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Know Your Place: Ethiopian Children's Contributions to the Household Economy

August 2010

Karin Heissler
Catherine Porter

Young Lives
An International Study of Childhood Poverty

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Abstract

This paper combines quantitative and qualitative analysis to develop a comprehensive and nuanced understanding of children's work, in particular, the role of the household in determining work roles. Using a cohort study of children from Ethiopia, we examine the intra-household distribution of labour and make comparisons between households. Combining findings from these different perspectives reveals that work is fundamental to children's lives and the functioning of their households, and is a source of pride, except when arduous or when not conforming to gender norms, which are quite pronounced – girls tend to work more in the household and boys in farming activities. Adults and children were asked to estimate the hours worked by children, and the answers were extremely similar, suggesting that adults do value the contribution of their children to the household. The nature and amount of work done by children is affected less by levels of household poverty than by shocks and adverse events, such as illness and death in the family – with girls being more affected by illness and the absence of mothers. Boys work more when households have more livestock. Overall, older girls work more than their siblings, and girls work more when there are younger brothers in the house. We argue that more attention should be paid by researchers and policymakers to the interdependence between children and adults within households; the way household and sibling composition, and birth order, shape work roles; and how these factors may interact with policy changes.

Keywords: Ethiopia, children's work, household.

JEL classification: D13, J13, J16, J22

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About Young Lives

Young Lives is an innovative longitudinal study investigating the changing nature of childhood poverty. Young Lives is tracking 12,000 children in Ethiopia, India (Andhra Pradesh), Peru and Vietnam over 15 years through a quantitative survey and participatory qualitative research, linked to policy analysis. Young Lives seeks to:

- improve understanding of the causes and consequences of childhood poverty and to examine how policies affect children's well-being
- inform the development and implementation of future policies and practices that will reduce childhood poverty.

Young Lives is a collaborative partnership between research and government institutions in the 4 study countries, the University of Oxford, the Open University, other UK universities, and Save the Children UK.

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1. Introduction

Africa, and sub-Saharan Africa in particular, is among the world's poorest regions and it also has a sizeable population of child workers (Andvig 2001; Bass 2004). Within Africa, Ethiopia has one of the highest rates of poverty and also one of the highest proportions of working children (UCW 2009). One study finds that over 40 per cent of Ethiopian children aged 10–14 years old are working (Andvig 2001: 5), and another, covering rural areas, finds 34 per cent of children working (Bass 2004: 77). Most rural children in Africa do unpaid work for the household, in particular on their family's farm (Bhalotra 2003 on Africa; and for Ethiopia in particular, Cockburn and Dostie 2007).

This paper adds to the literature on child work in Africa with an empirical investigation of data gathered from a pro-poor sample of Ethiopian children using both quantitative and qualitative methods. We answer two research questions: 1) What role does children's work play in the household, and 2) How do household characteristics affect children's work roles? The paper is structured as follows: section one introduces it. Section two gives a broad overview of the literature on children's work[1] in Africa in general, and Ethiopia in particular, including the relevant literature on the intra-household allocation of work. The literature review incorporates findings from the perspectives of economics, anthropology and development studies. This is followed in section three by a discussion of the methods from which our analysis and findings are derived. Section four discusses the quantitative data and qualitative sub-sample. Section five presents the analysis from both quantitative and qualitative findings, and section six concludes and suggests directions for future work.

2. Literature review

As the paper focuses on the intra-household allocation of children's work, attention is drawn to this in the literature review.[2] As outlined in footnote 2, we use the term 'children's work' when discussing the activities of the girls and boys in our sample. This accounts for all unpaid and paid work, including unpaid domestic/productive work often described as 'chores', that may release other members of the household for paid work.

In economics, most models of children's work are based on child/adult distinctions in roles and a so-called 'unitary' household model which assumes a single decision-maker (or that all household members agree) (see Cigno and Rosati 2005). In brief, these models characterise the household's main concerns for children as being in the realms of expenditure on schooling, earnings from children's work (which depend on the characteristics of the labour market), and utility (or gains) from education (which depend on the benefits of schooling, themselves contingent on various supply-side factors, including the quality of the schooling

1 Except when quoting authors who use other terms such as 'child labour' and 'child work', we use the broader term 'children's work' to include all the paid and unpaid activities children engage in. This includes unpaid activities done for the household which are often described as 'chores', which we shall refer to as 'domestic tasks'.

2 For a more general discussion of children's work within economics, Edmonds (2008) provides a comprehensive survey of the voluminous recent research, Edmonds and Pavcnik (2005) provide an overview of policy debates, and Edmonds (2009) discusses the various definitions of 'child work' and 'child labour' that are commonly used in the literature and that derive from a normative view on distinctions made between what constitutes 'acceptable' and 'harmful' or 'hazardous' work. Cigno and Rosati (2005) provide an overview of the economics of children's work, focusing on household models of time allocation.

institution). The marginal utility to the household of child time will depend on the relative cost of attending school, and on other income from household members. It will also depend on how the household values the contribution of play to child welfare, the marginal utility of the standard of living, and how time spent in the wage market and in household production affects the standard of living.

Most economic studies have concentrated on children's paid work, and poverty is given as the most common reason for 'child labour' (see discussion of Bhalotra and Heady 2003). Anvig (2001: 5) writes: 'Apparently, the poorer the country, the more child labor exists'. However, Bhalotra and Heady (2003) investigated children's unpaid farm work for their households in Pakistan and identified a 'wealth paradox', as children from wealthier households (with more land) were working more than poorer children with less land or without land. Also concerning the 'wealth paradox' and from Africa, Kielland and Tovo (2006) find that children in households that have farmland and small livestock are more likely to work. Cockburn and Dostie (2007) show that in rural Ethiopia, given the lack of a 'market' for child labour, increased assets can stimulate demand for child work within the household (if the increased assets also increase the returns to child labour).

There has been relatively little work in the economics literature that has investigated the intra-household allocation of work. In this regard, our paper builds on studies by Emerson and Souza (2008), Edmonds (2006) and Ejrnaes and Portner (2004), the few exceptions to this. Research in other areas has focused on children's *outcomes* as a function of birth order, or the intra-household allocation of resources – see for example, Behrman and Taubman (1986) and Behrman (1988), and the consensus tends to be that there are significant birth-order effects that tend to favour older children. The authors argue that it could be for biological reasons (the first child produced is the 'strongest') or because parents have more time to invest in earlier-born children in the early years owing to the fact that that time is not shared by other siblings – see the analysis of Price (2008) on US data. However, there are exceptions to these findings. Parish and Willis (1993) studied differential educational levels of girls and boys in Taiwan and found that earlier-born girls received less education, especially in poorer (credit-constrained) households. Further, having an older sister increased the education of younger siblings.

Linking this literature on birth-order effects to intra-household work allocations would predict that lower birth-order children with higher abilities would fare better in both school and the adult labour market in future, and therefore one would expect lower birth-order children to stay in school longer. However, older children will probably command greater earnings (or be more productive) than their younger siblings at work. In this case, households with credit constraints may send older children to work. In their analysis of Brazilian data, Emerson and Souza (2008) note the implication of this for earlier-born children: they may in fact receive less schooling than their younger siblings. Their empirical findings on birth order and gender show that the oldest (especially first-born) children in the Brazilian dataset have to work longer hours.

Edmonds (2006) characterises a simple model whereby the household production of non-traded goods (such as housework) generates sibling differences in child labour. In the same way that they may command greater earnings, older children in his Nepali dataset are comparatively better than their younger siblings at looking after younger children and other tasks within the household. The construction of Edmonds' model means that the age and sex composition of siblings affects the labour supply of children because of household production requirements, and not necessarily credit constraints. Edmonds finds a number of significant differences between siblings in hours worked. In particular, he finds that oldest

girls in Nepal tend to work more, and that this is also sensitive to (or increasing with) the number of siblings.[3]

Other economic studies of children's work that have not focused specifically on household composition have nevertheless found significant gender, age and birth-order effects in their samples. For example, Fafchamps and Wahba (2006) found that first-born girls in Nepal were less likely to attend school and more likely to be engaged in subsistence work and unpaid work for the household. First-born boys are also more likely to enter market (i.e. paid) work. The authors posit that first-born children are 'sacrificed' in the sense that they work to support the education of their siblings. However, the authors cannot distinguish between this finding and possible lifecycle effects (for example, older parents tend to be wealthier and therefore more likely to be able to afford to send their children to school).

While some of the economics literature focuses on child/adult distinctions and a 'unitary' household model, some other research, conducted in a variety of settings in the developing world and based on qualitative methods, draws attention to children's unpaid work for the household and shows that it makes an important (albeit often under-acknowledged) contribution to the domestic economy, for example, Nieuwenhuys (1994), Robson (2004) and Katz (2004). Indeed, some studies (see for example, Andvig 2001) show that the nearly all children's work in Africa is managed inside the context of the family. A great deal of the attention directed to the household focuses on patriarchal relations between adult males and females, and not on adult engagement with children, or the responsibilities of girls and boys. Some research reveals interdependence within households between children and adult members, rather than dependence of children on adults (see for example the work of Powell et al. 2008, and Punch 2002). As the work of Bourdillon (2006) and others points out (see for example, O'Connell Davidson 2005), binary categories of children and adults mask important dimensions of children's lives, including their roles. This is especially important in settings outside the industrialised (developed) world.[4] In their study from Nepal, Baker and Hinton (2001), for example, identified that working adults and children shared common constraints; their shared rural origins, caste, ethnicity and gender were more significant than child/adult differences.

Ethnographic research also reveals that the intra-household division of labour among siblings is mainly shaped by gender and age, but also by birth order, sibling composition and household composition (see for example, the work of Punch (2001, 2002) for Bolivia, and Katz (2004) for Sudan, which also show that children play an active role in mediating these roles). These findings show the need to closely examine intra-sibling differences in understanding work roles.

Challenges to the unitary model have been made primarily in terms of adult male/female bargaining power, but less has been written on children, including from the perspective of children themselves. This is especially notable in the economics literature. Levison (2000) has challenged the conception of children as passive members of the family. Moehling (2005) provides perhaps the only evidence thus far in this body of work that children's income from work may increase their bargaining power within the household. Iversen (2002),

3 Manacorda (2006) analysed household data in the US from 1920 and found that the changes in the eligibility for children's work of one sibling affected the time use and schooling of other siblings, although it did not have a significant impact on parental time spent on work.

4 There are also examples of this in the industrialised West. See, for example, Mayall (2001) for a discussion of interdependence within households in London (England).

in a study of migrant girls and boys, finds that for children under 13 in rural Karnataka, the assumption of no child agency, or choice, does hold, but for boys aged 13 to 14 there is significant evidence of agency. Other findings show that children mediate the demands placed by the household on their labour and may keep some income for themselves (Porter 1996; Reynolds 1991).

The findings highlighted above suggest the need for a more contextualised understanding of children's work, including a closer examination of the functioning of the household, particularly the roles and responsibilities of all its members. In the next section we focus on the situation in Ethiopia as discussed in the literature.

2.1 Children's work in Ethiopia

Contributing to the family through work for one's own household (mostly unpaid) is established as a long-standing feature of most childhoods in Ethiopia, through both qualitative and quantitative analysis. Roles are broadly determined by gender and age, but also by location (rural or urban), season, ethnicity, religion, education, and class (see for example, the work of Poluha 2007b; Nurye 2007; Abebe 2008; Abebe and Kjørholt 2009; and Bevan and Pankhurst 2007).[5]

Guarcello et al. (2006) analysed the 2001 Labour Force Survey and established that half of all 5–14 year olds in Ethiopia work.[6] According to their findings, agriculture is the most common work activity for children, with four out of five of those who work active in that sector, and of those, nine in ten working in or for their own household. They found that older children (11–15 year olds) tended to work more in manufacturing and services, and outside the household. Cockburn (2002), in a study using the Ethiopian Rural Household Survey (ERHS), found that children made considerable contributions to their households through paid and unpaid labour (around 5 per cent of total income, per child). In a sample of 10–19 year old rural girls and boys in the Amhara region, most spent over 30 hours per week doing unpaid work for the household (Erulkar et al. 2004). The division of labour was noticeably gendered: girls did primarily domestic tasks within the household and boys tended to do herding or farming. Also using the ERHS, Admassie (2003) found that female children participated more in household domestic tasks. Boys' participation was higher in farm work such as ploughing, harvesting and looking after livestock. This finding is echoed by Bevan and Pankhurst (2007) who find that although boys and girls start working from similarly young ages, work becomes increasingly gendered as they grow up. Suggesting a 'wealth paradox' in rural Ethiopia, Woldehanna et al. (2005) found that higher land and livestock ownership led to a greater demand for children's work and reduced school enrolment; this is echoed by the findings of Cockburn and Dostie (2007).

Although important, gender and age roles are not fixed. Rather, the type, nature and intensity of work in the Ethiopian context are affected by the intra-household factors of sibling

5 We note that the working lives of urban children have been more frequently studied in qualitative work – see for example, Poluha (2007a); Abebe (2007); Abebe and Kjørholt (2009) – despite the fact that the country is overwhelmingly rural. Between 80 and 85 per cent of the population is associated with farming (Poluha 2007b). In addition, more is known about particular ethnic and religious groups (in particular, Oromo and Amhara children and Orthodox Christians) than others (Poluha 2007a). Nevertheless, certain features have been established by researchers. Although some specific types of work have been well documented, such as sex work (see for example, Van Blerk 2008), begging, and domestic tasks, a minority of working children are involved in such activities (Poluha 2007a).

6 Government departments and international organisations tend to adopt a fairly narrow definition of child labour. Of note, this does not include work on domestic tasks.

composition, birth order and household composition (Abebe 2007, 2009). Abebe (2009) also writes that rural older boys in poor households assist their parents in agricultural work and have more social responsibilities than physically weaker or younger siblings, who are sent to school.

Contributing to one's household is also a moral undertaking: it brings status and is an important part of what it means to be a 'good' and 'obedient' child and to show respect to one's parents and elders (Poluha 2007b; Nurye 2007; Abebe and Kjørholt 2009; Camfield and Tafere 2009). These norms are imbibed over the process of growing up – particularly from within the family, but also through interactions with friends and peers – and they become increasingly important as children get older.

The experience of working is not always negative: children may have positive experiences of learning through work that contributes meaningfully to the household enterprise. They take pride in their skills and in people's appreciation of their work (Abebe and Kjørholt 2009: 187). In some rural areas, work may have a protective and productive role; it helps children to develop the economic skills required for their future lives (Liebel 2004). Furthermore, work is associated with the child's position in the household and wider community. For example, among the Gamo in southern Ethiopia, the social status of the child is closely associated with the work he or she does, and it varies according to gender and life stage (Liebel 2004). Nurye (2007: 3–4) writes that in Ethiopia: 'Cultural practice and the family set-up emphasise interdependence more than autonomy, affiliation rather than individual cooperation.' This is confirmed by other findings. For example, Abebe and Kjørholt (2009: 178) establish that: 'children are valued as part of the family collective, not as autonomous individuals occupying independent positions in society. They are likely to perceive their needs as interdependent with those of other family members rather than taking priority over them.' Children are not equal partners in this relationship, however. The authors describe this relationship between children and their parents as comprising a form of 'intra-household social contract' that is mostly controlled by adults but with adults' control declining as children become more competent and experienced (which is often associated with age) (Abebe and Kjørholt 2009). Woldehanna et al. (2005) found that increased demand for labour in the household is frequently met by children, particularly boys, with girls commonly substituting for their mothers.

Children's work is also affected by wider socio-political and economic factors. Abebe (2007, 2009) found that the drop in coffee prices in the global market resulted in an increase in the out-migration of adult household members to secure off-farm employment which, in turn, led to an increase in child work. Commercial farming has been seen by the government as a strategy for poverty alleviation. However, research conducted by Orkin (2009) in a rural community showed that some girls and boys were working on commercial farms and missing school.

Children's working lives are also affected heterogeneously by government programmes to alleviate poverty. Woldehanna (2009) shows that the Productive Safety Net Program (PSNP), a large-scale cash-and-food-for-work scheme in rural Ethiopia,[7] has positive effects on child school attendance, but also that it increases the hours worked by certain children. This may be due to children substituting for their parents (or other adults in the household) when the adults work on the PSNP. Hoddinott et al. (2009) find that participation in the same scheme leads to a moderate reduction in agricultural hours worked by boys aged 6–16 years, and a reduction in

7 Woldehanna (2009) provides more details on the scheme, which includes three components: payment for work (in food or cash, depending on the region), direct support to those who do not have labour capacity, and a complementary programme called 'Other Food Security Program' that incorporates targeted agricultural support, such as access to credit and agricultural extension services.

hours spent on domestic tasks by boys 6–10 years old. They do not find such strong effects for older girls (except when combining high transfers from public works and other support packages), and for younger girls, they find tentative evidence of a reduction of schooling.

The discussion pursued thus far suggests several key issues to explore quantitatively and qualitatively. Findings summarised above suggest the need for close examination of the functioning of the household and what determines children's roles within and for this institution. Second, while attention is drawn to the importance of children's work for the household economy and the impact of processes of development on children and their work, there is a need to explore how these same forces affect the intra-household division of labour. Research presented above suggests that not all children – including those within the same household – are affected equally. Also, the importance attached to the meanings of work for children and their households is evident. Inter alia, work is associated with being a 'good' child, and belonging to and contributing to the household. Furthermore, maintaining this institution is seen as a collective endeavour representing interdependence. Accordingly, in our analysis we use quantitative methods to examine the outcomes for children, for example their hours worked, and we use the qualitative methods to understand in depth what processes within the household and outside it lead to these roles, and importantly, what the understandings and opinions of children are about the work that they do.

The next section describes the methodology (including sampling frame) from which the findings for this paper have been drawn.

3. Research sample and methodology

Our research focused on a cohort of 997 children born in 1994–95, who live in 20 sentinel sites (rural and urban) in five regions: Addis Ababa, Amhara, Tigray, Oromo and Southern Nations, Nationalities and Peoples (SNNP).

3.1 Methods and research ethics

The quantitative data come from Round 2 of the Young Lives survey of these children, which was carried out in 2006[8] when they were 11–12 years old.[9] Detailed information was collected on household socioeconomic status (for example, income, consumption and assets) as well as on the education of household members, and on the way adults and children used their time. Questions were also administered directly to the children, including questions on the hours they spent working and on their aspirations. In the quantitative

8 Young Lives is a 15-year study of childhood poverty in Ethiopia, India, Vietnam and Peru, funded by the UK Department for International Development (DFID). The full text of all Young Lives publications and more information is available on www.younglives.org.uk.

9 See Outes-Leon and Sanchez (2008) who describe the sampling strategy in detail. Overall, the sample reflects a pro-poor bias, and sentinel site selection was purposive. Household selection within the sentinel site was random, and a careful analysis of the distribution of child characteristics included in the sample suggests that the data cover a wide variety of children that is broadly similar to nationally representative data sets. Therefore, while not suited for simple monitoring of child outcome indicators (as the mean characteristics will be different), the Young Lives sample is an appropriate and valuable instrument for analysing correlates and causal relations. Further, we note that the survey does not cover the pastoralist regions of Afar or Somaliland.

analysis, the full sample of 997 Young Lives children[10] and their siblings is used, making a total of 2,736 children in the 997 households. In further quantitative analysis, we restrict the sample to the 997 cohort children only.

Data in the qualitative sub-sample is drawn from Round 1 of qualitative research, which was carried out between September and November 2007. Six girls and boys aged between 11 and 13 years old from five of the 20 sentinel sites, participated, thereby making the overall sample 30 (15 girls and 15 boys) with an additional 30 parents or primary caregivers. The sites, described in Table 1 below, include a mix of regions to cover the main geographical, religious and ethnic diversity of the country, as well as to account for rural/urban differences and varying levels of socio-economic development in the population (though we note that the Afar and Somaliland regions are not covered). The children in the qualitative sub-sample occupy different positions within the birth order, and the sibling and household composition varies. The qualitative sub-sample included a higher proportion of orphans (meaning children who had lost at least one parent) than the full sample; therefore we have used caution when making inferences about the experiences of this group of children. (For an analysis of orphanhood in the Young Lives sample, see Camfield and Tafere 2009.)

The qualitative research employed with children comprises a mix of methods (for details of the methods, data management and other issues see Tafere and Abebe 2008). The data analysed in this paper come primarily from interviews with children, from their diaries and from discussions with their parents/caregivers.

Ethical concerns informed all stages of the research process, both quantitative and qualitative.[11] Informed consent required at all stages, so participants were regularly checked for their willingness to participate and were free to withdraw at any time. To protect the identity of respondents, pseudonyms are used when referring to the specific sites and individual children.

Table 1. *Summary of sites in the qualitative sample*

Site names[12]	Summary description
Debre	Debre is situated in Addis Ababa, and is a densely populated urban area. The population is ethnically and religiously diverse, yet the Amhara ethnic group and Orthodox Christians comprise the bulk of the population.
Aksum	The Amhara are the largest single ethno-linguistic group in this rural community and the vast majority of residents belong to the Orthodox Church. There is a very small Muslim minority. Farming is the most common source of income in the community. Aksum experiences recurring droughts and famine.
Bale	The population in this rural community is predominantly Oromiffa-speaking Orthodox Christians; however, there are a few Muslim families. The major economic activities in Bale are agriculture, fishing, and handicrafts.
Yoboki	Yoboki is a densely populated urban site in Awassa City. Members of the Wolayta and Sidama ethnic group, who are Protestants or Orthodox Christians, form the majority population. Most people in the community engage in petty trading, daily labour, street vending, or self-employment.
Angar	Angar is a rural community. Its population is composed exclusively of Tigrinya-speaking Orthodox Christians. Agriculture supplemented by livestock raising is the main economic activity.

10 Round 1 started with 1000 children, but by Round 2 the sample had reduced slightly to 977 due to attrition. However, bias from this small attrition has been analysed and is likely to be insignificant (Outes-Leon and Dercon 2008).

11 For a detailed discussion of the research ethics, methods and training of the research team, including issues arising over the course of the longitudinal research, see Morrow (2009). Particularly concerning the use of qualitative methods in the Young Lives qualitative sample in Ethiopia, see Tekola et al. (2009) and Tafere and Abebe (2009).

12 As mentioned in the main body of the paper, pseudonyms are used when referring to sites and individual children in order to protect the anonymity of respondents. We follow the pseudonyms used by other Young Lives studies for continuity. It has been noted that some of the names may sound like real places in Ethiopia, but this was unintentional.

4. Quantitative analysis

In attempting to analyse the differences in hours worked by boys and girls of different birth order on various activities, there are a number of econometric concerns that we aim to address in the analysis. First, we utilise information on brothers and sisters to analyse intra-household (in fact intra-sibling) differences in hours spent working on household domestic tasks (including caring for others), doing paid work outside the home and doing unpaid work for the family farm or business. This follows the approach of Edmonds **(**2006) by employing a household fixed-effects model. By doing this, we compare children from the same household faced with the same attitudes of adults to work and schooling in general, and experiencing identical socioeconomic characteristics of the household, including identical income. Certain attitudes and characteristics may be unobserved by the researchers and may potentially be correlated with child labour supply (in economics language, we eliminate the household fixed effect). However, we cannot control for the fact that it is the household that chooses the composition of its members (endogeneity of household composition), although we may assume that households do not choose the gender of their children.[13]

Second, we investigate in more detail the relationship between household composition and other characteristics of children's work among our cohort of children (aged 11–12 years). We then use only one child per household, (i.e the 997 children, not their siblings) but we have a rich set of household characteristics that are measured in the data. We include the gender and birth-order variables, as in the household fixed-effects model, and also variables on household composition, the presence of parents in the household, the education of the parents/caregivers and the socioeconomic status of the household (wealth, rather than income or expenditure). We also include economic shocks that the household has experienced, such as drought or the illness of various household members. As a robustness check we can include the average hours worked by siblings, which can control for parental attitudes to work in general (though they will absorb many household-level characteristics).

4.1 Descriptive statistics

For the purposes of the analysis, we consider all activities undertaken by children that contribute to the household's economic life. As noted in the introduction to section four, this includes work undertaken both inside and outside the home. In places we combine paid work and unpaid work for the family farm or business into 'economic activities' as is common in the economics literature, but we also analyse it separately. We calculate separately work often described as 'household chores' or 'domestic services' undertaken within the child's own household such as cooking, cleaning, fetching firewood, child care and any other tasks within the home. We describe all such work as 'domestic tasks'.

There are three sources of information in the data on hours worked by children. First we have the parent/caregiver's account of hours spent by children aged 5–17 on a range of activities on a 'typical day' last week (not including weekends or holidays). The activities (including sleep and play) are constrained to add up to 24 hours. Second, for the 997 cohort children aged 11–12 years only, we have the children's *own* reports on their activities during

13 Some of the literature from Asia recognises a distinct gender difference even in terms of girls' survival. However, there is less evidence for this in Africa (see for example, Svedberg 1990). Klasen (1996) does find a slight bias in terms of nutrition that is rising, but nothing to suggest sex-selection by parents. Christiaensen and Alderman (2004), in a study of nutrition in Ethiopia, also find that girls are less stunted than boys. We do not see evidence that girls live in larger households than boys.

a 'typical day' (in the same format as given by the parent/caregiver above). We use these two measures for the analysis of the cohort children. The third source is time-use over the year for all siblings (as reported by caregivers), but we use the first two as they are more comparable.

Table 2 shows the proportion of children aged 5–15 (the cohort children and their older and younger siblings) who work on domestic tasks, unpaid work on the family farm or business and paid work outside the home. We also show whether or not they are in school. Overall, just under 80 per cent of children are enrolled in school and attending regularly, with a significantly greater proportion of girls than boys in school. Most of the children are doing at least one type of work activity. The most common activity is domestic tasks, undertaken by three-quarters of all children aged 5–15. A gender division is immediately apparent, with almost all of the girls working on these activities as compared to two-thirds of the boys. Just over half of all boys work on unpaid work activities for the family farm or business, compared to just under a third of girls. Only 3 per cent of children work in paid activities, with slightly more boys than girls receiving pay for their work. Orkin (2009) notes that data on paid work may be an underestimate, as the involvement of children in paid work is often at weekends or during school holidays, and therefore not on a 'typical day'. Further, there may be under-reporting in communities that have become aware of global norms on the undesirability of 'child labour'.

As noted in the literature review, responsibilities within the household in Ethiopia change with age, and for the descriptive statistics we split the sample into 'younger' children (aged 5–10) and 'older' children (aged 11–15). Fewer of the younger children attend school, owing to the relatively late start date of primary school in Ethiopia (at 8 years old). The proportion of children working on the family farm or business is actually very similar between both age groups. Older children are more likely to be undertaking domestic tasks; in fact the majority do some. Almost no younger children are reported to be involved in paid work, compared to just under 5 per cent of the older children.

Table 2. *Children (aged 5-15 years old) engaging in various activities, including work (%)*

	School	Domestic tasks	Family farm/ business	Paid work	Any work
All	79.9	75.3	42.7	3.1	86.3
Boys	77.9	66.4	54.4	3.8	84.3
Girls	82.0	84.3	30.7	2.4	88.4
Age 5–10	62.9	61.7	41.6	0.8	75.0
Age 11–15	91.1	84.3	43.4	4.6	93.8
Cohort children	94.4	88.2	45.0	3.8	96.9
Cohort children – self reported	94.1	89.5	45.0	4.5	97.2

Notes: Percentages are of children whose caregiver reported that they spent one or more hours on the tasks on a typical day in the past week. The final row is the same question but asked directly to the Young Lives cohort children.

We separate out the cohort children (11–12 year olds) for further analysis in the bottom two lines of the table. A higher proportion of them are in school, and they are also are more likely to undertake work than the average for all 5–15 year olds in the sample. This is partly because of the later starting age for school of children in Ethiopia, and also because there is some drop-out of school for the older siblings, above age 13. The difference between the

cohort children and their older siblings shows that a slightly smaller percentage of children over 12 are enrolled in school and do domestic tasks.

In the survey, enumerators also asked the cohort children to report for themselves how many hours they spent on a typical day on the activities discussed. We report on this in the final row of Table 2. One striking finding is that the children's own reports of their activities are very similar to those provided by their parents/caregivers. We tested the difference using t-tests, and found that that none of the averages were statistically different from the caregiver estimates (i.e. for all activities, caregivers give the same response as children on hours worked). This shows that parents/caregivers are well aware of children's activities, including their roles in and contributions to the household. This finding contradicts findings from some research of children's work which finds that adults are unaware of or downplay the contributions girls and boys make to the household economy (see Nieuwenhuys 1996, 1994).

Having discussed participation rates, we show in Table 3 the hours spent on a typical day on the various activities. On average, children 5–15 years old spend just over four hours per day on work (for reference, the average time spent in school is 4.8 hours/day). Domestic tasks take up the most hours, followed by unpaid work on the family farm or business. The gender difference is apparent again here, with girls spending more than three hours per day on domestic tasks compared to just under two hours for boys. However, boys spend two hours on unpaid work on the family farm or business whereas girls spend just under an hour on such work. We split the sample into those who are in school and those who are not, and find that children not going to school spend more time working, especially on unpaid economic activities. Calculating average hours over the whole sample includes children who work zero hours in that particular type of task, so we compute the averages for only those who work in the activity (see bottom three rows of the table). This **s**hows up most clearly for the paid work, where only a small percentage work. Those children who participate in paid work spend an average of 4.3 hours per day on it, with boys working an hour more per day than girls. Girls work an hour more per day on domestic tasks. Overall (as revealed in the final column) we see that there is no significant gender difference in terms of *total* hours spent working.

Table 3. *Hours spent per day by children (aged 5-15 years old) on work activities*

	Domestic tasks	Family farm/ business	Paid	Any work
All	2.5	1.5	0.1	4.1
Boys	1.8	2.1	0.2	4.1
Girls	3.2	0.8	0.1	4.2
In school	2.5	1.2	0.1	3.8
Not in school	2.6	2.6	0.3	5.5
Those working more than 1 hour on the activity				
All	3.2	3.3	4.3	4.6
Boys	2.6	3.7	4.7	4.7
Girls	3.7	2.6	3.7	4.5

Notes: Average hours worked in a typical day, as reported by the caregiver. The bottom three rows are the average for only those children who work more than one hour (i.e. we remove the children who do not work in that activity).

We analyse the 997 cohort children separately in Table 4, and find a similar pattern to that of the whole sample. On average they work 4.5 hours per day, with little difference between boys and girls. Those not in school work considerably longer hours than those in school.

Girls work longer hours on domestic tasks, but spend fewer hours on paid and unpaid work than boys.

Just under 15 per cent of children are not working at all, however we define work above. Of those who work, the majority of their working hours are spent on domestic tasks, and boys tend to spend more time working on the family farm or business than girls, who spend more time on domestic tasks. In the analysis we use the two daily measures of hours worked (reported by the caregiver and the child) and compare the results.

Table 4. *Hours spent per day on work activities by Young Lives cohort children (aged 11–12 years)*

	Domestic tasks	Family farm/ business	Paid work	Any work
All	2.8	1.4	0.1	4.4
Boys	2.1	2.0	0.2	4.3
Girls	3.5	0.8	0.1	4.4
In school	2.7	1.3	0.1	4.1
Not in school	4.3	4.3	0.8	9.3
Those working more than 1 hour per day on the activity				
All	3.2	3.2	3.8	4.5
Boys	2.6	3.5	4.0	4.5
Girls	3.7	2.5	3.5	4.5

Notes: Sample includes only the 997 cohort children aged 11–12 years.
Definitions of work as above.

Descriptive results on sibling composition and gender show that children with lower birth order work longer hours. Birth order is correlated with age, but there is quite a lot of spread: by construction of the dataset[14] the youngest first-born child is 11 (and the oldest 15, again by construction of the dataset), but we have children aged 5–15 in all the other birth-order categories. We conducted some t-tests on whether the oldest child worked longer hours, and found that the oldest girl worked significantly longer than her younger sisters, but the oldest boy did not work longer than his brothers. Oldest girls also work longer hours than oldest (and other) boys.

Table 5. *Hours worked, oldest vs. other children in same household*

	Oldest	Others
Girl	4.82***	4.03
Boy	4.08	4.05

Note: *** significant at 1%. Average hours worked on a typical day, as reported by caregiver, all children (n=2485). T-test of oldest girl hours worked vs. other girls significant at 1%, as well as T-test of oldest boy vs. oldest girl.

14 Recall that the sample is a cohort and was sampled using households with a child aged 7–8 years in 2002. Therefore the oldest child in the household cannot by definition be younger than the cohort child (unless an older child returned from migration; however this appears not to have happened in our sample.

5. Results

5.1 Quantitative results on household composition, age and gender

Having data on hours worked by cohort children as well as their siblings means that we can make some comparisons between children of each household, using a restricted set of variables. The idea is that we isolate only the age, birth order and gender of the child, holding all other household characteristics constant. Table A1 (see Appendix) shows descriptive statistics for the cohort children and their siblings used in the analysis. Table A2 presents within-household regressions that compare the 2,487 siblings in the 997 households. The results show a clear progression of hours worked increasing in all activities with age.[15] We find that pooling all work, girls do not work significantly different hours to boys. However, as seen in the descriptive statistics, girls work significantly longer on domestic tasks, and boys work more hours on the family farm or business, or in paid work (so-called 'economic work').[16] We included a set of birth-order dummies and find no significant differences for the oldest child; however, the coefficient for the oldest girl is significantly higher (by approximately half an hour per day at the mean). Given that a comparison within the household necessarily means that there is likely a high correlation between birth order and age (which may be less the case in a cross-section, for example), we estimated the regressions omitting age. Here we find strong birth-order effects – disentangling this is actually more difficult using the within-household approach so later we test this using the 997 cohort children only. We separated the sample into urban and rural, and did not find any difference in the estimates.[17] The 'oldest girl' effect remains when we include a full set of age dummies in order to allow a flexible structure in the progression of work responsibilities.

Having established a clear gender and age division of work between siblings, and an 'oldest girl' effect, we turn now to an examination of our cohort children aged 11–12 years old, in order to include further household characteristics that may influence hours worked. We add a comprehensive set of household variables including household size, composition and wealth, as well as attitudes to school and parents' education. We control for community fixed effects, and also include a set of adverse events that may adversely affect household welfare, such as illness of the mother and/or the father, number of other ill household members, shocks to crops and livestock, theft and other adverse events. We use ordinary-least-squares regression with community fixed effects (to control for unobserved heterogeneity between the diverse communities). Descriptive statistics for the variables are shown in Table A3 of the Appendix.

Table A4 in the Appendix shows the results of the analysis. Column one combines all three types of children's work as outlined above. We do not find significant gender differences in total hours worked. However, we do find that being the oldest girl in the household increases the amount of time spent on work overall.[18] Having their mother present in the household significantly reduces the hours worked by all children (or conversely, the death or absence of the mother increases the amount of work that children must do). Whether or not a father is

15 In fact, the effect is quadratic (i.e. the rate of increase in hours worked declines as children get older).

16 The term is used in most economics papers and by international organisations, for example in the World Bank's World Development Indicators. See www.worldbank.org/data for more details.

17 Though the estimates on the oldest girl lose precision due to the smaller sample size.

18 Recall that all of the children are of a similar age, born within a year of each other, but there is variation in their birth order.

present does not appear to make a significant difference in terms of hours worked overall.[19] The precision on parental illness is fairly low, but it appears that girls may work more when their mother is ill (significant only at 88 per cent, p=0.12). They also appear to work less on economic work when their father is ill. Also not reported here, the community fixed effects are extremely significant and explain quite a large proportion of the variation in hours worked.[20] None of the other household composition variables are significant, except having a younger brother, which increases the hours worked on domestic tasks (which include child care), and the possibility of being substituted for economic work.

In terms of shocks, deaths in the household increase hours worked overall, driven by increases in economic work. It also appears that livestock shocks increase hours worked – possibly due to time spent tending to sick animals. One interesting variable is the strong (positive) correlation between hours worked and the response to a question about teachers. If the caregiver agrees or strongly agrees with the statement: 'My children's teachers are unfriendly or rude to me', children's hours worked increase (by around the same magnitude as being the oldest girl). Whilst this may be picking up some other unobserved characteristic of the caregiver, it does provide something of a link between school quality and substitution for work (and indeed we cannot quite infer the direction of causality – children may work more when parents find teachers unfriendly, or teachers could be unsympathetic to parents of children who work more). Of note also is that none of the variables we tried to include as proxy for household wealth were significant.[21]

Given the possibility of significant differences between genders, in Table A5 we present the results for boys and girls separately. Oldest girls work more than their sisters on domestic tasks, and overall. Girls also work more (overall, and on domestic tasks) when their mothers are ill, and boys work more on domestic tasks when their fathers are ill. Boys appear to work less in larger households. Interestingly, girls work more if they have sisters, and if they have younger brothers. Both boys and girls seem to be affected by adverse events overall, but boys work more when the household has more livestock (which is consistent with the gender norms outlined in the literature review).

Including the hours worked of other siblings weakens the findings slightly (given that these would be highly correlated with household characteristics) but does not alter the main results. We also ran the same regressions using the self-reported hours worked and found strikingly similar results (presented in Table A6, and confirming the discussion of the descriptive statistics, that adults and children had similar reports of hours worked). The main difference is that it appears girls work more on domestic tasks overall, and the 'oldest girl' effect is less pronounced (significant at 12 per cent only for overall work, but significant at 5 per cent for economic work).

In summary, we find that age and gender play a significant role in determining hours worked in the various tasks that Ethiopian children perform. Further, there seems to be an 'oldest girl' effect. Children's work responds to changing family circumstances such as illness or death, and this is often gendered.

19 A puzzling result seems that a father being present increases the number of hours worked on economic activity.

20 If we remove community fixed effects, and include a rural dummy, it is clear that rural children work far more than urban. Splitting the sample into rural and urban shows slight differences (in particular the age gradient is steeper in rural areas, and the shocks are more pertinent), but also reduces precision of the estimates.

21 Cognisant of endogeneity problems, nevertheless we tried various wealth measures such as the wealth index, value of assets, per capita expenditure and ownership of various assets. None were significant.

5.2 Qualitative findings

5.2.1 Household interdependence

We turn now to the qualitative findings, which allow us to explore in greater depth children's roles and responsibilities in the household, including their work. We also engage more with what the parents/caregivers have to say about their children's work and its significance to the household economy. To situate the findings, Table 6 (below) shows the participation rates of the qualitative sub-sample. We find that the children interviewed in the qualitative sub-sample do work slightly more than the other children (see Table 4), possibly because they were sampled from more vulnerable households. The main significant difference is higher participation in paid work activities (10 per cent as opposed to around 4 per cent for the cohort as a whole).

Table 6. *Participation in work of children in the qualitative sub-sample (aged 11–12 years old) (%)*

	Domestic tasks	Family farm/ business	Paid Work	Any work
Male	73.3	53.3	6.7	100.0
Female	92.9	21.4	14.3	92.9

Note: Taken from the qualitative sub-sample of 30 children (15 boys and 15 girls)

Both children and their parents/caregivers stressed that girls and boys had important responsibilities to the household. In some households, particularly those with elderly parents/caregivers or with only one parent, adults are heavily reliant on the work contributions –both unpaid and paid – made by the children. Participation in formal school may complicate this relationship further; however, it is understood that the work must still get done, so some trade-off in tasks between household members and adjustments in scheduling may take place.

As revealed by the interviews, for many of the children, daily life involves dividing up the tasks with their siblings. For example, Naomi Fegessa[22] (a girl from Bale), does some paid work as a daily labourer in order to support her family and to pay some of her school costs (her clothes and school materials). Although she explains that the work she does can be difficult and time-consuming, she has not yet missed school because her sister helps her juggle her responsibilities. Similarly, since starting school, Seife Senbetta (a boy from Aksum) has made the following adjustments to his work schedule in order to go to school and meet the needs of the family, and this has been negotiated with his brother (and presumably his parents):

> Interviewer: Is there any change in your life within the past six months? Did you get in a school?
>
> Seife: Yes, I did.
>
> Interviewer: That is a change. What is the difference between going and not going to school?
>
> Seife: I used to be with the cattle. But since I got in a school, I go and learn until five o'clock and after that come home and feed the cattle.
>
> Interviewer: Who replaced your job at home?
>
> Seife: My brother.

22 As mentioned in the methodology section, in this paper, pseudonyms are used when referring to the names of sites and individual children in order to protect the anonymity of respondents.

Interviewer: Is your shift different from your brother's?

Seife: Yes.

Revealing how much the household relies on his son's contributions to its economy (this is especially because Seife's parents are elderly and physically less strong), Seife's father admits he was finally forced by the local authorities to send the boy to school:

Interviewer: You did not want him to go to school.

Seife's father: What can I do? At a village meeting they told me to do so. But who can keep the cattle for me, who can bring water? And [who can] split wood for his mother?

Interviewer: What kinds of work does he do?

Father: Everything.

Interviewer: Everything?

Father: Cattle keeper.

Interviewer: Eh?

Father: He can work as a cattle keeper, wood splitter, and water bringer and he can work at anything.

The above passage shows that Seife's father's acknowledges his son's work for the household (Seife's work helps out both his mother and father) and he attributes a great deal of importance to his son's contribution.

Findings from the data further show that most children accept this role as worker because everyone makes a contribution to the household. Further, the children clearly articulate their roles in and responsibilities to the household, and all of them recognise their contributions – unpaid or paid – as important for the functioning of this institution. This is well illustrated in the following interaction between an interviewer and Masresha Habte (a boy from Aksum):

Interviewer: You all work together, helping each other?

Masresha Habte: Yes.

Interviewer: Is there anyone who does not go to school in your house?

Masresha Habte: Yes, it is only the little baby. I love him.

Interviewer: But you all are students?

Masresha Habte: Yes.

Interviewer: Do your parents treat you all equally?

Masresha Habte: What do you mean by treating you all equally?

Interviewer: I mean do they give more attention to you or to some other one?

Masresha Habte**:** How could they do that? We all work to our capacities and eat only to our capabilities [our emphasis].

The interview extracts presented above raise questions about the 'unitary' model of the household discussed in the literature review. In contrast to that model, they testify to household interdependence based on ability and, although it is not explicitly stated, according to one's gender and age. The fact that all children are treated equally backs this up: with the exception of the baby, all the remaining children in Masresha's household go to school and combine this with various types of unpaid work for the household, as is expected

of them and accepted by them. None is favoured over the other; indeed Masresha is perplexed by the interviewer's question about being treated equally by his parents or being the object of extra attention. This analysis is further confirmed by the findings from the quantitative analysis (as presented in the final row of Table 2 in the previous section), which show that parents/caregivers hold similar views to their children on the activities they perform and the time these take up each day.

The examples provided above confirm the need to move away from a unitary model of the household and the focus on child/adult distinctions within households. Rather, intra-household relations are best characterised by *interdependence* between child and adult members rather than the child's *dependence* on their parents/caregivers. The findings also suggest that in contexts of high economic uncertainty, interdependence may serve as a highly protective factor that may reduce the vulnerability of all household members.[23] Children acquire skills and capacities through the work they perform that help themselves and others within the household.

5.2.2 *Household composition, sibling composition and birth order*

Having established the household as a site of interdependence, we now examine in greater depth the characteristics that influence roles and responsibilities within this institution. Building on the findings from the quantitative analysis that gender and broad age divisions broadly shape work responsibilities, (with roles becoming more gendered and important to the household economy with increasing age), findings from in-depth discussions with children show that girls' and boys' roles within the household are also affected by a combination of household and sibling composition and birth order. In addition, the health status (including illness) of themselves and other members of the household also affects their tasks.

For example, Afework Benas (from Debre) is an orphan. Both his parents are dead and he has two older brothers and a sister. He explained his responsibilities, from whom he learned how to perform them and what he liked and why:

> I have responsibilities in the home/household to make the bed, and help my older brother and wash the dishes. My sister taught me while she was here. But now she is in Beirut [Lebanon]. My older brother also shows me. I do these things in order to help at home and to keep my home clean.[24] I like making the bed because I enjoy it. I like washing the dishes least because I don't know how to do it perfectly.

As the case study of Afework shows, his tasks are not fixed according to gender and age. Rather, the composition of the household, combined with birth order and sibling composition, affects the intra-household allocation of tasks, again confirming our findings from the quantitative analysis. What is also apparent is the profound sense of pride and accomplishment he feels in doing the work and, especially, in being able to do it well.

Table 7 shows that only 15 out of 30 of the child participants in the qualitative sub-sample live with both their parents.[25] Some are living with a combination of a surviving parent, one or more grandparents, and other members of the extended family (for example aunts and uncles and cousins or one or both grandparents).

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23 For further exploration of this topic, see Boyden (2009).

24 Of note, this shows that parents/caregivers are not the only ones in the household who teach children how to work: siblings also teach each other important skills.

25 Recall that the qualitative sample was over-sampled for risk, which included for orphans missing one or more parent.

Table 7. Parent composition, qualitative sub-sample

Village	Living with both parents	Living with one parent (other parent dead)	Living with one parent (other parent absent)	Lives with another relative (both parents are dead or one is living elsewhere)
Debre	0	0	3	3
Aksum	4	1	1	0
Bale	5	0	0	1
Yoboki	2	3	1	0
Angar	4	1	0	1
Total	**15**	**5**	**5**	**5**

Note: Compiled from interviews with individual children and caregivers (Young Lives qualitative data, sub-sample of 30 children)

For example, Keleb Weyra (from Aksum) lives with her maternal grandparents because her mother works as a maid in Addis Ababa.[26] She comments to the interviewer that she has a heavy workload because her grandparents are elderly and physically weak (her grandfather is also blind), and she has no other siblings with whom to share the domestic tasks. As a result, she cleans the household, prepares coffee and looks after the animals on the farm. Keleb's diary showed that she spends the bulk of her waking day doing various types of work for the household and farm (almost nine out of more than 15 hours).

Of all the tasks she does, she dislikes looking after the cattle the most. She explains that this is because it is work she must always perform and she finds it boring.[27] She adds that her peers do not experience this feeling because they get support from their siblings to look after the cattle. She furthermore comments that her grandparents used to own a lot of cattle, but because they could not find workers to look after them, and because Keleb was not physically able to do all of it by herself, they were forced to sell most of them, leading to more serious economic hardship and food shortages for the household. Hence household composition, combined with sibling composition and the domestic lifecycle of the household (the aged grandparents) also affects children's workload and the type of work they do. This shows some flexibility in gendered tasks, which is also revealed in the following example.

Seife Senbetta (also from Aksum and introduced earlier in the paper) is the eldest of three children. He has a younger brother and sister. Nevertheless, because his sister is too little (she is five years old), when his mother is busy with other work, Seife has to do the cooking, which he otherwise regards as women's work and which he dislikes and feels embarrassed to do. As a diary entry[28] also shows, he strongly dislikes fetching water, which he also believes is women's work. Hence, as the example of Seife illustrates, birth order also plays a dynamic role in children's roles and responsibilities, and Seife does tasks that are associated with both girls and boys.

Analysis from the qualitative sub-sample confirms the importance of gender and age in shaping children's work roles, though it reveals that these are not fixed. Changing household circumstances, including illness and death, which affect household composition, shape girls' and boys' contributions. This interdependence also shows the need to move beyond a 'unitary' model of the household.

26 Keleb Weyra has never known her father because her mother left him when Keleb was still a baby.

27 Of note, cattle herding is a type of work usually associated with boys.

28 Diary entry 15 November 2007.

6. Conclusions

This paper has investigated the role that Ethiopian children play in the household economy. Quantitative and qualitative analysis establish that work is a central feature of the lives of girls and boys in our sample and that this work is essential for the household economy. Intra-household relations are thus best described as 'interdependent' rather than being about children's subordination to and dependence on adults within the household.

Further, while almost all the children in the sample studied are 'poor' and are working, household poverty is not enough to understand how work within households is divided up and how workloads respond to changes in household circumstances. Although work is broadly shaped by gender and age, our findings show that these are not the only determinants. Rather, more attention should be paid to the role of household composition, birth order and sibling composition in determining *which* children, within *which* households do *which* type of work. By virtue of household composition, sibling composition and birth order, some girls or boys have significantly heavier burdens than do other members of the household. The oldest girls in the household often have higher workloads than their brothers and their younger sisters. When examining children's working lives in more detail through qualitative methods, we find that children take great pride in their contribution to the household, and further that this contribution is broadly acknowledged by adults in the household. Children are gaining responsibilities and learning skills that may help to reduce household vulnerability.

Additionally, there is greater flexibility and dynamism as regards gender and age within the household division of labour than may otherwise be assumed; for example in the case of some of the orphaned children in the qualitative sample who take on more responsibilities in the absence of their parents. We also find that children performing roles outside their gender norms do not feel comfortable with these tasks, though they perform them as part of their duty to the household. Illness and other factors can lead to temporary changes in children's roles and responsibilities, and children often substitute labour for adults. This finding is particularly important in the design of social protection programmes that have a labour requirement, such as the Productive Safety Net Program (PSNP) in Ethiopia. Our findings show the need for greater nuance in understandings of children and work in Ethiopia. In particular, our research highlights areas that could be given further consideration by policymakers looking to improve school attendance by helping children combine schooling with their work responsibilities. Finally, the importance of integrating research methods to gain a more complete picture of children's experiences cannot be overemphasised. Quantitative methods can show broad patterns of children's time use and its responsiveness to external and internal factors, but qualitative analysis allows us to understand the experiences of children and their likely reactions to changes in circumstances and policy interventions.

The findings also raise questions about the possible trade-offs in types of knowledge acquired by children through work and learned in the more formal institution of school, particularly if investments in the latter do not reap the same types of benefit for the child *and* his/her household.

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Appendix: Additional tables

Table A1. *Descriptive statistics for all children*

Variable	Mean	Std. Dev.	Obs.
Dependent variables – caregiver report			
Hours worked (typical day)	4.11	2.64	2487
Hours on domestic tasks (typical day)	2.50	2.07	2487
Hours economic work (typical day)	1.61	2.20	2487
Hours worked (typical week)	22.34	16.70	2486
Hours on domestic tasks (typical week)	13.60	14.25	2486
Hours economic work (typical week)	8.89	16.29	2487
Age	10.58	2.65	2487
Girl	0.49	0.50	2487
Oldest child	0.14	0.35	2487
Second oldest	0.17	0.38	2487
Third oldest	0.20	0.40	2487
Fourth oldest	0.18	0.38	2487
Fifth or more	0.31	0.46	2487

Note: Includes all cohort children and their siblings.

Table A2. Comparison between siblings of gender, age and birth-order effects

	All work	Domestic tasks	Economic work
Age	0.919***	0.432**	0.382***
	(0.19)	(0.19)	(0.084
Age squared	0.0326***	-0.0186**	0.0104**
	(0.009)	(0.009)	(0.004)
First-born child	-0.00125	0.176	0.0653
	(0.6)	(0.58)	(0.44)
Second-born child	0.0915	0.292	0.088
	(0.42)	(0.29)	(0.31)
Third-born child	0.315	0.335	0.155
	(0.33)	(0.26)	(0.2)
Fourth-born child	-0.0176	0.0263	0.149
	(0.25)	(0.3)	(0.19)
Girl	0.0257	-1.519***	1.090***
	(0.3)	(0.26)	(0.18)
First-born girl	0.528*	0.133	0.305
	(0.28)	(0.48)	(0.26)
Second-born girl	0.411	-0.055	0.339
	(0.35)	(0.29)	(0.2)
Third-born girl	-0.0297	(0.24	0.149
	(0.28)	(0.26)	(0.22)
Fourth-born girl	0.152	0.262	-0.142
	(0.31)	(0.31)	(0.28)
Constant	-1.914*	-0.151	1.561***
	(0.94)	(0.92)	(0.45)
Observations	2487	2487	2487
R-squared	0.64	0.63	0.65

Notes: Household fixed-effects estimates (STATA areg). Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table A3. *Descriptive statistics: Cohort children*

Variable	Mean	Std. Dev.	Obs.
Dependent variables – caregiver report			
Hours worked (typical day)	4.36	2.31	975
Hours on domestic tasks (typical day)	2.79	1.88	975
Hours economic work (typical day)	1.58	2.06	975
Hours worked (typical week)	24.07	15.10	979
Hours on domestic tasks (typical week)	15.24	13.33	979
Hours economic work (typical week)	8.87	16.15	980
Child-reported hours			
Hours worked (typical day)	4.47	2.43	975
Hours on domestic tasks (typical day)	2.84	1.90	977
Hours economic work (typical day)	1.63	2.16	975
Control Variables			
Girl	0.49	0.50	977
Age (years)	11.56	0.50	977
Dummy: oldest	0.25	0.43	977
Ill in past 4 weeks	0.31	0.46	976
Mother in household	0.86	0.35	977
Mother ill	0.32	0.47	977
Father in household	0.68	0.47	977
Father ill	0.24	0.43	977
Household size	6.50	2.05	980
Disabled	0.02	0.22	976
Dummy: any sisters	0.81	0.40	977
Dummy: any brothers	0.82	0.39	977
Dummy: younger sisters	0.57	0.50	977
Dummy: younger brothers	0.58	0.49	977
Theft occurred	0.14	0.34	980
Loss of job/enterprise	0.10	0.31	980
Other household members ill	0.65	1.03	976
Crop shock	0.36	0.48	980
Death of household member	0.08	0.27	980
Livestock shock	0.04	0.21	979
Livestock assets	7.97	1.64	962
Teacher is unfriendly to caregiver	0.12	0.33	980
Ln. household consumption per cap.	7.12	0.58	980

Table A4. *Cohort children, determinants of hours worked on a 'typical day'*

	All work	Domestic tasks	Economic work
Girl	0.201	1.392***	-1.191***
	(0.17)	(0.00)	(0.15)
Oldest	-0.065	0.143	-0.208
	(0.23)	(0.2)	(0.21)
Oldest*girl	0.513*	0.157	0.357
	(0.28)	(0.23)	(0.24
Mother present	-0.466**	-0.168	-0.298*
	(0.2)	(0.18)	(0.18)
Mother ill	-0.0678	0.0807	-0.149
	(0.17)	(0.16)	(0.16)
Girl*Mother ill	0.39	0.136	0.254
	(0.25)	(0.23)	(0.23)
Father present	0.0898	-0.165	0.255*
	(0.17)	(0.16)	(0.15)
Father ill	0.253	0.268	-0.0146
	(0.18)	(0.16)	(0.19)
Girl* Father ill	-0.359	0.0647	-0.423*
	(0.28)	(0.26)	(0.24)
Has younger sister	0.123	0.131	-0.00812
	(0.15)	(0.13)	(0.14)
Has younger brother	0.0913	0.335**	-0.244*
	(0.16)	(0.14)	(0.14)
Economic shock	-0.119	0.147	-0.266*
	(0.2)	(0.18)	(0.16)
Household member ill	-0.0523	-0.0644	0.0121
	(0.058)	(0.052)	(0.061)
Household death	0.692***	0.278	0.415*
	(0.23)	(0.22)	(0.21)
Livestock shock	0.739**	0.635**	0.104
	(0.29)	(0.28)	(0.27)
Unhappy with teacher	0.586***	0.536***	0.0492
	(0.17)	(0.18)	(0.16)
Constant	-0.478	-0.207	-0.272
	(1.77)	(1.58)	(1.71)
Observations	863	863	863
R-squared	0.38	0.35	0.41

Notes: OLS estimates. Significance levels as above. Included but not reported: community fixed effects, household size, presence of sisters/brothers, ethnicity, literacy of mother/father, wealth.

Table A5. *Boys' and girls' separate hours worked on a 'typical day'*

	(1)	(2)	(3)	(4)	(5)	(6)
	Boys only			Girls only		
	All work	Domestic tasks	Economic work	All work	Domestic tasks	Economic work
Age	0.0658	-0.108	0.173	0.0896	0.189	-0.0996
	(0.226)	(0.164)	(0.213)	(0.191)	(0.183)	(0.187)
Oldest	-0.218	0.0940	-0.312	0.679***	0.570**	0.108
	(0.222)	(0.229)	(0.378)	(0.225)	(0.258)	(0.185)
Ill past 4 weeks	-0.361	-0.0743	-0.287	0.00130	0.136	-0.134
	(0.270)	(0.219)	(0.260)	(0.235)	(0.180)	(0.143)
Mother present	-1.312	-0.439*	-0.873	-0.187	-0.0216	-0.166
	(0.774)	(0.226)	(0.828)	(0.253)	(0.265)	(0.143)
Mother ill	0.313	0.272	0.0411	0.418*	0.388*	0.0299
	(0.215)	(0.218)	(0.281)	(0.216)	(0.221)	(0.212)
Father present	-0.0826	-0.102	0.0192	-0.262	-0.485**	0.223
	(0.402)	(0.184)	(0.329)	(0.244)	(0.223)	(0.158)
Father ill	0.282	0.260*	0.0220	0.0495	0.324	-0.275
	(0.256)	(0.147)	(0.242)	(0.281)	(0.208)	(0.196)
Household size	-0.0461	-0.122*	0.0759	-0.0139	0.00833	-0.0222
	(0.136)	(0.0650)	(0.134)	(0.0832)	(0.0705)	(0.0455)
Disability	-0.639*	-0.269	-0.370	-0.0330	-0.408	0.375
	(0.351)	(0.211)	(0.258)	(0.242)	(0.337)	(0.416)
Any sister	0.628	0.307	0.321	0.625**	0.178	0.447**
	(0.666)	(0.220)	(0.501)	(0.298)	(0.317)	(0.193)
Any brother	0.329	-0.235	0.564	-0.253	-0.162	-0.0919
	(0.473)	(0.312)	(0.431)	(0.299)	(0.226)	(0.243)
Has younger sister	0.304	0.174	0.131	0.196	0.259	-0.0632
	(0.258)	(0.123)	(0.236)	(0.285)	(0.309)	(0.183)
Has younger brother	0.0345	0.234	-0.200	0.927***	0.736***	0.192
	(0.301)	(0.218)	(0.253)	(0.234)	(0.168)	(0.199)
Theft	-0.0579	-0.0736	0.0156	0.0349	0.0768	-0.0419
	(0.321)	(0.171)	(0.259)	(0.280)	(0.240)	(0.172)
Economic shock	-1.055**	0.00967	-1.064**	-0.0716	0.0886	-0.160
	(0.391)	(0.251)	(0.392)	(0.457)	(0.303)	(0.264)
Household member ill	0.0604	-0.0579	0.118	0.0537	0.0656	-0.0119
	(0.146)	(0.0814)	(0.116)	(0.150)	(0.135)	(0.0821)
Crop shock	0.778*	-0.153	0.931**	0.698**	-0.0157	0.714***
	(0.405)	(0.206)	(0.351)	(0.275)	(0.247)	(0.243)
Death in household	1.387***	0.517	0.870***	-0.107	-0.461*	0.354
	(0.415)	(0.344)	(0.287)	(0.321)	(0.248)	(0.264)
Livestock	1.461***	0.510*	0.951**	0.545	0.102	0.443
	(0.458)	(0.290)	(0.440)	(0.464)	(0.478)	(0.453)
Constant	3.685	4.181**	-0.496	2.314	0.638	1.676
	(2.273)	(1.867)	(2.300)	(2.181)	(2.214)	(1.993)
Observations	498	498	498	476	476	476
R-squared	0.146	0.056	0.147	0.123	0.088	0.084

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A6. *Cohort children's self-reported hours worked on a 'typical day'*

	All work	Domestic tasks	Economic work
Girl	0.447**	1.681***	-1.230***
	-0.18	-0.15	-0.16
Oldest	0.142	0.233	-0.101
	-0.24	-0.19	-0.21
Oldest*Girl	0.467	0.0274	0.468*
	-0.3	-0.23	-0.26
Mother present	-0.273	0.018	-0.282
	-0.23	-0.19	-0.2
Mother ill	0.248	0.238	0.00562
	-0.2	-0.17	-0.18
Girl*Mother ill	0.0795	-0.11	0.201
	-0.28	-0.24	-0.25
Father present	0.15	-0.0881	0.244
	-0.18	-0.15	-0.17
Father ill	0.136	0.294*	-0.165
	-0.21	-0.17	-0.19
Girl* Father ill	-0.435	-0.215	-0.242
	-0.31	-0.27	-0.25
Has younger sister	0.0831	0.0161	0.0681
	-0.16	-0.14	-0.14
Has younger brother	-0.0983	0.147	-0.252*
	-0.17	-0.15	-0.15
Economic shock	-0.12	0.336*	0.459***
	-0.2	-0.17	-0.15
Household member ill	-0.0869	-0.115*	0.0219
	-0.074	-0.067	-0.067
Death of household member	0.789***	0.535**	0.225
	-0.27	-0.23	-0.24
Crop shock	-0.225	-0.187	-0.0548
	-0.17	-0.14	-0.15
Livestock shock	0.458	0.387	0.08
	-0.3	-0.25	-0.27
Unhappy with teacher	0.516***	0.585***	-0.0134
	-0.2	-0.19	-0.17
Constant	-0.999	0.503	-1.718
	-1.93	-1.83	-1.82
Observations	862	863	862
R-squared	0.36	0.34	0.39

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Young Lives is an innovative long-term international research project investigating the changing nature of childhood poverty.

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- inform the development and implementation of future policies and practices that will reduce childhood poverty.

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Instituto de Investigación Nutricional (Institute for Nutritional Research), Peru

Centre for Analysis and Forecast, Vietnamese Academy of Social Sciences, Vietnam

General Statistics Office, Vietnam

Save the Children, Vietnam

The Institute of Education, University of London, UK

Child and Youth Studies Group (CREET), The Open University, UK

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