

# CHILD LEARNING IN ANDHRA PRADESH:

## The interplay between school and home

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# Preface

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

Young Lives is a joint research and policy initiative co-ordinated by an academic consortium (composed of the University of Oxford, the University of Reading, the London School of Hygiene and Tropical Medicine, London South Bank University and the South African Medical Research Council) and Save the Children UK, incorporating both inter-disciplinary and North-South collaboration.

Young Lives seeks to:

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

In its first phase, Young Lives has investigated three key story lines - the effects on child wellbeing of i) access to and use of services, ii) social capital, and iii) household livelihoods. This working paper is one of a series which consider an aspect of each of these story lines in each country. As a working paper, it represents work in progress and the authors welcome comments from readers to contribute to further development of these ideas. You can email your comments to Young Lives via [www.younglives.org.uk](http://www.younglives.org.uk)

The project received financial support from the UK Department for International Development and this is gratefully acknowledged.

For further information and to download all our publications, visit [www.younglives.org.uk](http://www.younglives.org.uk)

# Abstract

India has seen remarkable progress over the past 50 years in both adult literacy and school enrolment for boys and girls. However, there are concerns about drop-out rates and the quality of education, especially in public schools. Children learn both within and outside the classroom. There is a need to understand the extent to which child learning outcomes (such as basic numeracy and literacy skills) are influenced by the home environment. If parents and communities are to play a role in compensating for the low quality of public schooling, it is important to consider how policy initiatives can best take into account and support the complementary role of families and communities in the educational process. What would be the most effective and equitable approach to education policies and programmes – targeting schools, or parents (by means of income supplementation or adult literacy programmes), or both?

Andhra Pradesh (AP) state has achieved considerable economic progress but, nevertheless, lags in terms of social indicators such as schooling and literacy of females. We use data from the Young Lives study to explore patterns of learning outcomes among eight-year old children in AP (N=1008). The paper aims to explore the issues related to child learning in public and private schools and the role of household level factors such as parental education.

Key findings are that children in private schools have better literacy and numeracy skills, regardless of wealth or caste, than children in public schools. Children with uneducated parents (especially mothers) are at a disadvantage. This disadvantage is greater in public schools than in private schools. Girls have lower learning scores than boys. There is a clear interplay between school and home. The effect of caregiver's education on child learning is greater for those attending public schools than private ones.

The results reinforce previous findings about the role of parental factors, and provide insights into aspects of education reform that are necessary to improve the quality of public schooling.

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# Introduction

Children learn both within and outside the classroom, from books and people and by listening, seeing and doing. Skills obtained in school – such as reading, writing and arithmetic – can be improved through resources in the home and community. Unsurprisingly, children from wealthier backgrounds tend to get more help from educated family members, have fewer competing pressures of housework or employment compared to poorer children, with less serious implications for their ability to learn. But what does this mean for education policy? In a country like India, where enrolment rates are relatively high but drop-out rates and teaching quality are a concern, there is a need to understand the extent to which child learning outcomes (such as basic numeracy and literacy skills) are influenced by their home environment.

This paper explores the interplay between school and home in determining child learning. We use baseline data from the Young Lives Study ([www.younglives.org.uk](http://www.younglives.org.uk)) in the southern Indian state of Andhra Pradesh to compare indicators of child learning according to type of school attended – public or private. We further examine if parental education acts as a complement or substitute for schooling in determining child learning. The methods and results will be presented following some background discussion of education and literacy in India and a review of the literature concerning the quality of education in public and private schools.

## *Education for All, India and Andhra Pradesh*

Education was officially declared a universal human right in 1948 by the General Assembly of the United Nations. In India, a child's right to free and compulsory primary education was ratified in the 93<sup>rd</sup> Constitutional Amendment Bill in 2001. At the 1990 Jomtien Conference on Education for All more than 150 nations, including India, promised to provide free and compulsory primary schooling so that by the year 2000 all children would enjoy the right to good primary schooling and adult illiteracy rates (defined as the ability to read and write among those aged 15 and above) would be halved. Though this target was not achieved, it was reaffirmed at the World Education Forum in Senegal in 2000, the year in which the UN set out the Millennium Development Goals, the second of which aims to ensure by 2015 children everywhere will “complete a full course of primary schooling”.

India has seen remarkable progress over the past 50 years in both adult literacy and school enrolment for both boys and girls. The school system is the second largest in the world, with almost 600,000 schools providing primary education for grades one to five (Govinda 2003). Officially, over 95 per cent of the population are served by a public school within a walking distance of 1 km (National Education Report 2002). While the number of children enrolling in school continues to increase, the percentage of all children of primary school age receiving schooling has remained relatively static since the early 1990s due to population growth. The gross enrolment ratio for the primary level (grades one to five) increased from 97.4 in 1991 to 113.8 in 1992<sup>1</sup>, and from 34.0 to 42.8 for the upper primary level – grades six to eight. (Department of Elementary Education and Literacy 1993).

Unfortunately, high drop-out rates have led to questioning of the quality of education provided during the first few years in school. Almost 40 per cent of children in India's public schools drop out before they have completed grade five, and studies indicate that even students who had completed grade five

1 Gross Enrolment Ratio is the number of students enrolled in a level of education, regardless of age, as a percentage of the population of official school age for that level; can be greater than 100 per cent as a result of grade repetition and entry at ages younger or older than the typical age at that grade level.

have poor literacy skills (Nambissan 1996, Yadav and Bharadwaj 1999). According to the 2001 census, 65 per cent of adults in India today are illiterate (Government of India 2001). In fact, the absolute number of illiterates now equals the country's entire population on the eve of independence (Govinda et al, 2003).

Although Andhra Pradesh has made considerable economic progress, levels of female schooling and literacy have lagged behind. AP ranks 11<sup>th</sup> out of India's 28 states in per capita state domestic product but 22<sup>nd</sup> in adult literacy (Census 2001). Current enrolment rates are high for both sexes: in 2000, 88 per cent of boys and 85 per cent of girls aged five to nine were enrolled in school (Reddy and Rao, 2003). However, like the country as a whole, AP suffers from disparities in education and literacy by gender, between urban and rural areas and between regional and social groupings. The drop out rate from primary school among boys is 39 per cent while it is 42 per cent for girls. Analysis across social groups suggests that the large majority of drop-outs come from lower castes, such as Scheduled tribes and castes. For example, 67 per cent of boys and 74 per cent of girls of Scheduled tribes drop out of primary schools (Selected Educational Statistics, 1999-2000, Commissioner and Director of School Education, AP p 14).

### ***Growing private provision***

It cannot be denied that poverty is still a major barrier to education participation in India. Although theoretically free, public schooling places high costs on parents, so that decisions about whether or not to send children to school are still critically dependent on their ability to pay for clothing (often a uniform), transport and books (Tilak 1996, PROBE 1999). The private sector charges parents more for its services and operates on business principles, although often free and concessionary places are offered to some poor children. The role of private unaided schools is growing in AP and in other parts of the developing world (Tooley 2005). Despite the costs, poor parents often aspire to send their children to private schools which are typically perceived as providing superior education. A recent study of the role of private and public education in poor areas of Hyderabad found that 65 per cent of schoolchildren were attending private unaided schools (Tooley 1995). Apart from private schooling, private tuition or coaching is also rising, and often even provided by public school teachers themselves (Kabeer 2003). Any discussion about education in India must therefore recognise the rising importance of the private sector, which often goes unrecognised in official statistics.

### ***Quality of education***

There has recently been a shift in the literature away from the traditional argument that children drop out of school due to the associated financial or opportunity costs, towards the belief they drop out due to the poor quality of schooling provided (Govinda 2003, PROBE 1999). Attendance and dropout, it is claimed, are influenced by factors other than household economics (Asraf, 1989). Such a view is supported by studies in Uttar Pradesh which show that while parents endorse the value of education they cite the quality of teachers as the main problem for non-enrolment and dropout (Banerjee, 1995, Bashir, 1992).

UNESCO defines educational quality as learners' cognitive development, promotion of values and attitudes of responsible citizenship and the nurturing and creation of emotional development (UNESCO 2004). While cognitive development can be measured with educational tests, it is a



challenge to measure other aspects of educational quality. Most studies of educational quality assess child learning outcomes along with the facilities available in school.

A recent study of the private unaided schools serving low-income families in different African and Indian settings found some interesting results (Tooley 2005). In each country the majority of poor school children attend private unaided schools. These schools perform better than government schools and at a lower cost, have roughly equal numbers of boys and girls and lower pupil-teacher ratios. Teachers are more highly committed and more satisfied than better-paid counterparts in government schools. In Hyderabad the highest pupil-teacher ratio was in the government (42:1) and private aided (43:1) schools, whereas the private unaided unrecognised schools had the lowest (22:1). Private unaided recognised schools had a pupil-teacher ratio of 27:1. Private schools have better facilities than government schools in terms of provision of blackboards, playgrounds, desks, drinking water and separate toilets for boys and girls. Teacher absenteeism was highest in the government schools and child learning outcomes were higher in private schools, especially in maths and English. The mean maths scores were about 22 per cent and 25 per cent higher in private unrecognised and recognised schools respectively than in government schools.

Other studies have also noted that the growing number of private schools indicates they are perceived to be of better quality than public schools and that both rich and poor are taking advantage of the services they provide (Kingdon 1994, Reddy, 1991). Interestingly, over half the entire number of unrecognised private schools in AP are located in the Telangano region, one of the state's most impoverished areas (Reddy, 2000).

### *Interplay of school and home*

While child learning is undeniably determined by the quality of teaching in the classroom, along with other school-level factors, it has been suggested that the home environment is also important. When parents place value on schooling and actively support children at home, it is likely children will perform better than if their parents simply ignore their school lives and learning time and efforts are diverted into doing household chores, looking after siblings or helping with farm-work. A lack of electricity and space can also hamper children's ability to study at home.

The education of family members, especially mothers, has been shown to have a significant influence on school enrolment (Srivastava 1996, Montgomery et al 1999, Ridao-Cano 1999). A study in Tamil Nadu found that for each yearly increase in parents' education, the probability of enrolment increased by two-three per cent, and the effect was stronger for girls than for boys (Duraismami 1992). The view that women have a greater tendency than men to invest in their children's education and health is supported by several studies of micro-finance programmes that suggest loans given to women are more likely to be re-invested in their children's well-being than loans given to men (Kabeer 2001, World Bank 1995).

Debate on the role of the home environment in child learning in relation to policy on education is limited. Active involvement of parents and communities in children's schooling is important for two major reasons: not only to encourage and help children in the process of learning, but also to put pressure on the government to improve the school environment (Govinda 2003). Village education

committees (VECs) and parent-teacher associations (PTAs) provide good examples of institutionalised linkages between schools, parents and communities.

***Aims and objectives of this paper***

The literature suggests that an interplay between school and household factors is important in determining child learning. Using cross-sectional data from the Young Lives study in AP, this paper aims to explore two main themes: child learning in public and private schools, and the role of household level factors such as parental education in predicting child learning outcomes. The specific objectives are:

1. To compare learning outcomes for children in private and public schools, as well as the differences in these outcomes by sex, wealth and caste.
2. To assess the influence of a caregiver's own education on their children's learning outcomes, in both private and public schools.

# Methods

The data were collected as part of the baseline survey for The Young Lives Project. The respondents were 1,008 mothers and children aged 7.5-8.5 years at the time of the survey and sampled across the three distinct agro-climatic regions of Andhra Pradesh (Coastal AP, Rayalaseema and Telengana) from 20 sentinel sites. Details of the survey methods used, including the sampling approach, are given in Galab et al, 2003.

## *Variables*

The conceptual framework in Figure 1 shows that the main relationship under study is between school type (private or public) and child learning outcomes. However, the figure also shows that to assess this relationship, it is important to take account of other factors (known as confounders) which may influence it. Potential confounders include child age, child stunting (low height for the child's age), caregiver's education, household wealth, household size, caste and school grade completed. It was hypothesised that consideration of the impact of caregiver's education on child learning might differ according to whether the child attends public or private school, or according to the household's wealth level (known as effect modification). Thus school type and wealth were considered as effect modifiers for the association between caregiver's education and learning outcomes.

The main variables were measured as follows:

### *School type*

The main caregiver of the child was asked whether or not the child was currently enrolled in school and, if so, whether the school was public or private.

### *Child learning outcomes*

Child learning was assessed through reading, writing and numeracy skills in order to produce standardised scores ranging from 0 to 1. Literacy in the local language (Telugu) was measured by asking children to read specific letters (T, A, H), a word (HAT) and a simple sentence (The sun is hot) presented on a card. Answers were coded as "can't read anything" (0 pts), "reads letters" (1/3 pt), "reads word" (2/3 pts) and "reads sentence" (1 pt). Writing was measured by asking children to write the following sentence: "I like dogs". Answers were coded as "no" (0 pts), "yes without difficulty" (1 pt) and "yes with difficulty or errors" (1/2 pt). Numeracy was assessed by asking children to give the answer to the calculation "2 times 4". Answers were coded as "correct" (1 pt) or "incorrect" (0 pts).

The three measures (reading, writing and numeracy) were combined to create a "total learning score" in order to capture a greater variation in child learning outcomes, by a standardised average of the three scores. The minimum learning score is 0 and the maximum 1.

It should be noted that the questions used in this study to measure learning were, according to the public school curriculum, appropriate for children in grade 2. Therefore they can be considered easily within the capability of children in grade 3 (the official grade for the eight-year olds included in our study).

***Household wealth index***

The household wealth index is an average score ranging from 0 to 1 constructed from the following components:

- housing quality – the average number of rooms per person; floor, roof and wall type.
- consumer durables – the scaled sum of consumer durables (radio, refrigerator, bicycle, television, motorbike, motor vehicle, mobile phone, land phone or some additional consumer durable indicators specific to the country context such as a working fan and a working clock).
- services – the simple average of drinking water, electricity, toilet facilities and cooking fuel, all of which are 0/1 variables.

The wealth index is grouped into three categories:  $<0.2$  the ‘poorest’,  $0.2-0.4$  ‘very poor’ and  $\geq 0.4$  ‘least poor’.

***Caregiver’s education***

The large majority of “primary caregivers” are biological mothers of the child (97 per cent). Information on the level of schooling completed by the primary caregiver was collected and coded as “none”, “primary”, “middle”, “second” or “higher”, constituting grades 0, 1-5, 6-8 and 9+ respectively. The highest grade completed was also collected and this continuous variable was used in the multivariate regression analysis. The schooling of “caregiver’s partner”, of whom 96 per cent were biological fathers, was collected and analysed in the same way.

***Distance to school***

In each community information about the distance from the centre of the community to the nearest public or private school was collected.

***Caste group***

This was categorised as Scheduled Castes (SC), Scheduled Tribes (ST), Backward Castes (BC), Other Castes (OC).

***Ethics and fieldwork***

Formal ethical approval for the Young Lives study was obtained from independent ethics committees at the London School of Hygiene & Tropical Medicine, London South Bank University and the University of Reading, UK. Since no local ethics approval body existed during this first phase of the Young Lives study, ethical guidance was sought from expert members of the project’s advisory panel in Andhra Pradesh.

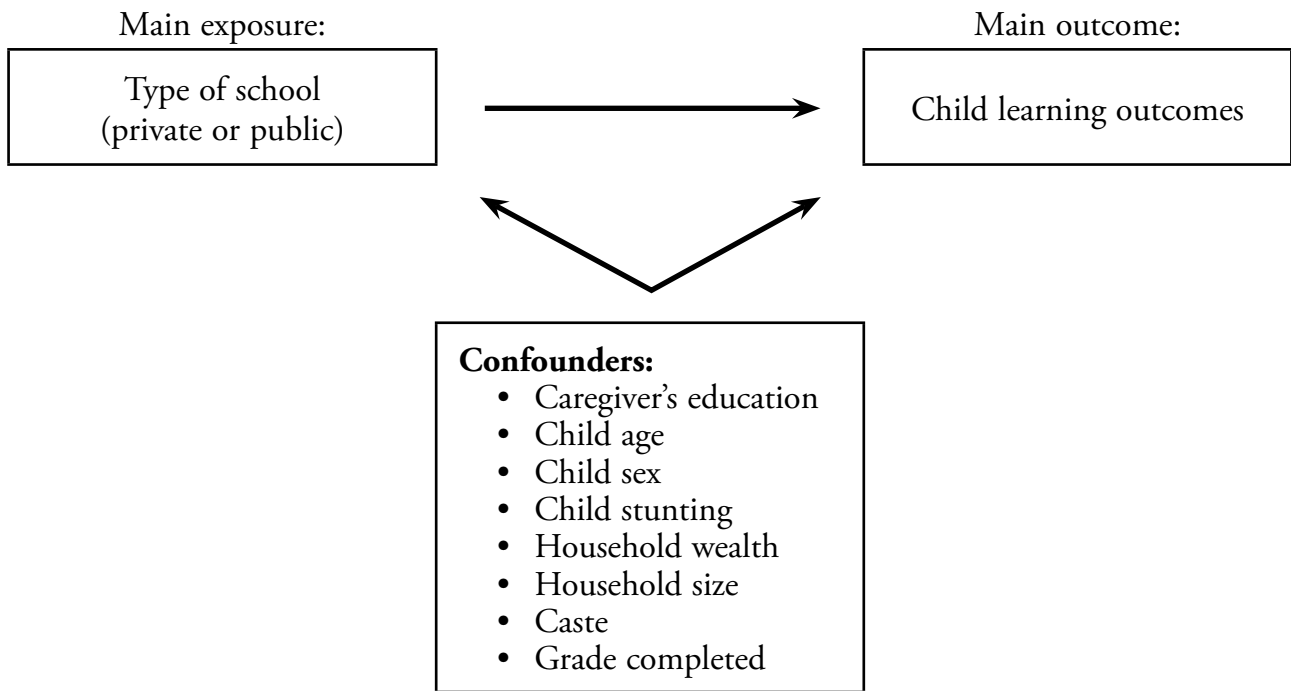
Fieldwork was conducted in the latter part of 2002, by four fieldwork teams: one per region and a team dedicated to urban Hyderabad. Fieldworkers constructed household listings in each of the communities selected for inclusion in the survey. Field teams were assisted in their identification of, and entry to, eligible households by local community health workers. After identifying potential participating households, fieldworkers explained the study, enrolled households, administered the

consent form and returned the next day to conduct the interview with the child's primary caregiver. Full copies of fieldwork documentation and questionnaires are available on [www.younglives.co.uk](http://www.younglives.co.uk).

### **Data analysis**

Data analysis was carried out using SPSS 12 and analysis followed the conceptual framework outlined in Figure 1. Patterns of age, sex and grade by school type were described. Statistical tests used included chi-squared tests, Students' T-test and F-test to assess the statistical significance of differences between proportions, 2 means or >2 means respectively. Statistical significance was assumed at the five per cent level.

Multiple linear regression analysis was used to examine the relationship between school type and learning outcomes whilst simultaneously adjusting for potential confounding variables. Effect modification by wealth and by school type was examined by including interaction terms in the regression model.

**Figure 1: Conceptual framework**

## Results

In this sample from AP, only 2.3 per cent of children were not enrolled in school, thus confirming government reports of almost universal enrolment (Census 2001). Most of the non-enrolled children were from poorer families. Data were analysed for 913 eight-year olds, following the exclusion of children with missing information on learning outcomes and children not enrolled in school.

Of the sample of children examined, 76 per cent attended public school and 24 per cent private school, which is a plausible finding in the light of previous literature. There were clear differences in household wealth between children in public and private schools, as illustrated in Figure 2. Almost 80 per cent of private school children came from the highest wealth category and only five per cent from the poorest. The wealth distribution was comparatively even in public schools, where 38 per cent children were from the poorest families and less than 25 per cent from the richest.

The distance from the community to the nearest private or public school differed according to school type. Whereas almost all the communities were at a distance of less than one kilometer from the nearest public school (99.5 per cent), only 79 per cent of communities were equally close to private schools and 19 per cent were between two and five kilometres away. These distances were measured for the community as a whole. Since it is possible that individual children attend schools other than those closest in proximity, we cannot be certain that these are the distances that the children actually travel to school. The findings, nevertheless, suggest that private school children are likely to travel a little further to school than public school children.

**Figure 2: The percentage children in each wealth category, by school type.**

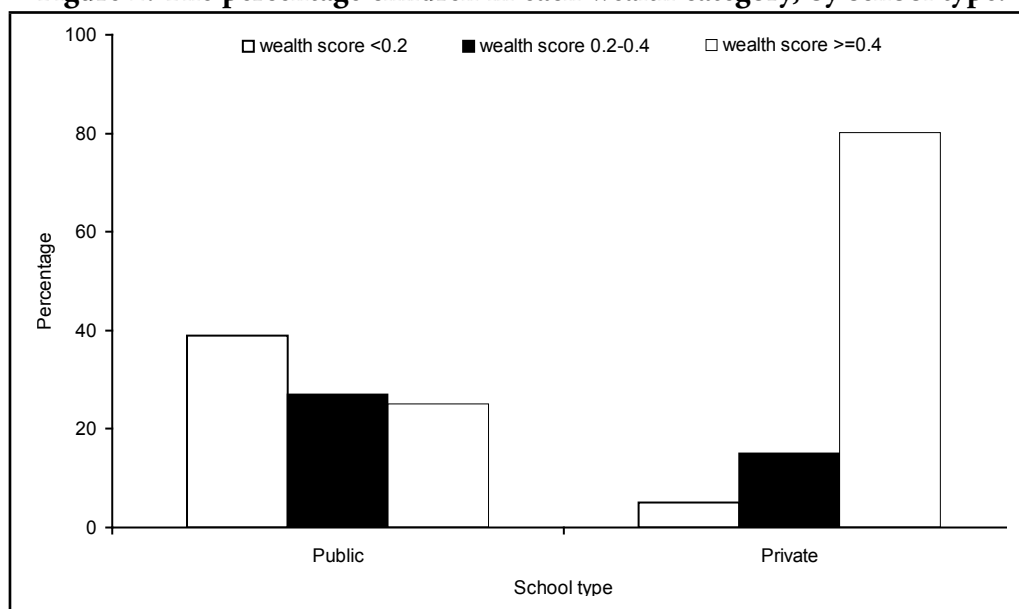


Table 1 shows that there is a clear difference between children in public and private schools in their average numeracy, reading, writing and total learning scores, with private school children doing better for all child learning outcomes. On average, public school children achieved scores of 0.72 out of a maximum 1, and private school children 0.90 ( $P < 0.001$ ).

**Table 1: Mean learning scores of children attending public or private schools**

	Public school		Private school		
	(N= 749)		(N= 234)		
	Mean	SD	Mean	SD	P-value
Numeracy	0.65	0.35	0.85	0.27	<0.001
Reading	0.61	0.39	0.87	0.30	<0.001
Writing	0.86	0.35	0.95	0.22	<0.001
Total learning score	0.72	0.28	0.90	0.19	<0.001

While eight-year olds should officially be in grade 3, this was not always the case in either type of school. In fact a greater proportion of private school children had lower grade-for-age than public school children: in public schools, 23 per cent of eight-year old children were in third grade, 5 per cent in second grade and 18 per cent in first grade, whereas in private schools the corresponding figures were 16 per cent, 48 per cent and 37 per cent. This is probably due to the different approaches to grade repetition in each school type: private schools are more likely to encourage parents of slower eight-year olds to repeat grades, whereas grade repetition in public school tends to occur in later years in conjunction with exams.

### ***Possible alternative explanations for the association seen - confounding***

The reasons for the differences in learning scores according to school type are likely to be multiple and linked to poverty. It is plausible, for example, that household wealth can explain much of the difference observed in children's performance. Therefore, in order to provide a broader picture of the differences by wealth, rural and urban areas and caste, the patterns of child learning outcomes and school type were explored taking into account other variables.

Many factors are associated with school type. Table 2 shows that children in public schools are much poorer than children in private schools. The average wealth score was 0.28 for public school children compared with 0.55 for private school children ( $P < 0.001$ ), which corresponds to 38 per cent and five per cent classified as the "poorest". The table also shows that the mean height-for-age z-score was -1.61 in public schools and -1.17 in private schools, corresponding to 35 per cent and 20 per cent classified as "stunted". There was a higher proportion of "scheduled castes" (lower) castes in public schools (25 per cent vs. 11 per cent) and more "other castes" (mainly upper) in private schools (42 per cent vs. 16 per cent). There were, however, no differences in the proportion of pupils who were female between the types of school.



**Table 2: Child and household characteristics and school type**

		Public school		Private school		
		(N= 749)		(N= 234)		
		Mean	SD	Mean	SD	P-value
HH wealth		0.28	0.18	0.55	0.18	<0.001
HH size		5.61	2.08	5.35	1.94	0.09
Height-for-age z-score		-1.61	1.03	-1.17	1.06	<0.001
		%		%		P-value
Child sex	Girls	51.6		47.7		0.164
Caregiver's schooling	None	79.2		36.3		
	Primary	9.1		13.2		
	Secondary	7.2		17.1		
	Higher	4.3		33.3		<0.001
Rural/urban	Urban	12.4		66.4		<0.001
Caste	SC	24.7		10.6		
	ST	12.0		6.4		
	BC	47.9		40.9		
	OC	15.5		42.1		<0.001

Table 3 shows the mean learning score by wealth, caste, sex and other factors. It shows a linear upward trend in children's learning scores by wealth and caregiver's education. Urban children do better than rural children, but there were no differences between boys and girls. Children from "scheduled castes" (lower) do worst, whereas those from "other castes" (mainly upper) do best (0.73 vs. 0.84,  $P<0.001$ ).

**Table 3: Child and household characteristics and total learning score.**

		N	Mean	SD	P-value
HH wealth	<0.2	279	0.69	0.27	
	0.2-0.4	293	0.74	0.26	
	$\geq 0.4$	341	0.86	0.21	<0.001
HH size	1-4	269	0.79	0.24	
	5-6	454	0.77	0.26	
	>6	190	0.74	0.27	0.105
Sex	Boys	448	0.78	0.24	
	Girls	465	0.75	0.27	0.087
Caregiver's schooling	None	645	0.73	0.27	
	Primary	81	0.82	0.23	
	Middle	88	0.86	0.18	
	High +	98	0.92	0.16	<0.001
Rural/urban	Urban	218	0.86	0.22	
	Rural	695	0.74	0.26	<0.001
Stunting	Stunted	283	0.74	0.26	
	Not stunted	628	0.79	0.25	0.005
Caste	SC	194	0.73	0.25	
	ST	96	0.77	0.28	
	BC	426	0.76	0.26	
	OC	197	0.84	0.23	<0.001

Tables 2 and 3 have shown that several factors are independently associated with both the exposure (school type) and the outcome (child learning), so it is necessary to conduct multivariate regression analysis to account for the effect of these confounding variables. The selection of variables to include in the model was based on the conceptual framework in Figure 1. The results are given in Table 4.

Model 1 in Table 4 includes school type as the only explanatory variable. The results from this confirm that children in public schools have lower mean learning scores, 0.17 less than that of children in private schools. Model 2 includes the potential confounders. The relationship between school type and learning score remains strong and statistically significant ( $P < 0.001$ ) even when the effects of these other factors are controlled. The results suggest that on average children from public schools have learning scores 0.11 below those of children in private schools, adjusting for other factors in the model.

There are several other factors which appear to independently predict children's learning score in addition to the type of school – wealth, household size, and grade. Even after adjusting for these other

predictors, there is also a gender difference in learning score. Model 2 shows that on average boys have scores 0.03 higher than girls. Although this difference is not large in absolute terms, it is statistically significant ( $P=0.037$ ). Height-for-age z-score, child's age, urban/rural site and caste are not associated with child learning score once other factors are accounted for.

**Table 4: Regression output: the relationship between school type and learning score, crude (Model 1) and adjusting for potential confounders (Model 2).**

Outcome: learning score (0 to 1)		Model 1		Model 2	
		Coeff	P	Coeff	P
School type (0=private 1=public)		-0.173	<0.001	-0.107	<0.001
HH wealth score				0.206	<0.001
HH size				-0.009	0.023
Child height-for-age z-score				0.008	0.275
Child age in months				0.003	0.181
Caregiver's schooling (grade)				0.007	0.006
Child sex (0=girl, 1=boy)				0.030	0.037
Site (1=urban, 0=rural)				-0.030	0.273
Caste	SC			-0.022	0.391
	ST			0.019	0.528
	BC			-0.030	0.156
Grade child completed				0.057	<0.001

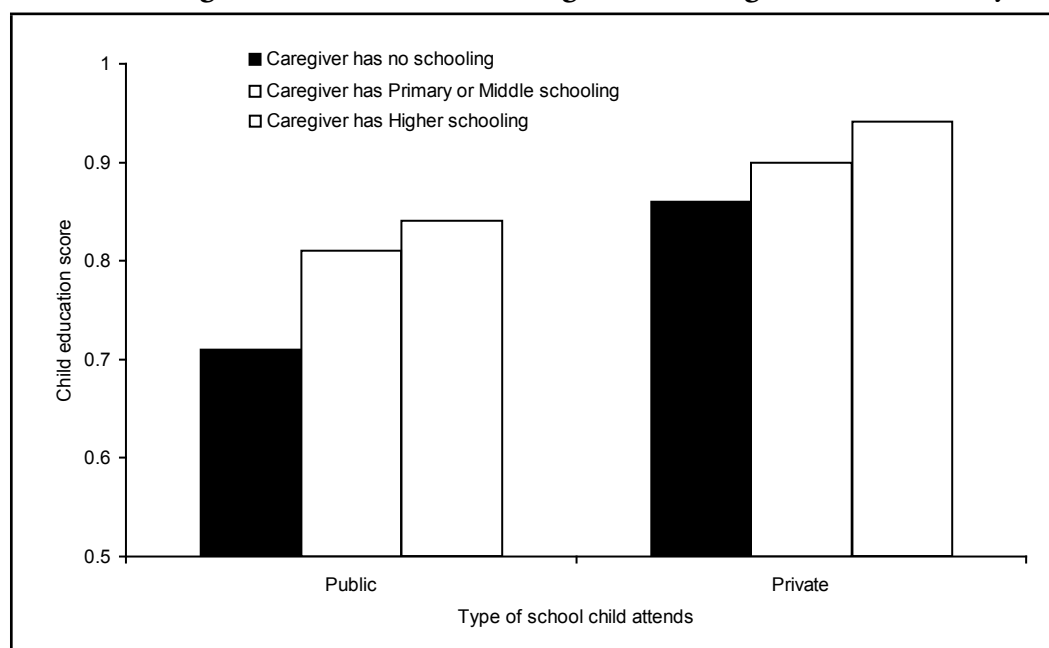
### *The role of caregiver's education*

The education of the child's caregiver is a significant predictor of the child's learning score (Table 4). For each grade of school the caregiver has completed, the average child learning score increases by 0.007. This means that the completion of grade five (primary school) is associated with an average score increase of 0.035. A similar but less pronounced effect was found for the education of the partners of female caregivers, the large majority of whom are biological fathers of the child (results not shown).

The question was posed: is the effect of caregiver's education different in private and public schools and could it be that public schoolchildren benefit more from their caregiver's education (in terms of learning outcomes) than private schoolchildren do? This question was explored by examining the interaction between caregiver's education and school type in multivariate regression analysis. The results showed the existence of an interaction with borderline significance ( $P=0.043$ ) and suggested that caregiver's education probably has a stronger effect on child learning in public schools than in private, adjusting for wealth and other confounding factors. This is illustrated in Figure 3 which shows the mean learning score by caregiver's schooling in public and private schoolchildren. The figure shows that all scores were higher in private than public schools, which might suggest that while caregiver's

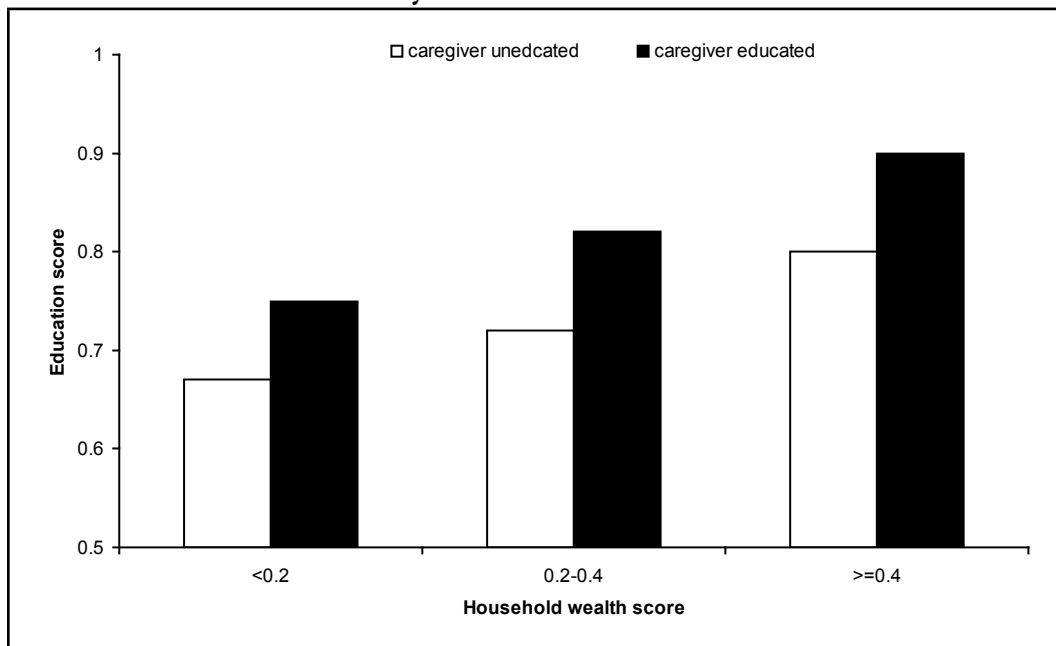
education is important it does not wholly compensate for the differences that arise between the school types.

**Figure 3: Mean learning score of children according to their caregiver's education, by school type.**



The multivariate regression analysis shown in Table 4 indicates that caste has no association with children's learning score once household wealth is controlled for. So the question was posed: does household wealth interact with caregiver's education in determining child learning and could it be that the poorer children benefit more from their caregiver's education (in terms of learning outcomes) than richer schoolchildren? This question was explored by examining the interaction between caregiver's education and wealth in multivariate regression analysis. The results showed that the interaction was statistically non-significant, which suggests that wealth does not modify the effect of caregiver's education. This is illustrated in Figure 4 which shows the mean learning score by caregiver's schooling in each wealth category. It shows that the difference in mean learning scores between children whose caregivers are uneducated and children whose caregivers have at least completed primary school is similar, approximately 0.10 scores, for both rich and poor children.

**Figure 4: Mean learning score of children according to their caregiver's education, by household wealth.**



## Discussion

The results of this study, while reinforcing previous findings about the role of parental factors in the learning achievement of children, also provide certain insights into aspects of education reform that are necessary to improve the quality of schooling in public schools. The data yield four major findings: first that private school children have better literacy and numeracy skills regardless of wealth or caste; second that children with uneducated parents (especially mothers) are at a disadvantage; third that this disadvantage is greater in public schools than in private schools and finally that girls have lower learning scores than boys.

Furthermore, there is a clear interplay between school and home: they both independently influence child learning and they interact with each other in determining the effect. But what do these findings actually mean? And how can they feed into educational policy in Andhra Pradesh?

### Summary of findings

#### *Better learning outcomes in private schools than public*

One of the important findings of this study is that children in public schools have lower learning outcomes than children in private schools, adjusted for household wealth and other confounding factors. On average, children from public schools have learning scores 0.11 below children in private schools. The differences in learning outcomes might give an indication of education quality, although other information on facilities or other indicators were not collected. Nevertheless, the results support findings from a recent study in Hyderabad also showing a considerable difference in mathematics and English skills between public and privately educated children (Tooley 2005). Higher academic achievements in private schools do not necessarily mean that the quality of private schooling is sufficient. It has been argued that, although private schools demonstrate somewhat better learning outcomes, their teaching-learning processes have been shown to be far from satisfactory (PROBE 1999).

#### *Parental education matters, especially in public schools*

The study also found that children of uneducated parents have lower learning outcomes than children of educated parents, accounting for the effect of wealth and other confounding factors. This suggests that parental education (and especially mothers') has a role in mitigating the negative impacts of poor quality education. The literature suggests that this is plausible. Educated and literate parents are able to provide academic help with homework (Sreedhar 1999) and mothers who have been termed a 'superior teacher' (Gang 1996, p.1) are more likely than men to appreciate the value of education and to want to invest in it if they themselves have been to school (Jejeebhoy 1995, Haddad 1997). The overall effect of education appears, therefore, to be long-term and to pass on from one generation to the next. Promoting adult education, especially for women, could pay rich dividends for the participation of children of the next generation in the education system (Weir 2000). However, parental education cannot make up for teaching deficits in the classroom. While mothers' education is undeniably important, the results shown here suggest that it does not wholly compensate for the differences in child learning outcomes that arise between public and private schools.

***Girls have lower learning scores than boys***

Our results also show that girl children have lower learning scores than boys. In a sense this is quite surprising because the eight-year olds in our sample have only been in the formal education system for a maximum of three years, and yet we already detect a small but statistically significant difference between the sexes. This may be due to household or cultural factors that place pressure on girls to do chores. The implications for policy will be discussed in detail below.

**Policy Implications*****The role of private education***

The findings have supported previous research showing first, that private education is prevalent among the poor, and second, that it is associated with better learning outcomes. A recent study found that nearly 98 per cent of rural parents believe that it is important to send their children to school (PROBE 1999). This phenomenon is putting conflicting pressures on the poor: whereas some choose to pay fees for a higher teaching standard and the social status associated with private education, others decide to opt out of the school system due to their inability to access good-quality low-cost schooling (Vasavi 2003, PROBE 1999).

It is important to be aware of the debates that surround the role of private education. On the one hand, it is argued that the duality between public and private schools may perpetuate the divide between the rich and the poor, genders and castes. For example, a poor family who is willing to pay extra for private education will be forced to prioritise certain children, the choice of which is often determined by birth-order and sex. A study in urban Uttar Pradesh shows that boys are more likely than girls to be sent to private schools, indicating greater willingness of parents to invest in their sons' education than in their daughters' (Kingdon, 1996). Similarly, a study in rural Maharashtra shows that the eldest sons are the most likely to be sent to school and eldest daughters' the least likely (Jejeebhoy 1995). On the other hand, it is argued that private education plays a crucial role in reaching the Education for All (EFA) targets by reaching the poor and satisfying educational needs currently not met by the government (Tooley 2005).

***Quality of schooling***

While the role of the private sector is debatable, few would disagree that the government has an important role to play in providing good-quality primary education. Without proper public schooling, the value of schooling is altogether reduced, especially for those people who are novices to the culture of literacy, and poorer households are discouraged from making investments in education (PROBE 1999). Furthermore, it has been shown that there can be psychological consequences for those who achieve educational aspirations without being provided with the skills to realise their life-long aspirations. The latter have been termed 'the schooled illiterates' (Ekanayake 1990). An acceptance of low quality public schooling would contradict the view that education should act as a social equaliser in guaranteeing that children from every section of society have equal learning opportunities. After all, education is a human right. A poor child from a lower caste and with illiterate parents should on entering the classroom have the same opportunities to learn as an upper-caste child with educated parents. Ideally, at the end of five years of primary schooling structural/social divides would not be reflected in the learning scores of school children.

There has been much debate about the low quality of Indian public schooling. Many have called for more government commitment to EFA goals by increased funding, reducing teacher absenteeism, more spacious schools, improved infrastructure and provision of sanitation and drinking water facilities that assist in pupil retention. Investment in the training of teachers is necessary not only to address the special needs of ‘first generation learners’ – children with uneducated parents – but also to ensure all children, once they are within the school grounds, may overcome any social or economic disadvantages associated with their family’s background (PROBE 1999). Marketable employment skills need to be included in post-primary education in the context of globalisation and expanding economic opportunities (UNESCO 2004).

### *The interplay between the home and school environment*

This study showed that caregiver’s education has a stronger effect on child learning in public schools than in private, adjusting for wealth and other confounding factors. This may suggest, quite plausibly, that when the quality of schools is poor, the home environment plays a greater role in child learning. However, while it is well recognised that household factors influence child learning, the question remains: to what extent does, or should, the school system depend on the home environment to encourage children to attend and participate in class? Clearly there is an interplay between school and household-level factors, but what exactly does this mean for policy: should we be focusing on the supply side (schools) or the demand side (parents), or on both?

A recent study dispels the myth of parental indifference to children’s education, a view widely held by education officials which provides an expedient rationalisation for India’s low schooling levels (PROBE 1999). In the state of UP 100 per cent of parents thought education was important for boys and 92 per cent of parents said education was important for girls. Nevertheless, institutionalised parental and community involvement in schooling of children is crucial and should be further strengthened in order to increase the demand for better quality schooling and to enable schools to become public spaces where the community actively engages in educational management.

Improvements to schools need to be context specific. For example, in areas where child labour is an important cause of drop-outs, the state needs to make it financially worthwhile for a child to attend school, whether it be by providing students with nutritional supplements, increasing the quality and usefulness of obtaining an education, or providing alternative child-care to enable their older siblings, who would normally act as caregivers, to go to school. Reducing unnecessary dependence on resources in the home would promote an equality of learning. This may be done for example by using methods of teaching that rely less heavily upon homework and by providing additional support for first generation learners and after-school classes for children of lower caste (DPEP 1999). Home-work based teaching can have an exclusionary impact on children who come from families with low quality of housing including lack of electricity and cramped living conditions, illiterate parents, and high levels of child involvement in household chores and economic activities.

The finding that girls have poorer learning outcomes, combined with the known intergenerational benefits of female education, supports the call for more emphasis to be placed on female schooling. Not only are measures needed to continue to encourage children to enrol, but more importantly to ensure that they attend school regularly and do not drop out prematurely.



## Conclusion

This study of learning outcomes among eight-year old children in Andhra Pradesh provides four major findings: first that children in private schools have better literacy and numeracy skills regardless of wealth or caste than children in public schools; second that children with uneducated parents (especially mothers) are at a disadvantage; third that this disadvantage is greater in public schools than in private schools; and finally that girls have lower learning scores than boys. Furthermore, there is a clear interplay between school and home: they both independently influence child learning and they interact with each other in determining the effect. The results reinforce previous findings about the role of parental factors in the learning achievement of children and provide insights into aspects of education reform that are necessary to improve the quality of schooling in public schools. The most effective and equitable approach to education policies and programmes is to target both schools and parents and to prioritise improvement in the quality of public schooling. Further research is needed to explore a range of context-specific policy options which implicitly recognise the interaction between the school and home environment.

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# The Young Lives Partners

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

India has seen remarkable progress over the past 50 years in both adult literacy and school enrolment for boys and girls. However, there are concerns about drop-out rates and the quality of education, especially in public schools. Children learn both within and outside the classroom. There is a need to understand the extent to which child learning outcomes (such as basic numeracy and literacy skills) are influenced by the home environment. If parents and communities are to play a role in compensating for the low quality of public schooling, it is important to consider how policy initiatives can best take into account and support the complementary role of families and communities in the educational process. What would be the most effective and equitable approach to education policies and programmes – targeting schools, or parents (by means of income supplementation or adult literacy programmes), or both?

Andhra Pradesh (AP) state has achieved considerable economic progress but, nevertheless, lags in terms of social indicators such as schooling and literacy of females. We use data from the Young Lives study to explore patterns of learning outcomes among eight-year old children in AP (N=1008). The paper aims to explore the issues related to child learning in public and private schools and the role of household level factors such as parental education.

Key findings are that children in private schools have better literacy and numeracy skills regardless, of wealth or caste, than children in public schools. Children with uneducated parents (especially mothers) are at a disadvantage. This disadvantage is greater in public schools than in private schools. Girls have lower learning scores than boys. There is a clear interplay between school and home. The effect of caregiver's education on child learning is greater for those attending public schools than private ones.

The results reinforce previous findings about the role of parental factors, and provide insights into aspects of education reform that are necessary to improve the quality of public schooling.

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