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“See first, think later, then test”: how children’s perspectives can improve economic research

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Economists study many aspects of children’s lives. They have been criticised by childhood studies researchers for failing to recognise children as agents, despite evidence that children act, within social constraints, to achieve outcomes they prefer. Childhood studies researchers also argue that economists neglect to use methods which capture children’s perspectives on their lives, although evidence shows adult caregivers often describe children’s views or behaviours inaccurately. Economists largely ignore such criticisms.

I describe qualitative research on child time allocation in rural Ethiopia. I argue that in this research, children’s perspectives, gathered through qualitative methods, challenged current microeconomic theory and suggested improvements to it. Insights from qualitative work demonstrated the inaccuracy of two assumptions made in standard theory models: that children cannot make decisions about their time and that families have uniform preferences about children’s work. Qualitative research also highlighted factors not captured by theory which children and parents said affected decisions.

Keywords: qualitative methods, analytical description, time allocation, children’s work, school participation

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Introduction

See first, think later, then test. But always see first. Otherwise you will only see what you were expecting. Most scientists forget that.

(Douglas Adams, The Hitchhikers' Guide to the Galaxy, 1984)

Economists study many aspects of children's lives and behaviours. However, both their methods and their theoretical conceptions of children have come under attack from researchers in the emerging discipline of childhood studies. Since Allison James and Alan Prout's influential work (James and Prout, 1997), many childhood studies researchers have criticized the lack of recognition of children's agency and subjectivity in dominant conceptions of children in the social sciences.

These criticisms of theoretical conceptions of children have implications for the methods used to study children. Childhood studies researchers argue that methods currently used by economists (and other quantitative social scientists) do not see children as competent informants. They prefer to ask adult caregivers for information about children, despite evidence that adult perceptions of what children think, do or need often differ from what children themselves think, do or need (Hill, 2005). Childhood studies researchers call for child-focused research that "positions children at the centre around which key research questions, descriptions, interpretations and analyses are made" (Crivello *et al.*, 2009: 52).

This paper focuses on research in development microeconomics about children's time allocation to work and school. In this area, some economists acknowledge the criticisms of childhood studies researchers. Feminist economists who study children's work (Levison, 2000) and economic anthropologists (Zelizer, 2002) highlight that qualitative evidence shows children to be:

...actors in their own right, constrained by societies' constructions of appropriate spaces and activities for childhood but mediating the impacts of social boundaries by their choices and behaviour (Levison, 2000: 125).

They criticise mainstream economists for ignoring this evidence and modelling children as passive recipients of care, not as economic agents who make production and consumption choices. Levison (2000) argues that if economists acknowledged children's agency and preferences about their work, they would draw different conclusions about the effects of children's work on children's wellbeing.

Mainstream economists largely ignore this criticism. In a review of the literature on children's work, Edmonds (2008) notes that most economists still use unitary models of the household, which assume children play no role in decisions about whether they work or what they do. He notes:

Comparatively little attention has been directed to the child's own role in child time allocation decisions...Future research understanding the child's own role in her time allocation is perhaps the most pressing need in the child labour literature (Edmonds, 2008: 3667-8) .

When collecting data about children's time allocation, economists largely neglect to speak to children directly about their lives. This is partly because they often use secondary data collected for multiple purposes, like labour force or household surveys, which ask parents for information about their children (Christensen, 1993).

In this article, I reflect on a qualitative case study of children's time allocation in a village in rural Ethiopia (Orkin, 2010, forthcoming), which examined how families and children make decisions about children's daily activities and what factors influence these decisions. I show that, as Levison predicts, children's perspectives, gathered through qualitative methods, challenged current microeconomic theory about children's work.

Qualitative evidence refuted two assumptions commonly made by economists modelling children's time allocation: firstly, that only parents make decisions about children's time allocation and children have no agency; and secondly, that work is considered undesirable for children by parents and/or children.

Secondly, qualitative research highlighted factors which affected decisions families and children made about how children used their time, but which were not captured in economic theory. These factors were: the institutional structure of work; how tiring work was; and how flexible schools were to children in difficult circumstances.

More broadly, the paper shows that insights from even a small qualitative case study can improve our understanding about a core question in development microeconomics. In the final section, I step back from the study of children to reflect on what this case study suggests about the role qualitative methods can play in development economics.

Theoretical framework of the case study

Economists, anthropologists and sociologists examining children's work agree that children in both the developed and developing world combine work with schooling (Bourdillon *et al.*, 2011). This research focused on an empirical question, in Boyden *et al.*'s (1998: 251) phrasing, "When is children's work competitive with education and when complementary to it?" If work and school are complementary, children can participate in work and school at different times of the day. Engaging in work may make it more possible to engage in school, or vice versa; at worst, combining work with school is just as possible as going to school (or only working). In contrast, if activities are competitive, doing one prevents children doing the other altogether, or at least makes it more difficult to do (or benefit from) the other when the two are combined.

One commonly used group of economic models examine the factors which influence how families allocate children's time between various activities. This decision includes deciding how much and for whom children work and whether children enrol in school, attend school and do homework (Baland and Robinson, 2000; Basu and Van, 1998; Cigno and Rosati, 2005). In these models, families trade off between the child's current income or production and future income if the child is educated. Households are constrained by their budget and the amount of time in the child's day. The time constraint is that the hours of different types of work, school, studying, leisure and sleep can only equal the number of hours in a day.

When they set up the time constraint in this way, as is common practice in this literature, economists are assuming that the only characteristic of work and school that influences whether activities are complementary or competitive is the time that each takes from the child's day. Using qualitative evidence, I argued that whether work and schooling are complementary or competitive depends not only on the time spent in each activity, but also on the characteristics of each activity, and that economic models ought to reflect this. The study also provided evidence about who made decisions about children's time and about norms around children's work and schooling.

Methodology

This research is based on qualitative interviews conducted with children and caregivers in Leki, an Ethiopian village.¹ Leki is one of twenty sites in Young Lives, a longitudinal study of children. The 1000 children in the older cohort of the study and their caregivers were first interviewed in 2002/03, when children were between seven and eight, and again between October 2006 and April 2007, when children were between 11 and 12.² In this paper I give descriptive statistics on the 633 Young Lives children, 306 girls and 327 boys, who live in rural sites.

I used the second round of survey data to identify one rural survey site as a case study village. Across the 13 rural sites, 11 percent of rural Young Lives children participated in paid work in 2006. In Leki, 51 percent of Young Lives children participated in paid work, the highest proportion in any site.

I conducted qualitative research with research assistants between July and September 2008. This was a year and a half after the second survey round; so children were between 12 and 13 years old. I selected 24 of the 49 Young Lives children in Leki for focus groups based on gender, working status, and schooling status. The different categories of children captured in the qualitative sample and the number of children in each category are shown in Table 1.

After focus groups, I selected 17 of the 24 children for semi-structured interviews. There were still one or more children in each category, but I focused on children whose experiences spoke strongly to hypotheses emerging as important in the research. I used the same process to select 10 of the 17 for follow-up interviews, home observations and interviews with children's mothers (two children's mothers had died, so we interviewed their stepmothers). We also interviewed teachers, community leaders, and managers of farms. Interviews and focus groups were recorded and transcribed into English.

<Insert Table 1 here>

¹ All names of children and study sites have been changed.

² The survey was conducted in five of Ethiopia's 11 regions (Woldehanna et al., 2008). In these regions, 20 districts were chosen to capture a mix of ethnic groups and rural and urban areas. Food-deficient sites were over-sampled. In each district, one village was randomly selected. Within each village, households were randomly sampled with replacement until 50 households with one child between seven and eight were identified. The sample is not representative of Ethiopia.

There were six children in each focus group.³ Girls and boys were separated, but each group had a mix of children who participated in different types of work and in different grades at school. Each child participated in two focus group activities. One (from Woodhead, 1998) asked children to rank activities they did on various criteria, such as which activities were the most fun or the most tiring. The second activity was based on the well-being exercise in the Young Lives qualitative component (Camfield *et al.*, 2009). Children drew a child of their own age and gender doing well at school, a child doing badly at school, or a child who had dropped out. They then described their picture to the group.

The case study site

Leki, a lakeside village of 2835 people and 410 households, is four hours drive from Addis Ababa. The village economy is agricultural and until recently was subsistence-based. 285 households own land and grow maize, wheat and *teff* (a cereal used to make *enjera*, the staple flatbread). Most households own goats and roughly half own cattle.

Because of the lake, land around Leki is ideal for irrigated agriculture. In 2002, a commercial farm growing vegetables for export was established and an NGO recruited 99 farmers in the village to form irrigation co-operatives. In addition to growing grain crops, these farmers could grow and sell a second harvest of vegetables. A flower farm growing roses for export was established in 2007.

Leki has a health post, a primary school, a church and a mosque. Of the 49 households in the Young Lives older cohort, 49 percent could access electricity. Communal pumps pipe up a steady underground water supply from the lake. The nearby town has a secondary school, three primary schools, a larger clinic and a number of NGOs.

44 of the 49 children in the Young Lives older cohort sample in Leki were from the Oromo ethnic group, while four were from ethnic minorities. Twelve were Muslim and 37 were Orthodox Christians.

Children's work

In focus groups and interviews, children said most children their age did chores and were involved in subsistence work. This agrees with other qualitative research in Ethiopia (Abebe, 2007; Camfield and Tafere, 2009; Poluha, 2007). Most of the children interviewed whose families owned land helped their families to farm. Boys helped with weeding, ploughing and harvesting and guarded crops from birds and cattle. Girls assisted with harvesting and sowing seed. Children of both genders started herding smaller animals at around age five. From age seven, boys herded cattle, although girls did this if there were no young boys in their families.

³ During piloting, I found that six child groups were large enough for a diversity of perspectives, but small enough that each child could present their individual work to the group.

Girls did most of the household chores: they cleaned, went to market, washed clothes and made *enjera* (flat bread) and *wot* (sauce). Both girls and boys fetched water from the pump and collected firewood. Both genders took care of younger siblings, but girls were responsible for caring for sick family members.

Vegetable farming around Leki was labour intensive. Children worked unpaid for their own families if they had irrigated land. But, unlike in many other rural areas, there were also opportunities for children to work as casual labourers for pay. Both commercial vegetable farmers and families with irrigated land often hired children. One foreman on a commercial vegetable farm estimated that children made up 15 per cent of the harvest workforce. Even children whose families had irrigated land worked for pay.

On vegetable farms, girls transplanted seedlings and did weeding, hoeing and harvesting. Boys prepared the land, scared away birds and fetched extra water. The duration, intensity, and flexibility of work varied depending on the employer, as described in later sections.

<Insert Table 2 here>

Table 2 describes children's activities in Leki and across the 633 rural children in Young Lives in 2006. In Leki, the proportions of children participating in particular activities were roughly similar to the broader rural sample. However, a much higher proportion of Leki children participated in paid work than in the broader sample.

The vast majority – 87 percent – of children did some chores. As was found in qualitative work, there was strong gender differentiation in tasks. Much higher proportions of 12-year-old girls than boys cared for others and did more than two hours of chores, and much higher proportions of boys than girls participated in paid and subsistence work. T-tests on comparisons of means across genders are significant at the five percent level.

Children's schooling

The primary school in Leki was built in 1973 and taught Grade One to Seven. One teacher described large increases in the proportion of children of both genders attending school:

In earlier times people used to make children work guarding the herds and on farmyards, but now they have become aware of the benefit of sending children to school.

47 of the 49 children in the Leki Young Lives sample were enrolled, and enrolment rates were not significantly different for boys and girls. However, many children started school after age seven, the compulsory age of enrolment, because their parents could not pay schooling costs or needed children for work, or because parents or teachers thought children were too small physically for school.

The school taught only one shift from 8:00 a.m. until 12:15 p.m. If only school hours are considered, schooling was compatible with some work. Even so, children did not attend regularly. Many students came in the morning and left after the 10:00 a.m. break. Teachers also reported high rates of dropout: by halfway through the 2007/08 school year, enrolment in Grades One and Two had decreased by roughly a third.

Many respondents, including teachers, said part of the reason for poor attendance of students was a severe teacher shortage. In 2007/8 the school needed ten teachers. It had seven at the start of the year and lost four during the year for health reasons. Even when teachers attended school, they are often late: Kurabachew complains his teacher “kills our time” by not coming to school on time.

The school lacked key resources, which may indicate that the quality of schooling was low. Classes were large, ranging from 50 to 100, and classrooms were poorly ventilated and dark. There were shortages of desks and chairs. In 2007, government provided textbooks for each child for four subjects in Grades One to Five, but the school had not received textbooks for Grades Six and Seven.

Highlighting the inaccuracy of assumptions in standard economic theory models

My qualitative research demonstrated that two assumptions made by economic models of children’s behaviour did not hold in the rural Ethiopian context. My research agreed with results from childhood studies and anthropology in the rest of Africa and Asia (Bourdillon, 2006; Nieuwenhuys, 1994; Reynolds, 1991), indicating that the assumptions made by the economic models discussed here may not apply in developing country contexts.

Any social science uses variables to represent concepts and argues for logical relationships between concepts (Holcombe, 1989). Economic models are distinctive from conceptual models in other social sciences because they represent economic processes mathematically, so relationships between variables can be quantitative as well as logical.

Models generate predictions: one basic example is that if a good’s price increases, demand for it decreases. The goal is for models to generate predictions that are both correct in particular instances and generalisable across different contexts and time periods. Models are developed iteratively: they are generated mathematically and then tested statistically against data. If a model predicts that a parameter has a certain sign but data shows the parameter to have a different sign, the model should probably be adjusted or rejected (Boland, 1989: 18).

Some variables are included in models because they are thought to be important for the model’s completeness, even though there is no data available on them. Models therefore make assumptions about relationships between these variables and others on which data is available (Boland, 1989: 138). These assumptions are not tested when the model is taken to quantitative data. Qualitative evidence may provide information about the validity of these assumptions.

Assumptions about decision-making power

Models make assumptions about which agents have decision-making power (Boland, 1989). Most models of household decisions about children’s time allocation assume decisions are taken by an altruistic household head who aggregates the preferences of household members and takes decisions on their behalf to maximise household utility (Becker, 1965).

Feminist economists criticise unitary household models. They use anthropological evidence to argue that women negotiate household decisions, even when they are in a subordinate position, as in patriarchal societies (Agarwal, 1997; Folbre, 1984). Subsequently, economists have modified models to allow for bargaining within households (Basu, 2006).

Similarly, children often bargain over the use of their time despite being in subordinate positions. Studies show that children question cultural norms about their work or schooling by negotiating with their parents (Poluha, 2004; Porter, 1996), vary the intensity of the work they do by mixing work with play (Liebel, 2004) or keep some produce for themselves (Reynolds, 1991). Levison (2000) extends the arguments of feminist economists and challenges the assumption in unitary household models that children cannot influence household decisions. She writes:

Economics does not treat children as agents...Economists generally ignore evidence that children can and do use what power they have to try to affect outcomes about which they have preferences...Economists sustain the invisibility of children by recognizing them only...as recipients of care or students, never as actors or as givers (Levison, 2000: 125-6).

My qualitative research supported her criticism. I interviewed children aged 12 to 13. In Leki and other similar Ethiopian communities, parents clearly see children this age as able to take responsibility in some spheres: boys plough fields on their own, and girls do most chores. However, they are still seen as children: they are not old enough to start relationships with people of the opposite gender or live by themselves. Discussion of the extent to which they can exercise agency is therefore appropriate.

Most of the 17 children interviewed felt unable to take decisions about their time allocation. Quubsaa said that his parents gave him orders to work. When asked what happened if a child disobeyed his parents, he said, "They would chase you out, refuse to give you food, and even beat you." Chaltu, a girl, said:

It is my mother who instructs me to go to the paid work. If I become reluctant to do the paid work, she forces me to be engaged in it. She says nothing can be gained sitting idle...

Senayit complained that working for pay "casts shadow on my success" because it often required her to be absent or late for school. But she said that "If they [my parents] order me to work, I work. I cannot disobey them."

However, at least four children made decisions about the allocation of their time in direct opposition to their parents' wishes. For example, Kurabachew's mother complained that she had advised him to attend school diligently and offered to "pay whatever cost is required" to buy schooling materials. But he was often absent: "He always runs after money and neglects his education."

When asked who decides whether he works, Kurabachew said, "I do things by my own self. They [his parents] do not tell me what to do." He agreed that his parents would supply what he needed for school. But he felt obliged to support himself: he said of a working child "ultimately it is his duty to do these jobs."

Shonah and her mother also disagreed about her work. When she was interviewed, Shonah was waiting to resume school after an illness, so she often worked for pay. Her mother disapproved of this:

I tell her not to go because she may get hurt...But sometimes when she insists to go seeing while other children go, I permit her to go....She comes home with the money and says to me, "Mother, this is what I earned today, take it and buy some coffee"...she is really touching...but I prefer to lose the coffee...than to see her hurt.

Qualitative work demonstrates that, in some families, children have some freedom to take decisions about their time allocation, while in other families, children obey parents' orders. Economic models should therefore consider the extent to which children in a particular household can make decisions about their time allocation.

Models could consider children's bargaining power as a variable affecting time allocation. Some models consider the effect of the balance of power in the household on the consumption of individual household members, but not on their time allocation. Kaushik Basu (2006) suggests using the amount of paid work women do to proxy for their bargaining power. Using a similar model, Carolyn Moehling (2005) uses data from early twentieth century America to show that, when children contribute a larger share of household income, their consumption increases, and argues this is because contributing income improves children's bargaining power.

There may be some potential to examine how children's bargaining power affects their time allocation rather than their consumption. The difficulty would be in finding proxies for bargaining power, as the amount of paid work children do is often used as a proxy. More radically, children could be considered as the primary decision-makers about their time use, with parents able to bargain with children about their decisions.

Assumptions about agents' preferences

Economic models assume that particular types of agents have particular preferences. Widely used models of child time allocation assume parents prefer children not to work, but allow it if household income is below subsistence level (Baland and Robinson, 2000; Basu and Van, 1998). In one model, López-Calva (2002) assumes the opposite, that parents approve of children working. Another model allows that children have preferences about their time allocation, and assumes children prefer paid work as it increases their bargaining power (Moehling, 2005).

My qualitative research shows that, even within one community, attitudes among parents or among children were not uniform. Parents differed about whether children should participate in certain types of work. Children's preferences about what work they did also varied substantially.

Most parents approved of children doing chores and working on the family farm. They believed children learned useful skills and built a stronger work ethic. As one boy's mother said:

I want them to emphasise their education....But they do household tasks to accustom themselves to domestic chores since it is part of daily life. If they do household tasks they will become active even in their education.

But many parents disagreed about whether children should participate in paid work. Five caregivers did not allow children to work for pay. Tatek, for example, said of his brother: "He tells me that if I begin to earn money, I may lose my concentration on my studies." Some caregivers, described earlier, allowed children to work for pay if children wanted to, but did not like that they did so. Others ordered their children to work for pay even if children did not want to.

Children's attitudes to work were also not uniform. Like parents, almost all children thought it was important that children assisted their families with household chores and work on the family farm. Children felt obliged to contribute to the family and thought they learned useful skills for adulthood. For example, boys ranked ploughing as the activity that taught them the most important skills, and took considerable pride in how early they had learned to plough. One focus group of girls ranked preparing *enjera* (the staple food) as the activity which taught them the most important skills:

It would be an insult if the woman marries without the skill to prepare enjera. We are also responsible to prepare enjera when our mothers are not at home. Mothers may come with guests and it is our responsibility to receive guests with our skills.

However, as discussed below, children said household chores were not as much fun as other types of work. In addition, two children of the 17 interviewed were unhappy that their involvement in chores or work on the family farm forced them to miss school. Senayit, whose parents are both unwell, said she was often late for school when doing domestic chores. Ramato, the only boy in his family, said his father sometimes asked him to miss school to help on the farm. He said, "...if I miss a class and friends tell me that they learned many things and took some homework, I really feel upset since I lose marks." Other ethnography also finds that some children resent extensive unpaid chores and work on the family farm (Reynolds, 1991) or in family businesses (Nieuwenhuys, 2000).

Unlike their parents, children saw a number of benefits in working for pay. They saw earning wages as a way of resolving financial problems. Kurabachew said that if he faced an obstacle that prevented him completing his schooling, he would stay in school and work at the same time to earn enough money to tackle the problem. He then said proudly, "Except few things, I buy most of the things I need myself." When asked how she would tackle such an obstacle, Senayit said, "I will reside with my parents and work on vegetables until the obstacle will be removed."

Secondly, paid work enabled children to contribute to their families. When asked why children participated in paid work, one girl said: "They worry about their parents. Even when their parents can afford living, children say 'I have to help them, myself at least' (Girls Group One, 24 August). This was particularly true when families faced difficulties, like illness. A girls' group described girls doing badly at school: "They engage in paid work. When their mothers are sick they say, 'I have to work and with the money I have to buy medicine'" (Girls Group Two, 14 August 2008).

Thirdly, children argued that working for encouraged diligence, the same argument their families made about working on the family farm. One group of girls said:

Brilliant students could not be from a rich family...children from the poor work hard and earn their own money to come out from poverty. But the rich ones,

since they have enough money, they show reluctance in their study (Girls Group Two, 26 August 2008).

Finally, children enjoyed participating in paid work, and ranked these tasks as the most fun among their activities. Girls said,

Collecting tomato is fun because it is easy... we also compete with others while doing it. It is like a game... You can take rest and play games in between. But when you work at home friends are not around and you cannot play (Girls Group One, 24 August 2008).

However, children weighed these benefits against the negative aspects of paid work: work was tiring and often required them to miss school. This led some children to limit the employers they would work for: four girls chose only to work for individual farmers, even though they earned less, because work was less tiring, was closer to their homes, and did not require them to miss school. For some children, the negative aspects of work outweighed the benefits. All the five children whose parents did not allow them to work for pay agreed with their parents' decisions. They said work could harm them physically and reduce their focus on their school.

Qualitative work clearly shows that it is incorrect to assume, as economic models currently do, that all parents think that work is undesirable and that children should only do it if their families need money or extra labour. The one model which accounts for children's preferences also assumes children have uniform preferences, but children do not always want to work for pay. Instead, models ought to treat parental and child preferences about children's work as varying across individuals, not as fixed parameters which are constant in the population. Models should also preferably differentiate between attitudes to work for the household and paid work.

Modelling could be simplified if traditional norms about children's work exist and if most people agree with them. In Leki, one could safely assume parents and children prefer children to do chores and work on the family farm, although children may prefer the amount of time spent in such work to be limited. Other research in Ethiopia draws similar conclusions (Abebe, 2007; Camfield and Tafere, 2009; Poluha, 2007). But one cannot assume uniform preferences among parents or among children to children's participation in paid work.

I do not analyse preferences about schooling, another influence on time allocation decisions. Models currently assume that parents and children prefer children to attend school. In Leki, this was certainly true. Parents and children often described the importance of education, saying that education "gets you to the light from the darkness", as one girl put it. But evidence from Young Lives suggests that children's educational aspirations decline as they get older (Tafere, 2010). This decline occurs partly as other transitions, such as marriage and moving into fulltime work, approach. But it may be partly due to the poor quality of schooling. Models may need to allow that, if school quality is low, children and parents may not want children to attend school.

Suggesting factors not captured in theory

When constructing models, economists make assumptions about which variables should be included because they are relevant to the relationship being examined. But economists tend

not to ask the agents being modelled what factors influence their decisions. By speaking directly to children, this research revealed factors which were not included in economic models or household surveys, but which influenced decisions about children's time.

The structure of work

In Leki, working for families with irrigated land and working on commercial farms involved the same tasks. However, children said working on commercial vegetable farms was more difficult to combine with schooling than working for families. Commercial farms paid a set rate for a piece of work. Pieces were sized so they took a day to complete, and workers had to finish their piece to get paid. This ensured they did a certain amount of work in a day.

However, this payment system was designed for adult full-time workers and made it difficult for children to combine work on commercial farms with attending school. Girls described planting seedlings:

Children wake up early in the morning to start their work. They are given 20 rows to put onion seeds...It takes a day to complete the 20 rows. This may keep students from going to school (Girls Group Two, 15 August 2008).

Chaltu, a girl, said, "If we fail to finish the work we are assigned to, the organization does not allow us to go home. Sometimes they beat us and instruct us to finish the work." As a result, only three of the 17 children interviewed said they would leave work to go to school if they had not finished their work. In contrast, on family-owned farms, "If you fail to finish, you come back to doing it the next time." Tariku, a boy, prefers to work for individual farmers because "you can earn whatever you do, half day or full day."

There are two broader points here. Firstly, the "divisibility" of work – whether an activity can be broken into smaller chunks of time – may be more important for children trying to balance work and schooling than the time spent in activities in total. When describing tasks that competed with schooling, children often explained that a task had to be done "all at once." Fishing required rowing a long distance in a boat (Boys Group One, 24 August). Collecting firewood required travelling to the forest. "*Enjera*-making has a lot of processes. It requires collecting firewood, mixing flour with water and a lot more processes all at once" but fetching water and cleaning "do not take much time and can be done before or after school" (Girls Group One, 12 August).

It is not immediately obvious how to incorporate divisibility of work into models of time allocation. A start is collecting data on the structure of payment: the third round of Young Lives data collection, conducted in 2009, asked children whether their work was paid on a piece rate basis. It might also be possible to ask if work is done all at one time.

Secondly, the structure of work more broadly is probably determined by the balance of power between the child worker and the person for whom they are working. The structure of payment on commercial farms in Leki could be adjusted to be more flexible to children's schooling. Indeed, when families hired the children of other villagers, they structured work more flexibly. But children possibly lack the bargaining power or skills to negotiate with paying employers, so paid work will often be structured in ways competitive with schooling. The interactions between children's bargaining power, the structure of work and the compatibility of work and schooling would be complicated to model, but possibly of considerable interest.

Tiring work

In commonly used models of time allocation, economists assume children can do as many hours of activities as fit in a day. Qualitative research demonstrated some activities were much more tiring than others. If children did these, they were often too tired to participate fully in other activities.

Paid work on commercial vegetable farms, for example, was very tiring. Girls said planting onions was their most tiring activity: “You do it stooped over so you feel pain in your back” (Girls Group One, 13 August 2008). Boys said “paid work has a huge impact [on schooling]. It is heavy and beyond our capacity” (Boys Group Two, 24 August 2008).

Being tired from work meant children battled to concentrate during class. Boys said: “Whenever we go to school after doing heavy tasks we cannot easily follow the class” (Boys Group One, 22 August 2008). Children struggled to do homework after school: Senayit said, “When I come home from the place of work I feel tired and fail to do assignments.”

Here, children’s perspectives on how they balance (or struggle to balance) work and school suggest that additional constraints should be added to models of time allocation. Models should reflect that children can only do a certain number of hours of tiring work in a day and can do fewer hours of other activities on a day when they do tiring work. The intensity of work, as well as the time it takes, should be modelled as influencing time use decisions. Data can also be collected on how tiring work is: this was done in the third round of Young Lives data collection.

This insight may also explain existing quantitative findings. Using a standard model which assumes that only the number of hours in a day constrains children’s possible activities, Admassie and Bedi (2003) and Assaad *et al.* (2010) find that only hours of work above a certain threshold have negative impacts on schooling participation. These threshold effects may be picking up the effects of work being strenuous as well as the effect of the number of hours worked.

The flexibility of schools

Models of household decisions about children’s schooling participation consider the availability of schooling opportunities and include variables like the costs of schooling and distance to school. But children described another factor: whether schools were flexible to children working and when children were ill.

The Leki school structured schooling to enable children to attend school and participate in subsistence work. The school day was four hours long, so children could go to school in the morning and work in the afternoon. The school also adjusted its calendar around the agricultural calendar. In October, during harvest, and in April, during tilling season, the school day moved from morning to afternoon so children could work in the morning. The school also closed for two weeks over the busiest harvest period.

However, the school had not made any efforts to deal with absenteeism as a result of children’s work on commercial vegetable farms. Teachers simply penalised children for arriving late, ignoring that children were repeatedly late because they were working. Senayit, who often worked for pay, said:

Teachers close the gate against us so that we cannot disturb the class. We kill two or more periods wandering in the fields. Sometimes teachers beat us...order us to collect rubbish and clean the compound...If we support ourselves by working as daily labourers, we may lose lessons the other students have been taught...and score less on tests.

The second aspect of school flexibility was whether teachers and schools tried to accommodate children who were ill. Qualitative work showed that children were often excluded from school for much longer than the period during which they were ill because of school rules about the maximum number of days children could miss in a year.

Shonah, for example, began Grade One but dropped out when her mother fell ill. She enrolled in Grade One again the next year but became ill with roundworm. She missed the mid-year examinations and was told by the school that she had to start Grade One again at the beginning of the following year. She did and passed to Grade Two. She got malaria in the second semester of Grade Two and missed roughly two months of school. The school again denied her permission to return when she was better. When we interviewed her she was waiting until the start of the next school year to re-enrol, and she would have to repeat the first semester of Grade Two.

This is particularly frustrating for children because rules, although set by district education authorities, were applied arbitrarily. Chaltu, who was at school in the nearby town, was absent from school for two months when she got *giardia*. She was allowed to return and passed to the next grade, although she said her rank in class had dropped since her illness.

However, individual teachers could be very helpful to sick children, for example by assisting children who had missed a lot of school to catch up work or by fundraising among themselves and children at the school to pay for medication for sick children (Girls Group One, 12 August).

Qualitative work demonstrates that school flexibility could enter models of time allocation as a parameter that affects children's schooling participation. This research informed the design of a survey of schools attended by Young Lives children, conducted in 2010. This gathered information on the length of the school day, whether schools structured calendars around harvest, school policies on absenteeism and teacher attitudes towards children who had been ill.

Generalisability of results

The selection of Leki as a case study site does raise concerns about selection bias. In the rest of Ethiopia, there are fewer opportunities for children to work for pay than in Leki. The limited economic evidence on the relationship between children's work and their bargaining power suggests that, where there are fewer opportunities for paid work, children may have more limited agency (Moehling, 2005). But qualitative research with children who work solely for their families, cited on page 7, still finds children exercise agency.

Many other conclusions from this research can be generalised to other rural sites. Parents and children in communities where there is no paid work may have divergent perspectives on whether children should do chores or work on family farms. Subsistence work or chores can be tiring or indivisible, and schools can be more or less flexible.

Furthermore, commercial agriculture is becoming more widespread in Ethiopia (Byerlee et al., 2007), so the patterns prevalent in Leki may increasingly affect other rural communities. In other areas where children participate in paid work, findings agree with this research. In Gedeo, a coffee- and fruit-growing area, children pick and sort coffee and fruit and sell a variety of produce (Abebe, 2007; Abebe and Kjørholt, 2008). As in Leki, children participate actively in the multiple livelihood strategies necessary to sustain households and have considerable autonomy in deciding which activities in the cash economy to participate in and whether to migrate for work. Here, too, school calendars are not compatible with involvement in coffee production, and children recognise that work conflicts with schooling.

Analytical description as a method to improve economic modelling

The idea that qualitative research can capture the insights of the population being modelled so that these can be incorporated into models is not new. Qualitative research has been useful in at least two other areas of development microeconomics. I would suggest that economists, particularly those studying marginalised populations, might benefit from more systematic examination of qualitative research as a precursor to formal modelling and testing of hypotheses.

Qualitative research provided evidence which contributed to the evolution of models of intra-household resource allocation. As described in the section on children's agency, feminist economists used anthropological evidence to criticize unitary household models. Bina Agarwal (1997) drew on qualitative evidence from South Asia to describe factors affecting the balance of power between spouses. She describes the process of drawing on qualitative work as "analytical description",

...a formulation that seeks to comprehensively spell out both qualitative and quantitative factors that might impinge on outcomes, without being pre-constrained by the structure that formal modelling imposes, or by data limitations (Agarwal, 1997: 6).

Bardhan and Ray (2006: 1) argue that anthropological work was largely responsible for a "recent shift in economics from the unitary model where household members have a joint utility function, to the binary model where the utility functions are gender-specific."

Qualitative research was also useful in the development of a theoretical model of how domestic violence can be used to extract transfers from families of poor brides (Bloch and Rao, 2002). The authors conducted ethnographic fieldwork to inform the development of a rational choice model. They then collected survey data, based on indicators suggested by ethnographic evidence, to test the model's hypotheses. Without qualitative work, they would not have thought to consider the role of abuse in the process bargaining over transfers or to collect data on abuse (Rao, 1997: 837).

Analytical description is most useful when economists are unfamiliar with the behaviour and perspectives of the population they are studying and find it difficult to make the assumptions necessary for modelling. This can occur when modelling marginalised populations whose perspectives have not been widely articulated, such as women in subordinate social

positions, or children. It can also occur when research studies sensitive issues, such as domestic violence or condom use (Rao *et al.*, 2001).

Conclusion

Qualitative work with rural Ethiopian children suggests that theoretical economic models of child time allocation ought to be modified. They should not assume that children do not make, or at least negotiate, household decisions about their time. They should reflect that children as a group, parents as a group, and children and parents in the same family may have different preferences about children's involvement in particular types of work. Models should also include parameters which reflect the structure of work; which reflect how tiring work is in addition to how long it takes; and which capture the extent to which schools are flexible to work and illness.

More broadly, this research shows how incorporating children's perspectives into economic theory could improve its accuracy and explanatory power. Qualitative, child-centred research is one method of capturing children's perspectives as "experts in their own lives" (Langsted, 1994). These perspectives can then be incorporated into economic models and can also be useful in the design of surveys, which ideally would interview both children and their caregivers.

Systematic incorporation of children's perspectives into economics is thus "appropriate in the interests of accuracy and an enhanced understanding of human behaviour" (Levison, 2000: 127). More fundamentally, recognising children as competent actors and informants is fair and respectful to the children who are research subjects. Whether research can do more is debatable, but it ought, at least, to achieve this.

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Table 1: Sample for qualitative work in Leki, July-September 2008

	Participated in paid and/or subsistence work and chores		Participated only in chores	
	Participated only in focus groups	Participated in focus groups and interviews	Participated only in focus groups	Participated in focus groups and interviews
Girls				
Grade 5-7	3	1	3	3
Grade 1-4	2	1	2	2
Dropped out	2	2	0*	0*
Subtotal	7	4	5	5
Boys				
Grade 5-7	2	1	3	2
Grade 1-4	4	2	1	1
Dropped out	2	2	0*	0*
Subtotal	8	5	4	3
Total	15	9	9	8

*There were no girls or boys who had dropped out and were only involved in chores among the 50 children in the Young Lives sample in Leki.

Table 2: Children's time allocation to various tasks in 2006

	In a typical day, percentage of children who spend some time on these activities				Mean of hours spent on activities in a typical day			
	Across the 13 rural sites in 2006/7 (n=633)			In Leki in 2006/7 (n=49)	Across the 13 rural sites in 2006/7 (n=633)			In Leki in 2006/7 (n=49)
	Boys	Girls	Total	Total	Boys	Girls	Total	Total
Caring for others	29.05	45.42	36.97	46.94	0.46	0.85	0.65	0.72
Chores	77.68	96.08	86.57	97.96	1.69	3.07	2.36	2.39
More than two hours of chores	26.30	62.09	43.60	38.78	-	-	-	-
Paid work	14.07	6.86	10.58	51.02	0.22	0.16	0.91	0.8
Subsistence work	77.98	44.12	61.61	48.98	2.79	1.26	2.05	1.22

Source: Young Lives older cohort rural sample, 2006/7