Consortium for Research on Educational Access, Transitions and Equity

CREATE Bangladesh: Community and School Study (COMSS) Baseline Report

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FIELDWORK REPORT

CREATE research teams are producing a range of interim research products. These include fieldwork reports, pilot studies, background reviews, research instruments, and draft papers. These vary in focus, depth, and quality and have not been peer reviewed. Some will become CREATE publications after quality assurance, and others will remain as project documents.

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BRAC UNIVERSITY

Consortium for Research on
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The Consortium for Educational Access, Transitions and Equity (CREATE) is a Research Programme Consortium supported by the UK Department for International Development (DFID). Its purpose is to undertake research designed to improve access to basic education in developing countries. It seeks to achieve this through generating new knowledge and encouraging its application through effective communication and dissemination to national and international development agencies, national governments, education and development professionals, non-government organisations and other interested stakeholders.

Access to basic education lies at the heart of development. Lack of educational access, and securely acquired knowledge and skill, is both a part of the definition of poverty, and a means for its diminution. Sustained access to meaningful learning that has value is critical to long term improvements in productivity, the reduction of inter-generational cycles of poverty, demographic transition, preventive health care, the empowerment of women, and reductions in inequality.

The CREATE partners

CREATE is developing its research collaboratively with partners in Sub-Saharan Africa and South Asia. The lead partner of CREATE is the Centre for International Education at the University of Sussex. The partners are:

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Disclaimer

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Acronyms

AUEO ..... assistant upazila (district) education officer
BRAC..... formerly Bangladesh Rural Advancement Committee
C-in-Ed..... Certificate in Education
ComSS ..... Community and School Study
CREATE ..... Consortium for Research on Educational Access, Transitions and Equity
DEO ..... District Education Officers
DPEO ..... District Primary Education Officer
EM ..... ebtedayee madrasa – a type of primary-level religious school
FIVDB..... Friends in Village Development Bangladesh
GPS ..... government primary school
HSC ..... higher secondary certificate
NFP ..... non-formal primary education
NGO..... non-government organisation
PO ..... Programme Organiser (for NGO schools)
PTI ..... Primary Training Institute
RNGPS ..... registered non-government primary school
SMC ..... school management committee
SSC..... secondary school certificate
UEO ..... upazila (district) education officer

1 Executive Summary

The first round of the Community and School Study was carried out in 2007 as part of ongoing work in Bangladesh for the Consortium for Research on Educational Access, Transitions and Equity (CREATE). This report outlines the research approach and instruments used in the study; describes the study areas in terms of economic, social and health variables; describes the conditions, facilities and teachers of the schools that were surveyed; and considers the likely determinants of four different types of educational exclusion: never-enrolment, drop out from primary grades, 'virtual exclusion', and failure to make the transition from primary to secondary. Finally it draws tentative conclusions for education policy in Bangladesh and looks towards further data rounds and analysis of the ComSS.

The ComSS focused on six rural areas, one in each division of Bangladesh. Across these six areas, surveys were administered to 36 schools, and to 6695 households containing 9047 children aged 4-15. Further separate surveys were administered to drop out and never-enrolled children; a child tracking survey aimed to act as a bridge between the child data from the household survey and information about schools gathered in the school survey. Finally, literacy tests were administered to parents of ongoing, never-enrolled and drop-out children, and to drop-out children themselves.

People in the study areas were largely poor, with a large majority of households earning less than US$1 a day per member. They were mostly Muslim and ethnically Bengali, although a large minority of, mostly Hindu, 'tribal' people, lived in one of the study areas, forming a particularly deprived group in terms of both economic status and education. Forty per cent of the children in the study areas were considered not to be in generally good health, and 30 per cent had been sick in the last 30 days. Around 2 per cent were disabled. Adult literacy levels ranged from 39 to 56 per cent, and were somewhat lower for women than men. Net primary enrolment ratios ranged from 63 to 88 per cent, roughly in line with previous studies. Around half of the children going to primary grades went to government primary schools, with substantial minorities going to registered non-government schools, NGO schools, madrasas, and – among better-off families – private kindergartens.

The schools in the sample varied widely by school type. NGO schools typically consisted of a single building with one classroom and one teacher, and a relatively small number of children (23 on average). Government schools were bigger and more crowded, with 54 in each class, with RNGPS and ebtedayee madrasas lying between these two extremes. On the whole building conditions and facilities were better in the government primary schools than in other types. Government primary schools had better-trained and more highly-educated teachers than RNGPS or NGO schools. Madrasa teachers were also educated to a relatively high level and had been trained, although this education and training would probably have been provided within the madrasa system itself. NGO schools appeared to have more active, and less male-dominated, school management committees than other school types.

The main part of this study uses the Zones of Exclusion framework developed by CREATE to examine the education situation in the study areas in more detail and to analyse the factors underlying the different types of exclusion. Around 8.4 per cent of boys and 6.6 per cent of girls aged 6-11 were

classified as in **Zone 1** – never-enrolled children**.** We estimate that about 40 per cent of these children are 6-8 year olds who will eventually enrol over-age; the remaining 60 per cent will never enrol. Never-enrolled children came from households which were economically worse-off and where parents were less educated, and were heavily over-represented in the two poorest study areas and among Hindu 'tribal' people. They were also in worse health than other children, had lower height-for-age, suggesting poor nutrition, and were much more likely to be disabled. Reasons given for never enrolling were diverse, with parents' inability to afford school costs, and the child not valuing schooling, being the most common.

Zone 2 – children who dropped out from primary school – accounted for about 4.2 per cent of boys and 1.6 per cent of girls of school age. Again, they came from economically and educationally worse-off households than school-going children, were over-represented in the two poorest study areas, and were more likely to have poor health and to be disabled than school-going children. Reasons given for dropping out were similar to those given for not enrolling in the first place, with school costs cited most commonly.

Zone 3 covered 'virtual exclusion,' meaning children who are in school but for one reason or another are not receiving a satisfactory basic education, and who as a consequence are at risk of dropping out. This paper examines three possible indicators of virtual exclusion: irregular attendance, poor relative performance in class (as judged by parents and teachers), and grade repetition. Around 6 per cent of school-going children had been absent more than one day in the past week, and 17 per cent had repeated a grade. Those who attended irregularly, and those who repeated grades, were clearly from worse-off and less-educated households, although this was not the case for those whose relative performance was judged as low. Attendance, relative performance judgements, and repetition also varied greatly by school type. Ultimately, it is not clear how well these indicators measure either the extent to which school-going children are receiving a good education, or their risk of drop-out. More detailed qualitative and pedagogic investigation may be needed to fill the gaps in knowledge here. An achievement test at the end of grade 2 and 4 and analysis of annual examination scores, planned for the next round of investigation, will also provide better insight.

Of the children who complete primary (grade 5), 8.7 per cent of boys and 3.9 per cent of girls fail to make the transition to secondary. These children comprised **Zone 4**, which accounted for 1.5 per cent of all the 6-15 year old children in the sample. Risk factors appear similar to those for drop out from primary (Zone 2).

A notable trend is that, in all four zones of exclusion, the proportion of boys is higher than that of girls, and conversely net enrolments were lower for boys than girls across all six study areas. National data from the 2005 Household Income and Expenditure Survey, as well as previous studies detailed in the *Country Access Review* confirm this picture of girls out-enrolling boys, although the gender gap in this study is larger than reported elsewhere.

There were also strong disparities between the six study areas. Nolsuri (Dhaka) and Lotiban (Chittagong) had much lower enrolments at both primary and secondary level than the other areas. In Nolsuri net enrolments were 63 per cent at primary and only 20 per cent at secondary, compared to 86 – 92 per cent (primary) and 61 – 69 per cent (secondary) for the other four areas.

Overall, the figures on never-enrolment and drop-out appear low compared to other reports (see the *Country Access Review*), although they are consistent with net enrolment figures from government sources. Possibly, the NGO presence in the selected communities, amongst other factors, has prevented high rates of poverty from being translated into high rates of never-enrolment and drop-out. High rates of repetition, combined with small but substantial drop-out rates, nevertheless create a bunching effect whereby student numbers are much higher in the lower grades of primary. Furthermore, there remain high rates of never-enrolment and drop-out in two of the six study areas. Overall, 36 per cent of the children were found to be in one of the four zones of exclusion.

The report concludes with some suggestions for policy and further research, focusing particularly on ways that NGOs could target groups at particular risk of falling into the zones of exclusion; the importance of health and disability; and reasons for the lower enrolment of boys than girls.

2 Introduction

The Community and School Study (ComSS) is based on the issue of access and participation in basic education in Bangladesh. The ComSS is part of the Consortium for Research on Educational Access, Transitions and Equity (CREATE), which is led by the University of Sussex, UK, and is conducting a multi-national study in Bangladesh, India, South Africa and Ghana on issues of access, equity and transition. The objectives are to strengthen the knowledge base, build capacity and improve policy making, to achieve better education for all children. The study will use a multi-levelled perspective to explore the dynamic of access and school participation in Bangladesh and provide a fuller picture of the educational situation in Bangladesh.

Access to basic education cannot be separated from meaningful, sustainable and equitable learning opportunities for children both at primary and secondary level. Understanding access to basic education, therefore, requires examination of all children – never enrolled, ongoing, drop-out, virtual drop-out or children at risk of drop-out, and failure of transition to secondary education. Therefore, the present study will explore how children slide into these zones of exclusion which hamper their effective access or participation in education.

CREATE has developed a conceptual framework to understand the issue of exclusion from a broader perspective. Commonly, never enrolled children have been regarded as the only group excluded from education, and so efficiency of the system was based on enrolment figures. The CREATE framework encompasses a much broader meaning of access by moving beyond initial entry to look at completion of primary education and the ability of a student to successfully transition into secondary school. The ComSS study deals with four zones of exclusion. ***Exclusion Zone One*** refers to the group of children who have never enrolled in any education system and are at or above the age of official enrolment. ***Exclusion Zone Two*** denotes the children who have dropped out of primary school without achieving basic education/competencies. ***Exclusion Zone Three*** indicates 'virtual exclusion': children who are continuing education but are performing poorly, have irregular attendance, or are repeating grades, and thereby at risk of drop-out. ***Exclusion Zone Four*** concerns children who have successfully completed their primary cycle but are not enrolling in secondary school or dropping out soon after enrolling in the lower grades of secondary schools. The ComSS study has targeted all four of these zones, having recognized that access to education is not limited to enrolment but the ability of a child to access quality education that will facilitate completion of their primary education with good learning outcomes and transition to secondary education.

2.1 Key research questions of the study

A set of key research questions has been developed to investigate the different dimensions of the access situation and in ensuring quality basic education to all children between the ages of 4-15 years. All these questions are addressed with a special emphasis on exclusions related to poverty, gender, disability and other forms of child vulnerability e.g., orphan, migrants, caste and other culturally excluded groups. The research questions are:

2.1.1 The pattern of access and exclusion

- What are the current patterns of access and exclusion, who is currently excluded from basic education at different stages?
- How widespread is over and under age enrolment and what are its causes?
- To what extent is pre-school available and for whom?
- What processes result in crossing threshold into exclusion for those who have entered some form of primary education in the early years, in mid-primary grades, at the end of primary, and in the lower secondary level?
- What patterns of attendance exist (pupil and teachers) over time?

2.1.2 Reasons for and factors affecting exclusion of different types

- To what extent is non-participation a supply or demand side problem?
- What factors are determinants of exclusion?
- Is poor attendance a precursor to drop out?
- What factors result in irregular and chronic non-attendance?
- How significant are health and nutrition related factors directly and indirectly in influencing participation?
- Are direct and indirect costs of attendance a significant disincentive to the poorest?

2.1.3 Viable options for improving access and transition with equity

- What options are available to extend meaningful access and what is the evidence that these options (including alternative modes of delivery) are effective and sustainable?
- What options are available to improve progression, completion, and transition rates and reduce repetition and overage completion?
- How can drop out before primary completion be reduced?
- To what extent are innovatory and alternative forms of service delivery being used with positive effects at different levels including alternative and parallel systems?
- What are the resource issues that are critical to improved access?
- Where cash transfers exist what are their efficacy?
- What mechanisms are there which might reduce the problem of irregular and chronic non-attendance?

2.1.4 Facilitating re-entry

- What would facilitate re-entry of those excluded children?

2.1.5 Facilitating transition

- How is transition from primary to secondary school managed (and transitions within the primary cycle) and what effects do the process have on meaningful access of different sub-populations up to the age of 15 years?
- What effects do primary/secondary transition rates have on primary completion?
- What options exist to improve transition rates into lower secondary grades in pro-poor ways?

2.2 Research approach

The dimensions of access and participation to basic education across Bangladesh will be explained through examination of demand and supply side constraints. An exploration of education

participation and its concomitant factors as well as examination of internal efficiency measures of the school will be a central focus of this study. Schools have a critical role to play in communities; their responsibility is to provide a quality and relevant education to young people to help prepare them for participation in the global economy as well as civic society. The relationship between schools, community, and households will be examined to understand the level of expectations of the community and to what extent the schools fulfil expectations and obligations. The role of NGOs will also be explored, using both qualitative and quantitative tools.

The degree of interdependence and interaction between community and school in improving equitable access to school will be analysed through exploring parental participation and the role and responsibilities of school management committees in different school related activities.

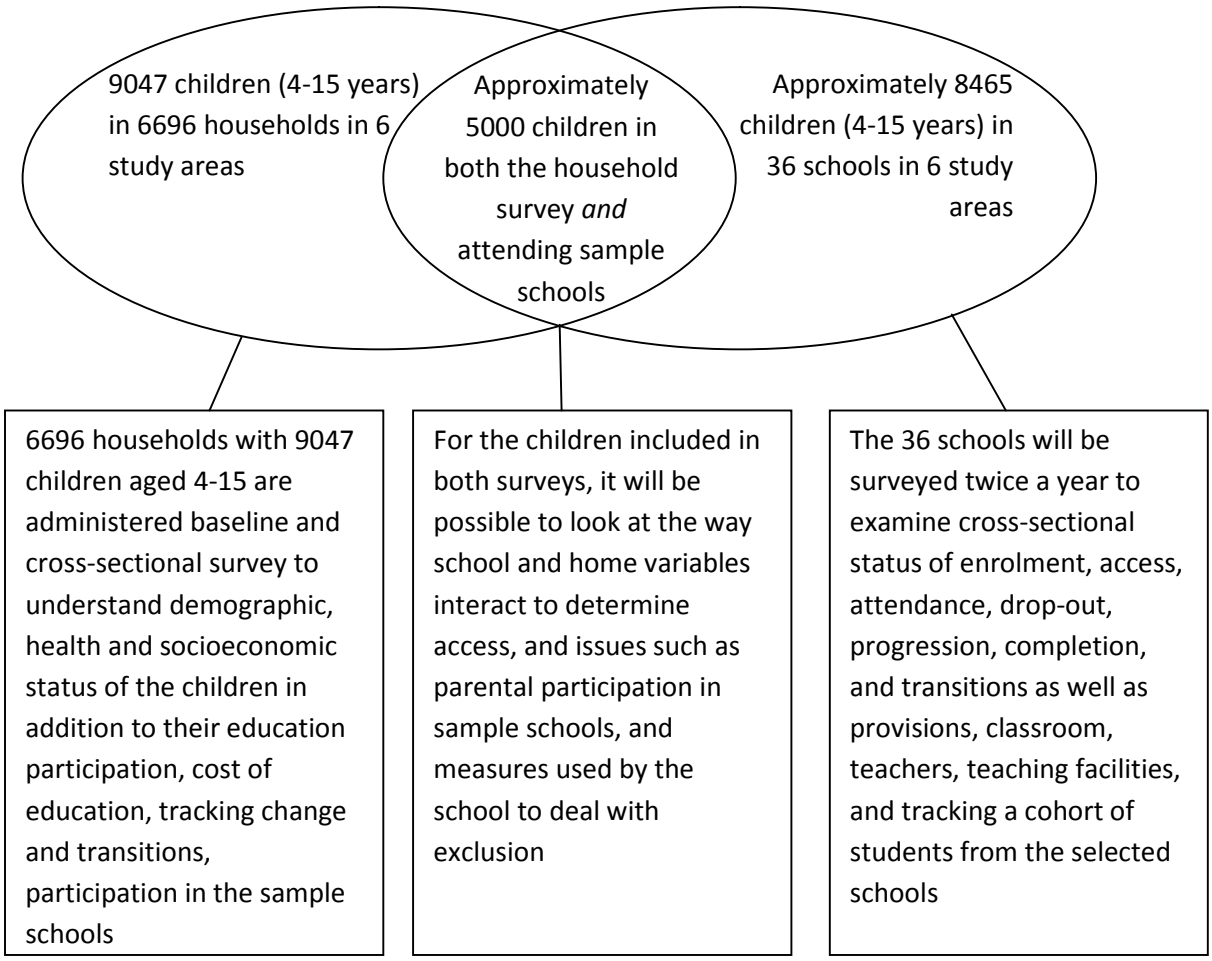
A set of locally adapted and need-based questionnaires was developed on the basis of the generic cross-national questionnaires produced by CREATE during a series of workshops and seminars. These have retained enough in common with other CREATE countries to allow for cross-country analysis of data.

This longitudinal study intends to follow a group of children both in-school as well as out of school to get a fuller understanding of the situation, why some children are excluded or 'virtually excluded' from the education system, and what could be done to keep them in school and help them complete basic education.

The existence of many different types of school at both primary and secondary level, is a distinctive trait of the Bangladesh education system. This study takes place at a point in time where the composition of the system is changing: for instance unregistered non-government primary schools are disappearing due to an increasingly stringent registration policy for that type of school, while kindergartens and madrasas are becoming easier to set up. The quality and nature of the education that is being offered by schools is to some extent dependent on the demands of the community and various studies have corroborated gaps in quality between different types of school. ComSS will also examine school preferences of households and communities to determine whether there is any relationship between school type and zones of exclusion, including through a survey of six schools of five different types in each study area.

2.2.1 Samples

Figure 1. Overlapping school and household surveys



The children included in the household survey but not in the school survey (numbering approximately 4000) were those who were either not attending school, or attending a school other than one of the 36 sample schools.

2.2.2 Partners of the study and site selection

From the very beginning, the ComSS study was designed to work collaboratively with local partner NGOs with experience in educational model development and which were seen as having made significant contributions in achieving equitable access to basic education and improving the quality of education for disadvantaged children with innovative approaches. It was intended that the NGOs would benefit through building research capacity by being involved in implementing the study.

The six ComSS study areas were selected from the working areas of the participating NGOs, to help aid understanding of the effectiveness of educational interventions undertaken by NGOs, and to have a common understanding of the strategies that could be considered and used to improve the overall quality of education and to stop children from falling into any of the four zones of exclusion. Two of the areas were areas where BRAC was planning to introduce programmes. One of these was selected from the Chittagong Hill Tracts where ethnic minority groups are predominant in number

but are under- served by the educational services because of poor communication systems as well as the long-standing conflict situation in that part of the country.

The other four areas were working areas of four other NGOs – Plan Bangladesh, Friends in Village Development Bangladesh (FIVDB), Dhaka Ahsania Mission, and Concern Worldwide.

A 12-member research group was formed at the beginning of the study, including two persons from each organisation who actively participated in the instrument development, field testing and field level data collection stages. These local NGO researchers were kept abreast with the development of the study from time to time and asked to contribute and learn. They were involved in the data analysis and are expected to participate in the advocacy phase. ComSS will also document good practice that could be disseminated to partner NGOs as a key component of capacity-building.

It is hoped that some concrete suggestions for how access to basic education for all children can be improved will emerge from the ComSS, in terms of strategies which can be developed and advocated at the policy level. To work towards this, a national level advocacy forum will be formed including NGO representatives and other civil society actors. But given differences between study areas, there might also be a need for area-level policy advocacy, and the study will strive to achieve this by involving the local partner NGOs in the process. In some cases, issues can be addressed through local education authorities and the local NGO partners who are already working with them. The NGOs will also be encouraged to initiate needs-based research, and offered technical support to do this, after the completion of the project.

2.3 Instruments

2.3.1 Household survey questionnaire

ComSS mainly focuses on the household and school level information to understand the pattern of access and exclusion. The household survey questionnaire covers: number of household members; age, sex and education level of each member; health and disability of 4-15 year old children; paternal occupation; self-assessed economic status; child's enrolment status; reasons for exclusion; school type; attendance; drop out; grade completion; cycle completion; school transfer; multiple enrolment; private costs of education and information relating to cash transfers.

2.3.2 School Survey Questionnaire

It is necessary to undertake a thorough and systematic examination of the schooling system to identify critical barriers to access and participation. School-level information is required to understand to what degree schools are efficient and how children are excluded from accessing and participating in them. The school survey questionnaire includes school provisions/infrastructure, enrolment pattern by grade, attendance, promotion, repetition, cycle completion, transition of the learners, teacher-student ratio, effective contact hour, school community relationship, teacher training, leadership and management, and ongoing assessment system of the school.

2.3.3 Questionnaire interview with never enrolled children

The reasons behind non-enrolment are varied and likely to include complex interactions of the socioeconomic and cultural environment, with the direct and opportunity costs of education. The never-enrolled survey covers family background, reasons for not enrolling, information on the

family's attempts to enrol the child, child work, social environment, and daily time use of the never-enrolled child.

2.3.4 Questionnaire interview with drop-out children

Children drop out of education for various reasons related to both school and home-based factors. Children who are at risk of dropping out can be identified at the outset of their enrolment and later through attendance, progression, repetitions as well as through the socio-economic conditions. The drop-out questionnaire looks at the factors that compelled the child to leave the school and incentives that can encourage them back to school, by examining entry level individual characteristics of the learners and their families as well as school level participation and progression of the children and their perception of schooling. The questionnaire also looks at the feasibility of re-entry by asking children their opinions on re-entering school, what they liked and disliked about the school they attended, and their daily time use.

2.3.5 Interview with teachers and head teacher

Teachers and head teachers are at the core of what happens in schools, and the efficacy of the school hinges primarily on their education, experience, training, and expectations of the school and students. Interviews with teachers and head teachers tried to explore their understanding of the cause and effects of repetition, drop out, promotion, cycle completion, and transitions.

2.3.6 Interview with Upazila Education Officer

Upazila Education Officers (UEO) are the local level education administrators for the primary school system. UEOs have direct control of primary schools and are supposedly accountable to the upazila education committee, chaired by an Upazila Nirbahi Officer (UNO). The UEO office is supposed to ensure equitable access to, and improve the quality of, basic education, by planning and implementing primary education in partnership with the Upazila education committee, teachers, school management committee, parents and the community at large. The ComSS UEO interview aims to understand better how schools are governed; the role, responsibilities and activities of the local education authority; and how effective they have been in fulfilling their duties.

2.3.7 Interviews with community leaders

The Compulsory Primary Education Act 1990 assigned specific responsibilities to the Union Parishad (UP, the lower tier of local government) to mobilise local support for compulsory primary education. UP chairpersons are also members of the education committees that have a general oversight responsibility and the job of recommending government development grants in the education sector, in the upazila. A questionnaire has been developed to understand the role of these local community leaders and their perceptions about access, participation, and school performance.

2.3.8 Literacy test instrument

To measure household literacy status and relate it to the access, participation, and zones of exclusions, a simple literacy test is developed for the drop-out children and caregivers of never enrolled, drop-out and ongoing students. The literacy test measures reading, writing, and numeracy skills of the respondents.

2.3.9 Child tracking card

A longitudinal child-tracking card has been developed to study the trends and patterns in a student's life both in and out of school. Constructed cohort analysis can give a partial picture of drop-out and

cycle completion estimates of an educational institution, but child tracking will give an opportunity to follow a group of children for a long period to understand the progression, repetition, cycle completion, transitions, and drop-out situation of each individual child within the context of their school as well as household situation. This tracking will make it possible to understand better the reasons children fall into different zones of exclusion at different stages of their student life, and may shed light on how some other children in similar circumstances avoid those threats. Tracking a true cohort of children will also strengthen the understanding of how overage enrolment, low attendance and repetition impact on student's performance and how health related problems of the children lead to exclusion. It will also help understand how school support and support from the households can help them survive in the education system, and the relationship between socioeconomic conditions and the zones of exclusion.

2.3.10 Focus group discussion

Focus groups were conducted to collect in-depth information from teachers, head teachers, UEOs, assistant UEOs, and School Management Committees. The aim was to examine effective and sustainable options for extending meaningful access to basic education by solving the problem of chronic and irregular non-attendance; to review the existing options for improving progression, completion, and transitions rate; and to understand to what extent innovative and alternative forms of education services can be introduced to help improve access and participation.

2.3.11 Piloting of the instruments

Before finalising, the questionnaire set was taken into the field for piloting. A group of 10 persons were recruited for nine days (May 27 to April 4, 2007) for the purpose and 4 researchers from the partner organisations also took part in the piloting of the instruments. The field investigators were given rigorous training on the relevant questionnaire and sent next day to collect information using that questionnaire. Every day, at the afternoon session, the group gathered together to have feedback on the completed questionnaire. The discussion covered their overall impression of the field work and overall understanding of the questionnaire. This process continued and covered all the questions of the questionnaire and the relevant comments and changes were then incorporated immediately on the basis of discussions of that session. After seven days of field work the research team came back to Dhaka, incorporated all the feedback and made changes in the questionnaire, and finalised it for the field study.

3 Background on the study areas

Table 1. The study areas

	Division	Zila (district)	Upazila (sub-district)	Union	NGO working	House-holds sampled	Children 4-15 in sample
1	Rajshahi	Dinajpur	Khansama	Goaldihi	Plan Bangladesh	796	916
2	Dhaka	Shariatpur	Goshairhat	Nolsuri	Concern Worldwide	1175	1811
3	Sylhet	Sylhet	Jokiganj	Manikpur	FIVDB	1270	1879
4	Chittagong	Khagrachhari	Panchori	Lotiban	BRAC	629	785
5	Khulna	Satkhira	Satkhira Sadar	Alipur	Dhaka Ahsania Mission	1733	2032
6	Barisal	Bhola	Bhula Sadar	Dhonia	BRAC	1093	1624

Table 2 shows that the study areas varied widely in some key social and economic indicators. Mean monthly income (self-reported) varied from only Tk. 2838 (around US$40[1]) in Lotiban to more than twice as much in Manikpur (Sylhet), Dhonia (Barisal) and Nolsuri (Dhaka). This difference in total household income is only slightly mitigated by a tendency for households to have fewer members in the poorer districts. The vast majority of households earn less than US$1 a day per member across all six study areas. Most households were Muslim, with substantial minorities of Hindu families in Goaldihi and Lotiban. In Lotiban, situated in the Chittagong Hill Tracts, around two-fifths of households identified themselves as 'tribal', whereas in the other areas close to one hundred per cent identified themselves as ethnically 'Bengali'.

Overall 8 per cent of the households were headed by a woman. The highest proportions of female-headed households were in Lotiban (Chittagong) and Manikpur (Sylhet), perhaps reflecting migration of men to work abroad or elsewhere in Bangladesh.

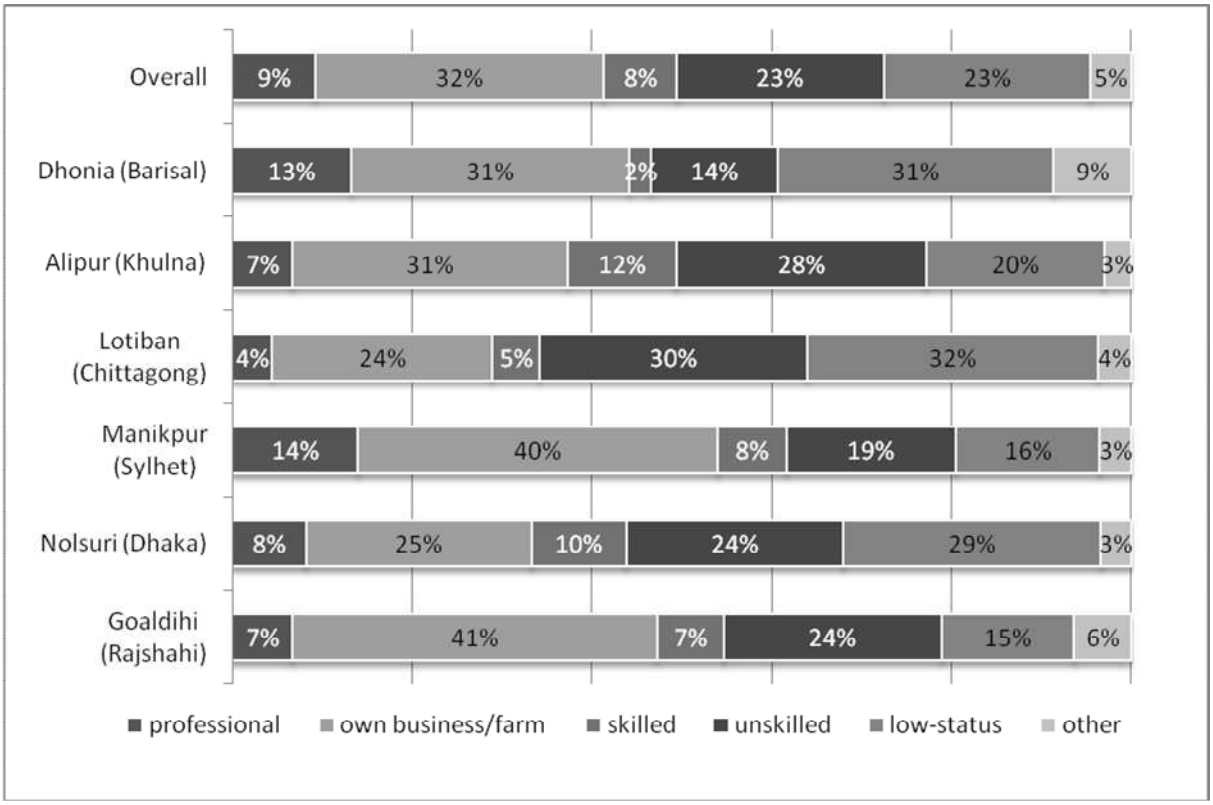
Households typically contained around 3 people aged 16 or over and 2 children aged under 16.

[1] An exchange rate of US$1=Tk. 69 is used. (Bangladesh Bureau of Statistics, 2007)

Table 2. Some characteristics of households in the 6 study areas

	Goaldihi (Rajsh.)	Nolsuri (Dhaka)	Manikpur (Sylhet)	Lotiban (Chit.)	Alipur (Khul.)	Dhonia (Baris.)	Overall
Household monthly income (Taka)	3377	5884	6587	2838	5345	6074	5326
Per capita monthly income (Taka)	782	1229	1484	741	1272	1289	1199
Household size	4.5	5.1	5.3	4.4	4.6	5.0	4.8
Below US$1 a day per member	96%	90%	83%	98%	89%	90%	90%
% staple food security status is 'always in need'	22%	10%	11%	29%	18%	9%	15%
Hindus	30%	5%	3%	25%	9%	1%	10%
'Tribal'	0%	0%	0%	42%	0%	0%	4%
Household head works as a day labourer	11%	26%	12%	27%	16%	19%	18%
Household head is in unskilled work	39%	53%	35%	62%	48%	45%	46%
Average land owned (decimals)	117	100	149	93	102	96	110
Landless	7%	18%	5%	31%	12%	6%	12%
Owns a desk	50%	49%	68%	43%	37%	73%	53%
Has electricity	20%	23%	37%	9%	46%	57%	36%
Poor ventilation	36%	10%	13%	10%	25%	8%	17%
Daily newspaper	3%	3%	7%	1%	4%	3%	4%
Has a radio	16%	18%	20%	7%	24%	13%	18%
Has a television	17%	10%	17%	8%	28%	26%	19%
Has a mobile phone	12%	17%	40%	0%	29%	30%	24%
Female-headed	4%	8%	11%	12%	5%	9%	8%
Children (0-15) per household	1.6	2.1	2.2	1.7	1.5	2.0	1.9
Adults (16+) per household	3.0	3.0	3.1	2.6	3.0	3.1	3.0

Figure 2. Occupational category by study area



See appendix for occupational categories.

Data were also available from the national 2005 Household Income and Expenditure Survey on expenditure, literacy and enrolments. These are presented in Table 3 at district (zila) level, and so should not be expected to match closely with our data which are at union level. Literacy in the ComSS study areas appears to be higher than the district average for Goaldihi (Rajshahi) and Dhonia (Barisal) but lower for the other areas (see Table 5 below for comparison). Net primary enrolments, however, are substantially higher in our study areas than the district average, except in Nolsuri (Dhaka). Net primary enrolments were higher for girls than boys in Shariatpur, Kagrachhari and Satkhira, but higher for boys in the other three districts. For Bangladesh as a whole, net primary enrolments were also higher for girls than boys (71 per cent for girls and 68 per cent for boys; $p<.05$).

Table 3. Properties of the districts of the study area, according to the 2005 HIES

	Dinajpur (Rajsh.)	Shariatpur (Dhaka)	Sylhet (Sylhet)	Kagrachhari (Chit.)	Satkhira (Khul.)	Bhola (Baris.)
Nominal per capita consumption expenditure (Taka)	1048	1560	2439	1209	992	1386
Adult (16+) literacy ('can read a letter')	54%	55%	60%	41%	54%	54%
Net primary enrolments – overall	71%	64%	79%	63%	83%	71%
– male	73%	55%	86%	65%	76%	72%

– female	69%	74%	68%	61%	90%	69%

Source: Household Income and Expenditure Survey (2005) (author's analysis)

3.1 Health and disability characteristics

Results on immunisation and health (see Table 4) were worst in Lotiban (Chittagong), where over a quarter of children were not fully vaccinated, and less than half of children were described as generally in good health. In four of the six areas (Goaldihi, Nolsuri, Lotiban and Dhonia), close to 40 per cent of the children had reportedly been sick in the last 30 days. The two areas with lower rates of sickness, Manikpur and Dhonia, are notably the richest by per-capita income, suggesting interactions between economic status and child health with likely implications for school activity. Most common illnesses reported were coughs (64 per cent), 'weakness' (13 per cent) and hookworm (5 per cent).

It is not clear why child disability is higher in Goaldihi (Rajshahi) than in any of the other study areas (this difference was significant, p<.01).

Table 4. Health and disability of 4-15 year olds by study area

	Goaldihi (Rajsh.)	Nolsuri (Dhaka)	Manikpur (Sylhet)	Lotiban (Chit.)	Alipur (Khul.)	Dhonia (Baris.)	Overall
Fully vaccinated	90%	79%	87%	70%	95%	92%	87%
'Good' or 'very good' health	53%	50%	76%	39%	71%	59%	61%
Sick in last 30 days	39%	37%	18%	38%	14%	40%	28%
Disabled	3.5%	1.2%	1.0%	1.4%	1.9%	1.2%	1.6%

Logit estimations were carried out to explore the determinants of vaccination (Estimation 1 in the appendices) and health (

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
in_need	0.723838	0.067185	-3.48	0	0.603441	0.868256
desk	1.198907	0.091411	2.38	0.017	1.032488	1.392149
re_hb	1.709762	0.336837	2.72	0.006	1.162096	2.515529
re_ht	0.016014	0.004352	-15.21	0	0.009401	0.02728
re_bt	0.312861	0.091564	-3.97	0	0.176292	0.555226
dcod1	0.880182	0.133556	-0.84	0.4	0.653754	1.185034
dcod2	0.387186	0.04235	-8.67	0	0.312477	0.479758
dcod3	0.638457	0.073578	-3.89	0	0.509373	0.800253
dcod4	1.313665	0.261602	1.37	0.171	0.889154	1.94085
dcod5	2.223889	0.32031	5.55	0	1.676923	2.94926
fpri	1.263899	0.110925	2.67	0.008	1.064162	1.501126
mpri	1.555147	0.148175	4.63	0	1.290234	1.874452
fhead2	0.686203	0.089246	-2.9	0.004	0.531799	0.885438
childdepen~y	2.34946	0.558016	3.6	0	1.475029	3.742274
Number of	9045		$P > \chi^2$	0.000	Pseudo	0.1484

observations	R^2

Estimation 2). Father's and mother's education emerged as important influences on vaccination. The role of economic variables was less clear: income and occupational variables had little influence on vaccination once study area, religious and ethnic group were controlled for. But households 'always in need' in terms of food security status reduced the likelihood of immunisation by a quarter, whereas owning a study table (a likely proxy for wealth and, perhaps, for the priority given to children in the allocation of household resources) increased the likelihood by 20 per cent. Being an ethnically tribal Hindu reduced the likelihood by 98 per cent (because very few from this group were immunised); being a tribal Buddhist by 70 per cent; and being from a female-headed household by 30 per cent. Have a father educated to at least primary level increased the likelihood by around 30 per cent while having a mother educated to at least primary increased it by 60 per cent.

A further logit estimation looked at the determinants of generally 'good' or 'very good' health (

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
in_need	0.723838	0.067185	-3.48	0	0.603441	0.868256
desk	1.198907	0.091411	2.38	0.017	1.032488	1.392149
re_hb	1.709762	0.336837	2.72	0.006	1.162096	2.515529
re_ht	0.016014	0.004352	-15.21	0	0.009401	0.02728
re_bt	0.312861	0.091564	-3.97	0	0.176292	0.555226
dcod1	0.880182	0.133556	-0.84	0.4	0.653754	1.185034
dcod2	0.387186	0.04235	-8.67	0	0.312477	0.479758
dcod3	0.638457	0.073578	-3.89	0	0.509373	0.800253
dcod4	1.313665	0.261602	1.37	0.171	0.889154	1.94085
dcod5	2.223889	0.32031	5.55	0	1.676923	2.94926
fpri	1.263899	0.110925	2.67	0.008	1.064162	1.501126
mpri	1.555147	0.148175	4.63	0	1.290234	1.874452
fhead2	0.686203	0.089246	-2.9	0.004	0.531799	0.885438
childdepen~y	2.34946	0.558016	3.6	0	1.475029	3.742274
Number of observations	9045	$P > \chi^2$	0.000		Pseudo R^2	0.1484

Estimation 2). Whether the child had been fully vaccinated was significant and increased the likelihood of good health by about 25 per cent. There was a one per cent increase in the likelihood of good health for each Tk. 100 of income per person. Children from households that were financially always in need were about 40 per cent less likely to have good health and there was an additional 15 per cent decrease in the likelihood of good health if the head of household was in unskilled work. There was a small but significant effect of child dependency ratio: adding an extra sibling to an average-sized house decreases the odds of a child being in good health by 3 per cent. Surprisingly, significant effects were not found for mother's or father's education, presumably

because these were hidden by the effects of vaccination, economic status, and study area. A fairly successful universal child immunization campaign of the government may have mitigated the effects of socioeconomic factors. Despite this, taken together with the results on vaccination, these results show a clear route from parents' education to child health: parents with primary education are more likely to get their children fully vaccinated, and fully vaccinated children are more likely to have good health.

Sex of the child was not significant in any of the estimations on health or immunisation.

4 Education in the study areas

Net enrolment rates at primary level – measured as the proportion of 6-10 year olds in primary education – were 80 per cent for boys and 85 per cent for girls. These are somewhat below the national figures of 84 per cent for boys and 96 per cent for girls given in the *Country Access Review* on the basis of Department of Primary Education figures from 2004 – not surprising, given our choice of study areas. Enrolments were particularly low in Nolsuri (Dhaka) and Lotiban (Chittagong). The female enrolment ratio was consistently higher than the male.

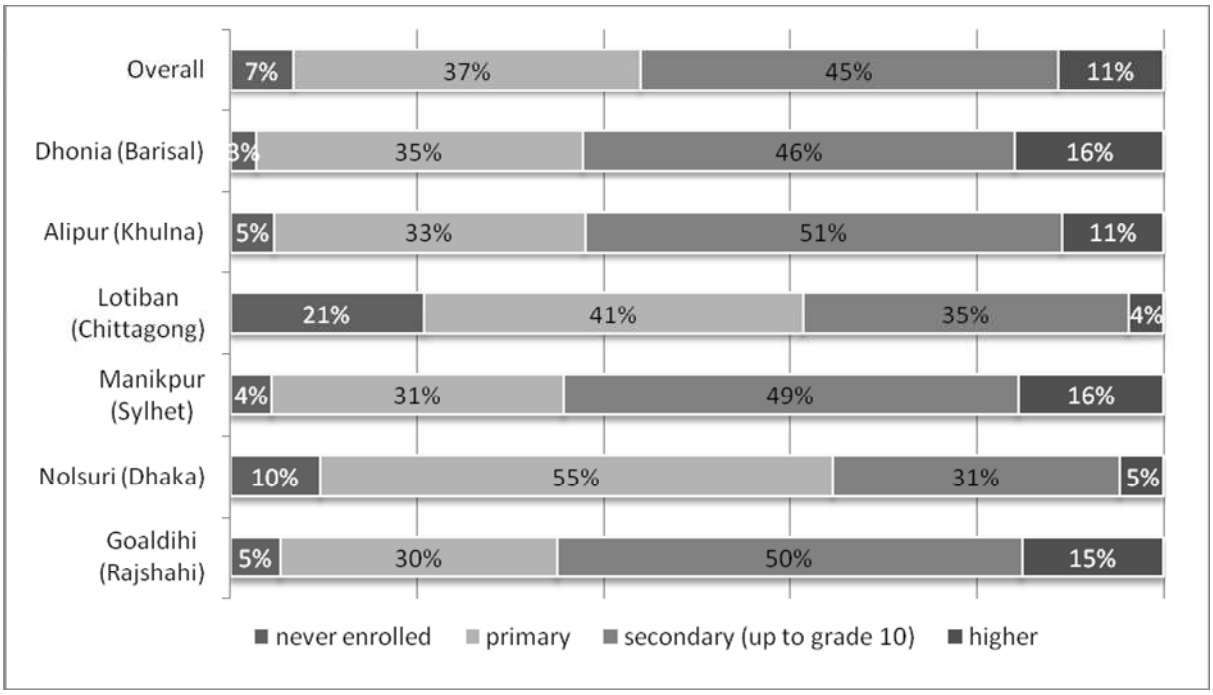
Net enrolments at secondary – the proportion of 11-15 year olds in grades 6-10 – were 46 per cent for boys and 62 per cent for girls. As for primary level, enrolments were higher for girls than boys in all six study areas, and were particularly low in Nolsuri and Lotiban – at the extreme, only 13 per cent of boys in Nolsuri were going to secondary school.

Adult (16 years or older) literacy rates varied from 39 per cent in Nolsuri (Dhaka) to 56 per cent in Goaldihi (Rajshahi) and Dhonia (Barisal). Despite the low rates of literacy, many households had at least one member educated up to secondary level, and 93 per cent had one member with at least some primary education (see Figure 3). Literacy rates in the study areas were lower than the district average (as calculated from 2005 HIES data; see Table 3) in Nolsuri, Manikpur, Lotiban, and Alipur, but slightly higher in Goaldihi and Dhonia. The difference was particularly large in Nolsuri – 39 per cent compared to the district average for Shariatpur of 55 per cent.

Table 5. Education characteristics of the study areas

	Goaldihi (Rajsh.)	Nolsuri (Dhaka)	Manikpur (Sylhet)	Lotiban (Chit.)	Alipur (Khul.)	Dhonia (Baris.)	Overall
Adult (16+) literacy – overall	56%	39%	55%	39%	49%	56%	50%
– male	62%	42%	60%	46%	52%	59%	54%
– female	51%	36%	50%	31%	47%	53%	46%
Net primary enrolment – overall	88%	63%	92%	73%	88%	86%	83%
– male	85%	58%	92%	72%	87%	82%	80%
– female	91%	68%	93%	75%	90%	91%	85%
Net secondary enrolment – overall	69%	20%	63%	38%	68%	61%	54%
– male	59%	13%	52%	36%	57%	58%	46%
– female	80%	26%	72%	40%	77%	64%	62%

Figure 3. Highest education level within each household, by study area



At what grade do people consider themselves literate? Figure 4 shows that people who have taken three to four years of primary schooling only report that they are literate in about half of cases. Only at grade 5 or 6 does literacy approach 100 per cent.

Figure 4. Self-reported literacy by highest grade completed

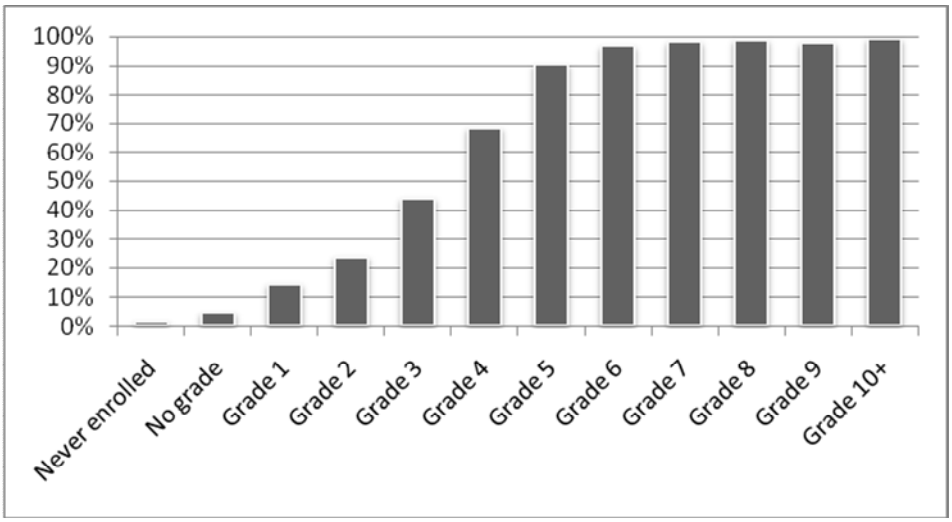
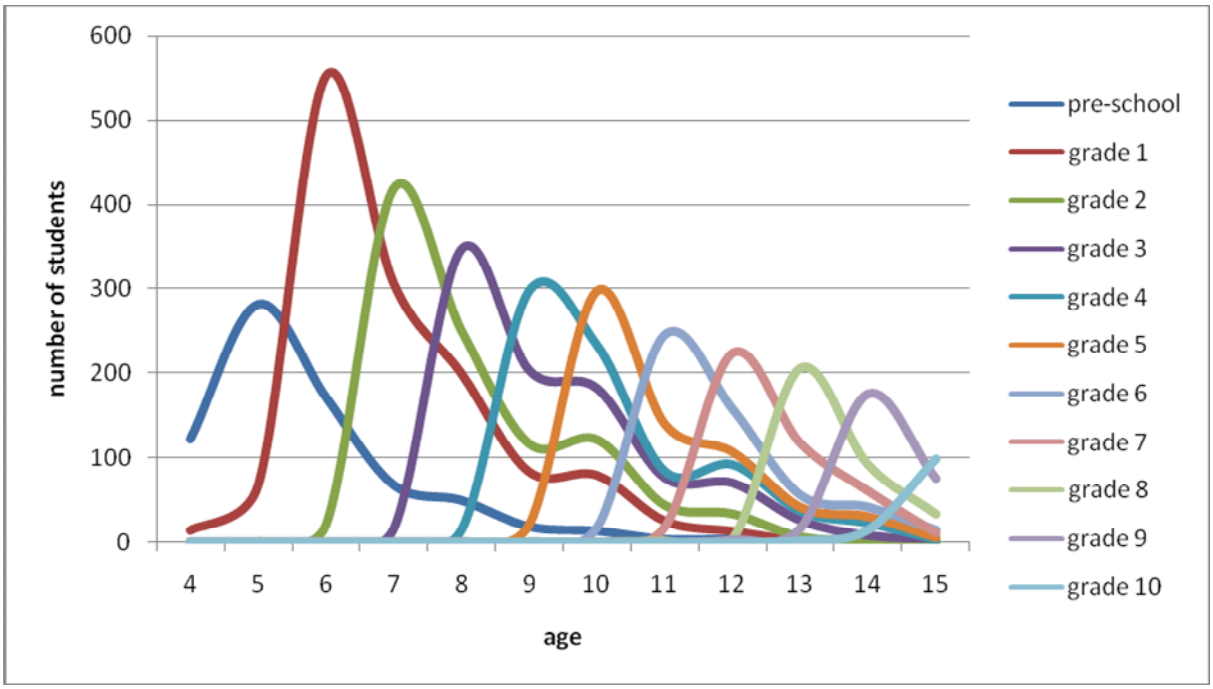


Figure 5 shows that, across the sample, there were a wide range of ages in each grade, especially in the lower grades. In every grade there were a large proportion of overage children and a much smaller proportion of underage children.

Figure 5. Enrolments by age and grade

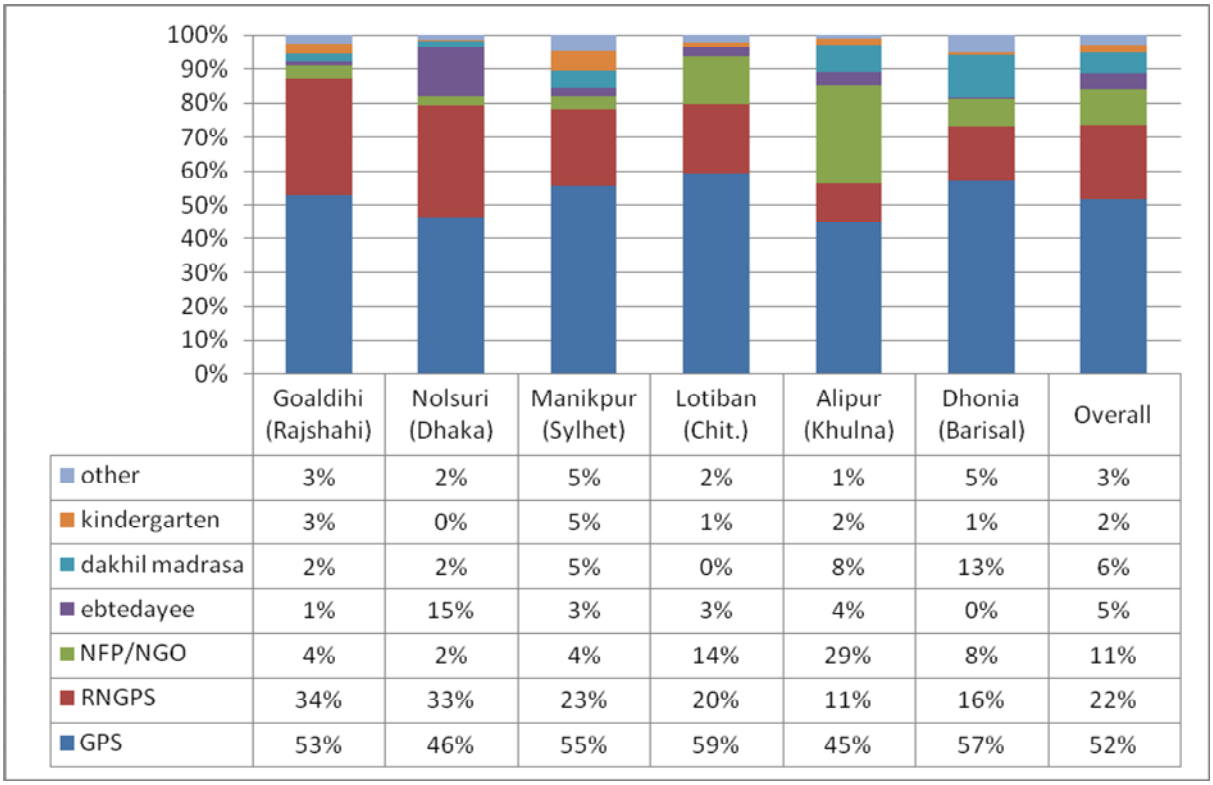


Disaggregating the age-grade charts by school type (Figures 6-11 in appendix 11.5) reveals that the amount of variation of ages in each grade, and proportional drop between consecutive grades, is lower in GPS than in RNGPS, and that much of the enrolment in NGOs and kindergarten is reportedly at pre-school level. (The latter may, however, reflect undetermined or unclear designation of grades in NGOs and kindergartens). Madrasas also seem to have wide variation in the age at which children enter each grade. In secondary schools there is relatively little variation with most children in the correct grade for their age.

Figures 12-18 (appendix 11.6) show the age-grade charts for each study area. Manikpur and Alipur are relatively 'correct' with most children in the grades they are supposed to be in whereas the other charts show considerable variation. The peaks that can be seen at ages 8, 10 and 12 in some of the charts (Nolsuri and Lotiban), together with troughs at ages 9 and 11, probably reflect parents being unsure of the exact age of their children.

Although government primary schools (GPS) dominate in each study area, the proportions of children in each school type varied widely (Figure 6), with Lotiban and Dhonia having particularly high proportions of children in GPS while Goaldihi and Nolsuri have higher proportions in RNGPS. Nolsuri also had the highest proportion (around 15 per cent) in ebtedayee madrasas, while Alipur and Lotiban had high proportions (29 and 14 per cent, respectively) in NGO schools.

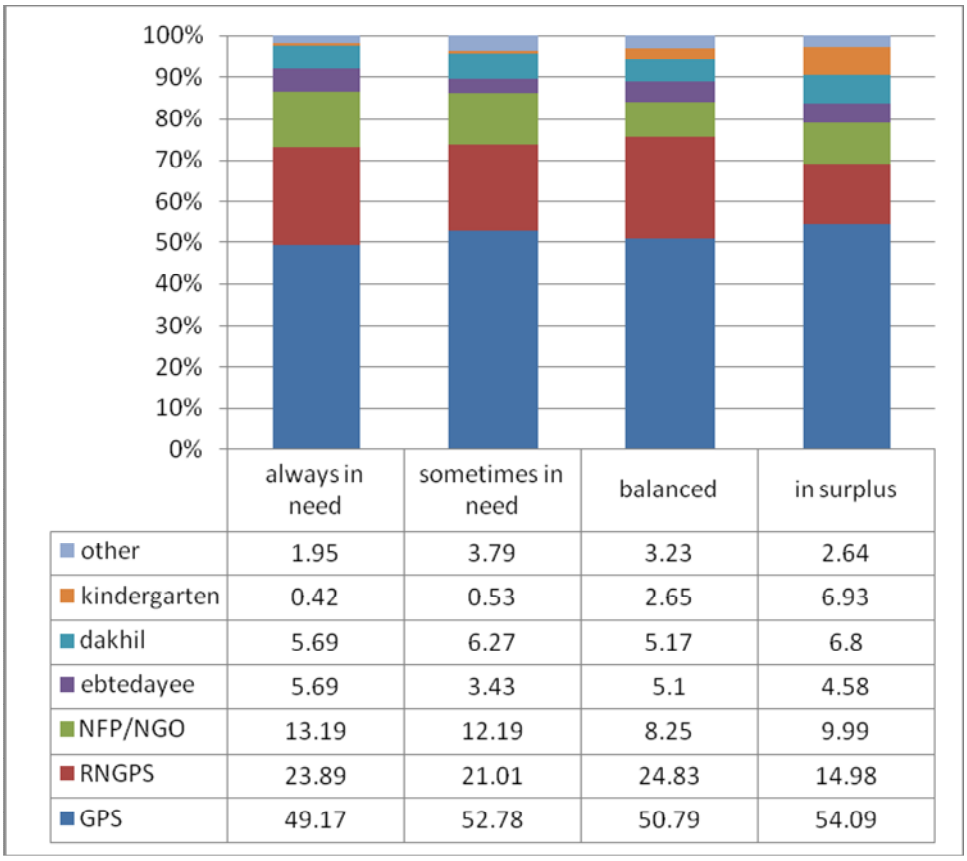
Figure 6. Proportion of school-going children (grades 1-5) in each school type by study area (from household survey)



	Goaldihi (Rajshahi)	Nolsuri (Dhaka)	Manikpur (Sylhet)	Lotiban (Chit.)	Alipur (Khulna)	Dhonia (Barisal)	Overall
other	3%	2%	5%	2%	1%	5%	3%
kindergarten	3%	0%	5%	1%	2%	1%	2%
dakhil madrasa	2%	2%	5%	0%	8%	13%	6%
ebtedayee	1%	15%	3%	3%	4%	0%	5%
NFP/NGO	4%	2%	4%	14%	29%	8%	11%
RNGPS	34%	33%	23%	20%	11%	16%	22%
GPS	53%	46%	55%	59%	45%	57%	52%

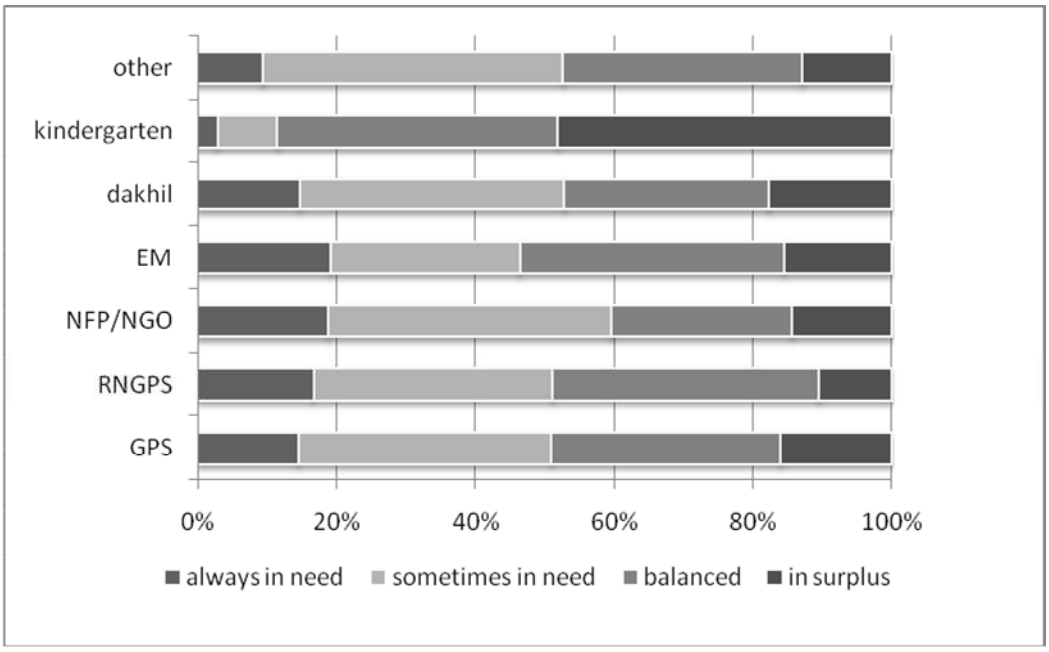
Examining school type by food security status (Figure 7 and 20), about half of all children in each of the food security categories were in GPS. However the proportion of other school types varied, with NGO enrolments lower, and kindergarten enrolments higher, for better-off families. (Similar results can be obtained using per-capita income quintiles instead of food security). Looking at this data another way (Figure 20), there is a very noticeable disparity between the food security status of households with children in kindergartens, compared to other schools. In kindergartens almost half the children were from households in 'surplus' and very few were 'always in need'. Children in NGO schools seemed to come from the households with the worst food security status: 60 per cent were 'always' or 'sometimes in need'. The food security distribution of children in GPS, RNGPS, and madrasas were similar to each other and in between the two extremes represented by the kindergartens and NGOs – with around half 'in need' and less than 20 per cent in 'surplus'.

Figure 7. Proportion of school-going children (grades 1-5) in each school type, by food security status



	always in need	sometimes in need	balanced	in surplus
other	1.95	3.79	3.23	2.64
kindergarten	0.42	0.53	2.65	6.93
dakhil	5.69	6.27	5.17	6.8
ebtedayee	5.69	3.43	5.1	4.58
NFP/NGO	13.19	12.19	8.25	9.99
RNGPS	23.89	21.01	24.83	14.98
GPS	49.17	52.78	50.79	54.09

Figure 8. Proportion of school-going children (grades 1-5) in each food security grouping, by school type



4.1 Zones of exclusion

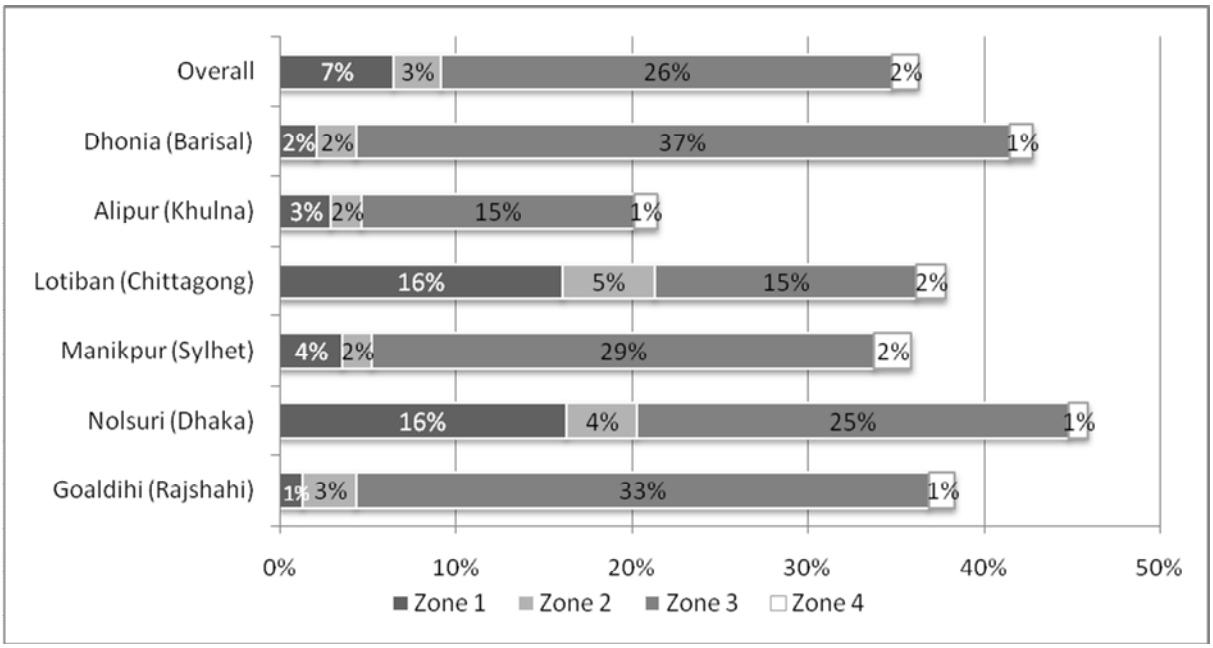
For the purposes of this paper, the four zones were defined in the following way:

- **Zone 1 – Never enrolled** – child is of at least primary starting age (6 years) and has never been enrolled
- **Zone 2 – Drop out from primary** – child dropped out from primary school prior to completing grade 5
- **Zone 3 – Virtually excluded** – Three operational definitions were used:
    - **Zone 3a – low attendance** – child is aged 6-15 and parent reported that the child was absent more than one day in the past week
    - **Zone 3b – low achievement** – child is aged 6-15 and parent ranked child as being in the 'bottom 25 per cent' of the class. (In practice only 13 per cent of parents gave this response, suggesting that parents overestimate their children's class performance.)
    - **Zone 3c – repetition** – child is aged 6-15 and parent reports that the child has repeated the year at least once.

  In practice these three definitions translated into three distinct groups with only a small overlap between them.
- **Zone 4 – fail to make the transition to secondary** – child dropped out, having completed grade 5 but no further grades

Overall around 36 per cent of children aged 6-15 is in one of the four zones of exclusion, as defined above. However most of these are in one of the definitions of zone three – virtual exclusion. Seven per cent of six to fifteen year olds from our sample were never-enrolled; three per cent were drop-outs from primary; and two per cent were children who had completed primary but not made the transition to secondary.

Figure 9. Zones of exclusion by study area (6-15 years)



5 The sample schools

The School Survey was conducted on a sample of two Government Primary Schools, one registered non-government primary school (RNGPS), one ebtedayee madrasa, one NGO-run school and one private secondary school from each study area. Thus 36 schools were sampled in total.

There has been a substantial investment in improving physical facilities in schools in recent years, but it has been observed that the situation is yet far from being satisfactory (Chowdhury et al 2001). Poor physical environment in most schools is a problem because there is usually little recurrent budget allocation for routine maintenance (Ahmed et al 2005, JBIC 2002). However, there has been some improvement in education facilities as a result of PEDP II.

5.1 Size, number of rooms, and classes

While NGO schools typically consisted of a single building and (on average) 1.5 rooms, government primary schools had 2.1 buildings and 6.5 rooms, with RNGPS and ebtedayee madrasas falling in between. The private secondary schools in the sample were generally much larger, consisting of 3.3 buildings and 19 rooms.

NGO schools had the smallest classes with around 23 students on average, while GPS had 54, the largest classes at primary level (Table 6). Private secondary school classes were much larger with around 93 students. Classroom capacity was measured by the researchers using a modest criterion of 18 inches of space per student on a bench. By this criterion, GPS, ebtedayee madrasas, and private secondary schools would be over-crowded if 100 per cent of children were in attendance. In practice though, attendance was typically lower than the capacity of the classroom. Attendance rates, whether taken through head counts by the researchers or by examining the register, were highest for NGO schools and lowest for private secondary schools and EMs.

The low attendance rates here are difficult to reconcile with findings from the household survey (see below) which indicate absence rates of around 3-5 per cent. It may be that respondents in the household survey overstated their children's attendance; or that the school enrolment figures are falsely inflated, making their attendance rates look low by comparison. It is also likely that the attendance figures reflect drop-out as well as temporary absence – since teachers may not know whether an absent child has left permanently or temporarily.

Table 6. Class size, space and attendance

	GPS	RNGPS	NGO school	Ebtedayee madrasa	Private secondary school
Average class size	53.6	41.0	22.7	32.1	93.4
Mean number of students who can sit with ease	44.0	41.5	24.1	23.8	56.1
-- as proportion of actual class size	82%	101%	106%	74%	60%
Present in class on day of survey (head count)	76%	75%	88%	65%	53%

Attendance in last month (register)	74%	79%	88%	70%	67%

5.2 Facilities

Table 7 lists the facilities in the 36 sample schools. All the schools except NGO schools were established on their own land. Few schools had boundary walls, but for those that did, the walls were usually in satisfactory condition. About half of the schools had good or satisfactory playgrounds, while a quarter – mainly NGO schools – had no playground at all. Only a few of the schools, mainly private secondary schools and GPS, had separate rooms for the head teacher. Most, though, had a satisfactory separate room for teachers, except the NGOs. About a third of the schools were made entirely from brick/concrete, while the others were mostly made from a combination of brick, concrete, tin and other materials. The overall condition of the school was rated as at least satisfactory for most of the schools, with only a few NGO schools and ebtedayee madrasas being rated as bad or very bad.

Two-thirds of the schools had their own drinking water supply or tube well, with the rest – mainly RNGPS and NGO schools, and some GPS – getting water from neighbouring houses, keeping water in a pot, or with no water supply at all. Most (30) of the schools that had some form of water supply said that the water was safe for drinking. 15 of the schools had separate toilets for boys and girls, while 5 of them – half of the NGO schools and a third of the ebtedayee madrasas – had no toilet at all. Most of the toilets were sanitary latrines and were found to be in hygienically satisfactory condition. Most had good facilities for the children to wash their hands after using the toilet, while 10 had poor or unacceptable hand-washing facilities.

Few of the primary schools in the sample had electricity connections, those that did being mostly GPS. The private secondary schools all had electricity. Accordingly, only 9 per cent of classrooms in primary schools had a light and 19 per cent had fans. Except for a few NGOs and ebtedayee madrasas, all the schools had good ventilation. The overall condition of classrooms was good or very good in 25 of the schools, but in 5 cases was rated as unacceptable. All of the schools had chalkboard, chalk and duster in at least one of their classrooms, and most (27) had these facilities in nearly all (75 per cent or more) of their classrooms. Most (21) had teaching and learning materials in at least half of their classrooms, but a few (6), mostly ebtedayee madrasas, had few or no teaching and learning materials. Less than half had chair, table and desk in more than three-quarters of their classrooms, although most (27) had these in at least half of their classrooms.

Most of the schools had some kind of library, although this most often took the form of a cabinet or book shelves without any specialised reading room. A few had libraries operated by development organisations while seven (one GPS, one RNGPS, three NGOs, and two EMs) had no form of library. Half of GPS, half of EMs, and most of each other type of school had teaching materials. Half of EMs, and nearly all of the other types of school, had teaching aids. Most schools had learning materials, the main exceptions being four of the NGOs and four of the EMs.

It should be noted that the same criteria have been used to assess both NGO and regular schools. In some ways this is not a fair comparison, since NGO schools are typically improvised temporary facilities with one teacher and one classroom where a single small cohort of students are taught. The deficiencies in provisions are potentially compensated by a smaller class size, close teacher student interaction, and strong supervision.

Table 7. Facilities in sample schools

	GPS	RNGPS	NGO school	Ebtedayee madrasa	Priv. sec. school	All
	N = 12	N = 6	N = 6	N = 6	N = 6	N = 36
Own land	12	6	1	6	6	31
Boundary wall in satisfactory / very good condition	3	1	0	1	3	8
No boundary wall	8	4	6	5	3	26
Playground very good/satisfactory	6	4	0	2	5	17
Separate room for head teacher	4	0	0	1	5	10
Teachers' room very good/satisfactory	10	6	1	5	5	27
All brick construction	5	5	0	1	0	11
Overall condition very good/good	5	3	1	0	2	11
Overall condition satisfactory	7	3	3	3	4	20
Own tube well or water supply	8	2	2	5	6	23
Safe water	11	4	4	6	5	30
Separate boys' and girls' toilets	5	2	0	2	6	15
No toilet at all	0	0	3	2	0	5
Good/very good facility for hand wash after toilet	9	3	3	3	3	21
Electricity	5	0	1	1	6	13
Proportion of classrooms with light	13%	0%	13%	5%	75%	36%
Proportion of classrooms with fan	30%	0%	13%	10%	85%	46%
Good/very good ventilation	12	6	5	4	6	33
Good/very good overall condition of classrooms	10	6	2	1	6	25
Chalkboard, chalk and duster in at least 75% of classrooms	10	6	5	2	4	27
Teaching and learning materials in at least half of classrooms	8	5	4	1	3	21
Chair, table and desk in at least 75% of classrooms	6	3	3	1	2	15
Library with reading room	0	1	0	1	2	4
Some books in an almirah	10	3	3	3	2	21
Dev. orgn. operated library	1	1	0	0	2	4
Teaching materials	6	5	5	3	4	23
Teaching aids	12	5	4	3	6	30
Learning materials	10	5	2	2	4	23

5.3 Health environment

Table 8 describes the school health environment. In almost all of the schools the learning environment was judged as acceptably clean and hygienic. One NGO, one GPS and one ebtedayee madrasa were the exceptions. Six of the primary schools (two GPS, two RNGPS, one NGO and one EM) had poor or unacceptable levels of environmental hazard, while the other 30 schools were judged free from such hazards. Three of the RNGPS, two of the EMs, one NGO and one GPS had poor or unacceptable levels of sources of infectious diseases.

Only one school, a GPS, had facilities for children with special needs, and even those were judged as 'poor'. None of the schools had teachers trained about special needs.

Only three of the schools, all private secondary schools, had teachers trained to identify health problems. One of the schools, an NGO, provided school meals. About two-thirds of the GPS, half of the RNGPS, and half of the private secondary schools had some kind of facility to treat sick children; only one of the NGO schools and none of the EMs did. Two of the GPS kept students' health records; no other schools did. One GPS and one RNGPS also kept records of teachers' health.

Table 8. School health environment

	GPS	RNGPS	NGO school	Ebtedayee madrasa	Private secondary school	All
	N = 12	N = 6	N = 6	N = 6	N = 6	N = 36
Hygiene of learning environment acceptable/excellent	11	6	6	5	6	33
Free from environmental hazards (acceptable/excellent)	10	4	5	5	6	30
Free from sources of infectious disease (acceptable/excellent)	11	3	5	4	6	29
Facility for treating sick children	5	3	1	0	3	12

5.4 Teachers, supervision and management

Private secondary schools typically had the most teachers (Table 9). GPS had, on average, around 5, RNGPS and EMs, around 4, while NGO schools mostly had only one teacher. A large majority of NGO teachers were female, and most GPS teachers were also female, whereas in other school types female teachers formed a minority. Teacher-student ratios were highest in GPS and RNGPS, at around 1:50, and around 1:30 in other types of school. GPS, RNGPS and private secondary teachers had around 15 years of experience on average, while NGO teachers only had around three years.

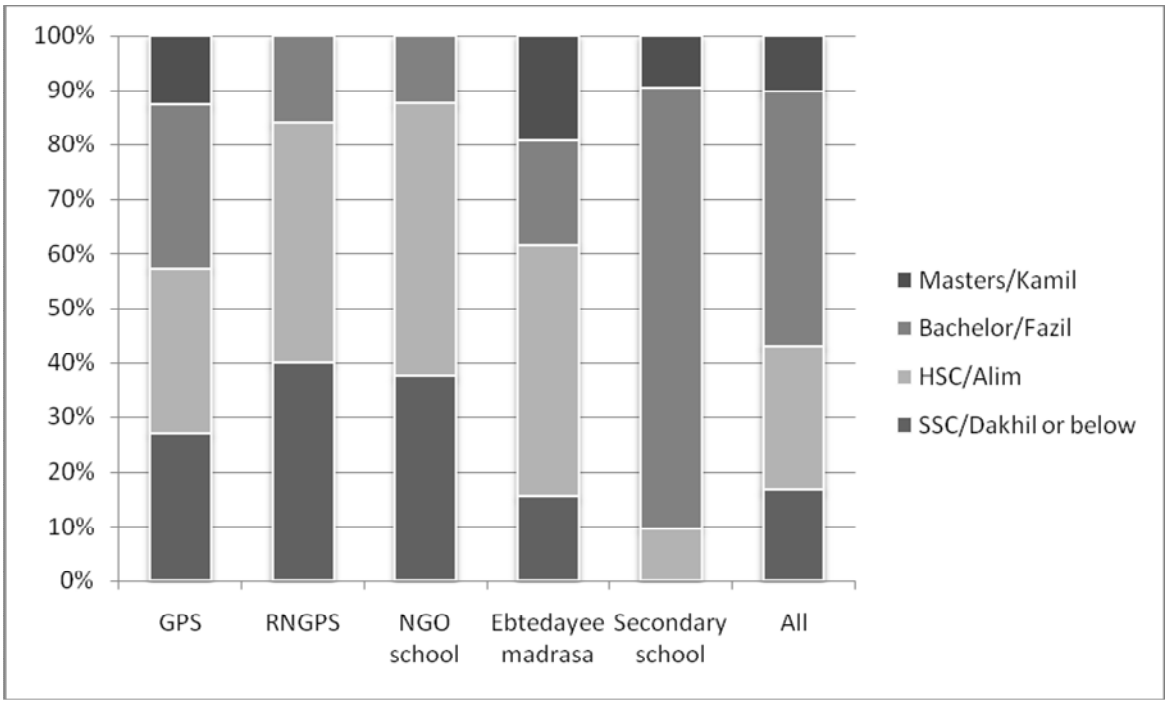
Table 9. Teachers

	GPS	RNGPS	NGO school	Ebtedayee madrasa	Private secondary school	All
Mean number of teachers	5.3	4.2	1.3	4.3	13.8	5.7
% of females	65%	28%	88%	12%	18%	36%
Teacher student ratio	1:51	1:49	1:31	1:37	1:34	1:41

Mean number of classes per week	29.8	32.0	27.5	29.8	23.3	28.7
Length of service (years)	14	15	3	11	15	14
-- male	22	17	0	12	16	17
-- female	10	9	3	5	9	9

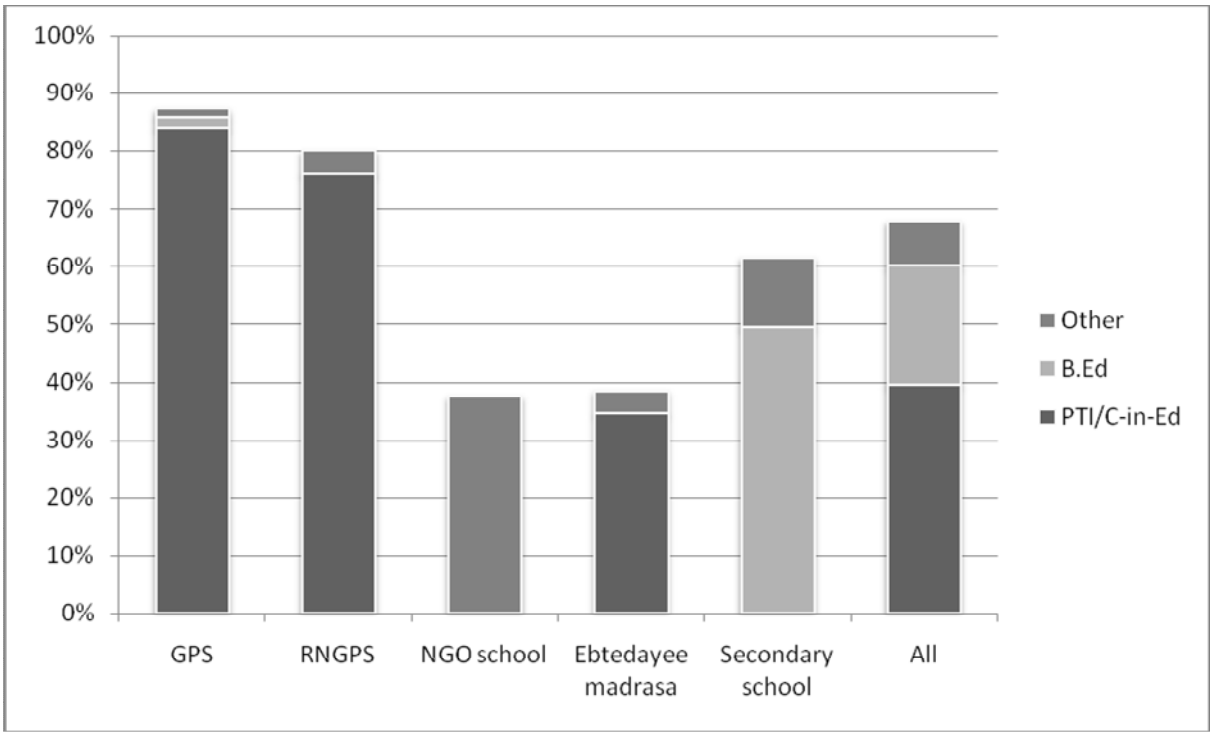
Private secondary schools typically had the most educated teachers, with 90 per cent having Bachelor's or Master's degrees. while RNGPS and NGO teachers had the lowest qualifications (Figure 10). In all cases, a majority were educated to at least HSC/Alim level. The proportion with higher qualifications was under 20 per cent for RNGPS and NGOs, but around 40 per cent for GPS and EMs.

Figure 10. Teachers' education by school type



Almost all GPS teachers and 80 per cent of RNGPS teachers had professional training, usually in the form of PTI/C-in-Ed. Around sixty per cent of secondary teachers, and a third of NGO and EM teachers, had received some form of training.

Figure 11. Teacher training by school type



Except for three of the NGO schools, all the other schools had School Management Committees. They typically had around 10 members, and few of these were female. The three NGO schools which had SMCs, had a higher proportion of female SMC members (48 per cent), and also a larger number of meetings per year (12) than other types of school (which ranged from 3 to 22 per cent of female members, and 7 to 11 meetings per year, on average).

School authorities such as Upazila Nirbahi Officers (UNO), Upazila Education Officers (UEO), Assistant Upazila Education Officers (AUEO), District Primary Education Officers (DPEO), District Education Officers (DEO) for formal schools, and Programme Organizer (PO) for NGO schools, supervised the functioning of schools in their jurisdictions. We asked how often these supervising authorities visited the school to check on matters of administration, management and student achievement. On average, during 2006, NGO schools reported the highest number of visits (19.5), followed by GPS (5.3),RNGPS (4.8), private secondary schools (4.5) and EMs (1.5). Schools which had head teachers mostly claimed that head teachers also supervised the teaching of other teachers in the school, and nearly all schools with more than one teacher also responded positively when asked if they had regular discussions among teachers about problems in teaching, classroom management, and administration.

5.5 Enrolment data from the school survey

Enrolment data from the school survey (Figure 12) shows average drop-out rates substantially higher than those suggested by the household survey. The drop-out rate from primary grades reported by the sample schools was, on average, 6 per cent for both boys and girls. Repetition rates were around 14 per cent and there were an additional 6 per cent of children that the school was not able to account for.

However, drop-out and repetition varied substantially between school-type, with very low drop-outs and no repetition reported in NGO schools, and higher drop-outs in GPS (4 per cent), RNGPS (8 per cent) and EMs (13 per cent) (Figure 13). Most primary-grade children in the household survey were in GPS (47 per cent), RNGPS (20 per cent) and NGO schools (17 per cent), with only 4 per cent in EMs. Using these proportions from the household survey to weight the drop-out figures from the school survey suggests an average drop-out rate of under 5 per cent, which is consistent with the grade-wise drop-out levels of 2 to 7 per cent (see Table 32, in the appendices).

Figure 12. Enrolment data from the school survey (primary grades only)

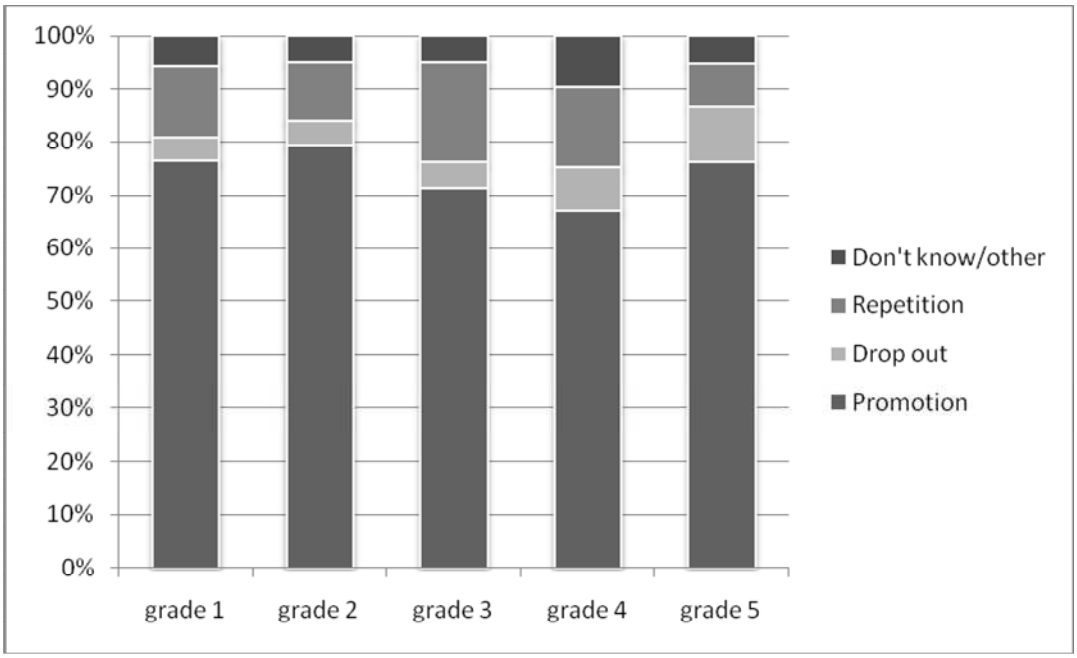
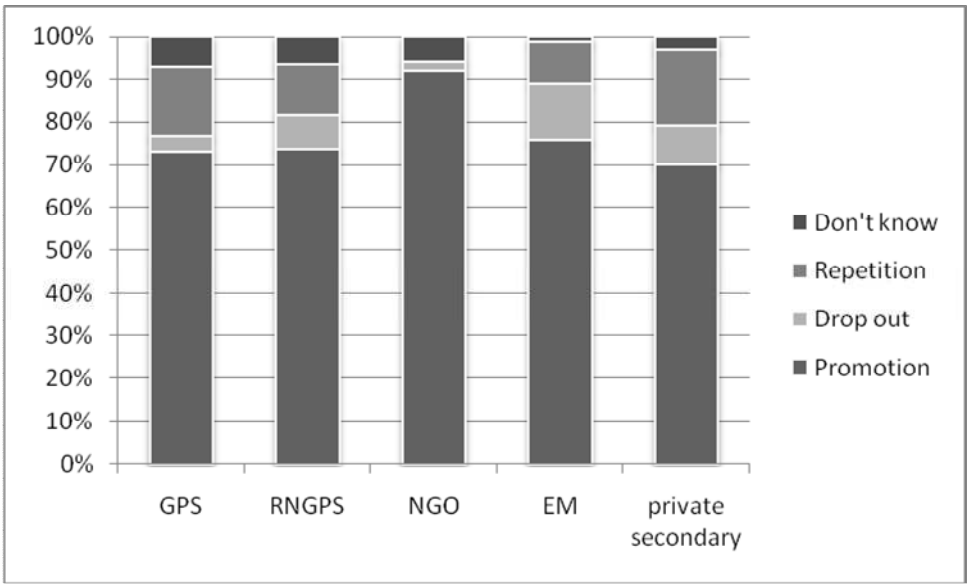


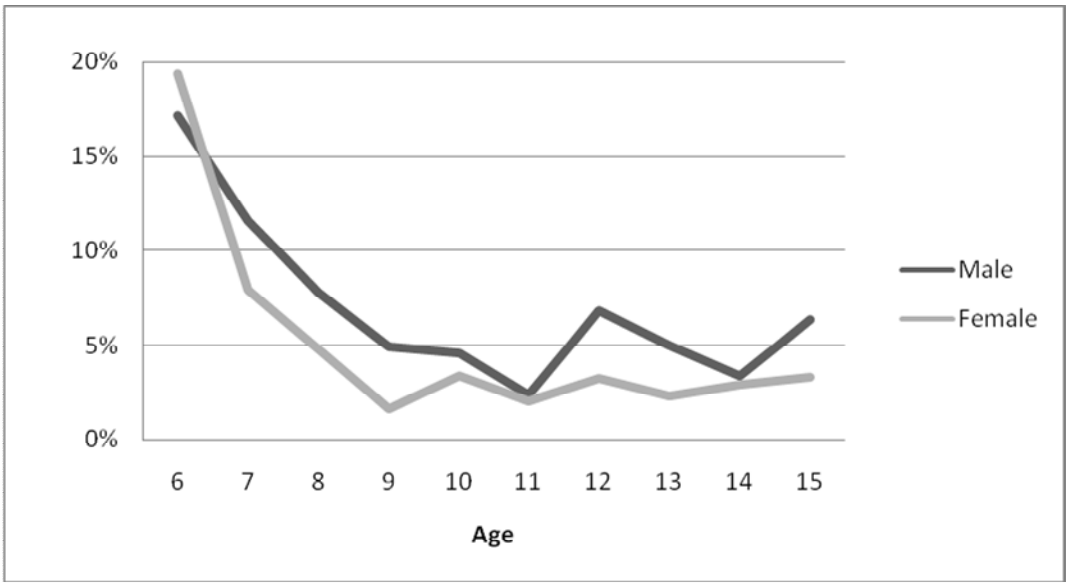
Figure 13. Enrolment data by school type, from the school survey



6 Zone 1: never enrolled children

Overall 8.4 per cent of boys aged 6-15, and 6.6 per cent of girls, had never been enrolled in school.

Figure 14. Proportion of children never enrolled by age and sex



The children who have never been enrolled can be divided conceptually into those who will be enrolled eventually – but at an age higher than the official starting age of six – and those who will never be enrolled. The chart shows that many more 6, 7, and 8 year olds are never-enrolled than older children. A quick calculation suggests that around 40 per cent of the never-enrolled children are 6-8 year olds who will eventually enrol over-age. The remaining 60 per cent are those who will never enrol, assuming that conditions remain the same.

The slight (and unclear) upward trend in the never-enrolled line between the ages of 10 and 15 may reflect improved enrolments over the past five years.

As seen above (Figure 9) never-enrolled children are heavily over-represented in the Lotiban and Nolsuri study areas.

6.1 Reasons for never enrolling

For 6-8 year-olds, the main reason parents gave for not enrolling the child was that he or she was 'too small' (31 per cent of boys and girls). The main other reasons were that the parents were unable to afford school expenses (12 per cent of girls and 7 per cent of boys) and that the child does not value his or her studies (10 per cent of boys and 6 per cent of girls).

For 9-15 year-olds, the main reasons were: parents unable to afford school expenses (17 per cent of boys and 28 per cent of girls); child does not value studies (23 per cent of boys and 3 per cent of girls); and has to help around the house (7 per cent of boys and 15 per cent of girls). Physical and mental disability, illness, and finding school too difficult, were also mentioned in a few cases.

6.2 Socioeconomic characteristics

The household monthly income of never-enrolled children was substantially lower than that of other children. The difference is even starker for other indicators of social or economic status; for instance never-enrolled children were almost four times less likely to have a television in their household as other children.

Never-enrolled children were not, however, significantly more likely to come from female-headed households. (However, when the results were restricted to 9-15 year-olds, a much clearer and significant difference emerged: 12 per cent of the never-enrolled in this age group came from female-headed households).

Parents of never-enrolled children say that most are "unemployed/doing nothing" (89%); only a few are involved in activities such as "helping their parents", "working in the house", or "begging".

Table 10. Socioeconomic indicators for households of never-enrolled and other children

Indicator	Never-enrolled children aged 6-15	Other children aged 6-15	
Monthly income per person	Tk.752	Tk. 1017	*
% staple food security status is 'always in need'	26%	15%	*
Proportion of Hindus	17%	8%	*
Proportion of 'tribal' people	16%	2%	*
Proportion where household head works as a day labourer	29%	17%	*
Proportion where household head is in unskilled work	65%	45%	*
Average land owned by the household	49 decimals	120 decimals	*
Proportion of landless households	23%	9%	*
Owns a desk	65%	31%	*
Has electricity	18%	36%	*
Poor ventilation	32%	24%	n.s.
Daily newspaper	1%	4%	*
Has a radio	9%	18%	*
Has a television	5%	19%	*
Has a mobile phone	8%	26%	*
Female-headed household	8%	7%	n.s.

*Significance: * p<0.01; 'n.s.' indicates not significant at p<0.1 (two-sided test)*

Figure 15. Proportion of never-enrolled children (6-15 years) by income decile

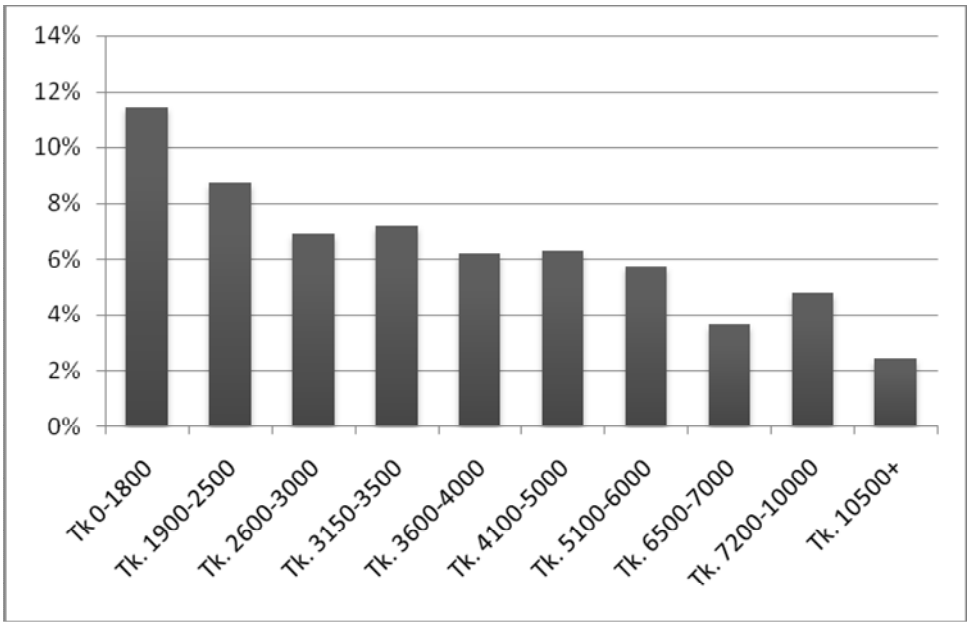


Table 11 shows how religious and ethnic groupings seem to overlap to determine enrolments in Lotiban (Chittagong): never-enrolment was particularly high (42 per cent) amongst those who were ethnically 'tribal' and of Hindu religion. (Indeed this group of Hindu tribal people also accounts for the worst poverty in this study area, with mean levels of income under Tk. 2700).

Table 11. Proportion of never enrolled children (6-15) in Lotiban (Chittagong) for particular religious and ethnic groups

	'Bengali'	'Tribal'
Muslim	7%	(no cases)
Hindu	less than 1%	42%
Buddhist	(no cases)	5%

6.3 Health and disability

Although ill health and disability was stated in only a few cases as the reason for not enrolling, Figure 16 shows that the health of never-enrolled children is generally worse than that of other children. Eight per cent of children in Zone 1 were also reported as disabled, compared to one per cent of other children. Turning this statistic the other way around, of the 127 children aged 6-15 described as disabled in our sample, 39 (31 per cent) were never-enrolled. Given the small numbers of children reported as being disabled, it is difficult to interpret the results about type of disability, but it seems that disabled Zone 1 children were more likely to have speech-related or physical disabilities, while other disabled children were spread amongst the full range of visual, hearing-related, speech-related, physical and learning disabilities. For Zone 1 children, the intensity of the disability was more often rated by parents as 'medium' or 'serious' rather than 'slight' (data not shown).

Figure 16. Health (in general) of never-enrolled and other children

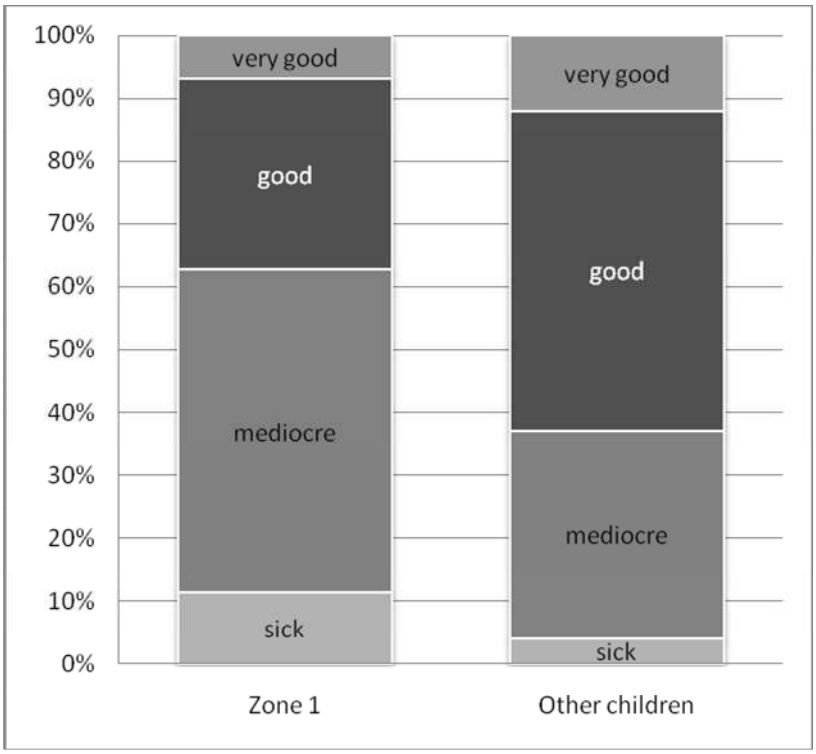


Table 12. Health and disability among never-enrolled and other children, 6-15

Indicator	Never-enrolled children aged 6-15	Other children aged 6-15	
Completed programme of immunisations	67%	88%	*
Sick in the last 30 days	32%	27%	**
Health worker visited child in last 30 days	17%	20%	***
'Plays normally'	89%	95%	*
Disabled	8%	1%	*
Average height at 12 years (male)	55 inches	52 inches	

*Significance: * p<0.01; ** p<0.05; *** p<0.1 (two-sided test)*

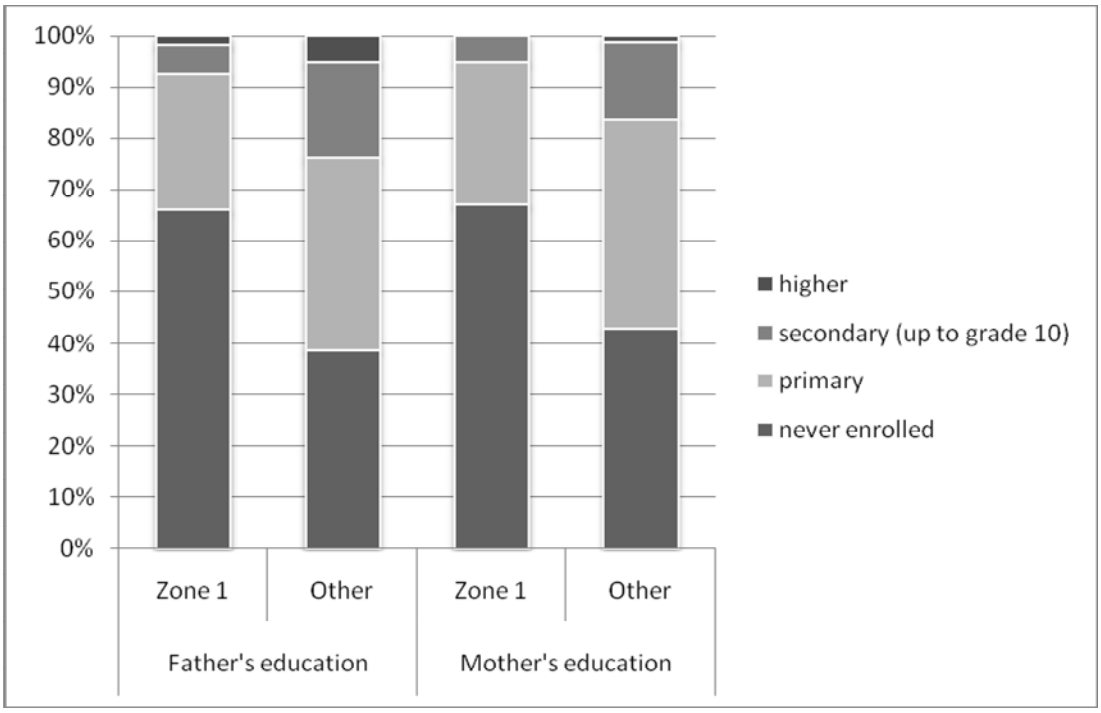
Remarkably, never-enrolled children were typically about two inches shorter than other children, controlling for age and sex (see Estimation 3 in appendices)[2].

6.4 Parents' education and activities

Figure 8 shows the stark differences in parental education of children in Zone 1 compared to others. The parents of around two-thirds of never-enrolled children have themselves never been to school, and fewer than ten per cent had gone beyond primary school.

[2] It may be that enrolment is delayed amongst younger children who are small for their age. This height difference, however, persists throughout the 6-15 age range, suggesting that both low height-for-age and non-enrolment are caused by some third factor such as poverty.

Figure 17. Father's and mother's education of Zone 1 and other children



Around 70 per cent parents of never-enrolled children said they told their children about the importance of schooling at least 'occasionally' – although this reported frequency was less than for parents of other children (Figure 18). Arguably, parents are unlikely to keep talking to their child about the importance of schooling if there is simply no opportunity for him or her to go to school, so it is surprising that this difference is not larger.

86 per cent of parents of never-enrolled children, compared to 92 per cent of parents of other children, said they knew someone who had benefitted from going to school. This suggests that for a few, a lack of educational 'success stories' in the surrounding area might be a factor in not enrolling their children. When they did know of others who had benefited, they were more likely than other parents to mention advantages in terms of work, and less likely to mention other advantages such as behaviour or improved confidence. They were also more likely to say they 'rarely' or 'never' mentioned the benefits to their children.

Figure 18. Do parents talk about the importance of school?

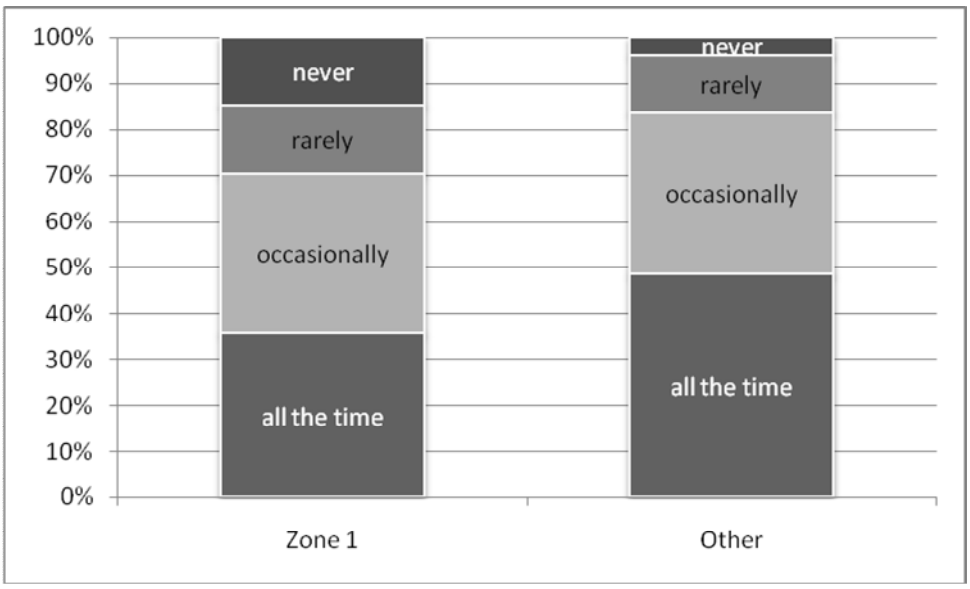


Table 13. Things parents of Zone 1 and other children have done in the past month (at least once)

	Zone 1	Other
Read the newspaper	9%	26%
Read a letter	5%	16%
Written a letter	4%	12%
Made a phone call	43%	63%
Written a text message on a mobile phone	3%	11%
Listened to the radio	39%	46%
Watched television	45%	61%

6.5 Logit model

A logit model was calculated looking at the likelihood of falling into Zone 1 by sex, health, economic status, district, religion, ethnic group, female-headed household, child dependency, parents' education, and parents' knowledge of others who have benefited from education. The model was estimated separately for children aged 6-8 and those aged 9-15.

For those aged 6-8 (Estimation 4), sex was not a significant factor. Being in good health decreased the probability of being never enrolled by 47 per cent. An extra Tk. 100 of income per person decreases the likelihood by around 2 per cent (and this effect would probably be revealed as larger if other variables correlated with income had not been included).

The Dhonia (Barisal) study area was taken as a baseline for comparison. Only Nolsuri (Dhaka) and Lotiban (Chittagong) were significantly different; in Nolsuri children were almost 7 times more likely to be never-enrolled once other factors had been accounted for, and in Lotiban 1.4 times more likely. Being a Hindu and ethnically 'tribal' added an extra factor of 5 to the likelihood of being never-enrolled. While these district and economic variables are highly inter-correlated so that the odds ratio factors cannot be taken as precise, they do bring out clearly that the high rates of never-enrolment in Nolsuri and Lotiban, and amongst tribal groups, do not result simply from lower income. Instead multiple forms of deprivation appear to be interacting to block access.

Having a father educated to at least primary level, and knowing others who have benefitted from education, each reduced the likelihood of being never-enrolled by around 40 per cent. The child dependency ratio was strongly significant; adding an extra child to an average-sized house would increase the odds of being never-enrolled by around 50 per cent[3].

For children aged 9-15 (Estimation 5), sex was significant: in the final specification, male children were 50 per cent more likely to be never-enrolled. Good health halved the likelihood of being never-enrolled. Per-capita income and the food security measure were not significant predictors of never-enrolment in any of the specifications that also accounted for belonging to a female-headed household, parental education, district, and membership of the group of Hindu tribal people. However, other economic indicators were significant: belonging to a household where the head does unskilled work increased the likelihood of being in Zone 1 by 70 per cent; owning an additional study table – which probably reflects the size or number of rooms in the house and so acts as a proxy for wealth – reduces the likelihood by half; and owning a television decreased the likelihood by around 70 per cent. Belonging to a Hindu tribal household increases the likelihood by over 5 times. Belonging to a female headed household increased the likelihood, although this effect was only weakly significant (p=0.088). Having a father educated to primary level decreased the likelihood by 70 per cent (and having an educated mother, when included in a separate specification, had a similar effect). Knowing others who have benefitted from education decreased the likelihood by 40 per cent.

Taking Dhonia (Barisal) as the baseline again, children aged 9-15 were about twice as likely to be never-enrolled in Manikpur (Sylhet), three times as likely in Lotiban (Chittagong), and five times as likely in Nolsuri (Dhaka). (Other district differences were not significant).

[3] The average house size is 5.9 and average child dependency 0.50; it can be calculated from this that adding one more child to the average house would mean a change in child dependency of 0.07.

7 Zone 2: drop out from primary

Overall 4.2 per cent of boys and 1.6 per cent of girls in the sample who enrolled in primary school, had dropped out before completing it. These figures are extremely low compared, for example, to the Department of Primary Education (DPE) data cited in the *Country Access Review*. For instance, those data include grade-wise drop-out rates ranging from 2.6 per cent (grade 5) to 13.1 per cent (grade 1), which would imply a much larger overall proportion of drop-out children than the 2.9 per cent found here. This study nevertheless finds a high rate of drop-off in the number of school-going children between lower and higher grades (Figure 19). Part of the explanation may be high rates of repetition of earlier grades, although this is not sufficient to explain the difference between low drop-out rates and the much larger drops in the numbers of school-going students enrolled in consecutive grades (Figure 20).

Figure 19. Number of school-going children by grade (age 4-15)

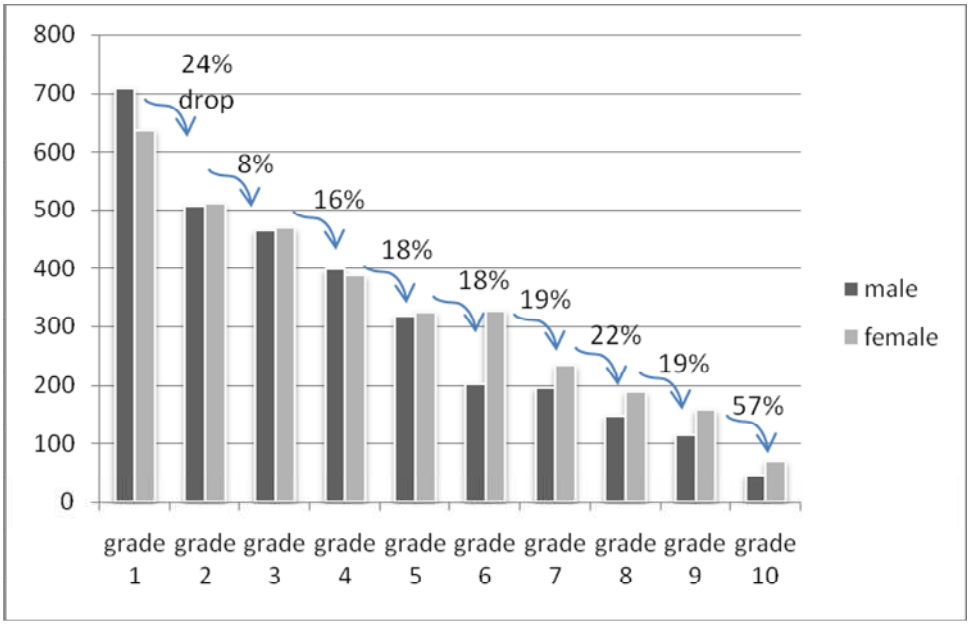
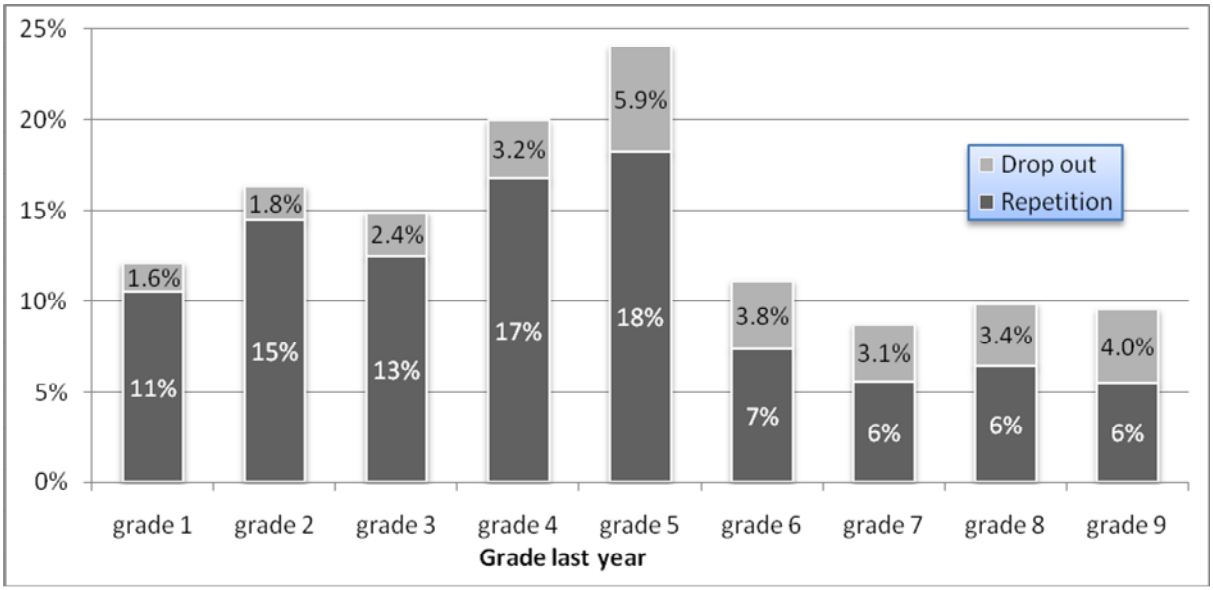
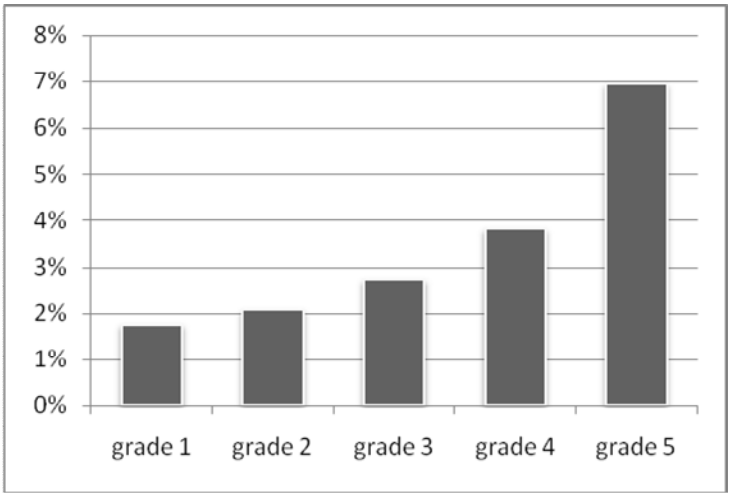


Figure 20. Drop-out and repetition by grade last year (age 4-15; only includes drop-out children who dropped out in the last year)



Reconstructed cohort analysis, using data on promotion, repetition and drop out from the household survey, suggests that a total of 16 per cent of students who start primary drop out before reaching the end of grade 5 (Figure 21). This is in theory a more accurate representation of the total who drop out from each grade, since it takes into account that some students will repeat the year before either dropping out or progressing to the next grade.[4] In practice, however, because the numbers of students who had dropped out from a particular year within the last year were small (from 17 from grade 1 to 40 in grade 5, and smaller numbers for secondary grades), it is difficult to base conclusions on the drop-out data by grade – whether or not reconstructed cohort analysis is used.

Figure 21. Drop outs from primary by grade, using reconstructed cohort analysis

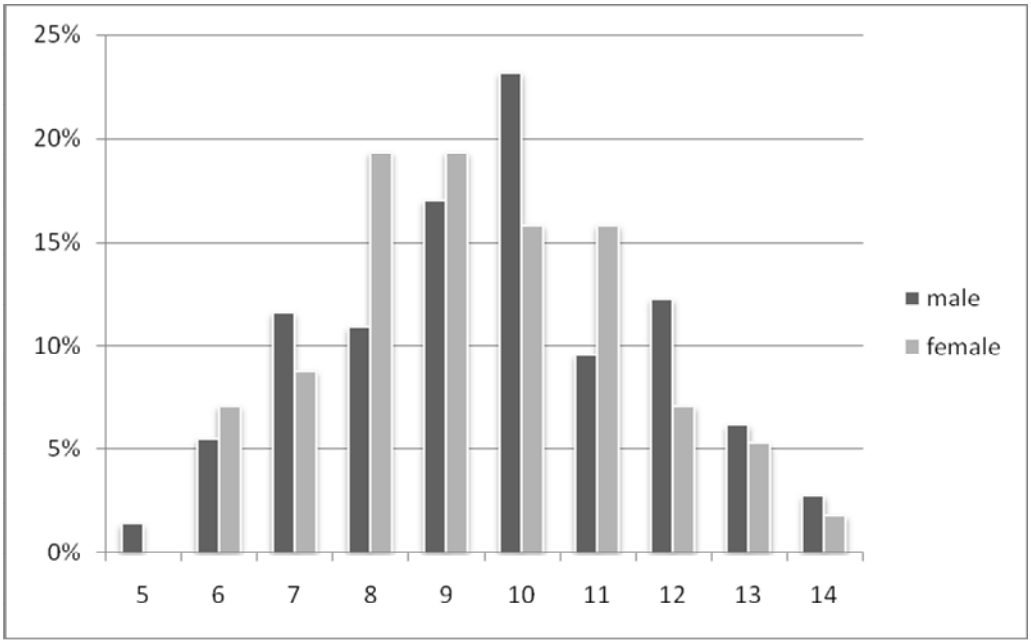


See Appendix, Section 11.2 for details.

[4] The model used here assumes that children can repeat up to twice, and that having repeated a grade once does not alter the probability of progressing, dropping out or repeating again.

Drop-outs from primary were highest in the Lotiban, Nolsuri and Goaldihi (Rajshahi) areas. Children dropped out at a wide range of ages (Figure 22); on average boys dropped out at 10.4 years, girls at 11 years (a small but significant difference, p<.01).

Figure 22. Estimated age at which child dropped out of primary



7.1 The decision to drop out

The main reason given for dropping out from primary was "parents unable to afford school costs" (22 per cent), followed by "child does not value studies" (17 per cent). The first of these reasons was given much more commonly for girls while the second was given more often for boys. Despite the fact that enrolments were generally higher for girls than boys in our sample, this difference in the reasons given for dropping out suggest that boys' education may still be valued more highly than girls'. (It may be that higher opportunity costs of boys' education – due to more income earning opportunities – balance out this difference and lead to drop-outs and never-enrolment being higher for boys). "Child has to help around the house" (7 per cent), "child has to work outside for income" (5 per cent) and "child finds school too difficult" (5 per cent), were also cited in a few cases each.

56 per cent said the child him/herself took the decision to drop out, while 40 per cent said the parents made the decision (a few attribute the decision to other family members or teachers). This was strongly influenced by the child's sex: boys made the decision in 66 per cent of cases, while girls made it in 29 per cent.

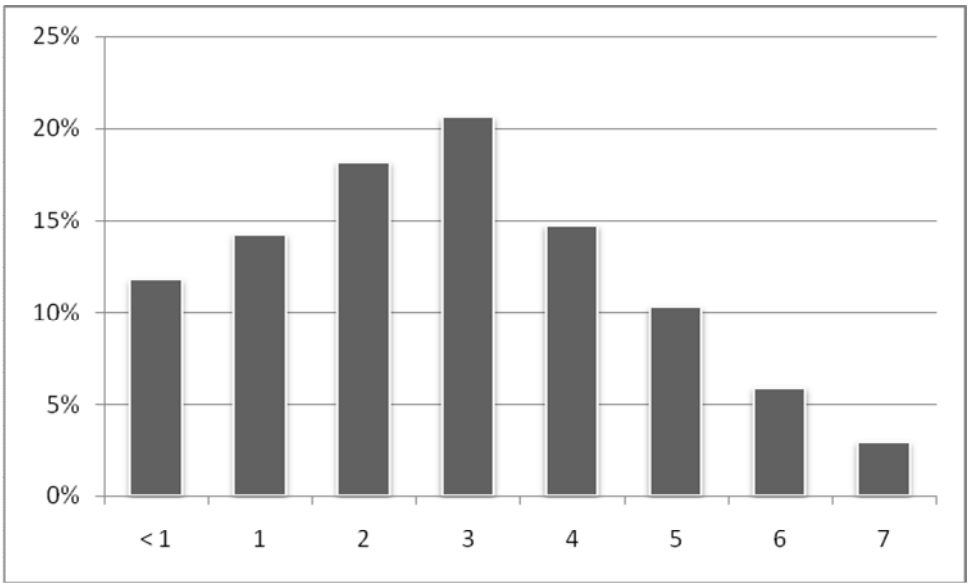
60 per cent attended school regularly prior to dropping out; the other 40 per cent did not. This can be compared to primary school-going children, of whom only 8 per cent were absent in the past week, and 13 per cent said their attendance reduced during particular times of the year.

Boys were much less likely to attend school regularly than girls (54 vs. 73 per cent, p<0.05). Reasons for erratic attendance included "child does not value his/her studies" (27 per cent of boys and 13 per cent of girls); "finds school too difficult" (16 per cent of boys and 13 per cent of girls); "has to help around the house" (13 per cent of girls and 3 per cent of boys); "mental disability" (20 per cent of girls and 6 per cent of boys); and "finds school work boring" (20 per cent of boys but no girls). The

fact that erratic attendance by boys was attributed to attitudes (finding work boring or difficult, or not valuing studies) while for girls it was more often attributed to mental disability, probably reflects cultural norms about the acceptable types of explanation for what is potentially a disobedient and shame-inducing behaviour.

Figure 23 shows the number of years spent in school by children in Zone 2[5]. 83 per cent of parents of dropped-out children said they chose the school by proximity, while 15 per cent attributed their choice to teaching quality. 24 per cent of boys and 29 per cent of girls had repeated classes while at school.

Figure 23. Number of years spent in school by those who dropped out from primary



Around one-third of drop-out children were currently doing 'nothing' or unemployed. Of the remainder, many girls were involved in household work, both in their own households and as a live-in domestic servant. Boys spent their time helping their parents with income-earning work, working in shops, as a day labourer, and in a wide range of other occupations.

42 per cent of parents of Zone 2 children said their children wanted to start school again. Girls were much more likely to be said to want to start again than boys (57 vs. 36 per cent; $p<.01$), perhaps again reflecting differences in acceptable explanations of boys' and girls' behaviour and attitudes.

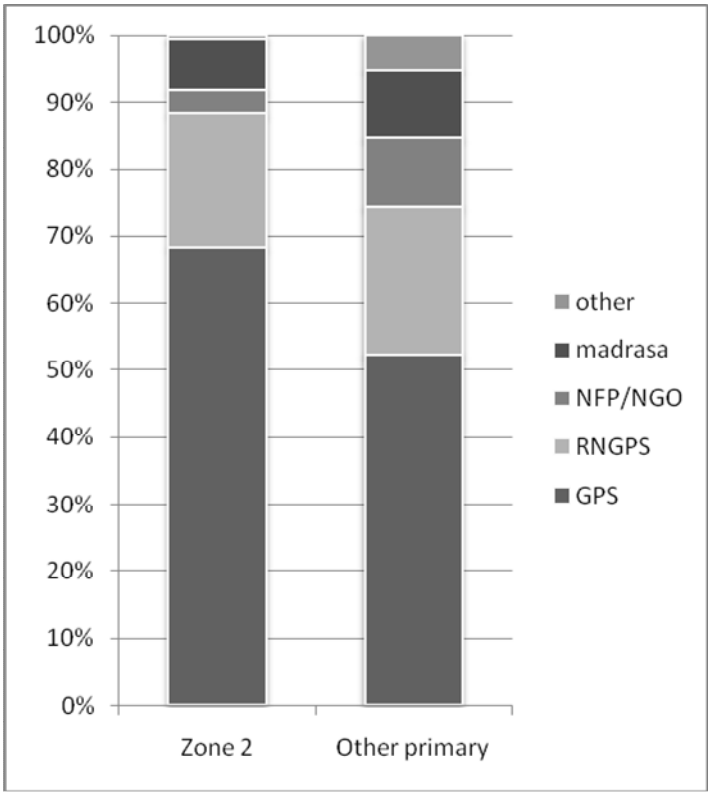
Most of those who gave this response, said the children wanted to go to a government school (74 per cent) or non-government school (15 per cent). Those that said the child does not want to return to school commonly gave as reasons, "parents unable to afford school costs" (36 per cent of girls and 14 per cent of boys); "the child does not value his/her studies" (18 per cent of boys and 5 per cent of girls); "finds school too difficult" (15 per cent of boys and 18 per cent of girls); "has to work outside for income" (15 per cent of boys and no girls); "has to help around the house" (5 per cent of girls and 4 per cent of boys); "too big" (9 per cent of girls and 6 per cent of boys); "mental disability" and "ill" (in each case, 9 per cent of girls but hardly any boys).

[5] This data may be affected by problems of memory recall. Time spent in school was calculated by comparing the child's current age, the number of months since he/she dropped out, and the age at which parents said he/she started at primary school – with potential inaccuracies in each of these three variables.

Asked what support could be offered so that the child could go to school again, the most common response was if the child could go to school and work at the same time (42 per cent). Only a few mentioned school fees, books, or scholarships.

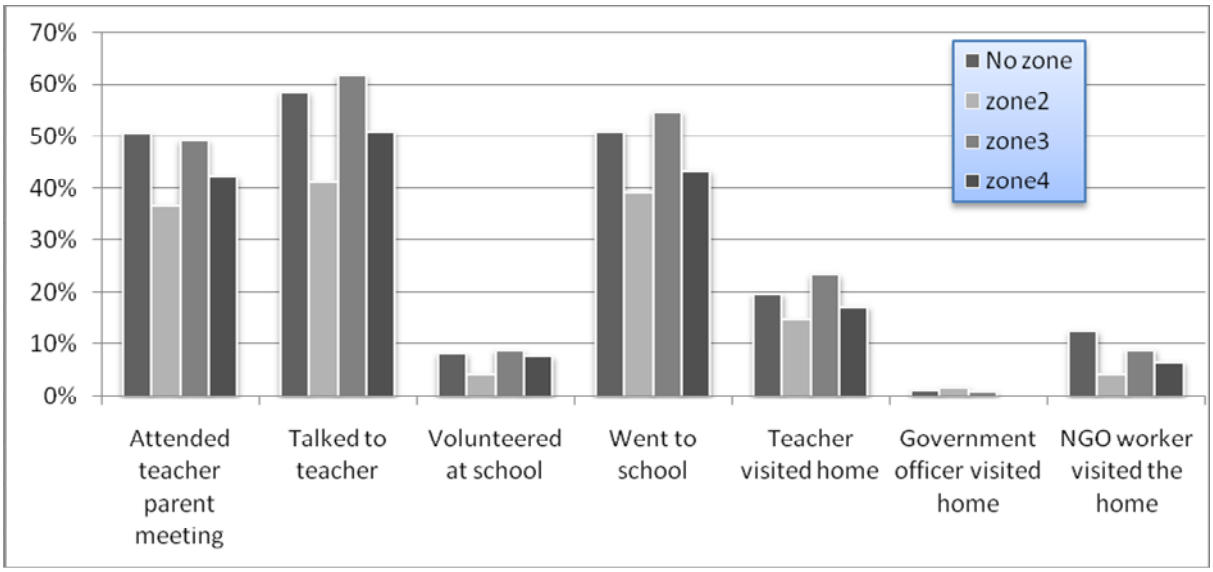
Figure 24 shows that children who are drop outs are more likely to have been to government, and less likely to have been to each other kind of school. Only 25 per cent of the children who dropped out from primary school had attended pre-school.

Figure 24. School type of Zone 2 children and primary school-going children



Children who dropped out from primary school were also from households which were less engaged with the school than other households on measures such as attendance at teacher-parent meetings; whether parents had talked to a teacher, volunteered at the school, or been to the school; whether a teacher had visited the home; and whether an NGO worker had visited the home (Figure 25). This finding is not surprising, given that parents are likely to disengage with the school when their children are no longer attending it, although it may indicate scope for schools to engage more with the parents of drop out children in an effort to re-enrol them.

Figure 25. Measures of family-school relations, by zone of exclusion



7.2 Socioeconomic characteristics

Since we are interested in the characteristics of children who drop out from primary compared to those who stay in primary, the appropriate comparison here is between children who dropped out from primary (Zone 2) and all other children *except* those who never enrolled.

Drop out children came from households with significantly lower income, and which were twice as likely to be 'always in need' on the food security measure. Similarly, these households were more likely to have a household head working in unskilled work, less likely to own a desk, radio, television or mobile phone, less likely to have electricity and more likely to have poor ventilation. They were not, however, significantly more likely to be Hindus or ethnically 'tribal'[6], or to be female-headed.

Table 14. Socioeconomic characteristics of Zone 2 children

Indicator	Children aged 6-15 who drop out from primary	Other children aged 6-15, currently or once enrolled	
Monthly income per person	Tk. 785	Tk. 1024	*
% staple food security status is 'always in need'	32%	15%	*
Proportion of Hindus	7%	8%	n.s.
Proportion of 'tribal' people	4%	3%	n.s.
Proportion where household head works as a day labourer	25%	17%	*
Proportion where household head is in unskilled work	60%	45%	*
Average land owned by the household	54 decimals	117 decimals	**
Proportion of landless	15%	8%	*

[6] However, combining these two categories revealed that drop out children were significantly more likely than the comparison group to come from Hindu tribal households (3% vs. 1%; p<.05).

households			
Owns a desk	44%	66%	*
Has electricity	16%	37%	*
Poor ventilation	36%	23%	*
Daily newspaper	3.9%	0.5%	**
Has a radio	14%	18%	n.s.
Has a television	8%	20%	*
Has a mobile phone	9%	26%	*
Female-headed household	8%	7%	n.s.

*Significance: * p<.01; ** p<.05; 'n.s.' indicates p≥.1 (two-sided test)*

7.3 Health and disability

As with Zone 1, parents of Zone 2 children rarely gave illness or disability as the main reason for dropping out, yet Zone 2 children were in generally worse health than the comparison group. Zone 2 children were also much more likely to be disabled. Unlike for Zone 1 children, Zone 2 children were not significantly shorter in height than the comparison group (Estimation 6).

Figure 26. Health (in general) of Zone 2 and comparison group children

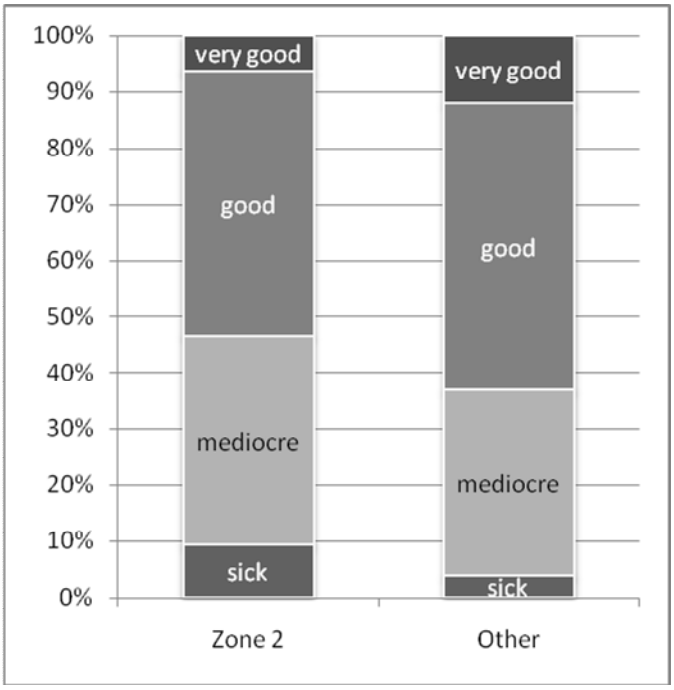


Table 15. Health of Zone 2 and comparison group children

Indicator	Zone 2 children	Comparison group	
Generally 'good' / 'very good' health	53%	63%	*
Completed programme of immunisations	68%	88%	*
Sick in the last 30 days	29%	27%	n.s.
Health worker visited child in last 30 days	20%	10%	*
'Plays normally'	82%	95%	*

Disabled	9%	1%	*
Average height at 12 years (male)	55 inches	55 inches	

7.4 Logit model

In the estimation chosen (
Estimation 7 in the appendices), being a boy increased the likelihood of dropping out of primary by over 60 per cent. Being in good health was (somewhat surprisingly) not significant and was dropped from the final specification. It seems that the differences in health between drop out and other children are overwhelmed by differences in wealth, district, and parents' education. Being disabled, however, increased the likelihood of dropping out by around ten times. Coming from a household that was always in need of staple grain doubled the chance of dropping out. The two parental education variables, father educated to primary or more and mother educated to primary or more, were both separately significant: having a father with primary education reduced the odds by about 40 per cent, whereas having a mother with primary education reduced them by about 70 per cent. Knowing someone who had benefited from education reduced the likelihood of dropping out by about 40 per cent.

Taking Dhonia (Barisal) as the baseline for comparison, children in Nolsuri (Dhaka) were 60 per cent more likely to drop out from primary; those in Lotiban (Chittagong) were 70 per cent more likely; and those in Alipur (Khulna) were 60 per cent less likely. (Goaldihi and Manikpur were not significantly different from Dhonia).

8 Zone 3: virtual exclusion

The number of virtually excluded children is not directly measurable using our survey instruments. Consequently there is a need to find measures of virtual exclusion that are conceptually separate from the potential *causes* of virtual exclusion, in order to examine what the causes might be.

As mentioned above, three operational definitions were used:

- **Zone 3a – low attendance** – parent reported that the child was absent more than one day in the past week
- **Zone 3b – low achievement** – parent ranked child as being in the 'bottom 25 per cent' of the class. (In practice only 13 per cent of parents gave this response, suggesting that parents overestimate their children's class performance.)
- **Zone 3c – repetition** – parent reports that the child has repeated the year at least once.

The overlap between the three definitions was fairly small – only about 3 per cent fell under more than one of the definitions, and only 0.3 per cent fell under all three.

In each of the three definitions, boys outnumbered girls (Figure 27).

Figure 27. Proportion in each definition of Zone 3, by sex

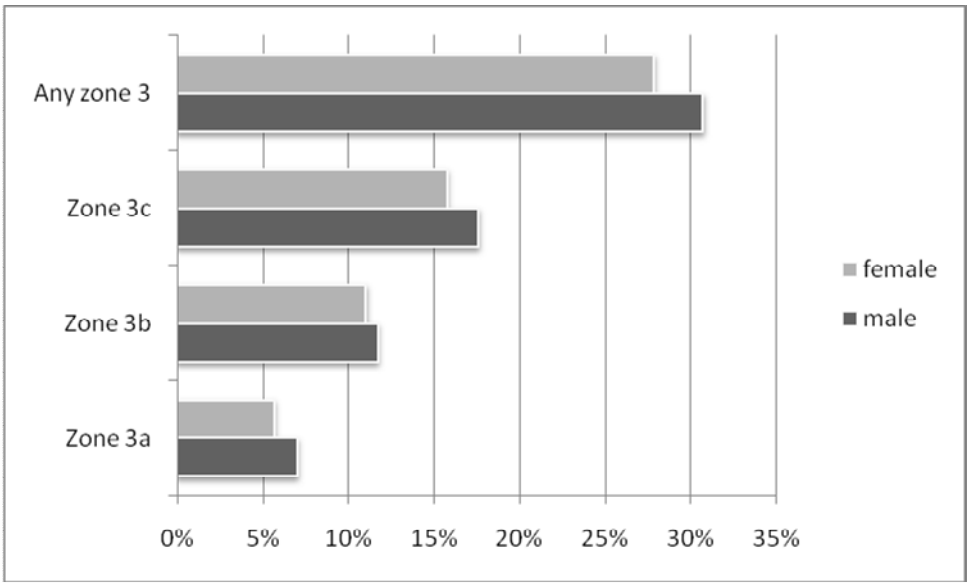


Figure 28 suggests that the pattern of virtual exclusion (as defined here) may differ from that of never-enrolment and drop out. Overall around 29 per cent of enrolled children are in Zone 3, with the highest proportion in Dhonia (Barisal) and Goaldihi (Rajshahi). Boys are significantly more likely to be in Zone 3 than girls ($p<.01$).

Figure 28. Proportion of enrolled children in Zone 3, by sex

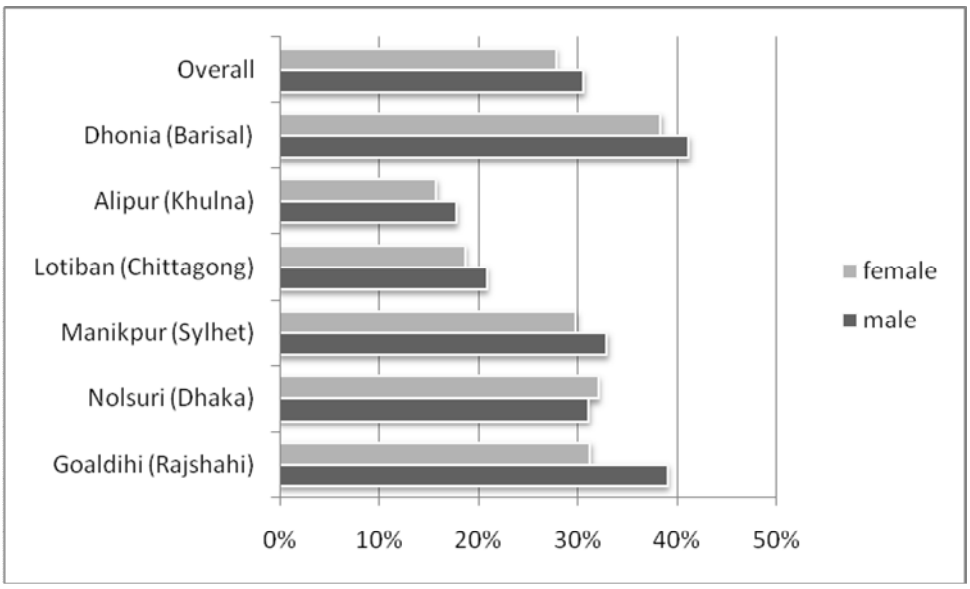


Table 16 presents some characteristics of the households of children in each of the definitions of Zone 3 and other children who were enrolled in school. Some of these characteristics of Zone 3 children's households were not significantly different from the control group in each case. Taking the significant results, Zone 3a children were more likely to be 'always in need', to be Hindu, and to have poor ventilation, and less likely to be 'tribal', or to have electricity or a mobile phone. The Zone 3b households had significantly higher income per person, were less likely to be 'always in need' or landless or to have poor ventilation, and more likely to own a desk, radio and mobile phone. Zone 3c households were more likely to have poor ventilation, less likely to take a daily newspaper, and less likely to have a television or mobile phone.

Overall, then, there is some suggestion that children with poor attendance or who repeat classes (3a and 3c) are from less well-off households than other school-going children, whereas children from Zone 3b seem, if anything, to be from better-off households. Similarly the parents of Zone 3a and 3c children are less likely to have completed primary school than the comparison group, whereas those of Zone 3c children are more likely to have completed primary school.

Zone 3b reflects parents' judgements about their children's performance, and the judgements are relative to other children in the school the child is attending. Another measure of performance was available from the child tracking survey, namely the teachers' judgement of the child's position in the class. There was a high degree of mismatch between the parents' and teachers' judgements; but even using the teachers' judgements, there was again no clear tendency for poorly-performing children to come from worse-off households; indeed they seemed to come from better-educated households with higher income. There are reasons to doubt the meaning of these results, though. A good class position in a bad school may have worse implications for the child's learning, and possibly for the danger of drop-out as well, than a low class position in a good school. Arguably a better approach would be to measure performance of school-going children using more objective tests (which would also allow comparison with drop-out children).

Table 16. Household characteristics of Zone 3 and other enrolled children

	Zone 3a	Zone 3b	Zone 3c	Any Zone 3	Not zone 3
Monthly income per person	Tk. 965	Tk. 1141	Tk. 998	Tk. 1022	Tk. 1048
% staple food security status is 'always in need'	18%	11%	14%	13%	15%
Hindus	10%	7%	7%	7%	8%
'Tribal'	1%	2%	1%	1%	3%
Household head works as a day labourer	17%	15%	16%	16%	18%
Household head is in unskilled work	46%	41%	45%	43%	45%
Average land owned by the household (decimals)	94	149	89	113	121
Landless	8%	6%	6%	6%	9%
Owns a desk	62%	75%	65%	69%	66%
Has electricity	30%	40%	35%	37%	37%
Poor ventilation	31%	17%	26%	23%	23%
Daily newspaper	3%	5%	2%	3%	4%
Has a radio	20%	23%	18%	20%	18%
Has a television	17%	22%	17%	19%	20%
Has a mobile phone	21%	32%	23%	27%	26%
Female-headed household	7%	10%	8%	8%	6%
Father educated to at least primary level	31%	42%	33%	37%	37%
Mother educated to at least primary level	32%	40%	33%	31%	32%

8.1 Zone 3a: poor attendance

As noted above (Section 7.1), children who dropped out often (40 per cent of cases) attended irregularly prior to dropping out, whereas irregular attendance seems relatively low amongst ongoing students, suggesting that poor attendance may be a good predictor of drop-out.

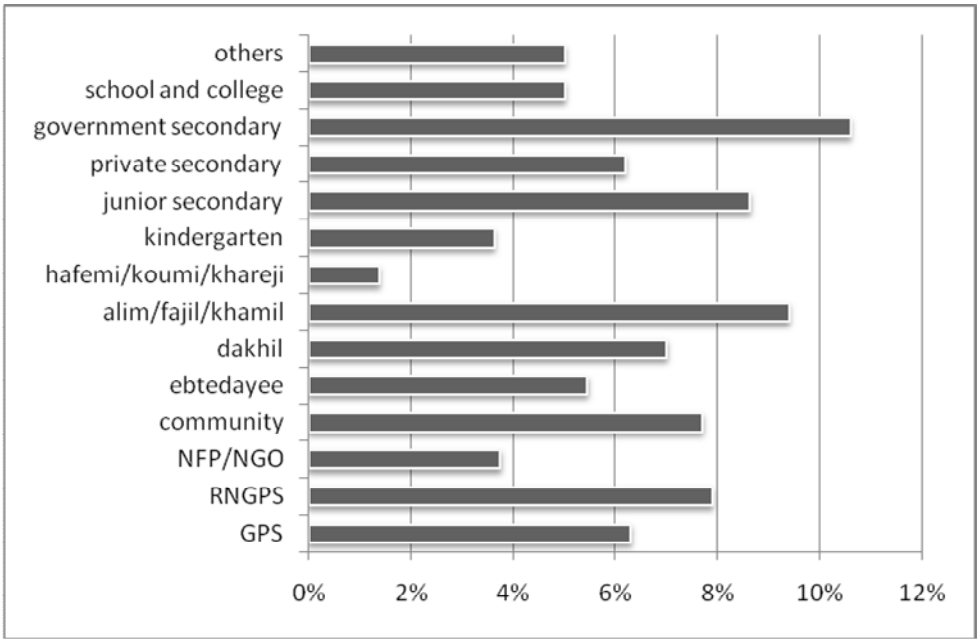
Reasons most commonly given for having been absent more than one day in the past week were that the child is 'too small' (12 per cent of boys and 17 per cent of girls); ill (8 per cent of boys and 10 per cent of girls); or does not value his or her studies (9 per cent of boys and 8 per cent of girls).

As noted in the discussion of the school surveys above, attendance rates (according to both school registers and head counts) were considerably lower than would be expected from the number of days a child was reported as absent in the household survey. Typical attendance rates were around 75 per cent, suggesting an absence rate of 25 per cent on any one day. Thus it may be that the household survey underestimates poor attendance – perhaps because parents were unaware or reluctant to admit that their child had not attended school – although this difference could also be due to misreporting in the school survey.

8.1.1 School type

Poor attendance was highest in government secondary schools, junior secondary schools and alim/fajil/khamil madrasas (equivalent to higher secondary school). At the primary level, poor attendance was highest in RNGPS and lowest in non-formal/NGO schools.

Figure 17. School type of Zone 3a children



8.1.2 Health, attendance and age for grade

Zone 3a children were significantly less likely to be in good health than the comparison group of enrolled children (56 vs. 65 per cent, p<.01). They were also more likely to have lower attendance during specific parts of the year (32 vs. 13 per cent, p<.01). They were less likely to be in the right grade for their age than the comparison group, and the main reason for the difference seems to be that the children in Zone 3a were more likely to have failed a grade (Table 18).

Figure 29. General health of Zone 3a and other enrolled children (6-15)

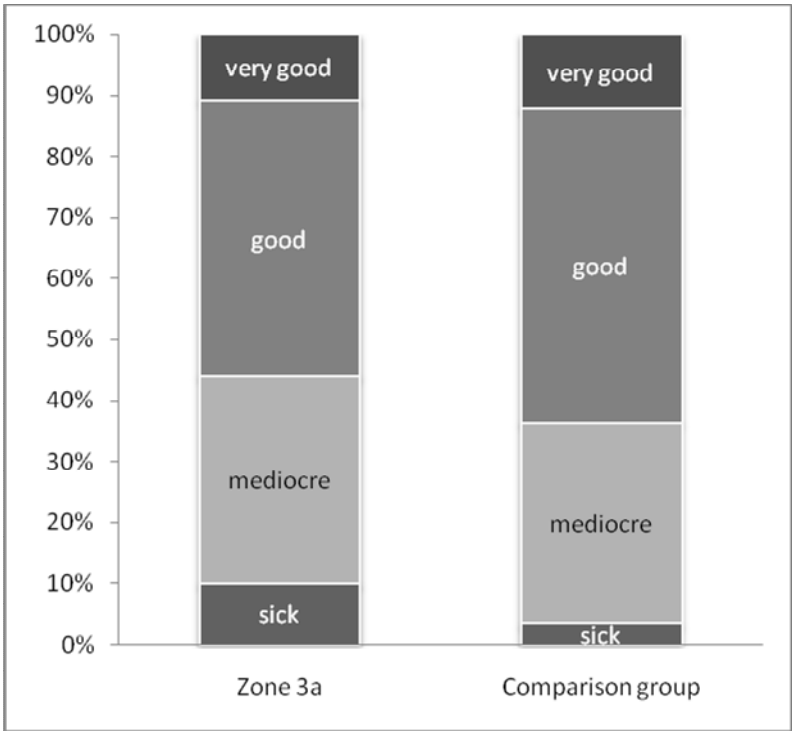


Table 18. Appropriate grade information for Zone 3a

	Zone 3a	Comparison group
In right grade	44%	55%
In wrong grade (late enrolment)	35%	34%
In wrong grade (failed)	16%	8%
In wrong grade (other reason)	5%	3%

8.1.3 Time use

Children in Zone 3a spent significantly more time doing household work, income generating work in the family, and income generating work elsewhere than other school-going children (Table 19). This suggests that the reasons given by parents for irregular attendance may not tell the whole story, and that child work may play a role, although the average amounts of time were quite small – around 77 minutes a day in total, compared to 59 minutes for the comparison group. Though both groups spent about the same amounts of time in school, the comparison group spent more time with a private tutor and more time studying at home.

Table 19. Time use by Zone 3a and other school-going children

	Zone 3a	Comparison group	
Household work	1 hr 6	54 mins	*
Income generating work in the family	9 mins	5 mins	*
Income generating work elsewhere	2 mins	0 mins	*
Travel to school	42 mins	41 mins	
Studying in school	3 hrs 59	4 hrs	
Studying with private tutor	27 mins	35 mins	*
Studying at home	2 hrs 42	3 hrs 2	*
Recreation	3 hrs 57	3 hrs 53	
Sleep	8 hrs 56	8 hrs 54	
Eating, washing, personal routine	1 hr 55	1 hr 51	***

*Significance: * p<.01; *** p<.1 (two sided t-tests)*

8.1.4 Schooling expenditure

Expenditure on schooling was much lower for children in Zone 3a than in the comparison group, overall and across nearly all the different categories of expenditure. It was also significantly lower as a proportion of household income, notwithstanding the fact that household incomes were lower in Zone 3a.

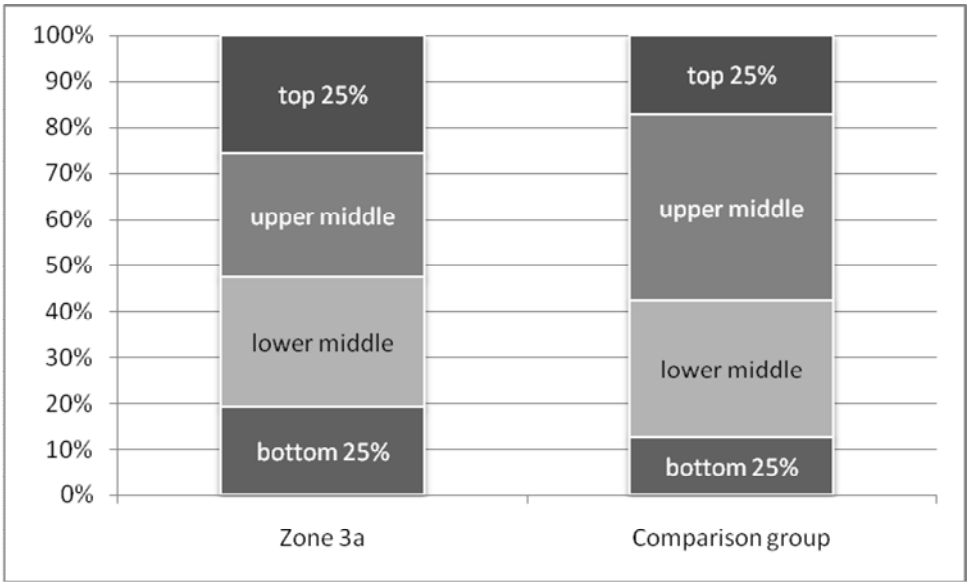
Table 20. Schooling expenditure for Zone 3a and comparison group

	Zone 3a	Comparison group
Transport cost (weekly)	Tk. 3	Tk. 2
Food cost (weekly)	14	17
Tuition fees (last term)	14	22
Examination fees (last term)	30	34
Exercise books, pen, pencil etc. (last term)	86	105
Private tuition fees (last term)	110	163

Text books (yearly)	147	196
Admission fees/ session charge (yearly)	37	53
School clothes (yearly)	266	314
Total annual expenditure	Tk. 1677	Tk. 2123
Annual expenditure as proportion of household income	3.2%	4.1%

The relationship between performance within the class and Zone 3a is unclear. They were more likely than the comparison group to be seen by their parents as being in the top 25 per cent of their class, but also more likely to be ranked in the bottom 25 per cent.

Figure 30. Parents' perception of performance in class of Zone 3a and other children.



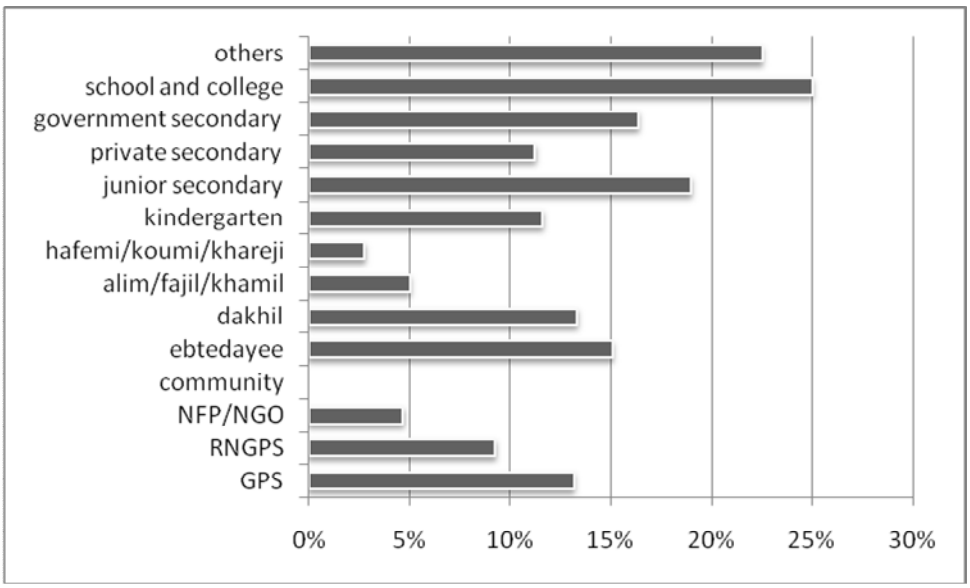
8.2 Zone 3b: poor performance

Zone 3b children tended to start school at a later age than the comparison group (6.7 vs. 6.6 years; $p < .01$); and seem to have been less equipped for school than other children, in terms of owning the required pens, pencils, school bag and geometry box.

8.2.1 School type

Reports of relative poor performance were most common in combined school and colleges, followed by government secondary and junior secondary. Amongst primary schools, madrasas, followed by GPS, seemed the worst affected.

Figure 31. Zone 3b by school type



8.2.2 Health

There were not large differences in the health of children rated as performing poorly, although for Zone 3b parents were less significantly less likely to say their children were in 'very good' health (8 vs. 13 per cent; p<.01) (Figure 32).

Figure 32. Health of children in zone 3b and other school-going children

8.2.3 Grade repetition

Poor-performing children were slightly more likely to be in the wrong grade because they had failed an exam, than other children (11 vs. 8 per cent; p<0.05; Table 21), but other differences in terms of repeating grades were not significant.

Table 21. Appropriate grade information for Zone 3b

	Zone 3b	Comparison group
In right grade	53%	54%
In wrong grade (late enrolment)	33%	35%
In wrong grade (failed)	11%	8%
In wrong grade (other reason)	4%	3%

8.2.4 Time use

There were small but significant differences in time use between children in zone 3b and other school-going children. The zone 3b children spent more time doing household work, but also spent more time studying. They spent less time sleeping and in recreation.

Table 22. Time use for zone 3b

	Zone 3b	Comparison group	
Household work	1 hrs 2 mins	54 mins	*
Income generating work in the family	5 mins	6 mins	
Income generating work elsewhere	1 mins	1 mins	
Travel to school	41 mins	41 mins	
Studying in school	4 hrs 10 mins	4 hrs 1 mins	*
Studying with private tutor	42 mins	34 mins	*
Studying at home	3 hrs 22 mins	2 hrs 59 mins	*
Recreation	3 hrs 23 mins	3 hrs 58 mins	*
Sleep	8 hrs 39 mins	8 hrs 58 mins	*
Eating, washing, personal routine	1 hrs 54 mins	1 hrs 51 mins	

*Significance: * p<0.01*

8.2.5 School expenditures

Parents of children in zone 3b spent significantly more on food, exam fees, stationery, private tuition, text books, school uniform and in total, than other children. However, they did not differ significantly in expenditure as a proportion of household income. Thus the higher expenditure seems to reflect the fact that children in zone 3b were from wealthier households.

	Zone 3b	Comparison group	
Transport cost (weekly)	Tk. 2	Tk. 3	
Food cost (weekly)	20	17	*

Tuition fees (last term)	18	22	
Examination fees (last term)	42	33	*
Expenditure for buying exercise books, pen, pencil etc. (last term)	129	101	*
Private tuition fees (last term)	260	147	*
Total cost for buing text book (yearly)	249	185	*
Admission fees/ session charge (yearly)	62	51	***
Expenditure for school dress (yearly)	360	Tk. 305	*
Total annual expenditure	Tk. 2671	Tk. 2020	*
Annual expenditure as a proportion of household income	4.3%	4.0%	

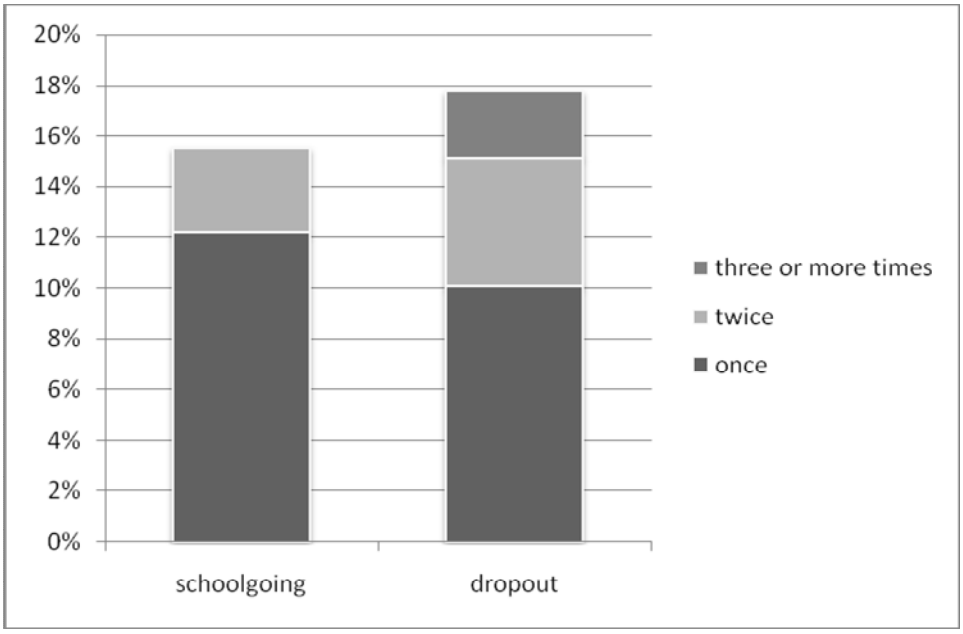
*Significance: * p<.01; *** p<.1 (two sided t-tests)*

8.3 Zone 3c: grade repetition

Drop-out children were not significantly more likely than school-going children to have repeated a year one or more times, but they were more likely to have repeated two or more times ($p < .01$). This suggests that two or more repetitions is a precursor or risk factor for drop-out. (For children who only repeat once, it may be that they repeat a grade *instead* of dropping out, provided they have the resources, support and motivation to do so.)

Only for a small proportion of school-going children did parents report that he or she had repeated a grade more than once, and none said the child had repeated more than twice. A small number of drop-out children appeared to have repeated three or more times prior to dropping out.

Figure 33. How many times school-going and drop out children had repeated a grade



Asked whether repetition has helped with the child's studies, 71 per cent agreed that it had, while 23 per cent said it had made no difference and 3 per cent said it had made things worse.

Unsurprisingly, children who had repeated a grade were much more likely to be in the wrong grade for their age (Table 23).

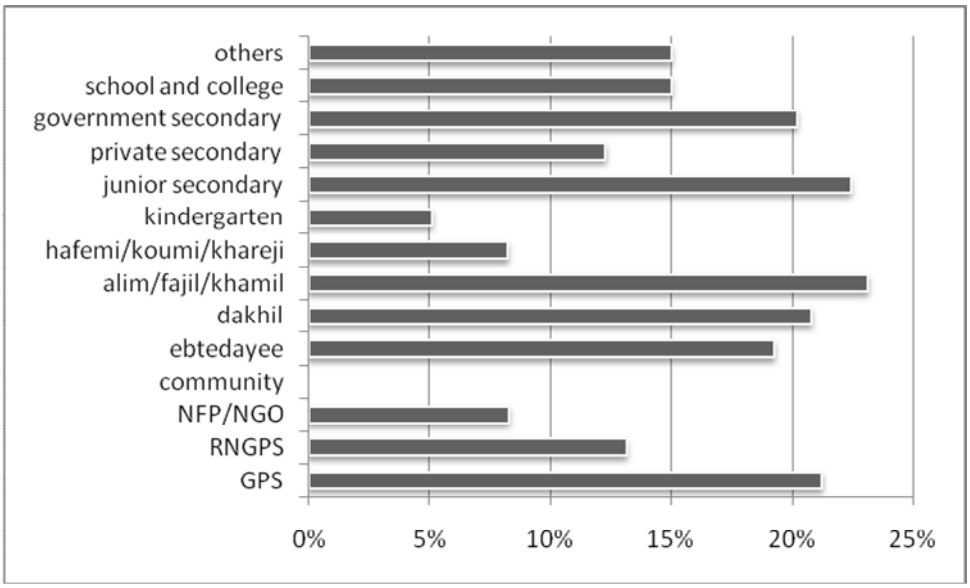
Table 23. Proportion of school-going children in the wrong grade for age

	Proportion in wrong grade for age
Has not repeated a grade	37%
Has repeated once	84%
Has repeated twice	89%

8.3.1 School type

Repetition was commonest in government secondary, junior secondary, and alim/fajil/khamil (secondary-level) madrasas. However, it was also high (over 20 per cent of students were repeaters) in government primary schools (GPS).

Figure 34. Zone 3c by school type



8.3.2 Health

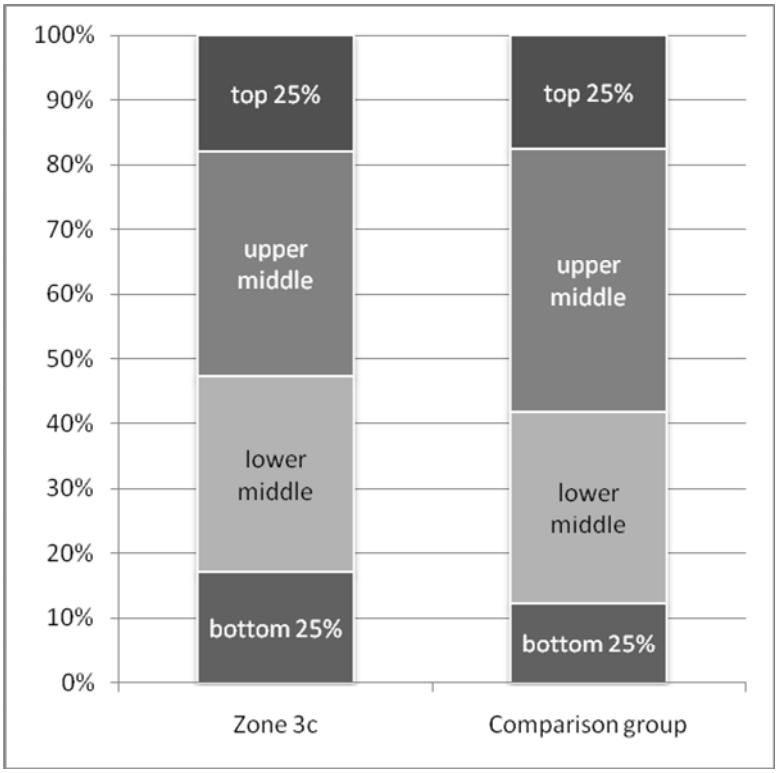
There were small but significant differences between school-going children who had repeated grades and others (Figure 35). Those who had repeated were less likely to be in good or very good health (59 vs. 64 per cent; p<.01).

Figure 35. Health of children in Zone 3c and other school-going children

8.3.3 Perceived performance

Children who repeated were significantly more likely than their peers to be thought by their parents to be in the bottom 25 per cent of the class by achievement (17 vs. 12 per cent; p<.01; Figure 36).

Figure 36. Parents' perception of child's performance, for zone 3c and other school-going children



8.3.4 Time use

The time use of children in zone 3c differed slightly from other school-going children (Table 24). Children who repeated spent more time in household and other types of work, and less time with a private tutor; but also spent more time studying in school, and less time in recreation or sleeping.

Table 24. Time use of children in zone 3c

	Zone 3b	Comparison group	
Household work	1 hrs 6 mins	53 mins	*
Income generating work in the family	9 mins	6 mins	*
Income generating work elsewhere	1 min	0 mins	**
Travel to school	42 mins	41 mins	n.s.
Studying in school	4 hrs 10 mins	4 hrs 1 mins	*
Studying with private tutor	30 mins	36 mins	*
Studying at home	3 hrs 4 mins	3 hrs 1 mins	n.s.
Recreation	3 hrs 42 mins	3 hrs 57 mins	*
Sleep	8 hrs 47 mins	8 hrs 57 mins	*
Eating, washing, personal routine	1 hrs 54 mins	1 hrs 51 mins	**

*Significance: * p<.01; **; p<.05; *** p<.1 (two sided t-tests)*

8.3.5 School expenditures

Overall school expenditures were not significantly different for children in zone 3c compared to other school-going children (Table 25). They had, however, spent less than the comparison group on tuition fees, text books and school dress.

Table 25. School expenditures for children in zone 3c

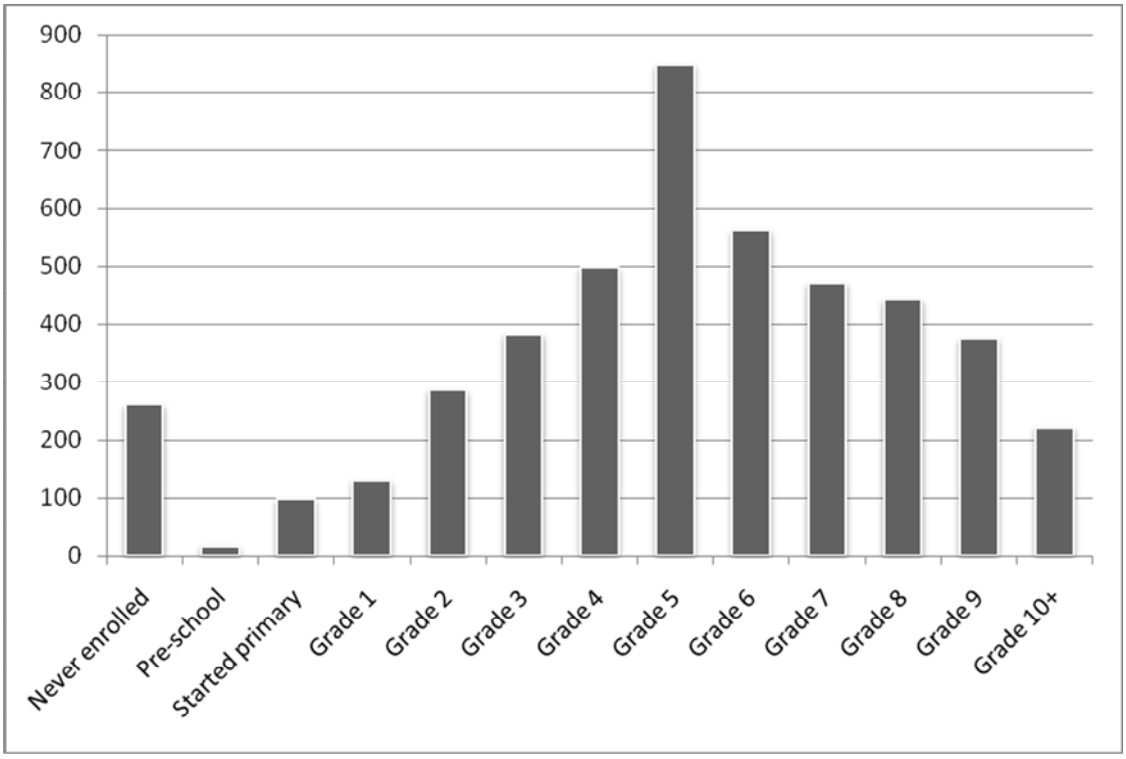
	Zone 3c	Comparison group	
Transport cost (weekly)	Tk. 2	Tk. 3	n.s.
Food cost (weekly)	17	17	n.s.
Tuition fees (last term)	12	23	*
Examination fees (last term)	34	34	n.s.
Expenditure for buying exercise books, pen, pencil etc. (last term)	110	103	n.s.
Private tuition fees (last term)	154	161	n.s.
Total cost for buying text book (yearly)	143	202	*
Admission fees/ session charge (yearly)	46	54	n.s.
Expenditure for school dress (yearly)	296	314	**
Total annual expenditure	1987	2115	n.s.
Total annual expenditure (% of per-capita income)	4%	4%	n.s.

*Significance: * p<.01;** p<.05; n.s. indicates p ≥ .1 (two sided t-tests)*

9 Zone 4: Those failing to make the transition to secondary

Children aged 4-15 who had completed grade 5 but then dropped out of the school system represented a small proportion of our sample: only 92 out of a total of 7333 children (1.25 per cent). However, over 10 per cent of school-going 14 and 15-year olds were still enrolled at primary grades, which suggests that if our sample had included older adolescents, the proportion who completed primary and then dropped out would be higher[7]. Figure 37 shows the highest grade reached by 11 to 18 year olds. Taking the difference between those who reached grade 5 and those who reached grade 6 as a rough indicator of the numbers failing to make the transition, suggests that the proportion is around 5 per cent of this age group. About one-third fewer students reached grade 6 than grade 5.

Figure 37. Highest grade reached by 11-18 year olds



Grade 5 was the grade at which the highest number of children dropped out – 26 per cent of male and 27 per cent of female drop-outs (Figure 38).

Most of the children who dropped out from grade 5 were in the expected age range of 10-12 years (Figure 39).

The survey provides some detail on exactly what obstacles can prevent transition (Table 26). Two-thirds of the children in Zone 4 didn't even sit for the final exam; only a few failed to pass the exam; a quarter passed yet were not admitted to secondary; and a few were admitted yet dropped out.

[7] Information on highest grade attained was collected for all individuals in the survey, but more extensive information on education status, drop out, and schooling history, was only available for 4-15 year olds, reflecting the focus of the study on this age group.

Table 26. What happens to children who complete primary

Didn't sit final exam	16.7%
Sat final exam but didn't pass	1.3%
Passed final exam but didn't get admitted to secondary	5.9%
Got admitted to secondary	76.1%
Total	**100.0%**

Zone 4

Figure 38. Number of drop outs from each grade, by sex (4-15 years)

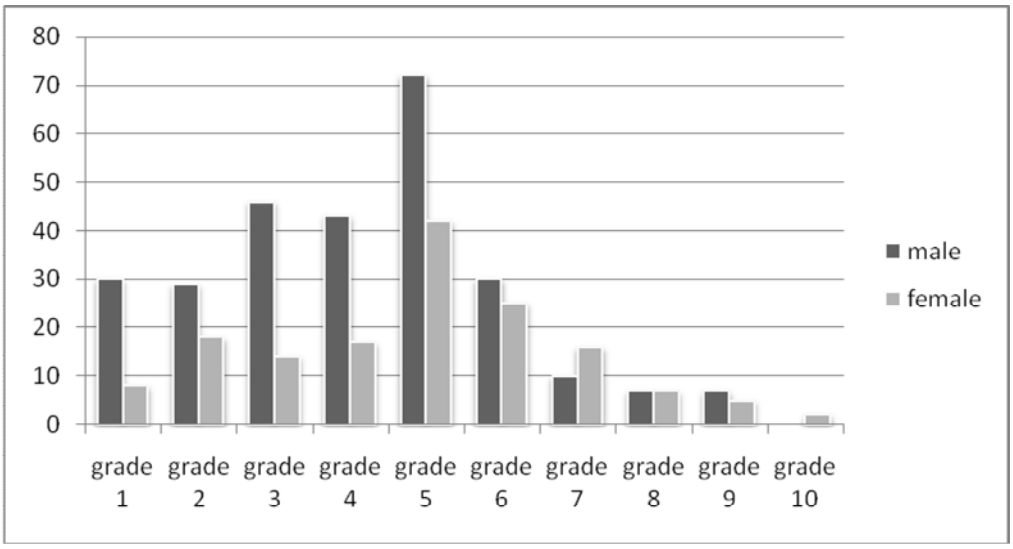
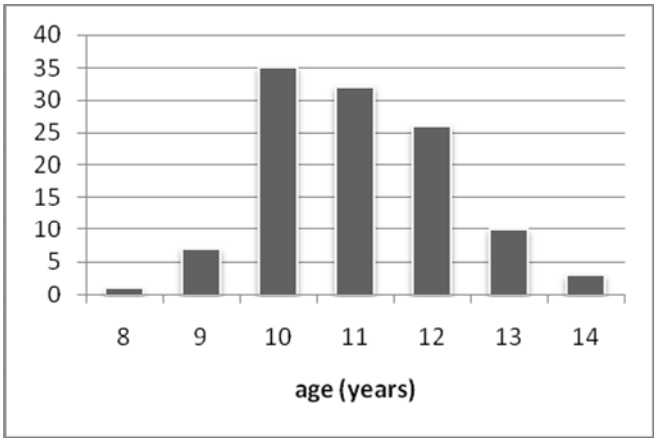
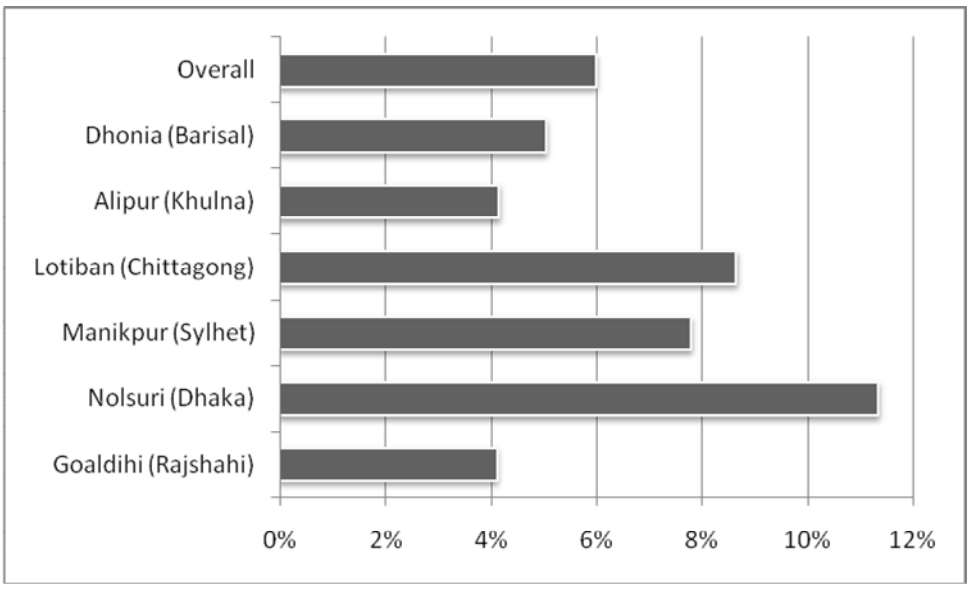


Figure 39. Age at which children dropped out from grade 5



Drop-outs from grade 5, as a proportion of those who completed grade 5, were highest in Nolsuri (Dhaka), Lotiban (Chittagong), and Manikpur (Sylhet) (Figure 40).

Figure 40. Drop outs from grade 5 as a proportion of those completing grade 5, by study area



9.1 The decision to drop out

The pattern of reasons given for dropping out from grade 5 was similar to that given for dropping out from lower grades (see the section on Zone 2 above). Again the reasons given differed starkly by the child's sex. "Parents unable to afford school costs" was given for 50 per cent of girls and 29 per cent of boys, and "child does not value studies" for 13 per cent of boys and 2 per cent of girls. Other common reasons given were: "has to help around the house" (12 per cent of girls and 7 per cent of boys); "finds school too difficult" (14 per cent of boys and 2 per cent of girls); and "has to work outside for income" (7 per cent of boys and 2 per cent of girls).

For Zone 4 children, just under half (49 per cent) apparently took the decision to drop out for themselves, while for the other half (48 per cent) the parents took the decision. It appears, then, that parents play slightly more of a role in the decision at grade 5 than at earlier grades. This is surprising in that one would expect older children to be more likely to make the decision than younger ones; but not when we consider the escalating costs of schooling at secondary level, which would tend to mean the parents' ability to pay becomes more important than the child's wishes.

As with drop outs from lower grades, the decision to drop out was much more often made by the child in the case of boys (61 per cent) than girls (27 per cent).

78 per cent of girls and 69 per cent of boys attended regularly prior to dropping out. Reasons for not attending regularly included "child does not value his/her studies"; "finds school too difficult"; "has to help around the house"; and "finds school work boring". Around 40 per cent of girls and 20 per cent of boys were currently "doing nothing" or unemployed; the rest were working in the house or (for boys) engaged in a wide variety of other occupations.

Similar to Zone 2 children, parents of 73 per cent of girls and 38 per cent of boys in Zone 4 said that the child wanted to start school again, with most of those wishing to return to a government school. For those that did not want to go back to school, common reasons were "child does not value his/her studies", "finds school too difficult", "parents unable to afford school expenses", and "has to work outside for income".

Like children who dropped out during grades 1 to 4, those who dropped out at grade 5 appeared to have weaker relations with the school (see Figure 25 above).

9.2 Socioeconomic characteristics

Comparing children who drop out from grade 5 with those who continue on to higher grades in secondary (including those who eventually drop out from secondary) shows that the former are from significantly economically worse-off households on all of the measures used. They had lower income per person; were more likely to be 'always in need'; were more likely to have a household head working as a day labourer or in unskilled work; owned less land; and were less likely to own a desk, radio, television, or mobile phone or to have electricity or good ventilation. However, they were not significantly more likely to be from female-headed households. Nor were they more likely to come from Hindu or tribal households, when these categories were examined separately; but they were significantly more likely to come from households that were both Hindu and ethnically tribal.

Table 27. Socioeconomic characteristics of Zone 4 children

Indicator	Children (6-15) who dropped out from grade 5	Children (6-15) enrolled in secondary or dropped out from secondary	
Monthly income per person	Tk. 771	Tk. 1179	*
% staple food security status is 'always in need'	32%	11%	*
Hindus	5%	10%	n.s.
'Tribal' people	3%	3%	n.s.
Hindu *and* 'tribal'	3%	<1%	*
Household head works as a day labourer	25%	12%	*
Household head is in unskilled work	61%	36%	*
Average land owned by the household	73 decimals	157 decimals	**
Landless	13%	5%	*
Owns a desk	45%	78%	*
Has electricity	20%	47%	*
Poor ventilation	30%	17%	*
Daily newspaper	0%	6%	*
Has a radio	14%	25%	*
Has a television	4%	28%	*
Has a mobile phone	11%	36%	*
Female-headed household	6%	7%	n.s.

*Significance: * p<.01; ** p<.05; 'n.s.' indicates p≥.1 (two-sided test)*

9.3 Health and disability

Unlike children in Zones 1 and 2, the difference in health between Zone 4 children and the comparison group (those enrolled in, or dropped out from, secondary grades) is not very clear. Their general health appears somewhat worse although this difference is only weakly significant; however

they were significantly less likely to be fully immunised, less likely to 'play normally' and more likely to be disabled. Regressing height on age, sex and membership of Zone 4 also reveals that Zone 4 children are significantly shorter for their age than the comparison group (see Estimation 8 in the appendices).

Figure 41. Health (in general) of Zone 4 and comparison group children

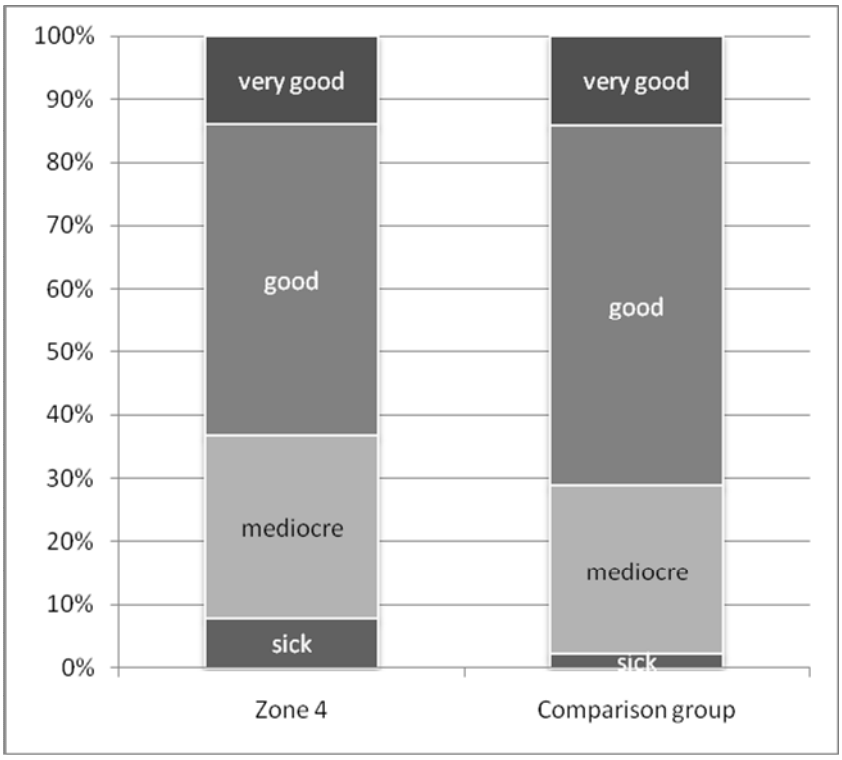


Table 28. Health of Zone 4 and comparison group children

Indicator	Zone 2 children	Comparison group	
Generally in 'good' / 'very good' health	63%	71%	***
Completed programme of immunisations	78%	87%	*
Sick in the last 30 days	22%	24%	n.s.
Health worker visited child in last 30 days	18%	18%	n.s.
'Plays normally'	86%	94%	*
Disabled	3.5%	0.4%	*
Average height at 12 years (male)	53 inches	57 inches	*

*Significance: * p<.01; *** p<.1; 'n.s.' indicates p≥.1 (two-sided test)*

9.4 Logit model

A logit model (Estimation 9) looked at what determined the likelihood of a child dropping out at grade 5, given that he or she has reached that grade. Thus the comparison group consists of children who are enrolled in, or have dropped out from, grades higher than grade 5. In the final estimation, being a boy increased the likelihood of dropping out at grade 5 by around 70 per cent.

Being in good health was not significant and was dropped from the final specification. However, whether the child 'plays normally', which might be taken as a general indication of both disability and health, was significant, reducing the odds of being in Zone 4 by three-quarters. Being in a household which is 'always in need' increases the odds by two and a half times, while households that own a study table or a television were (in each case) 70 per cent less likely to be in Zone 4. Taking Dhonia (Barisal) as the baseline district, children in Goaldihi (Rajasthan) and Alipur (Khulna) were 80-90 per cent less likely to be in Zone 4, while the other study areas were not significantly different from Dhonia. Children in female-headed households were 60 per cent *less* likely to be in Zone 4 than in the comparison group. The parental education variables (mother or father being educated to at least primary level) were both significant if included individually but not if included together; mother's education had the larger effect, resulting in an 80-90 per cent decrease in the likelihood of being in Zone 4. Knowing others who had benefitted from education decreased the likelihood by 70 per cent.

10 Conclusions

Overall, the figures on never-enrolment and drop-out appear low compared to other reports (see the *Country Access Review*), although they are consistent with net enrolment figures from government sources. The high figures for grade repetition, combined with small but substantial drop-out rates, nevertheless create a bunching effect with much higher numbers of students in lower grades than in higher grades. It is possible that the NGO presence in the selected communities, amongst other factors, has prevented high rates of poverty from being translated into high rates of never-enrolment and drop-out. Clearly, whether never-enrolment and drop-out rates are genuinely lower than the national norm, and if so what reasons can be found for this, are deserving of further investigation. This can be done through analysis of the current data, including comparison of the school and household surveys; further rounds of data collection; and discussion with NGO partners. Alternatively, the national norm may be more favourable than has been previously reported, but comparison with national surveys and studies in other sites is needed before drawing this conclusion. The reliability of published aggregate national statistics about dropout and repetition is not beyond question.

The analysis highlights zone 3, the group of children who may be virtually excluded, as indicated by low attendance, low achievement, or repetition, as the largest excluded group, although some caution is needed because of the difficulty in measuring virtual exclusion directly. For children in zone 3, the issue of access and the quality of the studies/learning in school as well as outcome in terms of learning achievement intersect. Similarly, the factors related to demand – parents' and families' expectations about schooling and efforts they make to send and keep children in school – as well as what schools do to attract children to schools and keep them there, are directly germane to zone 3 conditions.

On the whole, the household and socioeconomic characteristics in zone 3 are not substantially different from those of children in other zones of exclusion. This suggests that a substantial proportion of parents and households are making an effort and are making great sacrifices, given their meagre economic circumstances, to enroll their children in school and encourage them to persist in school. The challenge appears to be in the school's capacity to respond and serve the children effectively.

Table 29 summarises some key risk factors that have emerged for Zones 1, 2 and 4. Economic status plays a clear role in each of the forms of exclusion, although different variables seem to be important in each case. It may be that for older children who never enrol, more stable properties of the family's socioeconomic position in terms of wealth and occupation are more prominent, while for children who enrol late, drop out from primary, or drop out at the end of primary, it is flows of income at the current time that dominate. Belonging to the group of Hindu 'tribal' people living in Lotiban, Chittagong, severely increased the likelihood of never enrolling, but had less impact on drop-out. A rough hierarchy of the study areas emerged, with Nolsuri (Dhaka) and Lotiban (Chittagong) at the bottom, followed by Manikpur (Sylhet) – despite the relatively high incomes in this area – and with Goaldihi (Rajshahi) and Alipur (Khulna) at the top. Having parents who had not completed primary schooling was, unsurprisingly, a risk factor across all of the zones. Poor health

seemed to play a strong role for never-enrolled children, while disability seemed a more important factor in drop-out. Drop-outs were more likely to attend GPS than other types of school, and were likely to come from households that were less engaged with the school on a number of measures. Not knowing others who have benefitted from education emerged as a significant factor in all of the zones. Parents' attitudes may reflect a realistic assessment of the chances of their children advancing to a high enough level in education that would open up employment opportunities in 'white collar' jobs.

Table 29. Some key risk factors for Zones 1, 2, and 4

Zone 1 (6-8 years)	Zone 1 (9-15 years)	Zone 2	Zone 4
Low income / deficit food security	Unskilled head of household / wealth (owning a study table)	Low income / deficit food security	Deficit food security
Hindu and 'tribal'	Hindu and 'tribal'		
Living in Nolsuri or Lotiban study areas	Living in Manikpur, Lotiban or Nolsuri	Living in Nolsuri or Lotiban study areas	Living in a study area other than Goaldihi and Alipur
More children in family			
Low parental education			
	Boy	Boy	Boy
Poor health	Poor health	Poor health (?) / disability	Disability / health
		Government school	
		Less engaged with the school	
Not knowing others who have benefitted from going to school			

There is clear scope for NGOs to try and fill the gap in enrolment in the two most educationally disadvantaged areas, Lotiban and Nolsuri, and especially for targeting the particularly disadvantaged group in Lotiban that seems to be demarcated by both religion (Hindu) and ethnicity ('tribal'). More broadly, the results suggest that even simple measures of self-reported income, food security, and occupation, are useful means for NGOs to target households likely to have particular challenges in education. While all of the communities in the ComSS study areas were poor (with 83-98 per cent of households living on less than US$1 per member), there is a clear distinction between the poorest, with typical household incomes around Tk. 3000, and the rest, with typical incomes around Tk. 5000-6000, in terms of access and exclusion to education.

The importance of poor health and disability as factors in exclusion seems to point towards projects that address health, disability and education concerns holistically. In particular, there is evidence here to support the idea that vaccination programmes, and child health programmes more generally, could reduce the numbers of children who enrol late or never enrol, as well as improving the attendance of children who are in schools. In this regard it is notable that few of the schools in our school survey had facilities to treat sick children, teachers trained to identify health problems, or student health records.

Of the two per cent of school-age children described as disabled in our sample, less than half were going to school, and of these, about half fell under at least one of our definitions of Zone 3 (low attendance, poor performance, or grade repetition). This suggests that few disabled children are receiving a useful education.

Boys were more likely to be in each of the zones of exclusion than girls. Despite this, some of the responses suggest that boys' education is valued more than girls'; in particular, the costs of education are much more likely to be cited as a reason not to send girls to school, and the total amount spent on girls' schooling was somewhat lower (on average Tk. 1950, compared to Tk. 2060 for boys, $p<.05$). Reasons for girls' higher enrolment and lower drop-out rates may be because the opportunity costs are lower, due to limited income-generating opportunities for girls, and because of scholarships, which were received by 41 per cent of girls in our sample but only 21 per cent of boys, and which amounted to around Tk. 270 on average.

One avenue is to explore school expenditure patterns to identify risk factors for drop-out or virtual exclusion, particularly private tuition, which on average represents around a quarter of household expenditure on education, yet is received by less than 30 per cent of children.

11 Appendices

11.1 Technical issues

Results from the drop-out and never-enrolled surveys were interesting, but of limited use for comparative analysis of children in the different zones of exclusion, because the same questions were not asked across categories (school-going, never-enrolled and drop-out) .There was also some unnecessary duplication of questions between different surveys.

Zone 2 was defined as drop-out children whose parents responded grade 1, 2, 3 or 4 when asked "What was the last grade completed?". Comparing this question to others in the survey, though, it appears that the response given was often the last grade entered by the child, rather than the last grade completed. But there is a potential ambiguity over what is meant by 'completing' grade 5. For instance, some children may attend school throughout grade 5 but be unable to sit the primary leaving exam at the end, and it is not clear whether these should be seen as having completed or not. Consequently, there is some blurring at the edges between Zones 2 and 4. Given that the findings for these two zones were fairly similar, it seems unlikely that this ambiguity made a large difference. Following rounds of data collection need to make very clear whether the information on grade being collected is the child's current grade, last grade completed, or last grade entered.

Some issues with survey instruments only become apparent when one starts to analyse the data from them. Conducting a mock analysis of the data after the piloting stage will help to flag such problems in subsequent rounds of data collection.

11.2 Reconstructed cohort analysis

Reconstructed cohort analysis was done using the technique suggested by UNESCO (http://www.uis.unesco.org/i_pages/indspec/cohorte.htm). Rates of promotion, repetition and drop out between grades, derived from the data, were used to calculate the prospects for a hypothetical cohort of 10,000 students starting in grade 1. The number of drop-outs was defined as those who reached a particular grade and who dropped out in the last 12 months. The number of children promoted was defined as those who reached a particular grade last year and who are currently enrolled in the grade above. The number of repeaters was defined as those who reached a particular grade last year and are still enrolled in the same grade.

Table 30. Promotion, repetition, and drop-out rates by grade

Grade in previous year	Promotion	Repetition	Drop out
pre-school	89.54%	9.21%	1.26%
not enrolled	91.03%	8.32%	
grade 1	87.90%	10.53%	1.57%
grade 2	83.70%	14.53%	1.78%
grade 3	85.06%	12.53%	2.41%
grade 4	80.03%	16.73%	3.24%
grade 5	75.92%	18.21%	5.87%

grade 6	88.87%	7.35%	3.78%
grade 7	91.29%	5.62%	3.09%
grade 8	90.14%	6.46%	3.40%
grade 9	90.48%	5.56%	3.97%

Table 31. Reconstructed cohort analysis

Year	Grade 1	G2	G3	G4	G5	G6	G7	G8	G9
1	10000								
2	1053	8790							
3	111	2202	7357						
4		417	2765	6258					
5			696	3399	5008				
6				1160	3632	3802			
7					1590	3037	3379		
8						1430	2889	3084	
9							1433	2836	2780
10								1492	2711
11									1495

Table 32. Reconstructed cohort analysis: drop outs

Year	Grade 1	G2	G3	G4	G5	G6	G7	G8	G9
1	157								
2	17	156							
3	2	39	178						
4		7	67	203					
5			17	110	294				
6				38	213	144			
7					93	115	104		
8						54	89	105	
9							44	96	110
10								51	108
11									59
12									

Table 33. Cumulative drop-outs by grade and survival

	Grade 1	2	3	4	5	6	7	8	9
Total drop outs (D)	175	203	261	350	601	313	238	252	277
Total (E) entering each grade	10000	9813	9550	9201	8657	7766	7348	7030	6681
D / E	1.75%	2.07%	2.73%	3.81%	6.94%	4.03%	3.24%	3.59%	4.15%
Cumulative drop out	175	378	639	990	1591	1903	2141	2393	2671
Percentage	1.8%	3.8%	6.4%	9.9%	15.9%	19.0%	21.4%	23.9%	26.7%

Survival	98.2%	96.2%	93.6%	90.1%	84.1%	81.0%	78.6%	76.1%	73.3%

11.3 Regression results

Estimation 1. Vaccination logit

The final specification regressed the following variables on the likelihood of being fully vaccinated: in_need (household is always in need of staple food); desk (has at least one study table); re_hb (Hindu Bengali dummy); re_ht (Hindu Tribal dummy); re_bt (Buddhist Tribal dummy); dcod1-dcod5 (dummies for the different study areas); fpri (father educated to at least primary level); mpri (mother educated to at least primary level); fhead2 (female-headed household); childdependency (child dependency ratio of household).

The following variables were included in some earlier specifications but left out of the final one because they did not significantly contribute to its explanatory power: pcincom (per capita household income); unskilled (household head does unskilled work); table (number of study tables); chair (number of study chairs); poor_vent (poor ventilation in study room); mphon (owns a mobile phone); land (land ownership); harad (owns a radio); dnews (takes a daily newspaper); magzn (receive a magazine); sex (child's sex).

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
in_need	0.723838	0.067185	-3.48	0	0.603441	0.868256
desk	1.198907	0.091411	2.38	0.017	1.032488	1.392149
re_hb	1.709762	0.336837	2.72	0.006	1.162096	2.515529
re_ht	0.016014	0.004352	-15.21	0	0.009401	0.02728
re_bt	0.312861	0.091564	-3.97	0	0.176292	0.555226
dcod1	0.880182	0.133556	-0.84	0.4	0.653754	1.185034
dcod2	0.387186	0.04235	-8.67	0	0.312477	0.479758
dcod3	0.638457	0.073578	-3.89	0	0.509373	0.800253
dcod4	1.313665	0.261602	1.37	0.171	0.889154	1.94085
dcod5	2.223889	0.32031	5.55	0	1.676923	2.94926
fpri	1.263899	0.110925	2.67	0.008	1.064162	1.501126
mpri	1.555147	0.148175	4.63	0	1.290234	1.874452
fhead2	0.686203	0.089246	-2.9	0.004	0.531799	0.885438
childdepen~y	2.34946	0.558016	3.6	0	1.475029	3.742274
Number of observations	9045		$P > \chi^2$	0.000	Pseudo R^2	0.1484

Estimation 2. Good health logit

The final specification regressed the following variables on the likelihood of having 'good' or 'very good' health: pcincom (per capita income), in_need (household is always in need of staple food); unskilled (household head does unskilled work); table (number of study tables); dcod1-dcod5

(dummies for the different study areas); re_hb (Hindu Bengali dummy); re_ht (Hindu Tribal dummy); re_bt (Buddhist Tribal dummy); childdependency (child dependency ratio).

The following variables were included in some earlier specifications but left out of the final one because they did not significantly contribute to its explanatory power: telev (own a television); harad (own a radio); mphon (own a mobile phone); land (land ownership); fpri (father educated to at least primary level); mpri (mother educated to at least primary level); sex (child's sex); fhead2 (female-headed household).

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
fullyvac	1.258943	0.089805	3.23	0.001	1.094679	1.447856
pcincom	1.000105	2.86E-05	3.66	0	1.000049	1.000161
in_need	0.590964	0.038447	-8.09	0	0.520216	0.671334
unskilled	1.15381	0.056869	2.9	0.004	1.047564	1.270831
table	1.120775	0.034379	3.72	0	1.05538	1.190223
dcod1	0.937284	0.084713	-0.72	0.474	0.785125	1.118932
dcod2	0.75265	0.053514	-4	0	0.654746	0.865195
dcod3	2.359907	0.177953	11.39	0	2.035675	2.73578
dcod4	0.519249	0.056572	-6.02	0	0.419409	0.642855
dcod5	1.898292	0.141668	8.59	0	1.639981	2.19729
re_hb	0.855145	0.085614	-1.56	0.118	0.702781	1.040541
re_ht	0.843753	0.162647	-0.88	0.378	0.578273	1.231114
re_bt	2.130252	0.468493	3.44	0.001	1.384304	3.278163
childdepen~y	0.606106	0.097858	-3.1	0.002	0.441692	0.831721
Number of observations	8985		$P > \chi^2$	0.000	Pseudo R^2	0.0623

Estimation 3. Regression of height on age, sex, and membership of Zone 1

	Coef.	Std. Err.	t	P>t
age	1.930258	0.020038	96.33	0.000
sex	-0.66363	0.105814	-6.27	0.000
zone1	-2.12571	0.215917	-9.85	0.000
constant	32.14717	0.256912	125.13	0.000
Number of observations			7458	
R-squared			0.5689	
Adjusted R-squared			0.5687	
F			3278.37	
Prob > F			0.0000	

Estimation 4. Zone 1 logit, for 6-8 year-olds

The final specification regressed the following variables on the likelihood of being in Zone 1 (never enrolled), for 6-8 year old children: goodheal ('good' or 'very good' health); pcincom (per capita income); table (number of study tables); dcod1-dcod5 (dummies for the different study areas); re_hb (Hindu Bengali dummy); re_ht (Hindu Tribal dummy); re_bt (Buddhist Tribal dummy); fhead2 (female-headed household); childdependency (child dependency ratio); fpri (father educated to at least primary level); benft (parents know others who have benefitted from school).

The following variables were included in some earlier specifications but left out of the final one because they did not appear to add explanatory power: sex (child's sex); in_need (household always in need of staple food); unskilled (head of household does unskilled work); telev (own a television).

mpri (mother educated to at least primary level) was also significant as long as fpri was excluded, but fpri had the larger effect and so was included in the final specification.

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
goodheal	0.528587	0.075114	-4.49	0	0.400091	0.698352
pcincom	0.99976	0.000123	-1.95	0.051	0.999518	1.000001
table	0.647019	0.073222	-3.85	0	0.518309	0.807691
dcod1	0.455784	0.238117	-1.5	0.133	0.163705	1.268982
dcod2	8.081877	2.045587	8.26	0	4.921148	13.27266
dcod3	1.587102	0.467193	1.57	0.117	0.891329	2.825997
dcod4	2.414365	0.836498	2.54	0.011	1.224305	4.761198
dcod5	1.34818	0.406535	0.99	0.322	0.746576	2.434568
re_hb	0.388271	0.209128	-1.76	0.079	0.135103	1.115846
re_ht	5.733066	1.996592	5.01	0	2.896999	11.34555
re_bt	0.538766	0.430839	-0.77	0.439	0.112386	2.582778
fhead2	0.625727	0.192275	-1.53	0.127	0.342631	1.14273
childdepen~y	8.079306	4.564757	3.7	0	2.669627	24.45105
fpri	0.630928	0.11505	-2.53	0.012	0.44133	0.901978
benft	0.540317	0.117167	-2.84	0.005	0.353238	0.826475
Number of observations	2726	$P > \chi^2$	0.000		Pseudo R^2	0.2191

Estimation 5. Zone 1 logit, for 9-15 year-olds

The final specification regressed the following variables on the likelihood of being in Zone 1 (never enrolled), for 9-15 year old children: sex (child's sex); goodheal ('good' or 'very good' health); unskilled (head of household does unskilled work); table (number of study tables); telev (own a television); dcod1-dcod5 (dummies for the different study areas); re_ht (Hindu Tribal dummy); fhead2 (female-headed household); fpri (father educated to at least primary level); benft (parents know others who have benefitted from school).

The following variables were included in some earlier specifications but left out of the final one because they did not appear to add explanatory power: pcincom (per capita income); in_need (household is always in need of staple food); re_hb (Hindu Bengali dummy); re_bt (Buddhist Tribal dummy); childdependency (child dependency ratio).

mpri (mother educated to at least primary level) was also significant as long as fpri was excluded, but fpri had the larger effect and so was included in the final specification.

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
sex	0.484853	0.086571	-4.05	0	0.341686	0.688008
goodheal	0.542022	0.097626	-3.4	0.001	0.380806	0.771491
unskilled	1.700751	0.354346	2.55	0.011	1.130566	2.558502
table	0.499521	0.078696	-4.41	0	0.366821	0.680228
telev	0.326553	0.19635	-1.86	0.063	0.100495	1.061123
dcod1	0.417011	0.282261	-1.29	0.196	0.110662	1.571436
dcod2	5.370635	1.948392	4.63	0	2.637676	10.93528
dcod3	2.227247	0.948412	1.88	0.06	0.966736	5.13132
dcod4	2.885304	1.315586	2.32	0.02	1.18053	7.051902
dcod5	0.743789	0.340007	-0.65	0.517	0.303627	1.822042
re_ht	6.13071	2.34566	4.74	0	2.896237	12.97739
fhead2	1.620697	0.450391	1.74	0.082	0.940055	2.794154
fpri	0.292221	0.100224	-3.59	0	0.149201	0.572337
benft	0.624918	0.158707	-1.85	0.064	0.379882	1.028011
Number of observations	4502	$P > \chi^2$	0.000		Pseudo R^2	0.2549

Estimation 6. Regression of height on age, sex, and membership of Zone 2

	Coef.	Std. Err.	t	P>t
age	1.937634	0.020991	92.31	0.000
sex	-0.65972	0.110013	-6.00	0.000
Zone 2	-0.08872	0.337491	-0.26	0.793
Constant	32.07018	0.265246	120.91	0.000
Number of observations	R^2	0.5541	F	2885.82
6970	Adj. R^2	0.5539	P > F	0.0000

Estimation 7. Zone 2 logit

The final specification regressed the following variables on the likelihood of being in Zone 2 – drop out from primary – for those children who had at some point enrolled in primary and were aged 6-15: sex (child's sex); disa (child is disabled); in_need (household is always in need of staple food);

table (number of study tables); dcod1-dcod5 (dummy variables for the different study areas); fpri (father educated to at least primary level); mpri (mother educated to at least primary level); benft (parents know about others who have benefitted from school).

The following variables were included in some earlier specifications but left out of the final one because they did not significantly contribute to its explanatory power: pcincom (per capita income); unskilled (household head does unskilled work); telev (own a television); re_hb, re_ht, re_bt (religious/ethnic dummies); fhead2 (female-headed household); childdependency (child dependency ratio).

Variable	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
sex	0.360765	0.059076	-6.23	0	0.261721	0.497292
disa	10.05223	3.025064	7.67	0	5.573228	18.13086
in_need	1.918217	0.329629	3.79	0	1.369702	2.686392
table	0.75165	0.086915	-2.47	0.014	0.599224	0.942849
dcod1	0.620643	0.193587	-1.53	0.126	0.336775	1.143781
dcod2	1.626605	0.381068	2.08	0.038	1.027708	2.57451
dcod3	0.724874	0.198876	-1.17	0.241	0.423377	1.241075
dcod4	1.735145	0.462736	2.07	0.039	1.028806	2.926428
dcod5	0.448813	0.124812	-2.88	0.004	0.260228	0.774067
fpri	0.574572	0.128917	-2.47	0.014	0.370134	0.891927
mpri	0.316223	0.094464	-3.85	0	0.176083	0.567898
benft	0.562758	0.124695	-2.59	0.009	0.364514	0.868819
Number of observations	7064		$P > \chi^2$	0.0000	Pseudo R^2	0.1343

Estimation 8. Regression of height on age, sex and membership of Zone 4

higt	Coef.	Std. Err.	t	P>t
age	1.152223	0.086656	13.3	0.000
sex	-1.88063	0.230299	-8.17	0.000
Zone 4	-0.99737	0.486278	-2.05	0.040
constant	44.95	1.180759	38.07	0.000
Number of observations: 1848	F	80.36	R^2	0.1156
	P>F	0.0000	Adj. R^2	0.1142

Estimation 9. Zone 4 logit

The final specification regressed the following variables on the likelihood of being in Zone 4 (failure to make transition to secondary), given that the child has completed primary: sex (child's sex);

in_need (household is always in need of staple food); table (number of study tables); telev (own a television); dcod1-dcod5 (dummies for the different study areas); fhead2 (female-headed household); mpri (mother educated to at least primary level); benft (parents know about others who have benefitted from school); playsnorm (child plays normally).

The following variables were included in some earlier specifications but left out of the final one because they did not add to its explanatory power: goodheal (child is in 'good' or 'very good' health) pcincom (per capita income); unskilled (household head does unskilled work); re_hb, re_ht, re_bt (religious/ethnic dummies); childdependency (household child dependency ratio); fpri (father educated to at least primary level).

zone4p	Odds Ratio	Std. Err.	z	P>z	[95% Conf.	Interval]
sex	0.270102	0.06242	-5.66	0	0.171718	0.424854
in_need	2.480775	0.661997	3.4	0.001	1.470427	4.185346
table	0.345382	0.065595	-5.6	0	0.238035	0.50114
telev	0.265161	0.126918	-2.77	0.006	0.103774	0.677535
dcod1	0.096926	0.05037	-4.49	0	0.035002	0.268406
dcod2	1.768081	0.704955	1.43	0.153	0.809316	3.862658
dcod3	1.365488	0.445392	0.96	0.34	0.720518	2.587803
dcod4	0.708977	0.321396	-0.76	0.448	0.291583	1.72386
dcod5	0.231798	0.086205	-3.93	0	0.111828	0.480473
fhead2	0.378544	0.184584	-1.99	0.046	0.145565	0.984408
mpri	0.151262	0.065993	-4.33	0	0.064323	0.355708
benft	0.316313	0.099041	-3.68	0	0.171237	0.584302
playsnorm	0.256649	0.097899	-3.57	0	0.12152	0.54204
Number of observations	1877	$P > \chi^2$	0.000		Pseudo R^2	0.2734

11.4 Occupation categories

1. Professional: officer; executive; multinational company officer; government officer; non-government officer; NGO officer; doctor; engineer; health worker; university teacher; college teacher; high school teacher; primary teacher; NGO school teacher; madrasa teacher; mosque imam; overseas recruitment agency; muezzin; maulvi; nurse.
2. Own business or farm: small business (profits Tk. 50,000 or less); big business; shopkeeper; export/import business; warehouse owner; stock holder; big farmer; medium farmer; small farmer
3. Skilled manual work: cook; tailor; hairdresser; weaver; van driver; car driver; transport worker; industrial worker; handicraft worker; cottage industry worker
4. Unskilled manual work: peon; waiter; sharecropper; agricultural labourer; seasonal farmer; crop farmer; vegetable farmer; fish farmer; fisherman; ferry person; housewife; nanny; garments worker

5. ‘Low status’ unskilled manual work: guard; vegetable seller; ferry worker; shoe shiner; tea seller; rickshaw puller; rag-picker; day labourer; domestic worker; sweeper

Categories 4 and 5 were also grouped together as ‘unskilled work’.

11.5 Enrolments by age and grade, disaggregated by school type

Figure 42. Enrolments by age and grade, government primary schools (GPS)

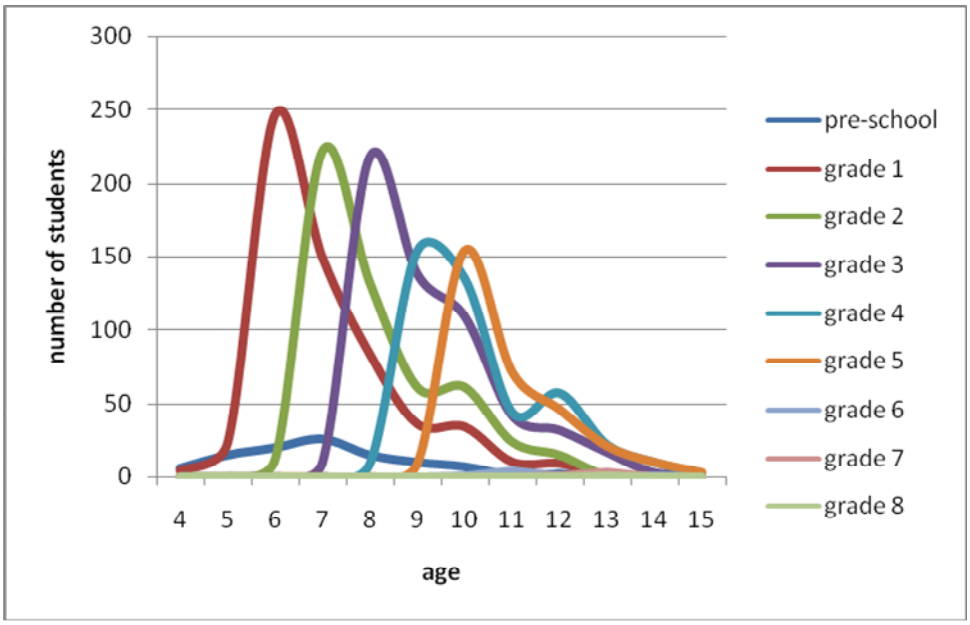


Figure 43. Enrolments by age and grade, registered non-government primary schools (RNGPS)

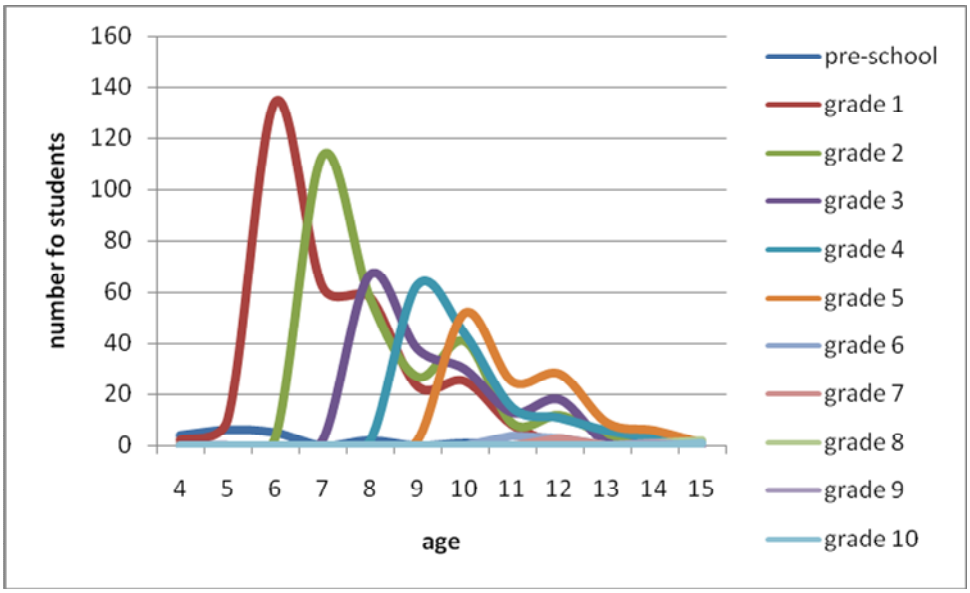


Figure 44. Enrolments by age and grade, NGO schools

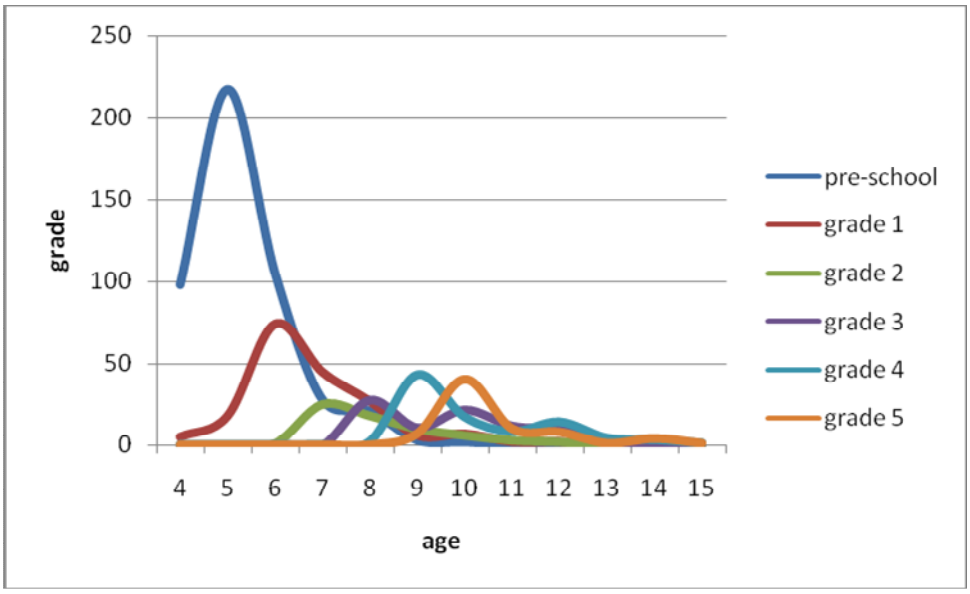


Figure 45. Enrolments by age and grade, ebtedayee madrasas (EM)

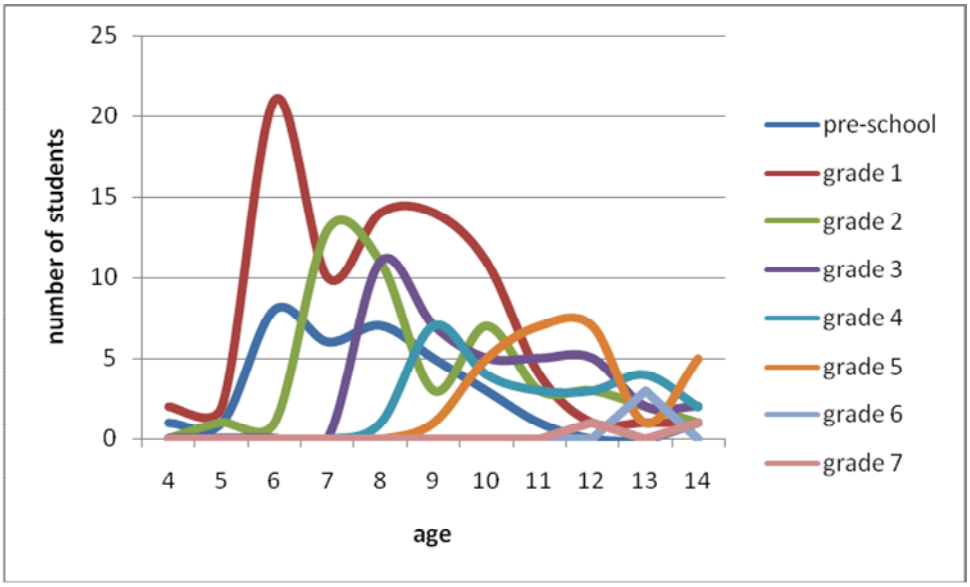


Figure 46. Enrolments by age and grade, kindergartens

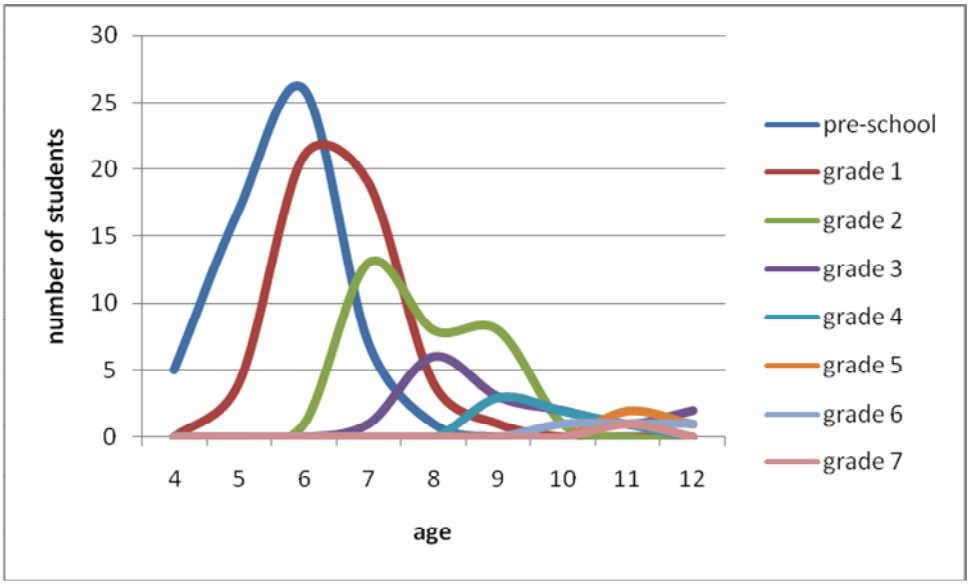
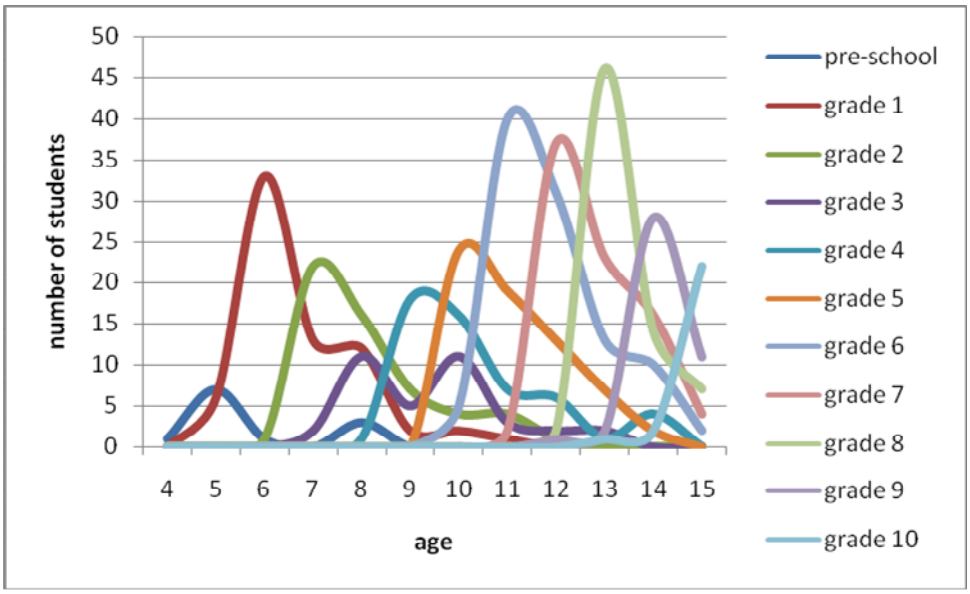


Figure 47. Enrolments by age and grade, dakhil madrasas



11.6 Enrolments by age and grade, disaggregated by study area

Figure 48. Enrolments by age and grade in Goaldihi (Rajshahi) (1)

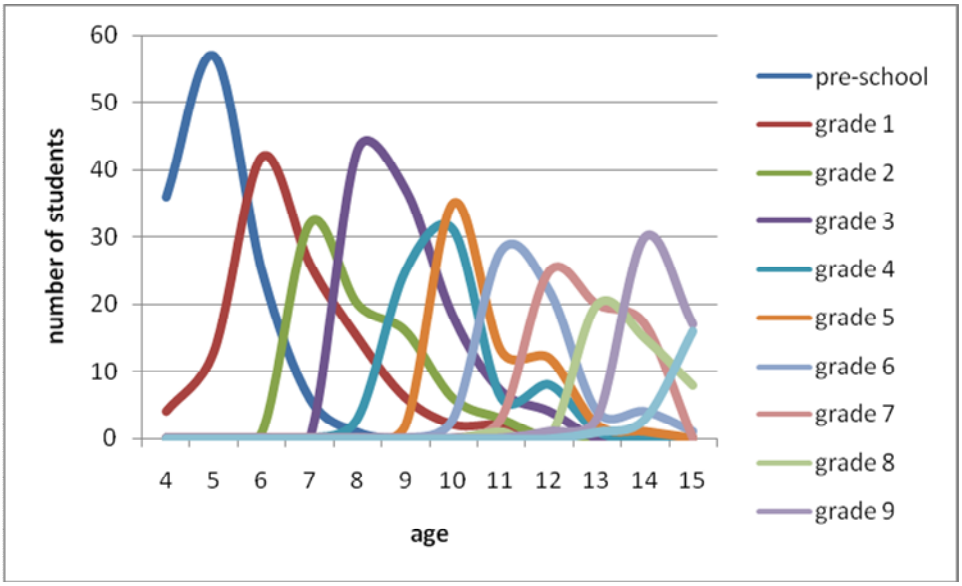


Figure 49. Enrolments by age and grade in Nolsuri (Dhaka) (2)

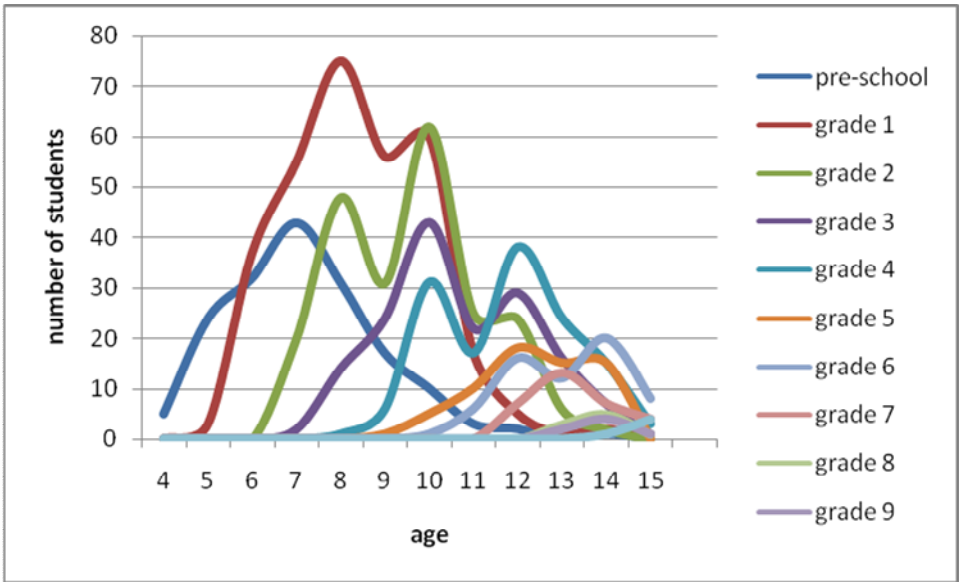


Figure 50. Enrolments by age and grade in Manikpur (Sylhet) (3)

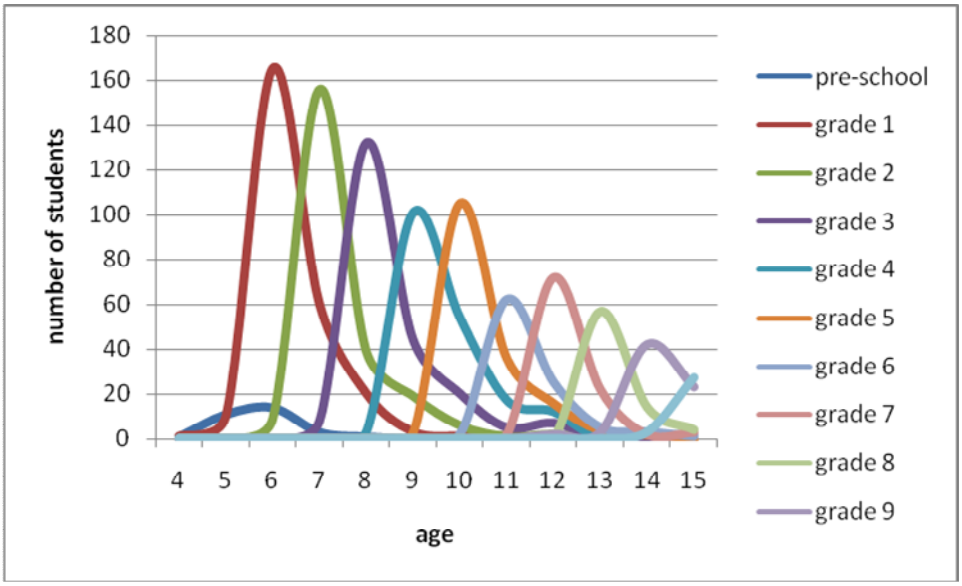


Figure 51. Enrolments by age and grade in Lotiban (Chittagong) (4)

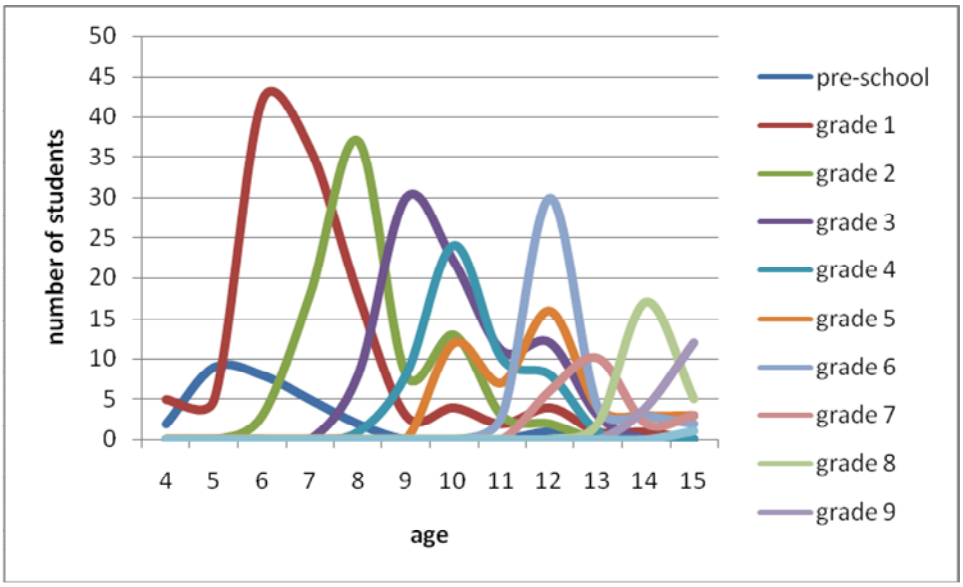


Figure 52. Enrolments by age and grade in Alipur (Khulna) (5)

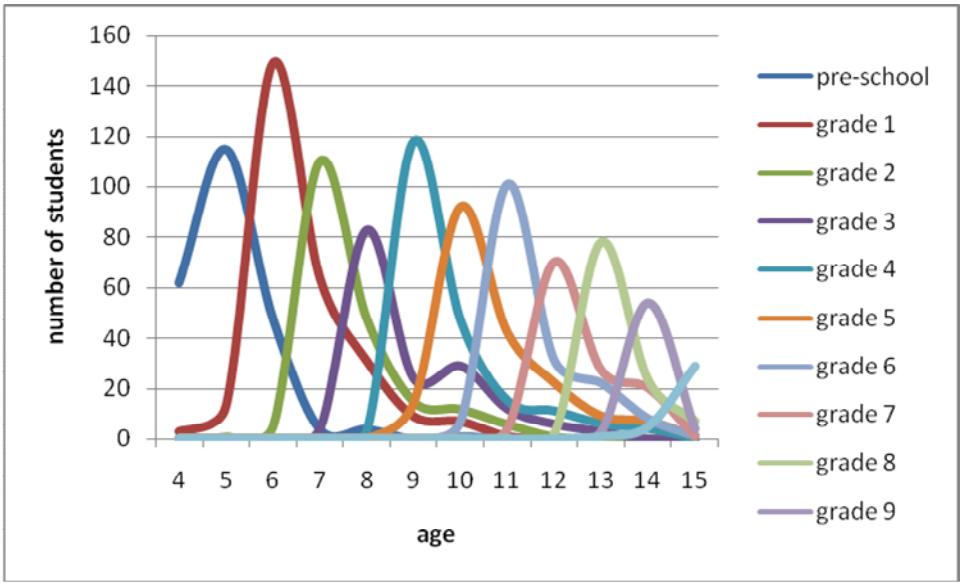


Figure 53. Enrolments by age and grade in Dhonia (Barisal) (6)