Social Sector Performance Surveys

Primary Education

Final report

July 2006

FMRP

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Abbreviations

ADB	Asian Development Bank
ADP	Annual Development Programme
AEM	Attached Ebtedayee Madrasah
AUEO	Assistant Upazila Education Officer
BANBEIS	Bangladesh Bureau of Educational Information and Statistics
BEd	Bachelor in Education
CAG	Comptroller and Auditor General
CAMPE	Campaign for Mass Education
CGA	Controller General of Accounts
C-in-Ed	Certificate in Education
CPEIMU	Compulsory Primary Education Implementation and Monitoring Unit
CPEP	Comprehensive Primary Education Project
CPI	Consumer Price Index
DAO	District Accounts Officer
DDO	Drawing and Disbursement Officer
DEO	District Education Officer
DFID	UK Department for International Development
DHARAKU	Development of Primary Education in Dhaka, Rajshahi and Khulna Divisions
DM	Dakhil Madrasah
DNFE	Directorate of Non-Formal Education
DPE	Directorate of Primary Education
DPEO	District Primary Education Officer
EMIS	Education Management Information System
ESTEEM	Effective Schools Through Enhanced Education Management
FFE	Food For Education
FMU	Financial Management Unit
GER	Gross Enrolment Ratio

GOB	Government of Bangladesh
GPS	Government Primary School
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HIES	Household Income and Expenditure Survey
HSC	Higher Secondary Certificate
IDA	International Development Association
IDB	Islamic Development Bank
IDEAL	Intensive District Approach to Education for All
IEM	Independent Ebtedayee Madrasah
IIA	Independence of Irrelevant Alternatives
KFW	Kreditanstalt für Wiederaufbau (German Development Bank)
LGED	Local Government Engineering Department
LPR	Leave Preparatory to Retirement
MLSS	Menial Level Subordinate Staff
MOPME	Ministry of Primary and Mass Education
MPO	Monthly Pay Order
NCB	Nationalised Commercial Bank
NCTB	National Curriculum and Textbook Board
NGO	Non-Governmental Organisation
NORAD	Norwegian Development Assistance
OLS	Ordinary Least Squares
PEDP II	Primary Education Development Programme II
PEDPQI	Primary Education Development Programme for Quality Improvement
PPS	Probability Proportional to Size
PTA	Parent-Teacher Association
PTI	Primary Training Institute
RNGPS	Registered Non-Government Primary School
SDC	Swiss Development Cooperation
SIDA	Swedish International Development Cooperation Agency
SMC	School Managing Committee

SSC   Secondary School Certificate

SSPS   Social Sector Performance Survey

UAO   Upazila Accounts Officer

UEC   Upazila Education Committee

UEO   Upazila Education Officer

UNO   Upazila Nirbahi Officer

UNICEF   United Nations Children's Fund

Executive Summary

The primary education social sector performance survey (SSPS) is based on a nationally representative sample of 231 primary schools of three types: government primary schools (GPSs), registered non-government primary schools (RNGPSs) and attached ebtedayee madrasahs (AEMs)[1]. It was undertaken as part of the Financial Management Reform Programme (FMRP) and is one of three surveys; the other two cover secondary education and primary health care. In each sector, the findings are intended to stimulate policy debate and support the public sector in becoming more performance-orientated and accountable, with the ultimate objective of increasing the effectiveness and equity of public spending on priority social services.

The survey combines two types of analysis. First, it examines the flow and management of public money and other inputs from the central level, via district and upazila offices, to their destination—either primary schools or students. This is the public expenditure tracking element of the survey. The second focus is on service delivery in schools. This part looks at whether public and private resources, together with the non-material support that schools receive from local communities and the administrative system, deliver the desired volume and quality of schooling. The aim is to identify factors that contribute to high quality schools.

Following a short **sector overview** in chapter 1, chapter 2 outlines the **survey methodology**. The survey was based on a random sample of schools, drawn from a list of primary schools that receive public funding. Within each school, the field team interviewed a sample of teachers, students and their households. In addition, the survey teams visited district and upazila offices responsible for managing primary education. The primary education SSPS covered GPSs and RNGPSs and took place in 2005. The AEMs are part of dakhil madrasahs (DMs); they were surveyed in the secondary education SSPS in 2004. Analytical weights were used in the analysis to ensure that the findings are nationally representative.

Chapter 3 looks at overall **public financing** of primary education. It examines the level, composition and management of MOPME's revenue and development budgets, and presents results from the first stages of the public expenditure tracking exercise—the comparison of central-, district- and upazila-level records.

Analysis of MOPME's revenue budget shows that expenditure on GPSs constitutes by far the largest fraction—78%—of all expenditure in 2004/05, with support to RNGPSs forming the next largest component at 16%. This may be expected since these two budget lines incorporate all government salary payments to GPS and RNGPS teachers. However, teachers' salary payments may be crowding out complementary nonsalary items. According to district primary education officers (DPEOs) and upazila education officers (UEOs) travel and contingency payments are the least well funded areas of the revenue budget.

The most serious revenue budget management problems facing district and upazila managers are allotment delays and informal payments. Allotments commonly arrive late. Most districts and upazilas have to wait until September or October (three or four months into the financial year) to receive their first allotments, while allotments for small repairs usually do not arrive until March. It seems that this does not adversely affect salary expenditure, but may delay expenditure on nonsalary items. Informal payments are relatively common: over 40% of UEOs say they have paid informal charges to get bills passed by the accounts offices.

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[1] The AEMs are attached to dakhil madrasahs that were surveyed as part of the secondary education SSPS in 2004. The primary education SSPS took place in 2005.

Encouragingly, expenditure records are fairly consistent across different sources, both in aggregate and for individual districts and upazilas, and do not suggest much leakage of revenue budget funds. Most UEO offices, but very few DPEO offices, have been audited for revenue budget funds in the last three years.

One feature of the primary education development budget stands out: execution rates are extremely low, particularly in 2004/05 when only 51% of the original budget was spent by the end of the financial year. Another issue is the extreme variation in upazila-level spending from development projects. Some upazilas have spent 40 times as much as others since July 2003. Most UEO offices and DPEO offices have been audited for a development project in the last three years.

Chapter 4 analyses the primary school **stipends programme**. The budget for this programme accounts for nearly 20% of the overall primary education budget with a coverage of up to 40% of rural primary school students in six types of school including GPSs and RNGPSs. Each primary school selects up to 40% of its students, intended to be the poorest, to receive a stipend card. This entitles the card holder to a fixed payment each quarter providing he/she meets the attendance rate and examination pass rate criteria. The survey found that schools generally have slightly fewer stipend card holders than the programme allows. Moreover, approximately 9% of all stipend card holders are suspended, due to class repetition, failure to achieve the 40% score in the end-of-year examination and drop-out.

Although most eligible stipend card holders received close to the maximum quarterly stipend payment in 2004, many schools experienced some (small) shortfalls in payments. Where shortfalls occurred, schools responded by reducing stipend payments to all or some eligible students. In the second half of 2004, the shortfall in stipend funds at the school level appears to have been caused by the inability of UEO offices to pass on larger allotments to schools rather than low allotments. This suggests that the allotment and disbursement system governing stipends is not working well.

On the whole, schools participating in the stipends programme in 2004 satisfied the school eligibility criteria set out in the project proforma. Most schools report using the official criteria to select students for the stipend programme, but the targeting of the stipend programme is very weak and raises equity concerns. Overall, only a slightly higher proportion of poorer students in participating schools obtain a stipend than richer students, and a large proportion of poorer students are being excluded from the programme.

Nearly 20% of stipend resources are misallocated owing to exaggerated attendance figures and payments made to card holders who should have been suspended when they failed to achieve the examination criterion. In terms of leakage, 5% of stipend resources cannot be confirmed as being received by the intended beneficiaries.

Chapter 5 covers **private contributions** to education from both parents and the local community. The survey reveals that private spending on education by parents is very unequal. Parents of class 5 students in GPSs, RNGPSs and AEMs spend an average of Tk 1,756, Tk 1,266 and Tk 1,053 respectively. Furthermore, there are large inequities in private spending on education in terms of socioeconomic status and gender. Educational expenditure rises with overall household consumption: households of class 5 GPS/RNGPS students in the top national consumption quintile spend two to three times as much on that student's education as those in the bottom quintile. The gender gap in private spending is particularly large for GPSs, where average private expenditure on male students is 38% higher than on female students; the equivalent gap is 10% in RNGPSs.

Nearly 90% of households pay fees directly to the school, but these represent a small proportion of their overall spending on education. The bulk of expenditure is devoted to

indirect costs, with private tuition the largest component, followed by stationery, tiffin and school clothes. Spending on private tuition is very unequally distributed: 44% of GPS students' households purchased any in the survey year (36% in RNGPSs and 34% in AEMs). Over 20% of students' parents have been required to make informal payments at some point during that student's education. The average amount paid each time is modest (Tk 26).

Contributions from school managing committees (SMCs) form only a small component of overall funding to schools. Just over 20% of GPSs and RNGPSs received contributions from their SMC, the average annual total value of which was Tk 13,680.

Chapter 6 provides an overview of the **total resources** going into the primary education sector (excluding madrasahs), and overall **income received by schools**. The analysis shows that aggregate private contributions to primary education are substantial. The total value of resources going into the primary education sector in 2003/04 (the most recent year for which comprehensive financial data are available) is estimated at Tk 33 billion, of which 61% is provided by government and 39% by private households. This amounts to approximately Tk 1,350 of government funding and just over Tk 850 of private funding for every GPS/RNGPS student.

The analysis of school-level records reveals a stark inequality in total income per student between RNGPSs and the other school types. GPSs and AEMs show an almost identical level of average resources per student—Tk 1,622 in GPSs and Tk 1,656 in AEMs—while RNGPSs get an average of just Tk 678 per student. This difference in the funding by school types contributes to overall inequity in the distribution of school resources by socioeconomic status. The average value of resources available at the school to students in the top socioeconomic quintile is 28% higher than those available for students in the bottom quintile.

Chapter 7 assesses the characteristics and management of **human resources** in schools. Since very few schools have non-teaching staff, the chapter focuses on teachers. It shows that the average GPS and RNGPS has 65 and 55 students enrolled per teacher respectively. However, the vast majority of GPSs and RNGPSs operate a double shift and this causes average section sizes (the number of students being taught together at one time) to be substantially lower: 47 in GPSs and 40 in RNGPSs. Section sizes could be lower still (average of about 30) if all teachers taught for the full school day. All AEMs operate a single shift; they have an average section size of 33, some 14 students fewer than the average in GPSs.

There are striking differences between the personal characteristics of teachers by school type. GPSs have been most successful at recruiting female teachers. Over half of GPS teachers are female, in contrast to about 30% in RNGPSs and 10% in AEMs. GPS teachers have higher levels of academic qualifications, and are more likely to have a professional qualification, than RNGPS teachers. AEM teachers are much less likely to have a professional qualification than teachers from the other school types. Sampled teachers completed a 'teacher profile'—a set of written questions on literacy, numeracy and non-verbal reasoning (administered in Bangla). The results showed that GPS teachers achieved a higher average score on this than teachers from the other school types. Overall the average result was just over 50%, which is worrying given the relatively straightforward nature of the questions. Another concern is that Bangla and mathematics teachers demonstrated a very limited knowledge of the relevant key terminal competencies (specified learner behaviour or knowledge) in the curriculum.

Vacant posts are a problem in GPSs. The overall vacancy rate for GPS teachers is 8%, and 28% of GPSs have vacancies. The vacancy rate is much lower in RNGPSs. Teacher absence rates are high overall (16% for GPSs and 11% for RNGPSs), although only 2% of absences were unauthorised. Long-term absence, mainly due to certificate in education (C-in-Ed) training, accounts for about half of all absences, while casual leave is the main reason for short-term

absence in GPSs. The policy on casual leave implies that on any given day about 8% of teachers could be absent. There is a widespread problem with teachers' punctuality: about 30% of GPS and RNGPS teachers were observed arriving more than 15 minutes late.

There is a sizeable disparity in the remuneration of GPS and RNGPS teachers. The average GPS teacher receives Tk 5,843 a month in salary and allowance payments, compared to Tk 2,002 per month on average for RNGPS teachers. Possibly as a consequence of this disparity, RNGPS teachers are more likely than GPS teachers to have an extra source of income: 63% of RNGPS teachers have an additional source of income, earning Tk 17,906 per year on average, compared to 30% of GPS teachers who earn Tk 15,659 per year on average.

In terms of payroll tracking, the survey finds no evidence of ghost teachers, i.e. teachers listed on the upazila payroll as receiving a salary but who are not known in schools. Moreover, informal payments do not appear to be expected in order for teachers to receive their monthly salary. Less than 1% of teachers reported making such a payment. However, not all aspects of the salary payment system are working well. Salary delays are a serious problem for RNGPS teachers: three in four RNGPS teachers are currently owed salary and allowance payments amounting to two months' salary on average.

Chapter 8 examines **textbooks and other material resources** received by schools. Bangladesh aims to provide free textbooks to all students in primary schools that follow the national curriculum. The scope of this task is enormous; in 2005 approximately 64 million primary school textbooks were centrally produced and distributed to primary schools across Bangladesh.

The survey found that the textbook management system for GPSs and RNGPSs works well overall. GPSs and RNGPSs receive and distribute new textbooks in line with current norms. The situation in AEMs is somewhat different with substantial oversupply of new textbooks in classes 4 and 5. This suggests that approximately 30% of all textbooks supplied to AEMs were not required on the basis of norms at the time. Another problem in the AEM system is misallocation. Despite the oversupply of new books to class 5, 26% of class 5 AEM students received less than the norms dictate. Misallocation of new books is much less evident in the GPS and RNGPS system. Regarding both new and old books (higher classes are required to re-use a fixed number of old books), over 90% of class 5 students in GPSs and RNGPSs received their full quota. The comparable figure for AEMs is 84%, which partly explains why it is much more common for AEM students to purchase authorised textbooks from local bookstores.

Tracking textbooks through the distribution system shows that for every 100 textbooks that enter the distribution system, 98 reach GPS and RNGPS students. However, there are more concerns in AEMs where only 76 of every 100 textbooks reach students through the most common distribution system. Although the system for GPSs and RNGPSs (unlike that for AEMs) is functioning remarkably well in terms of losses, delivery delays are a serious problem for all school types. Less than half of all schools had received all of their textbooks by the end of January and hence the start of the school year. Approximately one-fifth do not receive their final delivery of textbooks until March. Delays appear to be due to late initial delivery from the private publishing companies contracted by the National Curriculum and Textbook Board (NCTB) and to slow delivery from districts to upazilas.

Between the district and the school there is little evidence of demands for informal payments to receive textbooks. However, around one-fifth of RNGPS and AEM class 5 students reported making payments of between Tk 2 and Tk 50 to obtain textbooks from their school. GPS students appear to pay for textbooks less often and also tend to pay smaller amounts.

Most income that schools receive from public sources is earmarked, i.e. schools have little discretion over how to manage and spend funds. However, GPSs and RNGPSs do control

contingency payments provided by the UEO office. These payments are primarily used to purchase stationery and teaching aids. There is a set rate paid to each type of school. Average GPS receipts of contingency payments fall below the expected norm. Poor record-keeping makes it difficult to track this item between upazilas and schools and so this does not necessarily represent leakage. The majority of RNGPSs received the expected amount of contingency payment and there is little variation across schools.

Chapter 9 covers **infrastructure and equipment**. The survey assessed the state of the physical infrastructure in schools, the system for maintaining it, and the frequency and type of new construction projects. In general, school infrastructure is poor. Few schools have electricity and a quarter of GPSs and over 40% of RNGPSs do not have a usable source of drinking water. Almost 10% of GPSs and nearly 20% of RNGPSs do not have a functioning toilet available for students. The lack of drinkable water and functioning toilets is likely to be detrimental to students' health.

The average number of classrooms per school is four in GPSs and three in RNGPSs. However, in a quarter of GPSs and one in 10 RNGPSs at least one classroom is unusable. Most classrooms that are in use in GPSs and RNGPSs are in an acceptable state of repair, but nearly all classrooms in AEMs are in poor condition. Noise from adjacent classrooms can often be heard in all school types, especially AEMs.

The system for providing a small grant for regular repairs has reasonably broad coverage. Two-thirds of GPSs received an allotment for small repairs between July 2000 and June 2004. In 2004/05, following the severe flooding, nearly half of GPSs and a quarter of RNGPSs received an allotment. The coverage of major construction projects also appears to be relatively high. About a half of GPSs, and one-third of RNGPSs, have been included in a major construction project since July 2000.

Tracking of small repairs payments and infrastructure projects between the upazila and school level is problematic. Record-keeping for school-level expenditure on infrastructure is poor. Only 60% of GPS small repair payment records are present at both the UEO office and the school for the four financial years 2000/01 to 2003/04. Of these the vast majority match exactly. For major construction projects, some schools said that they had received government or donor-funded contracts for which there was no record at the LGED office.

Chapter 10 looks at **other support for schools** in the form of non-material inputs from parents and the local community, and the services provided by the education administration to schools.

The vast majority of schools are actively supported by their local communities. Most class 5 students' parents had visited the school in the six months before the survey, and 93% of GPSs and 83% of RNGPSs have a parent-teachers association (PTA). The average PTA had met about twice during the six months before the survey. SMCs are operating in nearly all schools, and they have an important role in school governance and management, including the selection of stipend cardholders and the raising of private funds. SMCs meet almost every month on average, but they vary widely in the extent to which they contribute actively to school improvements.

GPSs and RNGPSs receive reasonably regular visits from AUEOs, the officers responsible for providing academic supervision and administrative support to schools. In the year prior to the survey, AUEOs visited each school three times on average. This falls short of the four or five visits that schools are supposed to receive, possibly partly because of vacancies. The level of vacancies in the administrative system is worryingly high, particularly for key posts. Some 64% of DPEO posts, 19% of UEO posts and 14% of AUEO posts are vacant.

Chapter 11 presents some key measures of the **volume and quality of schooling** provided by the system (i.e. schooling outputs). It also reports the results of a specially designed learning achievement test given to class 5 students (and administered in Bangla). This test is designed to be an objective measure of learning outcomes and is based on key elements of the primary school curriculum.

Despite impressively high enrolment levels and progress in gender parity, the survey results highlight serious problems in both the quantity and quality of schooling provided. The publicly funded primary schooling system is not serving all parts of the eligible population equitably. Children from the poorest 20% of the population are underrepresented in class 5. There is also a difference in the socioeconomic makeup of students enrolled in the three different types of school. GPSs are enrolling a comparatively high proportion of the richest students, while the RNGPSs student body is comparatively skewed towards the poorest students. AEMs have a more even balance between the poorest and richest students. Another factor which influences coverage is repetition. Repetition rates vary enormously across schools and are fairly high overall (about 10% in GPSs/RNGPSs).

For students who are enrolled in schools, the amount of lesson time received per year is worryingly low. For the majority of students, who study in GPS/RNGPS double-shift schools, government policy prescribes about 600 hours (for classes 1 and 2) and 850 hours (for classes 3 to 5) per year. The SSPS estimates that average attended lesson time is only 410 hours for the lower classes and 590 hours for the higher classes. The main reasons for the disparity between policy and reality are low student attendance and schools closing more often than they should.

An unannounced headcount taken on the first day of the survey (adjusted for students who are on the register, but not enrolled in school) found only 67% (GPS), 63% (RNGPS) and 45% (AEM) of students present. In addition, GPSs/RNGPSs were open for an average of 228 days in the year preceding the survey, just over two weeks less than the school calendar. AEMs closed considerably more often than the other school types.

There are large differences in section sizes between school types and across classes. Section size can be thought of as a proxy for the amount of teacher contact time that a student receives and is therefore related to quality. The 10% of GPSs with the most overcrowded classrooms have section sizes of at least 72 students on average, while the 10% of AEMs with the smallest section sizes teach students in groups of 17 or lower. Such wide variation denotes a stark inequality in the distribution of teachers' time.

The results of a Bangla and mathematics test administered to class 5 students show GPS students achieving the highest average score followed by AEM students and then RNGPS students. Male students outperformed female students, although the difference in average scores is not larger than six percentage points in either subject.

Chapter 12 investigates the **determinants of student learning outcomes** using regression analysis to isolate the impact of different factors on student test scores, having controlled for other explanatory variables. This analysis finds that student background variables have a significant effect on test scores. This is important because, as chapter 11 explains, different school types are serving students from different backgrounds. Indeed, when student characteristics are taken into account the differences in test scores between the school types are virtually eliminated. This implies that there is little difference in school effectiveness between the three types. Since GPSs and AEMs are more than twice as expensive to operate on a per-student basis as RNGPSs, this suggests that GPSs and AEMs are far less cost-effective in teaching their students Bangla and mathematics than RNGPSs.

Student attendance rates in all school types show a significant positive effect on learning achievement, as expected. Efforts to increase student attendance are therefore important in seeking to improve student learning outcomes.

In terms of school-level factors, in-service training for teachers is associated with improved test scores in GPSs and RNGPSs. For AEMs, improving the state of repair of classrooms has some potential to improve learning achievement. Community support appears to be an important element in seeking to make RNGPSs more effective: the proportion of school income from private sources is positively related to test scores.

Chapter 13 **concludes** by drawing on results from the previous chapters. In summary they show that while the survey's tracking analysis finds that overall leakage from the primary education budget is relatively low, the stipend programme raises some serious concerns in terms of misallocation. Moreover, informal payments are common and affect all levels, being made by households, teachers, UEOs and DPEOs. Public funding of primary education is far from equitable. RNGPS enrolment is comparatively skewed towards students from the poorest households, yet they receive less than half of the income per student that the other school types get. Private spending on education by households is also heavily in favour of richer students, and the stipend programme is not effectively targeted at the poor. In terms of service delivery, one key problem appears to be the low annual hours of lesson time received by the average student. This results from a combination of schools failing to open for the required number of days, poor student attendance and inefficient use of lesson time. The quality of schooling also raises concerns. Many teachers do not appear to have a firm grasp of basic literacy, numeracy and non-verbal reasoning skills and are therefore unlikely to be able to effectively convey these to their students. There are also clear weaknesses in the overall management of primary schooling, both in schools and at higher levels.

The survey findings will contribute to an ongoing process of dissemination and dialogue with education policymakers and managers in Bangladesh. The aim is to support the development of policy and management responses to some of the problems identified, and to provide a baseline against which future progress can be assessed.

Part I: Introduction

This is the draft final report on the primary education social sector performance survey (SSPS).

The report is divided into three parts. The first part outlines the objectives, background and design of the survey. This includes details about the sampling strategy and fieldwork. Part II examines the overall financing of primary education, human and material inputs and other external support to schools. The third part covers service delivery and learning outcomes. It first presents indicators on the volume and quality of schooling being delivered, and then uses the results from a specially designed student test to analyse the determinants of learning achievement. The final chapter draws together the findings from the preceding three parts to conclude the report. Each chapter in parts II and III highlights the main findings at the beginning.

Objectives of study

This survey was one of three, covering primary and secondary education and primary health care. In each sector, the findings are intended to stimulate policy debate and support the public sector in becoming more performance-orientated and accountable, with the ultimate objective of increasing the effectiveness and equity of public spending on priority social services.

The survey combines two types of analysis. First, it examines the flow and management of public money and other inputs from the central level, via district and upazila offices, to their destination—either schools or students. This is the public expenditure tracking element of the survey. The second focus is on service delivery in schools. This part looks at whether public and private resources, together with the non-material support that schools receive from local communities and the administrative system, deliver the desired volume and quality of schooling. The aim is to identify factors that contribute to high quality schools.

The survey comes at a critical time in the development of primary education in Bangladesh. There have been huge gains in participation rates over the past 10 years, resulting in one of the largest primary education systems in the world. Despite this success, the quality of education has not kept pace with expansion, and achievement testing suggests that many children leave primary school not having achieved acceptable standards of literacy and numeracy (Campaign for Mass Education (CAMPE), 2001). It is against this background that the new sector programme, the Primary Education Development Programme II (PEDP II), has been developed. This survey provides valuable baseline data on many of the key performance indicators outlined in the PEDP II plan (Ministry of Primary and Mass Education (MOPME), 2003), as well as acting as a crosscheck on existing routine data[2]. The survey analysis deepens understanding of the key issues highlighted in the plan, particularly in the area of organisational development, equity and quality improvement in schools and classrooms.

The report highlights policy-relevant findings that will contribute to an ongoing process of dissemination and dialogue with education policymakers and managers in Bangladesh. The aim is to support the development of policy and management responses to some of the problems identified. Shorter follow-up work will draw on this process and will review policy responses in other countries to similar issues, and assess their relevance for Bangladesh.

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[2] See Annex 6 for a summary of indicators agreed by PEDP II.

Progress on PEDP II since the SSPS

The primary SSPS took place in mid-2005, which means that the results presented in this report reflect the state of the schooling system at that time. Since then there has been considerable progress under PEDP II in a number of key areas, which implies that certain important indicators have changed. For example, chapter 7 presents teacher vacancy rates in government primary schools (GPSs) as 8%, the equivalent of approximately 13,000 vacant posts. The most recent PEDP II status report, produced for the project's joint annual review mission in 2006, states that 14,200 teachers have reached the final stage of recruitment, and are expected to have their appointments confirmed by June 2006. Clearly, this will dramatically reduce the GPS vacancy rate. In short, it is important to bear in mind that the survey results presented in this report represent a snapshot of the primary schooling system at a previous point in time.

Structure of part I

Part I consists of two chapters. The first provides a short overview of the main features of the primary schooling system in Bangladesh. Chapter 2 outlines the sampling strategy, the type of instruments used to collect the data, and the organisation of the fieldwork. It also sets out some key concepts (methods and terminology) that are used in the subsequent chapters.

1   Overview of Primary Schooling System

1.1 STRUCTURE, SIZE AND MANAGEMENT

Primary schooling in Bangladesh lasts for five years. Table 1.1 explains how it fits into the overall structure of pre-tertiary education, and shows both the formal school system and the parallel madrasah system.

Table 1.1   School and madrasah structure in Bangladesh

Age	Class	Formal School System	Madrasah System
17+	xii	Higher Secondary Education (2 years)	Alim
16+	xi		
15+	x	Secondary Education (2 years)	Dakhil
14+	ix		
13+	viii		
12+	vii	Junior Secondary Education (3 years)	
11+	vi		
10+	v		
9+	iv		Ebtedayee
8+	iii	Primary Education (5 years)	
7+	ii		
6+	I		

Source: Bangladesh Bureau of Educational Information and Statistics (BANBEIS) (2002).

There are 11 types of formal primary school (including ebtedayee madrasahs) in Bangladesh, which together enrol over 17.5 million students. This translates into a gross enrolment ratio (GER)—defined as total enrolment divided by the population of 6 to 10 year-olds—of 97%[3]. As Table 1.2 shows, GPSs are by far the most numerous, followed by registered non-government primary schools (RNGPSs). Taken together these schools account for over 85% of enrolment. A further 4% of students are enrolled in ebtedayee madrasahs, split equally between independent ebtedayee madrasahs (IEM) and those that are attached to higher madrasahs (AEM), although there is reason to believe that the figure for AEM is underestimated (see footnote in Table 1.2). The remaining 10% of students are enrolled in the other seven types of school. Almost all school types receive salary support from government to pay their teachers[4].

About one-quarter of formal schools are RNGPSs. In a bid to increase capacity in the school system, without building new government schools, the government operates a system of registration and salary subsidies for viable private schools. It takes at least ten years from the date of initial permission to obtain permanent registration (and salary subsidies). New

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[3] Source: BANBEIS (2003). Note this excludes enrolment in non-formal schools run by NGOs. Figures are for 2002.
[4] The exceptions are non-registered non-government primary schools, NGO-run full primary schools and English-medium kindergartens.

private schools have to satisfy a list of conditions that include enrolling at least 150 students and having four teachers.

Table 1.2   Primary schools and students, 2001

School type[1]	Number of schools	Number of students in classes 1-5	Share of students (%)
GPS	37,671	10,870,742	62
RNGPS	19,428	4,163,873	24
AEM[2]	3,574	417,383	2
IEM	3,843	438,957	2
Other[3]	13,610	1,768,265	10
Total	**78,126**	**17,659,220**	**100**

Source: Directorate of Primary Education (DPE) (2002). Notes: (1) This does not include the significant number of students who are enrolled in non-formal schools run by NGOs. (2) The number of AEMs appears to be too low. BANBEIS (2003) reported 5,391 dakhil madrasahs (DMs) (and 7,651 higher madrasahs in total) for the same year and almost all of these have ebtedayee sections. (3) 'Other' comprises primary sections of high schools, experimental schools attached to primary training institutes, non-registered non-government primary schools, community schools, satellite schools (no longer in use), private kindergartens and NGO-run full primary schools.

The management of the primary education system has four administrative levels above the school: upazila, district, division and central. The upazila education office provides the main regular support to GPSs and RNGPSs. Its management responsibilities include ensuring that teachers are paid each month, inspecting schools and distributing textbooks. The district primary education office above this takes responsibility for teacher management (new appointments, posting etc.) and managing textbook distribution to upazilas. Divisions manage the registration process for non-government schools, but have few other direct responsibilities for schools. The Directorate of Primary Education (DPE), at the central level, is responsible for implementing and monitoring primary education policy overall, while the Compulsory Primary Education Implementation and Monitoring Unit (CPEIMU) has specific responsibilities for managing the RNGPS payroll. At the top of the structure is MOPME, whose main role is to develop primary education policy. The system for managing ebtedayee madrasahs is different. The district education office, responsible for secondary education, supports ebtedayee madrasahs directly with the Ministry of Education at the top of the structure.

At the school level, a school managing committees (SMC) is responsible for the overall management and development of the school. Its specific functions include ensuring regular attendance of teachers and students, managing small repairs, and selecting stipend cardholders. SMCs consist of teachers and parents, representatives of local government and various other individuals interested in the school or education in the area more generally (see the Government of Bangladesh's Primary Education Act 1981). Membership of the SMC is through election and members hold their post for four years before being re-elected. However, in some schools membership of the SMC is renewed without any election process taking place.

Full details of all of the primary education management institutions and their key functions are provided in Annex 2. In addition, each of the finance and input chapters (3 to 9) start with an overview of the relevant management system.

1.2 FINANCE

The education sector budget accounted for 10% of the national budget in 2003/04 (Ministry of Finance, 2003c)[5]. Within this, the share taken up by primary and secondary education is about 40% each, as shown in Figure 1.1. The entire madrasah budget is classified under secondary, so the proportion reported for primary education is slightly understated because it excludes ebtedayee madrasahs.

Figure 1.1   Education sector budget, 2003/04
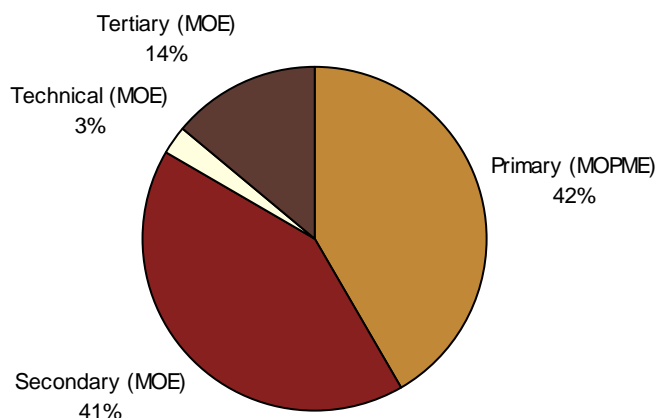
Source: Ministry of Finance (2003a), MOPME Financial Management Unit (FMU) (2004) and Ministry of Education FMU (2004).

The composition of the 2003/04 primary education budget is illustrated in Figure 1.2. Salaries completely dominate the revenue budget, taking up 97% of the total. The development budget is more balanced: capital items (mainly construction) account for about 35%, with another 60% planned for other recurrent items (mainly stipends, but also textbooks and some teaching and learning materials). In total, and including stipend disbursements, public spending on primary education in 2003/04 amounted to about Tk 24 billion.

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[5] This includes the MOPME and Ministry of Education revenue and development budgets.

Figure 1.2   Primary education budget by item, 2003/04[1]
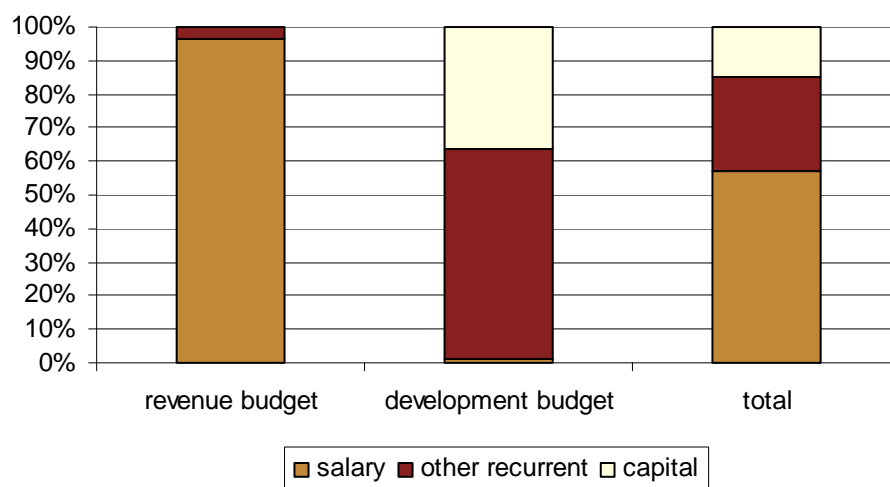
Source: Ministry of Finance (2004a), MOPME FMU (2004). Note: (1) Revenue budget is the original budget 2003/04 and Development budget is the revised budget 2003/04 because it is much closer to final expenditure than the original budget.

Private contributions to primary education from parents are substantial. A rough calculation using estimates on private spending per student from a household survey carried out in 2003 (Ahmed and Sharmeen, 2004), together with the enrolment figures presented in Table 1.2 for GPS and RNGPS students, suggests that this amounts to well over one-third of total spending on primary education in Bangladesh. Moreover, local communities and SMCs also contribute resources to primary schools. These contributions are discussed further in chapters 5 and 6 below.

2   SSPS Methodology

This chapter outlines the survey's design. It gives a summary of the sampling strategy, an overview of the questionnaires used and details on fieldwork and data processing. The final section explains some of the key concepts used in the analysis of the data.

2.1 SURVEY DESIGN

The design of the survey began with an initial agreement on its purpose and scope with the Ministry of Finance. This was followed by extensive dialogue with MOPME on priorities, defining the detailed content of the survey. Key policy and programme documents were also reviewed. A survey analysis plan, outlining the areas to be covered and some of the main estimates to be produced, was then agreed with the two ministries. It was decided that the survey would cover the two most numerous types of primary school (GPS and RNGPS), as well as ebtedayee madrasahs that are attached to DMs because relatively little is known about them and there was strong interest in comparing different systems of schooling provision.

Since the AEMs are part of DMs, they were surveyed in the secondary education SSPS in 2004. The primary education SSPS, covering GPSs and RNGPSs, took place in 2005. As a result, some of the AEM data is not strictly comparable with the data from the other schools. This is particularly true for data collected by observation or testing during the survey. However, for record-based data (e.g. financial records), the later survey was able to collect comparable information in most cases. The tables in the report that contain estimates from all three types of school clearly highlight any issues of comparability. Note that throughout this report madrasahs are referred to as schools to simplify the text.

Interviews and field visits were undertaken when the work began to develop an in-depth understanding of the operation of the different types of primary school and the organisations that support them. This provided a basis for the development of draft questionnaires. These were piloted a number of times between March and May 2004 (AEMs), and between January and February 2005 (GPSs and RNGPSs) to improve their capacity to measure what was required and to deal with the considerable heterogeneity of the systems that was encountered on the ground.

2.2 SAMPLE

A stratified, clustered sample was designed in which the primary sampling units were districts. In total, 20 out of 64 districts were sampled, selecting Dhaka and Chittagong with certainty and all other districts with probability proportional to population. Four upazilas were selected within each sampled district, the sadar upazila being selected with certainty and others with equal probability. In this way, a total of 79 upazilas were selected, although the survey was not conducted in one, a cantonment, due to difficulties of access[6].

In the selected upazilas, the interviewers listed all GPSs and RNGPSs that receive public funds for teachers' salaries and selected one of each randomly. A pre-printed random number table affixed to each listing form ensured that selection was truly random. The AEMs were randomly selected, in advance of the fieldwork, using a complete list, provided by BANBEIS, of DMs (with attached sections) that receive subventions.

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[6] These 79 upazilas are the same upazilas as those selected in the SSPS secondary education and health surveys.

In all schools, the headteacher and a representative from the SMC were interviewed. A sample of other teachers was also selected and interviewed: all teachers of Bangla and mathematics in class 5 were selected automatically, and if there were fewer than three teachers (AEMs) or four teachers (GPSs/RNGPSs) of this type in the school, additional teachers were randomly sampled to give a total of three or four respectively. These teachers also answered a short set of profile questions (covering literacy, numeracy and non-verbal reasoning) and a standardised instrument was used to record details of their teaching practice by observation.

All class 5 students who were present on the first day of the survey took a test in Bangla and mathematics. Owing to absence, approximately 43% of students recorded on the class 5 registers did not take the test. However, the non-tested students were included in a separate sample of class 5 students who were selected for a household interview. The household sample was stratified by the students' presence on the day of the test and whether they were eligible to receive a stipend or not. The number sampled in each category depended on the type of school and whether the school was in an area covered by the stipend scheme. AEMs are not part of the stipend scheme and certain urban areas are also excluded. Depending on these factors, a sample of between eight and 10 students per school was selected for a household interview.

Table 2.1 reports the sample selected and realised for each unit. Generally sample losses were low: for all units except students the response rate was 96% or higher. This proportion falls to 89% for student households, partly because some sampled students did not consider themselves enrolled in the school and were therefore not eligible for an interview. The table shows the low proportion of students in class 5 taking the test, as mentioned above.

Table 2.1   Sample units selected and interviewed

Unit	Number selected	Number interviewed	Proportion interviewed (%)
Districts	20	20	100
Upazilas	79	78	99
Schools	236	231	98
GPSs/RNGPSs	158	156	99
AEMs	78	75	96
SMCs	236	229	97
Teachers[1]			
Interviewed	838	829	99
Profiled	838	826	99
Observed teaching	838	820	98
Class 5 students[2]	7,974	4,535	57
GPSs/RNGPSs	5,406	3,463	64
AEMs	2,568	1,072	42
Student households	1,967	1,756	89
GPSs/RNGPSs	1,379	1,274	92
AEMs	588	482	82

Source: OPM and SSPS data. Notes: (1) Teachers include headteachers and other teachers. (2) For class 5 students, 'number selected' is the total enrolment in class 5 in the surveyed schools; 'number interviewed' is the number who were present on the first day of the survey and took the test.

Analytical weights, the inverse of the selection probability of each unit, were used to ensure that the estimates are nationally representative. They were adjusted for non-response where necessary. More details on the sampling and the calculation of weights are given in Annex 1.

2.3 QUESTIONNAIRES

The primary education SSPS used 18 different instruments. They were of four types:

- interview—oral questions to individuals. For example, headteachers were asked about career history, administrative systems and management practices;

- record schedule—for collecting financial and performance information from written records;

- test/profile—written questions answered by students and teachers; and

- observation schedule—for recording information on the physical environment in classrooms and on the lessons taking place.

A summary of the questionnaires is shown in Table 2.2. The district and upazila institutions listed in the table constitute the management system for GPSs and RNGPSs. The AEMs fall under a different management structure (as explained in section 1.1) and, as such, the

survey administered a separate questionnaire to the district education office responsible for DMs.

Table 2.2   Primary education SSPS questionnaires and other instruments

Level	Institution	Respondent[1]	Type of instrument
District[2]	District primary education office	District primary education officer (DPEO)	Interview
		Upper division assistant	Record schedule
Upazila	Upazila education office	Upazila education officer (UEO)	Interview
		Upper division assistant	Record schedule
	Local Government Engineering Department (LGED)	Upazila engineer	Record schedule
	Upazila accounts office	Upazila accounts officer/ Audit clerk	Record schedule
School	GPS, RNGPS or AEM	Headteacher	Record schedule /Observation
			Record schedule /Interview
		Headteacher and sampled teachers	Interview[3]
			Profile—numeracy/literacy
			Observation of lesson
		Class 5	Profile—background questions
			Test—Bangla
			Test—mathematics
			Test—Ravens progressive matrices
Community	Community	SMC chair	Interview
	Household of sampled students	Household	Interview

Source: OPM. Notes: (1) Respondent includes individuals who assisted the interviewers in locating and interpreting records. (2) The office of the district education officer (DEO office) was visited to collect information on AEMs. (3) There was a separate questionnaire for headteachers and other sampled teachers.

2.4 FIELDWORK AND DATA PROCESSING

Interviewers were trained during a four-week period, using lectures, copies of key documents and records, and classroom and field-based practice. A total of 16 field teams undertook the survey, each with five members. All of the team members had previous experience in interviews and data collection. Indeed, many of the primary school survey interviewers had substantial experience from the secondary and health surveys. Fieldwork took approximately three months (August to October 2004 for the secondary survey, and April, June and July 2005 for the primary survey). It was undertaken in three phases. The first phase of fieldwork was conducted in a small number of districts to concentrate the field teams together so that they could be closely supervised. Most difficulties were identified and resolved at this stage. Respondents were generally very cooperative once the endorsement of MOPME or the Ministry of Education was understood. Where there were problems, ministry officials assisted in ensuring cooperation.

Field team leaders were responsible for data quality. They checked questionnaires, observed interviews and verified that the sampled units were interviewed. In addition, eight roving

quality control officers checked up on the work of the field teams. They reviewed a selection of completed questionnaires, crosschecked questionnaires against the original data, revisited sampled units to check on the accuracy of the information collected and helped resolve any problems or doubts. The quality control officers themselves were supported by a team of three survey managers, who also reviewed the quality of the fieldwork, and helped to resolve queries, at various stages. Members of the survey management team carried out spot-checks and monitored fieldwork progress throughout the period.

Data were entered in Microsoft Access and a detailed process to check the consistency and accuracy of the data was undertaken. In the large majority of cases where inconsistencies were found they were resolved. In a small number of cases this was not possible and these data have been excluded from the relevant analysis.

2.5 KEY CONCEPTS IN ANALYSIS

The analytical chapters that follow each contain an introductory section which explains the analysis undertaken. However, there are some concepts and methods that are common to nearly all chapters. These are outlined here.

High and low deciles

Quite often, the variation in a measure is of as much interest as its mean. For example, the variation in public expenditure per student between schools on nonsalary inputs may point to important inequalities. One measure of variation is the ratio between the highest and lowest values that are observed. However, such a measure is sensitive to outliers or to data error affecting one particular point. For this reason, the first and ninth deciles of the distribution are used as indicators of the spread of values. These are points below and above which the most extreme 10% of values fall. They therefore give a more conservative measure of the spread of values in the population. They are labelled as 'low' and 'high' in the tables.

Sample size

To increase the clarity of the tables, information on the number of observations analysed in each table is not reported. Estimates presented for lower-level units—teachers, students and households—are based on well over 100 observations (and commonly many more), while estimates for school- and upazila-level variables are generally based on at least 70 observations. Only 20 districts were sampled, so the number of observations is much more limited at this high level. Estimates based on fewer than 30 observations (except district-level) are marked with a cross (+) and acknowledged in a table footnote.

Confidence intervals

Estimates derived from samples are characterised by sampling errors. In other words, the fact that we do not obtain the information that we want from the entire population but from a random subset, means that the statistical measures of interest, such as the mean, are not calculated with perfect precision but are likely to fall within a certain range of values. The SSPS sampling process has a complex design, which makes the estimation of standard errors and confidence intervals complex. Annex A1.2 outlines the bootstrapping technique that was used, and presents confidence intervals for a selection of key estimates.

Often in policy analysis, it is important to know whether the difference in the mean of a particular indicator between two sub-populations is statistically significant. For example, is the difference in the mean student–teacher ratio between school types statistically significant? Annex A1.2 also presents the results of this test on a selection of key estimates. It is important to note that although this is one of the largest surveys of its kind to have been carried out in a developing country, the number of schools of each type is still relatively small. This affects the precision of the estimates, and may explain why some of the fairly large raw differences in mean estimates between school types are not statistically significant.

Data quality and availability

The data were complex and field teams required extensive training and supervision. A long period of consistency-checking and cleaning followed the fieldwork. On the whole, the data were of good quality. Where there were particular concerns they are flagged in the relevant section of the analysis. In some cases, poor quality data or an insufficient number of observations meant that data were not available for inclusion in the tables. These cells are marked in the tables with a dash (-). Cells that are not applicable in tables are marked 'n/a'.

Tracking

The term 'tracking' means following resources from a point of origin, usually central, district or upazila office, to their destinations, which are usually schools or students. This is generally done by comparing information on the amount allocated, issued or sent from the sending body with the amount recorded as received at the receiving unit. It is usually dependent on the comparison of documentary records at each level, although some comparisons may be based on physical observation or verbal reports (such as parents' reports of textbooks received by their children). For this reason, it is often quite dependent on the content and quality of the records. Two concepts are important in interpreting tracking results: misallocation and leakage. Misallocation occurs when resources either reach recipients who were not the intended beneficiaries or reach intended beneficiaries in quantities that they were not eligible for. For example, stipend payments made to poor students who do not achieve the 85% attendance rate criterion represent a misallocation. In this situation resources are still used for the broad purpose intended. Leakage occurs when resources do not reach recipients, i.e. resources are diverted away from their original purpose. For example, in some tracking studies from other countries, the teachers' payroll has been found to contain the names of individuals who were not actually teaching in schools; payments to these 'ghost' teachers constitute leakage.

Household socioeconomic status and consumption

The survey followed two approaches to collect data needed to assess and compare the socioeconomic status of students. First, the households of a sample of class 5 students were interviewed and asked extensive questions about their living standards and consumption expenditure levels[7]. Second, all class 5 students who were present on the first day of the survey were asked to report on the basic characteristics of their household, such as the education of their parents, characteristics of their house (e.g. electricity connection, source

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[7] The questionnaires were designed to collect information on both consumption and other socioeconomic variables in a similar format to the Bangladesh Household Income and Expenditure Survey (HIES), so that the sampled households could be compared to the overall population.

of water etc.) and the ownership of selected consumer goods and land. More details on the methods employed to estimate socioeconomic status is provided in Annex 3. This information is used to assess the distribution of financing, inputs and schooling provision across socioeconomic groups.

Flooding

The July-August 2004 floods affected almost half of the country with consequent agricultural losses, damage to infrastructure (including schools), and inflationary pressures. This period coincided with the start of the AEM survey, and the fieldwork was rescheduled so that places that had been affected by the flooding were not visited until at least one month after the waters had receded. Interviewers used an additional questionnaire to capture specific flood information so that its effect could be gauged. The analysis of these data indicates that the sampled areas were only marginally affected when the survey took place (but may have been affected badly prior to the field visit). The impact on prices and food aid has been incorporated in the socioeconomic status calculations; see discussion in Annex 3 for details.

Data from central government sources

In the original survey plan, it was intended that indicators calculated from SSPS data would be compared with relevant data from the routine education management information system (EMIS). In particular, many of the output indicators presented in chapter 11 have a counterpart in the EMIS system (e.g. repetition rates). Unfortunately, EMIS data from the relevant year was not made available to the survey team, so this exercise could not be carried out.

Part II: Finance, Inputs and Other Support

Part II is subdivided into chapters covering three broad components of support for the primary education system:

- **Finance: chapters 3 to 6** cover the overall financing of primary education. Chapter 3 analyses public funding of GPSs, RNGPSs and the supporting administrative system. It examines both the level and the management of the primary education recurrent and development budget. Chapter 4 assesses the stipend programme, which provides a cash transfer to targeted households conditional on school attendance and academic performance. This is one of the largest single components in the primary education budget. Chapter 5 uses data collected from sampled households to present estimates of private spending on schooling and private tutoring. Chapter 6 draws on the previous three chapters to present an overview of the funding of primary education disaggregated by source. It also compares school income per student between the three school types.

- **Inputs: chapters 7 to 9** examine the physical inputs that schools receive or purchase to deliver primary schooling. Chapter 7 looks at the number and management of teachers in schools. Chapter 8 covers textbooks and other materials such as teaching aids. Chapter 9 assesses the condition of the infrastructure including basic utilities.

- **Other support for schools: chapter 10** presents a picture of the local context in which the school operates. There are two main components. First, the non-material support provided to schools by parents and the local community; and second, the services provided to schools by the administrative system (upazila and district offices).

Two key strands of analysis run through the chapters in part II:

- **Public expenditure tracking and financial management**: the aim is to assess what proportion of the public funds intended for primary schools and students actually reach their destination. As explained in chapter 2 this is assessed in terms of misallocation and leakage. This analysis relies on comparisons of records of formal transactions (payments or distribution of inputs) kept at various levels. However, sometimes informal payments are required to receive payments or resources. These, too, represent a diversion of resources, and the survey also attempts to quantify some of these informal transactions. The report also considers other dimensions of financial (and input) management, including the timing of the release of resources, and budget execution rates.

- **Equity in financing and inputs**: this examines the variation in finance and input levels across various population groups. This involves disaggregating key financial and input indicators by gender and socioeconomic status, and assessing the targeting efficiency of the stipend programme.

3   Public Finance

> **Key findings:**
>
> **Revenue budget**
>
> - Funding for GPSs accounts for about four-fifths of MOPME's total annual revenue budget expenditure on primary education in Bangladesh. Some 99% of this comprises salary payments.
>
> - Encouragingly, records for allotments and expenditure are fairly consistent across different sources, both in aggregate and at the level of the district and upazila. The main concern is the discrepancies between the various records for DPEO offices. It is not clear whether these are due to errors or systematic differences in record-keeping, or rather to leakage of funds.
>
> - Allotments commonly arrive late. Most districts and upazilas have to wait until September or October (three or four months into the financial year) to receive their first allotments; allotments for small repairs do not arrive until March. It seems that this does not adversely affect salary expenditure, but may delay expenditure on nonsalary items.
>
> - The mean budget execution rate often exceeds 100% for salary expenditure but falls short of this amount for nonsalary expenditure. In some instances anomalies may be due to poor record-keeping.
>
> - Travel and contingency payments are considered by DPEOs and UEOs to be the least well funded areas of the revenue budget.
>
> - Informal ('speed') payments are a problem: 43% of UEOs and 38% of DPEOs say they have paid informal charges to get bills passed by the accounts offices.
>
> - Most UEO offices, but very few DPEO offices, have been audited in the last three years.
>
> **Development budget**
>
> - Total development budget execution rates for primary education are low, particularly in 2004/05 when only 51% of the original budget was spent by the end of the financial year. Much of this reduction was due to the slow implementation of PEDP II. It is understood that these teething difficulties have since been addressed.
>
> - Variation in upazila-level spending from development projects is high, with some upazilas spending 40 times as much as others since July 2003. It was not possible to establish the extent to which this reflects variations in the number of students per upazila.
>
> - Most UEO offices and DPEO offices have been audited for a development project in the last three years.

This chapter examines the revenue and development budgets for primary education under MOPME. It does not include the budget for AEMs, since this is part of the Ministry of Education's budget. Section 3.1 provides an overview of the financial management system. The following two sections examine the revenue budget: section 3.2 presents a summary of actual expenditure over the full financial years 2003/04 and 2004/05, while section 3.3 tracks expenditure records between the centre and the district or upazila, analyses the relationship between this expenditure and the budget, and discusses the nature and effectiveness of the budget management system. Sections 3.4 and 3.5 examine the development budget in a similar manner.

3.1 FINANCIAL MANAGEMENT SYSTEM

The financial year runs from the beginning of July to the end of June. The management system for the revenue budget differs from that of the development budget. The two are discussed separately below.

Revenue budget

First, the national revenue budget is finalised by the Ministry of Finance and approved by parliament (see Figure 3.1). This authorises MOPME to distribute allotments, or authorisations to spend, to the two directorates—the DPE, which handles most of the funds, and the Compulsory Primary Education Implementation and Monitoring Unit (CPEIMU), which is responsible for support to RNGPSs. Some funds are spent directly by the secretariat and directorates on their own administration costs. The directorates themselves decide how to divide the remainder among the various district- and upazila-level spending units. They then issue allotment letters to those units to authorise expenditure.

Figure 3.1   Flow of main revenue budget funds
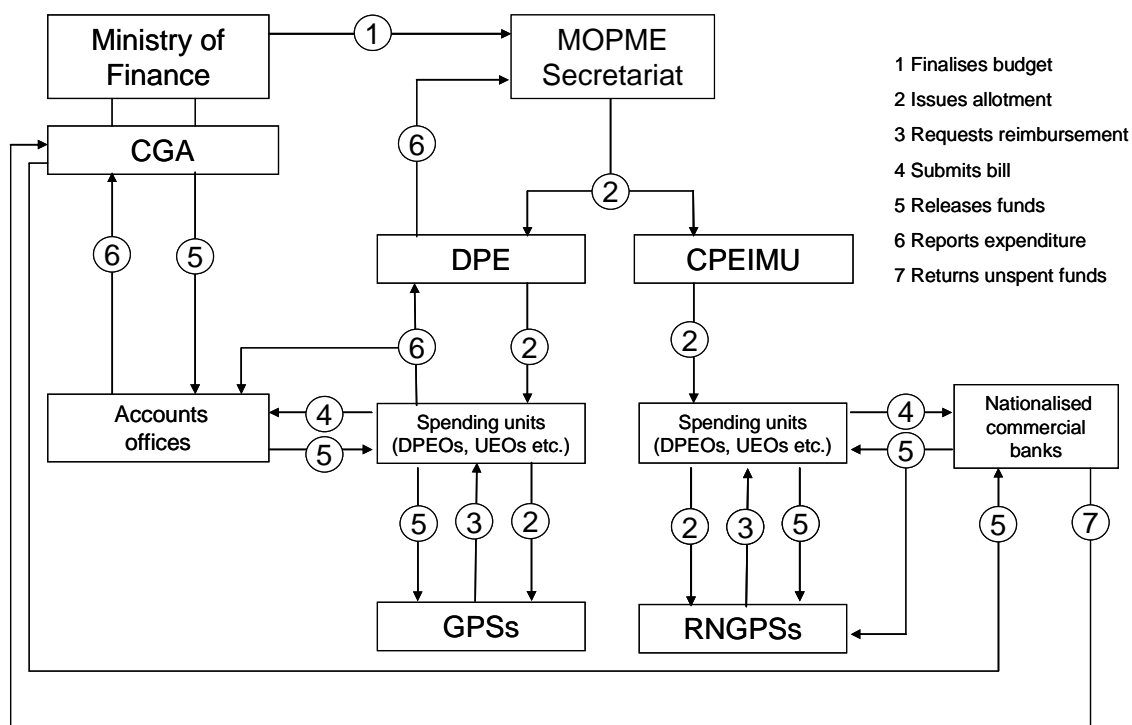
Source: OPM. Note: See Annex A2.1 for a summary of the main functions and key personnel of the various primary education management institutions.

Of the funds controlled by the DPE, most budget lines have traditionally been split into two tranches, so that spending units receive two allotments roughly six months apart. At the time of the survey this had recently been reformed to provide spending units with a single formal allotment early in the year (see discussion in section 3.3 below). The DPE also issues additional allotments throughout the year, partly as a result of requests from spending units and reallocations made across units. Each spending unit has a drawing and disbursement officer (DDO), who is mandated to authorise spending and is accountable for it. The main DDOs at field level in primary education are the DPEO and the UEO. DDOs spend funds from

some budget lines on their own administration costs, and the rest is spent on schools (either in advance of, or as reimbursement for, school-level expenditure). There are no spending units below the upazila level in primary education; schools rely on the UEO for all payments.

DDOs follow a set process to spend from the allotments they receive under the DPE. First, they prepare a bill which should not exceed the allotment (or the remaining balance)[8]. Next, they submit the bill to the local accounts office. Finally the accounts office will approve ('pass') the bill and issue a payment instruction and/or cheque. Both DDOs and accounting officers produce monthly statements of this expenditure; the DDOs report upwards to the DPE, while the accounting officers report to the accountant general's office under the Ministry of Finance (headed by the controller general of accounts (CGA)). The two statements should reconcile.

It is less easy to monitor expenditure on RNGPSs, which is drawn from allotments issued by the CPEIMU. Teachers' salaries are paid directly to the schools or teachers, while contingency funds are paid monthly to spending units. Funds pass through the nationalised commercial banks rather than through the government banking system, and actual expenditure is not reported back through the regular system. The banks amalgamate any surplus funds with all unspent funds from other budget codes and return it to the CGA office at the end of the financial year as a lump sum, so the surplus (and hence the exact expenditure) for the individual budget codes is unspecified. The banks do provide a summary of actual aggregated expenditure to the CPEIMU but this is not integrated into the CGA accounts.

The comptroller and auditor general's (CAG's) office is responsible for auditing the revenue budget; this is called a civil audit.

Development budget

The development budget is composed of an assembly of individual projects which are brought together in an annual development programme (ADP). The budget for each project is managed by a project director. At the time of the survey there were four different types of development-project funding modality, which vary in the degree to which foreign aid is controlled and accounted for by the government. For most projects the approval of the annual development budget by parliament is not sufficient to permit the project director to start allocating funds. No spending can take place until detailed spending plans are submitted to the Ministry of Finance. After these are approved the ministry releases funds on a quarterly basis.

The most comprehensive records of development budget spending are kept by MOPME's FMU. Each project director submits monthly statements of expenditure to this unit, regardless of the project's funding modality. In addition, the CGA's office in the Ministry of Finance keeps expenditure records on selected projects where spending goes through the government's accounting system. Development project audits, meanwhile, are coordinated by the foreign aid section of the CAG's office.

3.2 REVENUE BUDGET EXPENDITURE

Total national revenue budget expenditure on primary education amounted to Tk 15.0 billion in 2003/04 and Tk 16.4 billion in 2004/05, according to CGA records. Table 3.1 disaggregates

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[8] It seems that, informally, salary expenditure may be incurred even before the allotment letter is received, since employees are paid every month; also, that total salary expenditure may exceed the annual allotment to a district or upazila if additional teachers are employed for whom no provision has been made in the budget (see p.44).

this expenditure into the eight functional codes[9]. Figures also show the share of overall expenditure attributable to each functional code.

Table 3.1   Total revenue budget expenditure for primary education, 2003/04 and 2004/05 (Tk 000s)

Code	Recipient of funds[1]	2003/04		2004/05	
		Total	Share (%)[2]	Total	Share (%)[2]
2432	GPSs	12,292,468	82	12,765,740	78
2405	Autonomous bodies and other institutions (mainly RNGPSs)[3]	1,742,546	12	2,565,113	16
2434	UEO offices	384,221	3	409,914	3
2401	Secretariat	295,013	2	368,516	2
2431	DPEO offices	119,304	1	114,083	1
2433	Primary training institutes (PTIs)	146,364	1	135,098	1
2440	Primary Education Implementation & Monitoring Cell	4,868	0	5,662	0
2450	Directorate of Non-Formal Education	0	0	0	0
Total		**14,984,784**	**100**	**16,364,125**	**100**

Source: CGA (2004) and CGA (2005). Notes: (1) With reference to Figure 3.1 above: the Secretariat is responsible for spending under code 2401; the DPE is responsible for spending under codes 2431, 2432, 2433 and 2434; and the CPEIMU is responsible for spending under codes 2440 and 2405. Functional code 2450 is no longer in use. (2) 'Share' is the proportion of overall expenditure attributed to each functional code. (3) Figure shows total allotments to upazilas for this code, since actual expenditure is unknown (see discussion in main text above on payment of RNGPS teachers' salaries).

Expenditure on GPSs constitutes by far the largest proportion of revenue expenditure for primary education, amounting to about four-fifths of the total. This consists almost entirely of payments of salaries and allowances to GPS teachers. The substantial revision of teacher pay scales which has been implemented in the current financial year, 2005/06—the first since 1997—means that the proportion of expenditure devoted to GPS salaries is likely to rise even higher[10]. The next largest component of expenditure is support to RNGPSs and other autonomous institutions. The enormous difference in government support to the two school types is apparent: there are only about twice as many GPSs as RNGPSs (see Table 1.2), yet they receive about five times as much government funding. This is partly due to the payment of allowances for which GPS teachers are eligible but RNGPS teachers are not. Most of the remaining expenditure is used for the administration of the primary education system.

The following section presents a detailed disaggregation of expenditure figures into their salary and nonsalary components, and compares the CGA's figures both with records kept by other administrative bodies and with the intended budget.

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[9] Government accounts use a 13-digit classification system. The first digit is the legal code which distinguishes between receipts and expenditure. All the revenue expenditure discussed here has the same legal code, 3, so this is not shown. The next four digits (in this case 24XX) comprise the functional code, which denotes the ministry and department accountable for the funds. The following four digits—the operational code—indicate who is responsible for implementing the financial plan: for instance, 2405-3455 refers to RNGPSs, 2405-3456 to community schools etc. The final four-digit identifier, the economic code, reveals the use of the funds. These are consistent across the budget. Thus, for example, code 4821 is used for electricity expenditure in all departments.

[10] See chapter 12 for a discussion of the effectiveness of expenditure on teachers for educational outcomes.

3.3 REVENUE BUDGET MANAGEMENT

A key exercise in analysing the management of the revenue budget is to track funds as they flow from the central government to district- and upazila-level offices. This tracking exercise is carried out in this section. It has three parts. The first part looks at *intended* expenditure: it identifies the size of the budget allotments according to different sources, and compares the records held by the centre with those at the district and upazila offices. The second part examines *actual* expenditure in a similar way: it discusses variations between the aggregate expenditure figures reported by the Ministry of Finance (those presented in section 3.2 above) and those reported by MOPME, and also investigates differences in disaggregated data, i.e. any variation between how much the central government said it distributed to individual offices and how much the DDOs and accounting officers say they spent. The third part looks at the differences between these two sets of figures (budgeted vs. actual expenditure) to identify budget execution rates.

The discussion here focuses on five budget lines, which together accounted for 98% of budgeted and actual expenditure on primary education in 2003/04 and 2004/05. These are the funds for GPSs, DPEO offices and UEO offices (codes 2431, 2432 and 2434); small repairs for districts, upazilas and GPSs (code 2401-XXXX-4931); and support to RNGPSs from the budget for autonomous bodies and other institutions (code 2405–3455-XXXX). The in-depth tracking of these line items uses data for 2003/04, for which the entire year's records were available at the time of the survey.

This section also discusses difficulties that arise during the budget management process, and the system of informal payments that may be made to expedite the receipt of allotments and the passing of bills, as well as offering a brief review of audits undertaken at the DPEO and UEO offices.

Allotments

How well do different records of allotments match one another? Records of total amounts allotted are held by both the Ministry of Finance (the ministry that indicates the intended size of the total allotment for each budget line) and MOPME, which determines its distribution between the individual units that receive funding (for example, the distribution of the overall budget for UEO offices among each individual UEO office). Table 3.2 presents the allotment figures for 2003/04 from both ministries for the five key budget lines.

Table 3.2   Total allotment for selected budget lines, 2003/04 (Tk 000s)[1]

Description	Code	Ministry of Finance		MOPME		Difference (%)[2]	
		Salary	Nonsalary	Salary	Nonsalary	Salary	Nonsalary
GPSs	2432	13,019,271	181,150	13,019,271	181,150	0	0
RNGPSs	2405-3455-XXXX	1,903,400	34,775	1,882,989[3]	-[4]	-1	-
UEO offices	2434	388,301	18,000	388,301	18,000	0	0
DPEO offices	2431	87,216	20,975	77,066	14,418	-12	-31
Small repairs	2401-XXXX-4931	n/a	200,000	n/a	200,000	n/a	0

Source: Ministry of Finance (2004a), MOPME FMU (2004b). Note: (1) Figures show the revised budget. (2) These columns show the difference between the Ministry of Finance and MOPME figures, using the Ministry of Finance as a denominator. (3) MOPME does not aggregate information on RNGPS salary allotments. The figure here is an

approximation, extrapolated from disaggregated allotment data for a single month at the time of the survey. (4) Information not available from MOPME.

In almost all cases, as would be expected, the two ministries hold identical overall allotment figures, which is positive news. The only recorded difference is in the budget line for DPEO offices, where MOPME's figures understate those of the Ministry of Finance. The reason for this difference is unclear. It is possible that this is due to a systematic difference in the manner of recording data, e.g. the inclusion in the Ministry of Finance records of data that are recorded elsewhere by MOPME.

The disaggregated allotment figures were tracked from the centre to the district and upazila. The analysis compared the size of the allotments reported as being received by each sampled district or upazila with those that MOPME said it had issued[11]. Individual districts or upazilas often show a perfect correspondence between the two sources. For instance, salary allotments for GPSs match exactly in about two-thirds of upazilas, and allotments for small repairs match in nine out of every 10 upazilas. *On average*, though, there are small discrepancies—both positive and negative—between central and local data. The average differences between the two sets of records are shown in Table 3.3 below.

Table 3.3   Mean net difference per unit between DDO and MOPME allotment records, 2003/04[1] (%)

Description	Code	Salary	Nonsalary
GPSs	2432	-1	-1
RNGPSs[2]	2405-3455-XXXX	-	-
UEO offices	2434	+3	+7
DPEO offices[3]	2431	+1	-8
Small repairs	2401-XXXX-4931	n/a	+5

Source: SSPS data from DPEO and UEO offices. Notes: (1) The unit is the district for code 2431, and the upazila for all other codes. The denominator in all cases is the MOPME record. (2) Salary information has not been included because the overall figure in Table 3.2 above is an estimate. Nonsalary information is not held by MOPME. (3) Estimates for DPEO offices are generated using fewer than 30 observations.

In some cases the average amount recorded at the local level exceeds the allotment recorded by MOPME: for example, UEO figures for nonsalary allotments to their offices are on average 7% higher than what MOPME says it has allotted. This may be due to incomplete records at the central level of every allotment letter that has been issued. In other cases the average amount at the local level is lower than that reported as being allotted by MOPME. Again, it is possible that this is due to incomplete records, this time at the local level. Alternative explanations are that DDOs have not received allotment letters which MOPME says it has issued, or that the amounts reported on the allotment letters are lower than those recorded by MOPME. This is of greatest concern in respect of nonsalary allotments to DPEO offices, where nearly all DPEO office figures are lower than MOPME figures, and the average discrepancy is a shortfall of 8%. Given that MOPME's own figures are in turn lower than those of the Ministry of Finance, there is evidently a difficulty in accounting for the full allotment that the Ministry of Finance says it has issued.

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[11] This part of the tracking uses MOPME figures because the Ministry of Finance is not involved in determining the distribution of the overall allotments and therefore does not keep a record of the figures for each district or upazila.

Expenditure management

The figures in Table 3.1 above showed total expenditure for each functional code according to the Ministry of Finance. Table 3.4 below disaggregates that expenditure for 2003/04 into its salary and nonsalary components for the five key budget lines, and also shows the equivalent figures according to MOPME, as well as the difference between the two data sources.

Table 3.4 Total expenditure for selected budget lines, 2003/04 (Tk 000s)

Description	Code	Ministry of Finance		MOPME		Difference (%)[1]	
		Salary	Nonsalary	Salary	Nonsalary	Salary	Nonsalary
GPSs	2432	12,124,262	168,206	12,359,851	173,643	+2	+3
RNGPSs	2405-3455-XXXX	1,651,643	29,116	-	-	-	-
UEO offices	2434	365,540	18,681	369,726	17,293	+1	-7
DPEO offices	2431	98,755	20,549	76,313	15,033	-23	-27
Small repairs	2401-XXXX-4931	n/a	179,465	n/a	200,220	n/a	+12

Source: CGA (2004), MOPME FMU (2004b). Note: (1) This is the difference between the MOPME and Ministry of Finance figures. The denominator is the Ministry of Finance record.

The overwhelming predominance of salary rather than nonsalary expenditure is plain: salaries and allowances account for 98–99% of overall expenditure on both GPSs and RNGPSs. Figures from the two ministries are broadly comparable but are by no means identical. In particular, the MOPME record of total expenditure by DPEO offices is much lower than the record held by the Ministry of Finance. This is consistent with MOPME's lower allotment data that was noted in Table 3.2. As discussed above, this may be due to systematic differences in the manner of recording data (since the differing formats of the two datasets make it hard to identify equivalent figures) or to errors in the records. It is possible, too, that the differences may be indicative of a leakage of funds, but this is not certain. The important lesson here is that the differing formats of the records preclude the easy monitoring and analysis of expenditure patterns and the understanding of discrepancies.

The SSPS identified the elements of these expenditure figures and tracked them from the centre to the local level. For each sampled upazila or district the survey looked at the difference between the expenditure recorded at the Ministry of Finance (whose figures constitute the official government record of what has been spent) and the expenditure for the same items as reported by MOPME, the office of the upazila accounts officer (UAO) or district accounts officer (DAO) and the UEO/DPEO office. It should be expected at least that the accounting offices' data match exactly those of the Ministry of Finance, and the education offices' data match those at MOPME, since these represent the two lines of reporting (see flow 6 in Figure 3.1). Ideally all four sources would provide identical results, but it is already clear from Table 3.4 that this is not the case. Table 3.5 shows the average results.

Table 3.5   Mean net difference per unit between Ministry of Finance and other expenditure records, 2003/04[1] (%)

Description	Code	MOPME		Accounts offices		Education offices	
		Salary	Nonsalary	Salary	Nonsalary	Salary	Nonsalary
GPSs	2432	-2	0	0	-3	-1	0
RNGPSs[2]	2405-3455-XXXX	-	-	-	+1	-	+3
UEO offices	2434	+2	+2	-1	-2	-1	+2
DPEO offices[3]	2431	-4	-10	-	-	-5	-9
Small repairs	2401-XXXX-4931	-	-	n/a	-2	n/a	-1

Source: MOPME FMU (2004b) and SSPS data from accounts offices and education offices. Notes: (1) The unit is the district for code 2431, and the upazila for all other codes. The denominator in all cases is the Ministry of Finance record. (2) Nonsalary information was not available from MOPME. (3) Estimates for DPEO offices are generated using fewer than 30 observations.

It is encouraging that, on average, expenditure records kept at the four different sources match one another closely. The news is particularly positive in relation to expenditure records for GPS teachers' salaries, which account for by far the largest fraction of overall expenditure on primary education: the average figures recorded at the UAO offices offer a 100% match with the records held at the CGA. Records at the UEO offices match very closely those held at MOPME. Moreover, as discussed above, the records from the two streams of accountability, i.e. the Ministry of Finance and MOPME, are broadly comparable even though not identical. The similarities may be a result of the reconciliation registers that are now in use at the district- and upazila-level offices: nine in every 10 DDOs said that they compared their own monthly summaries of expenditure with those produced by the DAO or UAO office, and that the figures usually matched. Again, the largest discrepancies between the records of the Ministry of Finance and MOPME are those for expenditure by DPEO offices where, on average, MOPME's records for each district show 4% less salary expenditure and 10% less nonsalary expenditure than is recorded by the Ministry of Finance.

Expenditure recorded at the upazila for GPSs (code 2432) and small repairs (code 2401-XXXX-4931) was tracked further to the schools themselves to verify the data. These checks are discussed in the relevant chapters on school-level inputs. Teachers' salaries are tracked in chapter 7, contingency payments in chapter 8 and small repairs in chapter 9. Note that although it is not possible to compare central- and upazila-level expenditure records of RNGPS teachers' salaries, the next step of the tracking exercise is presented in chapter 7 alongside the GPS analysis.

The next subsection compares the expenditure figures reported here with the allotment data discussed above, and calculates the proportion of total allotments that are spent, i.e. the execution rate.

Budget execution

Comparing total expenditure against total revised allotments for the entire revenue budget, using the Ministry of Finance data, the overall execution rate for the primary education revenue budget in 2003/04 was 92%.

However, execution rates for individual districts and upazilas show wide variation around this average. Many are able to spend their full allotment for particular budget lines by the end of

the financial year: they achieve budget execution rates of 100%. This is satisfactory inasmuch as it demonstrates, first, that budgets have not been overestimated, and second, that DDOs know the full sum that has been budgeted for them and are able to spend the funds in time (see the next subsection for a discussion of the timing of allotments). Occasionally they spend considerably less or more[12]. The mean execution rates per district and upazila for different parts of the budget are shown in Table 3.6, using the records of both MOPME and the education offices[13].

It is notable that, although many districts and upazilas did spend exactly the budgeted amount under different codes in 2003/04, many others overspent the salary component of their budgets: on average, execution rates for salaries exceeded 100% for DPEO offices (according to both DPEO and MOPME records) and for GPS teachers (according to UEOs). Overspending on the salary budget appears to be permitted in order to ensure that every employee is paid. In contrast, DDOs nearly always underspend the *nonsalary* component of their budget: here they are obliged to remain within the limits set by the allotment. This underspending may have an impact on the quality of education in schools.

Mean salary expenditure per upazila for RNGPS teachers is 98% of the amount allotted on the MPO. This is in keeping with the delay in removing names of former teachers from the central list: the number of teachers paid by the average upazila is 98% of the number listed on the central payroll.

Table 3.6   Mean per-unit execution rate for selected budget lines, 2003/04 (%)[1]

		MOPME		Education offices	
Description	Code	Salary	Nonsalary	Salary	Nonsalary
GPSs	2432	100	93	103	96
RNGPSs	2405-3455-XXXX	-	-	98[2]	99
UEO offices	2434	98	84	95	88
DPEO offices	2431	102	86	101	95
Small repairs	2401-XXXX-4931	n/a	-	n/a	98

Source: OPM. Note: (1) Expenditure was calculated as a proportion of allotment for each district and upazila. The table shows the mean results across these figures according to the two different sets of expenditure and allotment records, namely those held by MOPME and those held by the DDOs. (2) Data to calculate execution rates for RNGPS salaries for the whole year 2003/04 was not accessible, so this figure is calculated differently to the others in the table. It uses allotment and expenditure for the most recent sample month available at the time of the survey; expenditure data come from education offices and allotment data come from the central MPO.

The range of execution rates around these averages was investigated further for GPSs using the records from UEO offices, and the results are displayed in Figure 3.2 below. The pattern of frequent—mostly small—overspending of salary allotments and underspending of nonsalary allotments is clear. In one upazila salary expenditure is shown to be exceptionally high in comparison to the allotment, with an overspend of Tk 50 million. This was reported to be because newly appointed teachers had not been taken into account in the budget (though this miscalculation was rectified in the following year's allotment). In a few upazilas it appears that expenditure on nonsalary items exceeds allotment. This is unusual and may indicate that there are anomalies in record-keeping.

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[12] As has already been noted, some apparent variations in allotment and expenditure at the level of the spending unit may be due to poor quality records.
[13] Remember that the full set of disaggregated figures is not held by the Ministry of Finance.

Figure 3.2   Expenditure versus allotment for GPSs, by upazila, 2003/04[1]
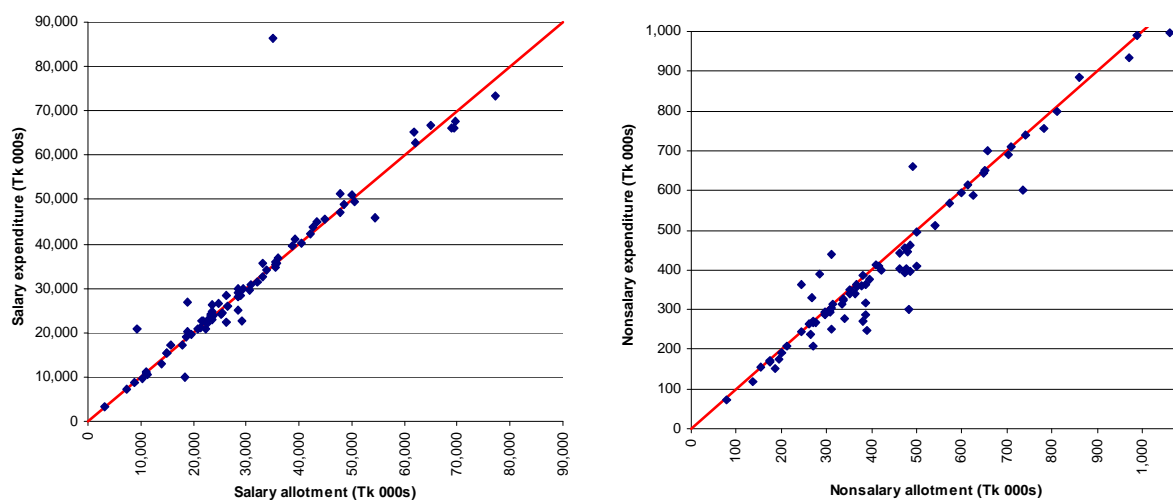
Source: SSPS data from UEO offices. Note: (1) Each dot plots recorded expenditure against recorded allotment for a sampled upazila. The 45-degree line in each figure shows where allotment is equal to expenditure. Upazilas in which expenditure during the time period exceeds the allotments they have received therefore appear above the line, while those whose expenditure is lower are beneath it.

It might be supposed that difficulties in spending nonsalary allotments are due to the late issuance of allotment letters for these items. The SSPS does not contain the data to permit a month-by-month comparison of allotments received and sums spent in every upazila and district. However, it is possible to investigate execution rates for nonsalary budget lines for the first half of financial year 2003/04. The results for the budget for GPSs are presented in Figure 3.3.

Figure 3.3   Nonsalary expenditure versus allotment for GPSs, by upazila, Jul-Dec 2003
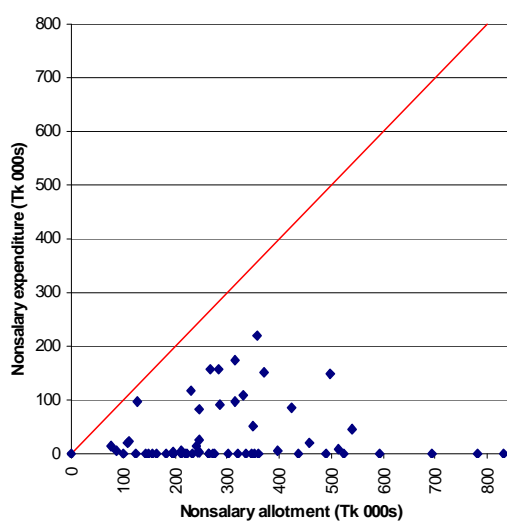
Source: SSPS data from UEO offices.

The graph shows that, in fact, upazilas do receive some nonsalary allotments in the first half of the year but none spend the total amount received up to the midpoint of the year. A large number spent nothing at all in the first six months of financial year 2003/04. Expenditure on nonsalary items is clearly concentrated in the second half of the year. This may be because the value of nonsalary allotments, unlike that for salaries, is rather unpredictable, so UEOs wait until they receive their allotment letters before commencing spending. If, as is possible, some upazilas do not record funds as being spent until they have submitted their bills to the accounts offices and been reimbursed for them, this additional lag would appear as a delay in spending.

If, indeed, the timing of the receipt of allotment letters is critical to the ability of DDOs to spend up to their budget limits, it is important to assess when they receive these letters. This is discussed next.

Timing of allotments

It was noted in section 3.1 that the allotment process has recently been reformed by the Ministry of Finance and MOPME so that, rather than receiving two allotment letters several months apart, each DPEO and UEO office is sent a single allotment letter which provides details of almost all of the funds that will be made available during that financial year. The aim is to help DDOs plan their expenditure effectively, so that they do not find themselves obliged to spend funds issued unexpectedly at the end of the financial year. Under both the old and the new system DDOs may receive unforeseen extra allotments on an *ad hoc* basis (e.g. because of budget reallocations), which can come at any time during the year, even before the second official allotment. The change in the allotment process was already underway at the time of the survey. Table 3.7 shows the mean proportion of total funds disbursed in each allotment in 2003/04 for the three budget lines that are directed through DPEO and UEO offices.

Table 3.7   Mean proportion of salary and nonsalary income received per allotment, 2003/04 (%)

Allotment	DPEO offices		GPSs		UEO offices	
	Salary	Nonsalary	Salary	Nonsalary	Salary	Nonsalary
First	93	53	90	70	94	67
Second	4	13	5	7	4	14
All other	3	34	5	23	3	19
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: SSPS data from DPEOs and UEOs.

As expected nearly all of the total salary allotment for each code (but only part of the nonsalary allotment) in 2003/04 was allotted in the first tranche. The second tranche accounts for only a small proportion of the total. A large fraction of the nonsalary allotment— more than a third, in the case of DPEO offices—was issued under the additional allotment letters which could come at any time, and which may have made it difficult to plan expenditure.

Allotments commonly arrive late. Figure 3.4 depicts the timing of receipt of the first and last allotment funds for GPSs. The first allotment for 2003/04 was generally received in August or

September 2003; but some upazilas had to wait until as late as December for their first allotment. This delay may contribute to the delay in spending nonsalary budget lines. Most upazilas received the last of their allotments in May or June 2004. Similar patterns are seen for funds for the DPEO and UEO offices; these are shown in annex A2.2 (Figure A2.1 and Figure A2.2).

Figure 3.4   Timing of receipt of first and last allotments of funds for GPSs
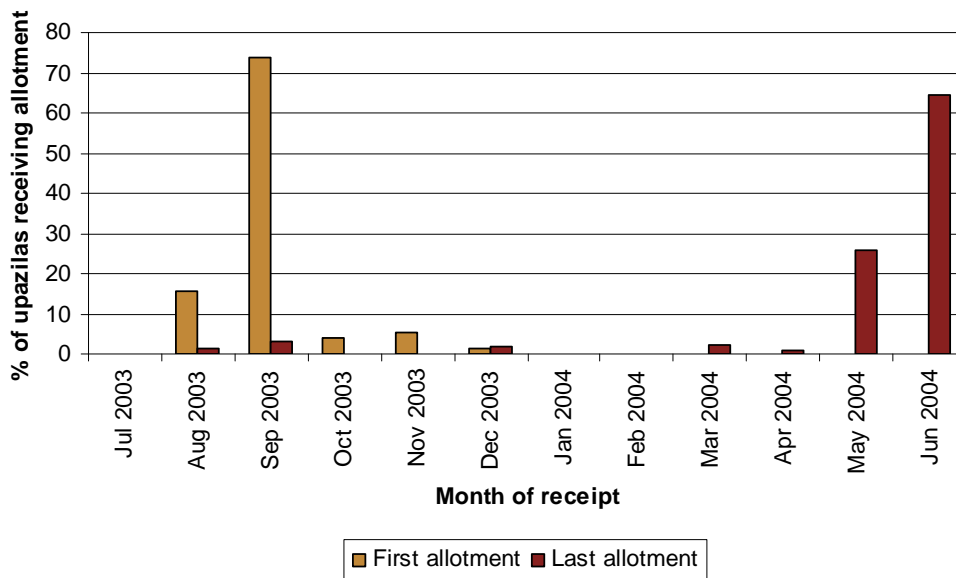
Source: SSPS data from UEOs. Note: Upazilas which are shown as having their final allotment in August or September actually only received one single allotment all year, so their first allotment is also their last.

Allotments for small repairs (code 2401-XXXX-4931) are distributed differently. All districts and nearly all upazilas that were awarded funds for 2003/04 received a single allotment in March or April 2004. A small proportion of upazilas—7%—received allotments as late as May or June; none received an allotment earlier than March. It is surprising that DDOs mostly manage to spend these funds before the end of the financial year, given the lengthy process that must be undertaken to disburse the money: the works must be contracted and executed, and their completion must be verified, before payments can be made (see chapter 9 for further details of the process).

In contrast to funds under other codes, allotments for support to RNGPSs (code 2405-3455-XXXX) are distributed monthly rather than as a lump sum. Figure 3.5 illustrates the cumulative mean proportion of total allotment received by upazilas each month under this code. The overall pattern of receipt of allotments is smoother than that seen under other budget codes, with salary allotments being received in regular amounts each month. Nonsalary allotments, though, are somewhat less evenly spread: nothing is received before December, and half the total is received in the last month of the financial year.

Figure 3.5   Support to RNGPSs: mean proportion of total allotment received, by month (%)
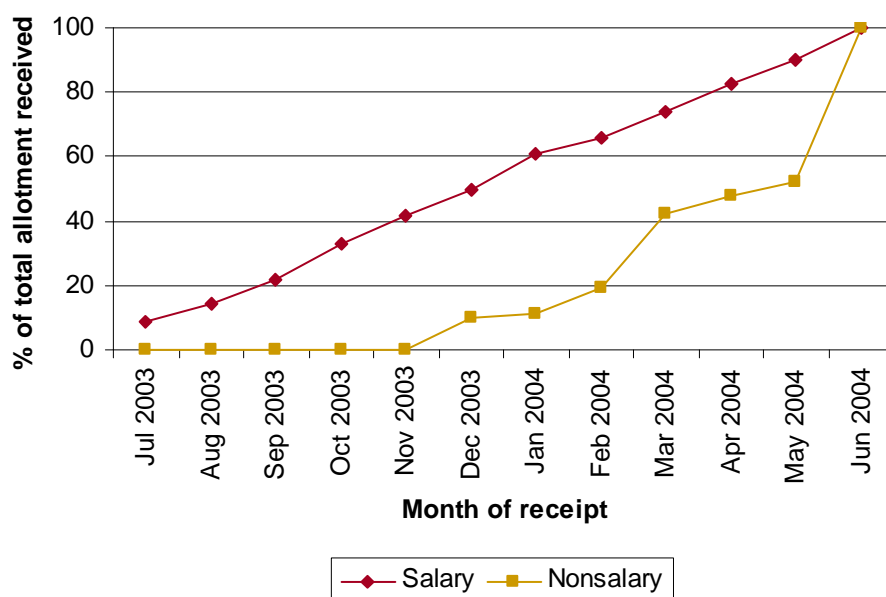
Source: SSPS data from UEOs.

DDOs were asked for their opinions about timing of allotments, other aspects of the allotment process, and the adequacy of funding of different line items. These topics are discussed in the following subsection.

Difficulties with the budget process

Most DDOs generally submit budget estimates to the DPE in advance of the financial year; more than half think that their estimate influences the size of their allotment. There is widespread consensus that travel-related costs (including travel and conveyance allowances, travel expenses and petrol) and contingency expenses suffer most from lack of funding in the budget for DPEO and UEO offices. The same applies, too, to the budget for GPSs, but here electricity is also considered to be particularly underfunded.

About two-thirds of DPEOs and just over a quarter of UEOs experience difficulties in getting budget allotments from the DPE, with almost all of these specifying delays in receipt of the allotment letter as being a key problem. This claim is supported by the discussion above on the timing of allotments. Some DPEOs that had problems with the process also cited the need for an informal payment to receive allotment letters, failure of the letter to arrive at all, or errors in the allotment; among UEOs, meanwhile, the first two of these were mentioned by only a very small proportion, and errors were not reported as being a concern at all.

Getting bills passed at the accounts office causes problems for half of all UEOs. Of those that report difficulties, many experience unexplained delays and nearly all sometimes have to provide speed payments in order to get the bills passed. This latter issue may contribute to the low proportion of allotments recorded as spent in the first six months. The following subsection discusses this in detail.

The survey asked UEOs whether they experience difficulties with any aspects of the payment of RNGPS teachers through the CPEIMU. The process of getting newly appointed RNGPS teachers onto the monthly pay order (MPO) list is not widely considered to be problematic: only 28% of UEOs ever have difficulties with this. Those that do suffer problems cite the same issues—speed payments and delays—as the principal impediments. One-third of UEOs experience delays in getting monthly allotments from the CPEIMU, but no other problems are reported with the allotment process. Almost no upazilas (less than 5%) have problems getting RNGPS teachers' salary bills paid by the bank.

Informal charges ('speed payments')

The analysis outlined above does not provide evidence of the formal leakage of financial resources from the revenue budget. However, as just discussed, it is clear that some leakage of resources occurs through informal channels, with officials sometimes being asked to make 'speed payments' to ensure the receipt of allotment letters or the release of funds. This would not be visible in expenditure records and may not be identifiable during the institutionalised audit process (see below for a further discussion of audits).

Interviewees were asked whether they ever have to make speed payments at various stages of the budget allotment and execution process. The results are reported in Table 3.8 below. Note that these may be conservative estimates of the incidence of speed payments owing to the sensitive nature of the question (though interviewers were trained to remind the respondent about the confidentiality of the survey at this point).

Table 3.8   Incidence of speed payments reported at different stages of the budget process (% of responses)

Stage of process	Speed payment required? (%)			
	Yes	No	Don't know[1]	Total
District				
Receive budget allotments from DPE	20	73	7	**100**
Increase size of allotments from DPE	10	90	0	**100**
Get bills passed at accounts office	38	56	5	**100**
Upazila				
Receive budget allotments from DPE	5	93	2	**100**
Increase size of allotments from DPE	10	82	8	**100**
Get bills passed at accounts office	43	48	8	**100**
Get newly appointed RNGPS teachers onto MPO list	7	71	22	**100**
Receive allotments for RNGPS salaries from CPEIMU	0	95	5	**100**
Get RNGPS salary bills paid by bank	3	96	1	**100**

Source: SSPS data from DPEOs and UEOs. Note: (1) 'Don't know' also includes respondents who refused to answer.

The data reveal a pattern in which some stages of the budget process almost never attract any speed payment, while other stages attract widespread charges. For example, the handling of RNGPS salaries almost never requires a speed payment, but, in contrast, 38% of

DPEOs and 43% of UEOs acknowledge that they sometimes make speed payments to get bills passed at their accounts office.

The survey further investigated the system of informal charging for getting bills passed by the accounts offices, looking at the types of bills for which charges are incurred, the frequency of payment and the size of the fee. Figure 3.6 shows how often speed payments are charged to UEOs, as a proportion of those who report ever having to make any payment to get bills passed. Again, there appears to be a pattern as to which bills incur charges and which do not. Of all UEOs that acknowledge ever having made speed payments to get bills passed, most say this is never required for salary and regular allowance payments. The system of paying salaries directly into teachers' personal bank accounts, which is used by nearly all upazilas, is a successful method of minimising the opportunity for informal charges. On the other hand, about half make a payment for every travel-related bill and for small repairs. The requirement for speed payments for reimbursement of travel-related costs may be related to the perceived shortfall in funding for these items, as was discussed on p.48.

Figure 3.6   Frequency of speed payments by UEOs for bills to be passed by the accounts office (% of upazilas that ever make a payment)
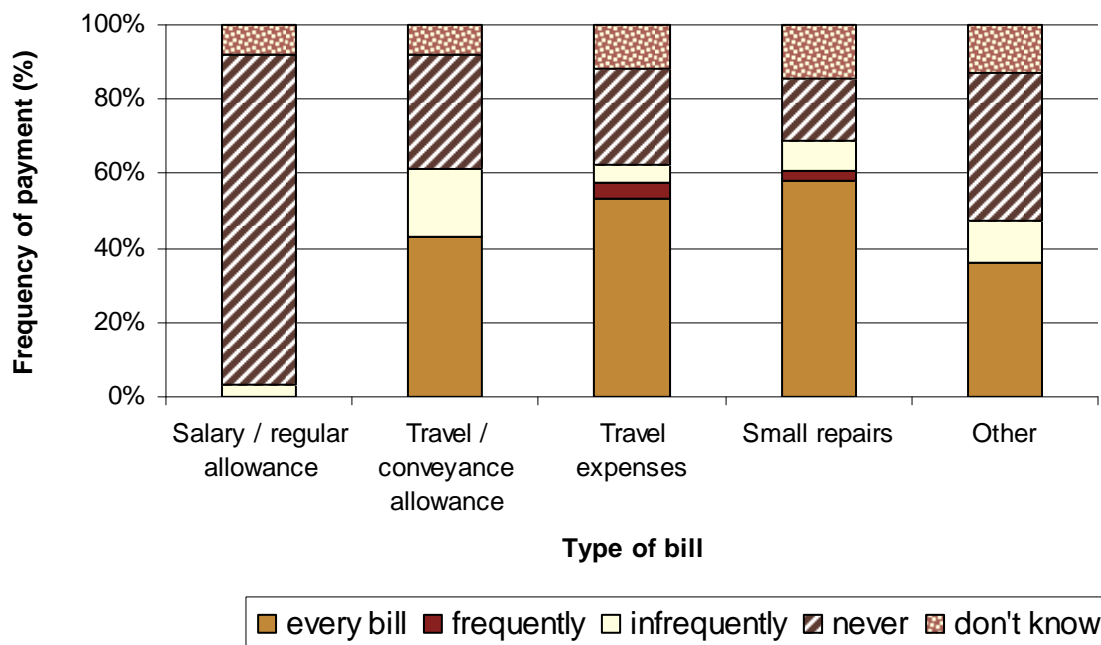
Source: OPM.

For all types of bill for which a speed payment is charged, roughly half take the form of a flat fee and half are charged as a percentage of the overall bill. This applies to both the DPEO and the UEO level. Where a flat fee is incurred by UEOs the median rate is Tk 300; where a percentage is charged this tends to be about 5%, though some report being charged as much as 10% of the value of the bill. It should be noted that the bills that attract speed payments form a very small part of the overall budget, so overall leakage from informal payments— even those that charge a percentage of the total bill—is also small.

Audit

The practice of thorough and routine audit is an important financial management tool, particularly in the context of potential concerns about the accuracy of accounting systems. Procedures for auditing education offices are in place, and the audit functions are carried out by local audit officers who report to the CAG.

UEO offices receive regular audits. Ninety-five percent of all offices had been audited within the last three years, with the median date being one year and one month prior to the survey. A very small number of offices (3%), however, were not known to have been audited in the last 10 years. It is uncertain whether they have been overlooked during the regular audit process or whether records for more recent audits have been lost. Note that the survey was not able to comment on the quality of the audit process, only its frequency.

Among DPEO offices the audit procedure is much less well established. Here the median date of the last known audit was seven years and one month prior to the survey. Only one in five had been audited in the three years preceding the survey, and 16% had not had an audit for at least 10 years. The infrequency of these audits reduces their potential effectiveness in helping managers to identify and rectify any problems in a timely manner.

3.4 DEVELOPMENT BUDGET EXPENDITURE

In 2003/04 MOPME's ADP consisted of 20 projects, of which 14 were operating under the DPE and six were under the Directorate of Non-Formal Education (DNFE), which was being wound down. In the following year, 2004/05, the development programme was consolidated into 16 projects (11 under the DPE and five under the DNFE), as some projects came to an end and the overall sector programme (PEDP II) began scaling up. Expenditure under the development budget amounted to Tk 9.4 billion in 2003/04 and Tk 8.4 billion in 2004/05, i.e. just under two-thirds that of the revenue budget in 2003/04 and slightly over half the revenue budget in 2004/05. Table 3.9 presents expenditure for the DPE projects that were operational during these two financial years, as well as aggregate expenditure figures for the DNFE.

The project with the largest expenditure by far is the government-funded stipend scheme, which provides a quarterly payment to poor families with children enrolled in primary school in a bid to improve enrolment, attendance and learning achievement in schools. It accounts for about half of total spending under the development budget in both years. Construction projects also consume a large proportion of the spending: eight of the projects listed in Table 3.9 all contain large construction components. The figures in the table show clearly the huge fluctuations in spending under individual projects between one financial year and the next.

Expenditure under the various projects takes different forms. Many resources—including textbooks, construction materials and training programmes—are supplied in kind, while others are distributed as cash allotments. Almost all upazilas have benefited from cash allotments from the development budget since July 2003. More than three-quarters have received income from the PEDP II project during that time, a considerably greater number than for any other single project. However, much of this income had not yet appeared in expenditure figures by the time of the survey because allotments were received close to the end of the financial year. Figure 3.7 presents expenditure from cash allotments by project since July 2003 and reveals that median expenditure is greatest for the Intensive District Approach to Education for All (IDEAL) project.

Table 3.9   MOPME development budget expenditure, 2003/04 and 2004/05, by project

FMU code	Project name [main activities coded in brackets][1]	Funding source[2]	2003/04		2004/05	
			Expenditure (Tk million)	Share (%)	Expenditure (Tk million)	Share (%)
DPE projects						
5955	Stipends for primary education	[5]	GOB	4,330.0	46	4,677.4	56
5000	PEDP II	[1,3,4]	GOB; ADB: IDA; DFID	560.0	6	2,370.9	28
5310	Development of RNGPS	[1]	GOB	1,031.6	11	321.0	4
5020	Reconstruction and renovation of GPS	[1]	GOB	940.2	10	315.4	4
5460	Construction of GPS under IDB assistance (2nd Phase)	[1]	GOB; IDB	2.0	0	181.7	2
5400	IDEAL	[3]	GOB; UNICEF; SIDA;IDA	200.6	2	113.1	1
5951	Effective school through enhanced education management (ESTEEM)	[3]	GOB; DFID	260.0	3	86.3	1
5062	Construction of German-aided primary school-cum-cyclone shelter	[1]	GOB; KFW	120.2	1	58.4	1
5350	Expansion of cub-scouting in primary schools (2nd phase)	[6]	GOB	30.0	0	35.0	0
5430	Development of primary education in Dhaka, Rajshahi & Khulna division (2nd Phase) (DHARAKU)	[1,2,3,4]	GOB; IDA	982.1	10	10.7	0
5960	Reaching out-of-school children project	[5]	GOB; IDA; SDC	0.0	0	7.2	0
5420	Development of primary education under NORAD aid (PEDPQI)	[3,4]	GOB; NORAD	154.4	2	0.0	0
5432	Structural rearrangement and adjustment of GPS of Dhaka Metropolitan City	[1]	GOB	88.0	1	0.0	0
5320	Development of primary education with German assistance	[1,4]	GOB: Germany	54.7	1	0.0	0
5961	Comprehensive primary education project (phase 2)	[3]	GTZ	0.0	0	0.0	0
DNFE projects				632.1	7	213.0	3
Total MOPME development projects				**9,386.1**	**100**	**8,390.1**	**100**

Source: MOPME FMU (2004a, 2005). Notes: (1) Main activities are coded as follows: 1 = construction; 2 = teacher recruitment; 3 = capacity building; 4 = textbooks/learning materials; 5 = stipends; 6 = other. (2) GOB—Government of Bangladesh; ADB—Asian Development Bank; IDA— International Development Association; KFW—Kreditanstalt für Wiederaufbau (German development bank); IDB—Islamic Development Bank; UNICEF—United Nations Children's Fund; SIDA—Swedish International Development Cooperation Agency; NORAD— Norwegian Development Assistance; GTZ—Deutsche Gesellschaft für Technische Zusammenarbeit; SDC—Swiss Development Cooperation.

Figure 3.7   Recorded expenditure from development budget projects since July 2003 per upazila, by project (Tk 000s)
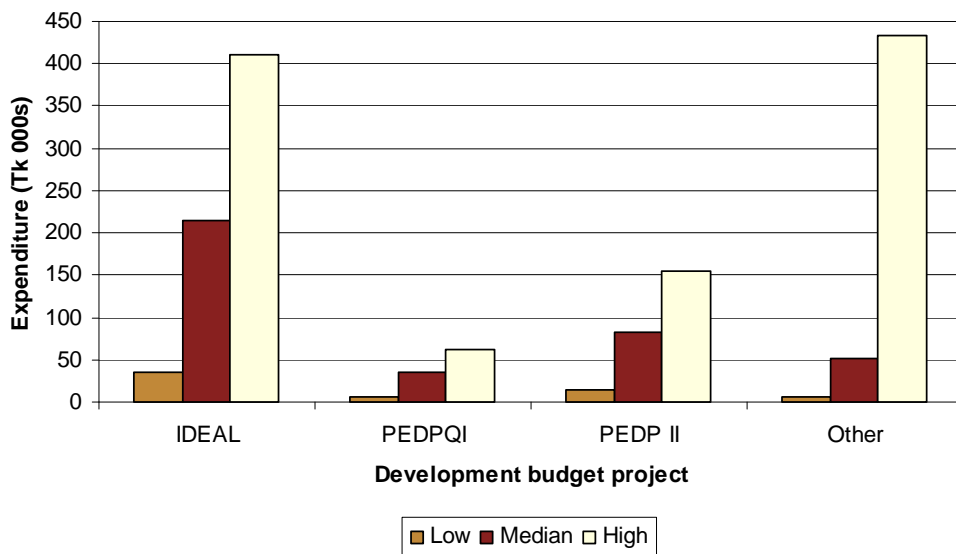
Source: SSPS data from UEOs. Note: 'Other' includes DHARAKU and the Development of Primary Education in Chittagong-Sylhet-Barisal.

For all types of projects the range of expenditure is large: upazilas with high expenditure in the last two years have spent approximately 10 times that of the lowest spending upazilas for each of the IDEAL, PEDPQI and PEDP II projects. Overall variation in expenditure across all projects is even greater still: some upazilas report spending less than Tk 10,000 on an individual project in that time, while others report expenditure of over Tk 400,000. It was hoped to examine whether this variation is driven by differences in the number of students per upazila; however, this was not possible owing to doubt about the accuracy of upazila-level records of student numbers.

3.5 DEVELOPMENT BUDGET MANAGEMENT

This section looks at the management of the development budget as a whole, comparing overall expenditure against the budgets and discussing briefly the mechanisms for auditing development projects. It is not possible to track all the separate development budget allotments (especially the cash allotments) to the district or upazila level and then to schools, since each project operates under a different disbursement and management mechanism and records the information to varying levels of disaggregation. The survey did, however, carry out the detailed tracking of inputs for three of the main activities of the development budget—provision of textbooks, construction projects and stipends—and the results of that analysis are presented in chapters 8, 9 and 4 respectively.

Original and revised budgets

The most notable feature of the development budget is the enormous discrepancy between the original and revised budgets. The original development budget for 2003/04, totalling Tk 13.3 billion, was subsequently revised downwards to Tk 10.7 billion, and that for 2004/05 was reduced even further, from Tk 16.5 billion to Tk 8.7 billion, i.e. barely half its original

size (see Table 3.10). Attention must be paid to the cause of this considerable shortfall as it affects almost all areas of nonsalary investment in primary education in Bangladesh.

Much of the reduction in the 2004/05 budget is explained by the slow implementation of PEDP II in its early stages (hence the amendment of the PEDP II budget from Tk 7 billion to Tk 2.4. billion). For instance, a large part of the original PEDP II budget was devoted to the construction of new classrooms, but few contracts were tendered or classrooms built during 2004/05. Also, delays were reported in the replenishment of imprest accounts, i.e. the accounts from which the government may draw funds and which are topped up by donors. However, it is understood that these teething difficulties have been addressed, and execution of the PEDP II budget is reported to be much improved in 2005/06.

Table 3.10   MOPME development budgets, 2003/04 and 2004/05 (Tk million)

FMU code	Project name	2003/04		2004/05	
		Original	Revised	Original	Revised
DPE projects					
5955	Stipends for primary education	4,340	4,340	5,200	4,680
5000	PEDP II	-	851	7,000	2,400
5310	Development of RNGPS	1,578	1,080	975	370
5020	Reconstruction and Renovation of GPS	1,223	1,020	355	400
5460	Construction of GPS under IDB assistance (2nd Phase)	-	3	360	182
5400	IDEAL	300	344	180	135
5951	ESTEEM	291	272	58	86
5062	Construction of German aided primary school-cum-cyclone shelter	102	175	-	59
5350	Expansion of cub-scouting in primary schools (2nd phase)	40	30	40	40
5430	DHARAKU (2nd Phase)	1,414	1,187	-	11
5960	Reaching Out of School Children Project	0	0	233	20
5420	PEDPQI	348	154	0	0
5432	Structural Rearrangement and Adjustment of GPS of Dhaka Metropolitan City	126	99	0	0
5320	Development of primary education with German Assistance	130	55	0	0
5961	Comprehensive Primary Education Project (phase 2)	35	37	0	0
DNFE projects		1,466	1,057	1,626	277
Total MOPME development projects		**13,255**	**10,704**	**16,456**	**8,661**

Sources: MOPME FMU (2004a, 2005) and Ministry of Finance (2003b, 2004b, 2005c).

Budget execution

Comparing the development budgets against actual expenditure, it is evident that overall execution rates are very low, especially against the original budget (Table 3.11 and Figure 3.8). In 2004/05 just over half of the original budget (51%) was spent by the end of the year. Revised budgets are much closer to the final spend, but even here there is a shortfall between the budgeted amount and actual expenditure, at just 88% in 2003/04 and 97% in 2004/05.

Table 3.11   MOPME development budget execution rate, 2003/04 and 2004/05 (%)

FMU code	Project name	2003/04		2004/05	
		Original	Revised	Original	Revised
DPE projects					
5955	Stipends for primary education	100	100	90	100
5000	PEDP II	-	66	34	99
5310	Development of RNGPS	65	96	33	87
5020	Reconstruction and Renovation of GPS	77	92	89	79
5460	Construction of GPS under IDB assistance (2nd Phase)	-	62	50	100
5400	IDEAL	67	58	63	84
5951	ESTEEM	89	96	149	100
5062	Construction of German aided primary school-cum-cyclone shelter	117	69	-	98
5350	Expansion of cub-scouting in primary schools (2nd phase)	76	100	88	88
5430	DHARAKU (2nd Phase)	69	83	-	100
5960	Reaching Out of School Children Project	n/a	n/a	3	35
5420	PEDPQI	44	100	n/a	n/a
5432	Structural Rearrangement and Adjustment of GPS of Dhaka Metropolitan City	70	89	n/a	n/a
5320	Development of primary education with German Assistance	42	100	n/a	n/a
5961	Comprehensive Primary Education Project (phase 2)	0	0	n/a	n/a
DNFE projects		43	60	13	77
Total MOPME development projects		**71**	**88**	**51**	**97**

Source: OPM.

Figure 3.8   MOPME development budget execution, 2003/04 and 2004/05
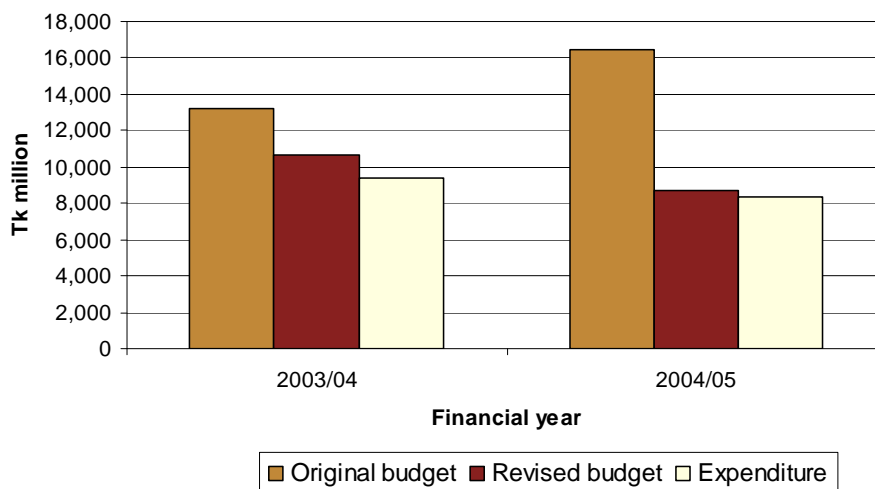
Source: MOPME FMU (2004, 2005) and Ministry of Finance (2004a, 2005).

Audit

Development budget projects are audited regularly. Ninety-five percent of all DPEO offices and 97% of UEO offices have been subject to an audit by a development project within the last three years, with the median date being 11 months prior to the survey for DPEOs and 14 months for UEOs.

4   Stipends

Key findings

- Approximately 9% of all stipend card holders are suspended. Class repetition, failing to achieve the 40% score in the end-of-year examination and dropout are the most common reasons for suspension.

- The average stipend payment for eligible stipend card holders in each quarter is Tk 264, out of a possible Tk 300, suggesting that, in 2004, most students received the maximum quarterly stipend payment.

- Between 20% and 40% of schools did not receive levels of stipend funds sufficient to pay school stipend bills in full, although the shortfall was small. Where shortfalls occurred, schools responded by reducing stipend payments to all or some eligible students. In the second half of 2004 the shortfall in stipend funds at the school level appears to have been caused by the inability of UEO offices to pass on larger allotments to schools rather than a lack of allotment at the national level.

- On the whole, schools participating in the stipend scheme in 2004 satisfied the school eligibility criteria set out in the project proforma.

- Most schools report using official criteria to select students for the stipend programme. However, the programme does not target poor students effectively. At the national level, targeting results in only slightly higher proportions of poor students obtaining the stipend in participating schools compared to richer students, and a large proportion of poor students being excluded from the stipend programme.

- Over 90% of students who participated in the stipend programme in 2004 had achieved the qualifying score in the end-of-year examination. However, 7% of card holders failed to achieve this score but still received stipend payments during 2004.

- Attendance rates submitted as part of a school's stipend bill are in general higher than those recorded in school attendance registers. Due to this exaggeration of attendance figures, approximately a third of eligible stipend holders were paid the wrong stipend amount. This amounts to a misallocation of stipend resources of approximately 13%.

- Findings on misallocation suggest that mechanisms for monitoring and verifying stipend eligibility and disbursement are not working well.

- The SSPS finds that 14% of stipend holders received less than the school recorded disbursing. The average difference was Tk 32 and, in terms of the whole stipend programme, represents a loss of 2% of total stipend resources.

- Approximately 3% of total stipend resources are recorded as being paid to households who were unable to confirm that they had received any payment or that the student was participating in the programme.

- Approximately one in 10 households who hold cards said that they had to make an average payment of Tk 46 to get their child admitted onto the stipend programme. Furthermore, 17% reported having to pay to receive their quarterly stipend payment.

- Bringing together these findings, nearly 20% of stipend resources are misallocated while 5% cannot be confirmed as being received by intended beneficiaries. This raises concerns regarding the management of the stipend programme, particularly at the school level.

4.1 SYSTEM OVERVIEW

The primary education stipend programme analysed in this chapter was introduced in the 2003 school year. The programme had two forerunners, the food for education (FFE) programme and the primary education stipends project. The FFE programme began in 1993 and by the time it ended in 2002 it covered around a quarter of all primary schools in Bangladesh. Recognising its limited coverage the government introduced a cash-based stipend project in 2000 for areas outside the programme. In 2002/03 the current primary education stipend programme was approved by the Executive Committee of the National Economic Council. It aimed to consolidate these two earlier projects providing support to primary school students and their households.

The objectives of the stipend programme outlined in the project proforma (Government of Bangladesh, 2002) are to increase student enrolment and attendance rates; reduce student dropout and increase primary school completion rates; establish equity in financial assistance to primary school aged children; and enhance the quality of primary education.

Coverage

The stipend programme operates throughout rural Bangladesh; metropolitan areas, district towns and pourasavas are excluded. The programme covers up to 40% of rural primary school students in six categories of schools:

- GPSs;

- RNGPSs;

- community primary schools;

- satellite primary schools (these schools have since been closed down);

- NGO schools established through a government grant; and

- recognised IEMs.

As an indication of coverage, 469 of Bangladesh's 493 upazilas are covered by the programme, and in each primary school up to 40% of students can be selected for the stipend programme. Students must come from poor households which are defined in the project proforma as female-headed households, households of day labourers, households of insolvent professionals, and households with less than 0.5 acres of land.

SMCs are responsible for making the initial selection of students with further approval required from both the UEO and the upazila nirbahi officer (UNO).

Eligibility

To be included in the stipend programme a school must fulfil three criteria in addition to being located in a rural area: it must have an average attendance rate of 60% or above on a

typical school day, enter at least 10% of its class 5 students in the scholarship examination and conduct classwise scheduled examinations correctly[14].

With the approval of the UEO and UNO up to 40% of students in schools that have fulfilled the criteria can be given a stipend card. There are two types of stipend card available: a single card is available to households with one primary school student and a joint card is available to households with two primary school students. The stipend card identifies an individual student as being part of the stipend programme, but to be eligible for a stipend payment the card holder has to fulfil two further conditions:

i.   achieve a score of 40% or above in the last end-of-year examination; and

ii. achieve an attendance rate of 85% or above in at least one month of the school year.

Payment

For each month a stipend single card holder achieves an attendance rate of 85% or higher their household receives Tk 100. For each month that both joint card holders achieve an 85% or higher attendance rate their household receives Tk 125. Therefore, if a single card holder has an attendance rate 85% or above in all months of a year he/she is eligible for an annual stipend of Tk 1,200 (Tk 1,500 for joint card holders). Schools also receive an annual stipend contingency payment of Tk 1,000 to cover stipend stationery and distribution costs. Upazila offices are also provided with Tk 4,000 annually to cover similar costs.

Stipend disbursement system

Figure 4.1 below details the allotment and disbursement system for the stipend programme. Allotments and disbursements are quarterly. Each deals with three months of stipend payments, with the first quarter beginning in January of each year. UEO offices send a letter to the project director's office in Dhaka including their request for the upcoming quarter. The requests include an estimate of the number of stipend holders and an estimate of the total resources needed to pay these individuals. Once the project office has received these letters it calculates the quarterly stipend allotment for each upazila and informs UEO offices of their budget[15]. The overall allotment ceiling for all upazilas is calculated on the basis of the budget the stipend project has been set at the beginning of the financial year in the ADP. At the same time that upazilas are informed of their allotments, the project director submits an advance request to the CGA. This advance request contains information on the allotment for each upazila and identifies the nationalised commercial bank (NCB) involved in stipend disbursement in each upazila. The CGA then advances funds to the six NCBs with these instructions on disbursement.

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[14] In 2006, primary schools were expected to enrol 30% of their class 5 students into the scholarship examination so the second criterion for stipend eligibility is rarely binding. IEMs are subject to a fourth constraint to qualify for the stipend programme: they must have at least 100 students enrolled.

[15] Within financial years, any allotment remaining at the end of a quarterly stipend disbursement is kept at the upazila and is added to the next quarter's allotment. However, any unspent funds at the end of the financial year are surrendered.

Figure 4.1 Stipend allotment and disbursement system

Allotments	Disbursement
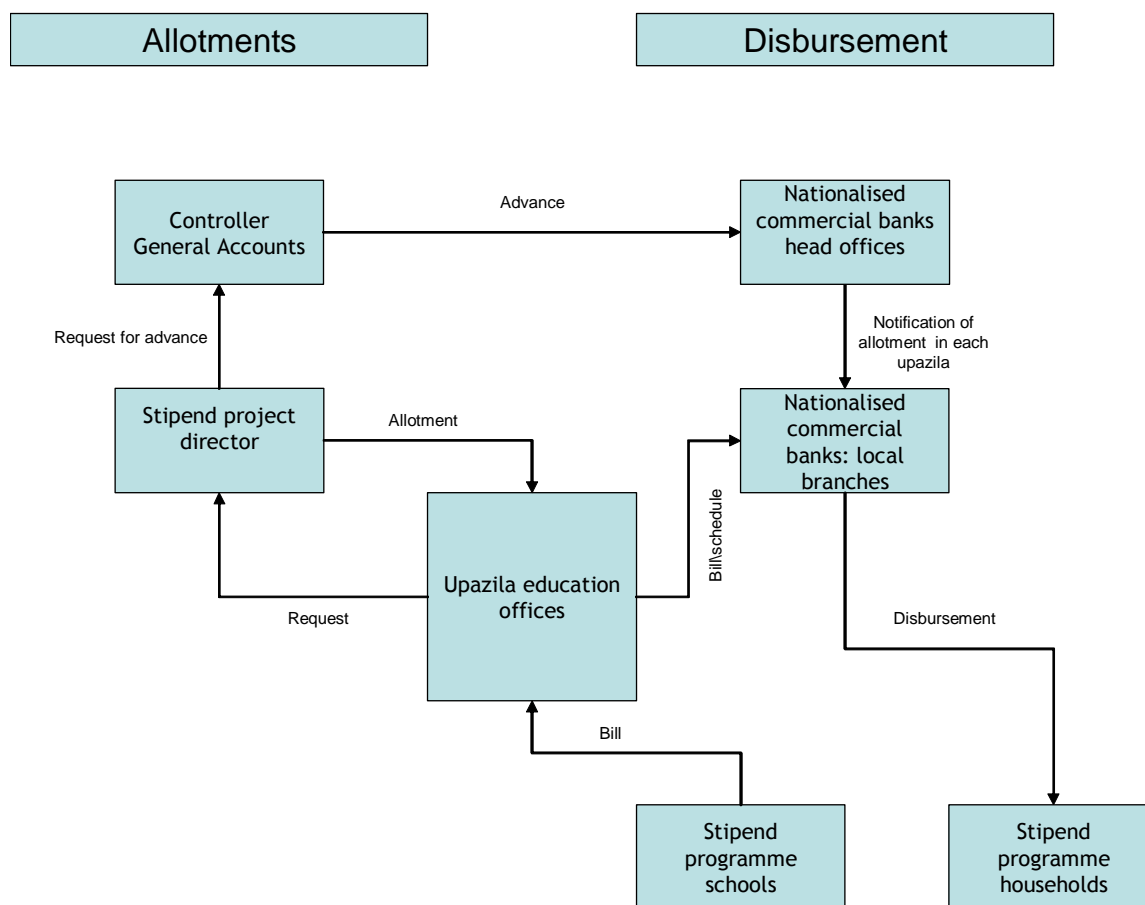
Source: OPM

At the end of each quarter, schools submit stipend bills to the assistant UEO (AUEO) for their cluster. This is completed by most schools in the two months immediately after the quarter finishes. The bill contains information on the name of each card holder, their attendance record in the past three months and the amount of stipend to be paid for the quarter. For their cluster, AUEOs consolidate stipend bills and submit this to the UEO. The UEO verifies the bills and once the bills have been approved by the UNO they are submitted to the local office of the NCB for payment. The NCBs then organise stipend disbursement days for groups of schools. At these disbursement days mothers of eligible stipend card holders receive the student's stipend payments in cash. Each stipend card records the amount disbursed in each quarter for each stipend card holder. Disbursement has usually been completed two months after the close of the quarter[16].

Stipend contingency payments to UEO offices and schools are disbursed in a slightly different way. On the request of the project office the CGA advances contingency funds to the NCBs who in turn deposit the required amount for each upazila into the UEO office account. UEOs are then responsible for disbursing these contingency payments to eligible schools in the upazila.

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[16] This compares favourably with secondary stipend programmes which disburse stipends and tuition payments approximately nine months after the close of the evaluation period (see FMRP, 2005)

The rest of the chapter explores the primary stipend programme at the different levels outlined in Figure 4.1. When looking at students who participate in the stipend programme it is useful to distinguish three categories:

i. **Stipend card holders**. These are students who have been selected by the SMC to participate in the stipend programme. While they possess a card they are not necessarily eligible for stipend payments;

ii. **Eligible stipend card holders**. These are stipend card holders who fulfilled the eligibility criteria listed above (achieving a score of 40% or above in the last end-of-year examination and achieving an attendance rate of 85% or above in at least one month of a particular quarter) and who are therefore eligible for a stipend payment for that quarter; and

iii. **Stipend recipients**. These are stipend card holders that received a stipend payment in a particular quarter.

These different categories of students are used in the sections that follow to analyse different aspects of the stipend programme.

This chapter looks at the coverage and management of the stipend programme for students in GPSs and RNGPSs. AEM students are not covered by the scheme and hence they are excluded from the analysis. The analysis does not look at the impact that the stipend programme has on education outcomes or evaluate the extent to which the programme fulfils its objectives. Some of these issues are dealt with in chapter 12 of the report which looks at education outcomes and their determinants more generally.

4.2 STIPEND COVERAGE AND PAYMENT

Approximately 3.2 million rural primary school students participate in the stipends scheme which represents over 20% of total enrolment (both rural and urban) in the type of primary schools covered by the scheme[17]. Schools participating in the stipend scheme are allowed to include up to 40% of their enrolment in the programme. Table 4.1 shows that on average schools have slightly fewer stipend card holders than this upper limit[18]. There is some variation around this average with some schools having 30% of their students participating while in others the full 40% participate.

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[17] The numerator (total stipend card holders in Bangladesh) for this estimate is taken from the second quarter adjustment bill in 2004 while the denominator is based on enrolment in eligible school types in 2001 taken from the last published statistics on primary enrolment (DPE, 2002). This includes schools in areas that are not covered by the scheme (i.e. metropolitan areas, district towns and *pourasavas*.

[18] It is possible that some schools did not include dropouts in their register of suspended cards and hence Table 4.1 may underestimate total coverage.

Table 4.1   Stipend scheme coverage 2004

	GPS	RNGPS	Total
Stipend card holders as a proportion of total enrolment (%)			
Low	33	29	31
Mean	37	38	37
High	40	41	40
Joint card holders (% of total card holders)	5	2	4
Female card holders (% of all single card holders)	51	53	52
Single card holders by class (% of total card holders)			
Class 1	23	20	22
Class 2	22	22	22
Class 3	21	22	21
Class 4	18	21	19
Class 5	16	15	16
All classes	100	100	100

Source: SSPS data from schools.

Joint card holders make up a small proportion of total stipend card holders, representing about 4% of the total; of single card holders, just over half are female[19]. A greater proportion of stipend card holders are enrolled in the lower primary school classes than the higher classes (see Table 4.1); 22% of all stipend card holders are in class 1 compared to only 16% in class 5[20]. This is likely to be a reflection of the concentration of total school enrolment in the lower classes due to repetition and dropout (see chapter 11).

Stipend card holders can be suspended from the programme for a particular class if they fail to meet the end-of-year examination criteria. Cards may also be suspended if students leave their current school[21]. Figure 4.2 shows the overall proportions of suspended cards and the reasons why cards have been suspended. Overall 9% of stipend cards are suspended and the proportion of suspended cards increases as students progress from class 1 to class 4; 4% of class 1 cards are suspended compared to 13% of class 4 cards. In class 5 the proportion of suspended cards is slightly lower.

A common reason for suspension, particularly in the early classes, is repetition. Students that fail to achieve 33% in the end-of-year examination are prevented from moving onto the next class. Furthermore, students who fail the end-of-year examination do not achieve the higher 40% score for stipend eligibility and hence their cards are suspended[22]. Another related reason for card suspension is that students pass the end-of-year examination but fail to achieve a score of 40% or more (i.e. score between 33 and 39%). As Figure 4.2 shows, approximately 2% of all stipend card holders are suspended for this reason (approximately

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[19] Gender comparison of stipend card holders is limited to single card holders since it was not possible to collect information on the sex of joint card holders.

[20] Table A2.2 provides information on the percentage of students in each class that hold a stipend card.

[21] It should be noted that while cards could be suspended if students dropped out they could not be reassigned at the time of the survey. This regulation was changed at the beginning of the 2005/06 financial year to allow schools to reassign cards when students either transferred or dropped out of school.

[22] If these students repeat the class successfully and move up to the next class then their stipend cards can be reinstated.

20% of all suspended cards). Students in this category have two choices: continue their education and forfeit further stipend payments or repeat the class again and attempt to be reinstated on the stipend programme. Unfortunately, it is not possible to distinguish the proportions that opt for each choice. Dropout is also a common reason for card suspension and accounts for an increasing proportion of suspended cards as card holders move up the primary cycle.

Figure 4.2   Proportion of stipend cards suspended and cause, 2004
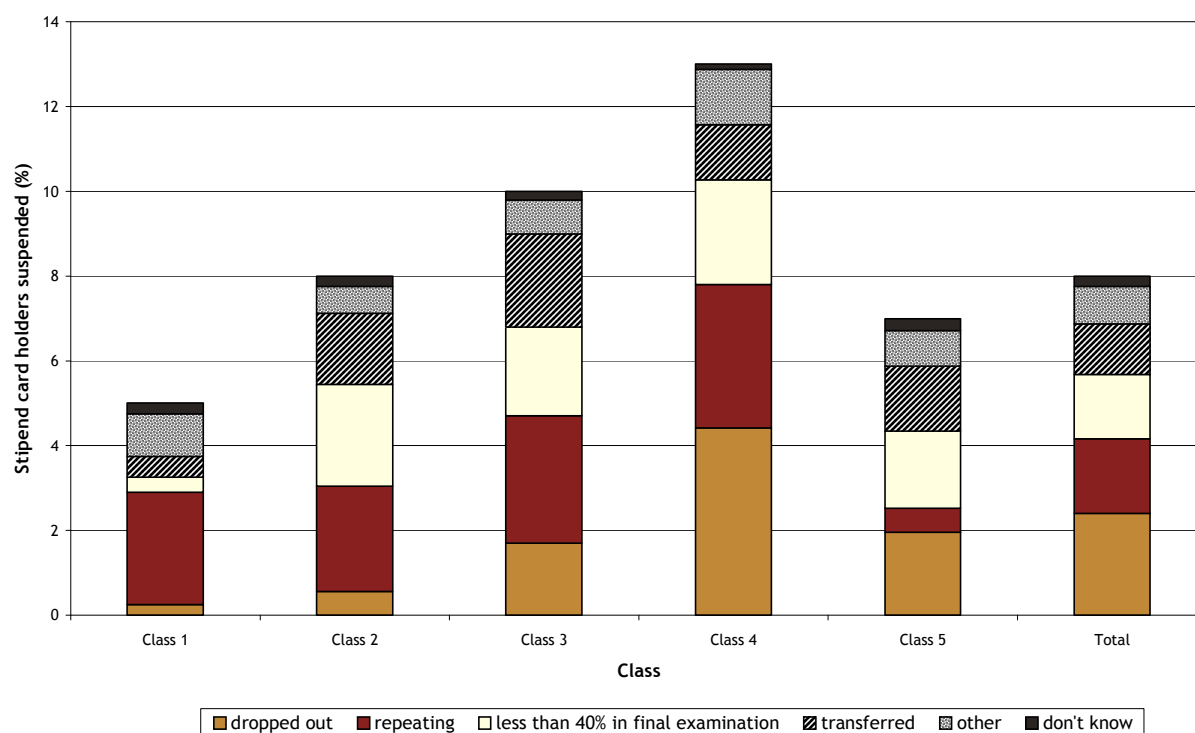
Source: SSPS data from schools. Note: The class-specific information contained in this figure is only for single card holders. The total information relates to both single and joint card holders.

It is interesting to note that the proportion of students in each class holding an unsuspended stipend card increases as students move up the primary school cycle; 29% of class 1 students and 37% of class 5 students hold unsuspended cards (see Table A2.2). This may be suggestive of lower dropout amongst stipend programme participants compared with non-stipend card holders. However, without detailed information on stipend and non-stipend holders' progression through primary school a cautious interpretation is warranted.

As noted in the previous section, holding a card allows students to participate in the stipend programme but does not mean that these students are actually eligible for a stipend payment in any particular quarter. On average 95% of unsuspended card holders were actually eligible for a stipend payment in each quarter in 2004 (see Table 4.2). This implies that in each quarter approximately 5% of unsuspended card holders did not achieve attendance rates high enough to qualify for a stipend payment. According to school records the average quarterly stipend payment for eligible students is Tk 264 which implies that most eligible students receive the maximum payment available each quarter (see Table 4.2). In fact, from information collected at the household, approximately 80% of eligible stipend card holders received the maximum amount for the last stipend payment quarter of 2004. Approximately 2% of eligible card holders were reported as not receiving a payment in 2004 (see Table 4.2).

This non-payment is likely to be due to the guardian of these card holders either not collecting or being excluded from payment during stipend disbursement.

Table 4.2   Stipend recipients and average stipend payment, 2004

	GPS	RNGPS	Total
Eligible stipend holders as a proportion of total unsuspended stipend holders	94	95	95
Paid stipend holders(% of eligible stipend holders)			
Jan-Mar 2004	96	99	97
Apr-Jun 2004	97	98	97
Jul-Sep 2004	97	99	98
Oct-Dec 2004	98	99	98
Average for 2004 (all quarters)	97	99	98
Average quarterly payment per stipend holder (Tk)			
Low	228	230	228
Mean	260	271	264
High	298	300	300

Source: SSPS data from schools. Note: The table reports averages over all four stipend quarters in 2004. For a breakdown for each quarter see Table A2.3.

Between 20% and 40% of schools reported not receiving enough funds to pay all eligible stipend holders in 2004 (see Table 4.3)[23]. With the exception of the third quarter in 2004, over 30% of RNGPSs participating in the stipend scheme suffered a shortfall in funds. For schools reporting insufficient funds the gap in funding was generally less than 10%. Faced with insufficient funds, 68% of schools reduced payments to all eligible students while most of the remainder reduced payments to a proportion of eligible students. The shortfall declined between the first and second half of 2004 (see Table 4.3) and is likely to be associated with higher allocations for the stipend programme in the national budget for 2004/05.

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[23] Shortage of funds compared to requests was identified in a recent evaluation of the stipend project (see BNABS 2005).

Table 4.3   Unsatisfied stipend requests, 2004

	GPS	RNGPS	Total
Schools receiving less stipend funds than requested (%)			
Jan-Mar 2004	23	39	29
Apr-Jun 2004	27	30	28
Jul-Sep 2004	28	17	24
Oct-Dec 2004	19	31	23
For schools receiving less, average percentage of funds requested not provided (%)			
Jan-Mar 2004	5	10	7
Apr-Jun 2004	4	7	5
Jul-Sep 2004	2	5	3
Oct-Dec 2004	2	5	3

Source: SSPS data from schools. Note: Averages reported for proportion of overall request not satisfied are based on fewer than 30 schools.

4.3 STIPEND PROGRAMME MANAGEMENT

Allotment and budget execution

As Section 4.1 showed, the upazila office is central to the administration of the stipend programme. It provides a link between schools and the programme, both in terms of budgeting and disbursement. Table 4.4 provides a picture of the magnitude of the stipend programme in each participating upazila. The average quarterly request that upazilas sent to the central project office was between Tk 2.5 million and Tk 3 million[24]. In the first half of 2004, these requests were not fully satisfied by the project office; three-quarters of all upazilas received a lower allotment than their initial request. It should be noted that the four quarters shown for stipend payments cover two financial years, 2003/04 and 2004/05. In the first financial year budgetary constraints prevented the project office fully satisfying upazila requests. In 2004/05 the overall stipend project budget increased from Tk 4.3 billion in the previous year to Tk 5.2 billion. This increase in the overall stipend project budget explains the approximately 20% increase in the value of allotments in the final half of 2004.

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[24] It should be noted that the amount requested is often the amount needed to pay all stipend holders the full amount (i.e. Tk. 300) and not based on actual quarterly outcomes.

Table 4.4   Upazila stipend programme budget management

Functional codes	Summary economic code	Period	Average upazila request (Tk 000s)	Average upazila allotment (Tk 000s)	Average upazila disbursement (Tk 000s)	Average number of stipend recipients	Budget execution (%)
2431-5955	Stipend (5900)	Jan-Mar 2004	2,845	2,494	2,246	9,520	91
		Apr-Jun 2004	2,701	2,662	2,529	9,764	97
		Jul-Sep 2004	2,682	3,169	2,584	9,632	82
		Oct-Dec 2004	2,712	3,111	2,695	9,814	85
	Stationery (4828)	2003/04	n/a	145	137	n/a	94

Source: SSPS data from UEO offices.

In Table 4.3 it was shown that the average shortfall in funds, between the first and second halves of 2004, declined. Furthermore, Table A2.3 in annex A2.3 shows that the proportion of eligible students that did not receive a payment also declined over the same period. This suggests that the increased allotments at the upazila level did impact on the school level and reduced shortfalls in funding. However, as Table 4.3 shows, there were still a substantial number of schools reporting shortfalls in the last half of 2004. This suggests that although there was some improvement in levels of funding reaching schools it was often too small to pay all eligible stipend holders. These are supported by the falling budget execution rates reported in Table 4.4 that imply that the increased funds made available to UEO offices remained largely unspent. The gaps between requests and allotments, the excessive per student allotments in the latter half of 2004 and the difficulties UEO offices faced in satisfying school requests, even with larger allotments, suggest that the request and allotment system is not functioning well[25].

Tracking of stipend programme spending

The tracking of stipend payments through the stipend disbursement system outlined in Section 4.1 has two main components. First, it considers misallocation by assessing the extent to which the criteria for allocating stipends are being adhered to. Do students selected for the stipend programme meet selection criteria? Are these students actually eligible for the stipends they are recorded as receiving? The second component concerns stipend resource leakage and explores whether stipend payments reach the stated beneficiaries. This component explores the loss of resources as they move from the project office through the system to beneficiary households, the extent of 'ghost' beneficiaries and informal payments needed to obtain access to programme benefits.

A number of different sources of information are used to construct a picture of how well the stipend programme is functioning in terms of allocating stipend resources below the upazila level:

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[25] In fact the overall stipends budget for 2004/05 was reduced in the revised budget, perhaps reflecting the inability of UEO offices to disburse the increased budget allocation.

- information from the project office on allotments and disbursements to upazilas made through the NCBs. These data are used to verify the information obtained at the UEO office for overall stipend allotments and disbursements in sampled upazilas;

- information on school stipend bills collected at both the UEO office and school for 2004. These data are used to verify that information at the UEO office submitted to the NCBs for payment is consistent with school requests;

- a random sample of class 4 students from the October–December 2004 bill. Information on attendance and payment requests are collected at the UEO office and verified using school records. This information allows an analysis of whether attendance information on the stipend bills is consistent with school attendance records, payment requests are consistent with attendance levels and stipend students are actually present in sampled schools[26];

- a random sample of class 5 stipend card holder households. Information is collected from parents to verify that school disbursement records are consistent with payments received by the households; and

- other information. Information from SMCs, headteachers and information from households of stipend and non-stipend holders also contribute to the analysis.

Stipend selection and eligibility criteria

School eligibility criteria

On the whole, schools participating in the stipend scheme in 2004 satisfied the school eligibility criteria set out in the project proforma[27]. School eligibility criteria appear to be well enforced by UEO offices; a quarter of schools participating in the programme had, at one time or another, been suspended from the scheme. In 2004, 3% of schools participating in the programme had been temporarily suspended. The most common reason for school suspension was the failure of the school to enter sufficient class 5 students into the scholarship examination.

Stipend card holder selection

As section 4.1 discussed, SMCs are responsible for the selection of stipend card holders based on the criteria set out under the programme. The first four rows of Table 4.5 correspond to the criteria for the selection of stipend holders outlined in the project proforma and it is clear that most schools report using the official criteria to select students. However, schools also commonly select orphans and talented students for the stipend programme. Given the programme's overall objective it is perhaps not surprising that orphans are included. However, it is surprising that nearly two-thirds of schools provide stipends to talented students. While some talented students will come from poor backgrounds, many will not.

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[26] Approximately 8% of bills selected for these comparisons are taken from earlier quarters of 2004 because, at the time of the survey, the last quarter bill for sampled schools was unavailable.

[27] Only one primary school had failed to achieve a scholarship participation rate in 2003 of 10% or above. Information on attendance in 2003 was not available to assess whether schools had achieved an overall attendance rate of 60% or above. Attendance rates for 2004 calculated from school registers, reported in chapter 11, show that only one school had an attendance rate below 60% and even there the attendance rate was 58%. However, chapter 11 also shows that school registers tend to overestimate actual attendance. If an adjusted headcount measure is used average attendance rates are only 65% suggesting that a larger number of schools would not qualify for the stipend programme.

Table 4.5   Criteria used by SMCs to select stipend card holders (% of schools)

	GPS	RNGPS	Total
Schools reporting they used these criteria (%)			
Female headed households	26	15	22
Households of day labourers	59	48	55
Insolvent professionals	79	70	76
Households with less than 0.5 acres of land	26	38	30
Guardian looking after orphan	23	20	22
Talented students	67	51	61
Schools reporting using at least one of the official selection criteria (%)	99	95	98
Schools reporting using all four of the official selection criteria (%)	1	1	1

Source: SSPS data from SMCs. Note: Percentages of schools reporting different criteria do not add up to 100% because SMCs often reported schools used more than one criterion for selecting stipend holders.

Participation in the stipend scheme is determined by a student's poverty status relative to other students in the same school. It is therefore difficult to fully assess whether the stipend scheme is actually selecting the poorest 40% of students in each participating school. However, it is possible to look at how poor they are compared to the distribution of all students in eligible schools as a whole. Table 4.6 ranks households in stipend participating schools by their level of consumption expenditure in order to calculate the proportion of stipend and non-stipend card holders that are drawn from the poorest 40% of households of class 5 students in participating schools. The table shows that 43% of stipend card holders are drawn from the poorest two quintiles while 33% of card holders belong to the richest two quintiles. Table 4.6 also shows that 39% of students that are not participating in the stipend scheme are from the poorest two quintiles. These findings suggest that, at the national level, stipend targeting results in only slightly higher proportions of poor students in participating schools obtaining the stipend compared to richer students and a large proportion of poor students being excluded from the stipend programme. Table 4.6 only reports targeting information for class 5 stipend holders and may not reflect the situation in other classes of primary school. However, a recent study looking at all primary classes reported a similar finding; 26% of all stipend card holders were drawn from the richest 33% of the population of households with students of primary school going age (Ahmed and Sharmeen, 2004)[28].

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[28] These findings are also similar to findings from the previous FFE programme which used similar criteria for programme participation; 43% of beneficiaries were from the poorest two quintiles and 35% were from the richest two quintiles (Ahmed and del Ninno, 2002)

Table 4.6   Socioeconomic status of class 5 students[1] (%)

Consumption quintile[2]	Stipend card holders			Non-stipend card holders		
	GPS	RNGPS	Total	GPS	RNGPS	Total
Bottom quintile	21	23	22	20	17	19
Lower middle quintile	19	25	21	21	16	20
Middle quintile	24	21	24	18	19	18
Upper middle quintile	21	15	18	19	25	21
Top quintile	16	16	15	23	23	23
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: SSPS data from sampled Class 5 households. Note: (1) Quintiles are based on the population of households of class 5 students who attend schools that participate in the stipend programme. This population is used to explore the extent to which the poorest 40% of students from these households receive a stipend. However, it is also interesting to look at the proportion of poor households in the population as a whole who receive the stipend. Using the Household Income and Expenditure Survey (HIES), annex Table A2.4 reports the proportion of stipend card holders in each quintile based on the population of all households in Bangladesh. (2) Quintiles by school type are calculated separately for GPS and RNGPS students in stipend participating schools.

Table 4.1 showed that less than 5% of stipend card holders were joint card holders. Nearly half of class 5 stipend holders had siblings enrolled in the same school. However, over 95% of these stipend holders were single card holders. This implies either that their siblings are non-stipend card holders or they also hold single cards. Given that one family member is qualifying for the stipend scheme it seems unlikely that, in most cases, their siblings would not also qualify. This appears to suggest that resources are being misallocated either because siblings are not stipend card holders when they come from families that qualify or that they are registered as single card holders when in fact they should be joint card holders. Further work is needed to understand which of these explanations dominate.

Stipend card holder eligibility criteria

To be eligible for a stipend payment in 2004, stipend card holders must have scored 40% or more on the end-of-year examination. Information was collected on the 2003 examination results for a sample of current class 5 stipend card holders and this is reported in Figure 4.3[29]. Approximately 8% of stipend card holders failed to achieve a sufficient score in the examination to qualify for stipend programme participation in 2004. However, most of these students did not have their stipend cards suspended and remained eligible for stipend payments. Of those that were eligible for a stipend payment in the last quarter of 2004, 7% had scored below 40% in the 2003 end-of-year examination (see Figure 4.3)[30]. The proportion of students that should not have been eligible for stipend payments is approximately two percentage points higher in RNGPSs than GPSs.

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[29] Figure 4.3 cannot be directly compared with Figure 4.2 for two reasons. Firstly, Figure 4.2 only reports why cards were suspended but does not indicate what students did after their cards were suspended (e.g. drop out, repeat etc.). Secondly, the denominators in the graphs are slightly different as the denominator in Figure 4.3 is total eligible stipend card holders.
[30] Not only did schools fail to suspend these card holders but they did not prevent these card holders from receiving stipend payments during 2004.

Figure 4.3   Percentage of eligible stipend card holders achieving less than 40% in the 2003 end-of-year examination
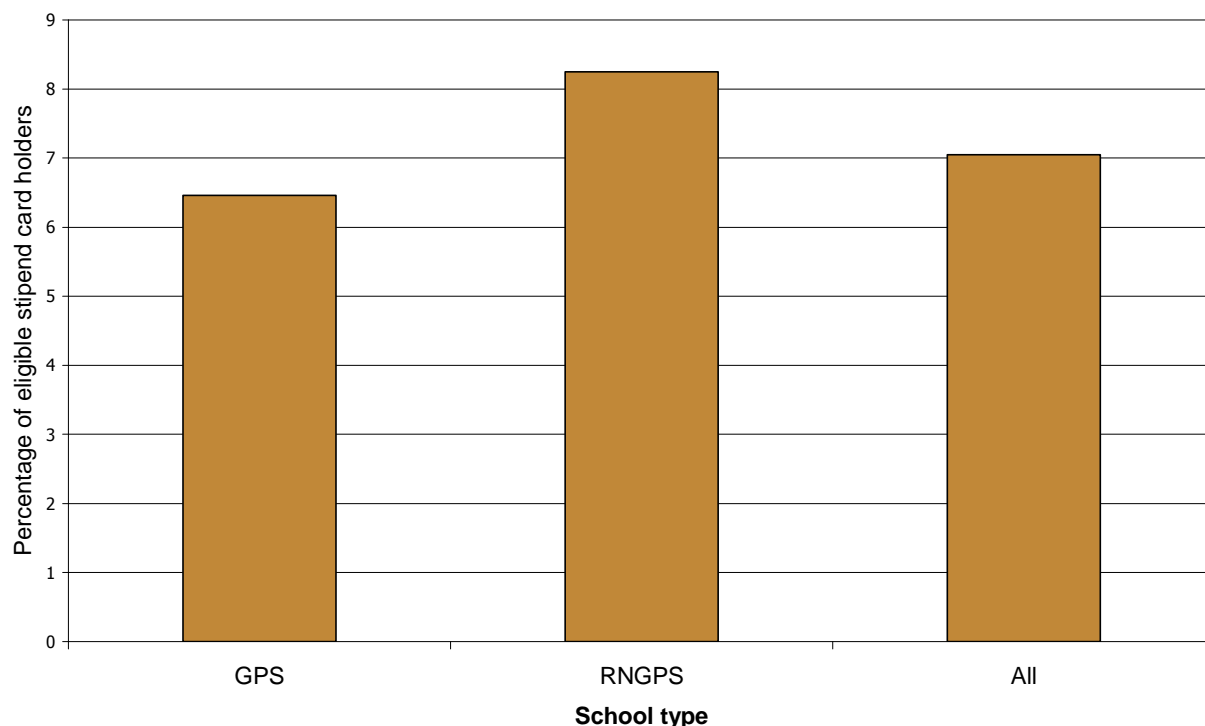
Source: SSPS data from schools on sampled class 5 students.

For students fulfilling the stipend examination criteria, levels of stipend payment are determined by their monthly attendance record. Table 4.7 compares the attendance rates on school bills recorded at the UEO office and attendance rates taken from school registers. It should be recalled that information on the school bill at the UEO office is sent to the NCB to make payments and is therefore the information used to allocate stipend resources. The table shows that attendance rates submitted as part of a school's stipend bill are in general higher than those recorded in school attendance registers which in turn also appear to be inflated (see chapter 11).

Table 4.7 shows that around two-thirds of eligible stipend students would have the same number of months of stipend eligibility regardless of which source of attendance rate information was used. Interestingly, school bill and attendance register information are consistent for a larger proportion of GPS compared to RNGPS students. Some 27% of eligible students, on the school stipend bill, have a greater number of months of eligibility than school attendance registers would suggest. Most commonly, school bills show an additional month of eligibility compared to attendance registers. In RNGPSs 9% of students have fewer months of eligibility on the school bill than their attendance register records would suggest. Apart from errors in bill preparation, it is possible that this is reflecting the insufficient allotments that schools received in 2004 (see Table 4.3)[31].

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[31] Data in Table 4.7 is almost exclusively taken from the final quarter school bill when the proportion of RNGPSs reporting insufficient funds was much higher (see Table 4.3).

Table 4.7   Comparison of upazila and school attendance records for eligible stipend holders[32]

	GPS	RNGPS	Total
Average attendance rate recorded on school stipend bill sent to upazila (%)			
Month 1	94	91	92
Month 2	96	87	92
Month 3	95	91	93
Average attendance rate from school attendance registers (%)			
Month 1	90	87	88
Month 2	93	91	92
Month 3	92	85	88
Comparison of number of months of eligibility based on upazila and school attendance records (%)			
Upazila and school show same months of eligibility	77	56	69
Upazila shows 3 months extra eligibility	4	4	4
Upazila shows 2 months extra eligibility	3	7	4
Upazila shows 1 month extra eligibility	16	25	19
School shows 1 month extra eligibility	1	8	3
School shows 2 months extra eligibility	0	1	0

Source: SSPS data from UEO offices and schools on a random sample of class 4 students.

What does this imply for the allocation of stipend resources to eligible stipend students? Using the information in Table 4.7 it is possible to compare the total expected stipend payments, based on attendance rates taken from school registers, with school records of actual stipend disbursements (see Table 4.8).

The pattern of expected to actual payments is similar to the pattern in Table 4.7[33]. Table 4.8 shows that around two-thirds of all eligible stipend holders are recorded as being paid the correct amount according to their attendance record at the school. However, one in five stipend holders are paid quarterly Tk 100 or Tk 125 too much depending on whether they were single or joint card holders. This is consistent with the finding in Table 4.7 which shows that students' attendance records are often exaggerated by one month on the school stipend bill. Table 4.7 also shows that some students are paid less than would be expected based on their attendance records. This is again likely to be due to the insufficient funds schools received in 2004 (see Table 4.3). The final row of Table 4.8 provides an estimate of the proportion of stipend resources that are being incorrectly allocated because of inconsistencies in student attendance figures[34]. It shows that approximately 13% of stipend resources are being misallocated. It should be noted that, given the evidence reported in chapter 11 on student attendance register inflation, this is likely to be an underestimate of the misallocation resulting from over-reporting of attendance.

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[32] Approximately 8% of bills selected for these comparisons are taken from earlier quarters of 2004 because, at the time of the survey, the last quarter bill for sampled schools was unavailable.
[33] They are not exactly the same because the latter uses school records of disbursements while the former is a comparison of attendance rates on the school stipend bill and the school attendance register.
[34] Calculations for these figures include students that are recorded as receiving a smaller stipend payment than would be expected based on school attendance data (i.e. students who fall into the last two rows of Table 4.7)..

Table 4.8   Misallocation of stipend resources through incorrect application of attendance eligibility criteria

	GPS	RNGPS	Total
School recorded disbursement compared to expected quarterly stipend payment calculated from school attendance register (% of eligible stipend holders recorded on school bill)			
Correct amount	75	55	68
Tk 300/375 too much	4	4	4
Tk 200/250 too much	3	7	4
Tk100/125 too much	15	26	19
Tk300/375 too little	2	0	1
Tk200/250 too little	1	1	1
Tk100/125 too little	1	6	3
Misallocation of resources (% of total recorded stipend disbursement)	11	16	13

Source: SSPS data from schools for sampled Class 4 students. Notes: (1) The first panel of the table reports the difference between the actual school recorded stipend disbursement and the expected stipend payment for the last quarter of 2004. For example, schools may report disbursing Tk 300 to a student implying that he/she achieved an attendance rate of 85% or higher in each of the three months of the stipend quarter. If attendance rates for the student, in the school register, show an 85% attendance rate in only two of the three months the student's expected payment is Tk 200 and will be reported in the table as receiving Tk 100/125 too much. (2) The figures do not exclude students that are recorded as eligible even though they failed to achieve the 40% annual examination score.

Putting together information on misallocation due to both types of eligibility criteria (end-of-year examination and attendance) Figure 4.4 reports estimates of the overall proportions of stipend resources that are misallocated[35]. For the whole stipend scheme nearly 20% of stipend resources are allocated to ineligible stipend holders. Throughout this section misallocation appears slightly more problematic in RNGPSs compared with GPSs. The findings imply that the mechanisms the stipend programme has to monitor and verify stipend payments (e.g. stipends monitoring officer and AUEO verification) are not working well. It should be recalled that misallocation reported here is based on a comparison of registers and bills that are readily available at UEO offices and participating schools.

How do these misallocation figures compare with other stipend programmes in Bangladesh? The SSPS in secondary education explored misallocation in the secondary school stipend programmes and found slightly higher misallocation rates. For example, it was found that 34% of Class 8 students did not satisfy attendance and examination criteria although they were still recorded as eligible for a stipend payment (FMRP, 2005). Misallocation does not necessarily imply that the stipend resources are being diverted from primary school students for other uses. The following section explores whether the eligible stipend holders identified in this section actually receive the recorded payments.

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[35] It should be noted that different sources of information have been used to calculate the overall misallocation estimates reported in Figure 4.4. In particular, the percentage of eligible students that did not achieve the required score in the 2003 end-of-year examination is for students of class 4 in 2004 whose households were interviewed for the SSPS. Data for misallocation due to incorrect attendance information is based on a random sample of class 4 students in 2004.

Figure 4.4   Estimated stipend resource misallocation[36]
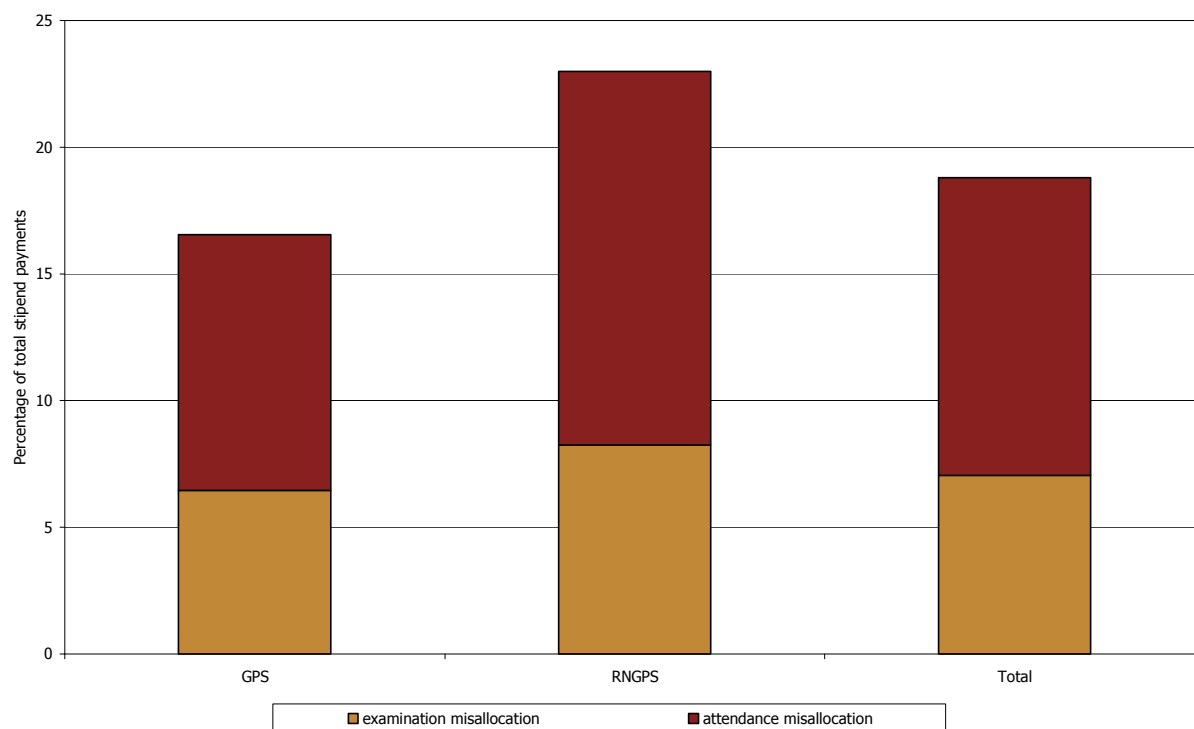
Source: Data from Figure 4.3 and Table 4.8.

Leakage

Student stipends

Records were compared to assess whether stipend funds recorded as being sent by the project director's office had actually reached the intended upazilas[37]. While the majority of information on upazila stipend allotments is the same at upazila and project offices, approximately 9% of upazilas recorded higher allotment amounts compared to the project office. However, the differences are very small and most likely caused by recording errors (see Table 4.9). Similarly, disbursement data for sampled upazilas collected at project and UEO offices match almost exactly and again where there are differences they are extremely small (see Table 4.9).

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[36] The percentages in Figure 4.4 for misallocation due to incorrect attendance information are different to those reported in Table 4.8 because in Figure 4.4 they are adjusted for the percentage of eligible students that did not qualify for stipend eligibility due to their failure to achieve a 40% score in the 2003 end-of-year examination.
[37] It should be noted that UEO offices do not themselves receive any stipend funds. Stipend funds are disbursed through local branches of the NCBs.

Table 4.9   Tracking Oct-Dec 2004 stipend funds between project and UEO offices

	Allotment	Disbursement
Project and UEO offices record the same amount	90	99
Project office records higher amount than UEO office	2	-
Project office records lower amount than UEO office	9	1
Average difference (% of project office record)	-0.2	0.1

Source: SSPS data from project and UEO offices. Upazila disbursement information for the project office is gathered from information sent to the project office from the NCBs. Upazila allotment information for the project office is taken from project office records.

Tracking actual disbursement from the upazila office to participating schools is seriously hampered by the lack of disbursement records for individual schools after NCBs have disbursed stipends[38]. Because of this it is not possible to verify school recorded disbursement with NCB disbursement records directly. However, it is possible to compare the school bills that UEOs submit to the NCB with school stipend request and disbursement records.

It was shown in Table 4.3 that it is relatively common for school disbursement records to show less than the amount requested on the stipend bill submitted to the UEO office. The difference between the total payment amount on the stipend bill and what schools record as disbursing may be evidence of schools keeping a share of stipend funds. Taking all schools together the average difference between the stipend bill and the disbursed amount is 4%[39]. However, the lack of NCB school disbursement records makes it impossible to judge the extent to which these small differences are due to fund leakage or to schools not receiving their full stipend bill request due to lack of funds.

Table 4.10   Stipend payment verification for class 5 stipend holders

	GPS	RNGPS	Total
Difference between school recorded disbursement and household reports (% of class 5 stipend holders)			
Household received more	4	6	5
Household received same amount	81	80	81
Household received Tk 1 to Tk 99 less	5	7	6
Household received Tk 100 less	7	3	6
Household received Tk 120 to Tk 375 less	2	3	2
Average difference in household receipt (Tk)	48	3	32
Stipend payment loss (% of total recorded stipend disbursement at school)	3	0	2

Source: SSPS data from schools and households. Note: Verification is carried out for the last quarter payment in 2004. Only students that both household and school confirm as eligible stipend card holders are included.

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[38] It is also not possible to compare easily the total number of stipend cards paid by the NCBs and the total number of cards on the upazila stipend bill. This is because the upazila bill reports the number of cards paid each month of the quarter while the NCBs report total number of stipend cards paid over the whole quarter. These figures are not comparable.
[39] These statistics are different to those reported in Table 4.3 because they include all schools and in particular the majority of schools that show no difference between stipend bill and disbursed amounts.

Table 4.10 compares school records of disbursement to the amount that class 5 households recall receiving for the last quarterly disbursement in 2004. Over 80% of stipend holders report receiving the stipend payment that schools report disbursing. Approximately 5% of households recorded receiving stipend payments in excess of the school recorded amount. This is likely to be due to poor recall of households and perhaps poor school record-keeping of disbursements. The remaining 14% of households recorded receiving less than schools had recorded as disbursed. The difference between payment and receipt was most commonly Tk 100 or less. Again, some of these differences are likely to be caused by household recall or school record errors. However, given the greater proportion of households reporting that they received less compared to those reporting they received more it seems clear that, in some cases, stipends are not being paid in full.

The average difference between receipt and payment was Tk 32, with much higher differences recorded in GPSs[40]. The average difference for RNGPS students is low because of the higher proportion of households reporting that they received much higher payments from the school than the school recorded. For households that do not receive the amount that schools claim they disbursed this represents roughly 13% of their stipend payment and represents a loss of 2% of total stipend resources (see Table 4.10).

Experience from other countries suggests that cash-based transfer systems, like the stipend programme, have sometimes suffered from the existence of 'ghost' beneficiaries. These beneficiaries receive transfers even though they do not actually exist. Managers of the system create 'ghost' beneficiaries to capture a share of the resources flowing through the system. Interviews undertaken of a sample of class 5 student households can be used to explore whether 'ghost' beneficiaries exist in the primary education stipend programme.

Table 4.11   Tracing class 5 stipend card holders

	GPS	RNGPS	Total
Household verifies student as card holder (% of all class 5 stipend holders)	95	90	93
Household failed to confirm student as card holder although child enrolled in sampled school (% of all class 5 stipend holders)	3	4	3
Household failed to confirm student as card holder and also student not enrolled in sampled school (% of all class 5 stipend holders)	0	2	1
Household could not be interviewed	2	4	3
Total	**100**	**100**	**100**

Source: SSPS data from schools and households.

Table 4.11 breaks down information from households who, according to school records, were stipend card holders in 2004. For example, 93% of all class 5 stipend card holders, according to school records, are confirmed as card holders by their households. Households of 3% of students, shown as attending the sampled school and holding a stipend card by the school, failed to confirm that their children held stipend cards. There were also a small proportion of card holder households that not only failed to confirm that they were card holders, but also stated that their children had not attended the sampled school in the last year. In total, just under 1% of class 5 stipend holders fell into this category.

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[40] The average difference includes households that report receiving a stipend payment greater than the school reports as disbursing.

Putting together the information in Table 4.11 shows that approximately 4% of stipend holders recorded at the school were not confirmed as stipend holders by their households (see Table 4.12). How many of these student stipend cards did schools report actually paying a stipend to in the last quarter of 2004? Table 4.12 shows that approximately two-thirds of these cards are reported by the school as being paid. These figures imply that approximately 3% of total stipend resources are allocated to students whose households failed to confirm their participation in the stipend programme (see Table 4.12).

Table 4.12   Payment status of unconfirmed stipend card holders

	GPS	RNGPS	Total
Total households who failed to confirm student as a card holder (% of all class 5 stipend holders)[1]	3	6	4
Was stipend payment made to unconfirmed card holder in Oct–Dec 2004? (% of unconfirmed card holders)			
Yes	67[+]	58[+]	63[+]
No	33[+]	42[+]	37[+]
Stipend payment loss for students who according to household are not stipend holders (% of total recorded stipend disbursement at school)	2	4	3

Source: SSPS data from schools and households. Note: (1) The first row of the table is taken from Table 4.11 and is the sum of the two rows reporting the percentage of card holders whose households could not confirm their participation in the stipend programme. (2) + denotes estimate was generated using fewer than 30 observations.

Figure 4.5 compiles the information on the percentage value of stipend payments that cannot be confirmed as being received by the intended beneficiaries (Table 4.10 and Table 4.12). Overall, approximately 5% of stipend payments in GPSs and RNGPSs cannot be accounted for in this way. These levels of loss appear to be small when they are compared with leakage levels in the FFE programme that preceded cash stipends. One study showed that 71 per cent of FFE beneficiaries claimed that the quantity of foodgrains received was less than their entitlement (Ahmed and del Ninno, 2002). The same study suggested that in some cases this leakage was as high as 66% of the total value of foodgrains beneficiaries were entitled to[41].

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[41] The World Bank estimated that as much as 75% of allocations of FFE did not reach beneficiaries although this was not based on a formal tracking exercise but estimates of total consumption of FFE foodgrains from the 2000 HIES (World Bank, 2003)

Figure 4.5   Estimated stipend payment loss (%)
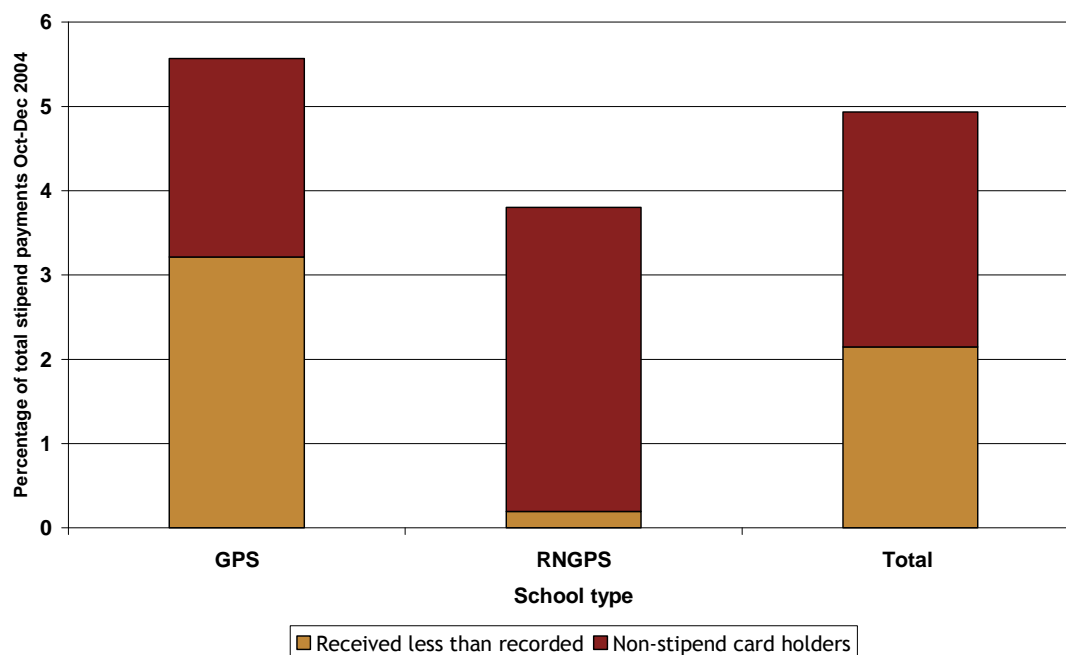
Source: Data from Table 4.10 and Table 4.12

Stipend school contingency payments

Schools participating in the stipend programme are eligible for an annual Tk 1,000 contingency payment disbursed through the UEO office (see Section 4.1). In 2003/04 nine out of 10 schools received the full Tk 1,000 contingency payment while most of the remaining schools received less. Comparing upazila disbursement records with school records suggests that for GPSs approximately 6% of the total value of contingency payments in 2003/04 are recorded as being sent by UEO offices but are not received by schools. For RNGPSs the average discrepancy is zero.

Informal payments

Households holding stipend cards were asked whether they needed to make an informal payment to obtain the card for their child. Approximately one in 10 households said that they made an average payment of Tk 46 to get their child admitted onto the stipend programme (Table 4.13). A slightly higher proportion of RNGPS households reported having to pay and also reported paying almost double the amount a GPS household reported paying to obtain a card.

Table 4.13   Informal payments on the stipend programme

	GPS	RNGPS	Total
Households reporting they needed to make a payment to obtain a stipend card for their child (%)	7	12	9
Average amount required to obtain a stipend card (Tk)	32	63	46
Households reporting they needed to make a payment to receive last stipend payment (%)	16	18	17
Average amount required to obtain quarterly stipend payment (Tk)	14	30	20

Source: SSPS data from households. Note: Households who do not hold stipend cards are excluded from the table.

Approximately one in six households reported having to pay to receive their stipend payment. This is slightly less than the 25% reporting having to make payments in a study conducted in 2003 (Ahmed and Sharmeen, 2004) suggesting that informal payments may have declined[42]. Poorer households were more likely to report having to pay for a stipend than richer households. For example, 20% of stipend recipients in the poorest quintile of the population of Bangladesh reported having to make payments compared to only 9% in the richest quintile. Not only were RNGPS student households more likely to make an informal payment to receive a stipend payment, they paid more than double the average amount paid to receive a stipend in GPSs. For GPS households this informal payment represents approximately 5% of the stipend payment received whereas for RNGPS households the payment represents 15%.

Concluding remarks

The tracking exercise shows that misallocation of stipend resources is quite high, particularly if the findings on programme targeting are also considered. Leakage from the system appears to be quite low and, notwithstanding allotment shortfalls, management of the stipend disbursement system to the school level appears good. The majority of misallocation and leakage appears to occur at the school level, although the survey did not explore whether other offices were involved at this level. For example, it is clear that informal payments for stipend cards and quarterly payments are made at the school, but it is not clear whether the funds collected remain only at the school. It is interesting to note that during the four years of programme implementation approximately 400 complaints have been received by MOPME concerning irregularities in the stipend system. Of these 74 have been proven following investigations and disciplinary action has been taken on responsible individuals. A sum of Tk 218,105 has been recovered from these investigations[43].

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[42] It should be noted that the 2003 study included all schools under the stipend programme and the higher figure may reflect a higher incidence of payments in schools not covered in the SSPS (e.g. community schools and IEMs).
[43] This information was provided by the project office in Dhaka.

5   Private Finance

Key findings:

-   Households of class 5 students in GPSs paid an average of Tk 1,746 for that student's education in 2005; those in RNGPSs paid an average of Tk 1,266. Mean expenditure for AEM students (in 2004) was Tk 1,053.

-   Some 87% of households in all school types pay fees directly to the school, but these represent a tiny proportion of their overall expenditure on education (an average of Tk 43, Tk 37 and Tk 87 per student in GPSs, RNGPSs and AEMs respectively). By far the bulk of expenditure is devoted to indirect costs, with private tuition, stationery, tiffin and school clothes expenditure being the most significant components.

-   Educational expenditure rises with overall household consumption: households of class 5 GPS/RNGPS students in the top national consumption quintile spend two to three times as much on that student's education as those in the bottom quintile. Expenditure on non-stipend holders is, on average, greater than that on stipend-holders, partly because there are more non-stipend holders in the higher consumption quintiles than in the lower ones. Average expenditure on male students is higher than on female students.

-   Private tuition is the largest component of class 5 household education expenditure, but it is very unequally distributed: only 44% of GPS students' households purchased any private tuition for their child in the survey year (36% in RNGPSs and 34% in AEMs).

-   Some 22% of class 5 students' households have been required to make an informal payment at some point during that student's education. The average amount paid each time is Tk 26.

-   Households spend more per year on education as a student progresses through primary school, so estimates for expenditure on class 5 students exceed the average expenditure when all primary classes are taken into account. Average expenditure on GPS/RNGPS students in any class is Tk 854 per year.

-   Just over 20% of GPSs and RNGPSs received SMC contributions, the average annual total value of which was Tk 13,680. SMC contributions form only a small component of overall funding to schools.

It is not the case that the public budget which was discussed in chapter 3 is the only source of financing for primary education in Bangladesh. On the contrary, a very substantial contribution to primary education funding is also made by the private sector. Some of this money goes directly to schools, for use in day-to-day running or for construction work; the remainder goes to other providers of educational supplies and services, such as private tutors and retailers of school materials. The source of the funding may include students' households, local communities, NGOs and private corporations. These substantial resource flows are not captured by analyses of centrally held data on education funding. The size and distribution of this private expenditure are analysed in the present chapter.

Section 5.1 outlines very briefly the policy context for private contributions to primary education. Section 5.2 examines in detail educational expenditure by households of class 5 students, and section 5.3 examines the funding provided collectively by local communities.

5.1 POLICY CONTEXT

Schools are permitted to raise funds from private sources to supplement the public funds they receive. Indeed, it might be expected that this would be a key task for RNGPSs, whose publicly generated income is much lower than that in GPSs (see chapter 6). However, in general, schools are not authorised to charge fees to the households of their students. The exception is for examination fees, of which two types are permitted:

- school examination fees—these are payments for internal examinations that take place three times per year using papers prepared internally by the school or purchased from the local teachers' association. The payments cover the costs of stationery, photocopying and any purchase of question papers. The school sets the fee rate; and

- class 5 scholarship examination fee—schools must enter at least 20% of class 5 students into this external examination each year. The question paper is set nationally. The fee is fixed (about Tk 40). The headteacher passes payment to the UEO who passes 50% to the upazila education committee (UEC) and 50% to the deputy director of the division.

In practice some schools reveal an informal system of charging fees to households, especially for extra-curricular activities. Actual amounts paid may vary according to ability to pay. In addition schools may be able to raise funds through contributions made by the local community. One important channel through which this operates is the SMCs.

5.2 HOUSEHOLD EXPENDITURE

Each household of sampled class 5 students in GPSs and RNGPSs was asked about how much they had spent on the education of that student in 2004 (when most were in class 4), and in 2005 up to the day of the interview. The AEM survey followed a similar approach, but the household expenditure data relates to expenditure on class 5 students in the 2004 school year. In the analysis that follows, all references to 'households' denotes the households of GPS/RNGPS class 5 students, unless AEMs are also specified.

Table 5.1 shows the distribution of household spending on the education of class 5 students, for GPSs, RNGPSs and AEMs, broken down by direct and indirect costs. Direct costs are the fees paid directly to the school; indirect costs are those that go to other service providers or suppliers of educational materials.

All households of class 5 students who attend GPSs and RNGPSs incur some expenditure related to the education of that student. GPS class 5 students' households spend 38% more overall than their RNGPS equivalents, with mean expenditure in 2005 amounting to Tk 1,746 and Tk 1,266 in the respective school types (Table 5.1). GPS students are considerably more likely than RNGPS students to incur private tuition and transport costs in particular. Amongst AEM class 5 households, 99% spend something on the education of that student. The average expenditure of Tk 1,053 is 17% lower than in RNGPSs and 40% lower than in GPSs. The households of AEM students are far less likely than their GPS/RNGPS equivalents to incur expenditure on school clothes or tiffin.

Some 86–87% of all students in all school types pay some fees to their school. As expected, by far the most common fee paid is for school examinations: more than four in every five households pay this fee. Expenditure on scholarship exams appears to be incurred by a smaller proportion of households than the minimum 20% of students who are obliged to sit

the exam, but it is possible that the incidence of this payment was under-reported by the survey since it takes place only at the end of the year. A small proportion of households report paying fees which are not formally authorised, mainly for extra-curricular activities such as sports and cultural events[44]. The total amount spent directly on all fees to the school, however, is a tiny proportion of overall private education expenditure, amounting to just 2%, 3% and 8% of spending on class 5 students at GPSs, RNGPSs and AEMs respectively.

The bulk of expenditure is devoted to indirect costs. The overall distribution of this expenditure depends on both the proportion of students incurring each cost and the mean amount incurred. For all students, stationery and textbooks are the most commonly purchased items (nearly all households purchase stationery, and over 80% purchase textbooks). In terms of costliness, for those households incurring these costs, private tuition, transport and tiffin are the most expensive items. Combining these, the most significant components of total household education spending are private tuition, stationery, tiffin and school clothes expenditure, with private tuition being the largest component, comprising 30% of the total. Private tuition expenditure patterns are explored in more detail in a subsequent subsection.

Households in all school types were asked whether they had made any informal payments to the school. These payments are reasonably common with one in 10 GPS class 5 students and one in five RNGPS and AEM class 5 students incurring them, the average expenditure being Tk 31 in GPSs and AEMs and Tk 52 in RNGPSs. Informal payments were mainly required to receive textbooks or stipend payments, although a few households reported having to pay to ensure their child had been promoted to class 5 at the start of the year. The incidence of these payments is examined in more detail below.

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[44] The SSPS compared the data with records held at the school. Some schools kept records of their income from these sources, and made them available to the survey; others did not. About one in 10 households report paying a fee that the school does not report charging. One explanation for this discrepancy is that schools are, perhaps understandably, not recording receiving fees they are not supposed to charge: this would imply that the figures for schools' fee income presented in chapter 6 may be slightly underestimated. However, it is also possible that these discrepancies are simply due to poor record-keeping at the school or a result of households being confused about precisely what type of fees they have been charged.

Table 5.1   Proportion of class 5 households incurring different expenditure (%) and mean amount incurred (Tk)[1]

Item[2]	GPS				RNGPS				AEM			
	Freq (%)	Average expenditure (Tk)[3]			Freq (%)	Average expenditure (Tk)[3]			Freq (%)	Average expenditure (Tk)[3]		
		Excl. zeros	Incl. zeros	Share (%)		Excl. zeros	Incl. zeros	Share (%)		Excl. zeros	Incl. zeros	Share (%)
All direct costs	**87**	**50**	**43**	**2**	**86**	**43**	**37**	**3**	**87**	**99**	**87**	**8**
School exam	80	39	-	-	85	36	-	-	87	91	-	-
Sports	21	12	-	-	9	11	-	-	7	20	-	-
Re-admission	8	40	-	-	3	38	-	-	-	-	-	-
Cultural	6	9	-	-	6	10	-	-	-	-	-	-
Other	6	34	-	-	3	42[+]	-	-	5	50[+]	-	-
Electricity	5	21[+]	-	-	1	14[+]	-	-	0	23[+]	-	-
Scholarship exam[4]	2	22[+]	-	-	2	26[+]	-	-	3	121[+]	-	-
School development	2	13[+]	-	-	1	19[+]	-	-	2	52[+]	-	-
School tuition	2	129[+]	-	-	1	274[+]	-	-	-	-	-	-
Cubs/Blue Birds	1	3[+]	-	-	0	2[+]	-	-	0	27[+]	-	-
All indirect costs	**100**	**1,703**	**1703**	**98**	**100**	**1,229**	**1,229**	**97**	**99**	**977**	**967**	**92**
Stationery	98	343	337	19	99	285	282	22	99	281	278	26
Textbooks	80	209	166	10	81	142	116	9	85	173	147	14
School clothes	76	315	238	14	70	302	211	17	16	359	58	6
Tiffin	52	604	317	18	50	534	265	21	2	511[+]	11	1
Private tuition	44	1,255	549	31	36	947	337	27	34	1,071	362	34
Informal payments	12	31	4	0	21	52	11	1	22	31	7	1
Transport	12	699	85	5	3	315[+]	9	1	12	705	83	8
Donations	0	500[+]	1	0	0	86[+]	0	0	1	2,017[+]	20	2
Any expenditure	**100**	**1,746**	**1,746**	**100**	**100**	**1,266**	**1,266**	**100**	**99**	**1,065**	**1,053**	**100**

Source: SSPS household data. Notes: (1) GPS and RNGPS figures are for 2005; AEM figures are for 2004. Figures are annualised estimates based on expenditure up to the time of the survey (see annex Table A2.5 for assumptions in projecting this to the whole year). NB This may underestimate expenditure which only takes place at the end of the year, i.e. scholarship exam. (2) See annex Table A2.5 for details of item. (3) 'Excluding zeros' is the average expenditure for all households that incurred some expenditure on that item. 'Including zeros' is the average expenditure across *all* households, including those that spent nothing on that item. 'Share' is the proportion of overall expenditure attributable to each line item. (4) See note 1 above—this expenditure should be incurred by 20% of students, but most had not paid at the time of the survey and it was not possible to predict which students would eventually do so. (5) '+' denotes that estimates have been generated using less than 30 observations.

Variations in expenditure patterns

Education expenditure per student varies quite widely around the mean values shown in Table 5.1. The present subsection examines this variation in detail. Table 5.2 shows how expenditure levels vary by the household's socioeconomic status, the student's gender, whether the student was in attendance on the day of the SSPS test and whether the student is a stipend card holder.

Table 5.2   Mean private expenditure per class 5 student, 2005 (Tk)

GPS							
Quintile[2]	Gender		Took SSPS test?		Stipend holder?		All
	Male	Female	Yes	No	Yes	No	
Bottom quintile	917	865	957	772	994	813	**881**
Lower middle quintile	1,372	920	1,363	812	1,446	974	**1,124**
Middle quintile	1,412	1,341	1,440	1,212	1,395	1,359	**1,373**
Upper middle quintile	2,848	1,891	2,657	1,747	1,779	2,587	**2,396**
Top quintile	2,714	2,692	2,538	2,989	1,970	2,861	**2,705**
Overall	**2,039**	**1,476**	**1,888**	**1,484**	**1,478**	**1,861**	**1,746**

RNGPS							
Quintile[2]	Gender		Took SSPS test?		Stipend holder?		All
	Male	Female	Yes	No	Yes	No	
Bottom quintile	718	896	1,055	521	1,059	599	**817**
Lower middle quintile	946	1,034	955	1,068	1,051	885	**986**
Middle quintile	1,144	1,137	1,236	955	1,259	1,040	**1,141**
Upper middle quintile	1,955	1,297	1,640	1,626	1,598	1,655	**1,636**
Top quintile	1,881	2,043	1,895	2,177	1,704	2,051	**1,964**
Overall	**1,327**	**1,204**	**1,337**	**1,117**	**1,260**	**1,270**	**1,266**

Source: SSPS household data. Notes: (1) '+' denotes that estimates have been generated using less than 30 observations. (2) Household expenditure quintiles have been estimated by comparing each sampled household's total monthly expenditure to the national quintile cut-offs, as estimated by the HIES 2000, adjusting for regional price levels, inflation and economic growth.

As expected, educational expenditure rises with household consumption, with households that fall into the top national consumption quintile spending two to three times more on each student's education on average than those in the bottom quintile. There are striking differences in household expenditure across gender, particularly for GPS students for whom average spending per male student is 38% higher than for a female student. The disparity holds across all quintiles in GPSs, but not in RNGPSs. This variation reflects the higher private tuition expenditure (see Table 5.3 below), although there are also surprisingly high variations in transport and tiffin expenditure (estimates not presented). The households of those

students who were in attendance on the day of the SSPS test spend more on average than the households of non-attending class 5 students, though this pattern is not consistent across all quintiles.

The effect of stipends on expenditure

What impact do stipend payments have on education expenditure? The answer to this question has important policy implications because, in addition to creating incentives for higher attendance rates and exam scores, stipends may also increase private educational spending and thus deliver further education benefits.

Table 4.6 showed that stipend card holders are drawn from households in all consumption quintiles, but that a greater proportion of them are in the lower consumption quintiles than the higher ones. Since expenditure on education rises with total expenditure one would expect that, being richer, non-card holders would therefore spend more on education than card holders. Table 5.2 suggests that this is the case: on average, across all households (see the 'Overall' row), non-card holders are seen to spend more than card holders, although the difference is negligible for RNGPS students.

However, this does not hold true when comparing expenditure on education for households *within* a quintile. In the lowest three quintiles, stipend card holders are able to spend more on education than non-card holders; but in the highest two quintiles they spend less. The direction of cause and effect between holding a stipend and spending more on education (as in the lowest three quintiles) is uncertain. On the one hand, stipend payments may allow households to spend more on education than they would otherwise have been able to afford. On the other hand, households which spend more may place a greater emphasis on education, encouraging the student to attend school and perhaps paying for private tuition to improve exam results, which would enable students to satisfy the requirements for stipend payments. At higher consumption quintiles the stipend payment makes proportionately less of a difference. It is possible that card holders in these higher quintiles are relatively poorer than non-card holders in the same quintile, and that, since the difference between a high- and low-spending household in these quintiles is much greater than that in the lower quintiles, the addition of the stipend is not enough to close the gap in expenditure[45].

The annual value of a full stipend payment is Tk 1,200 for a single cardholder. It is interesting to note that stipend holders in the bottom quintile spend almost 20% less than the value of this stipend on average, while stipend holders in the remaining quintiles all spend more.

External support for household educational expenditure

A very small proportion of students (1%) receive external financial support towards the cost of their education. In most cases the support was provided by a relative from outside the household, but in a few cases it came from a NGO, charity, religious organisation or teacher at the school. The average amount provided was Tk 550, although this estimate was

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[45] Variations in the proportion of total household expenditure spent on education across stipend and socioeconomic status were also analysed. This was done considering both overall household expenditure as well total non-food expenditure. Both show the same pattern as absolute education-related expenditure described above. In other words, at lower levels of income, stipend holders' households spend both a higher proportion of household income, and more in absolute terms, on their education than those of non-stipend holders. At higher income levels, the opposite is true.

generated using relatively few observations. In-kind support is also observed with a small proportion of class 5 students receiving private tuition free of charge[46].

Private tuition expenditure

Table 5.1 reveals that private tuition is the largest component of overall expenditure on the indirect costs of education, amounting to between 27% and 34% of the total in the various school types. However, it is very unequally distributed: the proportion of class 5 students' households purchasing private tuition in the year of the survey was only 44% in GPSs, 36% in RNGPSs and 34% in AEMs. For those households who do purchase it, private tuition accounts for a fairly small proportion of total expenditure, perhaps reflecting the fact that these households tend to be relatively richer. Table 5.3 reveals that, for GPSs and RNGPSs, the proportion of households paying for private tuition, and the amount spent annually, increase with household income.

Table 5.3   Incidence of private tuition expenditure by class 5 students (%), and mean expenditure (Tk), 2005

	GPS		RNGPS	
	Freq (%)	Mean expenditure (Tk)[3]	Freq (%)	Mean expenditure (Tk)[3]
Gender				
Male	47	1,414	40	909
Female	41	1,095	31	995
Household expenditure quintile				
Bottom quintile	31	637[+]	14	1,151[+]
Lower middle quintile	37	796	30	730
Middle quintile	42	931	35	759
Upper middle quintile	49	1,801	47	1,004
Top quintile	56	1,542	60	1,226
Incidence of private tuition, by provider[3]				
Professional tutor	24	1,128	20	905
Teacher	14	1,629	11	976
Friend or relative	3	763[+]	2	1,199[+]
Other[4]	3	1,061[+]	2	987[+]
Overall	**44**	**1,255**	**36**	**947**

Source: SSPS household data. Note: (1) Estimated over all students that pay for private tuition. (2) '+' denotes that estimates have been generated using less than 30 observations. (3) This does not include students receiving private tuition free of charge. (4) 'Other' includes those students who are taught by multiple providers.

As mentioned above, the table shows that variations in both the uptake of private tuition, and the average amount spent on it, may help explain the variations in overall class 5

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[46] Since the focus of this chapter has been private *expenditure*, whenever private tuition has been analysed those students receiving private tuition free of charge have not been considered.

household educational expenditure across gender. There are variations in uptake and expenditure by provider. Private tutors are the most common type of provider; in GPSs, annual expenditure is higher for those students receiving private tuition from a teacher.

Informal payments

Households in all school types were asked whether they had made any informal payments to the school. Six types of charges were reported. The proportion of students in GPSs and RNGPSs paying informal payments and the mean amount paid each time is presented in Table 5.4 below.

Table 5.4   Proportion of class 5 students ever having made an informal payment (%) and mean amount paid each time (Tk)[1]

Purpose of payment	GPS %	GPS Tk	RNGPS %	RNGPS Tk	Total %	Total Tk
Textbook	9	10	18	13	11	12
Admission process participation	10	21	4	21	8	21
Stipend payment[1]	5	14	8	30	6	19
Stipend card[1]	2	32[+]	5	63[+]	3	47
Admission	1	10[+]	2	12[+]	1	11[+]
Promotion	0	10[+]	0	23[+]	0	14[+]
Total						
Male	20	17	23	43	21	24
Female	22	24	27	34	23	27
Overall[2]	**21**	**21**	**25**	**38**	**22**	**26**

Source: SSPS household data. Note: (1) See Table 4.13 for a more detailed discussion of payments related to stipends. Note that different figures are reported in that table for the proportion of households making an informal payment because it only includes households who hold stipend cards. (2) The overall proportion of students having made an informal payment is higher than is shown in Table 5.1 since it includes payments made in any year (e.g. for admission to the school in class 1), not just those payments made in the year of the survey. (3) '+' denotes that estimates have been generated using less than 30 observations.

More than one in five students have been required to pay informal payments at some point. RNGPS students are slightly more likely to do so than those attending GPSs, and pay more on average when they do incur them. For RNGPS students, payments to receive authorised textbooks are the most common type of informal payments. At GPSs, the most common payments are those to ensure participation in the school admission process. This is perhaps a reflection of the fact that places at GPSs are relatively more sought after.

It appears that, when students are required to pay informal payments, the amounts involved are fairly modest. However, it must be noted that payments for textbooks, promotion and stipend payments are likely to be recurrent, and thus over time the aggregate expenditures involved could be substantial. It is also possible that these estimates may underestimate the proportion of students paying informal payments, due to both the sensitivity of the issue and because of potential confusion by households as to whether payments made to schools were informal payments or formal (but potentially unauthorised) school fees.

Variations in expenditure by class and implications for aggregate private educational expenditure

A household survey carried out in 2003 (Ahmed and Sharmeen, 2004) found that households' annual expenditure on primary education increases as the student progresses through the school. Other studies confirm this pattern[47]. Using the SSPS estimates of class 5 household expenditure, together with estimates of the relative variation in expenditure across classes 1 to 5 from the Ahmed and Sharmeen study and national figures for enrolment by class (DPE, 2002), it can be estimated that the households of GPS and RNGPS students spent around Tk 12.8 billion on education in 2005. This equates to Tk 854 per GPS/RNGPS student.

5.3 COMMUNITY CONTRIBUTIONS TO SCHOOLS

Students' households are not the only source of private finance. Members of the community also contribute resources directly to schools. Estimates of the proportion of SMCs providing contributions to schools are presented in Table 5.5 below.

Table 5.5   Schools receiving SMC contributions in 2005 (%), and mean value (Tk)

	GPS	RNGPS	Total
Any contribution? (%)	**20**	**24**	**21**
Salary contributions	1	1	1
Nonsalary (cash)	19	20	19
Nonsalary (in kind)	4	8	7
Mean value (Tk)			
Mean value (of those that received a contribution)	18,062[+]	6,827[+]	13,680
Mean value (including those that received nothing)	3,674	1,624	2,949

Source: SSPS data from SMCs. Note: (1) '+' denotes that estimates have been generated using less than 30 observations.

The estimates suggest that SMC contributions are reasonably common and usually take the form of financial contributions to non-salary costs. It appears that SMC members provide most of these funds themselves, being the main source of funds in 84% of cases (data not shown). In a further 9% of cases local businesses contributed the largest amount. In comparison to overall private expenditure on primary education, the community contributions shown above are not very significant. In fact, the schools' own records suggest that income from these sources is even lower than indicated in Table 5.5. The schools' own assessments of their incomes are analysed in sections 6.2 and 6.3 of the following chapter.

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[47] See for example annex 6.8 in a report by CAMPE (2002).

6   Finance Overview

Key findings:

- Total resources flowing into the primary education sector (except madrasahs) in 2003/04 are estimated at Tk 33 billion, of which 61% is provided by the government and 39% by private households.

- This amounts to approximately Tk 1,350 of government funding and just over Tk 850 of private funding for every GPS/RNGPS student.

- In 2004/05 the average GPS had an income of Tk 383,250, which is 60% more than in AEMs and over 200% more than in RNGPSs. Much of this difference is driven by the greater number of teachers in GPSs.

- AEMs are much better than other school types at obtaining additional private funds.

- Part of the difference in school income is due to variations in enrolment. Taking enrolment into account, average per-student income is similar in GPSs and AEMs (Tk 1,622 and Tk 1,656), since AEMs have a much lower student–teacher ratio, but still much lower in RNGPSs (Tk 678).

- Students in the lowest socioeconomic quintile tend to attend schools with fewer resources per student than those in the highest socioeconomic quintile.

Chapters 3 and 5 showed that resource flows into primary education in Bangladesh comprise both public funds and private contributions. In fact, as the present chapter will show, private contributions account for over one-third of all expenditure on education. This enormous input made by private households to support primary education is not apparent from school-level analyses of income and expenditure. Most of the income received by schools is drawn from public sources, with private individuals contributing small amounts in the form of fees and monetary or in-kind donations to support specific activities. However, as Table 5.1 indicates, households are spending much more on education than simply the funds that reach the school directly. School fees constitute just a tiny fraction of annual private expenditure on education for the average household of a class 5 student, with the remainder being composed of private tuition, and essential materials and services relating to school attendance, such as stationery, school dress, tiffin and textbooks.

So, what is the overall level of financing of primary education in Bangladesh? How much does the average school get, and what volume of resources reaches the average student? These three questions are discussed in sections 6.1, 6.2 and 6.3 in turn.

6.1 TOTAL EXPENDITURE ON PRIMARY EDUCATION

Total expenditure in a sector may be decomposed in different ways. A model which is being used increasingly in the education sector worldwide is one which is already well established in the health sector ('national health accounts'), and which disaggregates total income or expenditure in a four-way matrix with the following dimensions:

- the ultimate **source** of the funds (e.g. government revenue or external assistance);

- the **agent** through whom the funds are channelled (e.g. the government, individuals, corporations);

- the **recipient** (e.g. government schools, non-government schools, madrasahs); and

- the **use** of the funds (e.g. salaries, construction).

A simplified version of this model was used in the secondary education SSPS. It was hoped to apply the same method to primary education expenditure but even a rather basic level of disaggregation is impossible for a considerable proportion of overall resources: for instance, it was not possible to identify how much of the development budget went to the different school types. Table 6.1 therefore presents expenditure on primary education in 2003/04 using a limited disaggregation of the last three dimensions listed above. Note first the following provisos:

- funds received by AEMs are not included since most of this expenditure is channelled through the budget of the Ministry of Education, not MOPME;

- development budget figures do not include the value of stipends distributed to households, since these are a form of conditional transfer and any expenditure incurred using this money will be counted as part of private household expenditure (administration of the stipend scheme is, however, included);

- any funds provided by international donors in the form of direct budget support are incorporated into the revenue budget, and donor-funded development projects are incorporated into the development budget; and

- funds from private sources other than households, e.g. from private firms, NGOs, schools' own investments, SMCs etc., are not shown because it is difficult to obtain comprehensive and accurate records for this expenditure.

Table 6.1   National primary education expenditure 2003/04 (Tk 000s)

Recipient/Use	MOPME Revenue budget	MOPME Development budget	Households[1]	Total Expenditure	Proportion of total (%)
Public institutions[2]	**14,984,784**	**5,246,499**	**301,363**	**20,532,646**	**62**
Salary	12,734,176	199,852	0	12,934,028	39
Nonsalary	2,071,142	1,355,193	301,363	3,727,698	11
Repairs	179,465	7625	0	187,090	1
Other investment[4]	0	3,683,829	0	3,683,829	11
Private providers[3]	**0**	**1,034**	**12,510,165**	**12,511,199**	**38**
Total	**14,984,784**	**5,247,533**	**12,811,528**	**33,043,845**	**100**
Proportion of total (%)	45	16	39	100	

Sources: Revenue budget—CGA (2004). Development budget—MOPME FMU (2004a). Household—SSPS household data for class 5 students, adjusted for students across all classes. Notes: (1) 'Households' are the households of GPS and RNGPS students. (2) 'Public institutions' means the central administration and schools except madrasahs. (3) 'Private providers' include tutors, retailers of educational supplies and services (stationery, transport etc.) and the banks that administer the stipend scheme. (4) 'Other investment' includes e.g. major repair (rehabilitation) and construction projects.

Within these limitations, total resources flowing into the primary education sector in 2003/04 are estimated at Tk 33 billion, of which 61% is provided by the government and 39% by private households (see final row of table). Almost all government expenditure goes to schools or to the central administrative system; the exception is the Tk 1.034 million service

charge paid to the banks for administering the stipend scheme. In contrast, as mentioned above, all household expenditure other than school fees is paid to private service providers. An approximation of what this means for total expenditure per student may be obtained by dividing these totals by the national enrolment figures for GPS and RNGPS students that were given in Table 1.2: this leads to a rough estimate of about Tk 1,350 of government funding and just over Tk 850 of private funding per student.

It is not possible to identify fully how the expenditure for public institutions is divided between the different school types and the administration. In particular, centrally held records for many development budget projects do not indicate the split between different school types (e.g. how much of the Tk 560 million expenditure under PEDP II in 2003/04 was spent on GPSs and how much was spent on RNGPSs). The development of a system to identify and analyse this breakdown, e.g. as part of the monthly management reports for the ADP, might be a useful aid to policy-making.

However, although this top-down disaggregation was not possible, the SSPS was able to use a bottom-up approach to the analysis of funds flowing through schools, using the schools' own data to gain an understanding of overall income. The results of this analysis are presented next.

6.2 SCHOOL INCOME

In 2004/05 the average GPS had an income of Tk 383,250 for use on recurrent expenditure, excluding the value of other materials (non-textbook) received in kind (see Table 6.2). This income is considerably higher than for the other school types: mean incomes for RNGPSs in 2004/05, and for AEMs in 2003/04, are just one-third and two-thirds of this amount respectively. AEMs obtain much more income from private sources than GPSs and RNGPSs do.

Table 6.2   Mean school income, by financing agent and use (Tk)[1]

Agent/Use	GPS	RNGPS	AEM
Government budget	**376,389**	**118,006**	**204,073**
Salary	344,842	93,907	185,249
Contingency	3,062	1,700	n/a
Small repairs / flood	5,163	4,246	n/a
Textbooks	21,703	15,749	11,554
Stipend contingency	847	906	n/a
Other	772	1,498	7,270
Household and other private	**6,861**	**5,332**	**34,998**
Fees/student contributions	5,534	4,017	15,485
Other[2]	1,327	1,315	19,513
Total	**383,250**	**123,338**	**239,070**

Source: SSPS data from schools sund UEO offices; National Curriculum and Textbook Board (NCTB). Notes: (1) GPS and RNGPS data refer to 2004/05, and AEM data refer to 2003/04. Stipends are not included as they should pass directly to the students and do not form part of school income. Capital expenditure is also not shown. The value of materials received in kind is not included owing to inconsistencies in reporting, as well as difficulties in

estimating the value of goods received. (2) Differences between these figures and those provided by SMCs in Table 5.5 may be due to under-reporting at the school, and to the inclusion of capital expenditure in the earlier table.

Much of this funding, be it publicly or privately resourced, is earmarked for expenditure on a specific purpose. Almost all of the variation in income is accounted for by the higher receipts for government-paid salaries, which arises because GPSs not only receive additional allowances and much larger festival allowances but also have more teachers. Part of the reason why GPSs have more teachers is their higher enrolment figures (see chapter 11). When examining the equity of the distribution of funds it is useful, therefore, to divide each school's income by its enrolment to obtain a figure for per-student school income. This is shown in the next section.

6.3 PER-STUDENT SCHOOL INCOME

As expected, the difference in per-student school income between GPSs and other school types is less strong than that per school (Table 6.3). In fact, GPSs and AEMs show almost identical levels of income per student, with a mean of Tk 1,622 in GPSs and Tk 1,656 in AEMs, since the lower school income in AEMs is offset by the comparatively low student–teacher ratio. Moreover, the level of private financing per student in AEMs remains high in comparison to the other school types. This may be because estimates for private income in AEMs were pro-rated from cashbook records for the entire madrasah (for all ebtedayee and dakhil students combined); a portion of any funds donated by DM students' households, or other private resources that were intended for DM students, would be considered to benefit AEM students since they share many facilities. However, by far the biggest difference in income per student is between those school types and RNGPSs, who get an average of just Tk 678 per student, i.e. less than half the income per GPS and AEM student. Even the best funded RNGPSs receive little more income per student than the least well resourced GPS or AEM; and the range of income received is huge, with the best resourced GPSs having more than seven times the amount of income per student at their disposal than the least well resourced RNGPS (Tk 2,793 vs. Tk 381). So, although the difference in mean income between the school types is attenuated when variations in enrolment are taken into account, a considerable difference nonetheless remains.

Table 6.3   Per-student school income, by financing agent (Tk)[1]

Agent	GPS	RNGPS	AEM
Government budget			
Low	779	374	777
Mean	1,598	651	1,453
High	2,776	977	2,481
Household and other private			
Low	14	13	61
Mean	25	27	203
High	38	40	416
Total			
Low	804	381	892
Mean	**1,622**	**678**	**1,656**
High	2,793	999	2,679

Source: SSPS data from schools and UEO offices; NCTB. Note: (1) GPS and RNGPS data refer to 2004/05, and AEM data refer to 2003/04. Figures are calculated using the same items as for Table 6.2 above, i.e. excluding materials donated in kind, stipends and current expenditure, and dividing by 2005 enrolment for GPSs and RNGPSs and by 2004 enrolment for AEMs.

Even within school types, the variation in income per student is considerable: the best resourced schools of each type have an income three or four times the size of the least well resourced schools of the same type. It is useful to consider the equity of this variation: do students in the lower socioeconomic quintiles attend the less well resourced schools of each type? Table 6.4 suggests that, within each school type, there is a slight tendency for class 5 students from the highest socioeconomic quintile to attend schools that are somewhat better resourced than students in the lowest socioeconomic quintile. However, the pattern is not strong at all, and certainly does not reflect the disparity in incomes that was noted in Table 6.3. It is reassuring that socioeconomic differences of students within each school type are not strongly exacerbated by different levels of funding in the schools they attend.

Table 6.4   Mean per-student school income, by socioeconomic quintile of students' households, class 5 students (Tk)[1]

Quintile	GPS	RNGPS	AEM	All
Bottom quintile	1,417	568	1,272	1,132
Lower middle quintile	1,411	613	1,331	1,236
Middle quintile	1,526	663	1,431	1,286
Upper middle quintile	1,518	629	1,466	1,286
Top quintile	1,623	603	1,467	1,449

Source: SSPS data from schools and UEO offices; NCTB. Note: (1) GPS and RNGPS data refer to 2004/05, and AEM data refer to 2003/04. Figures are calculated using the same method as for Table 6.3 above.

In any case, the type of school that a student attends remains a greater determinant of their share of school resources than the relative wealth of the school compared to others of the same type. The right-hand column of Table 6.4 considers per-student income across all school types. The average value of resources available at the school to students in the top socioeconomic quintile, at Tk 1,449, is 28% higher than the Tk 1,132 available for students in the bottom quintile. This is because a greater proportion of students in the bottom socioeconomic quintile attend RNGPSs than in any other quintile.

Comparison of school records with other data

The analysis in sections 6.2 and 6.3 is drawn from data collected at the school. However, as discussed elsewhere in the text, records at the school are not always identical to the information held at other levels, e.g. the household or upazila.

Table 6.2 showed that most privately funded income in GPSs and RNGPSs comes from fees paid by the students. One would therefore expect the mean private income per student in Table 6.3 to be close to the mean amount reported as being paid in fees by the students' households in chapter 5. Yet Table 5.1 noted that the average class 5 student paid fees in 2005 of Tk 43 in GPSs and Tk 37 in RNGPSs, while Table 6.3 suggests that total private income per student—including not only fees but also other donations—is just Tk 25 in GPSs and Tk 27 in RNGPSs. Why is there such a big difference? Two reasons are as follows. First, and importantly, fee rates in classes 1–4 are much lower than in class 5, and enrolment is much higher in the earlier classes. It is therefore natural that mean private income across all classes is lower than is reported by class 5 students. Second, it would seem that the fees charged are underreported at the school level: either households report being charged a fee which the school does not say it collects, or households pay more than the amount recorded by the school. On average, for instance, the examination fee reported by the household is 61% higher than that reported by the school in GPSs (50% higher for RNGPSs). For all other fees the average total cost reported by the household is Tk 6 greater than that reported by the school, in both school types.

7   Human Resources

Key findings

- The average GPS and RNGPS have 65 and 55 students enrolled per teacher respectively. Double-shifting causes average section sizes (the number of students being taught together at any one time) to be substantially lower, 47 in GPSs and 40 in RNGPSs. If all teachers taught classes for the full school day average section sizes could fall to around 30 students.

- Some 54% of GPS teachers and 30% of RNGPS teachers are female. Only 7% of RNGPS headteachers are female, compared to 36% in GPSs. AEM students are far less likely to be taught by a female teacher: only 10% of AEM teachers are female.

- GPS teachers have higher levels of academic qualifications, and are more likely to have a professional qualification, than their RNGPS counterparts. AEM teachers are much less likely than GPS/RNGPS teachers to have a professional qualification.

- GPS teachers achieved a higher average score on the SSPS teacher profile (a set of written questions on literacy, numeracy and non-verbal reasoning) than teachers from the other school types. Overall the average result was just over 50%, which is worrying given the relatively straightforward nature of the questions. Another concern is that Bangla and mathematics teachers demonstrated a very limited knowledge of the relevant key terminal competencies in the curriculum.

- The overall vacancy rate for GPS teachers is 8%. Vacancy rates are lower in RNGPSs.

- Only 9% of RNGPS teachers have ever moved between schools, compared to 96% of GPS teachers. The most common reason for GPS teachers moving schools are transfers. Of those who had been transferred, 16% admitted making an informal payment to secure the transfer (Tk 7,000 on average).

- Some 16% of GPS and 11% of RNGPS teachers were absent on the day of the survey; 7% and 5% were on long-term absences respectively, mainly for Certificate-in-Education (C-in-Ed) training. Just 2% of absences were unauthorised. The policy on casual leave implies that on any given day around 8% of teachers could be absent.

- Some 32% of GPS teachers and 29% of RNGPS teachers were observed arriving more than 15 minutes late. Teachers living further away from the school in which they work are more likely to be late.

- The average GPS teacher receives Tk 5,843 per month in salary and allowance payments. RNGPS teachers' salary and allowances amount to Tk 2,002 per month on average.

- Three in four RNGPS teachers paid from the revenue budget are currently owed outstanding government salary and allowance payments, amounting to about two months' salary on average, compared to just 5% of GPS teachers.

- There is no evidence of ghost teachers in either GPSs or RNGPSs, i.e. teachers listed on the upazila payroll as receiving a salary but who are not known at the school.

- Informal payments do not appear to be needed for teachers to receive their monthly salary. Less than 1% of GPS/RNGPS teachers reported making such payments.

- Some 63% of RNGPS teachers have an additional source of income, earning an extra Tk 17,946 per year on average, compared to 30% of GPS teachers who earn an additional Tk 15,659 on average.

Chapters 3 and 6 have shown that by far the greatest share of the revenue budget for primary education, and also a proportion of the development budget, is devoted to salary payments, especially to teachers at GPSs and RNGPSs. The present chapter analyses the quantity and characteristics of teachers funded by these budget lines and by any other resources available to the school for paying teachers, and discusses their management. Key estimates for teachers in AEMs are also provided for comparison, although those posts are funded under the Ministry of Education budget. Data for GPSs and RNGPSs refer to the school year 2005, and data for AEMs refer to 2004.

Section 7.1 provides an overview of the types of teaching post that exist in the different school types, and sets out the definitions of teacher status that are used throughout the remainder of the chapter. Section 7.2 analyses the number of teachers assigned to schools, and the characteristics of those teachers. The final section, section 7.3, looks at the management of the inputs, e.g. recruitment, training, discipline and remuneration.

7.1 SYSTEM OVERVIEW

Types of teaching post

In GPSs the majority of teaching posts are sanctioned revenue posts, assigned to the school by MOPME and funded by the revenue budget through the DPE. These posts are of two types: headteacher and assistant teacher. Some GPSs also have additional posts assigned to them ('project posts') that are funded by the development budget. These are in the process of being phased out. A few schools create 'unassigned' posts filled by teachers who are either employed directly by the school or who are volunteers.

In RNGPSs, as with GPSs, most posts are also assigned by MOPME and funded by the revenue budget, but these are MPO posts that are overseen by the CPEIMU. The two types of post are assistant teacher and 'assistant teacher receiving the headteacher allowance' (for simplicity the latter are referred to as headteachers in this report). Again, some schools employ other teachers directly or take on volunteers into unassigned posts.

At AEMs, most teachers hold sanctioned revenue posts funded by the Ministry of Education. These are AEM headteacher or AEM assistant teacher posts. However, madrasahs do not always use these teachers exclusively for their AEM students. Many teachers holding AEM posts teach mainly DM students; conversely, many teachers with DM posts teach mainly in the AEM classes. A distinction has therefore been made in the text between 'AEM teachers' (those holding assigned AEM posts) and 'teachers teaching AEM students' (those DM or AEM teachers who actually teach AEM students). As with the other school types, AEMs can also have some unassigned posts filled by teachers either directly employed by the school or working voluntarily; these teachers generally also work in the DM classes, and so cannot formally be classified as belonging to either AEMs or DMs.

In all school types non-teaching staff may also be employed. However, they are extremely few in number: only 4% of GPSs and 3% of RNGPSs have any non-teachers working at the school. Non-teaching staff are excluded from the present analysis.

Teacher status

At any given time the number of teachers in a school may differ from the number of posts formally assigned. This may be due to a number of reasons such as vacancies, deputations,

training and absenteeism, the incidences of which are discussed in section 7.3. Teachers and their posts may be categorised into the following types, which are referred to in this chapter:

- **Assigned posts** are all teaching posts that are assigned to the school by MOPME through the revenue or development budgets (or by the Ministry of Education, in the case of AEMs).

- **Deputed posts** are assigned posts in GPSs whose incumbent teaches at a different school to the one to which he or she is assigned. Each GPS has a fixed number of assigned posts which was determined on the basis of student enrolment in the early 1990s and which does not always reflect the current teaching requirements of that school. If a school has too few teachers, the UEO can move other teachers temporarily from an overserved school to the school with the shortage: this is called deputation. It is not practised in RNGPSs.

- **Vacant posts** are assigned posts that have no incumbent. These include posts held by GPS teachers classified as being on leave preparatory to retirement (LPR): teachers with this status continue to draw a salary, but since they are shortly to retire and no longer carry out any teaching their post is considered vacant.

- **Unassigned posts** are all teaching posts that exist at a school but are not assigned to it by MOPME or the Ministry of Education, i.e. posts held by teachers who are volunteers or who are paid directly by the school.

- **Teachers in post** in a given school are all the teachers who might teach at that school. This comprises those who fill posts that are assigned to the school and are not deputed out, plus those who are deputed in from other schools, plus all those in unassigned posts; it excludes teachers who are deputed out, and vacant posts. Note that, because of deputations in and unassigned posts, the number of teachers in post in a school can exceed the number of posts assigned.

- **Teachers in post and working** are those teachers in post in a school who might be expected to be working on any given day. This excludes those who are recorded as being on authorised long-term or permanent absence—such as for maternity leave, long-term sick leave or for training for a Certificate in Education (C-in-Ed) or Bachelors in Education (BEd)—as well as those whose reason for absence is unknown or who are subletting their job long-term without authorisation. Note that this definition of teachers who should be 'in post and working' includes those who may on occasion be temporarily absent (e.g. for an official meeting).

7.2 HUMAN RESOURCE INPUTS

Numbers of teachers

The average GPS has between four and five teachers in post and working at the school (Table 7.1). There is considerable variation around this mean. In fact, whilst every GPS is assigned at least three teachers, a small proportion (2%) have fewer than three in post and working (not shown in table). Strikingly, one in 10 GPSs has no headteacher at the school. On average RNGPSs have slightly fewer teachers in post and working, at 3.9 per school; there is very little variation in the number of teachers per RNGPS. Very few GPSs and RNGPSs employ teachers directly or have teachers working voluntarily. AEMs have the largest number of teachers in post and working, at nearly five per school (not counting unassigned posts).

Table 7.1   Mean number of teachers in post and working per school

	GPS		RNGPS		AEM[1]	
	No. of teachers	Schools with teacher (%)	No. of teachers	Schools with teacher (%)	No. of teachers	Schools with teacher (%)
Assigned posts	4.0	100	3.8	100	4.8	100
Headteacher	0.9	88	1.0	95	1.0	100
Assistant teacher	3.2	100	2.8	100	3.9	100
Project teacher	0.2	13	n/a	n/a	n/a	n/a
Unassigned posts	0.1	7	0.1	7	-	-
School-employed teacher	0.0	4	0.1	4	-	-
Volunteer teacher	0.0	3	0.0	3	0.0	0.0
Overall	**4.3**	**100**	**3.9**	**100**	**-**	**-**

Source: SSPS data from schools. Note: (1) For AEMs it was not possible to calculate the average number of school-employed teachers, and hence the overall number of teachers, since no school-employed teachers taught only AEM classes.

To assess whether variations in the numbers of teachers per school reflect differences in enrolment, and more generally whether the allocation of teachers to each school is appropriate, it is useful to consider a school's student-teacher ratio. This is the total enrolment divided by the total number of teachers in post and working. The upper half of Table 7.2 below shows that the average student–teacher ratio in GPSs is 65, and in RNGPSs is 55 (see the 'All' columns). For AEMs the ratio is much lower, at just 37 students per teacher, but this is not easily comparable since it does not take into account the practice of AEM teachers teaching in DM sections and vice versa.

Table 7.2   Student-teacher ratio and average section size

	GPS			RNGPS			AEM[1]
	All	Shift 1	Shift 2	All	Shift 1	Shift 2	All
Student-teacher ratio							
Low	37	17	18	31	15	15	20
Mean	65	33	33	55	29	26	37
High	102	54	50	83	51	40	61
Average section size[2]							
Low	28	27	22	25	28	19	17
Mean	47	54	40	40	50	33	33
High	72	91	64	61	71	52	48

Source: SSPS school data. Note: (1) AEM student-teacher ratio estimates are generated considering just those teachers holding AEM posts who are in post and working. (2) Section sizes have been adjusted to account for sections that are usually taught together.

There is substantial variation in student-teacher ratios across schools. The GPSs with the highest student-teacher ratios have over 100 students enrolled per teacher, over two-and-a-half times the figure observed at schools with the lowest ratio. There is a similarly wide variation in students per teacher in RNGPSs. For GPSs it appears that the high student-teacher ratios that are observed at some schools are the result of vacancies.

The raw student–teacher ratio, however, does not reflect how many students are likely to be taught by a teacher at any one time. Most GPSs (87%) and all RNGPSs (but no AEMs) operate a double-shift system, whereby classes 1 and 2 are generally taught in the morning, and classes 3, 4 and 5 in the afternoon. Sometimes class 5 have lessons for the full school day. Within each class the students may be separated into two or more sections, usually because of high enrolment or so that male and female students are taught separately. Sections are taught by separate teachers and therefore section size is equivalent to what would commonly be referred to as class size (the number of students being taught by one teacher).

Double-shifting not only allows schools to overcome the problem of not having a classroom for each class (see chapter 9), but also enables them to use teachers twice over, so that a teacher may teach one class in the morning and another in the afternoon[48]. Estimates of the mean student-teacher ratio per *shift*, calculated as the number of students enrolled in each shift of a double-shift school divided by the total number of teachers, are also presented in Table 7.2 above. These are much lower than the overall raw student–teacher ratio, and represent the average section size that could be achieved in a double-shift school if all teachers taught in both shifts. The figures indicate that mean section sizes could be as low as 33 in GPSs, and less than 30 in RNGPSs.

Under the current system all teachers are supposed to teach for the full school day (and are paid accordingly). However, comparing these average student-teacher ratios with the actual average section sizes presented in the lower half of Table 7.2, it is clear that not all teachers are used at all times. In GPSs the average section size is 54 students in shift 1, and 40 in shift 2; for RNGPSs it is slightly smaller, at 50 and 33 respectively. In schools where the average section size exceeds the student–teacher ratio, it must be the case that at least one teacher is not working a full day. In fact, the survey found that in double-shift GPSs about 80% of schools have at least one teacher not working in shift 1, and 60% in shift 2. RNGPSs, although they employ fewer teachers than GPSs, have an even higher tendency not to use all teachers at all times, with about 95% of schools having at least one not working in shift 1, and 85% in shift 2. There is clearly scope to improve on this. Since almost all schools have at least three classrooms and most have just two sections (class 1 and class 2) in the first shift, one section could be split in two, thus utilising the spare classroom and a teacher who would otherwise not be teaching.

A key PEDP II target is to increase considerably the proportion of schools operating a single shift, whereby all students are in school for the full day. However, a move to a single-shift system without substantially increasing teacher numbers would clearly result both in much larger section sizes and in the necessity to teach different classes together, i.e. multigrade teaching. More realistically, the move would entail substantial investment in the provision of more teachers and classrooms. A move to a single-shift system, at current enrolment levels and maintaining current average section sizes, would require the creation of roughly one new post on average per GPS and RNGPS, which equates to around 60,000 new teacher posts in total—in addition to the recruitment required to fill all the posts that were vacant at the time of the survey (roughly 13,000). These estimates would require all teachers to teach for the whole day, so implementing the policy with these levels of resources may meet opposition from teachers who do not currently work the full quota of hours. As discussed above (p. 23), this recruitment process is already underway.

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[48] However, it reduces the number of teaching hours received by most students: see Table 11.10 below.

In AEMs the question of shifting does not arise since all AEMs already operate a single shift. Nonetheless, the student–teacher ratio still does not match the average section size because of the regular exchange of teachers between AEM and DM sections of madrasahs. Some 5% of AEM teachers who are in post and working do not teach classes 1 to 5 at all; furthermore, 49% of those teachers who teach AEM students do not hold an AEM teacher post. Since the mean AEM section size is lower than the student-teacher ratio, AEM students clearly benefit from teaching by non-AEM post holders.

Teacher characteristics

This subsection assesses the characteristics of teachers, focusing on their gender, experience, qualifications and level of knowledge. AEM teacher characteristics are presented and discussed separately at the end. The data refer to teachers in post, except where specified.

Gender

MOPME is actively trying to increase the proportion of teachers that are female by ensuring that 60% of all new primary school teachers are female. The SSPS found that more than half of GPS teachers in post, and three in 10 RNGPS teachers, are female (Table 7.3 below). Headteachers are far more likely to be male, particularly in RNGPSs. Nearly a third of all RNGPSs have not one female teacher, compared to fewer than one in 10 GPSs.

Table 7.3   Incidence of teachers in post who are female (%)

	GPS		RNGPS	
	Teachers that are female	Schools with a female teacher of the specified type	Teachers that are female	Schools with a female teacher of the specified type
Sanctioned revenue/MPO posts	53	88	30	68
Headteacher	36	n/a	7	n/a
Assistant teacher	57	87	37	67
All teacher types[1]	54	91	30	69

Source: SSPS data from schools. Note: (1) Includes project teachers and teachers in unassigned posts.

Experience

It is important to have teachers with appropriate knowledge and skills. These can be gained through academic and professional qualifications (discussed below) but many studies have shown that practical experience is also very important in achieving satisfactory education outcomes. The SSPS collected information on teachers' age and the number of years since each was first appointed, both of which are closely related to the number of years of teaching experience acquired. The results are presented in Table 7.4.

Table 7.4   Average age and years since teacher was first appointed to a school (years)

	GPS		RNGPS	
	Age	Service duration	Age	Service duration
By sanctioned revenue/MPO post				
Headteacher	47	23	42	18
Assistant teacher	40	17	38	15
By gender[1]				
Male	46	22	41	17
Female	36	12	33	12
Overall[1]	**40**	**17**	**39**	**16**

Source: SSPS data from schools. Notes: (1) Includes project teachers and teachers in unassigned posts.

Unsurprisingly, headteachers are older and have more experience than assistant teachers in both GPSs and RNGPSs. Male teachers are quite considerably older and more experienced than female teachers, probably because drives to increase the proportion of female teachers have been a relatively recent phenomenon. Note that GPS and RNGPS teachers are eligible for retirement when they turn 57. The relationship between teacher age, retirement trends and recruitment requirements is discussed in section 7.3.

Qualifications

Teachers are required to possess academic qualifications before being appointed to a teaching post; professional qualifications, however, are not required in advance and may be obtained after the teacher has started his or her career. The initial professional qualification for primary school teachers is the C-in-Ed, taught as a one-year full-time course at 53 PTIs. Each year the PTI superintendent and the DPEO determine the quota of places for each upazila and the UEO selects the required number of untrained teachers to attend the course. These teachers continue to receive their salary and allowances while attending the course, although they are paid through the PTI budget. The teachers' posts in schools are not considered vacant, so replacements are not provided even though the teacher is absent for a full school year. Some teachers, rather than training for the C-in-Ed, instead acquire the professional qualification for secondary school teachers, namely the BEd, taught as a one-year course at teacher training colleges.

Figure 7.1 shows the level of academic qualifications achieved by teachers. Headteachers generally have a higher level of academic achievement than assistant teachers; RNGPS teachers are not as well qualified as GPS teachers.

Figure 7.1   Highest academic qualification achieved by teachers
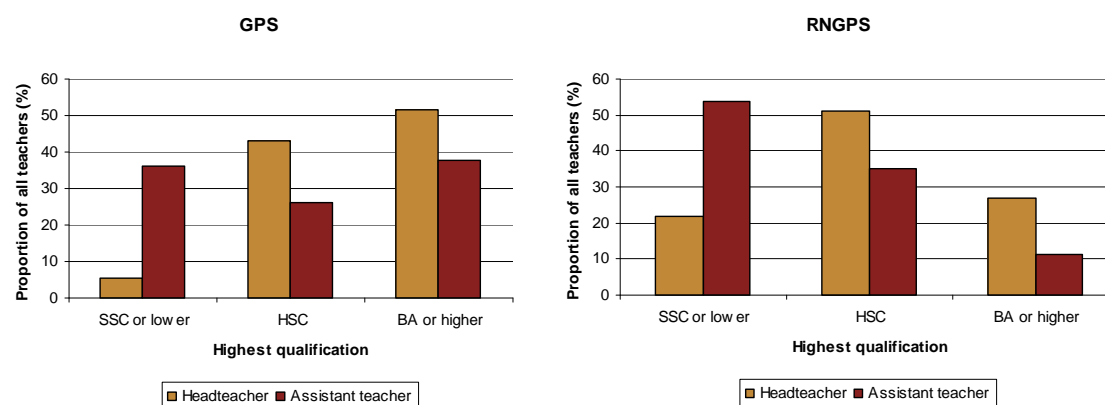
Source: SSPS data from schools. Note: SSC = secondary school certificate; HSC = higher secondary certificate.

As for professional qualifications, some four out of every five teachers that are in post and working in GPSs and RNGPSs have a professional teaching qualification, usually the C-in-Ed (Table 7.5 below). A greater proportion of GPS teachers have professional qualifications than RNGPS teachers. For both GPS and RNGPS teachers, headteachers are more likely than assistant teachers to have a professional qualification—though the difference is very small in RNGPSs—and males more likely than females. For comparison, one of the key targets of PEDP II is to increase the proportion of teachers with a C-in-Ed qualification to 95% by 2010 (see Annex 6).

Table 7.5   Proportion of in-post and working teachers with a professional qualification (%)[1]

	GPS			RNGPS		
	C-in-Ed	BEd	All[2]	C-in-Ed	BEd	All[2]
By sanctioned revenue/MPO post						
Headteacher	71	23	94	82	0	82
Assistant teacher	82	4	86	81	0	81
By gender[3]						
Male	84	6	89	81	0	82
Female	68	10	79	76	0	76
Overall[3]	76	8	84	80	0	80

Source: SSPS data from teachers. Notes: (1) The data here refer to in-post and working teachers, rather than all in-post teachers, in order to exclude teachers on long-term absence, many of whom were in the middle of obtaining professional qualifications. (2) 'All' includes C-in-Ed, BEd and any other qualifications e.g. Masters in Education. (3) Includes project teachers and teachers in unassigned posts. These teachers tend to be relatively less well qualified, hence overall estimates for RNGPSs are lower than both the headteacher and assistant teacher estimates.

Knowledge

A set of written profile questions was administered to all sampled teachers, who were drawn from the population of teachers in post and working. The profile comprised 14 questions

(seven mathematics, three Bangla and four non-verbal reasoning). A copy of the questions is contained in annex A5.1. Table 7.6 presents the average results by various disaggregations.

Table 7.6   Mean teacher profile results (%)

	GPS	RNGPS	All
By sanctioned revenue/MPO post			
Headteacher	59	48	55
Assistant teacher	54	48	52
By gender[2]			
Male	55	48	52
Female	56	48	54
By service duration[1,2]			
0 to 9 years	58	48	57
10 to 19 years	56	48	50
20 to 29 years	55	49	53
30 to 39 years	51	47[+]	51
By academic qualification[2]			
SSC or lower	49	47	48
HSC	55	49	53
BA pass or higher	60	48	58
By professional qualification[2]			
Teachers with a qualification	56	49	53
Teachers without a qualification	54	45	51
Overall[2]			
Low	36	29	29
Mean	**55**	**48**	**53**
High	79	64	71

Source: SSPS teacher profile results. Note: (1) Service duration is the number of years since the teacher was first appointed to a school. (2) Includes project teachers and teachers in unassigned posts. (3) '+' denotes estimate was generated using fewer than 30 observations.

Overall the average result was 53%, which is perhaps surprising given the relatively straightforward nature of the questions. GPS teachers achieved better results than RNGPS teachers. There were quite wide variations in the results: the worst performing teachers achieved a result of 29% or worse, whilst the 10% who performed best scored 71% or more. Headteachers perform slightly better than assistant teachers in GPSs, but not in RNGPSs; there is little difference in performance by gender.

The disaggregation of results by length of service suggests that, for GPS teachers, teachers with less teaching experience—who are likely to have obtained their qualifications more recently than teachers with greater experience—perform better. There appears to be no pattern in the results by experience for RNGPS teachers. This outcome may reflect differing

developments in recruitment patterns over time between GPSs and RNGPSs. In GPSs, teachers with fewer than 10 years' experience are far more likely to have a BA degree or higher academic qualification (75% have attained this level) than their counterparts who were first appointed to a school longer ago (only 9% of teachers who were first appointed 30 or more years ago have a BA degree or higher). The difference in academic achievement over time is much less marked in RNGPSs. As the table shows, greater levels of academic achievement are associated with higher scores in the teacher profile. These results suggest that increasing the average level of academic qualification achieved by teachers is likely to result in a higher standard of numeracy and literacy among teachers working in schools, as might be expected.

The possession of a professional qualification, in contrast, is associated with only a small improvement to the score; but this apparent lack of benefit may reflect the differences in years of experience and academic achievement discussed above. More than half the teachers with no professional qualification are those with fewer than 10 years' experience, who are seen to have better academic qualifications and better profile results.

The primary school curriculum in Bangladesh specifies key terminal competencies (specified learner behaviour or knowledge) that students should be expected to have developed by the end of primary school (see annex A2.5 for details). The SSPS assessed teachers' knowledge of these competencies, and found that it was very limited. Just 4% of GPS teachers who teach Bangla were able to correctly list all four competencies for that subject, while 27% were unable to list any competencies at all. Of all RNGPS teachers of Bangla a mere 1% listed all four and 34% were unable to list any of the four competencies. Maths teachers were even less knowledgeable, with 1% of GPS and 1% of RNGPS maths teachers mentioning all five competencies in that subject. Of all GPS and RNGPS maths teachers 32% and 39% were unable to mention a single key terminal competency respectively.

Figure 7.2   Proportion of teachers able to list key terminal competencies unprompted (%)
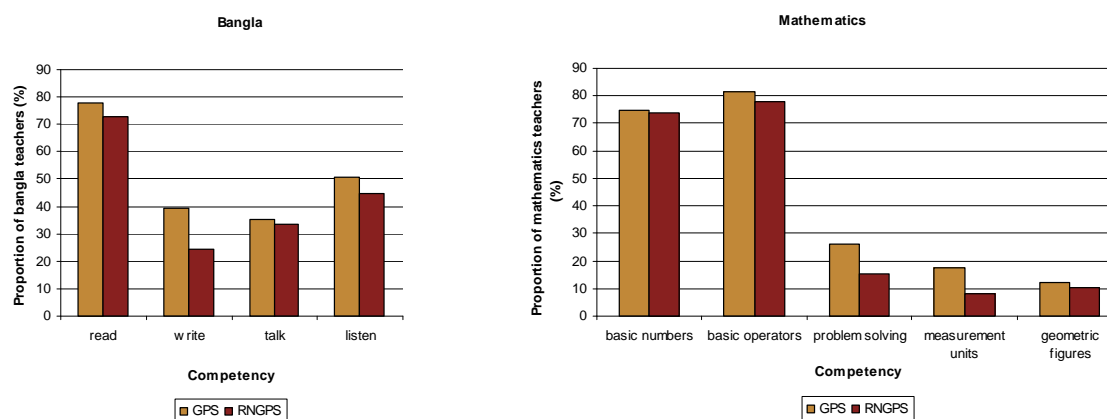
Source: SSPS data from teachers.

Figure 7.2 reveals that, whilst most Bangla teachers listed reading as a key terminal competency, teachers were less likely to mention writing and talking. Maths teachers were unlikely to list problem solving and knowledge of measurement units and geometric figures, but most did mention having a grasp of basic numbers and arithmetic operators as being key terminal maths competencies.

AEM teacher characteristics

Table 7.7 presents information on the characteristics of AEM teachers, both those that hold AEM teacher posts and all those who actually teach AEM students. Generally there does not appear to be much difference in the characteristics of teachers under the two definitions. Unsurprisingly, however, since the latter group includes DM teachers, those teaching AEM students are better qualified.

Table 7.7   AEM teacher characteristics

	AEM teachers	Teachers teaching AEM students
Proportion of teachers that are female (%)	11	10
Headteacher	2	1
Assistant teacher	13	13
Average age		
Low	28	27
Mean	38	37
High	51	50
Average service duration (years)		
Low	6	4
Mean	15	14
High	23	24
Academic qualification, by qualification type (%)		
SSC or lower	7	5
HSC	50	32
BA or higher	42	64
Professional qualification, by qualification type (%)		
C-in-Ed	1	1
Any	13	11
None	87	89
SSPS teacher test score (%)		
Low	-	21
Mean	-	47
High	-	64

Source: SSPS data from schools and teachers; teacher profile results.

There are far fewer female teachers at AEMs relative to GPSs and RNGPSs. AEM teachers are roughly the same age as their GPS and RNGPS counterparts and have similar levels of experience in terms of service duration. AEM teachers are much less likely than GPS/RNGPS teachers to have a professional qualification but appear to have relatively higher academic

qualifications. AEM teachers achieved on average similar scores to RNGPS teachers in the SSPS teacher knowledge test.

7.3 HUMAN RESOURCE MANAGEMENT

Teachers need to be managed effectively; the present section investigates this issue. The first subsection analyses recruitment and posting patterns and procedures, with a particular focus on vacancies, promotion and retirement and staff turnover. The next subsection looks at two key areas of teacher misconduct: absenteeism and lateness. The third looks at the levels of in-service training received by teachers. The final subsection examines teacher remuneration, with an assessment of teacher salary and allowance levels and variations, payroll management (including salary tracking) and finally additional non-school income earned by teachers.

Teacher recruitment and posting

Vacancies

It was noted in section 7.1 that assigned posts are not always filled. Table 7.8 presents estimates of the proportion of schools with vacancies and the national vacancy rate for assigned teacher posts.

Table 7.8   Proportion of schools with assigned posts vacant and mean vacancy rate, by post type (%)

	GPS		RNGPS		AEM[3]	
Assigned post	Schools with vacancies (%)	Vacancy rate	Schools with vacancies (%)	Vacancy rate	Schools with vacancies (%)	Vacancy rate
Headteacher	12	12	1	1	2	2
Assistant teacher	20	6	4	2	8	2
Project teacher[2]	41[+]	20[+]	n/a	n/a	n/a	n/a
Overall	**28**	**8**	**4**	**2**	**11**	**2**

Source: SSPS data from schools. Notes: (1) '+' denotes estimate was generated using fewer than 30 observations. (2) The proportion of GPSs with project post vacancies is calculated considering just those schools with at least one project post assigned. (3) For AEM post categories 'headteacher' refers to a teacher holding an AEM headteacher post and 'assistant teacher' corresponds to a teacher holding an AEM teacher post.

The proportion of assigned GPS teacher posts that are vacant is over four times higher than that of RNGPSs, and 28% of GPSs have at least one assigned teacher post vacant (project teachers account for only a small proportion of the total, and these apparent vacancies are not critical since the project posts are being phased out). These vacancy rates imply there are roughly 13,000 vacant GPS teacher posts in Bangladesh. However, as was noted above (p. 23), MOPME has recently recruited 14,200 new teachers[49]. Higher vacancy rates in GPSs compared with RNGPSs may reflect the different recruitment systems: GPS recruitment is

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[49] This does not mean that problems with vacancies have been resolved, since the new recruitment is also intended to enable schools to move towards a single shift, which requires more teachers, as was discussed in section 7.2.

administered by the DPEO office, while RNGPS recruitment occurs at the school level and is conducted by the SMC who are able to respond more swiftly when vacancies arise[50]. AEM vacancy rates are also much lower than in GPSs, and just 11% of AEMs have any vacancies. As mentioned above, the high vacancy rate for headteachers in GPSs is of particular concern.

Most existing headteachers (over 80%) feel that the procedure for appointing headteachers is fair: they consider that applicants are judged mainly on their academic qualifications, written exam score, viva score and previous teaching experience. However, some 12% also report that personal connections play a key role, while 10% think that informal payments are important. In fact, about one-third of headteachers say that they think applicants have to make an informal payment to be appointed or promoted to the post of headteacher, even though only 3% of GPS headteachers and 10% of RNGPS headteachers report having done so themselves. One teacher surveyed reported paying as much as Tk 30,000 for the appointment.

Similar perceptions are found among assistant teachers in relation to teacher appointments: again, some 80% believe that the process is fair, and the criteria for appointments are considered to be the same as for headteachers. Some 9% believe personal connections are important and 4% cited the importance of informal payments. About one-third of assistant teachers say they think that new teachers often have to make informal payments to secure their first appointment, although the actual reported incidence of such payments among surveyed teachers was lower, at only 1% of GPS assistant teachers and 11% of RNGPS assistant teachers. The average value of payment required was roughly Tk 15,000.

Since GPS teachers are appointed by the DPEO, rather than directly by a particular school, new appointees must be distributed among the vacant posts in different schools. Most GPS teachers say that the process for determining which teacher goes to which school is fair; however, 42% report that newly appointed teachers usually have to make informal payments to secure a post in a good school, and 6% admit having done so when they were first appointed. One teacher reported paying as much Tk 25,000 in order to secure a post in a good school. The situation does not arise in RNGPSs, where teachers are recruited directly. The direct recruitment of teachers is viewed positively by both headteachers and SMCs in RNGPSs. Just 3% of SMCs reported difficulties in getting good candidates; and of all schools where the SMC had made at least one appointment since the current headteacher had become head of the school, nearly all headteachers felt that the SMC had always selected the best candidate for the job.

Promotion and retirement

Promotion and retirement procedures are closely related to the issue of vacancies. Inefficiencies in the promotion process by which assistant teachers can become headteachers may lie behind the high vacancy rate among GPS headteachers. The scope for promotion is limited for primary school teachers, with promotion from assistant teacher to headteacher essentially the only possibility. In fact just 1% of current GPS and 2% of current RNGPS teachers have ever been promoted.

In terms of retirement, trends in vacancy rates are closely related to teacher age distribution (shown in Figure 7.3). The GPS distributions are double-peaked, whilst the RNGPS ones are bell-shaped. Imagining these distributions shifting to the right gives some indication of the likely change of teacher age distribution across time. Teachers are eligible for retirement at 57 and so the right-hand peak of the GPS overall distribution suggests that a significant proportion of GPS teachers are going to reach retirement age within the next five to ten

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[50] New appointments in RNGPSs need to be approved by the upazila education and appointment committee which is chaired by the UNO.

years. In fact around 3% of RNGPS and GPS in-post teachers were due to retire within the next year. High levels of recruitment may be required simply to maintain current teacher levels. This compounds the concerns raised earlier in relation to the move to single-shift schools about whether the supply of additional suitably qualified teachers will be able to keep pace with the projected demand.

Figure 7.3   Distribution of age, by school type
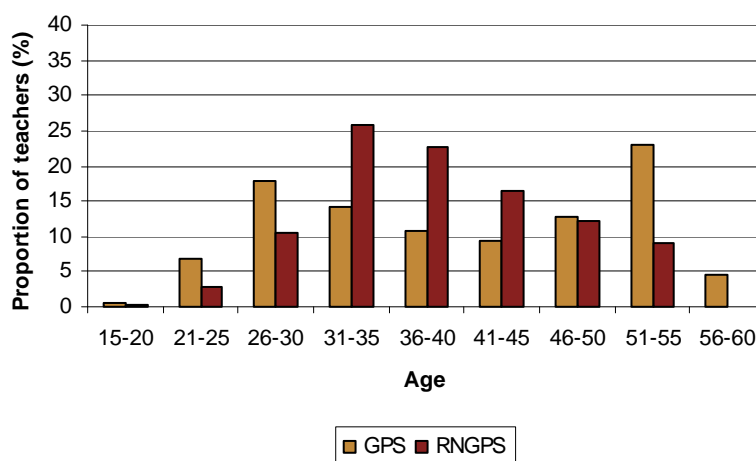
Source: SSPS data from schools.

Before retirement some GPS teachers are eligible for LPR. This allows them to take half the amount of any unspent leave, accrued over the course of their whole career, in one block immediately before retirement[51]. Roughly 1% of GPS teachers on the payroll were currently on LPR. After GPS teachers have come off LPR they are entitled to apply for a pension. Some 69% of GPS teachers believed that teachers usually have to make an informal payment to get their pension.

Staff turnover, transfers and deputations

Patterns of staff turnover in schools differ radically between GPSs and RNGPSs (Table 7.9). Some 81% of GPS teachers have ever moved between schools, which compares with just 22% of RNGPS teachers and 33% of teachers teaching AEM students. This is reflected in the striking differences between GPS and RNGPS teachers in terms of the average number of schools worked in, and the fact that, compared with RNGPS teachers, GPS teachers have spent on average roughly half the number of years in each school in which they have worked. There is almost no crossover from GPS posts to RNGPS or AEM posts.

The estimates suggest that by far the most common reason for GPS teachers moving schools is transfers. In more than nine out of 10 cases this is the cause for the move. Teachers themselves are often able to participate in transfer decisions: two-thirds of transfers are initiated at the request of the teacher. The 74% of GPS teachers who have been transferred to another school at some point in their career have had such transfers three times on average, while 10% of these have been transferred at least six times. Only 55% of GPS teachers believe the procedures followed to transfer teachers between schools are fair; 51% thought that teachers who wished to be transferred to a post in another school were required

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[51] GPS teachers accumulate a specific type of leave called earned leave.

to pay speed payments. Of those who had been transferred in the past, 16% admitted to paying such payments themselves (Tk 7,000 on average).

RNGPS and AEM teachers cannot be transferred between schools: they must resign if they wish to join another school.

Table 7.9   Staff turnover and transfers

	GPS	RNGPS	Teachers teaching AEM students
Ever moved between schools? (% of teachers)	81	22	33
Mean number of schools worked in			
Headteacher	4	1	-
Assistant teacher	3	1	-
Overall	3	1	1
Mean years spent working in each school	7	14	12
Reason for leaving school (% of occasions)			
Transferred	92	n/a	n/a
Resigned	8	94[+]	89
Dismissed	0	1[+]	1
Other	0	6[+]	10
Proportion been transferred (%)	74	n/a	n/a
Average number of times transferred	3	n/a	n/a

Source: SSPS data from schools. Notes: (1) '+' denotes estimate was generated using fewer than 30 observations.

The practice of deputing GPS teachers from one school to another, as was discussed in 7.1 above, is uncommon. It is estimated that only around 1% of GPS teachers are deputed to work in other schools.

Teacher misconduct

Absenteeism

A lot of controversy has surrounded the issue of teacher absences—particularly unofficial absences—in Bangladesh. The survey assessed teacher absenteeism by checking which teachers were present on the day survey teams arrived unannounced at schools against a list of teachers in post, compiled using the UEO office payroll (for assigned posts) and information from the headteacher (for unassigned posts). Figure 7.4 suggests that some 16% of GPS teachers and 11% of RNGPS teachers are not present in school on any given day.

However, it is important to make a distinction between those absent teachers that are expected to be working and those who are not, i.e. to distinguish between expected long-term or permanent absences and unexpected day-to-day absences. Figure 7.4 shows that slightly under half of all absences at both GPSs and RNGPSs are long-term or permanent.

Figure 7.4   Proportion of in-post teachers absent from school on the day of the survey
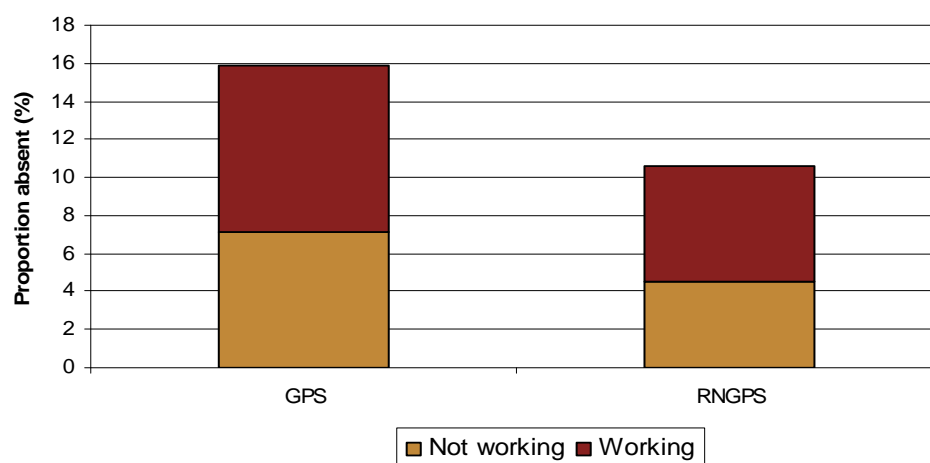
Source: SSPS data from schools.

It is also useful to ascertain the cause of these absences and to identify the extent to which they are authorised. Looking first at those teachers who may be classified as 'in-post but not working', i.e. on long-term or permanent absence, Table 7.10 presents estimates of the causes of absence.

Table 7.10   Reasons for long-term or permanent absence, by teacher type (% of in-post teachers)

	GPS			RNGPS		
Reason	Headteacher	Assistant teacher	Overall[1]	Headteacher	Assistant teacher	Overall[1]
C-in-Ed/BEd training	0.0	5.9	4.8	3.9	4.0	3.8
Maternity leave	0.0	1.5	1.1	0.0	0.1	0.0
Unauthorised absence[2]	0.0	0.0	0.7	0.1	0.5	0.7
In-service training	0.0	0.4	0.3	0.0	0.0	0.0
Sick leave	0.0	0.3	0.2	0.0	0.0	0.0
Any	**0.0**	**8.0**	**7.1**	**4.0**	**4.5**	**4.6**

Source: SSPS data from schools. Notes: (1) Includes project teachers and teachers in unassigned posts. (2) Comprises long-term absence recorded as 'reason unknown at school', 'unofficial absence' or 'subletting job to another person'.

GPS teachers are more likely than RNGPS teachers to be in post but not working. In both school types, most of the reasons for these long-term or permanent absences are legitimate. C-in-Ed training is by far the most common reason. Around 5% of all GPS teachers and 4% of RNGPS teachers were currently on C-in-Ed/BEd training, equivalent to around 11,000 GPS and RNGPS teachers being in PTIs at any one time[52]. The total number of teachers enrolled in PTIs

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[52] Total number of GPS in-post teachers estimated by multiplying the number of GPSs in Bangladesh, 37,671 (2001 figure), by the mean number of in-post teachers per GPS, 4.6. Total number of RNGPS in-post teachers estimated

in 2005 was 17,000, which is somewhat higher than this estimate[53]. The number of teachers absent from their posts long-term for illegitimate reasons is quite small: the proportions in the table above imply that there are roughly 1,750 GPS and RNGPS teachers in the whole of Bangladesh who are on long-term unauthorised absence.

Turning to those teachers who are in post and working but who happen to be temporarily absent, Table 7.11 presents estimates of the reasons for absence.

Table 7.11   Reasons for short-term absence, by teacher type (% of teachers in post and working)

Reason	GPS			RNGPS		
	Headteacher	Assistant teacher	Overall[1]	Headteacher	Assistant teacher	Overall[1]
Casual leave	1.2	7.5	6.3	1.9	1.3	1.5
Unauthorised absence[2]	0.0	0.4	1.5	1.4	2.1	1.9
Official duties related to school	3.0	0.6	1.1	1.4	0.0	0.4
Sick leave	0.0	0.4	0.3	0.0	1.0	0.7
In-service training	0.5	0.1	0.2	0.2	0.8	0.6
Reason unknown at school	0.0	0.2	0.1	0.0	0.4	0.5
Official duties not related to school	0.0	0.0	0.0	2.6	0.0	0.7
Any	**4.8**	**9.3**	**9.5**	**7.6**	**5.6**	**6.3**

Source: SSPS data from schools. Notes: (1) Includes project teachers and teachers in unassigned posts. (2) Comprises short-term absence recorded as 'unofficial' or 'subletting job to another person'.

Roughly one in 10 GPS teachers classified as 'in post and working' was absent on the day of the survey. GPS assistant teachers were more likely than headteachers to be absent, with casual leave being the most common reason for their absence[54]. Most of GPS headteachers' absences were due to official school-related duties.

RNGPS teachers are less likely than GPS teachers to be absent, with headteachers absent more frequently than assistant teachers. Unofficial absences and casual leave are the most common reasons for absence for RNGPS teachers overall, but headteachers are most likely to be absent because of official duties, which often appear to be unrelated to the school.

Combining both short-term and long-term absences, Figure 7.5 summarises reasons for absence. The survey was careful to crosscheck the reasons for teacher absences reported by respondents against attendance records at school, in addition to other information found at the UEO office such as the number of teachers on C-in-Ed training or on maternity leave, so as to try and ensure that they were genuine. The main reasons for absence are again shown to be long-term training and casual leave.

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by multiplying the number of RNGPSs in Bangladesh, 19,428 (2001 figure), by the mean number of in-post teachers per GPS, 4.0.
[53] The national figure was collected from PTI section in DPE.
[54] Both GPS and RNGPS teachers are entitled to 20 days of casual leave per year (in addition to school holidays). They can only take up to three days casual leave at a time, and this must be approved by the headteacher (in the case of assistant teachers), the AUEO (in the case of GPS headteachers) or the SMC (in the case of RNGPS headteachers). In exceptional circumstances the AUEO can approve up to seven consecutive days of casual leave.

Figure 7.5   Reason for absence (% of those absent)
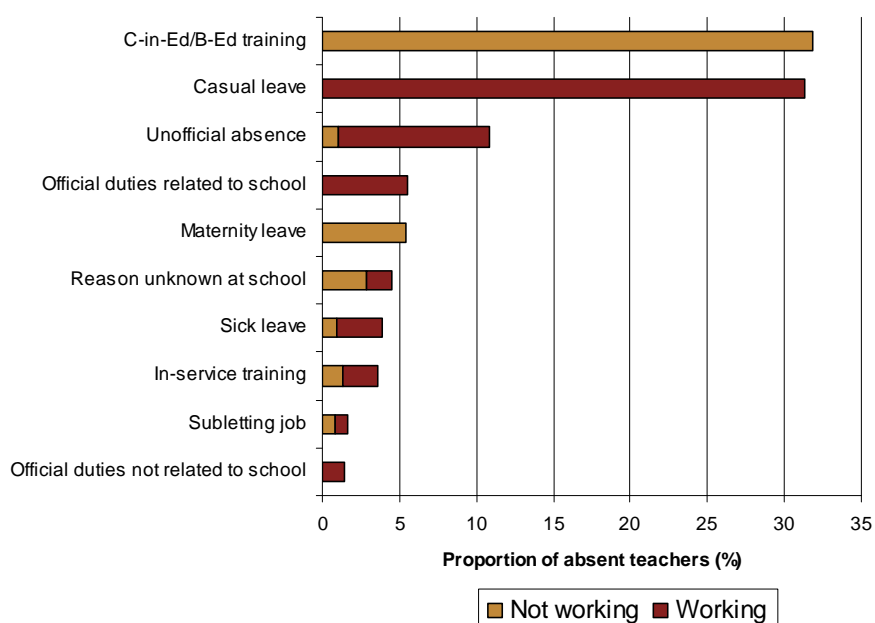
Source: SSPS data from schools.

If all casual leave were taken evenly across the school calendar year (242 days in 2004), on any given day around 8% of in-post teachers would be absent, which is clearly higher than the estimates presented in Table 7.11. However, it is worth noting this is a very high proportion of teachers to be legitimately absent on any given day, equivalent to roughly 20,000 GPS and RNGPS teachers.

In summary, it appears that the problem of *unofficial* teacher absences in Bangladesh is not particularly severe. The SSPS found that 2% of GPS and 2.5% of RNGPS in-post teachers were absent without authorisation on the day of the survey, with 0.7% of both GPS and RNGPS in-post teachers on a permanent or long-term unauthorised absence. This implies that in the whole of Bangladesh, on any given day around 5,000 GPS and RNGPS teachers who are receiving a salary will be unofficially absent from school. These figures are similar to previous estimates. The World Bank recently conducted a investigation of primary school teacher absenteeism in Bangladesh[55]. They found that 16% of teachers were absent when they arrived unannounced at the school, just 2% unauthorised.

Lateness

Another source of disruption to teaching schedules—particularly in the first shift—is teacher lateness. The SSPS enumerators arrived at schools unannounced before the start of the school day and recorded the arrival time of each teacher. A large proportion of both GPS and RNGPS teachers arrive after the start of the school day (Table 7.12). Some 32% of GPS teachers and 29% of RNGPS teachers were observed arriving more than 15 minutes late. Female teachers are slightly more likely to be late than males at GPSs, whilst the opposite is true at RNGPSs. Perhaps an unsurprising finding is that teachers living further away from the school in which they work are more likely to be late.

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[55] See Chaudhury *et al*. (2004).

Table 7.12   Teacher punctuality

	GPS			RNGPS		
	Headteacher	Assistant teacher	Overall[2]	Headteacher	Assistant teacher	Overall[2]
Minutes late						
On time	43	48	48	70	57	60
Less than 15	24	19	20	7	13	12
Between 15 and 30	17	19	18	3	13	11
Between 30 and 45	16	13	14	20	14	16
More than 45	0	0	1	0	3	3
Proportion late (%)						
% of male teachers	50	51	51	28	48	42
% of female teachers	70[+]	52	54	58[+]	36	37
Distance from school						
Less than 1km	42[+]	30[+]	39	19	35	31
Between 1 and 5km	61	49	50	32	42	41
More than 5km	56[+]	65	61	50[+]	68	62

Source: SSPS data from schools. Notes: (1) Estimates are for all teachers in post and working. (2) Includes project teachers and teachers in unassigned posts. (3) '+' denotes estimate was generated using fewer than 30 observations.

In-service training

In-service training can be a very important method by which teachers' skills are maintained and updated. AUEOs run one-day training courses ('subcluster training') every few months for teachers in groups of schools within the area that falls under their supervision. Other training programmes are funded periodically by donors under the development budget. Most teachers have attended an in-service training course recently: some 87% of GPS and 80% of RNGPS in-post teachers have attended an in-service training course in the past 12 months according to school records.

GPS and RNGPS teachers were asked about the quantity of in-service training that they had received between January 2002 and the time of the survey in mid-2005 (see Table 7.13). Almost every GPS and RNGPS teacher has received some in-service training since the start of 2002. The average GPS teacher completed five courses in the time-period under discussion (four for RNGPS teachers)[56]. Teachers receive an average of around four or five days of training per year.

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[56] A year's worth of subcluster training is counted as one course.

Table 7.13 In-service training received since 2002 by teachers in post and working

	GPS			RNGPS		
	Proportion of teachers (%)	No. of courses[2]	Days of training received[2]	Proportion of teachers (%)	No. of courses[2]	Days of training received[2]
By sanctioned revenue / MPO post						
Headteacher	100	5	21	100	4	19
Assistant teacher	99	4	18	100	4	18
By course type[1]						
Subcluster training	76	3	13	88	3	13
Other	71	3	12	65	2	10
Overall[1]	**98**	**5**	**19**	**98**	**4**	**18**

Source: SSPS data from teachers. Notes: (1) Includes project teachers and teachers in unassigned posts. (2) Calculated using those teachers that attended at least one course.

Teachers who go on subcluster training are supposed to receive a training allowance. However, of the GPS and RNGPS teachers who went on subcluster training in 2004 or 2005, 56% and 50% did not received their training allowance respectively, while just 29% and 34% received their payment in full.

Teacher remuneration

Salary and allowance levels

GPS teachers holding a sanctioned revenue post receive a monthly salary from the government. A teacher's salary is composed of a basic salary and various allowances (rent, medical, dearness, headteacher, tiffin, hill and conveyance). RNGPS teachers also receive monthly salary payments from the government, but are only eligible for the first four of the allowances just listed. Table 7.14 shows average monthly salary and allowances received by teachers with assigned posts paid by the revenue budget.

The estimates show, as expected, that GPS teachers receive substantially higher salary payments than those at RNGPSs, with a mean monthly payment of Tk 5,843 for GPS teachers and Tk 2,002 for RNGPS teachers. GPS sanctioned revenue teachers receive a salary that increases annually by a 'yearly increment' and by more substantial amounts after eight, 12 and 15 years working in GPSs. In contrast RNGPS MPO teachers' salaries start lower, at 90% of the starting salary for assistant GPS teachers, and do not increase annually.

In GPSs, male teachers earn more on average than females. This may reflect the fact that, whilst male GPS teachers are not significantly better qualified, they are more likely to be headteachers and have generally been working in GPSs significantly longer, both of which imply higher salaries.

Table 7.14   Mean monthly government-paid salary (Tk)

	GPS			RNGPS		
	Basic	Allowances[1]	Total	Basic	Allowances[1]	Total
By sanctioned revenue / MPO post						
Headteacher	4,096	2,334	6,430	1,564	449	2,063
Assistant teacher	3,541	2,096	5,685	1,575	407	1,982
By gender						
Male	4,073	2,337	6,429	1,587	422	2,026
Female	3,270	1,970	5,295	1,539	406	1,945
All sanctioned revenue / MPO posts	**3,658**	**2,145**	**5,843**	**1,572**	**417**	**2,002**

Source: SSPS data from UEO offices. (1) This is the sum of all government-paid allowances except the festival allowance (see discussion in text).

In addition to receiving the basic salary and allowances already described, teachers with an assigned post paid from the revenue budget are also eligible for a festival allowance, which is paid twice a year. GPS teachers receive an amount equal to one month's basic salary each time, whilst RNGPS teachers receive one-quarter of a month's basic salary each time. This exacerbates the difference between the salaries of GPS and RNGPS teachers, since GPS teachers therefore receive the equivalent of 14 monthly basic salary payments per year while RNGPS teachers receive only 12.5 months' worth of basic salary payments. With the exception of 2% of GPS teachers, all teachers have received a festival allowance payment in the past 12 months and the proportion that did not receive two payments of the correct amount in the past 12 months was just 4% and 2% for GPS and RNGPS teachers respectively.

The survey also collected information regarding the salary and allowance payments made to teachers from the school's own resources. Just 4% of RNGPSs have made any such payments in the past 12 months, with less than 1% of MPO teachers receiving them. Some 4% of GPSs make salary or allowance payments out of their own resources, with 1% of GPS teachers receiving a payment in the last year, all of whom were school-employed teachers. School-employed teachers earn considerably less than those in assigned posts.

Payscales

The exact salary payable to teachers in assigned posts depends upon the type of post (headteacher or assistant teacher), whether and when they have received professional training (C-in-Ed), whether and when they have been promoted and the number of years in service. The SSPS collected these details from sampled teachers in order to try to check whether teachers are being paid the correct salary according to the official payscale[57]. However, this was not possible. The GPS payscale is complicated enough, but salary increases and payscale jumps are not automatically granted; rather, they have to be applied for and authorised subject to satisfactory performance.

A further complication is that on a number of occasions in the past 30 years current teachers have been given *ad hoc* salary increases which have a knock-on effect for all subsequent

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[57] Although the GPS salary payscale changed in 2005, salary payments for the first half of the year were in accordance with the old payscale, with the difference to be backdated later in the year. Therefore the salaries recorded from the latest salary bills collected at the UEO were consistent with the old payscale. The comparison between recorded salaries and the payscale is made in relation to the old payscale.

years. In fact, 14% of teachers were found to be paid basic salaries above the apparent maximum salary possible for any GPS teacher, Tk 5,130. All of these teachers were working in GPSs in 1977 when there was a one-off 10% salary increase.

Overall, it is almost impossible to determine what each teacher should be being paid without obtaining a year-by-year record for each teacher of the salary increases he or she received and comparing this with official records and regulations. The GPS payscale is therefore extremely untransparent. It is not possible to assess whether specific groups of teachers (e.g. female teachers) suffer from pay discrimination.

In contrast, RNGPS teachers in assigned posts receive a basic salary which depends only upon whether or not they are trained. An untrained teacher should receive Tk 1,462 (90% of salary scale 18), while a trained teacher will Tk 1,687 (90% of salary scale 16). However, 21% of RNGPS MPO teachers were recorded as receiving a basic salary of a different amount, with trained teachers more likely than untrained teachers to receive the wrong amount. Many of these trained teachers had not moved up the payscale because either they had only recently qualified or there had been an administrative error or delay in the application.

Salary tracking

The list of teachers on the latest paid salary bill available at the UEO office was compared with the list of those found to be in post at the school. Around 3% of GPS teachers on the latest payroll were not in post at the school: 1% had been deputed out to another school, 1% were on LPR and 1% were no longer working at the school. The figure for this last group does not necessarily give cause for alarm: many of these teachers may have left in the few weeks between the day of the last bill payment and the day of the survey. Less than 1% of RNGPS teachers were on the payroll but not in post. There is no evidence of ghost teachers— teachers listed on the UEO office payroll as receiving a salary but who are not known at the school.

The value of payments recorded on the most recent month's salary bill at the UEO office was compared with information from two other sources: first, with the records at the school (in cases where payments were made via the school and records were available); and second, with the teachers themselves. It was possible to carry out the first part of this tracking exercise—comparing UEO and school-level records—for two-thirds of teachers in assigned posts. There were discrepancies in the value of basic salary payments for 12% of GPS teachers and 21% of RNGPS teachers. For net salary payments the equivalent estimates are 18% and 4% respectively[58]. The discrepancies are often large and can go in either direction. The main reason for this appears to be inaccurate record-keeping, particularly at the school.

The second part of the tracking exercise—comparing UEO records with the payments that the teachers themselves report receiving—shows that, for GPS teachers, the average net salary recorded at the UEO office for the last month was Tk 4,979, while the average amount reported by the teacher was Tk 4,960; for RNGPS teachers these figures were Tk 1,996 and Tk 1,954 respectively. These estimates are very close which would suggest that, in general, teachers are receiving what they should. However, the similarity of these averages for each school type hides the fact that there are some significant discrepancies, both positive and negative, for individual teachers, which largely cancel each other out. In fact, the amount recorded by the UEO office and that reported by the teacher do not match for around 31% of teachers. These discrepancies could be due to several reasons. There is confusion surrounding what constitutes a teacher's net salary. In some cases advances or advance repayments may have been included in the value reported by teachers and in others they

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[58] Net salaries are equal to basic salary plus allowances, minus any deductions. Sometimes loans or loan repayments occur and these are included in the net salary figure as well.

were not. Poor record-keeping at the UEO office may also account for some of these discrepancies.

Informal payments

Despite anecdotal reports of teachers being required to make informal payments in order receive their salary, the SSPS did not find this to be a significant problem. Just 1% of teachers reported making such a payment.

Delays in salary payments

The different systems for paying GPS and RNGPS teachers give rise to substantial differences in their experiences of how promptly they are paid. Nine out of every 10 GPS teachers receive their salary on time, whereas the same is true for only one-quarter of RNGPS teachers (Table 7.15). Moreover, the length of delay, where it occurs, is much more severe in RNGPSs than GPSs: three-quarters of late payments to RNGPS teachers are more than four weeks overdue, whereas only 30% of late payments to GPS teachers are delayed by this length of time.

Table 7.15   Promptness of salary payments to teachers in assigned posts (% of teachers in post and working)

	GPS			RNGPS		
	Headteacher	Assistant teacher	Overall[1]	Headteacher	Assistant teacher	Overall
Salary on time	88	91	90	23	26	25
Salary delayed						
less than 1 week late	0	5	4	0	0	0
1 to 2 weeks late	0	4	3	0	6	5
2 to 3 weeks late	0	0	1	0	7	5
3 to 4 weeks late	0	0	0	0	14	10
more than 4 weeks late	12	1	3	77	48	55

Source: SSPS data from teacher responses. (1) 'Overall' includes project teachers for GPSs.

It may be surprising that the GPS system is so efficient, given the complex process of exchanging information each month between the school, the UEO office and the UAO office (Figure 3.1). In fact the system in place permits UEO offices to submit the salary bill to the treasury bank even before it has been formally approved by the UAO office, so that the bank can make preparations and be ready to issue the payment as soon as the bill is passed. It seems that this system is functioning well.

A related issue is whether any salary payments are not simply late but actually have not been paid at all. The relevant estimates are presented in Table 7.16 below. Again, the differences between school types are remarkable: just 5% of GPS teachers paid by the revenue budget are waiting for payments of salaries or allowances, whereas 76% of RNGPS teachers have payments outstanding. This may be symptomatic of the long lag in the regular payment of salaries. In both school types, where payments are outstanding, an average of two months' salary is owed.

Table 7.16   Outstanding salary payments to teachers in assigned revenue budget posts[1]

Assigned post	GPS			RNGPS		
	Owed payment? (%)	Mean months owed	Mean amount owed (Tk)	Owed payment? (%)	Mean months owed	Mean amount owed (Tk)
Headteacher	5	3[+]	5,442[+]	74	2	3,331
Assistant teacher	5	2[+]	5,060[+]	76	2	3,001
All revenue budget posts	**5**	**2[+]**	**5,155[+]**	**76**	**2**	**3,080**

Source: SSPS data from teacher responses. (1) Data refer to those who are in post and working. (2) '+' denotes estimate was generated using fewer than 30 observations.

Note that although comparable figures for GPS project teachers are not presented in Table 7.16 since there are too few observations, project teachers are often owed many months worth of salary payments. This is consistent with many reports that project teachers have had many problems getting paid, and some have not been paid for many years.

Additional (non-school) teacher income

Many teachers have additional sources of income, particularly RNGPS teachers, which reflects the fact that they earn so much less than GPS teachers. For the 63% of RNGPS teachers with an extra source of income the average amount earned annually is Tk 17,946 (Table 7.17). The 30% of GPS teachers with an additional source of income earn Tk 15,659 extra on average. Note that, even for those RNGPS teachers who do have an additional source of income, the extra income reduces only a small proportion of the gap between their teaching salaries and those of GPS teachers. Within each school type, there is little difference in regular salaries between those that take on extra work and those that do not. Male teachers are far more likely to have an additional source of income than their female colleagues, and earn more from these sources on average.

The most commonly reported source of additional income is agriculture, followed by private tuition. However, other evidence from the SSPS indicates that the incidence of private tuition provided is underreported. In two-thirds of schools where at least one sampled student said that they took private tuition from a teacher at that school, and where all teachers were interviewed, none of the teachers stated that they gave private tuition. This should be considered when interpreting the estimates relating to teachers' additional income.

Table 7.17   Annual teacher income from all sources

	GPS			RNGPS		
	Proportion of teachers (%)[1]	Mean additional earnings (Tk)[3]	Mean school teaching income (Tk)	Proportion of teachers (%)[1]	Mean additional earnings (Tk)[3]	Mean school teaching income (Tk)
Additional income source?[4]						
Yes	30	15,659	77,591	63	17,946	23,983
No	70	0	74,721	37	0	24,466
By additional income source[4,5]						
Agriculture	18	15,103	82,653	49	15,574	24,463
Private tuition	13	13,520	65,597	14	5,983	22,137
Running a business	2	17,167[+]	78,223[+]	9	29,524[+]	22,136[+]
Other wage employment	1	8,477[+]	69,345[+]	5	3,477[+]	23,664[+]
By gender[4]						
Male	50	17,835	80,093	79	19,561	24,241
Female	11	6,406	66,781	24	5,171	21,787
By sanctioned revenue/MPO post						
Headteacher	33	16,455	89,512	69	18,044	25,511
Assistant teacher	30	15,671	78,221	60	17,992	24,901

Source: SSPS data from sampled teachers. Notes: (1) Proportion of all teachers in post and working. (2) '+' denotes estimate was generated using fewer than 30 observations. (3) Calculated for those teachers who have this source of additional income. (4) Figures refer to teachers in-post and working. (5) The sum of the proportions in this disaggregation is greater than the overall proportion of teachers who say they have an additional income source since some have more than one additional source.

It has been suggested that absence rates might be higher for those teachers who have an additional salary source, since a considerable amount of time might have to be invested in any extra income-generating activities. For GPS teachers there is some evidence that this is the case. For those teachers with an additional source of income the proportion absent for unauthorised reasons was 2%, compared with 1% amongst those with no alternative income source. Strangely, for RNGPS teachers the opposite applies, with unauthorised absences higher amongst those teachers with no additional source of income.

8   Textbooks and Other Materials

Key findings

-   GPSs and RNGPSs receive and distribute new textbooks in line with current norms. AEM records suggest that even though sufficient new textbooks were received these were not always distributed to students.

-   97% of the total new textbooks required by GPSs and RNGPSs are available on an annual basis. The situation in AEMs is somewhat different with substantial oversupply of new textbooks in classes 4 and 5. This suggests that approximately 30% of all textbooks supplied to AEMs are not required on the basis of norms at the time.

-   The vast majority of class 5 students in GPSs and RNGPSs receive their full quota of textbooks (including both new and old). In AEMs 84% of class 5 students receive their full allocation of textbooks. However, there is evidence of oversupply with 68% of class 5 AEM students receiving more new textbooks than the norm.

-   It is much more common for AEM students to purchase authorised textbooks from local bookstores which in part reflects the fewer students in AEMs receiving their full quota from the free textbook distribution system

-   Between the district and the school there is little evidence of the need for informal payments to receive textbooks. However, around one-fifth of RNGPS and AEM class 5 students reported making payments of between Tk 2 and Tk 50 to obtain textbooks from their school. GPS students appear to pay for textbooks less often and also tend to pay smaller amounts.

-   Tracking textbooks through the distribution system shows that for every 100 textbooks that enter the distribution system, 98 reach GPS and RNGPS students. However, there are more concerns in AEMs where only 76 of every 100 textbooks reach students in the most common distribution system.

-   Less than half of all schools had received all of their textbooks by the end of January and hence the start of the school year. Approximately one-fifth only receive their final delivery of textbooks in March. Delays appear to be centred around initial delivery from the private publishing companies contracted by the NCTB and delivery from districts to upazilas.

-   Almost all GPSs and RNGPSs, but only one in five AEMs, received contributions of materials such as stationery. GPSs and RNGPSs commonly received materials that contributed to teaching and learning whereas the most common contribution for AEMs is furniture and fittings.

-   Average GPS receipts of contingency payments fall below the expected norm. Poor record-keeping makes it extremely difficult to track this item between upazilas and schools and so this cannot be attributed to leakage. The majority of RNGPSs received the expected amount of contingency payment and there is little variation across schools.

This chapter provides details of the main materials provided directly to schools by government, the school community and various other donors. The major system analysed is the provision of textbooks organised by DPE and the NCTB. This provision has been supported by a number of different international donors and is currently a major component of PEDP II. In the last four years, a number of other primary education projects have provided materials to schools in addition to textbooks. For example, UNICEF's IDEAL has provided many GPSs and RNGPSs with teaching aids and support kits. The chapter analyses the types of materials

provided by such projects as well as materials provided by SMCs, parent-teacher associations (PTAs) and individuals associated with schools.

As was made clear in chapter 6, most income that schools receive from public sources is earmarked, i.e. schools have little discretion over how to manage and spend the funds. However, GPSs and RNGPSs do control contingency payments provided by the UEO office. This chapter also discusses this system, and details the items schools purchase with these funds.

8.1 SYSTEM OVERVIEW

Textbooks

The main and most regular materials that primary schools receive directly through the system are textbooks. Free textbooks are provided to all primary schools that follow the national curriculum developed and controlled by the NCTB. Textbooks have been provided through donor funds since the early 1990s and the introduction of free and compulsory primary education. When free textbooks were first introduced, schools were instructed to reuse textbooks to reduce the cost of provision. More recently, reusing textbooks has been gradually phased out and in 2006 all students will receive a complete set of new textbooks. However, when AEMs were surveyed for SSPS in 2004 the recommended distribution was for the first two classes to receive a full set of new textbooks whereas classes 3, 4 and 5 were to receive six new and two old textbooks. In 2005, at the time GPSs and RNGPSs were surveyed, textbook distribution policy required the distribution of a complete set of new textbooks to all students in classes 1 to 4, and class 5 students were to receive new textbooks in half of their subjects and reuse textbooks in the others. Table 8.1 details the subject areas students receive textbooks for in each primary class.

Table 8.1 Textbook distribution by school type and class

	GPS and RNGPS		AEM	
	Class 1 and 2	**Class 3,4 and 5**	**Class 1 and 2**	**Class 3,4 and 5**
Subjects for which textbooks are provided	Bangla	Bangla	Bangla	Bangla
	Mathematics	Mathematics	Mathematics	Mathematics
	English	English	Arabic	English
		Social Science	Fiqh	Social science
		Science	Quran	Science
		Religion		Arabic
				Fiqh
				Quran
Total (new and old) textbooks per student	3	6	5	8

Source: OPM.

In 2005 approximately 64 million primary school textbooks were centrally produced and distributed to all primary schools across Bangladesh. Textbook content, production and initial distribution is centrally organised through the NCTB. Once the content of textbooks has been agreed upon, production is organised through a tendering process using around 200 private publishing companies. These companies are also contracted to deliver textbooks to the district level. The number of textbooks delivered to each district is based on estimates of requirements produced by schools, upazila and district education offices.

At the district level there are separate systems for textbook distribution for primary schools and madrasahs (see Figure 8.1). Ebtedayee madrasah textbook provision is organised through the Ministry of Education and, in particular, DEO offices and upazila project offices. For all other primary education institutions, distribution is organised through the DPE and its offices across Bangladesh. In the majority of cases, once textbooks have been delivered to the district they are forwarded directly to upazila offices for onward distribution to schools and madrasahs. The main exception to this process is in the madrasah system where approximately a quarter of all ebtedayee madrasahs are supplied directly from DEO offices. This reflects, in part, the difference in the size of districts. Distribution between the district and upazila offices is carried out by private firms selected through a tendering process. Once books arrive at upazila offices, schools are requested to collect their allocation of books. It should be noted that there are a number of textbook deliveries at each level during the distribution process every year. Schools, on average, make three trips to upazila offices to collect their full allocation of textbooks. Once schools and madrasahs have received their textbooks they are responsible for distribution to students.

Figure 8.1   Textbook distribution system for primary schools and ebtedayee madrasahs
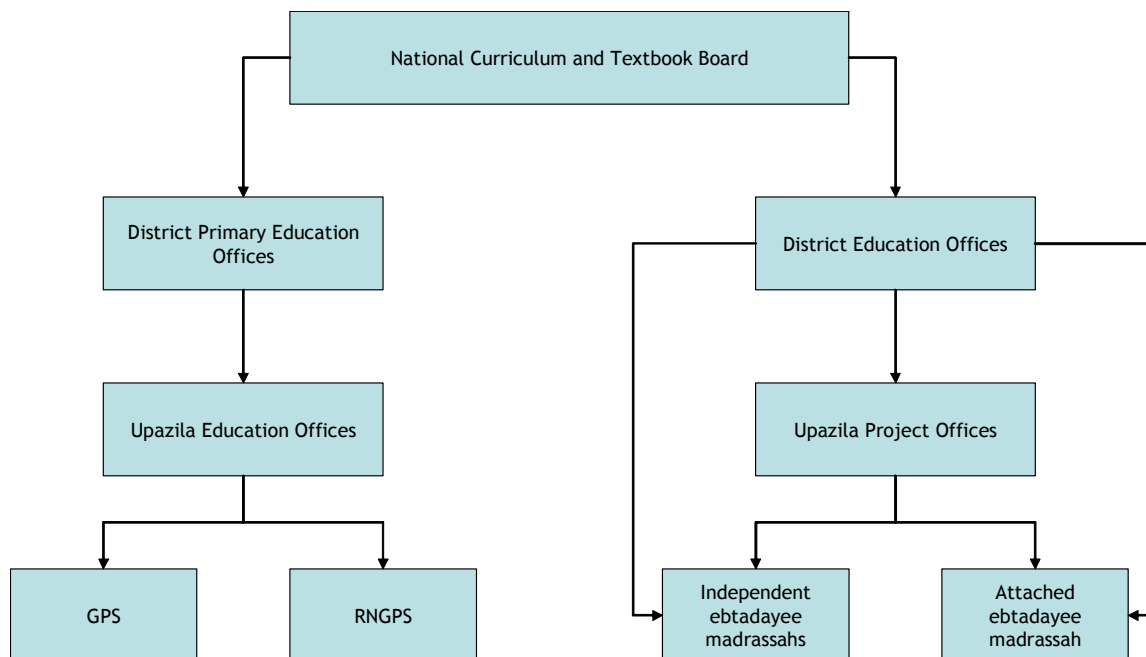
Source: OPM.

At each level of the textbook distribution system records of textbook receipts and deliveries are maintained. These have been used by the survey to assess whether textbooks are received in schools in time for the beginning of the school year and also to assess whether students receive the intended number of textbooks. Analysis of textbook records is also supplemented with household verification of textbook receipt.

Contingency

GPSs and RNGPSs receive monthly contingency payments from the DPE and CPEIMU (via UEO offices) respectively. These payments are generally used by schools to purchase items needed for the day-to-day running of schools. For example, stationery is a common item bought with contingency funds. Most GPSs are allocated Tk 300 and RNGPSs Tk 150 per month for contingency while larger schools sometimes receive larger amounts. Contingency is paid on a reimbursable basis; schools first incur costs and then submit a voucher with the appropriate receipts to the UEO for reimbursement. The UEO prepares a bill in the usual way and once this has been processed by the UAO, funds are either directly transferred into the school's bank account or the school receives contingency payments from the UEO in the form of a cheque or cash. No similar system of contingency payments is currently in place for AEMs.

8.2 TEXTBOOKS AND OTHER MATERIAL INPUTS

Textbooks

Do schools receive sufficient new textbooks, from upazila and district offices, to provide textbooks to their students according to the textbook policy? Do schools distribute adequate new textbooks to comply with the textbook norms? Table 8.2 compares the number of new textbooks students are entitled to with the actual number of new textbooks schools received and distributed to students[59]. On the whole, the table shows that GPSs and RNGPSs receive and distribute new textbooks in line with current norms.

Table 8.2   Average number of new textbooks per student that schools report receiving and distributing to students

	GPS			RNGPS			AEM		
	norm	received	distributed	norm	received	distributed	norm	received	distributed
Class 1	3	3.0	2.8	3	2.9	2.7	5	5.8	4.2
Class 2	3	2.9	2.9	3	3.0	2.8	5	4.9	3.7
Class 3	6	5.5	5.3	6	5.6	5.2	6	7.6	5.6
Class 4	6	6.2	5.8	6	5.9	5.5	6	7.8	5.7
Class 5	3	3.3	3.2	3	3.3	3.4	6	6.7	5.6

Source: SSPS data from schools. Note: Information for GPSs and RNGPSs is based on the 2005 school year. For AEMs the information is based on the 2004 school year.

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[59] It should be noted that in almost all cases schools receive for each class the same number of textbooks for each subject. Only three schools reported having received for a specific class different numbers of textbooks for different subjects. Even in these cases the differences were small. Therefore, variations discussed in this section do not arise from unequal distributions of textbooks by subject.

For AEMs the results are more mixed. AEMs appear to have received sufficient quantities of new textbooks in 2004 to supply all students according to norms. However, school distribution records suggest that even though sufficient new textbooks were received to fulfil the norms, they were not always distributed to students. For example, AEMs received a sufficient quantity of new textbooks for classes 1 and 2 to provide five new textbooks per student but only distributed approximately four new textbooks per student. Therefore, it appears that while madrasahs are receiving sufficient quantities of new textbooks to comply with textbook norms not all of these textbooks are being passed onto students.

In the higher AEM classes there appears to have been a substantial oversupply of new textbooks compared to current norms. For example, in class 4, eight new textbooks were received per student when government policy stated that students in this grade were to receive only six new textbooks. These results suggest that AEMs had large stocks of textbooks left over from distribution in 2004, something that is discussed in more detail in Section 8.3.

With the exception of the lower classes in AEMs, Table 8.2 reports a healthy picture of the textbook distribution system in providing new textbooks to students according to norms. However, the table masks some large disparities across schools which can be illustrated by looking at new textbook distribution in class 5. For class 5 the pattern of new textbook distribution is similar for all school types, with many schools providing more than the textbook per student norm dictates. This is most pronounced in AEMs where over three-quarters provided at least some of their class 5 students with one additional textbook compared to the norm (i.e. those with new textbook: student ratios greater than six). Furthermore, 17% of AEMs provided a full new set of textbooks (i.e. all eight class 5 AEM textbooks) to their students.

In GPSs and RNGPSs class 5 students are entitled to three new textbooks. Table 8.3 shows that over 85% of class 5 students receive either their full allocation of new textbooks or an allocation that exceeds current norms. Relatively low proportions of class 5 students in these schools receive fewer new textbooks than planned. Interestingly 12% of RNGPS class 5 students received a full set of new textbooks in 2005 compared to only 6% of GPS students. The distribution of new textbooks in AEMs is much less consistent. Almost 26% of AEM students receive fewer new textbooks than the planned allocation (i.e. six new textbooks). However, 68% of AEM students received more than the current norm with over a half receiving new textbooks in all Class 5 subject areas. This suggests quite large levels of oversupply of textbooks in the madrasah distribution system (see Section 8.3).

Table 8.3   Class 5 new and total textbook supply

	GPS	RNGPS	AEM
New textbook distribution (% of class 5 students)			
0 new textbooks	4	5	6
1 new textbooks	1	1	0
2 new textbooks	8	6	0
3 new textbooks	61	61	8
4 new textbooks	17	10	6
5 new textbooks	3	6	6
6 new textbooks	6	12	5
7 new textbooks	n/a	n/a	11
8 new textbooks	n/a	n/a	57
Class 5 students receiving full quota (new and old) of textbooks (%)	92	95	84

Source: SSPS data from schools. Note: Information on textbook supply is from the 2005 school year for GPS and RNGPS class 5 students whereas for AEM students it is for the 2004 school year.

At the time of the survey, class 5 students were supposed to receive only half of their textbook needs through the annual distribution of new textbooks. Schools reuse textbooks from previous years to supply class 5 students with their full complement. Over 90% of GPS and RNGPS class 5 students receive their full quota of textbooks (i.e. new and old) compared to only 84% of class 5 students in AEMs (see Table 8.3). It seems, therefore, that schools are successful at reusing textbooks and further research to explore textbook reuse and potential cost savings this could provide would be useful.

The higher proportion of GPS and RNGPS students receiving their full complement of textbooks is reflected in the purchase of authorised textbooks by households; very few class 5 students in GPSs or RNGPSs purchase authorised textbooks whereas the proportion of AEM student households purchasing authorised textbooks on the local market is much higher. Table 8.4 shows that two-fifths of students in AEMs purchased at least one authorised textbook at an average cost of Tk 38. While these purchases appear to be made primarily to make up the shortfall in textbooks supplied, approximately one-third of class 5 students who received their full allocation also purchased authorised textbooks. This is due to the fact that a large share of purchased authorised textbooks are not subject texts provided by NCTB but '*mizan*' books.[60]

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[60] The *mizan* provides a guide to the meaning of the verses of the Quran.

Table 8.4   Class 5 students purchase of additional authorised textbooks and average cost per book

	GPS	RNGPS	AEM
Percentage of class 5 student households purchasing authorised textbooks (%)	1	1	39
Average cost per authorised textbook (Tk)	-	-	38

Source: SSPS data from households. Note: Owing to the very small numbers of GPS and RNGPS students reporting the purchase of authorised textbooks no average cost estimates are provided.

Approximately 80% of all class 5 students purchase supplementary books in addition to authorised texts (see Table 8.5). Households tend to purchase books more commonly for male students but the difference is not large. The most common type of books purchased are those providing solutions to questions from the authorised textbooks. Interestingly, nearly all AEM students who buy supplementary books purchase at least these answer books. Although fewer GPS and RNGPS households purchase supplementary books for their female students, those that do tend to buy more books for them compared to male students. This gap is largest in GPSs where households buy two additional supplementary texts for female students compared to male students. Male students in AEMs are still favoured by households who tend to purchase one additional textbook for their male compared to their female children. AEM students purchase more supplementary books than GPS and RNGPS students and average spending is higher as a result.

Table 8.5   Class 5 supplementary textbooks

	GPS	RNGPS	AEM
Class 5 student households purchasing supplementary textbooks (%)			
Male	84	83	81
Female	75	80	75
Total	79	81	78
Types of supplementary books purchased (% of households that purchased supplementary books)[1]			
Solutions to textbook problems/homework	67	75	96
Guidebook	26	21	n/a
Sample questions for scholarship exam	17	11	6
Substitute unauthorised textbook	1	1	11
Reading/story books	0	0	1
Other	0	0	2
Average number purchased during school year for households purchasing supplementary books			
Male	3	3	5
Female	5	4	4
Total	4	4	5
Average cost per supplementary textbook (Tk)	55	36	26

Source: SSPS data from households. Notes: (1) Information on supplementary books is from the 2005 school year for GPS and RNGPS class 5 students whereas for AEM students it is for the 2004 school year. The percentages for the types of supplementary books purchased can sum to more than 100 because households could indicate that they purchased more than one book.

Other materials

Materials in kind

Most schools possess a library collection (see Table 8.6). Library collections are typically small in GPSs and RNGPSs, with approximately 70% of libraries having fewer than 100 books. Libraries in AEMs tend to be larger with three-quarters of libraries having over 100 books. Teaching equipment is widely available, with almost all schools having at least one teaching aid such as posters or games, though in many cases wall charts and posters are not kept on display in classrooms.

Table 8.6   Library collection and teaching equipment

	GPS	RNGPS	AEM
Library			
Schools with a library (%)	86	75	96
Schools with 100 or more books (of those that have a library)	29	30	77
Teaching equipment[1]			
Schools with any teaching aids e.g. games, globe, wall charts (%)	93	97	-
Schools with any musical instruments for use by students (%)	13	0	-

Source: SSPS data from schools. Note: (1) Data on teaching equipment in AEMs were not collected.

Given the very limited levels of financial resources schools have to purchase educational materials and infrastructure, schools rely on the direct provision of most materials. Almost all GPSs and RNGPSs, but only one in five AEMs, received some materials in kind (see Table 8.7). AEMs that did obtain in-kind support tended to receive furniture and fittings rather than materials that contributed more directly to teaching and learning. As would be expected, most primary schools receive teaching aids and support kits. UNICEF has been instrumental in supplying these materials through its IDEAL project under PEDP I. Teaching aid provision is also relatively common in AEMs although these are generally provided by other projects based in the Ministry of Education. Another common set of materials received by schools is books, other than textbooks, including reference and story books that add to school library collections. It is also clear from Table 8.7 that GPSs more commonly receive furniture and fittings from various sources compared to RNGPSs.

The major source for all these contributions is the government and donors, through both the recurrent and development budget (see Table 8.7). Surprisingly few material resources are provided by the school community by way of the SMC, PTA or through prominent individuals.

Table 8.7   Materials received by schools in previous 3 school years and their suppliers[1]

	GPS	RNGPS	AEM
Schools receiving other materials (%)	89	90	18
Types of materials received (% of schools that received materials)			
Textbooks	2	1	11
Teacher guides	56	54	0
Teaching aids and teacher support kits	78	74	26
Sports equipment	20	22	0
First aid kit	22	29	0
Other books	72	72	0
Stationery	23	18	14
Furniture and fittings	32	8	55
Other	12	10	25
Source of materials contribution (% of total number of sources)			
Project (e.g. IDEAL, ESTEEM etc.)	61	70	92
Government/UEO office	27	20	8
Headteacher or teacher	2	2	0
SMC	2	3	0
PTA	2	0	n/a
Local business, individual or politician	5	4	0
Other	2	1	0

Source: SSPS data from schools. Notes: (1) Information for GPSs and RNGPSs relates to the period 2003-2005 and for madrasahs 2003-2004. Madrasah information is for DMs in the SSPS and no attempt has been made to separate materials between ebtedayee and dakhil sections of these madrasahs.

Contingency payments

GPSs and RNGPSs receive monthly contingency payments from the UEO office to cover day-to-day running expenses of the school. As Section 8.1 reported, expected contingency payments for most GPSs and RNGPSs are Tk 3,600 and Tk 1,800 per year respectively. Table 8.8 shows that average GPS receipts of contingency payments fall below this expected amount. In fact only 20% of GPSs report receiving Tk 3,600 or more for contingency payments in the 2003/04 financial year. Variation in contingency payments for RNGPSs appear to be much smaller than for GPSs; 83% of these schools receive Tk 1,800 annually (see Table 8.8).

Table 8.8   Average contingency payments per school and student, 2003/04 (Tk)

	GPS	RNGPS	Total
Average contingency payment received per school			
Low	1,800	1,800	1,800
Mean	2,841	1,858	2,490
High	4,100	2,300	3,600
Average contingency payment per student			
Low	4	6	5
Mean	13	10	12
High	23	16	20

Source: SSPS data from schools

Contingency payments are used primarily to purchase stationery for the day-to-day running of schools (see Figure 8.2)[61]. This includes the numerous registers (e.g. attendance, textbook and stipend registers) as well as paper and photocopying for bill preparation. The second largest component of expenditure, approximately 5%, is the purchase of teaching aids by the school. It is clear that as part of the limited resources schools have spending control over, contingency payments cover only basic aspects of school management.

Figure 8.2   Composition of contingency spending between 2003 and 2005
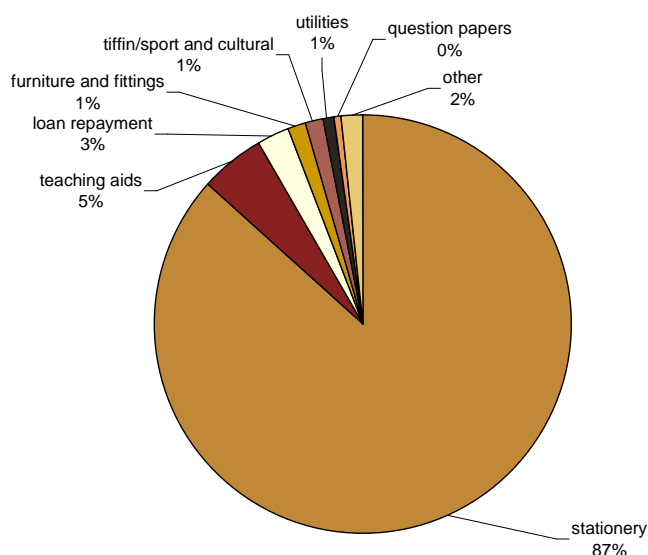
Source: SSPS data from schools.

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[61] Breaking down the use of contingency payments was possible because 80% of schools maintained a separate cashbook for contingency payments.

8.3 MANAGEMENT

Textbooks

Estimates of textbook needs are passed up to the NCTB from schools and madrasahs through the upazila and district education offices. In general, these offices reported that they had received adequate numbers of textbooks from the NCTB to satisfy school and madrasah needs. This is supported by the analysis presented in Section 8.2 which suggests, if anything, that schools and particularly madrasahs are being provided with more textbooks than the current norms allocate. This section looks at the textbook delivery system, explores the extent of oversupply and system loss, and analyses informal payments associated with textbook distribution.

Delivery system and timings

The private companies tendered by the NCTB are responsible for delivering textbooks to district education offices. For GPSs and RNGPSs the DPEO office organises a tender process to transport books from district headquarters to UEO offices. Selection of companies to transport textbooks is based on the per-textbook transport cost that companies submit as part of their tender bid. The average per-textbook transportation cost in 2005 was 7 paisa although this varied from 3 to 19 paisa across districts. These variations are likely to reflect, in part, the different degrees of remoteness of districts and upazilas and the quality of local infrastructure. However, further analysis is required to understand fully these large variations.

Schools and madrasahs are required to collect their allocation of textbooks from upazila offices which costs on average between Tk 240 and Tk 280 annually. For GPSs and RNGPSs only 2% are reimbursed for this spending while the remainder have to pay out of school resources and often out of limited contingency funds.

It is important that new textbooks are received by schools in time for the start of the school year in January[62]. Table 8.9 shows that the majority of schools and madrasahs collect their first set of textbooks in January (in most cases in early January). Less than half of all schools and madrasahs have received all of their books by the end of January and approximately one-fifth only received their final delivery of textbooks in March. Delays in textbook delivery seem to be worse in GPSs compared to other schools and madrasahs; approximately 10% of GPSs were still waiting for final delivery of textbooks at the end of March compared to 3% or less of RNGPSs and AEMs.

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[62] All textbooks are needed for the beginning of the school year. Chapter 11 shows that teaching is almost exclusively centred around the subject textbook and therefore the absence of textbooks is likely to impede teaching.

Table 8.9   First and last delivery of textbooks to schools and madrasahs[1]

	GPS	RNGPS	AEM
Month of first delivery			
November	0	0	0
December	7	2	0
January	89	89	86
February	4	8	13
March and later	0	0	1
Month of last delivery			
January	25	40	41
February	44	36	34
March	19	23	22
April	9	1	2
May and later	2	0	1
Average number of days between upazila and school receiving first delivery	21	16	n/a
Average number of days between upazila and school receiving final delivery	17	7	n/a

Source: SSPS data from schools. Note: (1) For GPSs and RNGPSs months refer to 2004 and 2005 whereas for AEMs months refer to 2003 and 2004. The final two rows of the table show the average number of days between UEO offices receiving their first/final delivery of new textbooks from DPEO offices and schools receiving their first/final delivery from UEO offices. As the GPS/RNGPS survey took place between April and July 2005 approximately 10% of schools had not received all of their textbooks by the time of the SSPS. These schools are excluded from the table.

What are the cause of these delays? Delays are partly explained by the late delivery of textbooks at district and upazila levels (see Table A2.6). By the end of December, prior to the start of the school year, only 8% of districts had received their full allocation of textbooks. By the end of January, DPEO offices had received almost all their allocation of new textbooks from the NCTB whereas only 70% of DEOs (organising distribution for AEMs) had. For GPSs and RNGPSs the average time between the district's final delivery from the NCTB and the upazila's receipt is 20 days (see Table A2.6). This is an indication of how long it takes DPEO offices to deliver new textbooks once they have them in stock. DPEO offices also appear to be slow at beginning textbook distribution every year; the average time between DPEO office's receipt of the first delivery of new textbooks and UEO offices receipt of their first delivery is 50 days.

UEO offices appear to be quicker at textbook distribution than DPEO offices. This is likely to be due to schools organising collection of textbooks from UEO offices in contrast to DPEO offices who need to organise distribution to upazilas themselves. On average it takes UEO offices 17 days after receipt of final delivery from the district to organise final GPS collections of textbooks (see Table 8.9). This figure is much lower for RNGPSs where schools have collected their final allocation of textbooks just six days after UEO offices received final delivery.[63] Because schools are responsible for collecting textbooks from UEO offices some of

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[63] This is slightly surprising given that RNGPSs are on average further away from UEO offices (see Chapter 11), although their smaller size may mean that it is easier to organise pick up.

the final delivery time lag between upazilas and schools may be due to difficulties faced by schools in collecting their allocation from UEO offices. Where schools had not received their full allocation in time for the start of the school year the SSPS asked schools the cause of the delay. With the exception of one school, the stated cause was the late arrival of new textbooks at the UEO office rather than delays in schools collecting their textbooks[64].

Combining information on final delivery of textbooks suggests that it takes on average 37 days from districts receiving their final allocation from the NCTB for GPSs to receive their full allocation of textbooks. The comparable figure for RNGPSs is 26 days. This would imply that the NCTB would need to complete distribution to the districts sometime in November of the previous year to ensure that textbooks reached all students by January. In 2005, no final deliveries to DPEO offices were made by November 2004.

Informal payments

For GPSs and RNGPSs the SSPS asked upazilas and schools whether they needed to make informal payments to receive their textbook allocations. At the upazila level there was no evidence of informal payments to the DPEO office to receive textbooks. Approximately 7% and 2% of GPSs and RNGPSs respectively reported the need to make payments to receive textbooks from the UEO office. Where payments were reported they were approximately Tk 30.

It was noted in Table 5.4 that some households of class 5 students had to pay to receive textbooks from the school their child attended. The figures for GPSs and RNGPSs are reproduced in Table 8.10 below and compared with data for AEM students. Around one-fifth of RNGPS and AEM class 5 students reported making payments of between Tk 2 and Tk 50 to obtain textbooks from their school or madrasah. GPS students have a lower incidence of paying for textbooks and also tend to pay smaller amounts. Comparing these figures with earlier studies suggests that the incidence of informal payment for textbooks may have declined in GPSs and RNGPSs. For example, a study conducted in 2003/04 found that 24% and 40% of GPS and RNGPS students had to pay to receive their textbooks respectively (CAMPE, 2005).

Table 8.10   Informal payments by class 5 student households for textbooks

	GPS	RNGPS	AEM
Percentage of households reporting making informal payments (%)	9	19	23
Average informal payment (Tk)	10	13	15

Source: SSPS data from households.

Allocation levels

Using enrolment data, records of new textbooks received and stocks, Figure 8.3 compares the number of textbooks available with the total number of new textbooks required to fulfil textbook norms (see Table 8.1).

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[64] The analysis of times between first and last deliveries between districts, upazilas and schools is only supposed to be indicative as it is not necessarily the case that all lower levels are involved in the first and final deliveries of the level above.

Figure 8.3   Actual vs. expected new textbook allocation[65]
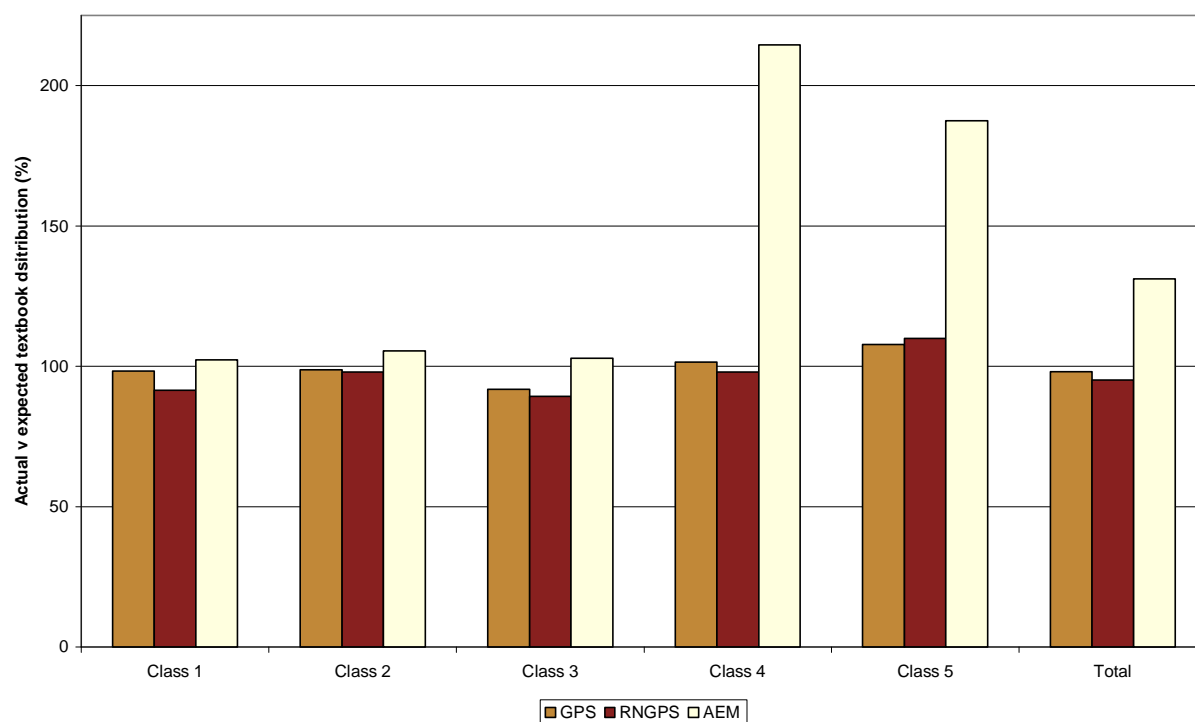
Source: SSPS data from schools. Note: actual textbooks are calculated as the sum of total new textbooks received and the number of new textbooks schools have in stock.

In Figure 8.3 a figure of 100% means that schools and madrasahs have the correct number of new textbooks to provide all students with their full entitlement[66]. It is clear the textbook management system for GPSs and RNGPSs works relatively well; 97% of the total new textbooks required are available on an annual basis. However, this marks some disparities across classes, with class 3 showing shortages and class 5 some oversupply. The situation in madrasahs is somewhat different with substantial over supply of new textbooks in classes 4 and 5[67]. This suggests that approximately 30% of all textbooks supplied to madrasahs are not required based on norms at the time.

Tracking—formal loss

The SSPS collected information on the number of new textbooks each level in the textbook management system received and how many were then distributed to lower levels. For example, at the upazila level, information was collected on the number of new textbooks districts had recorded as being sent to upazilas and also the number that upazilas recorded as being received from districts. Using this information it is possible to explore whether any textbook loss occurs as textbooks flow from the top to the bottom of the distribution system. It should be noted that this information is collected even at the household level where information from school textbook registers is compared with class 5 student households' own

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[65] Actual textbook allocation is defined as the sum of school and madrasah receipts of new textbooks and any stocks of new books remaining from the previous year. It should be noted that few schools and madrasahs hold stocks.

[66] Stock of new textbooks are included in the calculations for Figure 8.3 and this is the reason why the figures differ slightly from those shown in Table 8.2.

[67] The findings here are similar to the findings shown in Table 8.2. Differences are primarily due to changes in school's stocks of textbooks.

information on textbooks received. Figure 8.4 below presents the results of this analysis showing what happens to 100 textbooks that have been reported as being delivered to district offices by the NCTB.

Figure 8.4   Textbook tracking
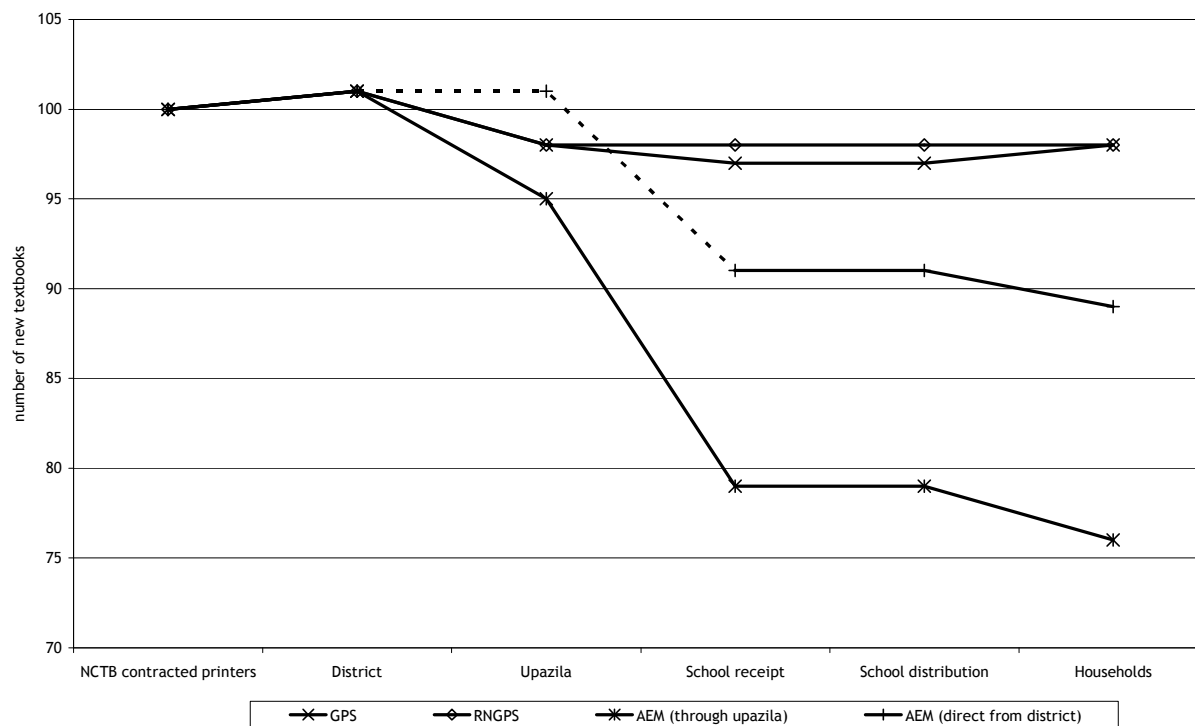
Source: SSPS data from districts, upazilas, schools and households.

The first step in the textbook distribution process is between printers contracted to the NCTB and the district education offices. Figure 8.4 shows that DPEO and DEO offices report receiving 1% more textbooks than NCTB reports as sending to the districts. This is likely to be caused by poor record keeping either at the NCTB or at the district level offices.

According to district and upazila records, for every 101 textbooks received at the district, 98 reach the upazila level in the GPS and RNGPS distribution system. According to GPS records a further textbook is lost between UEO offices and schools. School receipts of textbooks are then compared with school records on distribution of these textbooks[68]. For GPSs and RNGPSs the number of textbooks received is identical to the number distributed. Finally, households of class 5 students were asked how many textbooks they received from the school[69]. Again there appears to be no loss between schools and students. In fact, GPS student households report receiving slightly higher numbers of new textbooks than schools report as distributing. This anomaly is likely to be due to poor record-keeping at the school and particularly record-keeping of stocks from the previous year.

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[68] This accounts for any stocks of textbooks schools had prior to the beginning of the school year and any stocks of textbooks left at the end of annual textbook distribution.
[69] For households, the analysis compares records of new textbooks distributed by schools with the new textbooks households state they received from the school for class 5 students only.

Therefore, for every 100 new textbooks that are sent by the NCTB 98 reach GPSs and RNGPSs. The missing 2% of new textbooks could be the result of poor record-keeping or an indication that some textbooks are taken out of the system. Textbooks may be taken out of the system because they are damaged during transportation or diverted for other uses. While it is not possible to say exactly what has happened to these textbooks, given the very low levels of loss in the GPS and RNGPS textbook distribution system, it is possible that a substantial part is due to poor record-keeping.

A similar analysis was conducted for the AEM textbook distribution system and the results are also presented in Figure 8.4. Levels of textbook loss appear comparatively high in this system. For every 100 textbooks that enter the distribution system only 91 reach student households when the district distributes directly to schools[70]. However, 75% of AEMs receive their textbooks from upazila project offices and here the loss is even more substantial. Approximately 20% of textbooks are lost by the time they reach AEMs and the loss appears highest between school receipts and upazila records of distribution. A further four textbooks are lost between schools and households. It is possible that some of this apparent loss is due to poor record-keeping but given the consistency of the GPS and RNGPS distribution figures it does suggest that at least part of it is due to real losses. There does appear to be a greater market for madrasah textbooks evidenced by high rates of authorised textbook purchase by AEM students (see Table 8.4) and also the large numbers of unregistered madrasahs requiring textbooks that do not fall under the free textbook distribution system.

Contingency payments

Tracking—formal loss

Notwithstanding their very low level, contingency payments make up an important component of funds that schools have control over. GPSs and RNGPSs receive contingency payments through the UEO office and the survey again collected information on contingency payments and receipts to track this item of public expenditure. Unfortunately, it appears that school record-keeping of receipts from contingency payments is relatively poor.

Table 8.11   Differences in contingency payment records between UEO offices and schools for 2003/04 (% of school records)

	GPS	RNGPS	Total
School and UEO office record same amount of contingency payment	45	78	56
School reports more contingency payment than UEO office records sending	18	16	17
School reports less contingency payment than UEO office records sending	37	6	26

Source: SSPS data from upazilas and schools.

Table 8.11 reports the comparison between records at the school and UEO office on contingency payments. Nearly 80% of RNGPSs' records are consistent with UEO office's records and show that RNGPSs record receiving the same amount of contingency as UEO offices

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[70] It should be noted that it is only possible to analyse maths and Bangla school textbook distribution for AEMs as the survey only collected information on stocks for these subjects.

record sending. The percentage of GPS schools in the same category is much lower and the difference is mainly due to a much higher proportion of GPSs recording smaller contingency receipts than UEO offices record as having sent. Approximately a third of GPSs report receiving less contingency than UEO offices record they have sent, compared to only 6% of RNGPSs. Of the GPSs in this category the difference is on average Tk 1,056 or a third of the amount that UEO offices record as sending. However, the poor quality of records is evident by the relatively large numbers of schools that report receiving more contingency than UEO offices record as having sent. This means that it is not possible to draw definitive conclusions about potential leakage in contingency payments between upazilas and schools.

9   Infrastructure

Key findings:

- Few schools have electricity; a quarter of GPSs and over 40% of RNGPSs do not have a usable source of drinking water.

- 9% of GPSs, 17% of RNGPSs and 2% of AEMs have no functioning toilet available for students.

- In GPSs more than 200 students share a toilet on average. RNGPS and AEM students are provided for slightly better but they still typically share with over 100 students. Achieving a ratio of 50 students per toilet for every GPS and RNGPS in Bangladesh would require the construction or renovation of nearly 240,000 additional toilets.

- The average number of classrooms per school is four in GPSs and three in RNGPSs. If all schools move to a single-shift system, requiring five classrooms simultaneously, 83,000 new classrooms will have to be built. Moreover, in a quarter of GPSs and one in 10 RNGPSs at least one classroom is unusable.

- Most classrooms that are in use in GPSs and RNGPSs are in an acceptable state of repair, but nearly all classrooms in AEMs are in poor condition. Noise from adjacent classrooms can often be heard in all school types, especially AEMs.

- About a half of GPSs and one-third of RNGPSs have been included in a major construction project since July 2000.

- Two-thirds of GPSs received an allotment for small repairs between July 2000 and June 2004. In 2004/05, following the severe flooding, nearly half of GPSs and a quarter of RNGPSs received an allotment.

- Record-keeping for school-level expenditure on infrastructure is poor at UEO offices, LGED offices and schools. For this reason it is difficult to identify if leakage is occurring. Some schools said that they had received government or donor-funded contracts for which there was no record at the LGED office.

- Only 60% of GPS small repair payment records are present at both the UEO office and the school for the four financial years 2000/01 to 2003/04. Of these the vast majority match exactly.

- Two-thirds of headteachers consider that the process for selecting schools for a small repairs allotment is fair. One in five think it is common for schools to have to make an informal payment to be selected, but less than one in seven say they have been required to make such a payment themselves.

Schools need facilities with sufficient capacity and in good enough repair to enable them to teach all their pupils effectively. The number of usable classrooms, for instance, has an impact on whether sections or classes must be taught together, or whether the school is likely to have the capacity to move from a double-shift to a single-shift system; the availability of toilets and drinking water, meanwhile, may help to determine whether or not a student stays on the premises for the length of the school day rather than returning home early to use facilities there. Both public and private funds are used to construct school buildings, carry out repairs, install infrastructure such as electricity and water supply systems and pay utility bills. Different funding streams finance the different activities.

The overview in section 9.1 looks briefly at the systems for funding the provision and maintenance of the infrastructure in schools, and explains what information was collected by the survey in relation to this. Section 9.2 provides details of the existing stock of essential

infrastructure and equipment. Section 9.3 examines the distribution and management of the inputs received by schools for the maintenance of their facilities, and tracks the flow of resources from the upazila to the schools.

9.1 SYSTEM OVERVIEW

Construction and major repairs

For GPSs and RNGPSs major repairs, reconstruction and new construction are financed mainly by the Government of Bangladesh and international donors through the development budget. Since July 2000 more than 10 MOPME development budget construction projects have been in operation in Bangladesh, each with a different focus in terms of region, school type or the type of work[71]. The projects are managed at the upazila level by the LGED, which carries out an annual survey to assess the physical condition of schools and is expected to use the results to select schools to benefit from the projects. Schools do not receive any direct funding for the work; the LGED oversees the contracts and monitors progress. As for AEMs, there is one project for construction and major repairs, which is financed through the development budget of the Ministry of Education. In addition, all school types may also receive funds for building and maintaining infrastructure from NGOs or private donors.

The SSPS collected data from schools on their participation in major construction and reconstruction projects since July 2000.

Small repairs

The system for funding small repairs varies between school types. For GPSs, each year some schools are selected to receive funds for small repairs. This is regarded as recurrent expenditure, unlike construction projects, so the repairs are financed through the revenue budget (line 2401-XXXX-4931) rather than the development budget. There is a complicated process for selecting the schools; this involves the UEC, which carries out the initial selection, and the DPE, which issues the final approval. If a school is selected, its school managing committee is responsible for organising the work and the headteacher submits receipts to the UEO. The engineer from the LGED checks that the work has been carried out. The UEC then approves the payment, which is either paid directly into the school's bank account, or in cash to the headteacher by the UEO[72].

RNGPSs are not usually eligible to receive government funds for small repairs. However, as a result of the severe floods in 2004 the coverage of the small repairs allocation was extended to RNGPSs for 2004/05. To ensure that the money reached the schools quickly the LGED carried out a basic survey of all schools to assess flood damage and, in principle, used the results of this survey to make a provisional selection of recipients. The LGED then sent the list of schools to MOPME for final approval.

Few AEMs receive any funding for small repairs. Each year a very small number of madrasahs receive maintenance grants that are disbursed by the upazila nirbahi officer and signed off by the Education Engineering Department of the Ministry of Education. Ebtedayee sections of the madrasahs may benefit from this support.

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[71] See the discussion of the development budget in chapter 3.
[72] Sometimes part of the funds are advanced to the school/headteacher.

In the SSPS, information was collected from GPSs and RNGPSs on funds received for small repairs since July 2000, and this was compared with UEO offices' data on the disbursement of funds for this purpose.

Electricity bills

GPSs that have electricity can apply to the UEO to refund the money they spend on electricity bills. Information was gathered from schools on the value of electricity bills since January 2004 and the extent of repayment of those bills by the UEOs. The survey intended also to compare the school records with those at the upazila. However, this proved to be impossible owing to incomplete records at both upazila and school levels. Half of the GPSs that have electricity did not have a complete set of records for electricity bill payments in 2004. For other schools, the upazila records were not available, while others did not expect to get their bills reimbursed and so had not submitted them.

9.2 FACILITIES

The prevalence of key facilities and infrastructure in schools is shown in Table 9.1. A large number of schools lack basic infrastructure. Only a quarter of GPSs and just one in 12 RNGPSs have electricity. Only 75% of GPSs and less than 60% of RNGPSs have a usable source of drinking water (a further 18% of GPSs and 17% of RNGPSs do have a water source but consider it unusable)[73]. AEMs are slightly better supplied with utilities, with nearly half having electricity and nine out of 10 having drinkable water. In this respect it seems that they benefit from being attached to DMs, since secondary schools tend to have better infrastructure than primary schools. Almost no schools of any type have a telephone.

Table 9.1   School facilities

	GPS	RNGPS	AEM	All
Schools with electricity connection (%)	26	8	46	22
Schools with drinkable water on day of survey (%)	75	59	90	71
Schools with working telephone (%)	1	0	1	1
Toilets				
Schools with a functional toilet available for students (%)	91	83	98	89
Students per toilet (of those schools with toilets available for students)[1]				
Low	85	84	43	84
Mean	208	175	117	190
High	365	311	196	345

Source: SSPS data from schools. Note: (1) Most schools operate in two shifts, so not all these students are on the premises at the same time. AEM facilities may also be shared with DM students, so number of students per toilet may be higher than shown.

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[73] Anecdotal evidence collected during the survey suggests that even water that is considered drinkable may not actually be safe to drink, since at least one school indicated that the water supply it used was contaminated with arsenic.

The very high number of students per functional toilet is of particular concern, given that poor sanitation not only is known to contribute to low attendance even when the student is not ill (on account of returning home early), but also poses a risk to the students' health[74]. Moreover, there is no functional toilet at all in 9% of GPSs, 17% of RNGPSs and 2% of AEMs. A pilot study conducted in the mid-1990s for UNICEF suggested that even among the least developed countries Bangladesh has one of the poorest records of student access to toilets (Schleicher *et al.*, 1995). The planned expansion of the single-shift school system, under which all students enrolled in a school will be present simultaneously, will create a need for significant investment. In those circumstances, achieving even a conservative target of one toilet for every 50 students per GPS and RNGPS in Bangladesh would require nearly 240,000 additional functional toilets. In some schools, facilities may exist that have fallen into disrepair and could be renovated, but in many others they would have to be newly constructed.

Schools reported the number of classrooms in the school and the number of those that were in good enough condition to be used. The interviewers then observed part of a lesson for each class in the school and assessed the classroom environment using a standard set of guidelines. Table 9.2 summarises the classroom conditions.

Table 9.2   Classroom conditions

	GPS	RNGPS	AEM
Number of classrooms			
Mean no. of classrooms per school	4	3	-[1]
Schools with five or more classrooms (%)	34	8	-[1]
Mean no. of students per classroom[2]	66	69	-[1]
State of repair			
Schools in which all classrooms are usable (%)	76	91	-[1]
Sections taught in rooms that are in poor state of repair (%)	14	8	89
Sections taught in rooms with usable blackboard (%)	98	95	52
Noise from adjacent classrooms			
Sections taught in rooms with noise (%)[3]	42	23	88
Desk spaces			
Sections observed having lessons outside (%)	2	0	-
Sections observed using a class mat instead of desks (%)	1	0	-
No. of desk spaces per enrolled student per section[4]			
Low	0.6	0.5	-
Mean	1.0	0.9	-
High	1.5	1.4	-

Source: SSPS data from schools. Notes: (1) Information on number of classrooms for AEMs is unavailable since the survey did not distinguish classrooms exclusively for AEMs from those for dakhil students. (2) The number of students per classroom is a simple indicator calculated by dividing total enrolment by the number of classrooms; since most schools operate a double-shift system this is not an indicator of actual class size. See chapter 7 for a discussion of class size and student-teacher ratios. (3) 'Noise' refers only to disturbance from adjacent classrooms, not to external disruption. (4) The number of desk spaces refers to the number of students in a section that can sit comfortably at the available desks. Calculation excludes classes that were taking place outside or on a class mat.

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[74] Sickness is the leading reported cause of student absence—see p.172.

GPSs are, on average, slightly larger than RNGPSs, with a mean of four and three classrooms per school respectively. The difference is due mainly to a small number of GPSs having a particularly high enrolment and therefore a greater number of classrooms. Among RNGPSs there is very little variation in the number of classrooms. Very few schools—only 34% of GPSs and just 8% of RNGPSs—have enough classrooms to operate a single-shift system under which all five classes would be taught at once. If all GPSs and RNGPSs were required to have five classrooms this would necessitate the construction of about 83,000 new classrooms in Bangladesh. This figure does not take into account the fact that some schools have two or more separate sections per class and would need more than five rooms; nor does it include the renovation or reconstruction of rooms that already exist but are considered by the school to be unusable. Some 24% of GPSs and 9% of RNGPSs have at least one unusable classroom.

There is an enormous divergence in the quality of the rooms that are in use in GPSs and RNGPSs, compared with those in AEMs. Most rooms in GPSs and RNGPSs are in an acceptable state of repair, yet nearly all classrooms in AEMs are in poor condition. In all school types a high proportion of sections are taught in rooms where noise from adjacent classrooms can be heard. This is particularly bad in AEMs, where 88% of sections are taught in noisy classrooms. Moreover, nearly half of AEMs do not have a usable blackboard.

The average classroom has just enough space to accommodate all enrolled students in the class, but there is wide variation between schools in this respect: the most overcrowded rooms have only enough desk spaces to accommodate about half the enrolled students in the class.

9.3 MANAGEMENT OF FACILITIES

Construction and major repairs

Nearly half of GPSs and a third of RNGPSs were included in a construction or major repair project financed through the development budget between July 2000 and June 2005 (Table 9.3).

Taking into account projects funded from other sources, such as NGOs and private donations, the proportion of schools benefiting from any construction or major repair project since July 2000 rises to 55% of GPSs and 37% of RNGPSs. Projects funded by these other donors form only a small fraction of the total, but most take place in schools that have not received any government support for major construction and reconstruction work.

Table 9.3   Construction / reconstruction and major repairs in schools, July 2000–June 2005

	GPS	RNGPS
Proportion of schools included in a major LGED development project since July 2000 (%)	46	33
Proportion of schools included in a major project by any donor since July 2000 (%)[1]	55	37
Source of funding (% of all projects)		
Government / international donor	88	88
NGO	9	6
Private	3	6
No. of major projects completed per school (of those that were included in at least one)		
Low	1	1
Mean	1.3	1.3
High	2	2

Source: SSPS data from schools. Note: (1) Includes international-, NGO- and private-financed development projects as well those funded by the development budget.

The type of major work carried out does not vary much between GPSs and RNGPSs (Figure 9.1). In both school types it is fairly evenly split between new construction projects, reconstruction, furniture supply and other activities.

Figure 9.1   Infrastructure project activities in schools, July 2000–June 2005
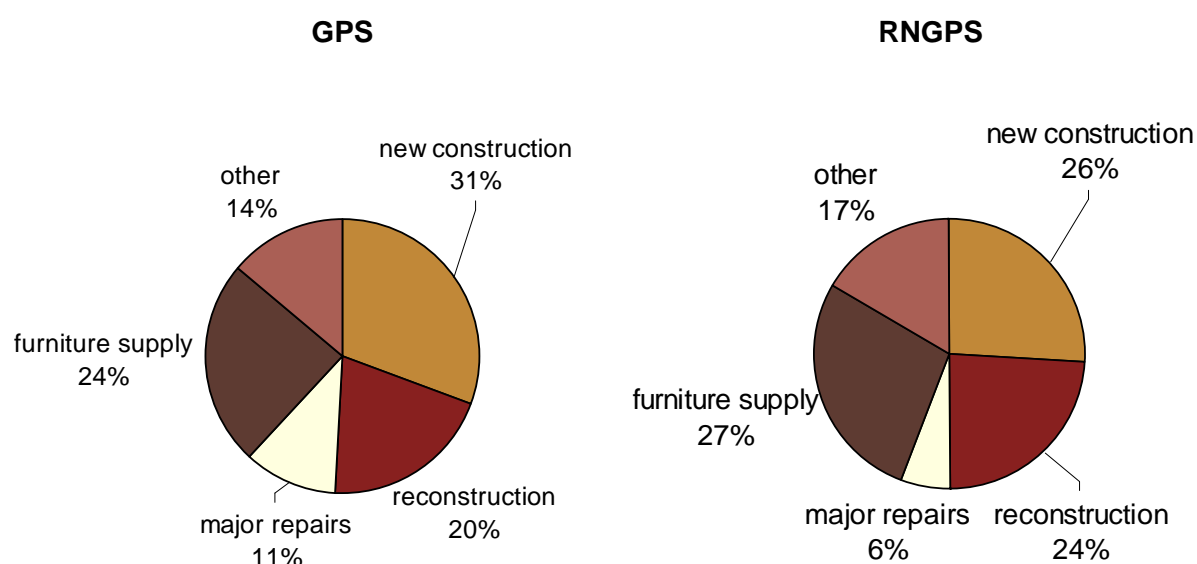
Source: SSPS data from schools. Note: 'Other' includes e.g. landscaping of grounds, and latrine construction.

The data in the table and diagram above are drawn from information provided by the school. School-level records do not always match those at the upazila level: some schools in the survey said they had received government- or donor-funded contracts for which there was no record at the LGED office. There were no cases of the opposite scenario, i.e. the LGED saying

it had issued contracts for projects that the school said it had not received[75]. This suggests that LGED records may understate the true value of projects to schools. According to this simple test there is no evidence of leakage of the development budget funds between the upazila and the school. However, it is not possible here to identify whether the work carried out is worth the full amount of the payment, so no comprehensive conclusions can be drawn about leakage of construction funds.

Small repairs

As might be expected, funding for minor repairs is more regular and widespread among GPSs than that for major construction projects: two-thirds of GPSs received at least one allotment in the four financial years between July 2000 and June 2004 (Table 9.4). It was noted above that the funding mechanism changed for 2004/05 following the severe flooding, so RNGPSs also became eligible and payments were used for repairs due to flood damage as well as general small repairs. Data for that year are therefore presented in separate columns in the table below. The extension of the funds to this much greater number of schools in 2004/05 was accompanied by a considerable reduction in the average size of the payments. Two-thirds of UEOs said that they had insufficient funds in 2004/05 to cover the repair needs of all GPSs: almost all said they prioritised schools according to their repair needs or distributed funds to schools in rotation.

In general the funds for small repairs seem quite equitably distributed, with most GPSs receiving only one or two allotments in 2000/01–2003/04, and with fairly evenly sized individual payments, the value of the 90th percentile being only twice that of the 10th percentile (Tk 30,000 vs. Tk 14,000). However, the *total* payment per school varies somewhat more than this might suggest, owing to the fact that some schools received only one small payment, while others received two or more larger payments: some GPSs, for instance, received a total of over Tk 50,000 between July 2000 and June 2004. There is no association between the amount of payment received and the number of students, the number of rooms or the age of the school. Two-thirds of GPS headteachers consider that the process for selecting schools for the allotment is fair.

In 2004/05 over a quarter of RNGPSs and more than 40% of GPSs received funding for repairs due to flood damage. For RNGPSs the size of the payment is very consistent, at between Tk 12,500 and Tk 15,000.

In general the amount paid for small repairs matches the allotment almost exactly. In 2004/05, though, the proportion that is paid drops to a mean of 91% in GPSs and 93% in RNGPSs. It is not certain whether this is due to leakage. In a few cases (such as those schools where only about 50% has been paid) it is possible that the funds are being released in two stages, or that GPSs have received funding for both small repairs and repairs due to flood damage but only have a record of one portion of the money. A small number of other schools report a loss of about 5%.

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[75] The survey collected information on infrastructure projects and small repairs at the school level in different ways. For infrastructure projects, information was copied from the LGED office into the school questionnaire and schools were asked whether they had received funds from specific projects. For small repairs, no information was copied from the UEO office into the school questionnaire. This difference may partly explain why there are no cases where the school said that it did not receive a project reported by the LGED, while for small repairs some such cases exist.

Table 9.4   Payments to schools for small repairs and repairs due to flood damage since July 2000[1]

	2000/01-2003/04	2004/05	
	GPS	GPS	RNGPS
Proportion of schools that received an allotment (%)	68	44[2]	27[2]
No. of allotments per school (of those that received at least one)			
Low	1	n/a	n/a
Mean	1.2	n/a	n/a
High	2	n/a	n/a
Amount paid by UEO to school (% paid of each allotment)			
Low	100	50	60
Mean	100	91	93
High	100	100	100
Size of each payment (Tk)			
Low	14,000	7,500	12,500
Median	17,000	14,500	15,000
High	30,000	15,000	15,000

Source: SSPS data from schools. Notes: (1) These figures, provided by the schools, do not always match those reported by the upazila; the two sets of figures are compared in Table 9.5 below. (2) Data for 2004/05 excludes schools that said they had not received any funds, but that were interviewed before the end of June and were located in upazilas that expected to receive a further allotment before the end of the financial year.

The data in Table 9.4 should be treated with a certain degree of caution, since records may not be entirely complete or accurate. In some cases schools said they had received funds which the upazila had no record of having distributed, while in other cases the upazila said it had issued funds but the school said it had received none (Table 9.5).

Of all records for payments between July 2000 and June 2004 that were found at either the school or the UEO office, fewer than two-thirds existed in both. A much greater proportion of records were found in both for 2004/05, though nonetheless it appears that there is no record at the upazila level for a quarter of the payments made to RNGPSs. Where the record exists at the UEO office only, i.e. where the UEO office said it had issued a payment but the school said it had received no funds (17% of cases prior to 2004/05), it is probable that this is often due to incomplete records rather than diversion of funds. This suggestion is supported by the fact that so few of the funds for the most recent financial year are reported as not being received at all (3% of GPS payments and no RNGPS payments).

Table 9.5   Comparison of records of payments for small repairs and repairs due to flood damage since July 2000

	2000/01-2003/04	2004/05	
	GPS	GPS	RNGPS
Distribution of records (% of records by location)			
Record present at school only	21	4	24
Record present at UEO office only	17	3	0
Record present at both school and UEO office	61	93	76
Comparison of records that exist at both levels (% of records)[1]			
UEO payment exceeds school record	5	28	6
UEO payment matches school record	92	72	88
School record exceeds UEO payment	3	0	6

Source: SSPS data from schools and UEO offices. Note: (1) Estimates for 2004/05 were derived using fewer than 30 records per school type.

The lower half of the table compares the recorded value of the payment at the upazila and the school, where both sets of records exist. In the majority of cases the payment records match exactly. Again, leakage of funds for small repairs between the upazila and the school is not certain: although in some instances the amount that the upazila says it sent is greater than the amount the school says it received, in other cases the opposite is true. Figures for payments to GPSs in 2004/05 are an exception, with 28% of records at the UEO level showing a payment in excess of that received by the school. The explanations for this are similar to those described above in relation to the discrepancies between school records of allotments and payments: some may be accounted for by incomplete records of full amounts received—especially if the school received a payment both for small repairs and for flood damage repair—but others show a shortfall of around 5% which may raise concerns about informal payments. It is not possible to draw definitive conclusions since the number of records to which this applies is quite small.

One in five GPS headteachers think it is common for schools to have to make an informal payment to be selected for funding for small repairs, but fewer than one in seven say they have been required to make such a payment themselves.

Electricity bills

The process of submitting electricity bills to the UEO and being reimbursed is rather haphazard (Table 9.6). Of those bills that were issued in 2004 and submitted to the UEO for reimbursement (and of which there is a record of the result at the school), about one-third had been repaid by the time of the survey, amounting to just under half the total value of the bills submitted.

Table 9.6   Result of submission of electricity bills for 2004 to UEOs

Result	% of bills submitted [1]	% of total cost of bills
Reimbursed in full	34	41
Partly reimbursed	2	6
Still waiting for payment	64	53
Total	**100**	**100**

Source: SSPS data from GPSs. Note: (1) Column shows the outcome of the submission of electricity bills by GPSs to UEOs for electricity consumed in 2004, where records are available at the school.

The results indicate a considerable lag in repayment of bills. Some of the bills that have not yet been repaid date back to January 2004, yet schools were interviewed over a year later, between April and August 2005. Whilst some of the lag may be due to a delay by the utilities in issuing the bill, or by the school in submitting their request for payment to the UEO, it is likely that part is also due to a delay by the UEO in submitting the bill to the UAO for reimbursement. On average a bill takes only four days to be passed by the UAO once it has been received from the UEO.

10 Other Support for Schools

Key findings:

- More than half the households of class 5 students in GPSs, and nearly half of their RNGPS counterparts, say they intend that the student will complete both primary and secondary schooling and continue to higher education.

- On average, the parents or guardians of class 5 students in GPSs had made five visits to the school in the six months prior to the survey, and those in RNGPSs had made three visits.

- Nearly all schools have formalised systems of support from parents and other members of the local community. Some 99% of all GPSs and RNGPSs have a functioning SMC; 93% of GPSs and 83% of RNGPSs have a parent-teacher association.

- Establishment norms dictate that each DPEO office should have 14 personnel; on average, each office is assigned about 11 posts, and only 9 are filled. For UEO offices, the norm varies according to the upazila size. The average UEO office is assigned 10 posts, of which just over 8 are filled. Some 16% of all DPEO and UEO office posts in Bangladesh are vacant, often for key personnel posts, which raises concerns regarding managerial capacity in the administration system.

- On average, GPSs and RNGPSs received three visits from an AUEO and one from a UEO in 2004. This falls slightly short of the four or five visits that might be expected, possibly due in part to the high vacancy rates.

The quality of education in a school is affected by the local context within which it operates. A conceptual framework developed by Heneveld and Craig (1996), which draws on the research literature in school improvement and school effectiveness, identifies a set of inputs and processes which interact to determine students' educational outcomes. These factors can be divided into two components:

- the inputs from *outside* the school that feed into it, e.g. material provision, community support and effective management by the education system; and

- the conditions *inside* the school that influence the effective use of these inputs, e.g. attendance rates, amount of lesson time, the range of teaching strategies used, the attitude and expectations of the headteacher and other teachers, etc.

Chapters 7–9 discussed the human and material inputs into schools. The present chapter examines the non-material inputs: section 10.1 looks at the support provided to schools by parents and local communities, while section 10.2 analyses the condition of the education administration and examines its support to schools. The second component discussed above, namely the conditions inside the school will constitute the focus of the next chapter.

10.1 PARENT AND COMMUNITY SUPPORT

Parental support for schooling

Parents and guardians are able to offer active support to a student's schooling. This may manifest itself by, for instance, encouraging regular attendance throughout the student's school life, supporting homework activities and discussing progress with teachers. The

incidence of some of these factors among the households of class 5 students is presented in Table 10.1 below.

Table 10.1   Support for schooling of class 5 students

	GPS	RNGPS
Duration of education		
Student attended pre-school classes (%)	45	43
Student never missed a year of school (%)	97	98
Desired level at which student should finish school (%)		
Class 5	1	3
Class 8	4	6
Class 10	27	39
Class 12	16	10
Above class 12	52	43
Regular support		
Household helps student with homework (%)	54	51
Average no. of school visits by parent/guardian in last six months	5	3
School visit to discuss academic progress (% of those visiting)	77	76

Source: SSPS data from households.

For households of class 5 students, support for education appears high. Almost half of all students had attended pre-school; almost none had missed a year of school since enrolling in class 1. Some 52% of households of GPS students, and 43% of those at RNGPSs, said they hoped the student would continue onto higher education. A household's active interest in a student's schooling may manifest itself in regular visits to the school. Most households had visited the school in the six months prior to the survey; on average they had visited once every month or two. Three-quarters of those who visited said they had discussed the student's academic progress when visiting the school.

Some parents extend their involvement to the school as a whole by joining a PTA. Some 93% of GPSs and 83% of RNGPSs have a PTA; for both school types, the average PTA had met about twice during the six months prior to the survey.

School governance

The critical importance of the SMC in issues relating to the governance and management of the school, including the selection of stipend cardholders and the raising of private funds to support school development, is evident from the discussions in the earlier chapters of this report. Some 99% of all GPSs and RNGPSs have a functioning SMC, and headteachers report that the committee meets regularly, with the average SMC in both school types having met five times in the six months preceding the survey. The main issues discussed by SMCs, in both GPSs and RNGPSs, are student attendance and performance: half or more of all SMCs said they had discussed these issues in their last meeting. In GPSs, the condition of the school infrastructure, and issues relating to the school's development, were also widely discussed;

for RNGPSs, common topics for discussion included teacher attendance and behaviour, and the stipend scheme.

It is encouraging that SMCs meet regularly to discuss school progress. However, they vary widely in the extent to which they contribute actively to school improvements. Some 38% of SMCs in GPSs, and 48% of those in RNGPSs, said they had not taken any action to improve the school in the six months prior to the survey. Of those that had taken any action, more than half had organised repairs or construction work, and just under half had lobbied for government funding or projects.

10.2 EDUCATION ADMINISTRATION

It is important to have a well resourced administration system that can convey its expectations of student achievement, provide support to the schools under its authority as they work towards these goals, monitor the schools' progress and follow up on any issues that need to be resolved. Chapter 1 (section 1.1) noted that there are four administrative tiers above the school level, of which the two with the most direct contact with schools are the UEO office—whose responsibilities include school inspections—and the DPEO office, which manages teachers. The quantity and characteristics of human resources and physical facilities available at the administrative offices, and the implications of these resource levels for supporting schools, are presented here.

Human resource levels and characteristics

Numbers of education managers

The Ministry of Establishment in Bangladesh sets the norm for the number of posts assigned to each DPEO and UEO office. DPEO offices are expected to have 14 posts, of which 12 are funded by the revenue budget and two are project posts funded by the development budget (see Table 10.2). In practice, the average DPEO office has just over nine sanctioned revenue posts assigned out of the 12 intended; and every office has two project posts assigned to it as per the norm, leading to a mean total of 11.2 assigned posts per office. The difference in assigned revenue posts comes from a shortage of driver, night guard, office assistant or storekeeper posts: there is no shortfall in the designated number of key posts such as the DPEO or assistant DPEO.

However, as was discussed in relation to teachers in chapter 7, the number of posts that are actually filled is often not only lower than the establishment norm, but also lower than the number of posts assigned to that office. Some 98% of DPEO offices have at least one vacant post: Table 10.2 shows that, on average, only 9.3 posts are officially filled, and the overall vacancy rate across all posts in DPEO offices is 16%. In some offices, additional personnel are deputed in from elsewhere or hired into unspecified posts to reduce the loss, which brings the total number of people in post to 9.8. Importantly, the vacancies that remain are very often in key personnel posts such as DPEOs, assistant DPEOs and assistant monitoring officers. For instance, 64% of DPEO posts and 45% of assistant DPEO posts are vacant, and none of these vacancies are covered by deputed officers or other personnel (see table below—for these posts the number of filled posts is the same as the number of people in post). This raises serious concerns regarding managerial capacity in the education system at the district level.

Table 10.2   Personnel per DPEO office, and overall vacancies

	Norm	Mean assigned posts	Mean filled posts	Mean in-post	Overall vacancy rate (%)[1]
Sanctioned revenue posts	**12**	**9.2**	**7.4**	**7.9**	**19**
DPEO	1	1	0.4	0.4	64
Assistant DPEO	1	1	0.5	0.5	45
Assistant monitoring officer	1	1	0.6	0.6	39
Upper division assistants	1	1	1	1	n/a
Cashier	1	1	0.9	0.9	11
Office assistant	3	1.9	1.9	2	n/a
Storekeeper	1	0.2	0.2	0.2	33
Driver	1	0.8	0.7	0.8	9
MLSS[2]	1	1	1	1.1	n/a
Night guard	1	0.2	0.2	0.2	17
Other posts	n/a	0	n/a	0.2	n/a
Project posts	**2**	**2**	**2**	**1.9**	**2**
Stipend Monitoring Officer	1	1	1	1	3
Data Entry Operator	1	1	1	0.9	0
All posts	**14**	**11.2**	**9.3**	**9.8**	**16**

Sources: SSPS data from DPEO offices; Ministry of Establishment (date unknown). Notes: (1) The vacancy rate is the aggregate proportion of vacant posts of each designation. (2) MLSS = menial level subordinate staff.

A similar analysis may be carried out in relation to UEO offices (Table 10.3). The comparison with establishment norms is harder in this case, since the norm for AUEOs varies according to the number of clusters per upazila, whilst there is no norm for office assistants. In general, however, the norms are adhered to.

Table 10.3   Personnel per UEO office, and overall vacancies.

	Norm	Mean assigned posts	Mean filled posts	Mean in-post	Overall vacancy rate (%)[2]
UEO	1	1	0.8	0.8	19
AUEO	4.8[1]	4.8	4.1	4.1	14
Upper division assistant	1	1	0.8	0.8	23
Office assistant	n/a	2.2	1.9	1.9	13
MLSS	1	1	0.8	0.8	21
Other	n/a	0	0	0	0
Total	**n/a**	**10.0**	**8.4**	**8.4**	**16**

Sources: SSPS data from UEO offices; Ministry of Establishment (date unknown). Notes: (1) Each UEO office should have one AUEO per cluster so this is the mean norm per UEO office. (2) The vacancy rate is the aggregate proportion of vacant posts of each designation.

Again, 16% of all posts are vacant, with the mean number of filled posts per UEO office being 8.4, which compares with a mean of 10 assigned posts. Unlike in DPEO offices, there are almost no occurrences of people being deputed in or employed in an unofficial capacity to compensate for the vacancies. As with DPEOs, serious concerns are raised by the fact that around one in five UEO offices has no UEO in post.

Qualifications

The SSPS asked DPEOs and UEOs about their academic and professional qualifications. The responses suggest that DPEOs are generally very well qualified, with 64% having completed a Masters course and the remainder having at least passed a Bachelor degree. All DPEOs have a professional education qualification. UEOs are similarly qualified. Around 60% have attained a Masters degree, and 38% a Bachelors pass or honours degree (the remaining 2% have a higher secondary school qualification); 65% of UEOs also have a professional education qualification.

DPEO and UEO office facilities

The personnel in the DPEO and UEO offices require infrastructure and equipment to carry out their roles of monitoring and managing the schools in their area. Table 10.4 shows the resources that are available to them for these tasks.

Table 10.4   Proportion of offices with functioning facility or item, and mean number of personnel per functioning item

Facility	DPEO office[1]		UEO office	
	% with working item	mean no. of personnel per item[2]	% with working item	mean no. of personnel per item[2]
Electricity	100	n/a	99	n/a
Water connection	77	n/a	58	n/a
Telephone	100	9.3	41	9.0
Computer	100	5.7	32	9.2
Photocopier or manual copier	20	-	4	-
Typewriter	77	6.3	81	7.7
Training resources (any)[3]	16	-	1	-
Separate office for AUEOs	n/a	n/a	60	n/a
Cars / jeeps	97	9.3	1	-
Motorcycles	92	7.3	94	2.8
Bicycles	12	-	4	-

Source: SSPS data from DPEOs and UEOs. Notes: (1) Estimates were generated using fewer than 30 observations. (2) Column shows mean number of personnel sharing each functioning item, for selected items where sample size is sufficiently big to make an estimate. (3) Training resources include overhead projectors, televisions and video equipment.

DPEO offices are fairly well equipped: every office has an electricity connection and at least one working telephone and computer. Training resources such as audiovisual equipment,

however, are scarce. In contrast, UEO offices have much fewer facilities: whilst almost all have electricity, fewer than half have a working telephone and only one-third have a working computer. In very many cases, for both DPEO and UEO offices, additional items were present but were not in working condition. For instance, every DPEO office and one in five UEO offices reported having at least one photocopier that did not work.

With regard to transport, almost all DPEO offices have a car and at least one motorcycle in working condition. Only 1% of UEO offices have a car, but most have several working motorcycles and the number of personnel sharing each motorcycle is low.

Services provided to schools

Each upazila is divided into a number of clusters that comprise about 20 to 25 schools. Each AUEO is responsible for providing academic supervision (based on classroom observation) and administrative support for one cluster. AUEOs are supposed to visit at least 10 schools per month, implying that schools should expect to receive about four or five visits per year[76]. At the end of each visit an inspection form is filled in.

On average, each school received three visits from AUEOs and one visit from the UEO in 2004. This falls short of the standard outlined above, possibly partly due to the high vacancy rates discussed earlier. In the few upazilas where there were no motorcycles, the number of visits made by each AUEO was about half that in upazilas with at least one motorcycle.

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[76] 10 visits per month * 10 months (when schools are open) = 100 visits per year per AUEO which gives an average of about four or five visits per school.

Conclusions to Part II

There are two key analytical themes running through Part II: public expenditure tracking and financial management, and equity in financing and inputs. This concluding section first draws together the key findings under these themes, and then summarises the evidence on non-material support for schools from the community and the administrative system.

Public expenditure tracking and financial management

Public expenditure tracking surveys have been used increasingly in recent years across different countries to establish whether public funds from the centre reach frontline service facilities (schools) through the various levels of bureaucracy. The design of each survey differs substantially according to each country's management and delivery structure. An extensively quoted survey of primary education in Uganda in 1996 showed that 78% of nonsalary funds in the form of grants were failing to reach schools as they were being captured at the district level by local officials. Some studies also include teachers' salaries, usually by far the largest item in the education budget. A tracking study in Papua New Guinea in 2001 found that 15% of teachers on the payroll were not actually teaching in schools.

The public expenditure tracking component of the Bangladesh primary SSPS covers both salary and nonsalary resources. Table 10.5 below summarises the items tracked in the GPS and RNGPS system and shows their relative share of the 2003/04 MOPME budget. The tracking analysis for AEMs is restricted to textbooks.

This analysis distinguishes two concepts: misallocation and leakage. Misallocation occurs when resources either reach recipients who were not the intended beneficiaries or reach intended beneficiaries in quantities that they were not eligible for. For example, stipend payments made to poor students who do not achieve the 85% attendance rate criterion represent a misallocation. In this situation resources are still used for the broad purpose intended. Leakage occurs when resources do not reach recipients, i.e. resources are diverted away from their original purpose. For example, in some tracking studies from other countries, the teachers' payroll has been found to contain the names of individuals who were not actually teaching in schools; payments to these 'ghost' teachers constitute leakage. It is important to highlight that it is extremely difficult to make robust judgments on misallocation and leakage in the context of poor record-keeping, as is sometimes the case in Bangladesh. In these situations, differences between records may not represent diversion of resources; the detailed analysis contained in each chapter takes care to comment on the quality of relevant records.

The evidence from the SSPS suggests that overall leakage is relatively low. Teachers' salaries constitute the largest item in the budget and the salary payment system appears to be working well in this sense. Textbooks also account for a sizeable portion of the budget and the GPS and RNGPS distribution system is functioning with remarkably low levels of loss, particularly considering the huge scale of the operation. However, the AEM textbook system is not working so well and has a much higher rate of loss. The stipend programme is the second largest single item in the primary budget and, as such, even the relatively small losses reported—though far lower than the estimated leakage in the FFE programme that preceded it—amount to a sizeable amount in money terms. Moreover, misallocation due to inflated attendance records presents a big challenge for the stipend programme.

There are a few important caveats to the findings. First, as discussed above, record-keeping is sometimes poor, making it impossible to make any firm judgments about leakage and

misallocation in several areas, notably construction. Second, in most cases it is not possible to tell if records have been falsified. Third, informal payments are sometimes required to obtain resources. These payments might mean that, while comparisons of written records do not show leakage, resources are nevertheless being diverted.

Table 10.5   Summary of resources tracked in the primary education SSPS

Tracked items	2003/04 Budget[1] Share (%)	Tracking between				
		From	To/From	To/From	To/From	To
Revenue budget						
DPEO office administration	0	Centre	District	n/a	n/a	n/a
UEO office administration	1	Centre	Upazila	n/a	n/a	n/a
RNGPS teachers' salaries[2]	6	Centre	Upazila	School	Teacher	n/a
RNGPS contingency	0	Centre	Upazila	School	n/a	n/a
GPS teachers' salaries	47	Centre	Upazila	School	Teacher	n/a
GPS contingency	1	Centre	Upazila	School	n/a	n/a
Small repairs for schools[3]	1	Centre	Upazila	School	n/a	n/a
Other (not tracked)	2	n/a	n/a	n/a	n/a	n/a
Development budget[4]						
Stipends	}17	Centre	Upazila	School	Student	n/a
Stipend contingency		Centre	Upazila	School	n/a	n/a
Textbooks		Centre	District	Upazila	School	Student
Construction	}25	Upazila	School	n/a	n/a	n/a
Other (partly tracked)		Centre	Various	Various	Various	Various
Total	**100**					

Notes: (1) The revised development budget is presented because it is much closer to final expenditure than the original budget. (2) RNGPS teachers' salaries could not be tracked between the centre and upazila by comparing records of expenditure. Instead, the MPO record of allotment held at the centre is compared with the record of expenditure held at the upazila. (3) A small proportion of the small repairs budget is used for repairing education offices. (4) Textbooks, construction and other items are grouped together in budget terms because there are several projects that cover all of these items and it is difficult to separate them.

A summary of the key tracking results and informal payments are presented below by item:

Formal tracking—leakage and misallocation

- **Teachers' salaries**: the system for paying both GPS and RNGPS teachers appears to be robust. There is no evidence to suggest that salary resources are being diverted between the centre and upazila, or between the upazila and schools. In short, this means that there is no indication of 'ghost' teachers (i.e. teachers who are listed on the upazila payroll as receiving a salary but who are not known in schools).

- **Contingency payments to GPSs and RNGPSs**: average GPS receipts of contingency payments fall below the expected norm. Poor record-keeping makes it difficult to

track this item between upazilas and schools so this does not necessarily represent a diversion of resources. Nonetheless, this disparity merits further investigation. The majority of RNGPSs received the expected amount of contingency payment with little variation across schools. Centre and upazila records of contingency payments match closely.

- **Small repairs and construction**: record-keeping on school-level expenditure on infrastructure is poor at UEO offices, LGED offices and schools. For this reason it is difficult to identify whether leakage is occurring. Only 60% of GPS small repair payment records are present at both the UEO office and the school for the four financial years 2000/01 to 2003/04. Of these the vast majority match exactly. Centre and upazila records of small repairs payments are also very similar. For major construction projects, the school-level records do not always match those at the upazila level: some schools said that they had received government or donor-funded contracts for which there was no record at the LGED office. There were no cases of the opposite scenario but this is probably partly due to the design of the questionnaire which asked schools about specific projects recorded at the LGED office.

- **Textbooks:** for every 100 new textbooks that enter the distribution system, 98 reach GPS/RNGPS students. However, there are more concerns in AEMs where only 76 of every 100 new textbooks reach students in the most common distribution system. Moreover in the AEM system there is evidence of misallocation, with over two-thirds of class 5 AEM students receiving more new textbooks than the norm and about one-quarter receiving less than the norm.

- **Stipends:** nearly 20% of stipend resources are misallocated due to exaggerated attendance figures and payments made to cardholders who should have been suspended when they failed to achieve the examination criterion. In terms of leakage, 5% of stipend resources cannot be confirmed as being received by intended beneficiaries.

- **Revenue budget allocations for DPEO offices:** While, overall, records of allotments and expenditure for the revenue budget are fairly consistent between different sources, there are concerns about discrepancies for DPEO office administration budgets. The allotment and expenditure figures held by MOPME and by lower level offices are all appreciably lower than the corresponding MoF figures. It is not clear whether these are due to errors, systematic differences in record-keeping, or to leakage of funds.

Informal payments

- **Teachers' salaries**: informal payments do not appear to be expected in order for teachers to receive their monthly salary. Fewer than 1% of teachers reported making such a payment. However, transferring between GPSs sometimes attracts an informal charge. Of those teachers who have ever been transferred, 16% admitted to making informal payments of Tk 7,000 on average.

- **Small repairs**: one in five headteachers think it is common for schools to have to make an informal payment to be selected for a small repairs allotment, but fewer than one in seven say they have been required to make such a payment themselves.

- **Textbooks:** between the district and the school there is little evidence of an expectation of informal payments to receive textbooks. However, around one-fifth of

RNGPS and AEM class 5 students reported making payments of between Tk 2 and Tk 50 to obtain textbooks from their school. GPS students appear to pay for textbooks less often and also tend to pay smaller amounts.

- **Stipends:** approximately one in 10 of the households which hold stipend cards said that they had to make an average payment of Tk 46 to get their child admitted onto the stipend programme. Furthermore, 17% reported having to pay to receive their quarterly stipend payment.

- **Speed payments**: some 43% of UEOs and 38% of DPEOs say they have ever paid informal charges to get bills passed by the accounts office. Bills that attract speed payments (travel-related costs and small repairs) form a very small part of the overall budget, so overall diversion via this channel is probably also small. Where a flat fee is incurred by UEOs the median rate is Tk 300; where a percentage is charged this is usually about 5% of the value of the bill.

- **Households' informal payments:** Some 22% of class 5 students' households have been required to make an informal payment at some point. The average amount paid each time is Tk 26. RNGPS students are slightly more likely to make payments than those attending GPSs, and pay slightly more on average. While the amounts involved are generally fairly modest, many of these payments are likely to be recurrent and so the aggregate expenditure over time could be substantial.

Other financial and input management issues

While the tracking exercise is reassuring on the whole, some of the other dimensions of the financial and input management system are not working so well. In particular there are some serious problems in the management of two of the most important inputs: teachers and textbooks.

Teachers: salary delays are a problem for RNGPS teachers. About three in four RNGPS teachers are currently owed salary and allowance payments, amounting to two months' salary on average. This seems highly likely to affect teachers' motivation. The other important teacher management issue is levels of absence. Teacher absence rates are high overall (16% for GPSs and 11% for RNGPSs), although reasons for absence are largely authorised. Long-term absence, mainly due to C-in-Ed training, accounts for about half of all absences, while casual leave is the main reason for short-term absence in GPSs. Teachers are entitled to 20 days of casual leave per year, which implies that on any given day around 8% of teachers could be absent for this reason alone. This seems high and potentially detrimental to students' learning.

Textbooks: fewer than half of schools had received all of their textbooks by the end of January, the start of the school year. Approximately one-fifth only receive their final delivery of textbooks in March. Delays appear to be centred on initial delivery from the private publishing companies contracted by NCTB and delivery from districts to upazilas. Such delays may well impede teachers' ability to deliver high quality lessons.

Level and equity of finance and inputs

Private contributions to primary education are substantial. The total value of resources going into the primary education sector (except madrasahs) in 2003/04 is estimated at Tk 33 billion, of which 61% is provided by the government and 39% by private households. Not all of these resources go to schools; some are spent by households on private tutoring and

educational materials, while part of government resources are spent on the administrative system.

The analysis of school-level records reveals a stark inequality in income per student (from both public and private sources) between RNGPSs and the other school types. GPSs and AEMs show almost identical levels of resourcing per student, with a mean of Tk 1,622 in GPSs and Tk 1,656 in AEMs, while RNGPSs get an average of just Tk 678 per student. For any particular type of school, students from the poorest quintiles are more likely to attend schools that have a lower income per student, although these differences are not large. Students from poorer households are also more likely to attend RNGPSs however, and as a result the income per student for the schools of students in the top socioeconomic quintile is 28% higher than that for the bottom quintile.

In terms of school infrastructure, GPSs and RNGPSs are more disadvantaged in basic utilities and facilities (except classrooms) than AEMs. Despite considerable investment in recent years 9% of GPSs and 17% of RNGPSs have no functioning toilet available for students, while a quarter of GPSs and over 40% of RNGPSs do not have a useable source of drinking water. This situation is detrimental to students' health and may well contribute to student absenteeism, as well as having other damaging effects on students' educational outcomes.

Private spending on education between school types is also very unequal. GPS class 5 students' households pay 38% more than their RNGPS equivalents on educational expenses and about 65% more than their AEM counterparts. The average annual education expenditure estimates for GPS, RNGPS and AEM class 5 students' households are Tk 1,746, Tk 1,266 and Tk 1,053 respectively.

There are large inequities in private spending on the education of class 5 students both in terms of gender and socioeconomic status. For GPS/RNGPS class 5 students, expenditure on males is 31% higher on average than expenditure on females. Educational expenditure rises with household income, with GPS/RNGPS class 5 households that fall into the top national income quintile spending three times more on each class 5 student's education than those in the bottom quintile.

The targeting of the stipend programme also raises equity concerns, particularly since it accounts for such a high proportion of the primary education budget. At the national level, targeting results in only slightly higher proportions of poor students obtaining the stipend in participating schools than of richer students, and in a large proportion of poorer students being excluded from the stipend programme.

Other support for schools

The vast majority of schools are actively supported by their local communities. Most class 5 students' parents had visited the school in the six months before the survey, and 93% of GPSs and 83% of RNGPSs have a PTA. The average PTA had met about twice during the six months before the survey.

SMCs are operating in nearly all schools, and they have an important role in school governance and management, including the selection of stipend cardholders and the raising of private funds. SMCs meet almost every month on average, but they vary widely in the extent to which they contribute actively to school improvements. Some 38% of SMCs in GPSs, and 48% of those in RNGPSs, said that they had not taken any action to improve the school in the past six months.

GPSs and RNGPSs receive reasonably regular visits from AUEOs, the officers responsible for providing academic supervision and administrative support to schools. In the year prior to the survey, AUEOs visited each school three times on average. This falls short of the four or five visits that schools are supposed to receive, probably partly owing to vacancies. The level of vacancies in the administrative system is worryingly high, particularly for key posts. Some 64% of DPEO posts, 19% of UEO and 14% of AUEO posts are vacant.

Part III: Service Delivery and Learning Outcomes

Part II covered the financing of primary education, as well as inputs and other support for schools. Part III looks beyond inputs to the output of the primary education system, and beyond this, to the learning outcomes of students.

Learning outcomes refer to the ultimate objectives of education policy such as producing literate and numerate citizens and skilled labour. As in many countries, the acquisition of cognitive skills (numeracy, literacy, scientific knowledge etc.) is central to Bangladesh's primary education curriculum. The SSPS uses a specially designed test, based on key elements of the primary curriculum, as an objective measure of learning outcomes for class 5 students.

The output of a schooling system is measured by the volume and quality of the services provided. There are several important questions to answer:

- What proportion of the school-aged population is enrolled in school?

- Are any population groups poorly served by the schooling system?

- How high are repetition and dropout rates?

- How many hours of lesson time are provided in schools *per annum*?

- How high are student attendance rates?

- What is the quality of the learning experience?

The first five questions relate to the volume of schooling and are relatively straightforward to answer using survey data from households and schools. The SSPS data provide an in-depth analysis of many of these issues. In the context of the educational outcomes described above, quality refers to the contribution that schools make to their students' learning outcomes—put simply, how good schools are at teaching their students cognitive skills. Effective (or high output) schools combine high quantity and quality of instruction to maximise learning outcomes for *all* of their students.

For policy purposes it is clearly desirable to understand the factors that contribute to effective schools. The literature on school effectiveness acknowledges the role of inputs, and other support, from outside the school, but also emphasises the conditions *inside* the school. As outlined in the previous chapter, a convenient framework for summarising this is contained in a report by Heneveld and Craig (1996)[77]. This framework organises school-level factors into the following three categories:

i.   teaching and learning process: this refers to directly to students' learning experiences, e.g. high time on task, variety in teaching strategies, frequent homework and assessment;

ii. school climate: this is defined in the framework as the 'social and cultural characteristics of the school social system', e.g. order and discipline, organised curriculum, and rewards and incentives for achievement; and

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[77] The Heneveld and Craig framework has been used by other recent studies on school performance in Bangladesh; see for example, Primary School Performance Monitoring Project (2001).

iii. enabling conditions: these include effective leadership from the headteacher and flexibility and autonomy in making decisions about how time and resources are used.

In analysing the quality of schooling, the SSPS provides a selection of indicators in each of these categories. For example, a lesson observation instrument captures the variety in teaching strategies and the proportion of lesson time spent on task. Unfortunately, it is extremely difficult to objectively measure many of the important factors that may influence students' learning, such as the personal qualities and motivation of teachers. At best the quantifiable indicators provide a partial picture. For convenience, school climate and enabling factors are grouped under a school management heading.

Although the SSPS is focused on the formal schooling system, the output of the private tutoring system (called the 'shadow schooling system' in some countries) is also important to quantify since it, too, contributes to student learning outcomes.

In summary, **chapter 11** uses SSPS data to examine the output (both quantity and quality) of the Bangladesh primary education system, covering both the schooling system and private tutoring. It also presents the results of a specially designed Bangla and mathematics test, as an objective measure of learning outcomes in students in the final year of the primary cycle.

Policy makers are interested in the relationships between inputs and outputs of the schooling system, as they seek to maximise value for money in delivering schooling services. **Chapter 12** builds on the evidence presented in the preceding 11 chapters to investigate the relationship between schooling inputs and processes and student learning outcomes. It seeks to determine how much of students' academic achievement can be 'explained' by schooling variables, and how much is related to non-school factors such as the home background of students. It adopts a standard education production function approach to isolate the impact of different factors, having controlled for other explanatory variables. It also assesses the relative cost-effectiveness of the three types of school (GPSs, RNGPSs and AEMs) in teaching their students Bangla and mathematics.

11 Outputs and Outcomes

Key findings

- Both GPSs and RNGPSs have achieved gender parity in enrolment, while AEMs are only a few percentage points away.

- Children from the poorest 20% of the population are under represented in class 5, which implies that they are more likely to drop out or never enrol in school than their richer peers.

- GPSs are enrolling a comparatively high proportion of the richest students, while the RNGPSs student body is comparatively skewed towards the poorest students. AEMs have a more even balance between the poorest and richest students.

- Repetition rates vary enormously across schools and are fairly high overall. On average one in 10 students in GPSs and RNGPSs are repeating a class.

- Student attendance levels raise serious concerns. According to school registers, the average school attendance rate is 76% for GPSs/RNGPSs and 55% for AEMs. However, an unannounced headcount taken on the first day of the survey (adjusted for students who are on the register, but not enrolled in school) found only 67% (GPS), 63% (RNGPS) and 45% (AEM) of students present.

- Schools close more often than they should. GPSs/RNGPSs were open for an average of 228 days in the year preceding the survey, just over two weeks less than the school calendar. Timetabled lesson time also falls short of the standard.

- For the majority of students who study in GPS/RNGPS double-shift schools, government policy prescribes about 600 hours (classes one and two) and 850 hours (classes three to five) of lesson time per year. In reality, average attended lesson time is 410 hours for lower classes and 590 hours for higher classes.

- There are large differences in section sizes between school types and across classes. AEM students are taught in groups of 33 on average, while the average GPS student is taught with nearly 50 other students. RNGPSs lie in between these extremes with an average section size of 40. Section sizes drop fairly steeply between classes 1 and 5.

- One-third of class 5 parents reported that their child had been physically punished at school in the past two years.

- The vast majority of GPSs/RNGPSs are following the requirement to enter at least 20% of their class 5 students into the scholarship examination.

- The results of a Bangla and mathematics test administered to class 5 students show GPS students achieving the highest average score followed by AEM students and then RNGPS students.

- Just over half of GPS/RNGPS class 5 students took private tuition in the previous school year (when they were in class 4). Male students were more likely to take tuition than female students.

The first four sections in this chapter examine educational output in Bangladesh in terms of the volume and quality of schooling and private tutoring. The final section looks at learning outcomes and presents the results of a specially designed Bangla and mathematics test given to class 5 students during the survey.

11.1 VOLUME OF SCHOOLING

This section splits the analysis of the volume of schooling provided by the system into four parts: enrolment, repetition, attendance and lesson time.

Enrolment

The latest published government figures on enrolment, discussed in section 1.1, show that the GER in primary education is 97%; the net enrolment rate (which excludes over-age and under-age students from the numerator) is estimated at 87%. This suggests that the coverage of the formal schooling system is high, although it is widely acknowledged that there is a sizeable minority of eligible children who are out of school[78].

SSPS estimates of average school size are very close to the national figures. Table 11.1 shows that GPSs have the highest average enrolment (270 students), followed by RNGPSs and then AEMs. The average GPS is 64% larger than the average AEM. This difference is even sharper when the full range of school sizes is taken into account: the top 10% of GPSs have 434 students or more, while the smallest 10% of AEMs have 87 or fewer students.

Looking at the gender statistics in Table 11.1, both GPSs and RNGPSs have achieved gender parity in enrolment, while AEMs are only a few percentage points away. The vast majority of GPSs and RNGPSs are co-educational, while 8% of AEMs are exclusively for female students.

Table 11.1   School enrolment statistics from 2005 (GPS/RNGPS) and 2004 (AEM)

	GPS	RNGPS	GPS/RNGPS	AEM
Enrolment per school				
Low	140	123	133	87
Mean	269	207	247	164
High	434	315	407	242
Proportion of enrolment that is female (%)	50	51	51	47
Proportion of schools that are single sex[1] (%)	1	0	1	8

Source: SSPS data from schools. Note: (1) This definition includes schools that only enrol male students, and schools that only enrol female students.

The enrolment figures presented above are taken from school registers. Since enrolment is such an important measure of the volume of schooling being provided, it is essential to know how accurate school registers are. Moreover, as discussed in previous chapters, the level of enrolment in a school is linked to resources (e.g. stipends and textbooks) and recognition status for RNGPSs and AEMs.

In order to investigate this, the survey visited a random sample of class 5 students' households drawn from school registers. This exercise revealed that a surprisingly high proportion of households could not be interviewed because the sampled students were not currently enrolled in the school (see Figure 11.1). These non-enrolled students comprise students who have left the school, students who have never been enrolled in the school, and

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[78] See for example: paragraph 5.277 on p118 in the PRSP report (Government of Bangladesh, 2004).

students who do not exist (i.e. are fake). Of most concern are the AEMs, where nearly a quarter of sampled students were not currently enrolled. Indeed, superintendents in charge of AEMs *admitted* that 4% of sampled students were fake. The problem of inflated enrolment registers is less acute in GPSs and RNGPSs, where 6% and 8% respectively of sampled students were not enrolled. Nonetheless, GPSs and RNGPSs account for the vast majority of primary enrolment and so these percentages translate into a sizeable number of students who may be attracting resources that could be better used elsewhere. What is more, since the national statistics on enrolment rates are based on school-reported data, the coverage of the schooling system is probably lower than these suggest. Further research is required to understand why this practice occurs.

Figure 11.1 Proportion of sampled class 5 students' households that were not interviewed by reason (%)
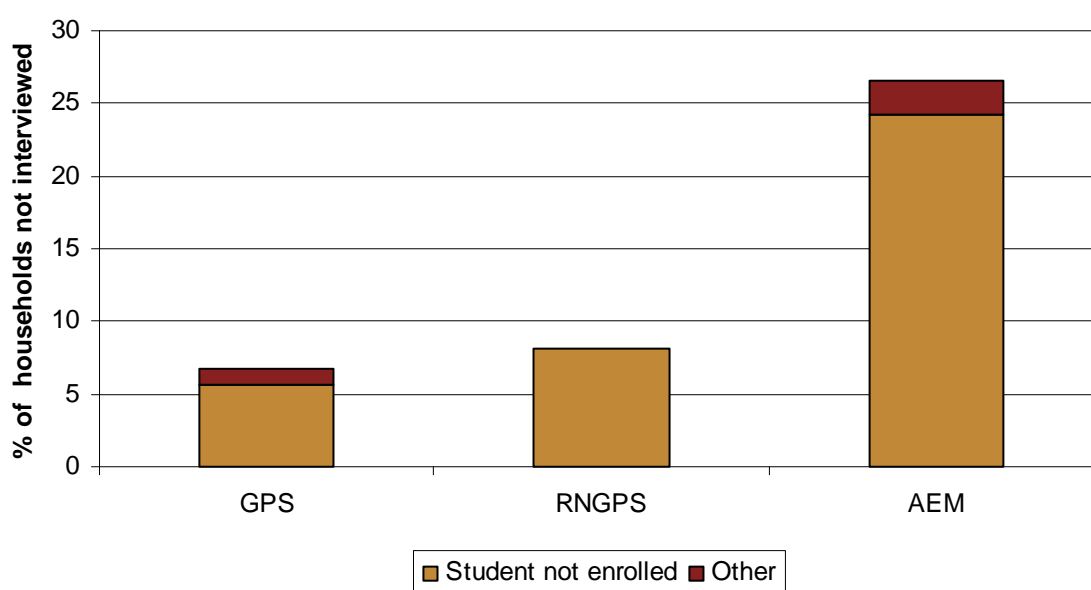
Source: SSPS data from class 5 households. Note: Other reasons include: unable to find household; household address not available or incorrect; household temporarily away; and student boards at school.

It is interesting to compare the three school types in terms of their proximity to an administrative office that serves the school. This gives an indication of whether some school types serve more remote areas than others. Since the management system differs between AEMs and GPSs/RNGPSs, the best comparison is the distance to the relevant district education office. This is effectively the distance to the district capital, since both the DPEO office and the DEO office are situated there. Table 11.2 shows that RNGPSs are located slightly further away from the district office than the other two types: 73% of RNGPSs are further than 20km away compared with 66% and 65% for GPSs and AEMs respectively. This suggests that RNGPSs are enrolling students from slightly more remote, possibly less affluent, catchment areas. RNGPSs may also face relatively high administrative costs in travelling to upazila and district offices for meetings and to collect resources.

Table 11.2   Proportion of schools located within a particular distance of the DPEO office (GPSs/RNGPSs) or DEO office (AEMs) (%)

Distance	GPS	RNGPS	AEM
0-1 km	1	0	0
2-5 km	4	3	3
6-20 km	28	24	33
21-50 km	56	59	52
51 km or more	10	14	13

Source: SSPS data from schools. Note: (1) Distances that lie exactly between the class limits have been rounded up.

Data collected on the socioeconomic status of class 5 students provide further evidence that RNGPSs are serving relatively poor students compared to the other school types. In the left panel of Table 11.3 class 5 students are classified according to the consumption expenditure of their household relative to the national distribution of consumption expenditure of the population (see Annex 3 for full details). This means that a student in the bottom quintile is from a household that is part of the 20% of the population with the lowest consumption expenditure. If all eligible children in the population are enrolled in class 5 (in GPSs, RNGPSs and AEMs), then the proportion of students in each quintile would be similar to the distribution of children aged 9-11 set out in the right panel[79].

Table 11.3   Proportion of class 5 students, and population aged 9-11, by consumption quintile (%)

Consumption quintiles	Proportion of class 5 students				Population aged 9-11[1]
	GPS	RNGPS	AEM	All	
Bottom quintile	12	18	15	14	24
Lower middle quintile	22	18	22	21	22
Middle quintile	24	28	22	25	20
Upper middle quintile	24	26	26	25	19
Top quintile	18	10	14	16	15
All quintiles	**100**	**100**	**100**	**100**	**100**

Sources: SSPS data from class 5 households and HIES 2000. Note: (1) The age range 9-11 is presented instead of age 10 because single-age data are often lumpy, particularly around ages that are divisible by 5.

The 'all' column in Table 11.3 reveals that children from the bottom quintile are seriously underrepresented in class 5. Only 14% of class 5 students come from households in the bottom quintile compared to 24% of eligible children. This implies that students who drop out before reaching class 5 (or who were never enrolled) are much more likely to come from the

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[79] Note that almost one-quarter of eligible children are in the bottom quintile, while only 15% are in the top quintile. This is probably because poorer households generally have more children than richer households. The middle three quintiles each contain approximately 20% of the eligible children.

poorest households. In contrast, children in the middle- and upper-middle quintiles appear to be overrepresented in class 5. These data also bring out some sharp differences in the socioeconomic make-up of class 5 students between school types. As might be expected, GPSs are enrolling a higher proportion of rich students than are the other two types. Some 18% of class 5 students in GPSs come from the richest 20% of the population, while only 12% come from the poorest 20% of the population. At the other extreme, RNGPSs enrol 18% of their class 5 students from the bottom quintile and only 10% from the top quintile. AEMs have a more even balance of students from the bottom and top groups than the other school types.

Repetition

Students who take the same class more than once are called repeaters. Schools require students to repeat classes if they score less than 33% in the end-of-year school-based examination. High rates of repetition may be indicative of poor quality schooling because schools are failing to enable their students to make sufficient progress. Poor attendance can also contribute to this problem.

Most GPSs/RNGPSs report the number of repeaters on their regular monthly returns to the upazila education office. This provided the survey's main source of information for calculating repetition rates. For the small proportion of GPSs/RNGPSs that did not keep any repeater records, class teachers reported the number of repeaters directly. School records on repeaters collected from AEMs are not very accurate and so these are not presented here.

Table 11.4 contains repetition rates for GPSs/RNGPSs. Average repetition rates are about 10%, with little variation by school type or gender. The breakdown by classes is interesting: repetition rates are fairly steady across the first four classes, but drop in class 5. This pattern is most stark for GPSs where the class 5 repetition rate is 6%, some four percentage points lower than the next lowest class repetition rate.

Perhaps the most striking feature of Table 11.4 is the variation in repetition rates across GPSs/RNGPSs. The 10% of schools with the highest rates have over 20% of their students repeating, while the 10% of schools with the lowest rates have 1% or fewer of their students repeating.

Table 11.4   Repetition rates per school from 2005 (%)

	GPS	RNGPS	GPS/RNGPS
Repetition rate per school (%)			
Low	1	0	1
Mean	11	10	10
High	23	24	23
Mean repetition rate per school (%)			
Male	11	10	11
Female	10	9	10
Class 1	10	10	10
Class 2	11	11	11
Class 3	13	10	12
Class 4	11	9	10
Class 5	6	7	6

Source: SSPS data from schools.

The survey was able to collect another, potentially more accurate, source of repeater data by asking the parents of a sample of class 5 students whether their child is currently repeating[80]. Based on these household responses, the proportion of class 5 students who are repeating is presented in Figure 11.2, for all three school types. Although the figures are not strictly comparable with the class 5 repetition rates presented in the table above, they should be fairly close. It is therefore reassuring to see that the overall GPS and RNGPS estimates of 6% are broadly similar to the school-based calculation. The gender gap, however, is much starker in the household data with the proportion of female repeaters substantially higher than that for males for all three school types.

Class 5 repetition is a more serious problem for AEMs than for the other school types. The overall proportion of class 5 repeaters in AEMs is twice as high as the comparable figure for GPSs and RNGPSs[81].

Since repetition rates for GPSs/RNGPSs are about 10%, this implies that the coverage of the eligible population by the formal schooling system is substantially lower than the GER implies. This is because repetition contributes appreciably to over-age students.

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[80] There are several reasons for this. Parents will almost certainly know if their child is repeating whereas school-based records of repeaters are often difficult to keep accurately. Schools may also have an incentive to report low repetition rates since they may feel that high rates reflect badly on the school.

[81] Note that AEM records of repeaters collected from schools were all based on oral responses. The class 5 repetition rate calculated from these school records is more than 10 percentage points below the estimate presented in Figure 11.2 (based on household data), implying that the oral responses from class teachers were not very accurate.

Figure 11.2 Proportion of class 5 students from 2005 (GPS/RNGPS) and 2004 (AEM) who are repeating[1]
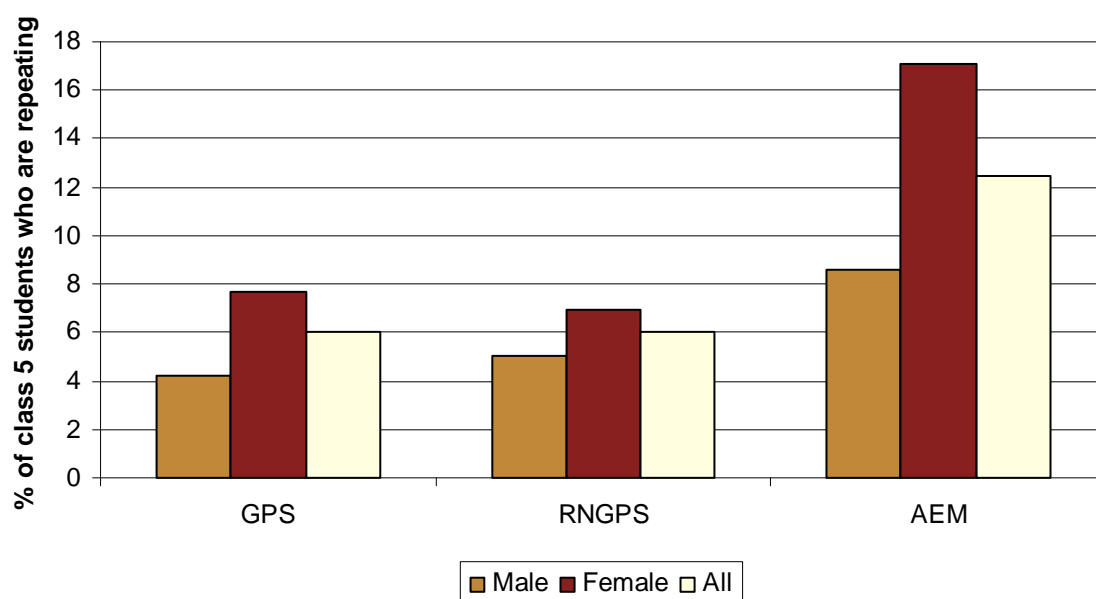
Source: SSPS data from class 5 households. Note: (1) The figures shown in the graph are not calculated in exactly the same way as repetition rates. The repetition rate for class 5 is defined as: number of repeaters in class 5 in a particular year divided by enrolment in class 5 in the previous year. The proportions shown in the graph are calculated as: number of repeaters in class 5 in a particular year divided by enrolment in class 5 in the same year. Providing that enrolment in class 5 doesn't change much between years, these estimates should be close.

Attendance

Enrolment is a crude indicator of the volume of educational services provided. Student attendance rates provide a more accurate measure, and offer insights into the variation in the amount of schooling received by different groups of students. The survey collected student attendance information from three separate sources:

i. **Attendance registers.** For all classes, interviewers recorded the number of absentees in each GPS/RNGPS on seven selected days, equally spread across 2004 and 2005[82]. A limited number of dates were chosen to provide a representative sample. These dates were common for all schools and determined in advance of the visits. For AEMs the survey used an identical approach with six selected dates in 2003 and 2004. For class 5, interviewers also collected the complete school attendance record for each student over seven months in 2004, plus an additional three months in 2005 for GPS/RNGPS students.

ii. **Headcount.** During the school visit, the survey teams went to the classrooms and counted the number of students who were present in each section and class. The visits were unannounced.

iii. **Sampled households**. The parents/guardians of sampled class 5 students provided information about the attendance of their child in the week preceding the survey.

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[82] Since the GPS/RNGPS survey took place between April and July 2005, it was necessary to record information from attendance registers in both 2004 and 2005 in order to get the most up-to-date picture of how attendance varies across the school year for each class. If the school was closed on the selected day, interviewers selected the closest day that the school was open on the same day of the week.

Attendance register data

According to the attendance register data presented in the left panel in Table 11.5, the average annual attendance rate for GPS and RNGPS students in Bangladesh is 76%. This means that the average student misses more than one day of school each week that schools are open. GPS and RNGPS attendance rates differ by only one percentage point on average. AEM students appear to be in a much worse situation than this; the right panel shows AEM average attendance as 55%, more than 20 percentage points lower than the GPS/RNGPS estimate. It is important to recall from the enrolment section above that there are a proportion of students listed on the school registers who are not enrolled in schools. These non-enrolled students potentially affect the accuracy of the register-based attendance estimate; an issue that is explored further in the headcount analysis in the next section. This analysis shows that although the proportion of non-enrolled students is high in AEMs compared to the other school types, the attendance rate gap between AEMs and the other school types shown in Table 11.5 is largely preserved even when this is taken into account.

In all three school types, the disaggregated attendance rates reveal only small differences between the various gender and class subgroups (no greater than four percentage points). The spread of attendance rates across schools within each type is considerable: the difference between the low and high group is more than 20 percentage points in each case. Nonetheless, for GPSs and RNGPSs the low estimate, which marks the 10% of schools with the worst attendance, is higher than the criterion needed for a school to qualify for the stipend scheme.

Table 11.5   Annual attendance rates per school according to registers in 2004-05 (GPS/RNGPS) and 2003-04 (AEM) (%)[1]

	GPS	RNGPS	GPS/RNGPS	AEM
Annual attendance rate per school				
Low	64	64	64	41
Mean	76	77	76	55
High	85	89	87	69
Mean annual attendance rate per school				
Male	75	77	75	54
Female	77	78	77	56
Class 1	77	79	77	57
Class 2	76	78	77	56
Class 3	75	75	75	52
Class 4	74	76	75	55
Class 5	77	79	77	56

Source: SSPS data from schools. Note: (1) The mean annual attendance rate for each GPS/RNGPS is calculated as the sum of attendance rates on seven selected days between May 2004 and April 2005 divided by the total number of selected days. The same calculation was done for AEMs using six selected days between September 2003 and July 2004. A class was classified as being in session if at least one student attended on that day.

Not surprisingly, the variation in attendance rates across students is wider than across schools. Table 11.6 orders class 5 students into five approximately equally sized groups

according to their attendance rate over a three-month period (February to April)[83]. It reports average attendance rates for each group and reveals that by far the largest difference between consecutive groups is found between the bottom group and the lower middle group. Taking all students in GPSs/RNGPSs, this difference is 28 percentage points, while for AEM students it is 30 percentage points. Average attendance rates are only 47% for the bottom group of GPS/RNGPS students, meaning that a considerable proportion attend school for less than half of the school week on average. In contrast, the top three groups of GPS/RNGPS students (roughly 60%) have average attendance rates of 85% or above. This is the attendance rate criterion for stipend card holders to become eligible for a payment. The top group of GPS/RNGPS students have nearly full attendance. The picture for AEM students is less favourable: only the top group of students (roughly 20%) attend often enough to surpass the 85% criterion on average.

The overall estimates of class 5 attendance rates based on the student data (see 'all' columns in Table 11.6) are three to six percentage points higher than the school-level figures reported in Table 11.5 for class 5. One reason for the difference relates to timing: the student-level data are based on a full three month period whereas the school level data are based on selected dates spread across the 12 months prior to the survey. Despite this difference, the same general patterns can be observed for the class 5 students as those described for all classes previously: GPS/RNGPS students attend far more frequently than AEM students, and female students have slightly higher attendance on average than male students. Most of the attendance rate advantage that female and GPS/RNGPS students have comes from differences in the bottom three groups.

Table 11.6 Mean class 5 attendance according to registers over three months in 2005 (GPS/RNGPS) and 2004 (AEM), by attendance rate group (%)[1]

Attendance rate quintile	GPS and RNGPS					AEM		
	GPS	RNGPS	Male	Female	All	Male	Female	All
All	79	82	78	81	80	61	62	62
Bottom quintile	45	54	45	50	47	21	21	21
Lower middle quintile	74	78	73	77	75	50	52	51
Middle quintile	85	86	84	87	85	67	69	68
Upper middle quintile	93	92	92	93	92	78	79	78
Top quintile	98	97	98	98	98	89	90	90

Source: SSPS data from schools. Notes: (1) The mean attendance rate for each student is calculated as the number of days the student was present during the period February to April 2005 (GPS/RNGPS) or February to April 2004 (AEM) divided by the number of days that the school was open during the same period. (2) Attendance rate groups have been calculated separately for each of the subgroups shown (school type and gender). Students with identical attendance rates have been put into the same group; this results in a slight variation in the size of each group.

Headcount data

In order to assess the reliability of the attendance register data, the interviewers carried out a headcount on the first day of the survey for each section of students being taught. The schools did not know in advance that the survey team was coming because the sample was

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[83] Refer to the notes under Table 11.6 for an explanation of why the groups are not identically sized.

kept secret. The survey also recorded information from attendance registers seven days before the survey to use as a comparison[84].

The dark bars in Figure 11.3 highlight the substantial gap between the headcount and the registers. The headcount is lower by 10, 16 and 21 percentage points respectively for GPSs, RNGPSs and AEMs. One reason for this divergence is that some non-enrolled students were falsely recorded as present on the attendance register, while they were obviously not present for the headcount. Table 11.7 illustrates the extent to which schools are falsifying the attendance records of non-enrolled students. However, this does not explain the entire attendance rate gap presented in Figure 11.3 and raises the concern that schools are also inflating attendance registers for students who are enrolled.

Given the problems highlighted above with measuring attendance using school registers, the headcount potentially provides a more accurate estimate. This can be adjusted to remove non-enrolled students from the denominator. The light bar in Figure 11.3 adjusts the headcount for this and reports average attendance as 67% for GPSs, 63% for RNGPSs and 45% for AEMs. Note that this puts GPS attendance rates above RNGPS rates, in contrast to the register-based estimates.

Figure 11.3 Mean attendance rate per school according to registers and headcount (%)[1]
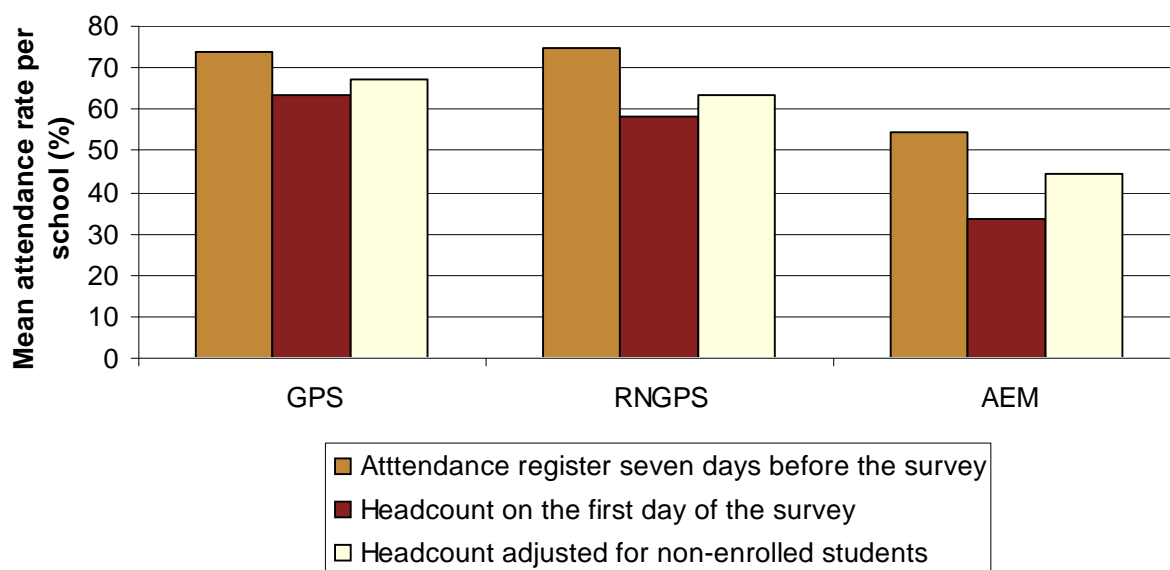
Source: SSPS data from schools. Note: (1) The adjusted headcount assumes that the estimate of the proportion of non-enrolled students in class 5 is applicable to all classes. The adjusted headcount is calculated by reducing the denominator of the headcount by this proportion.

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[84] Ideally, the headcount would be compared with the attendance register from the same day; however, this is not practical in a survey situation because the presence of the survey team may well affect the information that is recorded in the register. Using register information from the day before is not a good second choice because local conditions, such as market days, may mean that attendance varies across days in the week.

Table 11.7   Analysis of attendance register records for non-enrolled class 5 students

	GPS	RNGPS	AEM
Proportion of non-enrolled class 5 students (%)	6	8	24
As a proportion of non-enrolled class 5 students (%)			
Students with faked attendance record[1]	56	65	79
Students with zero attendance record	9	0	0
Not enough information to assess attendance record	36	35	21

Source: SSPS data from class 5 students' households and schools. Note: (1) A non-enrolled student is classified as having a fake attendance record if he/she is recorded present in the school register in any month after leaving the school.

Household data

A sample of class 5 students' parents and guardians reported on the frequency and reasons for absence of their child in the six days prior to the survey[85]. According to their responses, shown in Table 11.8, there are three dominant reasons for student absence that are common to all school types: sickness, visiting relatives and household work. For AEM students, bad weather is also an important factor; this reflects the timing of the AEM survey which took place at the tail-end of a period of serious floods in 2004. Taken together, these reasons account for 80-90% of all absences.

There are some differences between school types and between male and female students. Household work accounts for nearly 30% of absences for RNGPS students, but fewer than 20% for GPS students; this is probably related to the earlier evidence that RNGPSs are serving students from relatively poor households. Taking GPS and RNGPS students together, visiting relatives is cited as a reason for 35% of female absences, but only 20% of male absences. School fees and costs appear to be more of a problem for GPS and AEM households than for RNGPS households, although this reason only accounted for 3-4% of absences.

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[85] The attendance rates calculated from these household data are similar to the estimates based on attendance registers for the same six days.

Table 11.8   Reasons for absence in six days before the survey for class 5 students (% of those absent)

	GPS and RNGPS					AEM		
	GPS	RNGPS	Male	Female	All	Male	Female	All
Sick	47	32	46	39	43	32	37	34
Visiting relatives	25	32	20	35	27	22	17	20
Household work	17	29	21	19	20	17	20	19
Paid work	1	1	2	0	1	0	1	0
Bad weather	2	3	3	2	3	15	14	14
Accessibility	1	1	1	2	1	6	2	4
School fees/costs	3	0	4	1	3	2	5	4
Not learning at school	1	1	2	0	1	0	0	0
Other/don't know	2	2	2	3	2	6	4	5

Source: SSPS data from class 5 households.

Lesson time

The amount of lesson time that students receive on average in a school year depends on student attendance rates, which were discussed in the previous section, and also on:

- the number of days the school is open for during the school year;

- the number of hours of lessons that are timetabled (included in the class routine) per day; and

- the proportion of timetabled lessons that take place in full.

The survey data are used to assess each of these factors in turn, before putting the results together with estimates of student attendance, in order to summarise the overall implications for lesson time.

Days open

According to the school calendar for 2004, schools were supposed to be open for 242 days in total. This calendar is produced by MOPME and only applies to GPSs and RNGPSs. AEMs are part of the madrasah calendar, which is less rigid across schools. The survey results shown in Table 11.9 reveal that only 1% of GPSs, 1% of AEMs, and 7% of RNGPSs opened for the required number of days in the year before the survey. The average number of days that GPSs/RNGPSs were open was 228 days, just over two weeks less than the school calendar. The average AEM opens even less often than this. There is considerable variation across schools, with the worst 10% of schools of each type open for less than three weeks per month on average.

Table 11.9   Number of days school was open in the year before the survey

	GPS	RNGPS	GPS/RNGPS	AEM
Number of days school is open in the year before the survey[1]				
Low	214	207	212	203
Mean	230	225	228	219
High	240	239	240	236
Proportion of schools that were open for 242 days or more (%)	1	7	3	1

Source: SSPS data from schools. Note: (1) The year before the survey was April 2004 to March 2005 for GPSs/RNGPSs and July 2003 to June 2004 for AEMs.

Timetabled daily lesson time

As was discussed in section 7.2, some 85% of schools operate a double-shift system where classes 1 and 2 attend in the morning and classes 3, 4 and 5 attend in the afternoon. All of the RNGPSs in the survey follow this system, as do nearly 90% of GPSs. By contrast, all of the surveyed AEMs operate a single shift. This has implications for lesson time, as shown in Table 11.10. Students in double-shift schools receive approximately three hours of lessons per day, while their counterparts in single-shift schools receive over four hours per day on average.

Table 11.10 Timetabled lesson time and frequency of double shifting

	GPS	RNGPS	AEM	All
Proportion of schools that operate a double shift (%)	87	100	0	85
Mean timetabled daily lesson time per section (hours)[1]				
All schools	3.1	2.9	3.7	3.1
Double-shift schools	3.0	2.9	n/a	2.9
Single-shift schools	4.4[+]	n/a	3.7	4.1

Source: SSPS data from schools. Notes: (1) This data was taken from the class routine chart kept in each school. It was not based on direct observation of lesson time; (2) + denotes an estimate that has been generated using fewer than 30 observations.

There is also a sharp disparity in timetabled lessons between classes 1 and 2 and classes 3, 4 and 5. Figure 11.4 highlights the plight of the lower classes in double-shift schools which have just over two hours of timetabled lessons per day on average, while their counterparts in higher classes have nearly three and a half hours[86]. Perhaps surprisingly, the timetable gap between the lower and higher classes is similarly acute in single-shift schools, where classes 3, 4 and 5 have about 50% more timetabled time than classes 1 and 2.

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[86] This difference is not only related to the double-shift system: in 13% of GPSs with double shifts and 5% of RNGPSs with double shifts, class 5 are taught in both shifts to increase their lesson time, thus exacerbating the disparity. This focus on class 5 probably reflects the importance of the class 5 scholarship examination as a measure of school success.

Figure 11.4 Timetabled daily lesson time (hours)
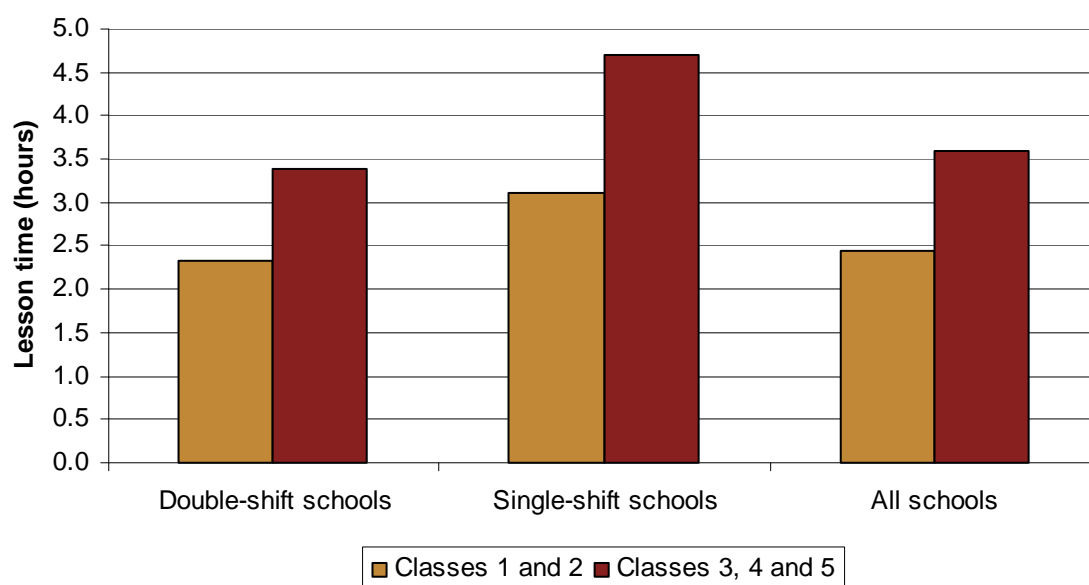
Source: SSPS data from schools.

Actual daily lesson time

It is difficult for a survey of this type to quantify the proportion of lessons that are cut short or that do not take place, mainly because the presence of the survey team encourages adherence to the rules. Interviewers observed a sample of lessons in each school and, perhaps not surprisingly, found that the average duration of lessons observed is almost identical to the average duration of lessons in the timetable (class routine).

To try to obtain a more realistic picture of how often lessons are cut short at the end of the day, the survey asked parents of class 5 students how often their children were sent home early. Only a small proportion of parents reported that this happened frequently (1%, 2% and 6% of AEM, GPS and RNGPS parents respectively); the majority said that this seldom or never occurred.

Of course, neither of the types of evidence presented above provides an adequate assessment of how often lessons are effectively cancelled or shortened because teachers are either late or do not go to the classrooms, even though the students are present.

Summary of annual lesson time

The PEDP II target for annual lesson time is 900 hours by 2010. Figure 11.5 highlights current government policy on lesson time for GPSs and RNGPSs and pulls together the pieces of relevant survey evidence discussed above. For the vast majority of students who study in double-shift schools, government policy prescribes two and half hours per day for classes 1 and 2, and three and a half hours for classes 3, 4 and 5. This is equivalent to approximately 600 and 850 hours per year for lower and higher classes respectively. This prescribed learning time for classes 1 and 2 in Bangladesh is slightly lower than the regional average for southern and western Asia (630 hours) and considerably lower than the worldwide average (722 hours);

in contrast, the intended instruction time for classes 3 to 5 exceeds the average both for the region (734 hours) and worldwide (819 hours)[87].

Survey evidence suggests that, in reality, average timetabled hours are about 10% lower than prescribed, partly because schools close more often than they should, and partly because daily lesson hours fall short of the standard. When student attendance rates are taken into account, average attended lesson time falls to 410 hours per year for lower classes and 590 hours per year for higher classes (in double-shift schools). The equivalent estimates of attended lesson time for AEM students are 350 hours and 520 hours. These are considerably lower than the combined GPS/RNGPS estimates mainly because attendance rates are markedly worse in AEMs.

Figure 11.5 Annual lesson time in GPSs and RNGPSs that operate a double-shift (hours)
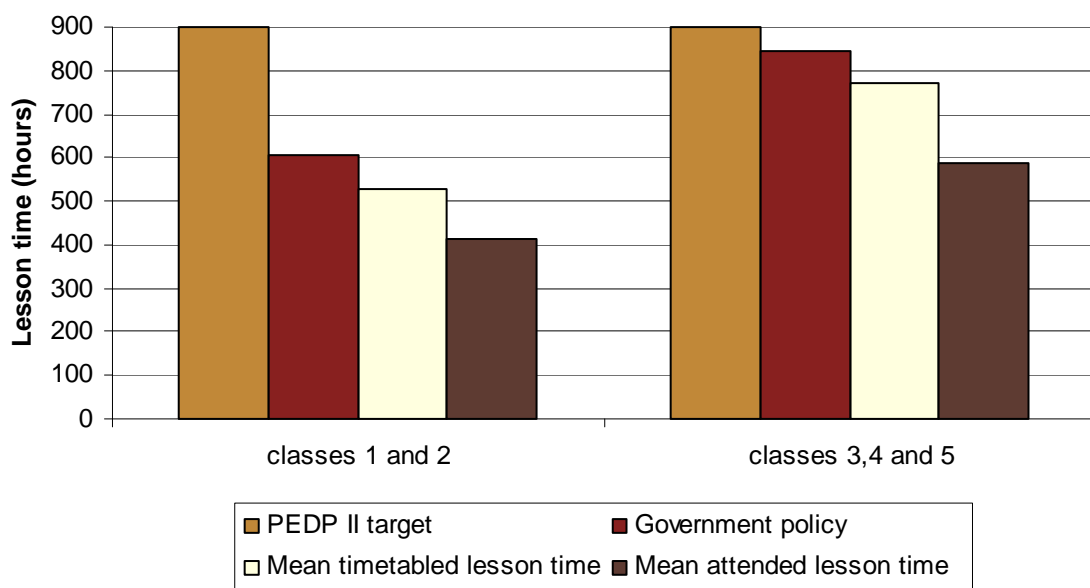
Sources: SSPS data from schools, PEDP II KPI 21 (see Annex 6).

In seeking to tackle the issue of low lesson time, it is useful to understand how it varies across schools. Figure 11.6 demonstrates that quite apart from the disparity in attended lesson hours between school types, there are large differences between the top and bottom 10% of schools within each type. To take the extremes: classes 1 and 2 in the bottom 10% of AEMs have less than 222 hours of attended lesson time per year, while classes 3, 4 and 5 in the top 10% of GPSs have attended lesson time of at least 863 hours per year—surpassing government standards for double-shift schools.

Note that the survey estimates of annual lesson time presented above are probably too high for several reasons. First, they are calculated using register-based estimates of student attendance which are known to be inflated to some extent; if the adjusted headcount figures are used instead attended lesson hours are reduced by a further 10%. Second, the data on

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[87] Benavot (2004) offers a detailed analysis of intended instruction time worldwide. The international comparisons in the text above refer to the year 2000. Note that the average intended instruction time in southern and western Asia has dropped drastically since 1985, when average prescribed times ranged from 675 hours in class 1 to 884 hours in class 5. The expansion of the double-shift system in Bangladesh has contributed to this reduction.

daily lesson time are taken from a full school day and thus do not account for days when schools close early, or when teachers are late or cut lessons short.

Figure 11.6 High, mean and low attended lesson time per year (hours)
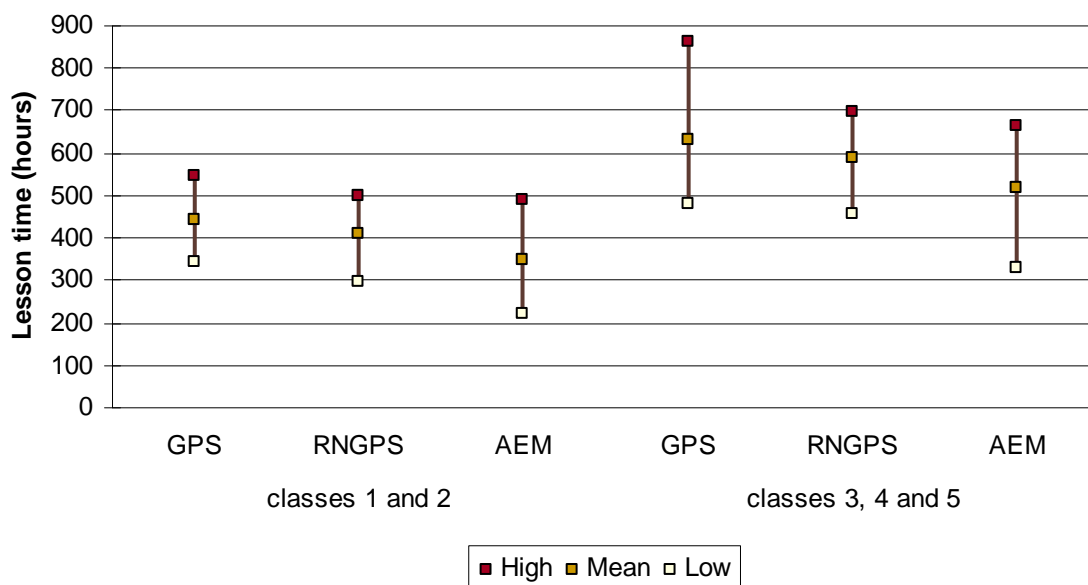
Source: SSPS data from schools.

11.2 QUALITY OF SCHOOLING

This section divides the analysis of the quality of schooling into two parts: the teaching and learning process, and school management.

Teaching and learning process

Lesson observation

A lesson observation instrument aims to quantify important aspects of students' learning experiences. One obvious problem with this approach is that the teacher and students are usually aware that they are being observed and this may affect the lesson. Nonetheless, if interpreted with caution, lesson observation can provide some useful comparative data, and offers some insight into the nature of the teaching and learning process.

Interviewers observed a sample of GPS/RNGPS lessons using an instrument that was developed and tested by the ESTEEM project. Officials from the DPE who had worked on the ESTEEM project helped to train the interviewers to ensure that they could use the instrument correctly. The observation focuses on three aspects of classroom interaction: actors, content and process, based on a model shown in Figure 11.7. An appropriate balance of each of these aspects will depend on the type of lesson being taught, as well as other factors such as the quality of textbooks. The model is not meant to imply that good practice is simply about always being on the right hand side of the diagram; in fact, it is probably desirable to have some balance.

Figure 11.7 Three-factor model of classroom interactions

1.
| Teacher-centred | ACTORS | Student-centred |

2.
| Unmodified textbook material | CONTENT | Original teacher material, related to students' lives |

3.
| Closed tasks, rote learning; knowledge acquisition | PROCESS | Creative, open-ended tasks; knowledge transformation |
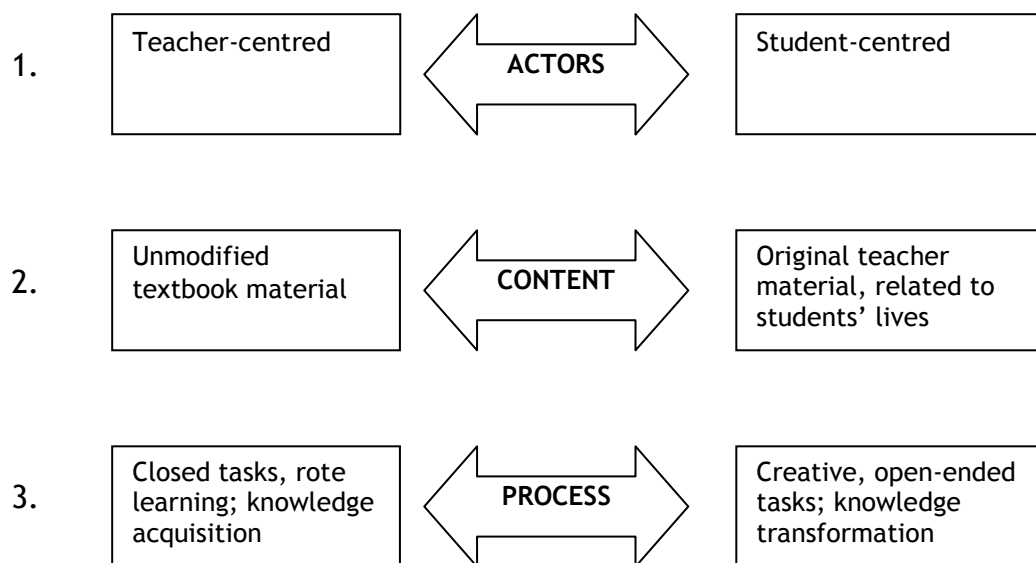
Source: ESTEEM.

Table 11.11 presents the distribution of lesson time within each of the three observation categories. In terms of teacher activity, there appears to be a reasonable balance between time spent addressing the whole class and time spent directly with students. However, teachers were off-task or outside the classroom for 14% of lesson time on average, which seems high, particularly since the teachers were aware that they were being observed. The vast majority of the content taught comes directly from textbooks, with little variation by school type or subject taught. This is perhaps not surprising since chapter 8 found that most students have textbooks, so teachers may feel that there is little need to prepare additional material. Students were completely off-task (meaning that students were not doing anything constructively related to the lessons intentions or content) for 12% of lesson time on average. This is part of the 14% of lesson time when teachers were found to be unproductive[88]. The main learning process observed was closed questions. The breakdown by lesson type clearly shows that the choice of open or closed questions is related to the subject. Predictably, students in mathematics lessons spent a much higher proportion of their time on closed questions than students in Bangla lessons. Nearly one-third of lesson time was taken up with repetitive tasks or examples, which seems high. Imaginative applications were extremely rare.

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[88] Note that teachers and students are not necessarily off-task at the same time. Teachers can be off-task while students are on-task and vice-versa.

Table 11.11 Findings from lesson observation

	School type		Subject of lesson[1]			
	GPS	RNGPS	Bangla	Maths	Other[2]	All
Proportion of lesson time accounted for by teacher activity (%)						
Addressing whole class	60	62	58	60	64	61
Addressing group/pair/individual student	27	23	25	27	25	26
Off-task/out of classroom	13	15	17	13	11	14
Proportion of lesson time accounted for by content type (%)						
Material directly from textbook	80	82	79	79	84	81
Conventional extension from textbook	6	3	5	7	4	5
Original material and/or linked to real life	2	1	1	2	2	2
Content unrelated to learning	11	14	15	12	10	12
Proportion of lesson time accounted for by learning process (%)						
Repeating examples/Limited recall	32	29	31	27	34	31
Closed questions	44	45	38	55	44	45
Open questions	12	12	16	5	12	12
Imaginative applications	1	0	0	1	0	1
Process unrelated to learning	11	14	15	12	10	12

Source: SSPS data from schools. Notes: (1) The number of observations is approximately the same for each subject. (2) The other subjects observed were English, religion, science, and social science.

The evidence from lesson observation can be used to adjust the estimate of the volume of lesson time for quality. Given that students spend on average 12% of lesson time off-task, the amount of effective lesson time received by the average student annually reduces to 474 hours (363 hours for the average student in classes 1 or 2 in the first shift of a double-shift school)[89].

Section size

As explained in chapter 7, students are taught together in groups called sections. In small schools there is usually only one section per class; indeed, almost all AEMs are organised like this. Section size can be thought of as a proxy for the amount of teacher contact time that a student receives and is therefore related to quality. Put another way, students in smaller sections are more likely to receive individual attention from teachers (e.g. being asked questions or getting help when finding work difficult) than students in larger sections.

There are large differences in average section sizes between school types and across classes. Table 11.12 presents again, for completeness, the figures for average section size from Table 7.2, and also shows how these figures vary by class. It reports that AEM students are taught in section sizes of 33 on average, while the average GPS student is taught with nearly 50 other students. RNGPSs lie in between these extremes with an average section size of 40. The range of section sizes across schools, summarised by the high and low estimates, are

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[89] Mean attended time per section in GPSs and RNGPSs (double-shift and single-shift schools) is 539 hours per year. Hence the quality adjusted estimate is 539*88%=474 hours per year.

worrying. The 10% of GPSs marked by the high estimate have section sizes of at least 72 students on average, while the 10% of AEMs with the smallest section sizes teach students in groups of 17 or lower. To put these figures into context: in a typical 35 minute lesson a teacher teaching a section size of 72 would have about 30 seconds per student compared with about two minutes per student for a section size of 17.

Section sizes in both GPSs and RNGPSs drop by about 50% between class 1 and class 5 on a fairly steady descent. In contrast, AEM section sizes fall by nearly 20% between class 1 and class 2 and then remain reasonably constant.

Table 11.12 Section size per school for 2005 (GPS/RNGPS) and 2004 (AEM)[1]

	GPS	RNGPS	GPS/RNGPS	AEM
Section size per school				
Low	28	25	27	17
Mean	47	40	45	33
High	72	61	69	48
Mean section size per school				
Class 1	61	56	59	39
Class 2	52	45	49	32
Class 3	50	41	47	30
Class 4	42	33	39	31
Class 5	33	24	30	32

Source: SSPS data from schools. Note: (1) Section sizes have been adjusted for sections that are usually taught together.

Lesson preparation and assessment

The curriculum describes what the students need to know, understand and be able to do, and forms the framework for the teaching and learning. Both planning and assessment are important for the successful delivery of the curriculum. Planning helps set the correct direction for teaching and learning and helps keep the learning process on course. The main purpose of assessment is to strengthen students' learning by observing the progress they are making towards achieving the desired competencies, offering remedial measures where necessary and judging whether they have reached the standard necessary for promotion to the next class. Table 11.13 and Figure 11.8 summarise the evidence collected by the SSPS from teachers and students on planning and assessment practices.

Worryingly, the majority of GPS/RNGPS teachers do not use an annual scheme of work or regular plans to prepare their lessons[90]. There are differences between school types in this respect: almost twice the proportion of GPS teachers use these tools than do RNGPS teachers. Fewer than 10% of all teachers keep a written record of students' progress in classwork or homework; again, GPS teachers fared better than RNGPS teachers, and almost no AEM teachers were able to show the interviewers this type of record. This does not mean,

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[90] An annual scheme of work plans the delivery of the various topics on the curriculum over the three terminals each year, and acts as a guiding framework for daily lesson plans. Daily lesson plans set out the objective of each lesson, the sequencing of activities within it, and the resources required.

however, that most students are not assessed during the school year. School-based examinations take place three times per year and all schools in the survey had an examination results register. This may explain why 12% of AEM parents said that they receive a written progress report despite the lack of classwork or homework records kept by teachers. Some 20% of teachers report that they use homework to monitor their students' progress.

Classroom wall displays can help to create a stimulating learning environment for students. Indeed, if students' work is displayed on the wall, this sends a very positive signal to students that their work is valued and may also suggests that the teacher is highly motivated. Table 11.13 reveals that about half all GPS/RNGPS sections are taught in classrooms with educational charts displayed on the walls. The display of students' work is rarer: the comparable figures are 19% and 15% of GPS and RNGPS sections respectively. There is almost a complete lack of educational charts or students' work present on classroom walls in AEMs.

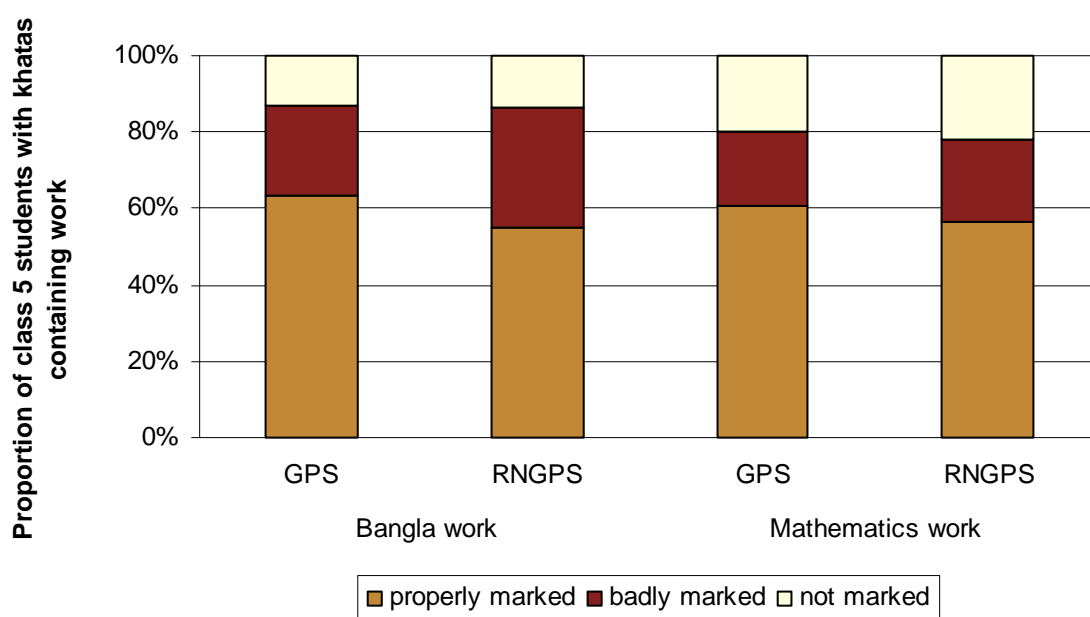## Table 11.13 Lesson preparation, assessment and classroom environment

	GPS	RNGPS	AEM	All
Proportion of teachers (%):				
with an annual scheme of work available	47	26	–	–
with a lesson plan available from the past week	20	13	–	–
with a written record of student progress available[1]	10	3	0	7
who say that they use homework to monitor students' progress	25	15	19	21
Proportion of class 5 students (%):				
whose parents have received a written progress report	9	3	12	8
Proportion of sections (%):				
taught in a classroom with students' work displayed on walls	19	15	0	16
taught in a classroom with educational charts displayed on walls	51	51	0	47

Source: SSPS data from schools, teachers and students. Note: (1) This does not include the school-level examination results register.

The survey collected a random sample of GPS and RNGPS class 5 students' khatas in order to assess the frequency and accuracy of marking[91]. About 90% of sampled class 5 students had a khata available containing a recent piece of Bangla and maths work. Figure 11.8 presents some worrying results. In nearly 40% of GPS khatas, and almost 45% of RNGPS khatas, the most recent piece of Bangla and maths work is either not marked or is badly marked, meaning that there are errors in the marking. Another issue of concern is that 3% of class 5 students report that they do not own a khata, while a further 2% said that they had lost or forgotten theirs[92].

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[91] A khata is a blank note book that students use for classwork and homework. It often contains work from different subjects.
[92] The remaining 5% of class 5 students had a khata available but it did not contain any Bangla or maths work.

Figure 11.8 Marking of GPS and RNGPS class 5 students' khatas

School management

Discipline

Order and discipline are indications of the importance that a school attaches to student learning. Ideally, school rules would be clearly set out and agreed upon by teachers and students, and they would be enforced in a fair manner. Physical punishment is not allowed in primary schools in Bangladesh.

One-third of class 5 parents reported that their child had been physically punished at school in the previous two years. This is an abuse, as well as being against the rules. Male students are physically punished more than female students and the disparity is about five percentage points. Figure 11.9 summarises the reasons for this punishment. By far the most common reason for punishment is getting a poor result (e.g. in an examination, class test or homework) or failing to answer a question correctly in class. More than one-quarter of class 5 students have been punished for this reason. Physical punishment seems unlikely to motivate students who find school work difficult, and probably also discourages students from participating in lessons in case they make mistakes. Often 'getting things wrong' is a very good way of learning, if mistakes are properly explained. The notion that physical punishment can have a detrimental effect on learning is reinforced by the results of a survey of 518 primary school students carried out in Pakistan (Jaffer *et al.*, 2001). This asked students to identify the characteristics of good and bad teachers[93]. The dominant description of a bad teacher included frequent physical punishment and harsh, abusive and threatening behaviour.

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[93] Students participated in focus group discussions, role plays and drawing teachers.

Figure 11.9 Proportion of class 5 students who were physically punished in the two years prior to the survey, by reason (%)[1]
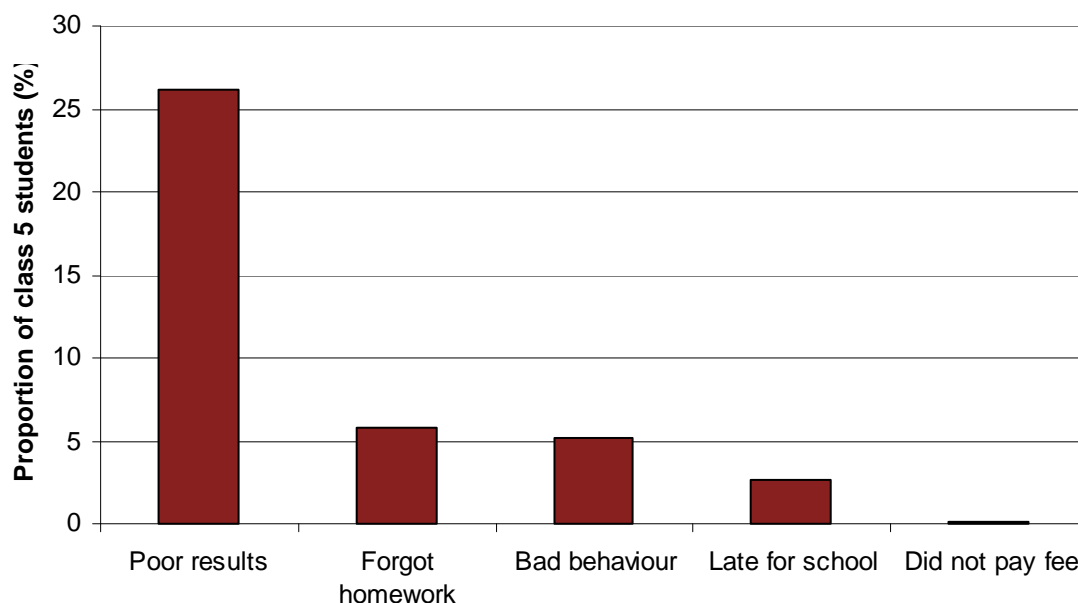
Source: SSPS data from class 5 households. Note: (1) The reason 'poor results' includes getting a low score on an examination, class test or homework and failing to answer a question correctly in class.

Reward

Schools which publicly acknowledge students' accomplishments, such as academic achievement and positive social behaviour, can motivate other students to behave and strive to achieve in the same way.

Some 70% of schools give recognition to students who perform well in examinations. The most common rewards are certificates, books and stationery. Just over 40% of schools reward students who have good attendance, and over two-thirds of schools give prizes to students who excel in sports. These findings are encouraging, although it is important to stress that this information was reported by headteachers, not by students.

11.3 VOLUME OF PRIVATE TUITION

The survey examines the volume of private tuition, in fairly simple terms, by seeking to answer the following questions.

- What proportion of class 5 students take private tuition?

- How many months of private tuition do class 5 students take per year?

Unfortunately this is not straightforward because neither of the surveys (GPS/RNGPS or AEM) took place at the end of the school year. This is important because the use of private tutors may well be uneven across the school year; for example some students may take tuition only in the final months of the year in preparation for the end-of-year examination. Despite this problem, it is possible to draw some conclusions on the relative propensity to take tuition by school type and gender subgroups, and to provide some minimum estimates of the uptake of

private tuition. The results from the class 5 students' household survey, already reported in Table 5.1, suggest that private tuition is more prevalent among GPS class 5 students than their RNGPS and AEM counterparts. Some 44% of GPS households reported that their child had taken tuition in class 5, compared with 36% of RNGPS households and 34% of AEM households, who were surveyed later in the year. Another difference between the school types is in the size of the gender gap in tuition takers. Although this gap favours male students in all school types, the disparity is strikingly large for AEM students: 21% of female class 5 AEM students had taken tuition in the year of the survey compared with 45% of males. The comparable gap is less than 10 percentage points for GPS/RNGPS students.

Turning to the analysis of months of private tuition taken in a school year, Figure 11.10 presents estimates by school type and gender, although it must be stressed that the school type estimates are not directly comparable because of the different reference years (see note beneath figure). On average, students who take tuition attend classes in about six to seven months of the year. The estimates do not vary much by gender, but the spread across students is wide. The top 10% of tutees in all subgroups, except RNGPS students, take tuition in every month of the school year, while the bottom 10% of students, with the exception of male AEM students, take tuition in only one or two months.

Figure 11.10 Number of months for which class 5 students took private tuition in year before survey (GPS/RNGPS) and year of survey (AEM)[1, 2]
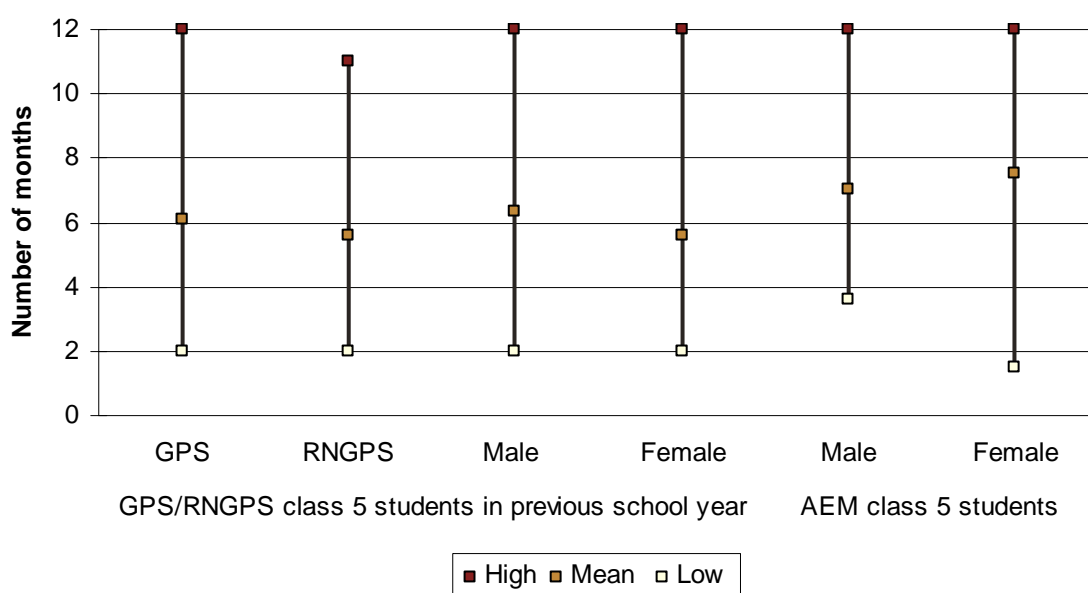
Source: SSPS data from class 5 students' households. Notes: (1) Since the GPS/RNGPS survey took place relatively early in the school year, estimates for these school types are based on the year before the survey, when the students were in class 4. Some 51% of GPS/RNGPS class 5 students took tuition in the year before the survey. (2) For AEMs, households reported the number of months of tuition received up to the survey date. These were then annualised as follows: (number of months of tuition received up to survey/number of months up to survey) × 12 months.

11.4 QUALITY OF PRIVATE TUITION

The survey did not collect enough information about private tuition to make a thorough assessment of its quality. However, the survey did ask the parents of class 5 tuition takers

about the type of private tuition that their child receives, and this provides some very limited insights. Table 11.14 reveals that most tuition takers are taught in small groups, while a privileged 10% of GPS/RNGPS tutees, and over 20% of AEM tutees, receive one-to-one tuition. Mathematics and English are, by far, the most popular subjects. Almost all GPS/RNGPS tutees take these, which may imply that students find these subjects comparatively difficult or consider these to be the most important to perform well in.

Table 11.14 Private tuition arrangements as proportion of class 5 tuition takers[1]

	GPS	RNGPS	AEM
Class size[2]			
One-to-one	10	11	23
Small group	62	72	72
Large group	30	19	5
Subject taken			
Mathematics	96	97	84
English	98	96	76
Bangla	68	67	41
Social science	62	53	25
Science	58	52	26
Religion	55	50	28
Other	0	1	37

Source: SSPS data from class 5 students' households. Notes: (1) The GPS/RNGPS sample includes class 5 students who took tuition in the previous school year and/or in the current school year up to the date of the survey. The AEM sample includes class 5 students who took tuition in the current school year up to the date of the survey. (2) Households answered as many categories as were applicable so the percentages do not sum to 100%.

11.5 LEARNING OUTCOMES

Having examined schooling and tutoring variables, this section covers direct measures of learning achievement.

Class 5 scholarship exam

Bangladesh does not conduct a standardised end-of-primary-school examination for all students[94]. Instead, GPS and RNGPS headteachers are required to select at least 20% of their class 5 students to take a national scholarship examination[95]. There is a separate scholarship examination for class 5 students in madrasahs. Results from both examinations are published, and this is one of the few measures (although imperfect) available to education managers to compare learning achievement over time or across schools, upazilas and districts. A very

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[94] Since the survey took place, this type of examination has been piloted and there are plans to introduce this nationwide in the 2007 school year.
[95] This government increased the proportion of class 5 students required to take the scholarship examination to 30% in 2005.

limited number of scholarships for junior secondary education are available to the students who achieve the best results in these examinations. The following table shows GPS/RNGPS participation and award rates for 2004, using data from the sampled schools. Unfortunately, many schools do not keep good records on pass rates so it is not possible to present these data.

Table 11.15 GPS/RNGPS class 5 scholarship examination participation rates and award rates in 2004

	GPS	RNGPS	All
Mean participation rate (%)	22	23	23
Proportion of schools where the percentage of class 5 students taking the exam is (%):			
10-14%	1	2	1
15-19%	20	15	18
20-24%	53	52	52
>=25%	27	31	28
Mean award rate (%)	11	6	9

Source: SSPS data from schools. Note: (1) Participation rates that lie exactly between the class limits have been rounded up.

Over 80% of GPSs/RNGPSs met the minimum 20% participation rate in 2004, as shown in Table 11.15. The remaining schools are almost all within five percentage points of the criterion; only 1% of schools entered 14% or less of their class 5 students into the examination. As expected, award rates are fairly low: only 9% of students who entered the examination gained a scholarship on average, which translates to about 2% of class 5 students overall. GPS students had more success in obtaining scholarships than RNGPS students. The chances of obtaining a scholarship for class 5 AEM students (not shown in table) appear even slimmer: in 2003, only 2% of class 5 students were entered for the madrasah examination, and the average award rate was close to zero.

SSPS tests

Rationale and description

In order to compare learning achievement across our sample of schools, a standardised test is required. Since the only national examination data that is available applies to a selected proportion of class 5 students in each school, this is not an appropriate measure of overall learning achievement. Schools should be concerned with the learning of all students, not just a selected minority. Another problem, made clear in the previous table, is that GPSs/RNGPSs do not stick strictly to the 20% participation criterion. Also headteachers may adopt different selection techniques and no information is available on this. School-based examinations are conducted three times per year, but since the question papers are not uniform across the country, the results cannot be compared.

For the reasons given above, the survey developed a test designed to measure the extent to which class 5 students have understood and achieved proficiency in key parts of the primary school curriculum. A Bangladeshi curriculum specialist designed and piloted the test, taking

great care to ensure that only common elements of the ebtedayee madrasah and primary school curriculum were included. Material was restricted to the class 4 curriculum and below, to avoid problems with class 5 material being taught at different times of the year in different schools. Two subjects were tested: Bangla and mathematics.

The test lasted for 40 minutes and students had 20 minutes for each subject. The test was not pre-announced and, in addition, there were specific arrangements to prevent cheating. After the test was finished the students were asked to complete:

- Raven's progressive matrices—these are designed to measure non-verbal ability or general intelligence, and are intended to be independent of what is learned in schools; and

- questions on their family background.

Obviously, only students who were present were able to take the test. Since the characteristics of students who were absent probably differ from those who were present, it is important to stress that the test results represent the latter group only. Put simply, if all students had been tested the results may have been different. This is particularly relevant because, as seen earlier, absence rates are high and they vary by school type. About two-thirds of both GPS and RNGPS class 5 students took the test compared to about 40% in AEMs. However, if non-enrolled students are taken into account, AEM test attendance rises to 55%, reducing the disparity somewhat. Still, it is important to bear in mind that the differences in test scores that remain between the school types may be partly due to the attendance rate gap.

Test results

Table 11.16 presents the SSPS test results by school type. For the Bangla questions, GPS students outperformed both RNGPS and AEM students on average by a considerable margin: nine percentage points and six percentage points respectively. There is wide variation in scores across students. The difference between the high and low estimate is approximately 60 to 70 percentage points depending on the school type. The top 10% of students scored at least 92% in each school type, while the bottom 10% of students fared much worse in RNGPSs and AEMs than in GPSs.

There is much less variation in the mathematics scores, both between school types and across students. GPS students still achieved a higher average score than RNGPS and AEM students, but the difference is small. In contrast to the spread of Bangla scores, the bottom 10% of students scored similarly badly in each school type with scores of 17% or less, while the top 10% of students in GPSs and AEMs did much better than those in RNGPSs.

Table 11.16 SSPS class 5 Bangla and mathematics test scores (%)

	GPS	RNGPS	AEM	All
Bangla test score				
Low	33	25	25	25
Mean	64	55	58	61
High	92	92	92	92
Mathematics test score				
Low	17	17	17	17
Mean	41	38	40	40
High	67	58	67	67

Source: SSPS data from student tests.

Figure 11.11 examines gender differences in test scores. The results show that male students outscored female students on average in both Bangla and mathematics for each school type. However, the gender gap in average scores is fairly modest: three percentage points in Bangla and four percentage points in mathematics. A more striking gap is evident in the low estimates, which mark the 10% of students with the lowest scores. Here, male scores are higher than female scores by eight percentage points in both subjects. This suggests that weaker female student might well benefit from specific measures to support their learning. There is no gender difference between the high estimates in either subject.

Figure 11.11 SSPS class 5 Bangla and mathematics test scores by gender (%)
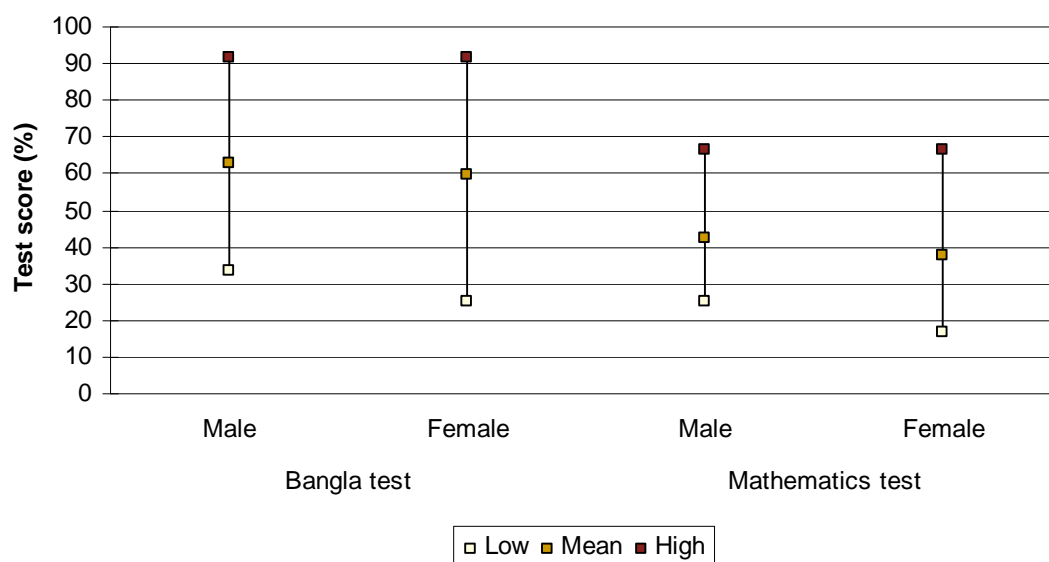
Source: SSPS data from student tests.

This chapter has set out the main primary education output and learning outcome results from the SSPS. The next chapter looks at the relationship between learning outcomes and the various factors that may affect learning achievement including school-level factors (e.g. inputs, community support, and the volume of schooling) and student background characteristics.

12 Determinants of Learning Outcomes

Key findings

- Almost all of the actual test score advantage that GPS students display over students from other school types (and that AEM students have over RNGPS students) is eliminated when student characteristics are taken into account. This implies that there is little difference in school effectiveness between the three types.

- GPSs and AEMs are more than twice as expensive to operate as RNGPSs on a per-student basis (on average). Coupled with the finding above, this suggests that GPSs and AEMs are far less cost-effective in teaching their students Bangla and mathematics than RNGPSs.

- Male students significantly outscore female students in mathematics on average, in RNGPSs and AEMs, after controlling for other explanatory factors. Gender shows no significant impact on Bangla test scores.

- Student attendance rates in all school types show a significant positive relationship with learning achievement, as expected. Efforts to increase student attendance are therefore important in seeking to improve student learning outcomes.

- In-service training for teachers is associated with improved test scores in GPSs and RNGPSs.

- Improving the state of repair of classrooms has some potential to improve learning achievement for AEM students.

- The proportion of school income from private sources is positively related to test scores in RNGPSs. This suggests that community support is an important element in making RNGPSs effective.

This chapter analyses the determinants of students' learning outcomes using regression analysis to isolate the impact of different factors, having controlled for other explanatory factors. Of particular interest to policy makers are the effects that various schooling variables have on learning achievement, since this information can be used to explore ways of improving the schooling system. For example, if the level of teachers' academic qualifications is shown to have a large and significant impact on learning achievement, after controlling for student characteristics and other schooling variables, then, depending on the cost, there may be a case for trying to recruit teachers with higher qualifications.

The analysis uses the SSPS Bangla and mathematics test scores as measures of learning achievement. The sample consists of class 5 students who were tested and traced back to their households for interview. This allows the explanatory factors in the models to include the rich information collected at the household level on consumption, education expenditure and schooling history of the sampled student.

12.1 ANALYTICAL FRAMEWORK

The SSPS collected information on many factors that may affect learning achievement at the end of the primary cycle. These can be usefully divided into student- and school-level factors.

Student-level factors

i.   Background: these are individual characteristics that are not directly related to a student's education such as age, gender, socioeconomic status, education level of their parents, and score on Raven's progressive matrices test of innate ability[96].

ii. Education: these describe characteristics of a student's education (schooling and private tutoring) including attendance rate, expenditure on education, repetition history, and whether a student holds a stipend or not.

School-level factors

i.   General: location, size of school, gender balance in enrolment etc.

ii. Financial: the value of the resources that a school receives annually from all sources (public and private) both in cash and materials in-kind.

iii. Teachers: the mean characteristics of the teachers in each school, for example years of experience, age, and qualifications.

iv. Infrastructure: these measure the physical resources that each school has, including whether the school has drinkable water, an electricity connection, and the state of repair of classrooms.

v.   Managerial: this covers support from outside the school, such as the frequency of AUEO visits and PTA meetings, as well as internal school management such as characteristics of headteachers and the amount of lesson time timetabled per year.

vi. Teaching and learning process: these relate to students' actual experience in lessons and include section size and the proportion of sections taught with students' work displayed on classroom walls.

The SSPS collected information on a variety of measures in each of these groups to examine their relationship with learning achievement. Initially different models were specified to explore the impact of different sets of explanatory variables in each of these groups. Once a number of different specifications had been explored, the results presented in this chapter were arrived at. They represent models that contain the most important factors that have been identified in the research literature as affecting learning achievement.

12.2 METHODOLOGY AND DATA

The analysis uses econometric techniques to explore the importance of student- and school-level factors in explaining the differences in learning achievement reported in chapter 11. This technique isolates the impact of individual factors on learning achievement having controlled for other factors that also affect achievement. Two important issues need to be addressed in the methodology.

• Selection bias. Issues of sample selection have been found to be important when the determinants of academic achievement have been explored. Primary school students are

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[96] Raven's progressive matrices are a series of tests designed to measure non-verbal ability or general intelligence, and are intended to be independent of what is learned in schools. See annex A5.3 for further details.

not randomly assigned to GPSs, RNGPSs and AEMs; as a consequence, estimates of the impact of various explanatory factors on test scores may be biased. The analysis in this chapter uses econometric techniques to account for selection issues.

- Clustered nature of achievement data. Students in the same school have common unobserved characteristics. This implies that simple econometric techniques will not produce the most efficient estimates of the impact of factors on achievement.

The methodology employed in this chapter is standard and is used in other countries, both developed and developing, to explore the determinants of learning achievement[97]. Two main approaches are used in the literature. The first fits a single achievement function for all school types, with school-type dummy variables included to capture the achievement advantage of one school type over another. However, this is not a very satisfactory approach for various reasons, including the fact that it assumes that the impact of the various explanatory factors is the same in the different types of schools. The second approach carries out separate analyses of the three school types; this is the technique that is used in this chapter[98]. A detailed description of the methodology used is presented in Annex 4.

A few other remarks to assist with the interpretation of results are pertinent. Although this is one of the largest surveys of its kind to have been carried out in a developing country, the number of schools of each type is still relatively small and a larger number of sampled schools in each category would perhaps have allowed stronger conclusions to be made on the impact of school factors. It should also be noted that the SSPS test scores measure particular aspects of academic achievement and do not cover the whole primary school curriculum in Bangladesh. Furthermore, given the limited number of questions, only certain aspects of the Bangla and mathematics curricula are covered. While the tests certainly provide a good proxy of learning achievement, these limitations need to be borne in mind.

The measurement of some explanatory factors in this type of analysis is difficult and it is often the case that factors included are at best proxies for variables that are impossible to measure using quantitative cross-sectional survey techniques. The survey has made some substantial improvements in the quality of information on explanatory factors compared to similar studies. For example, overall household expenditure and spending on education is rarely collected in such detail. However, there are other explanatory factors that do not lend themselves to quantitative measurement. For example, the wider education literature suggests that school management is an important aspect which helps to explain school performance. Obtaining quantitative measures of the quality of school management is very difficult and at best only proxy information (e.g. head teacher experience and training) can be collected. In general, these hard-to-quantify aspects of school performance will increase the unexplained variability in learning achievement, which will affect the conclusions that can be drawn.

For each explanatory factor in the model, the coefficient shows how much the outcomes would be expected to change if that particular characteristic were changed, assuming that the relationship found in the model is causal. This assumes that all the other various factors that have an impact on learning outcomes—or strictly, those that are correlated with both outcomes and the characteristic of interest—have been measured accurately and included in the model. Since this is difficult to do, the results should always be interpreted with some

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[97] See for example Hanushek (1995) and Wössmann (2003).

[98] Statistical tests were computed to test a pooled model against estimating separate regressions for each school type, which suggested that separate regressions were preferable.

caution. Some of the findings from the models are occasionally counterintuitive, which reinforces this need for caution.

The data used for the analysis of test scores are based on the sample of students who undertook the SSPS test and whose households were also interviewed. Of the 1,144 students and 230 schools, the necessary information was available for 902 students and 201 schools. The results presented here are the most important findings from the econometric analysis rather than a full report of the results (which can be found in Annex A2.7).

12.3 IMPACT OF STUDENT-LEVEL FACTORS ON SSPS TEST SCORES

Which student-level variables appear to play an important role in determining learning achievement? The full regression results for GPSs are in Table A2.7, for RNGPSs in Table A2.8 and for AEMs in Table A2.9; the top two blocks of variables in these tables contain the results for student-level factors. This section highlights some of the interesting results, using partial scatter plots to illustrate the relationship between the SSPS test scores and various student-level variables, having controlled for other factors in the regression models.

Background

Analysis of enrolment patterns by socioeconomic status in chapter 11 showed that students from poorer households are under represented in class 5. This implies that poorer children are more likely to drop out (or never to enrol in the first place) than their richer peers. For the group of poorer students that do make it to class 5, how does their learning achievement compare with that of their richer counterparts, after controlling for other factors (including household spending on education)? The results suggest that household expenditure per capita does not have a significant relationship with learning achievement.

The gender difference in raw test scores reported in chapter 11, although fairly modest, favours male students in both Bangla and mathematics. The regression analysis finds that male students score significantly more than female students in mathematics on average, in RNGPSs and AEMs, after controlling for other factors. This size of the male advantage is estimated to be between four and seven percentage points on average. This relationship does not hold in GPSs. Gender shows no significant effect on Bangla test scores.

As described in annex A5.3, Raven's progressive matrices are a set of tasks designed to measure non-verbal ability or general intelligence, independent of schooling or previous learning. Students' scores on these matrices, predictably, show a positive and significant relationship with test scores, in all but one of the regressions[99]. Figure 12.1 illustrates the relationship between Bangla and Raven's scores in GPSs. The upward slope of the regression line denotes the positive relationship, while its relatively steep slope reveals that the size of the estimated effect is fairly large. This implies that students with higher ability tend to perform better on academic tests having controlled for other factors. Early childhood factors, such as nutritional status, may be important in trying to raise ability.

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[99] The only regression that shows no significant relationship between test scores and Raven's scores is the mathematics test in GPSs.

Figure 12.1 Bangla test score vs. Raven's progressive matrices score in GPSs
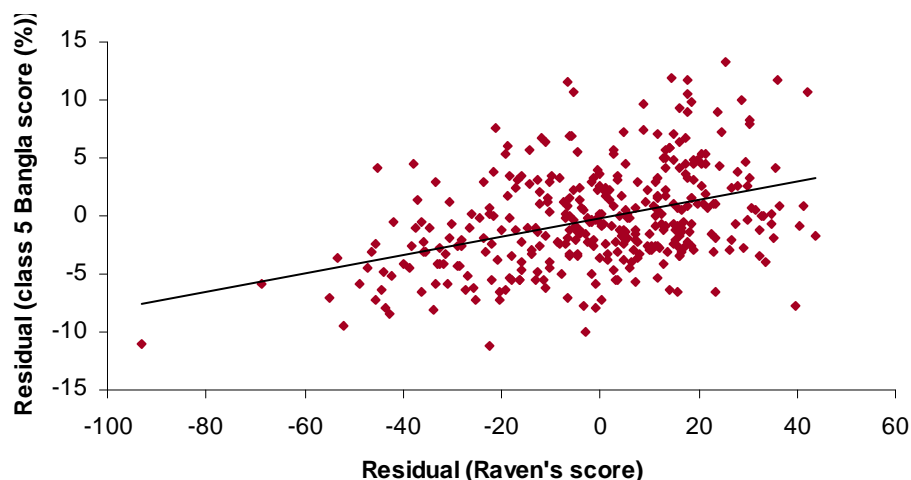
Source: SSPS data from student tests and households. Note: The variable on the vertical axis is the SSPS Bangla score for GPS students having controlled for other explanatory variables included in the regression. The variable on the horizontal axis is the Raven's progressive matrices score having controlled for the same set of variables.

Education

Household spending on education has a positive and significant association with improved mathematics test scores in GPSs and RNGPSs, although the size of this effect is small. A 20% increase in household spending on education is associated with a one percentage point increase in test scores. After private tuition, discussed below, chapter 5 revealed that stationery is the next largest component of private spending. This suggests that is it important to ensure that all students have a good supply of khatas, writing materials and possibly mathematical instruments, to support them in their learning. Rather surprisingly, private spending on education shows a negative relationship with mathematics test scores in AEMs, and does not show a significant relationship with Bangla test scores in any of the regressions.

The largest component of household spending on education is private tutoring, although less than half of class 5 households purchased any for their child in the survey year. Since some parents are investing heavily in private tuition, it is important to try to establish if taking private tuition has any effect on learning achievement. The regression analysis finds that the number of months of private tutoring taken by a student has a significant positive effect on Bangla scores in GPSs, and mathematics scores in AEMs. Private tutoring does not show a significant effect in any of the other regressions.

If schooling is effective, student attendance rates should have a positive impact on learning achievement. Despite the problems described in chapter 11 with the recording of attendance rate data in school registers, attendance rates do indeed show a positive and significant impact on test scores in most of the regressions[100]. Figure 12.2 demonstrates the fairly large magnitude of this effect on Bangla scores in RNGPSs: a 10 percentage point increase in attendance rate is estimated to raise test scores by four percentage points. This suggests

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[100] The regressions where attendance rate does not show a significant relationship with test scores are mathematics scores in RNGPSs and Bangla scores in AEMs.

that improving student attendance rates is an important strategy in seeking to raise learning achievement.

Figure 12.2 Bangla test score vs. student attendance rate in RNGPSs
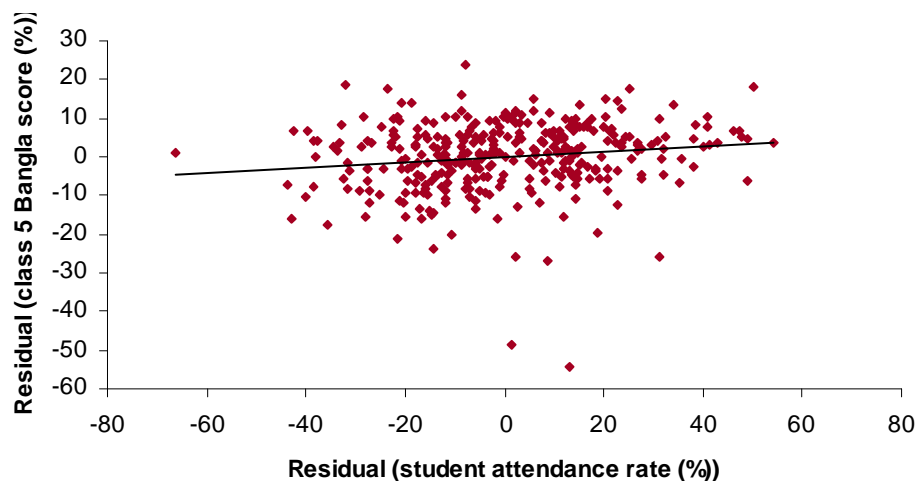
Source: SSPS data from student tests and households. Note: The variable on the vertical axis is the SSPS Bangla score for RNGPS students having controlled for other explanatory variables included in the regression. The variable on the horizontal axis is student attendance rate (February to April 2005) having controlled for the same set of variables.

The SSPS evidence on the effect of preschooling is inconclusive. Somewhat surprisingly, this factor shows a large, highly significant, negative relationship with both Bangla and mathematics scores in GPSs. A GPS student who attends preschool is estimated to score between seven percentage points less on average than a student who never went to preschool. The analysis reveals the opposite relationship for RNGPS students, where attending preschool gives a six percentage point advantage on average in Bangla scores.

A variable indicating whether a student holds a stipend or not is included in the GPS and RNGPS regression analysis, making it possible to explore whether the stipend programme has an effect on student achievement, after controlling for student attendance, levels of private spending and other explanatory factors. Stipend holder status does not show a significant relationship with test scores in any of the models, although it is important to recognise that being a stipend holder may have an indirect effect on learning achievement by raising student attendance and/or private spending on education (see discussion in section 5.2 in chapter 5).

12.4 COMPARING SCHOOLS' EFFECTIVENESS

Given the importance of various student characteristics in determining learning achievement, it is not appropriate to compare the effectiveness of the different types of schools by simply comparing raw test scores. For example, chapter 5 revealed that GPS students have considerably higher private spending on education than students from the other school types. Since the regression analysis described above finds that household expenditure on education is an important determinant of learning achievement, at least some of the raw test score advantage that GPSs have over the other school types may be attributed to the characteristics of its intake.

What would the test score differences between school types look like if the same students attended GPSs, RNGPSs and AEMs? This can be answered by predicting the test scores for all of the sampled students for each school type. Table 12.1 compares the average actual test scores of the students in each school type with the average predicted scores.

Table 12.1   Actual and predicted test score differences by school type (%)

	Test scores			Test score differences		
	GPS	RNGPS	AEM	GPS-RNGPS	GPS-AEM	RNGPS-AEM
Bangla test score (%)						
Actual	63	57	59	6	5	-2
Predicted	61	61	62	0	0	-1
Mathematics test score (%)						
Actual	39	37	39	3	0	-2
Predicted	38	38	37	0	1	0

Source: SSPS data from student tests and households. Notes: (1) The actual SSPS test scores presented in the table differ from those reported in chapter 11 because they are based on the sample of students used in the regression analysis, not the full sample of students who took the test. (2) The predicted scores are calculated for all of the students in the sample by applying the student-level regression coefficients reported in annex A2.7 for each type of school. No account was made in the econometric analysis to allow for the limited range of the test score dependent variable between 0 and 100%. A few predictions fell outside this range and have been excluded from the calculation of mean predicted scores.

The right panel of Table 12.1 calculates the differences in test scores, both actual and predicted, between the school types. This shows that almost all of the actual test score advantage that GPSs have over the other school types is eliminated when student characteristics are taken into account. Similarly, the small advantage that AEMs have over RNGPSs in actual test scores is reduced for predicted Bangla scores, and eliminated for predicted mathematics scores. Judging by differences in test scores only, the analysis suggests that there is little difference in effectiveness between the school types.

This is an extremely important finding given that there is a very large difference in the per-student cost of running the GPSs and AEMs compared to the RNGPSs. Chapter 6 found that school income per student in GPSs and AEMs is fairly similar, at about Tk 1,600 per student per year. This is more than twice the RNGPS estimate of about Tk 700. This implies that GPSs and AEMs are far less cost-effective in teaching Bangla and mathematics to their students than RNGPSs[101].

Two questions clearly merit further investigation:

- Why are GPSs and AEMs not adding more value for money, given their relatively high level of resources per student compared to RNGPSs?

- Why are the RNGPSs performing as well as the other school types, with far fewer resources and much less well paid headteachers and teachers?

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[101] Similar cost-effectiveness calculations were carried out in a paper by Kingdon (1996). This study used a sample of students from the urban Lucknow district of Uttar Pradesh (UP) in India.

12.5 IMPACT OF SCHOOL-LEVEL FACTORS ON SSPS TEST SCORES

This section explores the impact of school-level factors on learning achievement. The variables are grouped under the six headings outlined earlier. Again this section draws out the most important findings; the full regression results are presented in the lower part of the tables in annex A2.7.

General

The distance that the school is from the UEO office is used as a measure of remoteness. Services such as banking are usually located in upazilas, and for GPSs and RNGPSs the UEO office is the main point of contact with the education administration system. For example, headteachers from GPSs and RNGPSs are required to attend regular meetings at, and collect resources from, the UEO office. On average schools are located between 11 and 14km from the UEO office depending on school type. Perhaps surprisingly, there is a positive relationship between distance from the UEO office and test scores in GPSs (for Bangla) and in RNGPSs (for mathematics). The size of this effect is fairly small: a 5km increase in distance from the UEO office is associated with an increase in test scores of two percentage points. In contrast, perhaps reflecting differences in the management system for AEMs, the distance that AEMs are from the upazila project office is negatively associated with test scores.

Financial

Intuitively, the level of resources that a school has for each student would be expected to have a positive effect on learning achievement (up to a certain limit). School income per student was therefore included in the regressions in order to investigate this relationship. The results are contradictory. In GPSs, the level of school income per student shows a positive significant effect on mathematics test scores, as expected. The size of this effect is fairly small: a 10% increase in school income per student is associated with a one percentage point increase in mathematics score. However, in RNGPSs the opposite relationship was found for both Bangla and mathematics scores, i.e. an increase in school income per student is associated with a decrease in test scores. In AEMs, school income per student shows no significant effects.

Teachers

The analysis finds that various teacher characteristics are significant in explaining variation in learning achievement. The proportion of teachers that have attended in-service training in the past year shows a significant positive effect on Bangla scores in GPSs, and on mathematics scores in RNGPSs. This suggests that the provision of in-service training is helping teachers to perform better in the classroom. More teachers with degree-level (or above) qualifications is associated with higher test scores in GPSs, although the opposite relationship is evident in AEMs. The findings on professional qualifications (C-in-Ed or BEd) are also mixed. While the proportion of teachers holding professional qualifications is positively associated with mathematics test scores in RNGPSs, it is negatively associated with test scores in GPSs. Perhaps this can be explained partly by improvements in the quality of professional training courses over time, and the recent drive to increase rapidly the proportion of RNGPS teachers obtaining C-in-Ed qualifications.

Infrastructure

As described in chapter 9, the SSPS collected lots of information about the physical condition of the infrastructure in schools. The explanatory variables in the regressions include the state of repair of the classrooms and the provision of basic utilities. The only significant relationships were found for AEMs, where the proportion of classrooms in a good state of repair and the provision of drinkable water and electricity are associated with improved test scores.

Managerial

As set out in chapter 10, AUEOs are responsible for visiting GPSs and RNGPSs to provide advice and carry out inspections. The SSPS collected written evidence of the number of AUEO visits that took place over the previous school year. Somewhat surprisingly, this variable shows a significant negative relationship with mathematics test scores in RNGPSs. One explanation for this might be that AUEOs visit poorer performing RNGPSs more often because they are in greater need of support than high performing schools. AUEO visits display no significant relationship in GPSs.

Community support for schools is positively related to test scores in RNGPSs. In these schools, a higher proportion of school income from private sources is associated with improved test scores in both Bangla and mathematics. Figure 12.3 illustrates the relationship between private contributions and mathematics test scores; the slope of the line shows that a 10 percentage point increase in the proportion of school income from private sources is associated with a six percentage point increase in test scores. Note that community support does not show any significant relationships with test scores in GPSs, and in AEMs a higher proportion of income from private sources is negatively associated with mathematics scores.

Figure 12.3 Mathematics test score vs. proportion of school income from private sources in RNGPSs
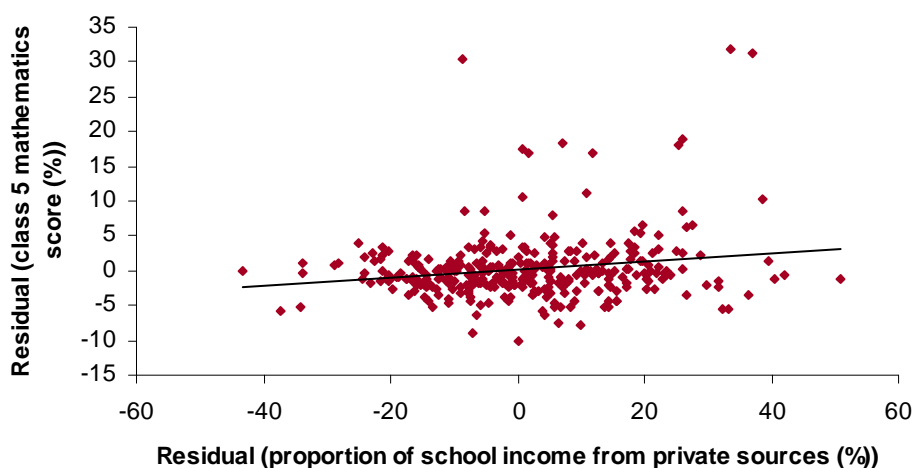
Source: SSPS data from student tests and schools. Note: The variable on the vertical axis is the SSPS mathematics score for RNGPS students having controlled for other explanatory variables included in the regression. The variable on the horizontal axis is the proportion of school income from private sources having controlled for the same set of variables.

Turning to variables related to management inside the school, the length of service of RNGPS headteachers in their current school shows a significant negative relationship with Bangla scores. A year of additional service is associated with a one percentage point reduction in Bangla scores. The analysis of service duration in chapter 7 found that RNGPS teachers tend to serve in only one school in their career; indeed the mean length of service in the current school for the sample of RNGPS teachers included in the regression analysis is 18 years. The comparable figure for GPS teachers is 7 years. Perhaps it becomes increasingly difficult for headteachers to spot and make changes that would improve their schools' performance as their years of service in the same environment increases.

As explained in chapter 11, the number of hours of timetabled lesson time depends on the daily class routine, drawn up by the headteacher, and the number of days that the school is open during the school year. Timetabled lesson time has a significant positive effect on Bangla test scores in GPSs only. For the sample of schools included in this analysis, timetabled annual lesson time ranges from about 500 to 1,100 hours. Increasing timetabled time by 100 hours per year is estimated to improve GPS Bangla scores by three percentage points.

Teaching and learning process

Chapter 11 presented various proxies for the quality of the teaching and learning process, but the discussion emphasised that quantifying this process is extremely difficult. The explanatory variables included in the regressions are average section size and the proportion of sections taught with students' work displayed on the walls. Out of the three school types, only RNGPS test scores showed any significant relationships with these variables. Section size shows a negative relationship with test scores; reducing average section size by 10 students is associated with a gain in test scores of three to four percentage points. As explained in chapter 7, in many RNGPSs headteachers could reduce section sizes by requiring all teachers to teach in both shifts. As might be expected, the relationship between displaying students' work on the walls and test scores is positive. A 10 percentage point increase in the proportion of sections taught with students' work displayed is associated with a one percentage point increase in Bangla test scores in RNGPSs.

Conclusions to Part III

Part III presents some key measures of the volume and quality of schooling provided (i.e. schooling outputs). It also analyses the results of a specially designed learning achievement test given to class 5 students. This test was designed to be an objective measure of learning outcomes and was based on key elements of the primary school curriculum. These test results were used to analyse the determinants of learning outcomes, using regression analysis, in order to isolate the impact of individual factors (both student- and school-level) while other explanatory variables are controlled for.

Schooling outputs

Despite impressively high enrolment levels and progress in gender parity, the survey results highlight serious problems in both the quantity and quality of schooling provided.

The publicly funded primary schooling system is not serving all parts of the eligible population equitably. Children from the poorest 20% of the population are under represented in class 5, which implies that they are more likely to drop out, or never to enrol in school in the first place, than their richer peers. There is also a difference in the socioeconomic makeup of students enrolled in the three different types of school. GPSs are enrolling a comparatively high proportion of the richest students, while the RNGPSs student body is comparatively skewed towards the poorest students. AEMs have a more even balance between the poorest and richest students. Another factor which influences coverage is repetition. Repetition rates are about 10% in GPSs/RNGPSs, which implies that access to schooling for the eligible population is substantially lower than the GER.

For students who are enrolled in schools, the amount of lesson time received per year is worryingly low. For the majority of students, who study in GPS/RNGPS double-shift schools, government policy prescribes about 600 hours (for classes 1 and 2) and 850 hours (for classes 3 to 5) per year. The SSPS estimates that average attended lesson time is only 410 hours for the lower classes and 590 hours for the higher classes. The main reasons for the disparity between policy and reality are low student attendance and schools closing more often than they should.

According to school registers, the average student attendance rate is 76% for GPSs/RNGPSs, and 55% for AEMs. However, an unannounced headcount taken on the first day of the survey (adjusted for students who are on the register, but not enrolled in school) found only 67% (GPS), 63% (RNGPS) and 45% (AEM) of students present. In terms of school opening, GPSs/RNGPSs were open for an average of 228 days in the year preceding the survey, just over two weeks less than the school calendar. AEM students lost an additional 10 days of schooling compared to their GPS/RNGPS counterparts.

Results from lesson observation also give cause for concern. These show that the average student spends about 12% of lesson time on activities that are unrelated to learning. This reduces the amount of potentially effective lesson time per year to about 360 hours for a student in class 1 or 2 in a double-shift school.

There are large differences in section sizes between school types and across classes. Section size can be thought of as a proxy for the amount of teacher contact time that a student receives and is therefore related to quality. The 10% of GPSs with the most overcrowded classrooms have section sizes of at least 72 students on average, while the 10% of AEMs with

the smallest section sizes teach students in groups of 17 or lower. Such wide variation denotes a stark inequality in the distribution of teachers' time.

Determinants of learning outcomes

The results of a Bangla and mathematics test administered to class 5 students show GPS students achieving the highest average score, followed by AEM students and then RNGPS students. However, the regression analysis of the determinants of students' learning outcomes finds that student background variables have a significant effect on test scores. This is important because, as described above, different school types are serving students from different backgrounds. Indeed, when student characteristics are taken into account the differences in test scores between the school types are virtually eliminated. This implies that there is little difference in school effectiveness between the three types. Since GPSs and AEMs are more than twice as expensive to operate on a per-student basis as RNGPSs, this suggests that GPSs and AEMs are far less cost-effective in teaching their students Bangla and mathematics than RNGPSs.

Various student-level variables were found to be important in explaining variation in learning achievement. Male students significantly outscore female students in mathematics on average, in RNGPSs and AEMS, after controlling for other explanatory factors. In contrast, gender shows no significant relationship with Bangla scores. Student attendance rates in all school types also show a significant positive effect on learning achievement, as expected. Efforts to increase student attendance are therefore important for improving student learning outcomes.

In terms of school-level factors, the estimated effects on learning achievement are less consistent across the different test subjects, and between school types, than the student-level factors. In-service training for teachers is associated with improved test scores in GPSs and RNGPSs. For AEMs, improving the state of repair of classrooms has some potential to improve learning achievement. Community support appears to be an important element in seeking to make RNGPSs more effective: the proportion of school income from private sources is positively related to test scores. Although many of the findings from the regression analysis seem intuitively sensible, there are also some counterintuitive and contradictory results which merit further investigation.

13 Conclusions

The primary education SSPS is based on a nationally representative sample of 231 primary schools of three types: GPSs, RNGPSs and AEMs. It provides reliable, standardised information to answer two principal questions. First, do public resources (money and other inputs) reach primary schools as intended? Second, do public and private resources, together with the non-material support that schools receive from local communities and the administrative system, deliver the desired volume and quality of schooling? The overall aim is to identify factors that contribute to high quality schools. In addition, the survey also provides a wealth of data for monitoring the primary education system.

The concluding sections at the end of part II and part III each provide a detailed summary of the findings in response to the two questions posed above. This conclusion highlights some of the most policy-relevant findings. These are:

The flow of resources

Overall leakage from the primary education budget is relatively low; public resources allocated for primary education are broadly used for the purpose intended. However, while the stipends programme is operating with relatively low levels of loss compared to its predecessor programme (FFE), misallocation of resources in the stipends programme is a serious problem. Furthermore, informal payments are sometimes expected in order to receive resources, affecting all levels of the system: households, teachers, UEOs and DPEOs.

The textbook distribution system to GPS and RNGPS students works with remarkably low levels of loss, considering the huge scale of the operation. The downside is delivery delays: in the majority of schools all textbooks are not available at the start of the school year. The delivery system for AEMs has serious problems: it is operating with a high level of loss and misallocation.

Equity

The publicly funded primary schooling system is underserving the poorest parts of the population, and public funding overall is far from equitable. RNGPS enrolment is comparatively skewed towards students from the poorest households, yet they receive less than half of the income per student that the other school types get. Overall, school income per student is 28% higher for students in the top quintile compared to those in the poorest. Private spending on education by households is also heavily in favour of richer students, and the stipends programme is not effectively targeted at the poor.

Schools and learning

Bangladesh has made some impressive strides in increasing primary enrolment. However, the quantity of lesson time received by the average student is low, particularly for class 1 and 2 students in double-shift schools. It falls well short of government policy on lesson hours. There are two main reasons for this: low student attendance rates, and schools closing more often more than they should. Efforts to improve student attendance are important both in increasing lesson hours and ultimately in seeking to improve student learning achievement.

Moving to a system of single-shift schools would also increase lesson hours but presents a huge challenge in terms of recruiting sufficient teachers, requiring existing teachers to work more hours and building physical facilities.

The wide variation in section sizes between and within school types, and across classes, denotes a stark inequality in the distribution of teachers' time. Some of these disparities could be lessened by redistributing teachers within each school type. Moreover, if all teachers in double-shift schools were required to work in the first shift, section sizes in the lower classes would fall in many schools. In addition, teacher absence rates are high, although the absences are largely authorised. The policy on casual leave exacerbates this problem.

Many teachers do not appear to have a firm grasp of basic literacy, numeracy and non-verbal reasoning skills and are therefore unlikely to be able to convey these effectively to their students. Another concern is that Bangla and mathematics teachers demonstrated a very limited knowledge of the relevant key terminal competencies in the curriculum.

There appears to be little difference in effectiveness between the school types in teaching students Bangla and mathematics. Since GPSs and AEMs are more than twice as expensive to operate on a per-student basis as RNGPSs, they appear to be far less cost-effective than RNGPSs. Further analysis is needed to try to understand why GPSs are not providing better value for money.

Many students are not learning in a safe environment. Drinkable water and a functioning toilet are not available in many GPSs and RNGPSs. This is a serious health hazard. Sickness is the most commonly reported reason for student absence.

Local communities are actively supporting schools by joining PTAs and making financial contributions. This support is particularly important in seeking to make RNGPSs more effective.

There are clear weaknesses in the management of primary schooling, both in schools and at higher levels. There is a widespread lack of punctuality on the part of teachers and headteachers are often equally guilty of lateness. The lack of adherence to stipulated lesson hours, the laxity over enrolment and attendance data, and the regular use of physical punishment of young children are some critical concerns illustrating where management should be strengthened.

Annex 1   Sampling

A1.1 SAMPLING STRATEGY

The SSPSs collected information about a wide variety of entities: administrative units, schools, teachers, students and their households. Since the analysis required the estimation of many indicators for each of the units, the sample of observed units was selected with rigorous scientific procedures, so that their selection probabilities are known and documented. These conditions dictate the application of a complex multi-stage sampling design.

Each of the sampling stages generally implemented various forms of stratification, dictated by the need to observe a minimum number of units in each of various kinds of analytic importance (such as stipend holders),Table A1.1 describes the strata defined for each sampling stage and the approximate sample sizes expected prior to the survey.

To obtain unbiased estimators from each of the various samples, the observed values were analysed using sampling weights (or raising factors) equal to the inverse of the given selection probabilities, given below.

Table A1.1   Outline of primary education SSPS sampling strategy

Sampling Units	Stage	Domain	Strata	Number of Units Selected	Selection method	Implementation	Total Sample Size	
Districts	1	Bangladesh	Dhaka and Chittagong	2	Selected with certainty	Done by OPM	2	20
			All other districts	18	Systematic sampling with probability proportional to the 2001 population		18	
Upazilas	2	Dhaka and Chittagong		4 per district	Systematic equal-probability sampling	Done by OPM	8	
		All other 18 selected districts	Sadar (district capital)	1 per district	Selected with certainty		18	71
			All other upazilas	Up to 3 per district	Systematic equal-probability sampling		53	
Primary Schools	3	All 79 selected upazilas	Government	1 per upazila	Simple random sampling	**Done by the field teams**	79	236
			Registered non-government	1 per upazila			79	
			Ebtedayee section of DMs	1 per upazila	Linked to the selection of DMs		78	

Sampling Units	Stage	Domain	Strata		Number of Units Selected	Selection method	Implementation	Total Sample Size
Primary Teachers	4	All 236 selected primary schools	Headteacher		1	Selected with certainty	**Done by the field teams**	~1,000
			Teachers of Bangla and Mathematics in Class 5		All of them			
			Other teachers	GPS/RNGPS	As many as needed to get 4 per school	Simple random sampling		
				AEM	As many as needed to get 3 per school			

Sampling Units	Stage	Domain	Strata		Number of Units Selected	Selection method	Implementation	Total Sample Size
Primary Student Households	4	All 236 selected primary schools[1]	Students attending on the day of test	Stipend holders	0-4 per school	Simple random sampling	**Done by the field teams**	~2,100
				Non-holders	3-4 per school			
			Students not attending on the day of test	Stipend holders	0-2 per school			
				Non-holders	2-4 per school			

Source: Muñoz (2004). Note: The number of households selected in each sampled school depends on whether the school is in the stipend scheme or not. For schools in the scheme 10 households are selected; for those not in the scheme, eight are selected. The estimated total sample size was calculated as: 78 (AEM) × 8 + 40(GPS/RNGPS) × 8 + 118(GPS/RNGPS) × 10

Districts

Dhaka and Chittagong constitute a self-represented stratum whereas another 18 districts were selected from the remaining 62 districts in the country with probability proportional to size (PPS) using the 2001 population as a measure of size. The PPS selection implicitly stratified the districts by division. The probability P(dist) of selecting district dist equals:

$$P(dist) = \begin{cases} 1 & \text{for the Dhaka and Chittagong districts} \\ \dfrac{18 \cdot POP(dist)}{\sum\limits_{i \notin \{Dhaka,Chittagong\}} POP(i)} & \text{for all other districts} \end{cases} \quad \dots\dots\dots\dots\dots\dots (1)$$

where *POP(i)* is the population of district *i*, according to the 2001 Census.

Upazilas

In Dhaka and Chittagong, four upazilas were visited, selected with equal probability out of the total of 17 and 20 upazilas respectively. In each of the other 18 selected districts, one of the visited upazilas was always the sadar upazila (the district capital). Up to three additional upazilas were selected with equal probability among the remaining upazilas in each district. Since one of the selected districts had only two non-sadar upazilas, the total number of upazilas in the sample is 79 (rather than 80). The probability P(dist,upaz) of selecting upazila upaz in district dist is given by:

$$P(dist, upaz) = \begin{cases} 4/17 & \text{for Dhaka} \\ 4/20 & \text{for Chittagong} \\ P(dist) & \text{for the sadar upazila in the rest of the districts} \\ P(dist)\dfrac{nup(dist)}{NUP(dist)} & \text{for the non}-\text{sadar upazilas in the rest of the districts} \end{cases} \quad \text{......................} (2)$$

where P(dist) is given by formula (1), NUP(dist) is the total number of non-sadar upazilas in district dist and nup(dist) is the number of non-sadar upazilas selected in the district (nup(dist) is 3 in all but one of the selected districts.)

Primary schools

In the 79 upazilas, the selection of a GPS and a RNGPS was entrusted to the interviewers, who first copied the list of all of them (schools that receive teachers' salary payments from government sources) from the UEO office. They then used a special form and an *ad hoc* random number pad to select one of each type at random with equal probability from these lists.

In addition, the ebtedayee sections (classes 1 to 5) of the DMs selected for the secondary school study were considered by the study as additional primary schools. One DM was selected by equal probability sampling from the list of all DMs, in each of the 79 upazilas, derived from merging the MPO and BANBEIS data.

The probability P(dist,upaz,psch) of selecting primary school psch in upazila upaz of district dist is given by:

$$P(dist, upaz, psch) = \begin{cases} \dfrac{P(dist, upaz)}{NGPS(dist, upaz)} & \textit{for government primary schools} \\ \\ \dfrac{P(dist, upaz)}{NRNGPS(dist, upaz)} & \textit{for registered non}-\textit{government primary schools} \\ \\ \dfrac{P(dist, upaz)}{NDM(dist, upaz)} & \textit{for the the ebtedayee sec\,tions of dakhil madrassas} \end{cases} \quad \text{..........} (3)$$

where P(dist,upaz) is given by formula (2), NGPS(dist,upaz) and NRNGPS(dist,upaz) are the total number of GPSs and RNGPSs listed in the upazila, and NDM(dist,upaz) is the total number of DMs in the upazila.

Teachers

The headteachers of all selected schools were interviewed when present.

In addition, all teachers of Bangla or mathematics (TBM) in class 5 were interviewed in all schools visited. If a GPS/RNGPS school had fewer than four TBMs, a simple random sample was taken of as many other teachers (OTs) as needed to interview four teachers in total in each school. The ebtedayee section of DMs was considered as a separate primary school, and the same strategy was followed except that if a random sample was required, a maximum of three teachers were interviewed.

The random selection of OTs was entrusted to the interviewers, who used a special form and a random number pad for this process.

The probability P(dist,upaz,sch,subj) of selecting a teacher of subject subj in school sch in upazila upaz of district dist is given by:

$$P(dist,upaz,sch,subj) = \begin{cases} P(dist,upaz,sch) & \text{for head teachers and TBM's} \\[2ex] P(dist,upaz,sch)\dfrac{not(dist,upaz,sch)}{NOT(dist,upaz,sch)} & \text{for OTs} \end{cases} \quad \text{.............. (4)}$$

where P(dist,upaz,sch) is given by formulas (3), NOT(dist,upaz,sch) is the total number of OTs and not(dist,upaz,sch) is the number of OTs interviewed in the school.

It should be noted that the sampling weights deducted from formula (4) cannot be used to infer about the population of all OTs in Bangladesh, but only about those working in primary schools with less than four TBMs (or less than three TBMs in AEMs), since no OTs will be interviewed in schools with four TBMs or more.

Students and their households

In primary schools, all class 5 students present on the day of the visit were tested. In addition, a sample of households was taken from a list of all students enrolled in class 5 for interview. The selection was entrusted to the field interviewers, who used a special form and a random number pad to apply simple random sampling selections within a variety of student groups, as shown in Table A1.2 below.

Table A1.2   Sample selection rules for household sample

Sample selection criteria		GPS/RNGPS		AEM
		Stipend scheme	No stipend scheme	
Takes test	Stipend holder	3	0	0
	Non-stipend holder	3	4	4
Doesn't take test	Stipend holder	2	0	0
	Non-stipend holder	2	4	4
Total		**10**	**8**	**8**

Source: OPM.

The probability P(dist,upaz,sch,sg) of selecting a household from student group sg in school sch in upazila upaz of district dist is given by:

$$P(dist, upaz, sch, sg) = P(dist, upaz, sch) \frac{nsg(dist, upaz, sch)}{NSG(dist, upaz, sch)}$$ ………………………………………………….. (5)

Where P(dist,upaz,sch) is given by formulas (3), NSG(dist,upaz,sch) is the total number of students in the group and nsg(dist,upaz,sch) is the number of students selected for the household interview in the group.

Sample selections in the field

For all situations where field staff undertook the sampling of units in the field, procedures were defined to ensure that the selection was indeed random and could be crosschecked by survey managers. This was achieved though the systematic listing of sampling units in numbered order and the provision of random number pads on each questionnaire that were used to undertake the sampling following a standard procedure.

A1.2 CONFIDENCE INTERVALS FOR KEY ESTIMATES

Estimates derived from samples are characterised by sampling errors. In other words, the fact that we do not obtain the information that we want from the entire population but from a random subset, means that the statistical measures of interest, such as the mean, are not calculated with perfect precision but are likely to fall within a certain range of values. Statistics helps us in understanding what sampling errors are likely to be and standard formulas based on random sampling provide us with the solution on how to compute standard errors associated with our estimates. However, the SSPS sampling process has a complex design, which makes the estimation of standard errors and confidence intervals complex.

Bootstrapping is a non-parametric technique that allows standard errors of estimates obtained from complex surveys to be computed. The idea behind this technique is to extract many different subsamples from the total sample (paying particular attention to the re-sampling procedures), compute the statistics for each of these subsamples, and then calculate the standard deviation among these estimates.

The main statistical tests of interest are tests of equality of the mean of two sub-populations (e.g. by type of school) for a particular indicator. Given the time intensity of these calculations, they have only been attempted for a limited number of key estimates, which are presented in Table A1.3.

Table A1.3   Confidence intervals for selected key estimates

	GPS	RNGPS	AEM
Private expenditure per class 5 student (Tk)	1283-2210	1120-1411	782-1325 *
Mean school income per student (Tk)	1386-1859	591-766 *	1395-1917
Student-teacher ratio	55-75	46-64	32-43 *
Teacher profile test result (%)	52-59	44-52 *	42-51 *
Proportion in-post teachers absent on day of survey (%)	12-20	7-14	-
Students per toilet	167-249	144-205	102-134 *
Enrolled students who belong to the top quintile of socioeconomic status (%)	12-24	6-14 *	9-19
Enrolled students who belong to the bottom quintile of socioeconomic status (%)	10-14	13-23 *	9-22
Attended lesson time per year (hours)	517-586	487-545	417-489 *
Section size	41-54	34-46	29-36 *
SSPS Mathematics test score (%)	38-44	35-40	35-45
SSPS Bangla test score (%)	60-67	52-59 *	52-64

Notes: The confidence intervals have been estimated at the 5% level of significance using bootstrapping techniques. The asterisk in the RNGPS column signifies that the RNGPS estimate is significantly different from the GPS estimate at the 5% level of statistical significance. The asterisk in the AEM column signifies that the AEM estimate is significantly different from the GPS estimate at the 5% level of statistical significance.

# Annex 2   Supplementary tables and figures, by chapter

A2.1 CHAPTER 1

Table A2.1   Primary education management institutions, functions and key personnel

Level	Management Institutions	Key Primary Education Function	Key Personnel
Central	MOPME	Develop primary education policy	Secretary MOPME
	DPE	Implement and monitor primary education policy	Director general DPE
	CPEIMU	Manage MPO (payroll) of RNGPS teachers	Director general CPEIMU
	Development project implementation units	Manage development projects e.g. stipends, constructions/repair etc	Project director
	NCTB	Develop curriculum; produce primary textbooks master copies; manage textbook printing and distribution to districts	Chairman NCTB
	Madrasah Board	Develop curriculum for madrasahs with NCTB; establish and recognise madrasahs	Controller, Madrasah Board
Division	6 × division education offices	Manage registration process of non-government schools	Deputy director ; 12 × officers/staff
District / Zila	64 × DPEO offices	Manage textbook distribution to upazilas; manage teacher appointment, posting, transfer, promotion and discipline	DPEO; 13 × other officers / staff per office
	64 × DEO offices	Manage textbook distribution to ebtedayee madrasahs	DEO
Upazila/ Thana[1]	493 × UEO offices (UEO)	Manage the payroll of GPS teachers; approve all teacher salary payments each month; approve nonsalary payments for all schools; approve stipend payments each quarter; manage textbook distribution to schools; supervise schools; provide in-service training for teachers	Per office: 1 × UEO; 6 × AUEOs; 1 × upper division assistant[2]; 2 × office assistant; 1 × MLSS
	UAO offices	Pass bills submitted by upazila education officers for payment	UAO
	UNO offices	Overall management of upazila; chair UEC; approve stipend payments and small maintenance for schools	UNO
	LGED	Locally manage school development projects for construction, repair, furniture supply	Executive Engineer
School	SMCs	Assist headteacher in developing the school; Certify teachers attendance each month; Select Stipend Holders Interview and propose new appointment of teachers in RNGPS	Chair of SMC

Source: OPM. Note: (1) Thanas are the management units found in city corporation/municipality/metropolitan areas. (2) The upper division assistant performs the role of an accountant.

A2.2 CHAPTER 3

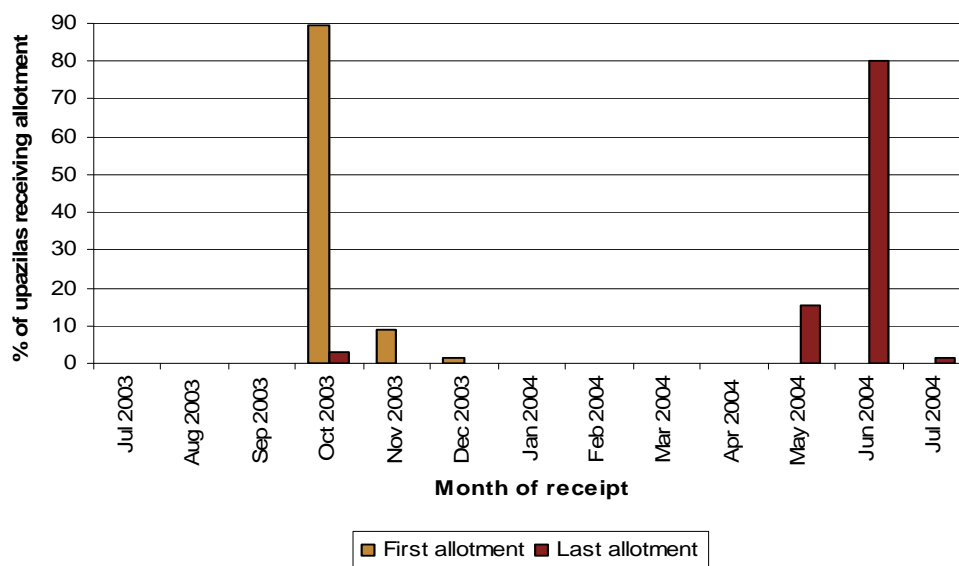### Figure A2.1 Functional code 2431: timing of receipt of first and last allotments
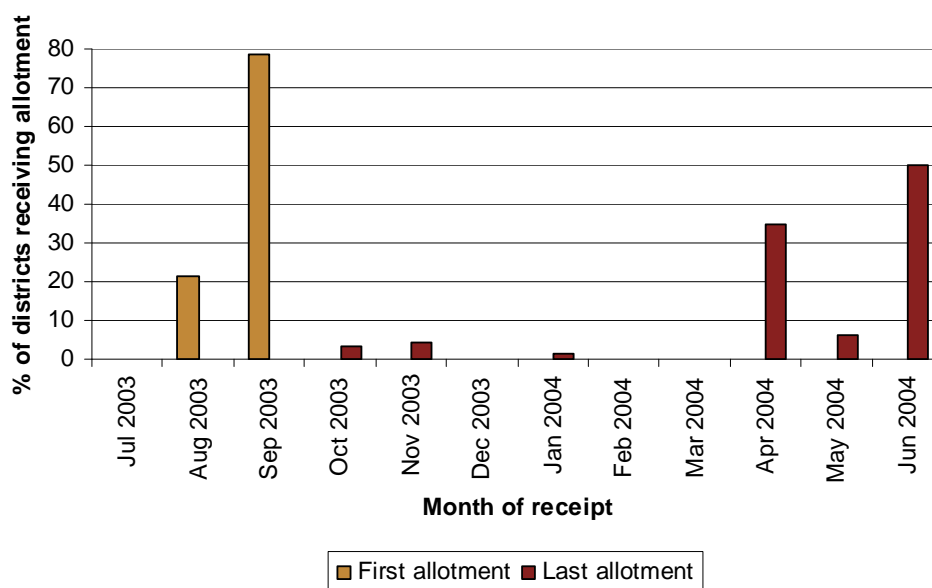
Source: SSPS data from DPEOs.

Figure A2.2 Functional code 2434: timing of receipt of first and last allotments

Source: SSPS data from UEOs. Note: (1) In one instance the final allotment letter arrived only in the first week of the following financial year, July 2004, too late for the funds to be spent.

A2.3 CHAPTER 4

Table A2.2 Total and unsuspended single stipend card holders by class, 2004

	GPS	RNGPS	Total
Total (suspended and unsuspended) single card holders in each class (% of total class enrolment)			
Class 1	31	27	29
Class 2	37	36	36
Class 3	37	40	38
Class 4	37	46	40
Class 5	39	46	41
All classes	36	37	36
Unsuspended single card holders in each class (% of total class enrolment)			
Class 1	30	27	29
Class 2	34	33	33
Class 3	33	35	34
Class 4	31	41	35
Class 5	35	42	37
All classes	35	35	35

Source: SSPS data from schools.

Table A2.3 Stipend recipients and average stipend payments, 2004

	GPS	RNGPS	Total
Eligible stipend holders as a proportion of total unsuspended stipend holders			
Jan-Mar 2004	96	98	97
Apr-Jun 2004	95	94	94
Jul-Sep 2004	94	94	94
Oct-Dec 2004	93	94	93
Average for 2004 (all quarters)	94	95	95
Average quarterly payment per stipend holder (Tk)			
Jan-Mar 2004	248	257	251
Apr-Jun 2004	252	268	258
Jul-Sep 2004	269	277	272
Oct-Dec 2004	273	284	277
Average for 2004 (all quarters)	260	271	264

Source: SSPS data from schools.

Table A2.4   Socioeconomic status of class 5 students using national quintiles

Consumption quintile	Stipend card holders			Non-stipend card holders			Primary school population
	GPS	RNGPS	Total	GPS	RNGPS	Total	
Bottom quintile	15	21	17	14	16	14	14
Lower middle quintile	23	25	24	25	12	22	21
Middle quintile	32	28	31	21	30	23	25
Upper middle quintile	19	21	20	25	30	27	25
Top quintile	10	5	9	15	11	14	16
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: SSPS data from sampled Class 5 households. Note: quintiles are based on national consumption/expenditure distribution (see Annex 3). The final column of the table shows the proportion of households with primary school children attending GPS and RNGPS schools by national consumption/expenditure quintiles.

A2.5 CHAPTER 7

Bangla and mathematics key competencies

The primary school curriculum in Bangladesh specifies key terminal competencies that students should be expected to have developed by the end of primary school. For Bangla a student is expected to have acquired the following key competencies:

- to *read* printed and hand-written materials in easy Bangla;

- to *write* in plain Bangla his/her own observations, a simple letter and fill in various forms;

- to *talk* in correct colloquial Bangla, to express thoughts and feelings effectively; and

- to *listen* to conversations, speeches and descriptions, and comprehend main theme.

For mathematics the competencies that a student is expected to have developed comprise having a firm grasp of:

- basic *numbers*;

- the four *basic operations* of arithmetic;

- *problem solving* in day-to-day life;

- *measurement units* (money, length, weight and time); and

- *geometric figures*.

A2.6 CHAPTER 8

Table A2.6 Timing of final delivery of textbooks at district and upazila levels

	GPS and RNGPS	AEM
Month of receipt of final delivery from NCTB at district level		
November	0	8
December	8	0
January	86	62
February	6	15
March	0	2
April	0	2
June	0	10
Month of receipt of final delivery from district at upazila level		
November	1	0
December	3	0
January	47	28
February	29	62
March	17	5
April	2	5
Average number of days between district and upazilas receiving first delivery	50	n/a
Average number of days between district and upazila receiving final delivery	20	n/a

Source: SSPS data from upazilas. Note: For GPSs and RNGPSs months refer to 2004 and 2005 whereas for AEMs months refer to 2003 and 2004. The final two rows of the table show the average number of days between upazilas receiving their first/final delivery of new textbooks from DEO offices and schools/madrasahs receiving their first delivery from upazilas.

A2.7 CHAPTER 12

Table A2.7 Determinants of student learning achievement in GPSs

	Bangla		mathematics	
	student	school	student	school
mother has primary education or more (1= yes; 0=no)	2.86	0.64	2.45	0.21
	3.57	*3.64*	*2.82*	*2.52*
student's age (years)	0.04	-0.91	-1.15	-1.50
	1.27	*1.36*	*1.04*	*0.93*
student's gender (1=male; 0=female)	-4.51 *	-4.45	2.73	2.50
	2.72	*2.77*	*1.76*	*1.80*
score on ravens' test (sections a to c)	2.12 ***	2.02 ***	0.59	0.48
	0.22	*0.24*	*0.37*	*0.31*
real per capita household expenditure at 2000 prices (Tk; log)	3.25	3.92	5.58	5.31
	4.05	*4.18*	*3.49*	*3.66*
stipend holder or not (1=yes; 0=no)	-1.96	-1.93	-1.02	-1.79
	3.11	*3.30*	*2.29*	*2.28*
student attendance rate february-april (%)	0.24 **	0.21 **	0.19 **	0.18 **
	0.12	*0.09*	*0.09*	*0.07*
household expenditure on education of student (Tk; log)	2.40	2.04	3.48 **	4.96 ***
	1.56	*1.58*	*1.66*	*1.74*
number of months of private tuition taken per year	0.62 *	0.61 *	0.25	0.03
	0.35	*0.35*	*0.30*	*0.26*
student attended preschool or not (1=yes; 0=no)	-6.82 **	-7.18 ***	-5.35 **	-6.97 ***
	2.89	*2.53*	*2.62*	*2.43*
distance from school to UEO office (km)		0.34 **		0.18
		0.16		*0.20*
school income per student (Tk; log)		4.71		14.03 **
		5.89		*5.81*
teachers in school who attended in-service training in past year (%)		0.10 **		0.02
		0.04		*0.04*
mean distance teachers live from school (km)		0.39		0.33
		0.26		*0.33*
teachers in school with a professional qualification (%)		-0.12 **		-0.14 *
		0.05		*0.08*
teachers in school with degree or higher (%)		0.10 *		0.17 ***
		0.06		*0.06*
mean years since joining first school of teachers in school (years)		0.20		0.16
		0.29		*0.35*
sections taught in classrooms in a good state of repair (%)		0.04		0.01
		0.04		*0.04*
school has drinkable water and electricity (1=yes; 0=no)		4.35		0.65
		3.16		*2.96*

	Bangla		mathematics	
	student	**school**	**student**	**school**
number of times AUEO visited the school in 2004		-0.37		-0.46
		0.38		*0.46*
number of PTA meetings in last 6 months		-0.41		0.75
		0.89		*0.74*
school income from private sources (%)		1.38		0.46
		1.06		*0.96*
number of months in current school of headteacher		-0.01		-0.01
		0.01		*0.01*
mean timetabled lesson time per year for all sections (hours)		0.03 ***		0.02
		0.01		*0.01*
mean section size per school		0.08		0.09
		0.09		*0.10*
sections taught in classrooms with student work on the walls (%)		-0.04		0.03
		0.03		*0.05*
selection term	2.85	7.71	7.60	10.09
	6.82	*7.19*	*7.80*	*6.86*
Constant		-81.47		-161.52 ***
		49.90		*51.49*
Observations		353		353
R-squared		0.39		0.30

Source: SSPS data from households and schools. Notes: (1) Robust standard errors adjusted for heteroscedasticity due to school-level clustering of the data are in italics under the estimated coefficients. (2) One asterisk denotes statistical significance at 10%, two asterisks at 5% and three asterisks at 1%. (3) Sample weights are used in estimation.

Table A2.8   Determinants of student learning achievement in RNGPSs

	Bangla			mathematics			
	student		school		student		school
mother has primary education or more (1= yes; 0=no)	4.96		5.70	*	-5.28	***	-2.66	
	3.22		*3.11*		*1.82*		*1.90*	
student's age (years)	1.32		1.29		-1.05		-0.43	
	2.21		*2.43*		*1.22*		*1.18*	
student's gender (1=male; 0=female)	4.59		3.91		1.68		4.07	*
	3.25		*2.99*		*2.37*		*2.35*	
score on ravens' test (sections a to c)	1.56	***	1.33	***	0.84	***	0.73	***
	0.37		*0.39*		*0.27*		*0.26*	
real per capita household expenditure at 2000 prices (Tk; log)	3.71		1.79		-0.39		0.42	
	4.46		*3.83*		*3.50*		*3.22*	
stipend holder or not (1=yes; 0=no)	-1.52		-0.02		-3.04		-0.57	
	3.95		*3.47*		*2.37*		*2.17*	
student attendance rate february-april (%)	0.47	***	0.41	**	0.22		0.18	
	0.17		*0.16*		*0.15*		*0.14*	
household expenditure on education of student (Tk; log)	4.27		4.24		6.05	***	5.30	***
	2.64		*2.69*		*1.97*		*1.98*	
number of months of private tuition taken per year	-0.47		-0.22		-0.40		-0.07	
	0.47		*0.49*		*0.35*		*0.34*	
student attended preschool or not (1=yes; 0=no)	4.41		5.57	*	-0.58		1.12	
	3.36		*3.01*		*2.44*		*2.03*	
distance from school to UEO office (km)			-0.02				0.35	***
			0.17				*0.11*	
school income per student (Tk; log)			-15.44	**			-22.23	***
			6.98				*6.23*	
teachers in school who attended in-service training in past year (%)			0.06				0.08	**
			0.05				*0.03*	
mean distance teachers live from school (km)			0.27				-0.08	
			0.67				*0.55*	
teachers in school with a professional qualification (%)			0.08				0.22	***
			0.07				*0.05*	
teachers in school with degree or higher (%)			0.14				0.00	
			0.10				*0.06*	
mean years since joining first school of teachers in school (years)			1.83	***			1.07	**
			0.71				*0.52*	
sections taught in classrooms in a good state of repair (%)			-0.04				-0.09	
			0.08				*0.07*	
school has drinkable water and electricity (1=yes; 0=no)			-0.43				-2.26	
			3.19				*2.55*	
number of times AUEO visited the school in 2004			-0.64				-2.23	***
			0.84				*0.47*	
number of PTA meetings in last 6 months			0.70				-0.79	

	Bangla		mathematics	
	student	school	student	school
		1.26		*1.02*
school income from private sources (%)		0.61 **		0.56 ***
		0.27		*0.20*
number of months in current school of headteacher		-0.09 **		-0.05
		0.04		*0.03*
mean timetabled lesson time per year for all sections (hours)		0.01		-0.01
		0.03		*0.02*
mean section size per school		-0.30 *		-0.41 ***
		0.17		*0.12*
sections taught in classrooms with student work on the walls (%)		0.13 ***		0.01
		0.04		*0.05*
selection term	17.49	17.81 ***	6.04	10.88 **
	5.11	*6.25*	*3.96*	*4.68*
Constant		4.23		109.91 *
		68.94		*57.27*
Observations		332		332
R-squared		0.34		0.28

Source: SSPS data from households and schools. Notes: (1) Robust standard errors adjusted for heteroscedasticity due to school-level clustering of the data are in italics under the estimated coefficients. (2) One asterisk denotes statistical significance at 10%, two asterisks at 5% and three asterisks at 1%. (3) Sample weights are used in estimation. (4) For mathematics, the null hypothesis that the school selection terms are un-related to achievement is rejected at the 5% level.

Table A2.9   Determinants of students' learning achievement in AEMs

	Bangla		mathematics	
	student	school	student	school
mother has primary education or more (1= yes; 0=no)	-3.90	0.64	1.25	1.88
	3.88	*3.67*	*3.11*	*2.90*
student's age (years)	0.02	1.47	-1.66	-1.01
	2.29	*2.54*	*1.15*	*1.14*
student's gender (1=male; 0=female)	3.34	-0.93	8.74 ***	6.70 **
	4.23	*4.09*	*3.28*	*3.26*
score on ravens' test (sections a to c)	0.89 **	0.83 *	1.01 ***	0.89 ***
	0.39	*0.46*	*0.21*	*0.21*
real per capita household expenditure at 2000 prices (Tk; log)	12.76	8.05	0.15	-1.84
	9.41	*9.01*	*3.86*	*3.39*
student attendance rate february-april (%)	0.18	0.03	0.25 **	0.22 *
	0.22	*0.24*	*0.11*	*0.12*
household expenditure on education of student (Tk; log)	-11.94	-8.02	-5.99 *	-4.59 *
	7.79	*5.90*	*3.48*	*2.52*
number of months of private tuition taken per year	2.10 *	1.54	1.04 **	0.72 *
	1.15	*0.94*	*0.45*	*0.41*
student attended preschool or not (1=yes; 0=no)	-4.13	-7.20	3.20	-1.67
	4.47	*4.38*	*3.00*	*2.60*
distance from school to upazila project office (km)		-0.42 *		-0.16
		0.23		*0.21*
school income per student (Tk; log)		-4.07		-5.19
		6.76		*6.65*
teachers in school with degree or higher (%)		-0.22 **		-0.20 **
		0.11		*0.09*
mean years since joining first school of teachers in school (years)		-1.17 **		-0.48
		0.57		*0.52*
sections taught in classrooms in a good state of repair (%)		0.04		0.14 **
		0.07		*0.05*
school has drinkable water and electricity (1=yes; 0=no)		11.18 ***		2.70
		3.72		*2.60*
number of PTA meetings in last 6 months		-1.37		0.76
		1.44		*1.36*
school income from private sources (%)		-0.23		-0.26 *
		0.22		*0.14*
number of months in current school of headteacher		-0.01		0.00
		0.03		*0.02*
mean timetabled lesson time per year for all sections (hours)		0.02		0.02
		0.02		*0.02*
mean section size per school		0.00		-0.10
		0.30		*0.25*
selection term	-1.15	2.32	-5.72	-3.72

	Bangla		mathematics	
	student	**school**	**student**	**school**
	9.54	*10.12*	*4.46*	*4.31*
Constant		77.75		118.57 **
		81.25		*58.29*
Observations		217		217
R-squared		0.28		0.36

Source: SSPS data from households and schools. Notes: (1) Robust standard errors adjusted for heteroscedasticity due to school-level clustering of the data are in italics under the estimated coefficients. (2) One asterisk denotes statistical significance at 10%, two asterisks at 5% and three asterisks at 1%. (3) Sample weights are used in estimation.

Table A2.10 Student selection into the three different types of schools

	RNGPS		AEM	
mother has primary education or more (1= yes; 0=no)	0.26		0.45	
	0.24		*0.33*	
student's age (years)	0.22	*	0.45	***
	0.11		*0.12*	
student's gender (1=male; 0=female)	0.25		0.03	
	0.24		*0.41*	
score on ravens' test (sections a to c)	-0.02		0.02	
	0.03		*0.03*	
real per capita household expenditure at 2000 prices (Tk; log)	-0.35		1.00	**
	0.40		*0.46*	
student attendance rate february-april (%)	0.01		-0.05	***
	0.01		*0.01*	
household expenditure on education of student (Tk; log)	-0.19		-1.16	***
	0.18		*0.27*	
number of months of private tuition taken per year	-0.01		0.09	***
	0.03		*0.04*	
student attended preschool or not (1=yes; 0=no)	-0.01		-0.06	
	0.31		*0.40*	
household size	-0.15	**	-0.16	**
	0.08		*0.08*	
number of rooms in household	0.21	*	0.33	
	0.13		*0.21*	
number of household member currently enrolled in education	0.05		0.38	***
	0.08		*0.09*	
household has electricity or not (1=yes; 0=no)	-1.13	***	-0.69	*
	0.32		*0.38*	
student works or not (1=yes; 0=no)	-0.50	*	-0.09	
	0.27		*0.37*	
Constant	0.27		-3.23	
	3.08		*3.08*	
Observations		902		
Pseudo R-squared		0.11		

Source: SSPS data from households. Note: (1) The table reports the results of a multinomial logit regression. (2) Small-Hsiao test of independence of irrelevant alternatives: (i) eliminating GPS: 18.3; (ii) eliminating RNGPS: 11.9; (iii) eliminating AEM: 18.8.

Table A2.11 Descriptive statistics

Test score model variables	GPS		RNGPS		AEM	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Bangla test score (%)	63.4	23.4	57.0	23.4	58.8	24.9
mathematics test score (%)	39.3	18.2	36.6	16.4	38.9	18.5
mother has primary education or more (1= yes; 0=no)	0.3		0.3		0.3	
student's age (years)	10.9	1.0	11.1	1.2	11.5	1.5
student's gender (1=male; 0=female)	0.5		0.5		0.4	
score on ravens' test (sections a to c)	11.6	4.9	11.0	4.1	11.0	5.1
real per capita household expenditure at 2000 prices (Tk; log)	6.6	0.4	6.6	0.3	6.7	0.4
stipend holder or not (1=yes; 0=no)	0.4		0.5			
student attendance rate february-april (%)	86.3	14.6	88.0	10.2	72.4	18.3
household expenditure on education of student (Tk; log)	7.2	0.8	7.0	0.7	6.7	0.8
number of months of private tuition taken per year	3.4	4.1	3.0	3.7	3.1	4.5
student attended preschool or not (1=yes; 0=no)	0.5		0.5		0.4	
distance from school to upazila (km)	11.4	6.9	13.4	10.9	13.7	8.4
school income per student (Tk; log)	7.2	0.4	6.4	0.4	7.2	0.4
teachers in school who attended in-service training in past year (%)	87.2	27.1	81.2	37.0		
mean distance teachers live from school (km)	4.6	3.8	2.1	2.2		
teachers in school with a professional qualification (%)	81.3	21.3	78.9	26.0		
teachers in school with degree or higher (%)	44.2	22.9	19.5	20.8	65.2	16.6
mean years since joining first school of teachers in school (years)	16.7	5.1	15.9	4.9	13.6	3.8
sections taught in classrooms in a good state of repair (%)	87.3	30.0	98.1	13.2	12.0	27.2
school has drinkable water and electricity (1=yes; 0=no)	0.3				0.4	
school has drinkable water or not (1=yes; 0=no)			0.7			
number of times AUEO visited the school in 2004	3.1	2.1	2.4	1.8		
number of PTA meetings in last 6 months	1.4	1.3	1.2	1.2	0.6	1.3
school income from private sources (%)	2.1	1.5	4.2	4.3	17.1	12.3
number of months in current school of headteacher	96.8	89.4	215.0	69.4	179.2	105.4
mean timetabled lesson time per year for all sections (hours)	708.9	139.2	659.7	56.0	844.5	89.7
mean section size per school	53.3	22.2	42.4	17.3	39.3	14.2
sections taught in classrooms with student work on the walls (%)	19.0	35.0	11.8	28.9	0.6	3.4

Source: SSPS data from schools and households. Note: SD means standard deviation.

Annex 3   Assessing the socioeconomic status of service users

The survey aimed to assess the socioeconomic status of primary education service users and how it related to the welfare of the entire population in Bangladesh. In order to understand whether primary education service users are poor or wealthy on a national scale, it is necessary to compare their position relative to the national distribution of basic background variables (such as parental education and housing features) and the level of household consumption (which is used to measure income poverty). The SSPS collected data only from the households of users of primary education services.

The households of students attending GPSs and RNGPSs were surveyed between April and July 2005. However, the households of AEM students were interviewed as part of the secondary education survey in 2004. The data has been amalgamated, with the necessary adjustments to ensure comparability across GPS/RNGPS and AEM students.

The most recent nationally representative survey for which data was available, which also collected information on users of primary education services, is the 2000 HIES[102]. According to the HIES, 22.2 % of households have children attending government primary schools (government or government subsidised, including RNGPSs and AEMs). The following figure shows the density distribution of household consumption according to the HIES in urban and rural areas.

Figure A3.1   **Household consumption of primary education users**
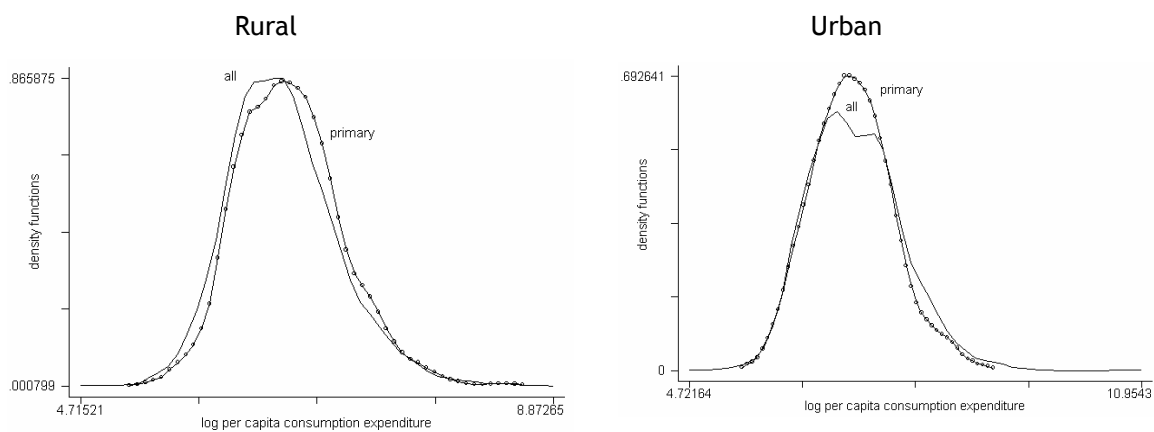
Source: HIES.

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[102] There has since been another HIES in 2004. However, the dataset was not available for analysis.

Every effort was made to maximise the comparability of the data collected in the SSPS with those of the HIES. The HIES questionnaire and data were consulted to ensure that, wherever possible, the SSPS questionnaires collected information on various socioeconomic variables and household consumption in a similar format to the HIES.

Two approaches were followed to assess and compare the socioeconomic status of students. First, the households of a sample of class 5 students were interviewed and asked questions about their consumption expenditure levels. Second, all students who took the test were asked to report on basic characteristics of their households, such as the education of their parents, characteristics of their house (e.g. electricity connection. source of water etc.) and the ownership of selected consumer goods and land.

A3.1 DIRECT MEASUREMENT OF CONSUMPTION EXPENDITURE

It is possible to compute a comparable measure of household consumption if one asks the same consumption-related questions as those in the HIES. Given that the respondent has to be a household member more knowledgeable than the student and given that the cost of visiting all households would be prohibitive, a subsample of class 5 students was selected and their residences were visited. For each sampled household enumerators administered a comprehensive household questionnaire, including a consumption module based on the HIES consumption module, which, after aggregations and exclusions, was reduced to a list of fewer than 60 of the most important expenditure items. In total information on consumption expenditure was collected for 1,760 households. By contrast, the HIES interviewed 1,360 households with children enrolled in class 5.

The extent to which SSPS data are comparable with those of the HIES had to be tested by comparing the consumption patterns and levels in the two surveys. For each household a consumption measure was calculated, containing standard components (food, housing, education, health and other non-food expenditure) that are also found in the HIES. Some lumpy and infrequent expenditure items were excluded, while consumption flows from durable items could not be estimated. All expenditure was expressed in monthly and *per capita* terms.

Table A3.1 shows that the average household consumption shares according to the HIES and the SSPS are very similar. The average monthly *per capita* consumption expenditure was estimated at Tk 814 according to the HIES and Tk 1,031 according to the SSPS[103]. After taking into account inflation the consumption levels of the two surveys are comparable.

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[103] In order to calculate nominal per capita 2005 monthly household expenditure the 2004 AEM students' households' expenditure was adjusted using estimated inflation between 2004 and 2005 (6.9%).

Table A3.1   Mean household consumption expenditure shares (%)

	HIES (2000)	SSPS (2005)		HIES (2000)	SSPS (2005)
Food grains	23.0	25.0	Cosmetics	1.8	1.5
Pulses	1.7	2.0	Washing	1.4	1.6
Fish	7.3	7.1	Transport	4.6	3.4
Eggs	0.8	1.2	Clothes	5.5	3.9
Meat	4.0	4.9	Cloth	0.5	0.6
Vegetables	5.2	5.3	Footwear	0.9	0.8
Milk and dairy	2.0	2.5	Textiles	0.7	0.5
Oils and fats	2.0	2.9	Rent	9.0	7.4
Fruit	1.6	4.7	Health (male)	1.4	2.2
Sugar and molasses	0.9	1.1	Health (female)	1.5	2.2
Spices	4.0	2.9	Education (male)	3.5	1.8
Miscellaneous food	0.6	0.5	Education (female)	2.9	1.5
Eating out	2.1	1.1	Recreation	0.2	0.1
Tobacco	2.9	1.8	Other	1.5	1.7
Fuel and lighting	6.7	7.6	**Total**	**100**	**100**

Source: HIES (2000) and SSPS household data. Notes: (1) The SSPS mean budget shares were calculated including data for AEM households which actually relate to 2004.

Judging from these results, the SSPS consumption module has been successful in capturing household consumption, despite the fact that it was considerably shorter. However, these are only average figures. In order to understand the socioeconomic status of primary education users it is necessary to see what their distribution is relative to the national distribution.

The key cut-off points in the national distribution (for instance the quintile cut-off points that divide the population in five groups of same population size ranked according to their socioeconomic status) were calculated using the HIES data. However, since the HIES was conducted in 2000, it is also important to understand whether the national distribution may have changed in the five years that separate the two surveys. It is essential to be aware of three potentially important factors:

The effect of economic growth between 2000 and 2005

Between 2000 and 2004 GDP growth at constant prices was 22%, which is substantial in *per capita* terms even allowing for population growth of 7% over the same period[104]. It would be incorrect to assume that GDP growth fully translates into household consumption growth. Indeed, household survey data suggest that the two tend to grow at different rates. Between 1995-96 and 2000, according to national accounts, GDP *per capita* grew nominally by 37% and private consumption increased by 31%. According to household budget survey data, nominal *per capita* consumption grew by 15% and real *per capita* consumption grew only by 3% over

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[104] An estimate of the GDP growth rate between 2004 and 2005 was extrapolated from the 2000-2004 data.

the same period. In order to assess the likely impact of economic growth on consumption expenditure between 2000 and 2005, a poverty projections toolkit designed by the World Bank was used. The assumption behind the model used for these projections is that consumption changes are driven by sector performance, considering also the level of inequality prevalent in each sector as estimated from household survey data. The results suggest an 8% increase of real *per capita* consumption between 2000 and 2005. Assuming that there were no changes in the level of inequality the tercile and quintile cut-off points computed in the 2000 HIES can all be increased by the same proportion in order to assess each sampled household's socioeconomic status relative to the rest of population.

Regional price differences and inflation

Before computing the tercile and quintile cut-off points it is important to correct nominal consumption for price differences across the country. Using information on budget shares and prices from the two surveys, a Paasche price index was computed. Regional price differences in 2000 and 2005 were very similar. It is also important to correct consumption for inflation between 2000 and 2005. Price differences between the two surveys (using the official monthly consumer price index) and a survey-based Tornqvist index for inflation were calculated. The two estimates produced similar results: according to the official Consumer Price Index (CPI) prices increased by 28.9%, while according to survey based estimates the increase was 25.5%[105].

To summarise, in order to assess the socioeconomic status levels of users of primary education services, the following steps were undertaken:

- quintile cut-off points were computed—and adjusted upwards by 8% to account for the effect of economic growth since 2000;

- the 2000 and 2005 *per capita* consumption expenditure levels were corrected for regional price differences; and

- the 2005 real *per capita* expenditure was expressed in 2000 prices using the SSPS-based inflation estimate.

The final step is to analyse the proportion of users that fall in each of the five quintiles. Figure A3.2 depicts the HIES and SSPS distribution of users across the five quintiles of the national consumption distribution. Since the data appear reliable, they are used in the analysis to compare various measures according to household consumption levels.

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[105] For AEM households, inflation between 2004 and 2004 was estimated as 20.5%, compared to official CPI inflation of 20.7%.

Figure A3.2 Consumption distribution of primary school users across national income quintiles
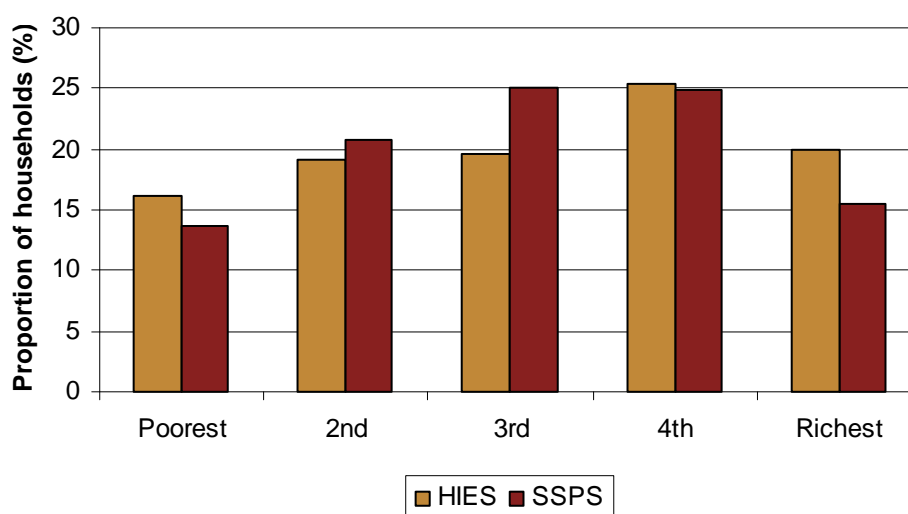
Source: HIES (2000) and SSPS data from households. Notes: (1) National income quintile cut-offs based on estimates from HIES (2000). For the SSPS distribution these have been adjusted to account for economic growth between 2000 and 2005.

A3.2 PREDICTORS OF CONSUMPTION EXPENDITURE

Using evidence from the HIES it is possible to identify household characteristics that are highly correlated with the consumption level for those households with at least one child in primary education. A set of questions related to a selection of these variables was administered to all class 5 students present at the SSPS test in order to predict the consumption of all their households, not just those that were subsequently sampled for the household survey. The questions focused on those characteristics about which the students themselves were likely to be able to answer comfortably (e.g. literacy of parents, or ownership of a television / refrigerator / bicycle). In total, information on background characteristics correlated with consumption was collected for 4,536 class 5 students.

The extent to which the further use of student responses on consumption predictors was valid was tested in two ways. First, their distribution was compared with the corresponding distribution from the HIES. Second, their distribution was compared with the responses given by their own household respondents in the subsample of those households that were interviewed.

While both the mean and the distribution of the key socioeconomic variables were broadly similar in the HIES and the SSPS household survey, the same background characteristics collected from the students display substantially different values. Class 5 student responses differ from those of their parents or guardians. For example, students were more likely to report that their household owned certain assets, such as a refrigerator or a bicycle. The differences are of such a magnitude that it would not be appropriate to use the relationship established in the HIES data to predict consumption levels in the SSPS survey for the full set of class 5 students. Table A3.2 presents selected examples of these divergences, which verify that students distorted the real socioeconomic status of their households. For example, students were significantly more likely to report that their mother was literate (61.8%) than

the mother herself (40.8%). This finding casts doubt on past attempts by other researchers to rely on student responses to act as proxy for the socioeconomic conditions of their households.

Table A3.2 Comparison of socioeconomic characteristics between HIES and SSPS

	HIES (households with children in class 5)	SSPS, interviewed households (direct consumption method)			SSPS, all tested students (predictors)
		All	Attending	Non-attending	
Households:					
below lower poverty line (%)	30.8	23.7	20.3	29.5	19.3[1]
below upper poverty line (%)	46.5	42.8	39.9	47.9	38.0[1]
Median household size	6	6	6	6	6
Houses:					
with electricity connection (%)	36.0	40.4	41.8	37.8	51.9
with flush (water sealed) toilet (%)	-	3.0	3.0	3.1	1.5
with brick/cement walls (%)	18.2	18.1	18.0	18.2	22.5
with cement roof (%)	7.0	6.3	6.3	6.5	10.2
Students:					
whose fathers are literate (%)	54.3	47.4	48.6	45.2	65.2
whose mothers are literate (%)	37.2	38.5	40.8	34.3	61.8
Households which own:					
land (%)	50.6	55.7	56.5	54.2	67.1
watch (%)	55.7	67.5	68.4	65.9	74.7
radio (%)	30.2	34.1	35.7	31.1	52.1

Source: HIES (2000) and SSPS data from households and tested students. Note: (1) The proportion of tested students households that are below the poverty line is a prediction based upon econometric analysis linking household expenditure with the background information provided by each tested student.

On the other hand, it is possible to use regression analysis to link consumption expenditure measured in the SSPS with the background characteristics collected from all the class 5 students. The explanatory power of this model is lower than similar models using the HIES data. This supports the hypothesis that the students often did not report their household background characteristics correctly. However, as the error term of the model is normally distributed, it is still possible to estimate the socioeconomic status indicators of the tested students[106].

The final figure shows the estimated probability for the population of tested class 5 students to belong in each of the respective national consumption terciles. Primary school students appear slightly better off than the results from the analysis of the direct consumption expenditure measure have suggested. An explanation for this difference is the fact that the

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[106] The normality of residuals was tested with the skewness-kurtosis test and looking at the main percentiles of the error term compared to those of a normal distribution.

interviewed households (which produced the direct consumption measure) are more likely to be poorer than the households of tested students (from which the predicted consumption levels has been calculated), since the latter are drawn only from students attending on the day of the test and there is a weak positive relationship between attendance and socioeconomic status.

Figure A3.3 Consumption distribution of primary school users, actual vs. predicted
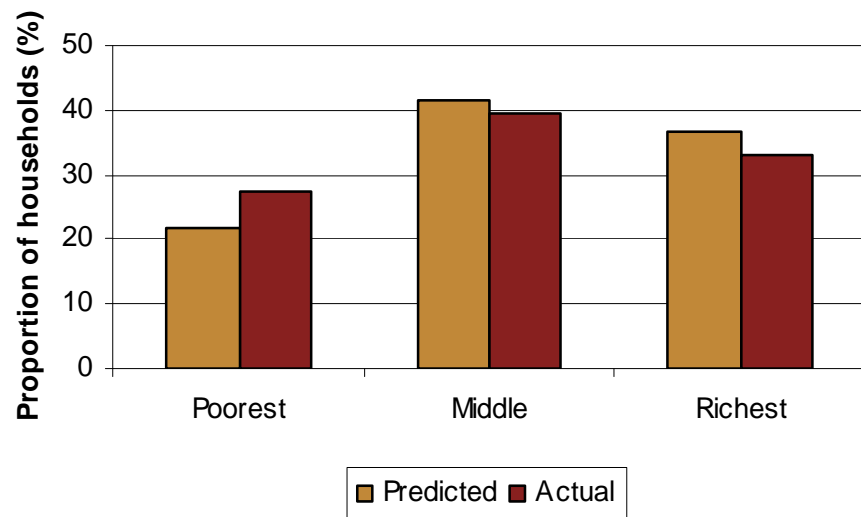
Source: HIES (2000) and SSPS data from households and tested students.

Annex 4   Learning achievement model methodology

The analysis presented in chapter 12 estimated the determinants of student learning achievement in the sampled primary schools, defined as the score in the SSPS Bangla and mathematics tests. This annex describes the main aspects of the econometric methodology used.

The analysis of the tests was complicated by the necessity to control for the non-random assignment of students to different types of schools, which may bias the estimated coefficients for the factors explaining student achievement on the tests. In order to address this problem, a generalised approach of the Heckman two-step procedure to selectivity bias correction was used[107]. The procedure utilises estimates from a multinomial logit model rather than a probit to construct the set of selection correction terms. At first, a reduced form multinomial logit is estimated for the j=1, 2, 3 categories to obtain the parameter estimates g_j. The predicted probabilities for each individual i = 1, ..., N for each category j are computed and defined as P_{ij} (the probability that the ith student chooses the jth school type). The standardised z values for each individual for each category using the inverse standard normal operator are then computed.

Thus: $z_{i1} = \Phi^{-1}(P_{i1})$, $z_{i2} = \Phi^{-1}(P_{i2})$, and $z_{i3} = \Phi^{-1}(P_{i3})$ for all i = 1, …, N.

Finally, for each category j, the following correction term is constructed:

$$\lambda_{ij} = \frac{\phi(z_{ij})}{P_{ij}} \quad \text{for i = 1, 2, …, N and j = 1, 2, 3}$$

where $\Phi(\bullet)$ denotes the standard normal distribution function and $\phi(\bullet)$ denotes the standard normal density function.

These selection terms are then added to the x_i vector in the regression models, estimated separately for each school type, to provide a measure of the bias due to non-random sample selection. A number of instruments have been used to assist in identification of the parameters of the selection effects. These need to be able to shift the probability of school choice but not the level of achievement on the Bangla and mathematics test scores.[108] In order for this procedure to be valid, the Independence of Irrelevant Alternatives (IIA) assumption of the multinomial logit has to be satisfied. Tests of the IIA assumption based on the Small-Hsiao tests are reported in A2.7 and provide evidence that the IIA assumption is not violated[109].

A further estimation issue concerning the achievement equations is the clustered nature of the data. Achievement of students within the same school will be more homogenous than achievement of students in a different school. This implies that the residuals from the estimation of a performance equation will be correlated for students within the same school.

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[107] The generalised model is described in Lee (1983). The model outlining the original two-step procedure is in Heckman (1979). For an education application of Lee's approach, see Lassibille and Tan (2001).

[108] Note, however, that for one of the six regressions (RNGPS, maths), the null hypothesis that the instruments are un-related to achievement is rejected at the 5% level.

[109] The test is described in Small and Hsiao (1985).

The error term in any achievement equation violates two important assumptions of ordinary least squares (OLS) estimation: homoscedasticity and independent error terms. If these assumptions are violated, then the OLS estimated variance-covariance matrix is incorrect and inferences based on the estimated coefficients will also be incorrect. To address this issue the variance-covariance matrix is corrected to account for the differing error structure[110]. The estimated standard errors are robust to the presence of heteroscedasticity[111].

Finally, sample weights are used in the regression analysis for estimated coefficients as the regression analysis is used as a device to summarise the characteristics of the population. As the equations being estimated are reduced-form and the regressions are descriptive rather than structural, the justification for using weights is no different to the justification for using weights to calculate means and other summary statistics from representative sample data.

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[110] See White (1980).
[111] It should be noted that no adjustment to the variance-covariance matrix is made to account for the inclusion of the predicted selection terms.

Annex 5   Teacher profile and student tests

A5.1 TEACHER PROFILE QUESTIONS

Note that a Bangla version of these questions was given to the teachers.

1) In a class, 60% of the students need a new textbook. What proportion of students need a new textbook?

A. 10/ 6
B. 3/5
C. 6/100
D. 6/ 9

2) The total cost of a school field trip will be Tk.3.25 for students who bring their own lunch and Tk5.25 for those who want lunch provided. If 16 students want lunch provided and 18 bring their own lunch, what is the total cost of the school field trip?

A. Tk 58.50
B. Tk 84.00
C. Tk 142.50
D. Tk. 289.00

3) A class plans to paint a quarter of a wall that measures 3 metres by 24 metres. How many square metres will they paint?

A. 14
B. 18
C. 56
D. 72

4) Which unit of measurement is most appropriate for expressing the amount of liquid in a test tube?

A. Millilitre
B. Square centimetres
C. Millimetre
D. Kilogram

5) A student writes 6 tests each worth 20 marks. Her scores were 10,12,15,7,6 and 4. What is her average (mean) score?

A) 5
B) 7
C) 9
D) 11

6) 700 students in the school voted for a colour in which to paint the school gate. The results are shown in the pie chart below. How many students voted for a red gate?
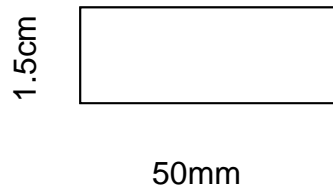
A) 106
B) 126
C) 176
D) 216

7) You have set class 5 students the following problem: 'Three shapes have the same perimeter. One has a different perimeter from the others'. Which one is it?
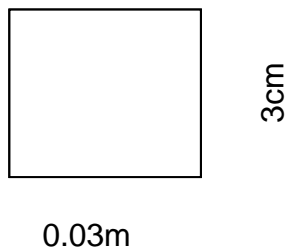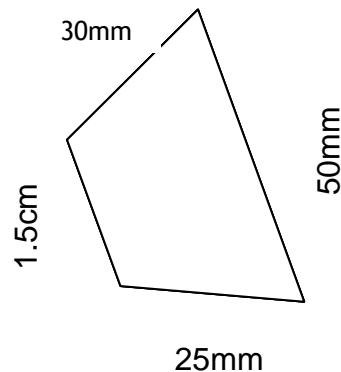
A)

4cm

B)

1.5cm

50mm

C)

3cm

0.03m

D)

30mm

1.5cm

50mm

25mm
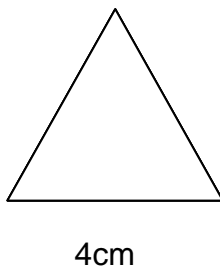
Read the passage below; then answer the four questions that follow.

Lkhaon Khaol, the popular masked theater of Cambodia, revolves around the story of *Ramayana*. In this epic drama, the main character is called Rama, devoted husband to the beautiful Sita. The main plot involves Sita's <u>abduction</u> by Ravana, a demon-king, and Sita's heroic rescue by Rama.

In the masked theater, all roles are played by men. Traditionally, men accepted into a masked theater troupe perform with that troupe for the rest of their lives, perfecting their roles and enjoying the admiration and respect of the community. Most performers join the troupe as young boys, initially acting as members of Rama's court. The most promising performers advance to the more exacting roles of warriors and giants. Only a youth who shows special dancing ability, however, may be selected to study the role of Ravana. This role has gestures quite different from those of other characters and can be learned only after mastering a subordinate role. Over time, members of the troupe might perform in a variety of roles, but it is more common for the same man to perform the same character for many years.

Masked theater disappeared during the Cambodian civil war of the 1970s and 1980s but is being reestablished today with the help of the few surviving members of prewar troupes.

8) According to information presented in the passage, the role of Ravana is played only by performers who:

    A. began to perform at an early age.
    B. have special dancing skills.
    C. can play a variety of roles.
    D. have never performed as warriors or giants.
    E. are older and more experienced.

9) Which of the following inferences may be drawn from information presented in the passage?

    A. Women participate in backstage work at masked theater performances.
    B. Today, there are more masked theaters in Cambodia than there were before the Cambodian civil war.
    C. Advancement in the masked theaters is based on skill and experience.
    D. The texts for masked theater productions have never been written down.
    E. After the Cambodian civil war, there was little interest in restoring Cambodian cultural traditions.

10) Which of the following is the best meaning of the word <u>abduction</u> as it is used in the first paragraph of the passage?

    A. arrest
    B. kidnapping
    C. recapture
    D. rejection
    E. murder

11) Non-verbal reasoning
12) Non-verbal reasoning
13) Non-verbal reasoning
14) Non-verbal reasoning

A5.2 BANGLA AND MATHEMATICS TESTS FOR CLASS 5

Bangla test

Read the passage attentively and answer the following three questions.

> Bees moves from flower to flower. They collect honey from flowers. They save the honey in the bee-hive. Bees work together to build a hive. They work hard for the whole day. They are very industrious.

1. What is the above passage about?

- (a) Honey (b) Bee (c) Bee-hive (d) Flower

2 . How do bees work?

- (a) Together (b) Sitting (c) Individually (d) Flying

3. Where do bees keep honey?

- (a) In flowers (b) In bowls (c) In the hive (d) In bottles

Read the stanza of the poem attentively and answer the following question.

> I feel like going to
> The other bank of the river
> Where passenger boats are tied
> To bamboo poles in rows.

4. What are there tied in rows on the other bank of the river?

   - (a) Sailing boats   (b) Passenger boats   (c) Fishing boats   (d) Ferry boats

Answer the following questions in the answer script.

5. Which is the correct word?

   - (a) Mansoon (b) Monson (c) Monsoon (d) Munsoon.

6. Which of the sentences uses a comma?

   - (a) Do you eat?   (b) What foods do you eat?   (c) I eat rice and fish.   (d) Abu eats rice, fish and meat.

7. Which of the sentences should use a question mark?

   - (a) Is the boy playing   (b) The bird is flying in the sky   (c) Oh! flowers have blossomed   (d) I am reading a book now, please come later

8. 'There are many flowers in the garden. They are very _____ . ' Which word would be appropriate in the blank space?

   - (a) Sweet   (b) Wonderful   (c) Beautiful   (d) Fragrance

9. Which of the following sentences has the words in right order?

   - (a) Palm-cake very delicious is to eat.   (b) Palm-cake is very delicious to eat.   (c) Palm-cake is to eat delicious very.   (d) Palm-cake is very eat to delicious.

10. Which word should you use in the following sentence? 'What will you _____?'

   - (a) eaten   (b) eating   (c) eat   (d) ate

11. Which sentence is correct?

   - (a) He became scared and went away.   (b) He became scared and go away.   (c) Being scared he has went.   (d) He became scared and was went away.

12. Which sentence is made with the following words?

We	don't	afternoon
play	Sunday	on

   - (a) We play on Sunday afternoon.   (b) We don't play afternoon.   (c) We don't play on Sunday afternoon.   (d) We play afternoon on Sunday.

Mathematics test

1. Which row contains three even numbers?

    A. 70 / 80 / 92   B. 98 / 95 / 87

    C. 70 / 93 / 88   D. 70 / 89 / 88

2. Which two numbers, each greater than 100, should be in the two empty boxes to complete this subtraction : ☐ - ☐ = 208

    A. 108 and 100   B. 218 and 110

    C. 308 and 10   D. 408 and 200

3.   What is the L.C.M. (Lowest Common Multiple) of 8 and 12?

    A. 8   B. 12

    C. 16   D. 24

4.   What is the time by the watch below?

    A. 10 hours 15 minutes   B. 11 hours

    C. 11 hours 15 minutes   D. 11 hours 25 minutes

5. Six boys are watching TV in a room. They are 15, 14, 12, 10, 8 and 7 years old respectively. What is their average age?

    A. 15 years   B. 12 years

    C. 11 years   D. 10 years

6. In a cricket stadium there are 592 seats. Among them, tickets for 306 seats have been sold a few days before the match. Tickets for another 178 seats have been sold at the gate. Tickets for how many seats remain unsold?

    A. 286   B. 108

    C. 180   D. 414

7.   Which is the lowest of the following numbers?

    A. 1.01   B. 0.99

    C. 0.02   D. 0.5

8.   Which is the largest of the following fractions?

A. $\frac{7}{8}$ B. $\frac{3}{4}$

C. $\frac{6}{9}$ D. $\frac{10}{12}$

9. The price of a sheep and a cow is Tk.5380. If the price of the sheep is Tk.1245, what is the price of the cow?

    A. Tk. 6625   B. Tk. 4135

    C. Tk. 4140   D. Tk. 4145

10. The price of a book is Tk. 8.35. What is the price of 12?

    A. Tk. 10.02   B. Tk. 20.35

    C. Tk. 12.00   D. Tk. 100.20

11. The heights of four doors are given below. Which is the tallest door?

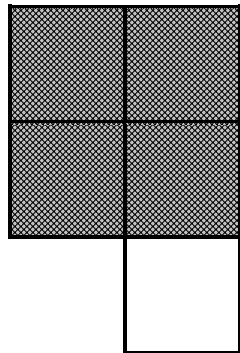   A. 17.5cm   B. 1.75cm

    C. 175mm   D. 75 cm

12.   What fraction of the following figure is shaded?

A. $\frac{8}{12}$ B. $\frac{13}{15}$

C. $\frac{12}{15}$ D. $\frac{16}{22}$

A5.3 RAVEN'S PROGRESSIVE MATRICES

When analysing student performance, it is important to distinguish the effect of schooling from the effect of other determining factors, notably innate ability. For example, it may be that student performance in GPSs is higher than in RNGPSs, but this may in part be due to the fact that more intelligent students are more likely to be selected into GPSs. Not taking this into account would overestimate the impact on student performance of the education provided in government schools. It must be stressed that general intelligence is only one aspect of individual ability and that self-esteem, drive and energy have often been found to be stronger predictors of high performance.

There are several tests of general intelligence. The SSPS has selected the Raven's Standard Progressive Matrices Plus test for the following reasons:

- it has a sound theoretical basis, as it was developed to measure the educative ability component of general intelligence, namely the ability to make meaning out of confusion, to perceive new patterns and relationships, and to forge (largely non-verbal) constructs, which make it easy to handle complexity;

- it is the second most widely used psychological test in the world, it produces an excellent overall index of general intelligence and a huge amount of fundamental research has been carried out using the index;

- it is a culture-reduced test. In other words, it does not have culture-specific content, such as vocabulary, similarities, information, and other verbal items. It focuses instead on non-verbal tasks and its symbols are not identifiably associable with existing cultures, unlike other commonly administered tests, like the Stanford-Binet and the Wechsler Intelligence Scales; and

- its latest version has tried to address the Flynn effect, namely the observation that scores have been increasing over the years and in all countries of the world, which is inconsistent with the perception that ability should remain relatively constant.

The tests are easy to administer. Respondents are asked to find patterns in groups of abstract objects and select the correct pattern among the options on offer. Items get progressively harder, requiring greater capacity to encode and analyse. All of the class 5 students who were present on the first day of the survey were given 3 sets of questions (sets A to C); each set consists of 12 questions. Table A5.1 reports the results by school type and gender.

Table A5.1   Class 5 Raven's standard progressive matrices test scores (%)[1]

	School type			Gender		All
	GPS	RNGPS	AEM	Male	Female	
Low	17	14	14	17	14	14
Mean	31	29	30	32	29	31
High	47	44	47	50	44	47

Source: SSPS data from student tests. Note: (1) The results refer to sets A to C from Raven's standard progressive matrices plus. The multiple choice questions in sets A and B have six possible answers, and there are eight possible answers to questions in set C.

Annex 6   PEDP II targets

Table A6.1   PEDP II targets

KPI[1]	PSQL[2]	OVI[3]	INDICATOR
PUBLIC EXPENDITURE			
1			Current public expenditure on education increased to at least 2.8% of GNP by 2010
2			Primary education expenditure per pupil increased to 10% by 2010
3			Public expenditure on primary education, as a percentage of total public expenditure on education, to reach 47-48% by 2010
STUDENT ACCESS			
4			Apparent gross intake rate of new entrants in primary Grade 1 as a percentage of the population of the official entry age 103% by 2010
5			Net intake rate of new entrants to primary Grade 1 who are of official primary school entrance age as a percentage of the corresponding population 90% by 2010
6	1		Gross enrolment ratio 107% by 2010
7			Net enrolment ratio 88% by 2010
8	2		The number of disabled children out of school reduced by 2010
9			Student absenteeism reduced to 20% by 2010, with no discrepancy between boys and girls
			Proportion of children awarded stipends to increase from 40 to 70%
STUDENT PROGRESSION			
10			Repetition rates in all classes less than 20% by 2010
11			Survival rate to Grade 5 (percentage of the pupil cohort reaching and completing Grade 5) 82% by 2010
12			Coefficient of efficiency (ideal number of pupil years needed for a cohort to complete the primary cycle, expressed as a percentage of the actual number of pupil-years) 116%, or a cycle time of 5.8 years, by 2010
13			Percentage of pupils having reached at least grade 4 of primary schooling and who masters a set of nationally defined learning competencies by 2010
STUDENT ACHIEVEMENT			
14			Education achievement of girls improved to at least the same level of boys by 2010
15			The number of pupils achieving acceptable levels of literacy and numeracy (as measured by national assessment instruments) increased by 50% by 2010
16			The proportion of Class 5 students entering for the primary education scholarship examination increased to 50% by 2010
17			The proportion of Class 5 students entering for the primary education scholarship examination pass level increased to 60% by 2010
18			Transition rate from Class 5 to Class 6 increased to 40% with gender parity by 2010
19			The number of students achieving a defined level of competency based learning achievement to reach 65% by 2010

KPI[1]	PSQL[2]	OVI[3]	INDICATOR
HUMAN RESOURCES			
	3		**Pupil-class ratio: maximum number of pupils per class is 40**
20	4		**Pupil-teacher ratio 46:1 by 2010**
		1	**Increasing the number of teachers in primary schools**
21			**Increasing number of schools operating a double shift system (900 hours per year for all classes) to 50% by 2010**
	11		**Increased school contact hours**
22	15		**Primary school teachers having the required academic qualification (C-in-Ed) and teaching in primary schools 95% by 2010**
	16, 17		**In-service training of teachers**
	19		**Headteacher training**
23			**Teacher absence without leave reduced to 10% by 2010**
24			**Teacher attendance on time increased to 90% by 2010**
PHYSICAL RESOURCES			
	12		**All textbooks and teaching and learning materials to be available in the first week of school year in 2005**
	13		**Student texts for each subject**
	14, 18		**Teaching aids, supplementary reading and learning materials, teacher guides provided to schools**
	20		**SMC training**
		2	**Improved toilet facilities and safe drinking water in 37,000 schools by 2009**
	9		Schools with drinkable water (%)
	8		Schools with a functional toilet (%)
	5		**New classrooms constructed**
	6, 7		**Properly constructed and furnished classrooms**
	10		**Good health and hygiene standards promoted**

Notes: (1) KPI—Key performance indicators for PEDP II. (2) PSQL—Primary school quality levels. (3) OVIs—Objectively verifiable indicators (see Government of Bangladesh, 2003).

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