0.2
Total	33.4	4.7	0.2

Source: CSA (2002).

Children's participation in domestic and productive activities

The national Child Labour Survey provides data on the distribution of child work between rural and urban areas and among regions in the country (Table 4.2). About 52 per cent 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 (e.g. cattle herding, weeding, harvesting, ploughing, petty trading, wage work). The participation rate in productive activities was 62 per cent for boys and 42 per cent for girls. For domestic activities, this figure was 22 per cent for boys and 44 per cent for girls. In rural areas, children were more frequently engaged in productive activities than in domestic activities, whereas in urban areas the opposite was true. Survey also reported that child work was higher in four of the regions where our sample is located (Amhara, Oromia, SNNP, Tigray) than in the other regions. Child work was very low in Addis Ababa (where most of our urban sample children are located).

Table 4.2: Distribution of working status of children aged 5-17 years in 2001

Category	Housekeeping activity only	Productive activity only	Housekeeping or productive activities
Both sexes (male + female)	33.3	7.4	44.7
Male	22.8	11.7	50.3
Female	44.3	2.9	39.0
Urban (male + female)	59.1	4.5	14.3
Urban male	53.0	4.0	15.8
Urban female	64.5	4.9	12.9
Rural (male + female)	29.4	7.8	49.4
Rural male	18.6	12.8	55.1
Rural female	40.9	2.5	43.4
Age			
5-9	35.3	6.0	32.9
10-14	32.9	7.6	54.8
15-17	28.6	10.7	56.8
Tigray	33.5	5.7	36.3
Afar	30.0	20.3	35.7
Amhara	26.2	12.1	45.3
Oromia	34.7	6.9	46.4
Somali	42.9	8.9	30.1
Benshangul-Gumuz	41.5	2.9	39.0
SNNP	34.6	3.2	51.0
Gambella	53.8	4.4	23.2
Harari	58.9	5.3	16.9
Addis Ababa	56.7	6.0	6.5
Dire Dawa	51.8	7.3	19.2

Source: CSA (2002).

The average number of working hours of children involved in productive activities was 33 per week. One-third of children involved in productive activities worked for more than 40 hours per week. The intensity of work in productive activities was higher for boys (36 hours) than girls (33 hours) in rural areas, whereas in urban areas it was higher for girls (31 hours) than boys (28 hours). The survey also revealed that the highest proportion of children (35.6 per cent) involved in domestic activities worked about 3-4 hours per day.

Of children working in productive activities, about 88 per cent were involved in activities such as street vending, shoe shining, messenger services, agriculture and related labour activities, and as labourers in mining, construction, manufacturing and transport. This figure was 89 per cent for rural working children and 52 per cent for their urban counterparts. Survey also indicates that the participation rate of 5-9 year-old children in 'elementary occupations' (e.g. subsistence farming, water and firewood collection) was higher than that of 10-14 and 15-17 year-old children, indicating that younger children were more likely to participate in low-paying activities. The participation rate of working girls in elementary occupations was slightly lower than that of working boys in both rural and urban areas. Occupation groups of services and shop and market sales accounted for about 26 per cent of urban working children, with girls (28 per cent) participating more than boys (23 per cent).

The survey also revealed that substantial numbers of children who attended school were also involved in productive and domestic activities. Of the children attending school, only 3.9 per cent were not involved in any household or productive activities, while 17.8 per cent were involved in productive activities and 16.4 per cent in domestic activities.

In both rural and urban areas, the majority of children (39 per cent) started working at the age of five. The proportion of children who started working at the age of five was higher for rural (41 per cent) than urban children (22 per cent) because the former assisted parents in farm activities and livestock herding from an earlier age.

Effects of child labour on schooling

The survey revealed that schooling was highly affected by children's involvement in productive and household activities. Children might have been late or absent from class due to their involvement in work activities and may have spent less time studying and doing homework. Among children who were attending school and working, about 39 per cent responded that their involvement in work had affected their schooling. This figure was 29 per cent for urban children and 42 per cent for rural children, but there was no significant difference between male and female children in this regard. Given the marked gender division of girls being engaged in housekeeping activities and boys engaged in productive activities, we can assume that the negative effect on schooling was similar for both productive and housekeeping activities.

Relationship between child labour and wealth

When we analysed the participation rate of children in economic activity by wealth category (proxied by expenditure group) for all children and for those who attended school, participation in economic activity increased with increasing expenditure, reached a maximum at the 100-300 Birr expenditure level and declined thereafter (Figure 2.1). For those children not attending school, there was a positive relationship between wealth and child labour participation. The results showed a remarkable trend when this relationship was disaggregated by rural and urban areas. For urban children attending school, participation rates in economic activity declined as the level of household wealth increased (Figure 2.3). For those who did not attend school, participation rates declined up to a certain level of wealth (600-1000 Birr per month) and then started to rise.⁷ This result for urban areas indicates that child labour was more closely related to income poverty. However, in rural areas, there was a positive relationship between the level of expenditure (wealth) and children's participation rates in economic activity (child labour) up to a certain level of wealth. Figure 2.1 indicates that for both those who were attending school and those who were not, the participation rate in work increased as the level of household expenditure or wealth increased. This may be a consequence of the "wealth paradox effect" which explains that participation of children in economic activity can increase with wealth in rural areas when it is related to land ownership, since failures in credit and labour markets mean that land owners cannot employ external labourers and thus use their children to work the land instead – as observed in Pakistan and Ghana (Bhalotra and Heady, 2003).

7 By way of comparison, 1000 Birr is higher than the average monthly civil servant salary.

Figure 1. Relationship between child labour and expenditure

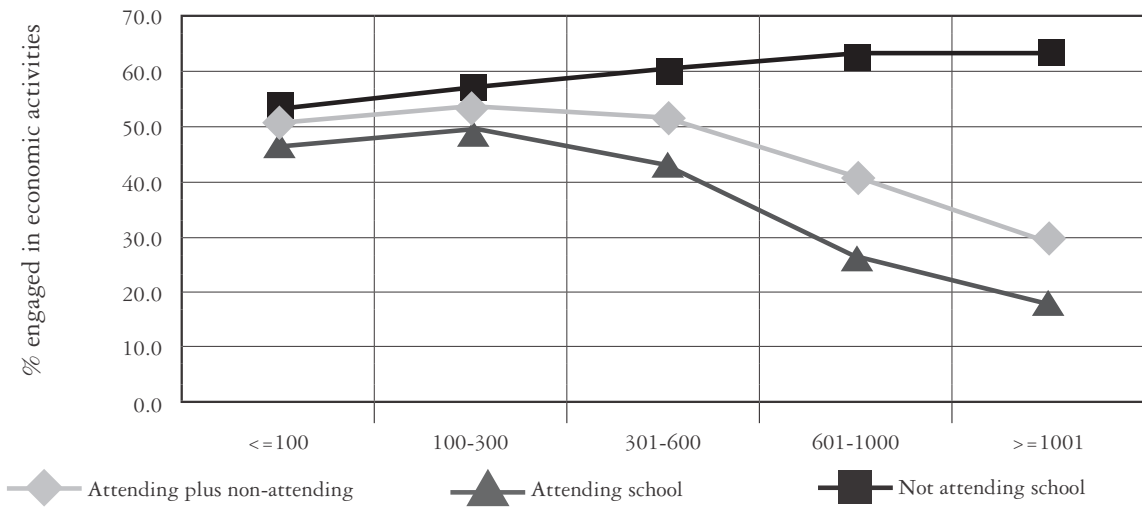


Figure 2. Relationship between child labour

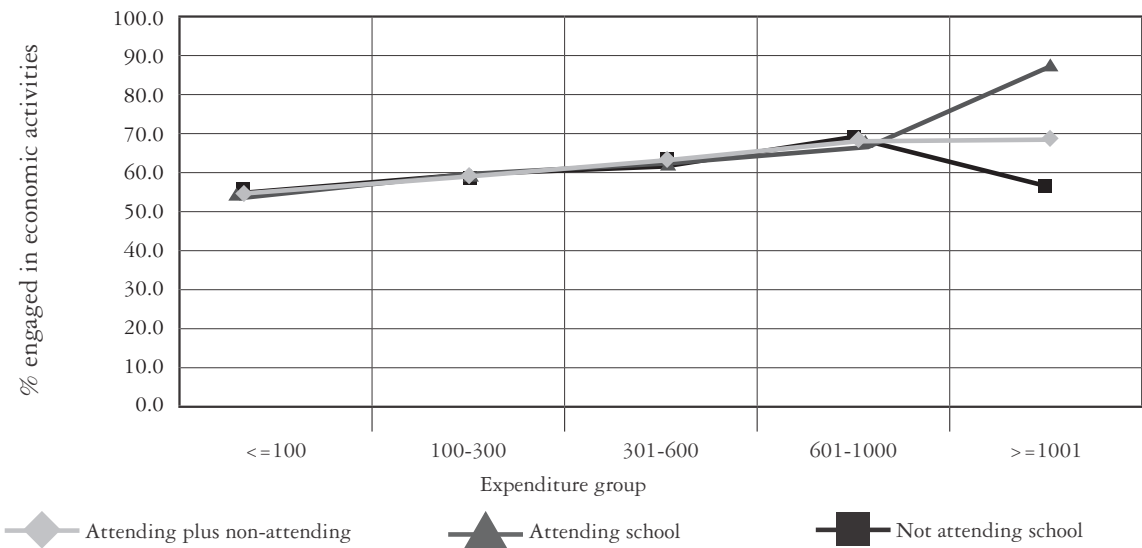
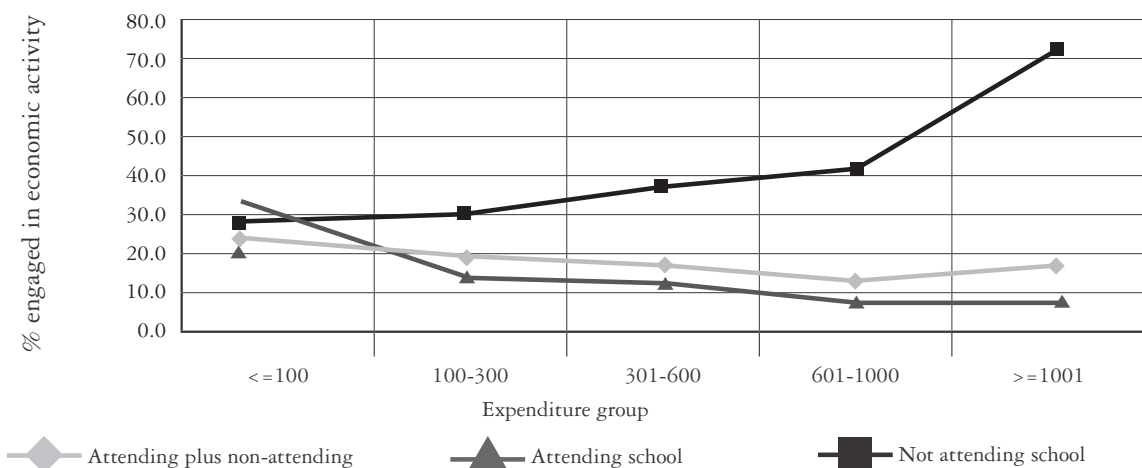


Figure 3. Relationship between child labour and wealth in urban Ethiopia



5. Young Lives data and methods of analysis

5.1 Quantitative methods

We used Young Lives survey data of Ethiopia which covers 1999 households which had at least one child aged 6 to 17 months in 2002 (the sample children). From the additional household data collected, information was also obtained from a total of 3115 children aged 7 to 17 years. The data was collected from 20 sentinel sites in 5 regions, namely Addis Ababa, Oromia, Tigray, Amhara and SNNP. These regions were selected because they contain the majority of the Ethiopian population (96 per cent). The sentinel sites were distributed over the five regions in such a way that Amhara, Oromia and Tigray comprised 20 per cent each of the sample, while SNNP comprised 25 per cent and Addis Ababa 15 per cent. Forty per cent of the children were from urban areas and the remaining 60 per cent from rural areas. Within regions, sentinel sites targeted poor areas based on the government's food insecurity designation. Three out of four sentinel sites in each region are in high food deficit *woredas* (districts) and one is a lower food deficit *woreda*. Consequently, the sentinel sites over-sampled the poor, but included a degree of variation for comparative purposes.

For this paper, we adopt a definition of child labour based on a combination of the ILO definition and a child rights perspective derived from the United Nations Convention on the Rights of the Child (UNCRC). ILO Conventions 138 and 182 categorise child labour as engagement by children under 15 years (except in the case of hazardous work where the age limit is 18 years) in work activities outside the house for at least two hours per day or fourteen hours per week and double the number of hours for domestic activities. However, we follow the UNCRC definition which identifies child labourers as all persons under 18 years of age in harmful occupations or work activities in the labour market or their own household which may interfere with their development. By explicitly considering both paid and unpaid, domestic work and work outside the household, we avoid the gender bias of the ILO definition which arbitrarily assigns less weight to domestic-based work.

Both descriptive and multivariate analyses were used to explore the correlation between child schooling and labour on the one hand, and variables including household composition, poverty, credit markets, social capital and urban-rural location, on the other. Data were initially captured using a Microsoft Access database and analyses were carried out using Stata version 8 and SPSS 12.0. The descriptive method of analysis includes cross-tabulations of children's main activities with different variables that are expected to influence child schooling and labour. We also conducted univariate analyses using Pearson's chi-squared test (χ^2) to test the null hypothesis that the pairs of variables are independent of each other.

In order to determine the factors that affect child schooling and labour, we conducted multivariate regression analyses using a multinomial logit model. The four main activities children in the surveyed households were classified into are: schooling only, work only, schooling and work, and minimal work. These choices are mutually exclusive. As discussed above, in the quantitative analysis we define child labour as children 7 to 17 years old that are involved in cash, in kind or non-wage economic activities. A child is considered to be "working only" if s/he is involved in any type of work for at least 14 hours per week. In this paper, a child is considered to be in school if s/he is either currently

enrolled in school or has at least attended some years of schooling.⁸ A child is involved in “schooling only” if s/he attends school and spends her/his out-of-school time mainly studying. A child who works after school, and thereby uses his/her leisure and study time on work, is classified as “working and schooling”. Finally, if a child is neither involved in any work nor enrolled in school, s/he is considered to be engaged in “minimal work”.

Therefore, the dependent variable we used in our analyses of the determinants of child schooling and child labour is categorised into one of those four outcomes: schooling only, work only, work and schooling, and minimal work. The definitions and summary of the variables that are included in our study of child schooling and labour are presented in the Appendix (Table A1.1 and Table A1.2).

5.2 Qualitative methods

Qualitative research was carried out in five of the twenty Young Lives sites in February and March 2005. One site from each of the five regions represented in the Young Lives sample was selected, four of which were rural and one urban. A combination of focus group discussions (with Young Lives parents and children), semi-structured in-depth interviews (with children, parents and teachers) and interviews with key informants (school directors and community development workers) were carried out in each site over a four-week period. Approximately thirty people were interviewed in each site. Analyses were based on:

- a) a debriefing workshop where the five research assistants and senior researchers presented their findings and discussed similarities and differences across the sites;
- b) the transcripts of taped interviews (translated into both English and Amharic);
- c) extensive field notes and field reports prepared by the research assistants.

The analyses sought to identify both common patterns and differences across all the sites. Particular attention was also paid to the gender dynamics at play at the household, school and community levels.

6. Quantitative and qualitative analysis and discussion

6.1 Children's main activities

This sub-section presents the results of the descriptive analyses of our child schooling and labour study. Table 6.1 indicates children's main activities in the five regions where our sample children are located. As can be seen, about 53 per cent of the sample children attended school, with the highest school attendance registered in Addis Ababa (about 84 per cent) and the lowest in Amhara region (about 32 per cent). About 9 per cent of the sampled children were engaged in work only. At least 12 per cent of the children in our sample spent their time combining work with schooling and about one-quarter of children in the sample were involved in minimal work. The table also indicated that, of the total sample children who were engaged in work only, the largest proportion was from Amhara (about 30 per cent) followed by Oromia (about 11 per cent). The highest number of sampled children involved in minimal work was reported in SNNP (about 32 per cent) and Tigray (about 31 per cent) (see Table 6.1).

Table 6.1: Children's main activity by region (in %) from Young Lives households who had at least one one-year-old child in 2002

Main activity	Regions					
	Addis Ababa	Amhara	Oromia	SNNP	Tigray	Total
Schooling only	84.26	32.43	49.36	48.56	61.95	52.94
Work and schooling	1.27	30.37	10.89	13.46	2.77	12.52
Work only	1.02	23.37	11.07	6.25	4.37	9.51
Minimal work	13.45	13.83	28.68	31.73	30.9	25.03

Table 6.2 presents differences between rural and urban children's activities in each region. Approximately 79 per cent of urban and 37 per cent of rural children were in school without being involved in any work activities. The proportion of children who combined school with work was larger in rural areas (about 18 per cent) than in urban areas (4 per cent). Similarly, the number of children engaged in work only was higher in rural areas than in urban areas. About 31 per cent of children residing in rural areas and 15 per cent of children in urban areas were involved in minimal work. Similarly, it is possible to see, for example, that in Amhara at least 60 per cent of rural children combined school with work, the highest among the five Young Lives regions. More broadly, only 31 per cent of rural children attended school as their main activity. In all regions, no urban children had "work only" as their main activity. Moreover, as expected, in all regions larger proportions of urban children had "schooling only" as their main activity.

Table 6.2: Child's main activity (in %)

Main activity	Rural	Urban	Total
Schooling only	37.23	78.79	52.94
Work and schooling	17.47	4.36	12.52
Work only	14.51	1.28	9.51
Minimal work	30.79	15.57	25.03

Table 6.2a: Comparison of children who attend school or work (in %)

Region	% of children involved in work		% attending school	
	YL	CSA	YL	CSA
Addis Ababa	1.27	6.5	84.26	79.3
Amhara	30.37	45.3	32.43	31.3
Oromia	11.07	46.4	49.36	32.4
SNNP	6.25	51.0	48.56	30.1
Tigray	4.37	36.3	61.95	35.7

When we use Young Lives data to compare the percentage of children participating in the workforce, Amhara had the highest child participation rate followed by Oromia and SNNP. However, CSA data showed highest child participation in SNNP followed by Oromia and Amhara. For children attending school, CSA figures were lower for all regions including Addis Ababa indicating that school enrolment was higher in the Young Lives sample data than the CSA data. The difference may partly be explained by the fact that, while Young Lives over-samples the poor, the research sites are closer to main roads, whereas the CSA data include very remote areas.

The hours worked per day and the average years of schooling for different categories of school/work participation is provided in Table 6.2b. We did not find any significant difference in hours worked between children who were only working and those who combined school with work. The difference in educational performance between these two groups is related to the lack of time that children had to spend on studying and homework after going to school and working an average of 5.8 hours per day. We also found no significant difference in the average years of schooling between those who had only attended school and those who had combined school with work. Furthermore, the dropout rates seem very high. The percentage of children who had been in school at any time (including those combining school with work) was 95.2 per cent, but only 70 per cent of them were still in school, while the remaining 25 per cent had dropped out.

Table 6.2b: Hours worked and average years of schooling

	School only	School & work	Work only
Hours per day working		5.8	6
Years of schooling	1.91	1.86	
% still attending school	69.8	60.2	

6.2 Children's dropout rates

One of the reasons that child labour raises concerns is that where it undermines children's development it is a violation of children's rights and further, can limit children's capacity to take advantage of education in order to increase their employment possibilities in the future, thus raising the risk of intergenerational poverty transfers. Of the 3115 children between 7 and 17 years of age, 35 per cent had dropped out of school (Table 6.2c). The dropout rate was highest just after completing first grade or in second grade, usually at the age of eight years, implying that many dropouts occur before children are able to read and write properly. The dropout rate was substantially higher (81 per cent) for rural than urban (19 per cent) children. It was slightly higher for girls (36 per cent) than for boys (34

per cent). The dropout rates were higher for children who combined school with work than for those who only studied, indicating that child work is partly responsible (if not the main reason) for dropping out. When we compare male-headed households and female-headed households, the dropout rate is significantly higher for male-headed households. This is, at least partly due to the fact that the rate of child work is higher in male-headed than female-headed households. This suggests that once female heads decide to send their children to school, they are more likely to remain in school.

Table 6.2c: Dropout rate for different groups of YL children

Group	Dropout rate
Rural	81.1
Urban	18.9
Female	36.0
Male	34.1
School only	30.21
School and work	39.84
Female-headed HH	26.4
Male-headed HH	37.1
Years of schooling	
Zero	11.88
One	73.03
Two	10.88
Three	0.91
Four	0.91
Five	0.27
Six	0.09
Seven	0.09
Eight	0.64
Nine	1.28
Total	35.1

Table 6.3 shows children's main activity by sex and location. We classified our sample children into two age groups: 7 to 11 (primary school children/younger) and 12 to 17 (secondary school children/older). This is mainly because in Ethiopia it is common for children's work to differ between age groups, due to evolving physical and psychological capacities.⁹ Accordingly, at least 52 per cent of the younger children and 54 per cent of the older group only attended school. Similarly, a higher proportion of the older age category (17 per cent) had "work and schooling" as their main activity compared to the younger category (nearly 9 per cent). Additionally, a larger proportion of the younger group (31 per cent) were engaged in "minimal work" compared to the older children (17 per cent).

In relation to gender differences, the results indicated that a larger share of girls than boys had attending school as their main activity, but a larger share of boys in the two age groups had combined work and school.

9 Cockburn (2001) similarly classified his sample into two categories: 6-10 and 11-15.

Table 6.3: Children's main activity by sex and location

	Between 7 and 11			Between 12 and 17			All children			Between 7 and 11		Between 12 and 17	
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Rural	Urban	Rural	Urban
School only	49.70	54.72	52.31	52.75	54.65	53.74	51.5	54.69	52.94	35.82	84.21	39.29	73.28
Work & school	10.04	7.66	8.80	22.02	12.82	17.23	15.33	9.93	12.52	12.47	1.70	24.74	17.23
Work only	10.28	5.33	7.70	11.01	12.54	11.80	10.60	8.50	9.51	11.68	0.00	18.62	11.80
Minimal work	29.99	32.30	31.19	14.22	20.00	17.23	23.02	26.88	25.03	40.04	14.09	17.35	17.23
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Moreover, our findings on the use of children's time between these two age groups in rural and urban areas indicate that about 36 per cent of rural and 84 per cent of urban younger children had "schooling only" as their main activity. The corresponding percentages for their counterparts are 39 per cent and 73 per cent. A larger share of younger children in rural areas (about 13 per cent) attended school and work as their main activity compared to their counterparts in urban areas (about 2 per cent). A similar trend was observed for older children in rural and urban areas. The number of children involved in minimal work was also larger in rural areas (about 40 per cent) compared to urban children (about 14 per cent). However, the proportion of children engaged in minimal work in rural and urban areas is almost the same for older children (see Table 6.3).

The literature suggests that a household's poverty status or income and asset ownership affects the use of children's time in different ways according to the context. Therefore, exploring the relationship between a child's main activities and household poverty status is highly policy relevant when considering how to reduce childhood poverty. Accordingly, the study results indicate that children who had "schooling only" as their main activity were from wealthier households, and this is true for both sexes. Children from households with more livestock, or the greatest land and asset base, combined schooling with work (primarily cattle herding and farming) as their main activity. Rural children who did minimal work were children of households with less livestock and land.¹⁰ Similarly, in urban areas school-going children came from wealthier households, while children from households that owned more livestock combined schooling with work as their main activity. These results are presented in Tables 6.4 and 6.5.

Table 6.4: Children's main activity by sex and poverty/wealth status

Main activity	Boys				Girls				All children			
	Wealth	Land	Asset base	Livestock	Wealth	Land	Asset base	Livestock	Wealth	Land	Asset base	Livestock
School only	0.1965	0.605	2.71	1.43	0.21	0.55	2.64	1.36	0.2016	0.573	2.67	1.39
School & work	0.06	1.24	3.25	2.14	0.08	1.32	3.08	2.04	0.07	1.28	3.17	2.09
Work only	0.04	0.99	3.00	1.69	0.04	1.38	3.13	2.00	0.05	1.11	3.02	1.77
Minimal work	0.11	1.17	3.30	1.72	0.12	0.89	2.98	1.38	0.16	0.57	2.61	1.17
Total	0.16	0.78	2.86	1.61	0.18	0.70	2.73	1.49	0.17	0.7	2.75	1.48

10 Cockburn (2001) also found that working children were from households with the highest land and livestock ownership, and inactive children were from households with low levels of asset ownership.

Table 6.5: Children’s main activity by location and poverty/wealth status

Main activity	Urban children				Rural children			
	Wealth	Land	Asset base	Livestock	Wealth	Land	Asset base	Livestock
School only	0.34	0.09	1.91	0.673	0.08	0.99	3.34	2.03
School & work	0.29	0.14	2.31	1.074	0.04	1.41	3.28	2.22
Work only	0.6	0.02	2	0	0.04	1.14	3.05	1.81
Minimal work	0.32	0.04	1.75	0.5	0.07	0.87	3.09	1.55
Total	0.33	0.09	1.90	0.66	0.07	1.08	3.27	1.98

6.3 Univariate analyses of factors affecting child schooling and labour

This sub-section presents the results of cross-tabulations of children’s time use against variables that are expected to be correlated with children’s time use. Table 6.6 shows the summary of the results.

The following variables all have a significant positive relationship with child labour – that is, they are likely to increase the involvement of children in labour activities relative to education: sex of the child; sex of the household head; marital status of the household head; social support; whether the household is involved in agriculture; land ownership; number of livestock owned; the household asset base; serious debt; the mean distance to school; and proxy variables for mother’s involvement in non-farm and agricultural work.

The following variables have a negative and statistically significant relationship with a child’s use of time – that is, these variables are likely to increase a child’s involvement in schooling relative to labour activities: location; wealth; cognitive social capital; absolute structural social capital; citizenship; households involved in off-farm wage employment; mother’s involvement in non-farm wage work; father’s years of schooling; and mean schooling of male and female adults older than 17 years. However, a child’s relationship with the household head, mother’s years of schooling and the sex of the household head have no correlation with a child’s main types of activity. At this juncture, we do not discuss the relationship of the variables in detail as the univariate analysis does not consider the effects of other variables, but simply gives an indication as to which variables to consider for the multivariate analysis.

Table 6.6: Pearson's chi-square test for the determinants of a child's main activity

Variable	Sign	Pearson chi2	Degree of freedom	P-value
Location (1 if urban; 0 if rural)	Negative	307.67	3	0.000***
Wealth index	Negative	267.26	6	0.000***
Father's years of schooling	Negative	327.23	36	0.000***
Mother's years of schooling	Positive	3.43	6	0.753
Sex of child (1 if male; 0 if female)	Positive	23.81	3	0.000***
Sex of head (1=male; 0=female)	Positive	5.01	3	0.171
Cognitive social capital	Negative	59.73	12	0.000***
Absolute structural social capital	Negative	84.5	21	0.000***
Social support	Positive	207.12	36	0.000***
Citizenship	Negative	30.72	3	0.000***
Dummy for household head divorce	Positive	17.88	3	0.000***
Region		622.95	12	0.000***
Ownership of land	Positive	224.76	3	0.000***
Total number of livestock owned	Positive	209.18	12	0.000***
Dummy for household in serious debt	Positive	141.47	3	0.000***
Household asset base index	Positive	189.07	9	0.000***
Child's relation to head	Negative	4.999	3	0.172
Mean distance to school	Positive	770.56	18	0.000***
Mean schooling of male adult over the age of 17	Negative	497.40	132	0.000***
Mean schooling of female adult over the age of 17	Negative	647.9732	126	0.000***

*** significant at least at 1%; * significant at least at 10%

6.4 Triangulating multivariate analyses results and qualitative research findings

The results of the multivariate analyses of the determinants of child schooling and labour are presented in Table 6.7. As mentioned previously, the child's decisions about her/his main activity are discrete choices, namely schooling only, schooling and work, work only and minimal work. Our multinomial logit model takes a categorical dependent variable grouped into these four main types of children's time use and different explanatory variables including household composition, child characteristics, productive asset ownership, wealth, debt and social capital.

We estimated a number of multinomial logit models. First, we ran the regression for the total sample in which we estimated the model by including the sex of the child and the location where the child is living (rural/urban). We also ran six other separate regressions for boys and girls, for rural and urban children, and for male- and female-headed households. The estimation results for the total sample are reported in the main body of the report, and the results for the other six regressions in Appendix A2.

We conducted different tests to determine whether our results are robust and sensible. As we are dealing with cross-sectional data, we made a robust estimation to handle problems of heteroscedasticity. Moreover, we calculated a condition index to check for multicollinearity in the regression, which was 28.43, indicating that multicollinearity was not a problem (Belsley, Kuh and Welsh, 1980). We also tested whether the different outcomes can be combined (Hausman test). In all tests, we found robust and sensible results. For all the regressions, we estimated the odds ratio, marginal effect and predicted value. However, the following discussion is based on results from the odds ratio. The reported figures

in the tables are incidental coefficients. We did not include the marginal effect and predicted values in this report. Therefore, the regression results for the total sample are presented in Table 6.7 for the odds ratio.

In our total sample estimation, we included location and region variables to see how child labour and schooling differ between rural and urban areas as well as between the five major regions where our sample children are located. The results indicated that urban children were more likely to attend school relative to working, or combined schooling with work, compared to their rural counterparts. In addition, the probability of a child doing minimal work decreased for children residing in urban compared to rural areas. This indicates that child schooling and labour have different characteristics in rural and urban areas, suggesting the need to have different policies to address child poverty in the different areas. Regional dummies revealed that children in Amhara and Oromia were more likely to combine work with schooling compared to the base category (schooling only). However, although statistically insignificant in Oromia, children in both regions were less likely to be engaged in work only and minimal work relative to attending school. Children in SNNP were less likely to be involved in work only compared to schooling only but with a greater chance of combining work and schooling and engaged in minimal work. In Tigray, children were less likely to work and combine work and schooling compared to the reference group although there is a high probability for minimal work. Such regional variations in children's time utilization may call for region-specific policy interventions to tackle childhood poverty, but would first require more in-depth analysis.

Table 6.7: Determinants of child schooling and labour (all samples) (A multinomial logit model using schooling only as a base category for comparison)

Name of variables	Schooling & work	Work only	Minimal work
Age of a child	0.178*** (4.82)	0.276*** (6.99)	0.005 (0.20)
Dummy for a male child	0.273* (1.77)	0.336** (1.99)	-0.174* (1.74)
Dummy for male-headed HH	-0.050 (0.20)	0.093 (0.32)	0.242 (1.45)
Mother's years of schooling	-0.085** (2.09)	0.031 (0.61)	0.032 (1.40)
Father's years of schooling	-0.001 (0.02)	-0.122*** (2.74)	-0.030 (1.61)
Number of male children under 7 years old	-0.156 (1.15)	-0.246 (1.64)	-0.055 (0.66)
Number of female children under 7 years old	0.151 (1.16)	0.143 (1.00)	-0.089 (1.03)
Number of male HH members >17 years old	-0.419*** (2.99)	-0.067 (0.49)	-0.053 (0.69)
Number of female HH members >17 years old	0.142 (1.09)	-0.290* (1.74)	-0.192** (2.13)
Number of elder children between 7&17	-0.290*** (2.92)	-0.178* (1.65)	0.196*** (3.91)
Number of younger children between 7&17	-0.052 (0.57)	-0.342*** (3.35)	-0.335*** (4.66)
Dummy for urban residence	-0.657** (2.07)	-1.045** (2.41)	-0.459** (2.46)
Dummy for Amhara region	1.769*** (3.34)	-0.180 (0.27)	-0.662** (2.53)
Dummy for Oromia region	0.517 (0.94)	-0.588 (0.85)	-0.309 (1.29)
Dummy for SNNP region	0.339 (0.63)	-0.995 (1.39)	0.196 (0.94)
Dummy for Tigray region	-1.194** (2.01)	-1.795** (2.52)	0.162 (0.63)
Wealth index constructed from consumer's durables	0.111 (0.06)	-6.687*** (2.71)	-7.499*** (6.22)
Wealth index squared	-1.169 (0.33)	5.285 (0.96)	7.200*** (3.75)
Hectares of land owned	0.398*** (3.49)	0.264** (2.24)	0.086 (0.93)
Mean distance (km) to public and private primary schools	0.136*** (3.80)	0.243*** (5.99)	-0.068** (2.31)
Total number of livestock owned	0.162** (2.13)	0.176** (2.13)	0.051 (1.06)
Number of events that decrease the HH welfare	0.116*** (2.69)	0.111** (2.33)	0.023 (0.76)
Cognitive social capital	0.042	0.075	0.042

Continued overleaf

Table 6.7 Continued

Name of variables	Schooling & work	Work only	Minimal work
	(0.43)	(0.68)	(0.68)
Absolute structural social capital	-0.100	-0.370***	-0.063
	(1.10)	(3.63)	(1.19)
Number of organisations from which one gets social support	0.121***	0.208***	0.046
	(2.72)	(4.19)	(1.54)
Social capital: citizenship	-0.180*	-0.017	-0.098
	(1.66)	(0.14)	(1.43)
Dummy for the HH head being divorced	0.042	0.785**	-0.029
	(0.11)	(2.07)	(0.11)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-30.124	0.827	-1.625
	(0.00)	(0.70)	(1.44)
Dummy for a HH being in serious debt	0.526***	0.473***	0.239**
	(3.27)	(2.68)	(2.18)
Constant	-5.199***	-4.725***	0.517
	(6.37)	(4.72)	(1.16)
Observations	2845	2845	2845
Pseudo R ²	0.2578		

Absolute value of z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

6.4.1 Children's characteristics

Employing a dummy for the **sex of the child**, our quantitative results found that boys were more likely than girls to combine work and schooling or to be engaged in work only, but were less likely to be involved in minimal work compared to their female counterparts (see Table 6.7). Our qualitative findings, however, clearly revealed that when both domestic and non-paid work are factored in, then girls were also actively involved in labour activities. As Table 6.8 shows, there is a division in the types of activities in which girls and boys are predominantly engaged, but in the absence of male or female siblings, children often substituted for the other sex.

Table 6.8: Gender Differences in Child Work Activities

Activity	Gender differences
1. On-farm activities	
Ploughing / digging	Commonly boys
Weeding	Both boys and girls, especially older children (12+ years)
Harvesting	Both boys and girls, but more typically boys
Planting / transplanting	Both boys and girls
Irrigation	Both boys and girls
Herding, 'ojo' (tending livestock and pulling pack animals)	Boys and girls, but role changes as age increases, with girls taking on more domestic work
Fodder collection, especially in tigray	Boys
2. Off-farm activities	
Terracing	Both boys and girls
3. Non-farm activities	
Construction (e.g. Road, tree planting)	Commonly boys
<ul style="list-style-type: none"> • Mini-bus conductors, household maids, construction workers, • Waiters, kitchen hands in restaurants • Apprentices in garages/ workshops • Brokering, • Shoe shining, • Working as a porter 	<ul style="list-style-type: none"> • Mini-bus conductors are commonly boys, housemaids commonly girls; • Both girls and boys engage in work at construction sites; in catering houses; cleaning cups and dishes in restaurants; shoe shining • Only boys work as apprentices in garages, but girls also serve in other vocational apprenticeships; • Boys do more brokering, working as porters and gofers
4. Non-farm/ market-related	
Loading goods on pack animals for market	Both boys and girls, but commonly boys
Street vending (roasted grain or kollo, chewing gum, cigarettes, etc.) Selling injera and ambasha	Both sexes are involved in street vending, but commonly girls
Crushing stones for sale	Only boys
Collecting rock salt	Only boys
Collecting firewood/ dry cow dung to sell	Both boys and girls, but more commonly girls
Sex-related work	Both boys and girls, but more often girls
5. Domestic work	
Collecting firewood for domestic use	Both boys and girls
House cleaning and plastering	Only girls
Fetching water	Both boys and girls, but girls as boys grow older
Cleaning	Both boys and girls
Cooking food	Only girls
Caring for siblings / childcare	Both boys and girls, but more often girls

The **age** of the child also had a positive and significant impact on child schooling and work, indicating that older children were more likely to combine work with schooling and were involved in work only relative to the reference group (schooling only). Similarly, the probability of a child being engaged in minimal work increased with age although it is statistically insignificant. These results were also consistent with our qualitative findings where younger children often noted that older siblings were shouldering more of the family work burden. For example, a grade 3 student from Wurib noted: *“My brother...also works on farms because my father has died. He goes to school only three days a week. He encourages me to study hard”* (2005). On the other hand, we found in all five qualitative research sites that children started work as young as four or five years of age both because household survival in a non-technological, largely rural society, is highly labour-intensive and includes children’s roles as normal.

In the village no one eats without working. There is always something to be done by children as early as 3 years of age and sometimes even at the age of 2. If a boy is above 3, tending sheep and cattle is his job. Girls of the same age help in household chores such as making coffee and gathering firewood (2005).

6.4.2 Family characteristics

Our quantitative results indicate that the presence of older children aged 7 to 17 years decreased the probability of a child combining work with school, being engaged in work only and minimal work relative to schooling only, suggesting a **labour substitution** or **birth order effect**. We estimated the model by including the number of male and female children between 7 and 17 years only. Our results showed that the presence of children within this age range reduced the likelihood that boys would have to combine work and school and that girls would be involved in work only. The presence of younger children (younger than 7) in the household had no impact on the way older siblings allocated their time.

The birth order effect was further supported by our qualitative findings. For example, one child from Wurib noted: *“My two brothers help me in my study. Both are government employees”*. Similarly, a focus group participant from the same site noted: *“Girls become absent from school and will be at home to cook for other children, substituting for their mother when she goes somewhere for funerals, mourning, etc.”* (2005).

The burden on siblings seemed particularly difficult in Kirkos where HIV/AIDS appeared to be more prevalent (or at least more openly discussed) than in other sites. There is a growing number of AIDS orphans who are shouldering family responsibilities. However, one important exception to the trend of younger child advantage was noted in the case of animal herding. In Semha and Bilbala, for instance, older siblings were able to attend school when the younger children become old enough to take over the herding.

Separate regressions for **female- and male-headed households** were run to ascertain if boys and girls have different patterns of involvement in schooling and work depending on the sex of the household head. We found that in female-headed households there were greater demands on boys’ labour at the expense of their schooling and hence male children were more often compelled to combine work and schooling relative to schooling only. Boys in male-headed households were more likely to combine

work with schooling and participated in work only relative to attending school only, but were less likely to be involved in minimal work. The qualitative research suggested that this was mainly because boys were required to take on agriculture-related work, especially ploughing, which is an activity typically assigned to adult males. The one interesting exception to this pattern was in the case of polygamous families in Uduga where mothers emphasised the importance of sons' education because, in the context of large families and multiple wives, children stand to inherit little, if any, land.

In the case of the **marital status** of the household head, our results indicated that children in families where parents are in a unstable partnership were more likely to work only relative to attending school only, and that girl children were most likely to be negatively affected.

Parental education: Our quantitative results indicate that maternal education levels significantly decreased the likelihood that children would combine work and school compared to schooling only. Similarly, children with better educated fathers were less likely to be involved in work only compared to the reference group. These results imply that children of educated parents are more likely to attend school, which may have an interesting policy implication for adult education. In a separate regression for female-headed households, although statistically insignificant, more maternal education was found to be associated with a greater probability of combining work and school and participating in work only relative to school only. In the case of male-headed households, however, maternal education reduced the probability that children combined work with school; fathers' education reduced the likelihood of children being involved in either work or minimal work.¹¹

The importance of maternal education was also evident in the qualitative results. For example, one educated mother explained her vision of independence for her daughter as follows: *“What I want for her is to learn. Then once she is educated she can decide for herself. I cannot tell her to get married now”* (Bilbala, 2005). However, more salient than parental education *per se* were the attitudes of parents towards child work and child schooling. For a significant number of parents, child involvement in household or paid labour was seen as a natural, unavoidable responsibility, as the following respondents illustrate:

If children do not respect our order to do work at home or in the field after school, then we will deny them lunch or dinner. So, they realise that they will be hungry unless they work. It is mandatory that they work (Bilbala parent, 2005).

I do not see the benefit of education and I want my daughter to stay at home and help my mother instead (Wurib father, 2005).

Parents say that if we all went to school, there would be no one to take care of the cattle and to work for the family (Wurib girl, 2005).

Children are helping parents, in the meantime they are learning necessary life skills, which they will make use of in the future. So it does them little harm (Bilbala community leader, 2005).

In addition to the socially sanctioned view that child work is important in terms of contributing to the pool of family labour, and being a mechanism for passing on skills to the younger generation, a number of urban respondents stated that they preferred involving children in labour activities rather than having them idle and courting trouble on the streets. For example, one girl teenager from Kirkos noted:

Little children aged 6 and 7 are employed in the garages. Because their families prefer to keep them busy instead of seeing them on the streets (2005).

Likewise, a teacher from Kirkos argued that:

Children in the streets would not be there if parents controlled them better. Engaging them in work is better than letting them be on the streets (2005).

Table 6.9: Effect of sex of a child and mother's education on child schooling and work¹²

	Schooling & working	Working Only	Minimal work
for male-headed household only			
Dummy for a male child	0.375**	0.505***	-0.134
	(2.19)	(2.70)	(1.25)
Mother's years of schooling	-0.144***	-0.083	0.039
	(2.91)	(1.03)	(1.30)
Observations	2297	2297	2297
For female-headed households only			
Dummy for a male child	-0.177	-0.799	-0.90*
	(0.50)	(1.56)	(1.88)
Mother's years of schooling	0.061	0.104	0.026
	(0.71)	(1.26)	(0.55)
Observations	548	548	548

Robust statistics in parentheses; * Significant at 10%; ** significant at 5%; *** significant at 1%.

Wealth effect: In our model, the poverty hypothesis of child labour and schooling is analysed by including household wealth. The results indicated that until the third or fourth wealth quintiles children of wealthier households were more likely to combine work with schooling relative to schooling only.¹³ We found an inverted-U relationship (non-linear relationship) between wealth and children combining school and work: an initial increase in wealth raised the likelihood that children combined schooling and work, but this declined after reaching a peak at a certain level of wealth. The results were the same when the model was run for rural and urban areas separately (see Tables A2.3 and A2.4 in the Appendix). This indicates that at sufficiently high levels of wealth, child schooling increased since children of wealthier households were less likely to work at the expense of their schooling; but before that given wealth level, combined work and school increased. Wealth had a negative and statistically significant impact on children being involved in less than two hours of work per day and work only relative to schooling only.

While the qualitative results also found that a significant number of children from both poor and less poor households combined school and work, the more common finding was that household poverty compels children to work, frequently at the expense of their education (either attendance or time to

¹² Extracted from a multinomial logit model using schooling only as a base category for comparison.

¹³ Due to exogeneity problems, some variables including the type of household activity (own non-farm business and off-farm wage employment) and mother's work burden and market work had to be omitted from our empirical models. Hence, the discussion on the effects of these variables are derived from the qualitative findings only. When a household's workload increases, whether in non-farm businesses or agricultural work, child labour may be reduced as a result of a positive income effect (wealth effect or poverty hypothesis). On the other hand, when labour shortages are created as a result of wage employment, parents may use child labour instead of using hired labour. We also tried to assess the effect of mother's work burden and market work on human capital formation.

do homework). As one mother lamented: “*She was a second grade student but when the school leaders asked her to buy pens, books and all that, we could not afford it. So she had to quit. Then she started to look after cattle, collect firewood*” (Bilbala, 2005). Even governmental safety net programmes such as food-for-work schemes often directly or indirectly involve child labour. For example, Bilbala school teachers emphasised that:

Food-for-work schemes involve both parents and children. Some parents send their children to work on their behalf, and these children are absent from school. They (children) tell us that...they cannot eat unless they work (2005).

Similarly, in Tigray one parent observed:

There are two small girls in the village who go to school as well as work in the food-for-work programme. This helps the family as our region has been affected by drought. As you know, first comes food and water so sometimes they are absent from school in order to complete the work (Enderta (a Young Lives parent), 2005).

Ownership of assets: The ownership of production assets such as land and livestock can affect child schooling in various ways. It may have a positive effect on schooling because larger asset holdings may allow households to forgo the income that child work brings. However, in the absence of a perfect labour market, land and livestock ownership can also have the opposite effect on child schooling and child labour, which is more likely in Ethiopia. Owners of land and livestock who are not able to hire productive labour may have an incentive to use their children’s labour instead of sending them to school. Similarly, if households do not have access to credit, or if they cannot use their assets to gain access to credit to employ labour, they will use their children’s labour.

Our regression analysis results indicated that the size of a household’s **land holdings** had a positive and significant impact on children working or combining work and school relative to schooling only. That is, children of households with greater land size (because of opportunity cost effects) were more likely to spend their time working or combining school and work than attending school only. The impact on children’s engagement in minimal work, however, was insignificant. These findings are supported by the qualitative research which highlighted the problems of growing land fragmentation and landlessness due to a combination of population pressures and poor quality land. That is, while land ownership often necessitates some child involvement in labour activities, it also provides greater economic security than that enjoyed by families who have been compelled to rent or sell their land due to natural disasters and financial strains. Such families are often forced to migrate in search of low-paying off-farm work or to send their children to work on construction sites, sell food in the vicinity of places selling alcohol (simultaneously increasing the risk of sexual harassment, abuse and exploitation) or allow their children, particularly, daughters, to be trafficked to Arab countries.

We also expected the number of **livestock** that a household owns to influence child schooling and labour. The results for this variable indicated that the number of livestock a household owns had a positive and significant impact on children engaged in work only or combining work and school. In the absence of perfect labour and credit markets, ownership of larger numbers of livestock led to greater child labour.

Running separate regressions for rural and urban areas revealed that the results reported for the whole sample also held true for rural households.¹⁴ The reason for this finding in rural areas is that children were widely used to herd cattle. Even richer households who could afford to send their children to school preferred them to work or herd cattle so they did not forgo resources to pay hired labourers for herding. This was found to be particularly prevalent in Semha/Arato and Bilbala in Northern Ethiopia where ownership of animals is also traditionally viewed as a status symbol in addition to its economic value. In urban areas, however, although ownership of livestock has a positive effect on combining work and school and engaged in work only, the effect is statistically insignificant.

Table 6.10: The effect of livestock ownership and credit, in various activities on child schooling and work by residence¹⁵

Variable	Rural area			Urban area	
	Schooling & Working	Working only	Minimal work	Schooling and working	Minimal Work
Total number of livestock owned	0.317**	0.208	0.011	0.235	0.223*
	(3.55)	(3.18)	(0.19)	(1.22)	(1.95)
Dummy for a HH being in serious debt	0.664***	0.578***	0.356***	0.337	0.123
	(3.58)	(3.05)	(2.58)	(0.96)	(0.55)

Robust statistics in parentheses; * Significant at 10%; ** significant at 5%; *** significant at 1%

Liquidity constraint or credit market hypothesis was examined by including the debt situation of the child's family in our regression model. Results indicated that children from households with serious debt were more likely to be engaged in work only, combine work with schooling and involved in minimal work relative to schooling only. Separate regressions in rural areas essentially reveals the same results with the whole sample. An interesting implication is that relieving household liquidity problems can reduce child labour and increase child schooling. This point was further underscored by the qualitative findings which revealed that, mainly due to drought-related reasons, households were unable repay loans to microfinance institutions. In such cases, their only option was to resort to money-lenders who often charged close to 100 per cent interest, thereby compounding impoverished families' debt burden. However, it is also important to point out that because credit is commonly given to families to purchase additional livestock, the impact on children can be negative as it puts additional pressure on them to be involved in herding activities.

Credit is being given for different sectoral activities. A person may take loans to buy five or six sheep. While on the one hand the credit is economically advantageous, on the other, it is creating burden on the children. Children may be absent from school (Bilbala teacher, 2005).

The study also found that children of households who faced a greater number of adverse events that decreased household wealth and welfare were more likely to combine work and schooling, engaged in work only and minimal work relative to school only. The effect in our model of such economic shocks was, however, statistically insignificant. A separate regression for male and female children showed that the number of events that decreased the household's welfare significantly increased the involvement of male children in schooling and work combined and work only (see Tables A2.1 and A2.2 in the

14 Table 6.10 reports selected coefficients from a fully specified model reported in Appendices A2.3 and A2.4.

15 Extracted from a multinomial logit model using schooling only as a base category for comparison.

Appendix). Our qualitative research also indicated that households relied on their children to work to supplement household income in times of crises such as drought and the death of the breadwinner. This was particularly the case in the Semha/Arato site in Tigray and in Bilbala, Amhara, which have been subject to recurrent droughts in recent years. Here, children were often involved in substituting for their parents in food-for-work programmes for which the household received payment in grain, oil or cash.

We now turn our discussion to the **social capital characteristics** of a household, which has been little discussed in the literature on child schooling and labour. For the purpose of this paper, we define social capital as the formal and informal relationships among individuals and communities and the relationships of trust and tolerance involved. Our hypothesis is that social capital may help improve child schooling and reduce children's engagement in labour activities through the following channels: communication and the reduction of information asymmetries; raising awareness about the importance of child schooling and the problems associated with child labour; and through its complementary effect on governmental efforts to increase educational access and encourage enrolment. We included four indicators of social capital in our regression model: cognitive social capital; the number of organisations which provide social support; citizenship; and absolute structural social capital. All had significant impacts with the exception of absolute structural social capital.¹⁶

The results indicated that cognitive social capital (reflecting caregivers' perceptions of trust, self-esteem, sense of belonging and perceptions of community co-operation) increased the likelihood of combining work and school, work only and minimal work compared to attending school although the results are statistically insignificant.

The number of organisations from which a household receives social support was found to be positively and significantly associated with combining schooling and work and engaged in work only relative to schooling only. The variable does not show a significant effect for minimal work relative to schooling only. Findings from the qualitative research in Amhara and Tigray regions suggest that this could be because social support is commonly provided in the form of food-for-work programmes. As discussed above, these programmes typically involved children working alongside their parents to complete, for example, construction or terracing work, and increasing the likelihood that children have to combine work and school. In contrast, several respondents noted that support from NGOs made it easier for children to attend school by covering the costs of uniforms and educational materials:

Previously there was Save the Children, which supports children. There is also another organisation, Godanaw. Godanaw is very good as it gives support for uniforms. If you get your children uniforms and show them the receipt, they refund the money. One time I was also supported to buy educational materials for one of my children (Kirkos mother, 2005).

Citizenship (defined as whether or not the caregiver has worked with others in the community to address a common issue) reduced child work and schooling relative to schooling only. The same pattern emerged for work only and minimal work although the coefficients were statistically insignificant.

6.4.3 Community characteristics

The **availability of schools** in nearby areas has been identified in the literature as an important determinant of child schooling and labour decisions. We included the mean distance to public and private primary schools in our model. The results indicated that distance to school had a positive and significant impact on the probability of a child combining schooling with work and engaged in work only relative to schooling only. That is, as distance increased, children were more likely to be involved in work only and/or combining labour activities and school relative to school only. However, it has no impact on minimal work.

The qualitative findings also indicated that greater proximity to school increased the likelihood of child schooling (at least relative to work only). For example, a parent from Bilbala admitted that he was persuaded to send his child to school because of the combination of a nearby school and the example of his peers who were investing in their children's education:

He could learn as there is school nearby and everyone is going. I saw my friends sending their children to school and I followed suit (2005).

Similarly, a teacher noted that some over-age children were starting schooling due in part to greater access:

Children should officially start formal schooling at the age of 7. However, there are now 16-year old children starting school with 7-year old kids. Parents' attitudes and school distance largely account for this change (Bilbala, 2005).

One important advantage of closer schools is linked to cost savings. Not only did parents have to spend less on transportation, they did not have to cover the costs of accommodation and food for children who lived outside the family home during the week in order to attend school. In addition, the positive association between child schooling and school availability was particularly strong in the case of girls, as parents had previously been reluctant to send their daughters to distant schools made (particularly in rural areas) because of safety concerns. As the head of the Women's Association in Semha/Arato noted:

It is hard to send girls very far for further education because we are scared of rape...if we cannot find any one to go with them; they won't go to school (2005).

This suggests that school access is not only important in terms of reducing the transport costs to households, but also in terms of alleviating parental fears about their daughters' safety and a potential loss of family honour.

7. Summary and policy implications

Using a sample of 3115 children between 7 and 17 years of age, a multinomial logit model of child schooling and labour was developed to assess the factors associated with child schooling and labour for rural and urban Ethiopia in selected regions. The model was also run for rural, urban, female-headed and male-headed households, as well as for male and female children separately. We compared the effect of child-, family- and community-level characteristics on child “schooling and work” combined, child “work only” and “minimal work” relative to “schooling only”. We found that a child’s sex and age, family composition, maternal education, household wealth and asset levels, access to credit, exposure to adverse shocks, and caregivers’ social capital, are important in explaining children’s time use. These quantitative findings were complemented by qualitative research. In addition to providing a more nuanced understanding of the quantitative results, the qualitative findings also underscored the importance of accessibility of schools and parental attitudes towards child education and work.

Overall, the paper emphasises the need for policy-makers and donors to give due consideration to out-of-school variables, particularly factors that shape children’s involvement in work activities, when developing policy strategies to achieve universal and relevant education for all children. In order to meet the MDG target of universal education for all by 2015, there is an urgent need to focus not only on education sector policies but also to introduce a child-sensitive perspective to broader poverty reduction strategies. The extent to which development approaches rely on the largely invisible labour of women and children and the potentially negative spill-over impacts on child schooling and general wellbeing must be confronted.

In this regard, our findings underscore the importance of introducing a child-sensitive perspective to national development strategies to ensure that considerations of children’s right to education are not limited to education policies only. Rather, there is an urgent need to consider the extent to which poverty reduction approaches are actually leading to an increase in child labour and/or caregivers’ labour which may in turn have a negative impact on child education and general wellbeing. As can be seen from Table 7.1 below, considerations of child labour were not explicitly mentioned in the first Ethiopian Sustainable Development Poverty Reduction Program (2002-5). In order to address this lacuna, the discussion below attempts to link the quantitative and qualitative research findings to policy implications for Ethiopia’s second phase of the Poverty Reduction Strategy Programme (2006-10). These include:

- a continued and strengthened policy focus on female education;
- modernising domestic and farm technologies to reduce labour intensity;
- rationalising livestock raising patterns;
- introducing cash transfers and credit provisions to poor families to offset school costs especially for older and rural children, and cushion the adverse impact of household shocks;
- improving women’s productive work opportunities while simultaneously ensuring that their care work burden is reduced;

- improving community infrastructure, especially energy and water sources and affordable transportation;
- reducing vulnerability to shocks such as drought through investing in irrigation schemes.

Table 7.1: Content analysis of frequency and context in which children and their families are mentioned in the Ethiopian SDPRP

Category/ term	Frequency
<i>Child(ren)</i> (vulnerable social group; food poverty: wasting/ stunting/ malnutrition; education; dependency ratio; family health services)	59
Infants – (mortality and morbidity)	9
Out-of-school children/ street children/ orphans	17
Child participation	0
Sexual exploitation/ sex trafficking	0
Child labour / work	0
Childcare	1
Child-headed household	0
Violence (against women impacting on children)	2
UNCRC	0
Girls (education, fetching water, harmful traditional practices)	24
Boys	12
Daughters (education)	3
Youth/ young people/ adolescents	25
HIV/AIDS education and prevention for out-of-school youth and street adolescents	2
<i>Other family members</i>	
Family	23
Parents	3
Family planning	4
Fathers	0
Mothers/ maternal (importance in terms of education; childcare; literacy and new knowledge)	14
Women	88
Male/female head (-ed households)	22
Gender	65

Source: MOFED (2002), Ethiopian SDPRP (2002-2005).

Child characteristics

Gender: While the quantitative findings found that boys were marginally more likely than girls to have to combine school and work than study full-time, our qualitative findings revealed that although there were differences in the type and spatial distribution of work activities undertaken, work pressures were a widespread reality for boys and girls alike. Moreover, the tasks commonly assigned to girls were often as hazardous and/or time-consuming as those for which boys are traditionally responsible. In this regard, it is important that policy practitioners *adopt a broad definition of child labour* and focus not only on addressing particularly “harmful or disabling” forms of labour, but also labour activities which compromise children’s ability to attend school, do homework and play.

Age: Given that older children are more likely to face pressures to be involved in labour activities and simultaneously need to cope with greater scholastic demands, it is imperative that *incentives are*

provided to families to continue children's education and minimise their labour demands. In this regard, *cash transfers to promote child schooling in higher grades* rather than food-for-work programmes, which typically involve children as well as parents, would be one possible solution. Developing *employment training programmes for secondary school students* that would enhance future job and income prospects would also provide an incentive to households to continue to invest in their children's education. Similarly, the *affirmative action programmes for girls* who complete grade 8 to have preferential access to employment opportunities in local government offices in some YL sites, constitutes a good practice that should be scaled up.

In addition, given that for many impoverished families, children's involvement in labour activities will remain a reality in at least the short to medium term, it is important that *child labour guidelines* are developed to raise awareness about the potentially negative effects on child wellbeing. These include excessive working hours, dangerous conditions and poor payment for the different types of work in which children are commonly involved. Rather than outlining the conditions under which child work is "acceptable", the focus of these guidelines should be on gradually phasing out child work. Moreover, great care needs to be taken that the guidelines do not indirectly result in employers no longer offering employment to children and young people so that they are compelled to enter less regulated and more exploitative forms of work. Instead, another focus of such an initiative should be on raising local authorities' awareness of problems often associated with child work (inadequate time for study, inadequate protection from abuse and injury, stigmatisation, etc.). These guidelines would need to be disseminated to local authorities, communities, households and children, and in the case of non-compliance, mechanisms should be established whereby children and sympathetic adults could report concerns.

Urban/rural divide

School attendance was significantly lower in rural compared to urban Young Lives sites, and dropout rates were dramatically higher in rural areas. This indicates that child education and labour have different characteristics in rural and urban areas, suggesting the need for differential policy strategies. Part of the solution clearly necessitates *improving school availability in rural areas*. Both our quantitative and qualitative findings suggest that distance from public or private schools negatively affected school attendance. Our qualitative results further found that distance to school was an important factor in parental decisions to send their daughters to school. Steps should also be taken to develop more *flexible school timetables and curricula* to allow rural children to be absent during peak times in the agriculture cycle which is when many children, especially boys, drop out either temporally or permanently.

Maternal education

Both our quantitative and qualitative findings found that maternal education levels significantly decreased the likelihood of a child combining work and schooling, while paternal education reduced the likelihood that a child would be engaged in work rather than school. The effect of maternal education held true for children in male-headed households, implying not only that children of educated mothers are more likely to attend school, but that maternal education has a more pronounced positive effect on child schooling when women can decide freely without male intervention. This suggests that women's empowerment has a significant positive relationship with human capital development. Educating girls today means more educated mothers and daughters tomorrow. In this

regard, the Ethiopian Education Sector Development Plan (2002-5) has had a visible impact on promoting girls' education and such efforts should be continued and strengthened. However, given the strong links between female adult education and commitment to child schooling, *investment in adult literacy programmes* is also likely to have a far-reaching impact and create a virtuous circle of more educated mothers and girls over time.

Family composition

Our results show that children were more likely to be attending school only when there was adequate labour in the household: more children aged 7-17 years as well as more male adults generally decreased children's work burden. In other words, both the birth order effect and the labour substitution hypothesis were confirmed. This indicates that for many rural households engaged in labour-intensive agricultural and petty trading activities, children are often needed to fill labour gaps. This has a particularly significant impact on dropout rates in male-headed households and on child enrolment in female-headed households where children (especially boys who need to compensate for the lack of adult male agricultural labour power) are less likely to attend school than in male-headed households. By promoting labour-intensive income-generating activities, the core pillar of Ethiopia's PRSP — Agricultural Development Led Industrialization (ADLI) — is reinforcing the traditional pattern of reliance on a large number of offspring. Moreover, given that young children of four or five years are already engaged in economic activities, it would seem that ADLI's assumption about a surplus of labour may not be realistic in all areas and that there is in fact inadequate adult labour to meet household demands. As discussed further below, if sufficient precautionary social risk management measures are not taken, the present policy of reducing poverty by intensifying agriculture and diversification through labour-use technologies will actually increase child labour.

Wealth/assets/credit

An inverted-U relationship between wealth and child work was found implying that only at high levels of wealth is child labour reduced in rural areas. However, increased land ownership led to greater demand for child labour and hence reduced school enrolment, indicating that the labour demand effect dominated the wealth effect. Similarly, ownership of livestock led to an increase in child labour particularly in rural areas as children were needed to herd the animals. Additionally, although access to credit was generally positively correlated with child enrolment, our qualitative findings found that credit was often linked to the purchase of additional livestock, thereby exacerbating child labour demands. This suggests that poverty reduction premised on labour-intensive agriculture is more likely to increase child labour if conditions in the labour and credit markets are not improved. However, the negative income effects of reducing child labour and increasing child schooling could be offset if *credit measures to facilitate labour transactions* (hiring labour) were taken. More specifically, significant progress towards achieving the MDG goal of universal education for all could be realised if *long-term credit programmes targeted specifically at covering educational expenses* were introduced. In addition, credit for labour (as part of working capital) rather than start-up capital (e.g. livestock or machinery), would enable the poor to substitute hired labour for child labour. It will be important that these types of considerations are explicitly integrated in the implementation guidelines for the Household-level Food Security Programme recently introduced in Tigray and Amhara.

Livelihood diversification

While there is much to be said for promoting livelihood diversification in order to cushion the impact of economic shocks on the household and increase income-generating opportunities, the involvement of households in more diversified activities increases the demand for labour which is frequently met by involving children, particularly boys, in work. In order to address this negative spill-over effect, labour-saving policy improvements should focus on *modernising farming and household technologies*. This could include, for example, initiatives to improve access to water, increased use of herbicides to reduce demand for weeding labour, introducing modern stoves that save energy and reduce the need for time-consuming fuel-wood collection, and the introduction of simple farm technology such as better ploughs. Equally importantly, livestock-raising patterns need to be rationalised in order to reduce the demand for child involvement. Options include introducing indoor livestock farming, community-shared livestock herding where households pool resources to either care for livestock on a rotational basis or pay for hired adult labour to take care of animals, as well as community- rather than household-level fodder production.

Caregivers' work burden and social capital levels

Caregivers' productive and care work burden also has serious implications for children's involvement in school and work. As mothers' work burden increases, girls are commonly used to help with their mothers' responsibilities, indicating that increased involvement of women in productive work activities is more detrimental to girls' than boys' use of time. While women's access to independent income may be positive in that they are more likely than fathers to invest their additional income in their children's education and general wellbeing, girls' time is needed to help shoulder domestic responsibilities. Accordingly, a key policy concern should be to introduce new technologies that reduce women's domestic burden in order to in turn reduce girls' substitution in such work and facilitate their education. Moreover, if it is imperative for household survival and community development that all adults (male and female) are involved in income-generating schemes, it will be important for the government to consider subsidised community childcare arrangements or preschool services to relieve older children of substituting for their mothers' care work. In addition, particularly in the case of female-headed households, the introduction of safety nets should be considered so that women will not be compelled to rely on their sons to substitute for the labour of an adult male partner.

Young Lives findings do, however, indicate that caregivers' social capital levels may mitigate these impacts to some extent. That is, a caregiver's cognitive social capital reduces child work and increases child schooling, and active citizenship increases schooling relative to combined child work and schooling. This suggests that recent governmental efforts to mobilise communities to tackle low school enrolment and dropout rates may be having a positive influence on community attitudes towards education. If this is the case, it should be continued, as long as related pressures to contribute financially or in-kind to school expansion are not overly burdensome.

Infrastructural development

Our qualitative research found that children were commonly involved in fetching water, firewood and dung both for household use and sale to supplement family income. Because of the dangers involved in children walking great distances unaccompanied (potential exposure to violence and sexual abuse,

wild animal attacks, etc.), it is important for the government to focus resources on *the development of fuel-saving mechanisms* and/or *the development of alternative energy sources*. This would not only alleviate pressures on children but would also be in the best interests of environmental protection, particularly as the country is facing rapid and widespread deforestation and soil erosion. Similarly, children's involvement in fuel-wood and dung collection to earn money to supplement their education costs could be minimized by *providing families with credit for education* purposes, as well as *developing safer, alternative income-generating means for children* in impoverished families who have no choice but to rely on child labour.

Other infrastructural improvements that would significantly reduce work burdens on children would be reducing the distance to water sources by *constructing wells and piped water sources* in all villages and *developing better public transport systems* to reduce children's involvement in preparing and taking pack animals to the market. While rapid road construction is being carried out, poor communities are unable to take full advantage of this development as *affordable transport* is still scarce. Better transport would also reduce the amount of time caregivers involved in petty trade would need to be absent from home.

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Appendix A1: Description of variables used in the regression

Table A1.1 Variables used to analyse determinants of child labour in Ethiopia

Variable name	Definition
Main activity of a child (dependent variables)	0 if schooling only; 1 if both schooling and working; 2 if working only; and 3 if the child is engaged in minimal work
Age of child	Age in years
Dummy for male child	1 if male; 0 otherwise
Dummy for male-headed HH	1 if female; 0 otherwise
Mother's years of schooling	Education level of the mother (in years)
Father's years of schooling	Education level of the father (in years)
Number of male children <7	Number of male children under 7 years old
Number of female children <7	Number of female children under 7 years old
Number of male children >17	Number of male children over 17 years old
Number of female children >17	Number of female children over 17 years old
Number of younger children	Number of younger children aged between 7 and 17
Number of elder children	Number of elder children aged between 7 and 17
Dummy for urban residence	Dummy for urban (1 if urban; 0 if rural)
Dummy for Amhara region	Dummy for Amhara
Dummy for Oromiya region	Dummy for Oromiya
Dummy for SNNP region	Dummy for SNNP
Dummy for Tigray region	Dummy for Tigray
Wealth index	Wealth index constructed from consumer durables
Wealth index squared	Wealth index squared
Land size in hectares	Hectares of land owned
Mean distance (km) to public and private primary school	Mean distance from public or private school
Total livestock	Total number of livestock owned
Number of events	Number of events that decrease the household welfare
Cognitive social capital	Cognitive social capital
Absolute structural social capital	Absolute structural social capital
Social support	Number of organisations providing social support
Social capital: citizenship	Dummy for citizenship
Dummy for the HH head being divorced	Dummy for marital status of the household head/respondent: 1 if divorced; 0 otherwise
Child relationship	Dummy for the relationship to the index child (1 if brother/sister; 0 otherwise)
Any serious debt	Dummy for any serious debt: 1 if yes; 0 otherwise

Table A1.2. Summary statistics of variables included in the regression

Variables	Observation	Mean	Std. Dev.	Minimum	Maximum
Age of child	2845	11.116	3.107	7.00	17.00
Dummy for male child	2845	0.479	0.500	0.00	1.00
Dummy for male-headed HH	2845	0.815	0.388	0.00	1.00
Mother's years of schooling	2845	1.865	3.286	0.00	16.00
Father's years of schooling	2845	2.431	3.879	0.00	18.00
Number of male children <7	2845	0.503	0.626	0.00	3.00
Number of female children <7	2845	0.457	0.626	0.00	3.00
Number of male children >17	2845	1.229	0.762	0.00	6.00
Number of female children >17	2845	1.322	0.706	0.00	6.00
Number of elder children	2845	0.916	1.098	0.00	7.00
Number of younger children	2845	0.941	1.105	0.00	7.00
Dummy for urban residence	2845	0.377	0.485	0.00	1.00
Dummy for Amhara region	2845	0.206	0.404	0.00	1.00
Dummy for Oromiya region	2845	0.178	0.382	0.00	1.00
Dummy for SNNP region	2845	0.268	0.443	0.00	1.00
Dummy for Tigray region	2845	0.222	0.415	0.00	1.00
Wealth index	2845	0.169	0.166	0.00	0.75
Wealth index squared	2845	0.056	0.090	0.00	0.56
Land size in hectares	2845	0.739	0.887	0.00	10.00
Mean distance (km) to public and private primary school	2845	2.755	2.972	0.50	9.17
Total livestock	2845	1.546	1.305	0.00	4.00
Number of events	2845	2.206	1.896	0.00	11.00
Cognitive social capital	2845	3.460	0.826	0.00	4.00
Absolute structural social capital	2845	1.464	1.146	0.00	7.00
Social support	2845	2.373	2.486	0.00	12.00
Social capital: citizenship	2845	0.688	0.823	0.00	2.00
Dummy for the HH head being divorced	2845	0.050	0.217	0.00	1.00
Child relationship	2845	0.005	0.072	0.00	1.00
Any serious debt	2845	0.379	0.485	0.00	1.00

Appendix A2: Detailed regression results

Table A2.1: Determinants of child schooling and labour (Female children)

Variables	Schooling & working	Working only	Minimal work
Age of a child	0.180***	0.396***	0.042
	(3.57)	(6.54)	(1.19)
Dummy for male-headed HH	-0.285	-0.223	0.060
	(0.84)	(0.56)	(0.27)
Mother's years of schooling	-0.041	0.079	0.049
	(0.79)	(1.30)	(1.59)
Father's years of schooling	0.009	-0.177**	-0.004
	(0.18)	(2.11)	(0.15)
Number of male children under 7 years old	0.083	-0.122	0.025
	(0.42)	(0.50)	(0.22)
Number of female children under 7 years old	0.337	-0.056	-0.098
	(1.49)	(0.25)	(0.81)
Number of male HH members >17 years old	-0.576***	-0.197	-0.117
	(2.62)	(0.83)	(1.24)
Number of female HH members >17 years old	-0.021	-0.684**	-0.278**
	(0.11)	(2.04)	(2.22)
Number of elder children between 7 & 17	-0.407**	-0.114	0.231***
	(2.46)	(0.59)	(3.48)
Number of younger children between 7 & 17	-0.104	-0.350**	-0.377***
	(0.75)	(2.41)	(3.53)
Dummy for urban residence	-0.304	-0.473	-0.524**
	(0.70)	(0.81)	(2.06)
Dummy for Amhara region	1.873***	-0.699	-0.912**
	(2.59)	(0.81)	(2.53)
Dummy for Oromia region	0.405	-0.855	-0.143
	(0.52)	(1.01)	(0.47)
Dummy for SNNP region	0.327	-0.933	0.167
	(0.40)	(0.99)	(0.65)
Dummy for Tigray region	-1.173	-2.093**	-0.018
	(1.51)	(2.44)	(0.05)

Variables	Schooling & working	Working only	Minimal work
Wealth index constructed from consumer's durables	0.665	-8.506**	-7.802***
	(0.24)	(2.50)	(5.01)
Wealth index squared	-4.249	7.063	7.891***
	(0.90)	(1.07)	(3.43)
Hectares of land owned	0.540**	0.418**	0.033
	(2.44)	(2.10)	(0.25)
Mean distance (km) to public and private primary schools	0.119**	0.288***	-0.085**
	(2.23)	(4.67)	(2.09)
Total number of livestock owned	0.182	0.254**	0.034
	(1.60)	(2.24)	(0.53)
Number of events that decrease the HH welfare	0.085	0.140*	-0.026
	(1.41)	(1.96)	(0.66)
Cognitive social capital	0.129	0.212	0.187**
	(0.85)	(1.26)	(2.23)
Absolute structural social capital	-0.122	-0.414**	-0.075
	(0.80)	(2.09)	(1.02)
Number of organisation from which one gets social support	0.078	0.178**	0.023
	(1.22)	(2.45)	(0.57)
social capital: citizenship	-0.287*	0.016	-0.056
	(1.67)	(0.09)	(0.62)
Dummy for the HH head being divorced	0.522	0.883*	-0.051
	(1.11)	(1.70)	(0.14)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-30.196***	1.042	-30.898***
	(38.27)	(1.09)	(49.20)
Dummy for a HH being in serious debt	0.534**	0.094	0.347**
	(2.26)	(0.35)	(2.38)
Constant	-5.111***	-5.842***	0.117
	(4.29)	(3.99)	(0.19)
Observations	1510	1510	1510
Pseudo R ²	0.2707		

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table A2.2: Determinants of child schooling and labour (Male children)

Variables	Schooling & working	Working only	Minimal work
Age of a child	0.140**	0.086	-0.087
	(2.53)	(1.42)	(1.62)
Dummy for male-headed HH	0.131	0.331	0.458*
	(0.41)	(0.81)	(1.69)
Mother's years of schooling	-0.151**	-0.064	-0.007
	(2.30)	(0.70)	(0.17)
Father's years of schooling	0.003	-0.076	-0.056*
	(0.08)	(1.29)	(1.96)
Number of male children under 7 years old	-0.335*	-0.215	-0.106
	(1.79)	(0.97)	(0.78)
Number of female children under 7 years old	0.008	0.368	-0.036
	(0.05)	(1.64)	(0.29)
Number of male HH members >17 years old	-0.273	0.113	0.063
	(1.47)	(0.64)	(0.52)
Number of female HH members >17 years old	0.263	0.218	-0.049
	(1.56)	(0.98)	(0.37)
Number of elder children between 7 & 17	-0.221*	-0.291**	0.156*
	(1.68)	(2.21)	(1.88)
Number of younger children between 7 & 17	0.052	-0.136	-0.186
	(0.43)	(0.82)	(1.15)
Dummy for urban residence	-0.978**	-1.496***	-0.411
	(2.50)	(2.87)	(1.47)
Dummy for Amhara region	1.611**	0.599	-0.410
	(1.98)	(0.40)	(0.93)
Dummy for Oromia region	0.378	-0.351	-0.655
	(0.46)	(0.23)	(1.51)
Dummy for SNNP region	0.280	-0.760	0.260
	(0.31)	(0.48)	(0.67)
Dummy for Tigray region	-1.279	-1.367	0.411
	(1.55)	(0.90)	(0.96)
Wealth index constructed from consumer's durables	0.225	-6.132*	-6.924***
	(0.09)	(1.84)	(3.45)

Variables	Schooling & working	Working only	Minimal work
Wealth index squared	0.047	5.304	4.379
	(0.01)	(0.76)	(1.17)
Hectares of land owned	0.302**	0.150	0.094
	(2.08)	(0.89)	(0.72)
Mean distance (km) to public and private primary schools	0.161***	0.211***	-0.028
	(3.11)	(3.67)	(0.65)
Total number of livestock owned	0.137	0.089	0.056
	(1.26)	(0.66)	(0.76)
Number of events that decrease the HH welfare	0.145**	0.115	0.104**
	(2.23)	(1.58)	(2.22)
Cognitive social capital	-0.021	-0.072	-0.132
	(0.16)	(0.46)	(1.44)
Absolute structural social capital	-0.097	-0.366**	-0.099
	(0.78)	(2.18)	(1.30)
Number of organisation from which one gets social support	0.167***	0.231***	0.093**
	(2.76)	(3.38)	(2.16)
social capital: citizenship	-0.129	-0.009	-0.188*
	(0.90)	(0.06)	(1.74)
Dummy for the HH head being divorced	-0.562	0.758	0.022
	(0.98)	(1.33)	(0.05)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-32.243***	-30.670***	-0.096
	(41.11)	(31.08)	(0.06)
Dummy for a HH being in serious debt	0.496**	0.903***	0.114
	(2.25)	(3.45)	(0.70)
Constant	-4.650***	-3.316*	1.120
	(3.98)	(1.76)	(1.51)
Observations	1335	1335	1335
Pseudo R ²	0.2812		

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table A2.3: Determinants of child schooling and labour (rural areas)

Variables	Schooling & working	Working only	Minimal work
Age of a child	0.103** (2.34)	0.216*** (4.90)	-0.137*** (3.63)
Dummy for a male child	0.373** (2.05)	0.480*** (2.63)	-0.001 (0.01)
Dummy for male-headed HH	-0.099 (0.32)	0.172 (0.50)	0.136 (0.58)
Mother's years of schooling	-0.163** (2.49)	-0.025 (0.37)	0.065 (1.48)
Father's years of schooling	0.013 (0.31)	-0.176*** (3.07)	-0.133*** (4.17)
Number of male children under 7 years old	-0.210 (1.35)	-0.331** (2.04)	-0.085 (0.76)
Number of female children under 7 years old	-0.118 (0.75)	-0.058 (0.37)	-0.148 (1.34)
Number of male HH members >17 years old	-0.528*** (2.93)	-0.267 (1.52)	-0.017 (0.15)
Number of female HH members >17 years old	0.105 (0.63)	-0.330 (1.43)	-0.094 (0.68)
Number of elder children between 7 & 17	-0.245** (2.08)	-0.118 (1.00)	0.282*** (4.21)
Number of younger children between 7 & 17	0.066 (0.61)	-0.316*** (2.58)	-0.195* (1.85)
Dummy for Oromia region	-1.437*** (5.48)	-0.433 (1.39)	0.518** (2.28)
Dummy for SNNP region	-3.204*** (5.80)	-1.578*** (3.11)	0.953*** (3.67)
Dummy for Tigray region	-2.884*** (8.60)	-1.545*** (4.51)	1.102*** (4.28)
Wealth index constructed from consumer's durables	0.671 (0.18)	0.628 (0.11)	-6.053** (2.04)
Wealth index squared	-16.255 (1.05)	-59.374* (1.79)	-2.531 (0.22)
Hectares of land owned	0.398*** (2.98)	0.274** (2.01)	0.121 (1.12)

Variables	Schooling & working	Working only	Minimal work
Mean distance (km) to public and private primary schools	0.088** (2.31)	0.208*** (4.94)	-0.083** (2.55)
Total number of livestock owned	0.317*** (3.55)	0.289*** (3.18)	0.011 (0.19)
Number of events that decrease the HH welfare	0.013 (0.24)	0.070 (1.33)	0.003 (0.06)
Cognitive social capital	0.075 (0.63)	-0.007 (0.06)	0.045 (0.55)
Absolute structural social capital	-0.031 (0.29)	-0.291** (2.35)	-0.080 (1.19)
Number of organisation from which one gets social support	0.154*** (3.02)	0.213*** (4.00)	0.066* (1.81)
social capital: citizenship	-0.038 (0.31)	0.163 (1.28)	-0.014 (0.16)
Dummy for the HH head being divorced	0.875* (1.92)	1.357*** (2.89)	0.116 (0.29)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-45.227 (.)	1.166 (0.97)	-2.038 (1.34)
Dummy for a HH being in serious debt	0.664*** (3.58)	0.578*** (3.05)	0.356*** (2.58)
Constant	-2.511*** (3.03)	-3.913*** (4.61)	0.955 (1.63)
Observations	1729	1729	1729
Pseudo R ²	0.2606		

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table A2.4: Determinants of child schooling and labour (urban areas)

Variables	Schooling & working	Working only	Minimal work
Age of a child	0.307***	0.544***	0.153***
	(3.84)	(3.80)	(3.40)
Dummy for a male child	0.235	-0.209	-0.498***
	(0.72)	(0.37)	(2.75)
Dummy for male-headed HH	0.302	-0.356	0.225
	(0.77)	(0.57)	(0.83)
Mother's years of schooling	-0.077	-0.032	-0.019
	(1.12)	(0.42)	(0.65)
Father's years of schooling	-0.068	0.043	0.054**
	(1.20)	(0.65)	(2.17)
Number of male children under 7 years old	-0.390	-0.756	0.014
	(1.26)	(1.21)	(0.09)
Number of female children under 7 years old	0.670**	0.729	0.063
	(2.35)	(1.58)	(0.39)
Number of male HH members >17 years old	-0.354	0.577**	-0.059
	(1.10)	(2.30)	(0.53)
Number of female HH members >17 years old	-0.035	-0.164	-0.259*
	(0.17)	(0.50)	(1.84)
Number of elder children between 7 & 17	-0.439**	-0.648	0.099
	(2.04)	(0.94)	(0.94)
Number of younger children between 7 & 17	-0.242	0.156	-0.261*
	(1.46)	(0.70)	(1.82)
Dummy for Amhara region	1.414*	0.739	-0.089
	(1.80)	(0.53)	(0.22)
Dummy for Oromia region	0.453	-0.046	-0.294
	(0.57)	(0.03)	(0.88)
Dummy for SNNP region	1.496***	1.261	0.510**
	(2.74)	(1.37)	(2.26)
Wealth index constructed from consumer's durables	3.995	6.395	-7.086***
	(1.20)	(0.59)	(3.64)
Wealth index squared	-6.351	-22.537	5.572**
	(1.26)	(1.52)	(2.05)

Variables	Schooling & working	Working only	Minimal work
Hectares of land owned	-1.472*	0.644	-0.337
	(1.90)	(0.42)	(1.42)
Mean distance (km) to public and private primary schools	-5.972	-6.473	-0.187*
	(.)	(.)	(1.68)
Total number of livestock owned	0.235	0.177	0.223*
	(1.22)	(0.41)	(1.95)
Number of events that decrease the HH welfare	0.343***	-0.084	-0.044
	(3.98)	(0.31)	(0.74)
Cognitive social capital	-0.056	1.438**	0.023
	(0.31)	(2.53)	(0.21)
Absolute structural social capital	-0.348	-1.196**	-0.117
	(1.51)	(2.55)	(1.13)
Number of organisation from which one gets social support	0.184*	0.435***	-0.002
	(1.86)	(3.20)	(0.03)
social capital: citizenship	-0.117	-0.622	-0.275*
	(0.45)	(1.18)	(1.95)
Dummy for the HH head being divorced	-1.404	-0.766	0.430
	(1.29)	(0.63)	(0.92)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-30.193***	-29.131***	-31.535***
	(28.76)	(20.23)	(44.84)
Dummy for a HH being in serious debt	0.337	1.041**	0.123
	(0.96)	(1.99)	(0.55)
Constant	-4.659***	-13.204***	-1.173
	(3.44)	(3.12)	(1.58)
Observations	1116	1116	1116
Pseudo R ²	0.1997		

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table A2.5: Determinants of child schooling and labour (Female-headed HH)

Variables	Schooling & working	Working only	Minimal work
Age of a child	0.166*	0.350***	0.032
	(1.92)	(3.11)	(0.46)
Dummy for a male child	-0.177	-0.799	-0.490*
	(0.50)	(1.56)	(1.88)
Mother's years of schooling	0.061	0.104	0.026
	(0.71)	(1.26)	(0.55)
Father's years of schooling	-0.106	-1.569*	-0.007
	(0.99)	(1.84)	(0.13)
Number of male children under 7 years old	-0.861*	-0.049	0.404*
	(1.85)	(0.13)	(1.92)
Number of female children under 7 years old	0.021	1.203**	-0.071
	(0.05)	(2.27)	(0.24)
Number of male HH members >17 years old	-0.536	0.032	-0.019
	(1.58)	(0.13)	(0.13)
Number of female HH members >17 years old	-0.260	0.159	-0.474***
	(1.06)	(0.62)	(2.85)
Number of elder children between 7 & 17	-0.409	-0.388	0.150
	(1.64)	(1.39)	(1.08)
Number of younger children between 7 & 17	-0.000	-0.274	-0.326*
	(0.00)	(0.97)	(1.73)
Dummy for urban residence	-0.590	-3.144***	-0.887*
	(0.83)	(3.42)	(1.74)
Dummy for Amhara region	0.447	-0.411	-0.538
	(0.50)	(0.33)	(0.83)
Dummy for Oromia region	-0.296	-0.917	-0.670
	(0.35)	(0.73)	(1.06)
Dummy for SNNP region	0.454	-0.578	0.371
	(0.52)	(0.50)	(0.81)
Dummy for Tigray region	-3.044***	-3.452***	-0.833
	(2.86)	(2.94)	(1.31)
Wealth index constructed from consumer's durables	-1.204	-8.113	-5.770
	(0.24)	(0.97)	(1.49)

Variables	Schooling & working	Working only	Minimal work
Wealth index squared	-4.249	-7.180	6.428
	(0.50)	(0.50)	(1.14)
Hectares of land owned	0.831**	0.252	0.347
	(2.25)	(0.61)	(1.12)
Mean distance (km) to public and private primary schools	0.185	0.002	0.025
	(1.55)	(0.02)	(0.28)
Total number of livestock owned	0.312	-0.077	0.105
	(1.49)	(0.32)	(0.76)
Number of events that decrease the HH welfare	0.178	0.434***	0.050
	(1.47)	(2.70)	(0.63)
Cognitive social capital	0.067	0.788**	-0.105
	(0.33)	(2.45)	(0.65)
Absolute structural social capital	-0.249	-1.864***	-0.287*
	(0.87)	(3.97)	(1.74)
Number of organisation from which one gets social support	0.156	0.741***	0.129
	(1.38)	(3.73)	(1.51)
social capital: citizenship	0.035	-0.116	0.051
	(0.12)	(0.46)	(0.24)
Dummy for the HH head being divorced	-0.072	0.333	0.105
	(0.13)	(0.58)	(0.26)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-35.006***	5.550**	-1.659
	(29.01)	(2.24)	(1.31)
Dummy for a HH being in serious debt	0.390	0.615	-0.380
	(0.94)	(1.01)	(1.28)
Constant	-3.496**	-6.534***	1.003
	(2.05)	(3.00)	(0.84)
Observations	548	548	548
Pseudo R ²	0.3360		

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Table A2.6: Determinants of child schooling and labour (male-headed households)

Variables	Schooling & working	Working only	Minimal work
Age of a child	0.190***	0.248***	0.004
	(4.49)	(5.39)	(0.12)
Dummy for a male child	0.375**	0.505***	-0.134
	(2.19)	(2.70)	(1.25)
Mother's years of schooling	-0.144***	-0.083	0.039
	(2.91)	(1.03)	(1.30)
Father's years of schooling	0.014	-0.086*	-0.041**
	(0.40)	(1.89)	(2.06)
Number of male children under 7 years old	-0.100	-0.274	-0.197**
	(0.67)	(1.60)	(2.09)
Number of female children under 7 years old	0.156	0.004	-0.119
	(1.04)	(0.02)	(1.27)
Number of male HH members >17 years old	-0.344**	-0.205	-0.114
	(2.00)	(1.09)	(1.23)
Number of female HH members >17 years old	0.172	-0.799**	-0.063
	(1.13)	(2.42)	(0.54)
Number of elder children between 7 & 17	-0.305***	-0.241*	0.190***
	(2.68)	(1.95)	(3.43)
Number of younger children between 7 & 17	-0.113	-0.381***	-0.375***
	(1.06)	(2.89)	(3.74)
Dummy for urban residence	-0.629*	-0.929**	-0.388*
	(1.94)	(1.99)	(1.91)
Dummy for Amhara region	2.083***	0.442	-0.742**
	(2.67)	(0.30)	(2.41)
Dummy for Oromia region	0.809	-0.077	-0.211
	(1.00)	(0.05)	(0.75)
Dummy for SNNP region	0.491	-0.447	0.237
	(0.57)	(0.30)	(0.95)
Dummy for Tigray region	-0.671	-1.268	0.364
	(0.83)	(0.85)	(1.22)
Wealth index constructed from consumer's durables	-1.014	-7.906***	-7.775***
	(0.49)	(3.21)	(5.98)

Variables	Schooling & working	Working only	Minimal work
Wealth index squared	2.041	11.181**	7.354***
	(0.59)	(1.96)	(3.62)
Hectares of land owned	0.333***	0.240*	0.029
	(2.67)	(1.86)	(0.29)
Mean distance (km) to public and private primary schools	0.131***	0.250***	-0.072**
	(3.31)	(5.29)	(2.24)
Total number of livestock owned	0.147*	0.196**	0.024
	(1.66)	(2.00)	(0.46)
Number of events that decrease the HH welfare	0.116**	0.110**	0.014
	(2.40)	(1.99)	(0.41)
Cognitive social capital	0.009	-0.078	0.070
	(0.08)	(0.65)	(1.00)
Absolute structural social capital	-0.089	-0.210	-0.035
	(0.86)	(1.63)	(0.63)
Number of organisation from which one gets social support	0.135***	0.144**	0.041
	(2.76)	(2.55)	(1.29)
social capital: citizenship	-0.202*	0.100	-0.124*
	(1.72)	(0.74)	(1.70)
Dummy for the HH head being divorced	0.210	1.217**	-0.118
	(0.34)	(2.06)	(0.25)
Relationship to the index child (1 if brother/sister; 0 otherwise)	-28.812***	-25.941***	-29.574***
	(29.24)	(19.25)	(41.86)
Dummy for a HH being in serious debt	0.608***	0.652***	0.376***
	(3.46)	(3.41)	(3.16)
Constant	-5.659***	-3.796**	0.713
	(5.58)	(2.33)	(1.45)
Observations	2297	2297	2297
Pseudo R ²	0.2630		

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Appendix A3: Young Lives' definition of social capital

Four types of social capital were examined, namely, absolute structural social capital, social support, cognitive social capital and citizenship.

Absolute structural social capital (ASSC) is based on the number of groups to which a caregiver belongs. ASSC is described as great if the number of groups to which the caregiver belongs is three or more; medium if the number of groups is one to two; and zero if the caregiver is not a member of any group.

Social support (SS) type of social capital is based on whether or not the caregiver has received support (emotional, economic or other) from either groups or individuals, in the year before the survey. It is considered high if a caregiver gets help from five or more groups and medium if the caregiver gets help from one to four groups.

Cognitive social capital (CSC) is based on the caregiver's perceptions of the local community. The index of CSC is a combination of the responses to the questions as to whether the caregiver feels she/he is part of the community, whether she/he feels people in general can be trusted, whether she/he feels people would try and take advantage of her/him if they could, and whether she/he feels people generally get along with each other. If the caregiver's response is positive to at least three of these they have high cognitive social capital, medium if they give only one or two positive answers and if all questions are answered negatively we categorised them as having no cognitive social capital.

Citizenship (CIT) is based on whether or not the caregiver has worked with others in the community to address a common issue. The citizenship index looks at the questions about joining together to address common issues and/or talks with the local authority on problems of the community. This index is a dichotomous (0 or 1) variable. The index is given a value '1' if the caregiver either joins together with others to address common issues or talks with the local authority about problems in the community. Otherwise '0' was given.

Appendix A4: Young Lives' definition of household wealth

An important variable in YL data is the wealth index, which attempts to measure the relative poverty status of households. The wealth index was constructed based on the following variables:

1. The number of rooms per person as a continuous variable;
2. A set of eleven consumer durable dummy variables, each equal to one if a household member owned a radio, fridge, bicycle, TV, motorbike/scooter, motor vehicle, mobile phone, landline phone, modern bed, table or chair, and sofa;
3. A set of three dummy variables equal to one if the house had electricity, brick or plastered wall, or a sturdy roof (such as corrugated iron, tiles or concrete);
4. A dummy variable equal to one if the dwelling floor was made of a finished material (such as cement, tile or a laminated material);
5. A dummy variable equal to one if the household's source of drinking water was piped into the dwelling or yard;
6. A dummy variable equal to one if the household had a flush toilet or pit latrine; and
7. A dummy variable equal to one if the household used electricity, gas or kerosene.

The wealth index captures variables that are broader than production assets, such as home ownership and the durability of that home, plus access to infrastructure such as water and sanitation. The construction of the wealth index is summarised in the following table.

Construction of the wealth index

Components of index and score	Contributing variables
H = Housing quality (/4)	Rooms/person, wall, roof, floor durability.
CD = Consumer Durables (/11)	Radio, fridge, bicycle, TV, motorbike/scooter, motor vehicle, mobile phone, landline phone, modern bed, table or chair and sofa.
S = Services (/4)	Electricity, water, sanitation, cooking fuel.
Wealth Index = (H+CD+S)/3 Range = 0.0 – 1.0	

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Young Lives is an international longitudinal study of childhood poverty, taking place in Ethiopia, India, Peru and Vietnam, and funded by DFID. The project aims to improve our understanding of the causes and consequences of childhood poverty in the developing world by following the lives of a group of 8,000 children and their families over a 15-year period. Through the involvement of academic, government and NGO partners in the aforementioned countries, South Africa and the UK, the Young Lives project will highlight ways in which policy can be improved to more effectively tackle child poverty.

This paper examines the Ethiopian Government's emphasis on the intensification of agricultural activities in order to increase livelihood options and provide better safety nets for the poor (e.g. through food or cash-for-work programmes).

Drawing on a sample of 1999 households with at least one child aged 6 to 17 months in 2002, and from additional household data collected from 3115 children aged 7 to 17 years from twenty sentinel sites, the Young Lives Project sought to understand the impact on child labour and child schooling of public policy interventions formulated within the PRSP, and how changes are mediated through gender and rural-urban differences.

These were the key findings: children were commonly involved in fetching water, firewood and dung both for household use and sale, although they were more likely to attend school when there was adequate household labour. School attendance was significantly lower in rural than in urban sites, while dropout rates were dramatically higher in rural areas. Maternal education levels significantly decreased the likelihood of children combining work and school. Increased land and livestock ownership led to a greater demand for child labour and reduced school enrolment. The involvement of households in more diversified activities increased the demand for labour which is frequently met by children, particularly boys, with girls commonly substituting for their mothers.

In light of the above, Young Lives recommends the following measures to help reduce child labour and increase schooling:

- introducing cash transfers and credit provisions to poor families to offset school costs especially for older and rural children, and to cushion the adverse impact of household shocks;
- improving school availability in rural areas and strengthening the policy focus on female education, including investment in adult literacy programmes;
- introducing credit measures to facilitate labour transactions;
- modernising domestic and farm technologies to reduce labour intensity;
- rationalizing livestock raising patterns;
- improving women's productive work opportunities while simultaneously ensuring that their care work burden is reduced by considering subsidized community childcare arrangements or preschool services;
- introducing safety nets, particularly for female-headed households;
- improving community infrastructure, especially energy and water sources and affordable transportation;
- reducing vulnerability to shocks such as drought through investing in irrigation schemes.

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