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# PRIMARY EDUCATION FINANCE FOR EQUITY AND QUALITY

AN ANALYSIS OF PAST SUCCESS AND FUTURE OPTIONS IN BANGLADESH

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## ACRONYMS

| | |
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| ACER | Australian Council for Educational Research |
| ADP | Annual Development Program |
| ASC | Annual School Census |
| APSC | Annual Primary School Census (the new name for ASC since 2014) |
| ASPR | Annual Sector Performance Report |
| BBS | Bangladesh Bureau of Statistics |
| BMEB | Bangladesh Madrasah Education Board |
| BNFE | Bureau of Non-Formal Education |
| CAMPE | Campaign for Popular Education |
| DFA | District FSQL Audit (Vietnam) |
| DHS | Demographic and Health Survey |
| DPE | Directorate of Primary Education |
| EDI | Education Development Index |
| EFA | Education for All |
| EQI | Education Quality Inputs (Sri Lanka) |
| FFE | Food for Education |
| FSQL | Fundamental School Quality Level (Vietnam) |
| FY | fiscal year |
| GDP | gross domestic product |
| GER | gross enrollment rate |
| GNI | gross national income |
| GoB | Government of Bangladesh |
| GPS | Government Primary Schools |
| HDI | UN Human Development Index |
| HIES | Household Income and Expenditure Survey |
| LCPS | low-cost private school |
| MDG | Millennium Development Goal |
| MoE | Ministry of Education |

| | |
|---|---|
| MoPME | Ministry of Primary and Mass Education |
| MTBF | Medium-Term Budget Framework |
| MTR | Mid-Term Review (PEDP) |
| NEP | National Education Policy |
| NER | net enrollment rate |
| NGO | nongovernmental organization |
| NGPS | nongovernment primary school |
| NRNGPS | nonregistered nongovernment primary school |
| NSA | National Student Assessment |
| PEDP | Primary Education Development Program |
| PES | Primary Education Stipend Project |
| PESP | Primary Education Stipend Program |
| PISA | Program for International Student Assessment |
| PPBS | planning-programming budgeting systems |
| PSQL | Primary School Quality Levels |
| RNGPS | registered nongovernment primary school |
| SBM | school-based management |
| SFYP | Sixth Five-Year Plan |
| SLIP | School-Level Improvement Plan |
| SMC | School Management Committee |
| STR | student/teacher ratio |
| SWAp | sector-wide approach |
| TIMSS | Trends in International Mathematics and Science Study |
| UIS | UNESCO Institute for Statistics |
| UNESCO | United Nations Educational, Scientific, and Cultural Organization |
| UNICEF | United Nations Children's Fund |
| ZBB | zero-based budgeting |

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# PRIMARY EDUCATION FINANCE FOR EQUITY AND QUALITY
## AN ANALYSIS OF PAST SUCCESS AND FUTURE OPTIONS IN BANGLADESH

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## EXECUTIVE SUMMARY

**Bangladesh is at a critical juncture in the development of its education system.** In 2013 the government decided to nationalize more than 26,000 nongovernment schools (about 25 percent of all primary schools) in an attempt to fulfill the vision laid out in its National Education Plan to "create unhindered and equal opportunities of education for all." This includes "access of all sections of children to primary education irrespective of ethnicity, socioeconomic conditions, physical or mental challenges and geographical differences." This report assesses how Bangladesh is faring and how it is allocating its financial resources to achieve this vision of universal primary education.

**Bangladesh has made impressive progress in such key development areas as improving the provision of services, lowering the rate of child mortality and reducing the number of people living in impoverished conditions.** Two decades of steady growth have contributed to these achievements, and Bangladesh is now ranked as one of the highest improvers on the UN's Human Development Index. The fact that broad-based progress has been sustained within a challenging political context has been noted as a "development surprise."

**Bangladesh has seen unprecedented expansion in access to primary education during the past two decades, spurred on by strong national policies and effective education programs.** In 1990 just over two-thirds of its primary-age children were enrolled in primary school, while today there is near-universal education. Particularly striking have been gains in girls' education. Today, there are more girls in primary schools than boys. Progress has also been made in access to schooling in marginalized areas. In the 1990s and 2000s this expansion was led by nonstate providers, and more recently by the government.

**Today the education system includes more than 100,000 schools run by a large variety of public, private, NGO and religious providers**, overseen by a complex bureaucracy involving multiple ministries. The management of the education system is highly centralized, and education delivery is overseen by numerous deconcentrated administrative units, with local subdistricts (upazilas) playing a major role in the education administration. Because of the importance of the upazilas for education delivery, this paper examines the performance of the education system using upazilas as the unit of analysis. Our analysis includes 503 upazilas.[1]

**Bangladesh's recurrent public spending in primary education has been largely pro-poor.** Public spending per child in the poorest quintile of upazilas was 30 percent higher than in the wealthiest quintile. This is a remarkable achievement. A positive relation was also found between the education input indicators and access indicators, suggesting that improvements in education inputs have had good results in getting more children into schools and improving equal access to primary education. In 70 percent of upazilas, average gross enrollment rates (GERs) are above 95 percent, and 40 percent of upazilas have reached the government target rate of 105 percent. The GER is still lower in poorer areas, however, at an average of 101 percent in the poorest quintile of upazilas, compared with 107 percent in the wealthiest quintile.

**Despite good results in improving access to primary education, Bangladesh's pro-poor spending has not translated into better overall education outcomes, and inequities continue to exist.** While children are enrolling in school, average dropout rates are above 30 percent in nearly two-thirds of all upazilas. Poor areas score worse, with an average dropout rate of nearly 35 percent in the poorest quintile. Consistent learning outcome data across upazilas do not exist, but the National Student Assessment also confirms significant gaps between poorer and wealthier students in terms of learning achievements for Bangla language instruction and mathematics. Underlying these persistent disparities in education outcomes are inequities in accessibility, infrastructure and teaching inputs.

**Overcrowded classrooms and difficult-to-reach school locations are common, especially in poor upazilas.** Nationwide, over 15 million children—97 percent of preprimary and primary students in schools with information on class size—are in overcrowded classrooms (i.e., average room size per student is below the target of 1.18 square meters). Even after accounting for double shifting, more than three-quarters of all students are in overcrowded classrooms, with low contact hours for teaching and learning. In poorer upazilas, schools are also often not located in—or easily accessible from—remote communities, and overall infrastructure conditions are inadequate. In the poorest quintile of upazilas, fewer than 20 percent of schools had electricity.

**An adequate supply of qualified teachers remains a problem across a broad range of upazilas.** Average pupil/teacher ratios were above the national target of 46 students per teacher in about 60 percent of all upazilas. The poorest quintile performed worse (at an average of 53 students per teacher, compared with 48 pupils per teacher in wealthier upazilas). But teacher qualifications were found to be higher in poorer areas. This seems to be due to the higher share of government-supported schools, which tend to have teachers with relatively higher qualifications. Following stipends, spending on teacher salaries is the second most important driver of Bangladesh's pro-poor spending patterns.

**The quality and equity challenges facing Bangladesh's education system are caused by a number of complex and interrelated factors,** including entrenched socioeconomic disparities. But we also

find a number of shortcomings in Bangladesh's primary education financing that should be addressed to encourage further progress. We find that overall low levels of spending, declining stipend values and capital investments favoring wealthier areas exacerbate the disadvantages of the poor. In addition, complex and incremental education financing models and a lack of attention to the impact of education financing have limited the government's ability to effectively target the needs of the poor.

Bangladesh needs to expand and deepen its pro-poor policies for providing a high-quality primary education to all children, in particular to those in poor upazilas. This will eventually require actions on multiple fronts, including the effective rollout of high-quality preprimary education, further professionalization of the teaching force, reducing overcrowded classrooms and improving school infrastructure. Many of these actions have been discussed elsewhere, especially in the sector program assessments and reviews. This report proposes five possible areas of action which could contribute to a more effective allocation and monitoring of education financing for improved service delivery:

• **Increase overall public spending on basic education.** Some proposals have called for an increase in government spending, from 2 to 3 percent of GDP by 2016. Given the central role of the Ministry of Primary and Mass Education in the financing and delivery of primary education, it is important that the declining trend in its funding allocations be reversed.

• **Consider introducing a more transparent, needs-based formula funding model.** Bangladesh is already applying needs-based approaches in some of its education initiatives, such as the stipend program, and its revenue spending is already pro-poor. This reflects an important commitment to addressing vertical inequities. Bangladesh could build on this and develop a more transparent formula or set of rules that explicitly accounts for the higher spending needs of disadvantaged areas and applies to both recurrent and capital spending.

• **Devolve more funds to upazilas and schools to be spent at the discretion of local stakeholders.** Bangladesh could increase the amount of the current school grant while ensuring that schools and School Management Committees (SMCs) have the capacity and administrative discretion to use the funds creatively to improve learning, particularly in disadvantaged areas. Strengthening SMCs is already planned under the ongoing Primary Education Development Program.

• **Analyze the impact and cost effectiveness of demand-side financing versus alternative supply side support. Reform existing programs, such as the stipend program, to encourage improved student performance.** International evidence around the effectiveness of demand side finance such as conditional cash transfers in improving long term learning remains unsettled, raising questions about the need to consider alternative and potentially more cost effective supply side support options to improve equity in education quality. Better targeting and enforcement of existing demand side programs, such as the stipend

program, are also needed to achieve a greater impact on access to schooling and educational outcomes for the poor. The value of the stipends also needs to be increased in order for the program to retain its relevance in addressing demand-side constraints.

- **Improve data and accountability in primary education.** Achieving success in the actions mentioned above will depend on the quality of the data, their analysis and their use for policy reform in an accountable way. Especially, it will be important to combine efforts to improve examination and learning assessment systems with actions to create more reliable and transparent data on spending on education. These data should be sufficiently disaggregated down to the upazila and school level, given that this is where meaningful and policy relevant analysis of relations between spending and education outcomes can be done. Partnerships with international development agencies and a strategic use of technical assistance could play an important role in this.

# THE CONTEXT

**Bangladesh has made remarkable progress over the past couple of decades,** and it is now recognized as one of the world's 11 outstanding emerging economies. A glance at some headline numbers highlights the accomplishments.

**Growth has accelerated steadily** with only occasional deviations (including 2013) from the trend (World Bank 2013a). Bangladesh has also already **achieved a number of MDGs** (including MDGs 1 and 3) and is making good progress on others. The extreme poverty ratio fell from 41 percent in 1991 to 18 percent in 2010, and the gender gap in primary education has closed. Measures of poverty depth and severity have also declined, indicating an improved average consumption level for people living below the poverty line. Bangladesh's progress on the Human Development Index is significantly better than would have been expected based on experience from countries at a similar level of HDI two decades ago, making Bangladesh one of the greatest improvers. Between 1980 and 2012, life expectancy at birth increased by 14 years, expected years of schooling increased by 3.7 years and GNI per capita increased by about 175 percent. Bangladesh has the lowest total fertility rate and the fastest recent improvements in infant and under-5 mortality in South Asia (United Nations 2013).

**These impressive achievements in poverty reduction and human development have been called a "Development Surprise,"** because they have happened in the context of dwindling domestic finance, confrontational national politics and a stunted private sector. The achievements have been explained as a function of low-cost innovations in basic-services delivery, social mobilization, political settlement vis-à-vis social policies and an NGO-led service delivery approach supported largely by development partners (Mahmud et al. 2012). Social policies were sustained over time, even as governments changed, and were supported by a consistent and genuine commitment to improving social development indicators. Government spending on education nearly doubled, from 8 percent of total budget expenditures to 15.5 percent between 1980 and 2000 (Mahmud et al. 2008; Hassan 2013).

**Future success in education will depend on how well Bangladesh is able to address a number of outstanding challenges that have been recognized by the government.** First, marginalized and hard-to-reach populations need to continue to be targeted to ensure access to primary education. One such target group is children living in urban slums. A dramatic increase in urbanization has been accompanied by a significant increase in the slum population, which lacks access to basic services such as a high-quality education (World Bank 2013b). Second, the quality of education also needs to be improved to ensure that children who are in school are learning and completing their education. Third, an expansion of secondary and higher education will be required to enable children who complete primary education to transition into higher levels of education. And finally, greater attention will need to be given to skills development and the links between education and the labor market.

This paper focuses on the state of primary education and the extent to which poor and marginalized children face equal education opportunities. The government of Bangladesh is firmly committed to equity and to achieving a high quality of primary education. To follow up on these commitments, it will need to be able to identify those regions or population groups that are currently underperforming on key education indicators and allocate resources to them appropriately.

We examine the multiple inequities children face across regions in Bangladesh, how educational resources are currently distributed and how resources could be targeted more effectively to reduce inequities. The study is focused on primary and preprimary education as the most basic levels of education. This includes grades K-5.[2] Besides a detailed analysis of regional performance across key education indicators, the paper constructs an Education Development Index that summarizes information across a variety of input and output indicators. Finally, relations between education inputs, outputs and education financing are explored to gauge the equity and effectiveness of spending.

Our subnational analysis focuses primarily on the subdistrict or upazila level. Bangladesh has a complicated layering of administrative levels. Under the central government, the country is divided into 7 divisions and 64 districts. Districts are divided into subdistricts called upazilas (rural) or thanas (urban), of which there are about 503.[3] Focusing on the upazila level is useful for three reasons. First, as is highlighted below, upazilas are by far the most important subnational entities monitoring and controlling the delivery of education. Second, an upazila-level analysis allows us to relate spending to broader regional and population characteristics. Chief among these characteristics is poverty, which is one of the factors contributing to education outcome disparities. Third and finally, while recognizing that more resources may not necessarily generate better education outcomes, the upazila-level analysis provides the basis for relating overall spending to education outcomes that provides a more nuanced picture of this relationship. It should be noted however that while the focus of this paper is on the upazila level, an analysis of performance within upazilas would be needed to get a more complete picture of the deeper challenges within schools and among students.

*Data Sources*

The paper draws on a data from a variety of sources, including the Annual School Census (ASC) 2011 as well as case studies of four disadvantaged areas in Bangladesh. The ASC, conducted since 2002, is the main source for information on primary education. The questionnaire, the piloting and implementation of the survey, and the management of data and the analysis are all conducted by the Directorate of Primary Education (DPE) with support from a team of international experts. The Annual Sector Performance Report (ASPR) draws on the ASC and several other surveys and shows the status of 15 key performance indicators for the primary education sector in Bangladesh.

The analysis of the school census was complemented with qualitative data from a number of focus groups in four disadvantaged areas:

- Char Kamarzani—a 30-year-old river settlement (char) located in the middle of the Brahmahaputra River, part of the Gaibandha Sadar Upazila in Gaibandha district.

- Kheippapara—a small village under the Rangamati Sadar Upazila in the Rangamati district. It is inhabited by the Tonchoingas tribal community.

- Kumardhonpara—a small village in Khagrachari Sadar Upazila in the Khagrachari district, in the Chittagong Hill Tracts.

- Bhashantek slum—a slum located in the Kafrul Thana district of Dhaka city that houses about 4,500 households.

## STRONG INTENTIONS AND GOOD PROGRESS

Since gaining its independence in December 1971, Bangladesh has aspired to provide free and universal access to primary education to its citizens. The right to education, which is embedded in the Constitution, is seen as a critical element in the development of a socially and economically just society. Bangladesh's ambition to educate its children has been translated into a number of strong policy documents and government programs as well as elaborate state and nonstate systems of education provision.

Consistent commitment and the implementation of ambitious government policies and programs have generated significant results. Bangladesh is widely recognized for its achievements in broadening access and tackling gender disparities. Its commitment to improving the lives of the poor is also reflected in its primary education spending, which has been pro-poor.

### *Equitable Education: A Policy Priority*

The broad development agenda for Bangladesh is articulated in its Sixth Five-Year Plan (SFYP), which also serves as the country's Poverty Reduction Strategy Paper. The SFYP outlines 30 specific targets to be achieved over the FY 2011–FY 2015 period. These goals are broken into 7 broad categories, with education falling primarily (though not exclusively) into the human resource development category. The 3 education goals relate to the achievement of universal access to primary education, the completion of primary school and increasing secondary school enrollment. Two additional goals

under the gender equality category relate to education, calling for improved equity in young adult literacy rates and tertiary enrollment rates (recognizing the previous achievement of gender parity at lower levels). Finally, two education-related goals fall under the information and communications technology category. These goals call for compulsory information and communications technology education and the establishment of computer laboratories in government primary schools. In total, education-related goals account for nearly a quarter of the goals articulated in the SFYP, and the whole plan provides a vision of education as an integral driver of Bangladesh's development efforts.

### *Commitment to Universal Primary Education*

The Government of Bangladesh has made a number of strong, public commitments to promoting education. At their heart is a clear constitutional commitment to free and compulsory education for all children in Bangladesh. This commitment is translated and reflected in three recent important documents governing the education system in Bangladesh: Vision 2021, the National Education Policy 2010 and the Primary Education Development Program (GoB-DPE 2011).

Vision 2021 is an aspirational document articulating eight goals to be achieved by the 50th anniversary of Bangladesh's independence. While it has not yet been fully operationalized, the document places a heavy emphasis on education as a catalyst for achieving the aspirations articulated therein. This is particularly true of

the fifth goal, which aims to create a skilled and creative workforce. Education also features prominently in many other goals, such as eliminating poverty, improving the health of the population, and creating "a more inclusive and equitable society." Of particluar importance, Vision 2021 also calls for increased funding for education in Bangladesh.

**The 2010 National Education Policy (NEP) provides a framework for the education policy of the country.** It lays out, in broad strokes, the aims, objectives and strategies of the full spectrum of educational activities undertaken in Bangladesh. As with Vision 2021, the NEP will need to acquire greater specificity in order to be fully implemented. Some of the key strategies related to primary education in the NEP include:

- the extension of primary education through grade 8, including the development of necessary curricula, teacher training and institutional reorganization;

- the integration of the various streams in the Bangladeshi education system by introducing a uniform curriculum for some subjects and reforming madrasa education;

- a continuation of the current system of continual public examination with an eye toward eliminating rote learning in favor of creative learning; and

- an improvement of the teaching force by raising the status of the teaching profession, recruiting trained and well-educated teachers, and providing in-service training to augment teachers' existing skills.

**The Primary Education Development Program (PEDP) is a sector-wide education development program supported by development partners.** The government, in conjunction with a number of donor agencies, is currently implementing the third PEDP. The program is focused on the primary education sector, with results and financing frameworks encompassing all interventions and funding for the preprimary and primary education systems.

- The first PEDP ran from 1997 to 2003. The program was fractured, with the management and financing of its component projects divided among eight different development partners. As this arrangement was not leading to an institutionalization of the program's gains, stakeholders agreed to pursue a sector-wide approach (SWAp) in the second phase.

- Building on the achievements of PEDP I, the second PEDP, which ran from 2004 to 2011, included a number of SWAp principles. Key among these were a pooled donor funding mechanism managed by one development partner, the implementation of one sector plan and one annual operating plan, the development of a joint annual review mechanism based on a single set of program and financial reports from the government, and support to the Ministry of Primary and Mass Education (MoPME) in integrating the primary education budget within the national midterm budgetary framework. Donor finance under PEDP II was earmarked for certain items in the development budget. This earmarking, while allowing for a strict accounting of donor funds, restricted donor involvement to donor-funded activities and limited the program's impact on activities funded solely by the government.

• The third PEDP (2011–16) expands the SWAp principles of PEDP II by creating a Joint Financing Agreement, signed by the development partners supporting PEDP III and allowing for external finance to go directly to the Ministry of Finance for sector-wide support. PEDP III has also introduced a strong focus on the use of inputs at the school level by adopting a results-based disbursement framework. Among the key indicators linked to disbursement are schools receiving school grants, additional classrooms constructed and teachers deployed in overcrowded schools, expansion of preprimary education in the areas of greatest needs and distribution of textbooks to all schools by the first month of the year. The program is going through its midterm review in order to consolidate lessons and focus more on quality and equity issues in the next half of the program period.

### A Strong Equity Agenda

**Bangladesh's commitment to equity in education is rooted in its Constitution,** which guarantees the creation, by the state, of "a uniform, mass-oriented and universal system of education . . . extending free and compulsory education to all children."[4] The Constitution further adds that "no citizen shall, on grounds only of religion, race, caste, sex or place of birth be subjected to any disability, liability, restriction or condition with regard to . . . admission to any educational institution."[5]

**These principles have been expanded and clarified in the governing documents outlined above.** The NEP frames equity issues about equality of opportunity, aiming "to create unhindered and equal opportunities of education for all" (p. 9). This commitment—particularly to equality of opportunities to access education—is strong and broad, promising "access of all sections of children to primary education irrespective of ethnicity, socioeconomic conditions, physical or mental challenges and geographical differences" (p. 11). The NEP also recognizes the need to pay extra attention to the needs of disadvantaged children (i.e., vertical inequity). It promises "to initiate special measures to promote education in the areas identified as backward in education" (p. 10). The policy specifically addresses the needs of marginalized and minority ethnic groups, physically and mentally disabled students, "ultra-deprived" children living on the streets, and rural and otherwise "backwards" areas. These principles are also echoed in the program document for PEDP III, which has the main objective of establishing "an efficient, inclusive and equitable primary education system" (p. vi).

**A commitment to equity in education also underpins the reforms of the madrasa education system.** Madrasas are an important part of the education system, though data on these schools are limited. Many students in madrasas come from poor families. They receive a poor education, and many end up being madrasa teachers or religious service providers at mosques. This contradicts the aspirations and expectations of many students to be employed in government jobs or to run small businesses. There has been a steady, albeit slow, reform of madrasa education in Bangladesh. Starting in the 1970s, a large number of madrasas have become eligible for government funding by adopting a national curriculum, textbooks and tests. A Madrasa Education Board has been established to oversee the quality of education in madrasas. However, a substantial number of madrasas, called Quomi madrasas, are still not part of this reform process and offer only religious education.

The Bangladeshi government has provided consistent policy and operational support to NGOs providing education in the country. At the policy level, the government has developed a nonformal education framework for out-of-school children. NGOs can deliver nonformal education to children who have never enrolled or who have dropped out of school, and bridge them to formal secondary education. NGO students are eligible to receive national textbooks and can also sit for the national examinations. Some NGOs also provide nonformal education to the most hard-to-reach children in the river islands and low-lying flood zones of the country (e.g., see box 1). The government has recently developed a Government–NGO Collaboration Guideline for providing preprimary education. This is another sign of government willingness to work with nonstate providers in order to provide a high-quality education to all children in the country.

## A Large and Varied System of Education Provision

Primary education in Bangladesh is delivered through a large number of state and nonstate providers. The majority of these providers are managed and monitored by the state. In 2012, Bangladesh had over 100,000 primary and kindergarten schools engaged in formal and nonformal education.[6] The majority of primary and preprimary students (78 percent) attended formal education through two types of schools: government primary schools (GPS) and registered nongovernment schools (RNGPS).

The education system in Bangladesh is going through a significant transition with the recent nationalization of a large number of nongovernment primary schools. In January 2013, all RNGPS—or about one-fourth of all education providers—were nationalized, bringing the majority of schools and the vast majority of students into the government system. The RNGPS are now under the full control of the MoPME and its Directorate of Primary Education (DPE), which are the most important administrative agencies for primary education. RNGPS teachers are now government employees and will receive the same salary and benefits as GPS teachers using the same administrative system. This transition is, however, happening in three phases over the next two years.

But despite this nationalization, the school system remains characterized by a large variety of providers. In 2012, there were more than 20 types of providers (a total of 13 types are covered in the ASC) (GoB-DPE 2013). Many of them play a particularly important role in extending schooling to poor and marginalized communities (table 1). Compared with other countries, the complexity of education provision is significant. For example, India recognizes only four types of schools, and only two of these receive government funding. Vietnam has a similarly small number of education providers which receive funding from the government. The Bangladeshi government has recognized the difficulty of this complex system and has been trying to streamline its support for schools. The nationalization of RNGPS is evidence of this, though there is clearly a long way to go. Finally, Bangladesh has been making increasing efforts to regulate nonformal education.

| Table 1: Primary Education School System, 2012 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **System Component** | **Authority Responsible** | **Schools (thousands)** | **%** | **Teachers (thousands)** | **%** | **Students (Thousands)** | **%** |
| **Formal Schools and Madrasas** | | | | | | | |
| GPS | MoPME/DPE | 37.7 | 36% | 214.7 | 49% | 10,756.8 | 57% |
| RNGPS | MoPME/DPE | 22.1 | 21% | 86.5 | 20% | 4,104.0 | 21.5% |
| Kindergarten | Ministry of Commerce | 12.5 | 12% | 74.2 | 17% | 1,454.7 | 8% |
| Experimental, Community, and Non-Registered Schools | MoPME/DPE | 3.6 | 3% | 11.5 | 2.5% | 550.5 | 3% |
| Independent Primary Madrasas, Primary Sections of High Schools and High Madrasas | MoE | 8.4 | 8% | 33.4 | 7.5% | 1,462.0 | 7.5% |
| NGO School (Grades 1-5) | NGO Bureau | 2.8 | 3% | 4.2 | 1% | 178.3 | 1% |
| **Non-Formal Schools** | | | | | | | |
| BRAC Center, ROSC, Shishu Kollyan | NGO Bureau, MoPME, Ministry of Social Welfare | 16.3 | 16% | 15.6 | 3% | 459.2 | 2% |
| **Other** | | 0.7 | 1% | 1.0 | 0% | 37.7 | 0% |
| **Total** | | **104.0** | | **441.1** | | **19,003.2** | |

*Source: Based on ASC 2012 (GoB-DPE 2013)*

Bangladesh has also seen a recent growth in for-profit, low-cost private schools (LCPS), which were not captured in the 2012 ASC. A separate study building on the 2011 ASC estimated that 9.4 percent of the total primary enrollment was in schools that could be classified as LCPS. In comparison, the enrollment rate in 2007 was only 4 percent. Data on and analysis of LCPSs have been exceptionally limited in Bangladesh, though the study found a direct correlation between the increased population due to urbanization and the growth of LCPSs in the research areas. LCPSs in Bangladesh fill a critical gap in enrollment, especially in rapidly growing urban areas, where the government has been particularly slow in setting up new schools. Despite their name, LCPSs are expensive, attract the children of relatively educated parents, and do not show any significant difference in outcomes. These and other private schools also reveal an important policy gap, as the MoPME has no policy or guidelines on private sector providers.

About 2 percent of students are in second-chance nonformal primary education programs pioneered by BRAC. According to the ASC 2012, BRAC is currently the largest NGO provider of such alternative education in the country, providing primary education to 270,000 children in over 10,000 schools. However, other sources of data suggest a much larger number of nonformal schools. Ahmed and Govinda (2010) estimate that about 10 percent of primary-age children are in nonformal education. They note that government policy does not sufficiently recognize the significance of this education. This is reflected in the fact that official primary age statistics do not include these schools and students, and thus present a misleading picture of the real situation.

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### Box 1. BRAC: Providing Nonformal Education in Bangladesh

A significant number of children are enrolled in nonformal education in Bangladesh. The nongovernmental organization BRAC operates an impressive system of informal learning centers that covers the primary school curriculum in four years. The program has been recognized as an effective route into the formal education system at the secondary level. Dropout rates during the program have been much lower than national averages, and over 90 percent of BRAC school graduates move into the formal system (Nath 2006; UNESCO 2011). The education programs aim to provide a second chance at learning for disadvantaged children and youth, especially from poor communities that cannot access the formal education system. They complement a range of other programs developed by BRAC to address rural poverty.

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## Historic Expansion in Access to Primary Education

Spurred on by strong national policies and an impressive system of education provision, Bangladesh has seen a historic expansion in access to primary education in the last two decades. Its success is universally recognized, in particular because progress was achieved amid difficult socioeconomic circumstances and numerous external shocks, including natural disasters. Bangladesh also started from a low base, which amplifies its impressive progress. In 1990, just over two-thirds of its primary-age children were enrolled in school, while today the country is closing in on universal access to primary education (figure 1). To further solidify this success, it is also scaling up preprimary education and second-chance education. With this achievement, Bangladesh has moved ahead of some of its neighbors in the South Asia region (figure 2).

However, there are some inconsistencies in the education access data. While the primary net enrollment rate (NER) was reported by the government (DPE) at 97 percent in 2012, up from 95 percent in 2010, other sources suggest a lower rate. For example, the NER reported by UNESCO UIS for 2010 stood at 92 percent. Some of the differences in these estimates can be traced to the large margins of error in the enrollment rate denominator (i.e., the number of primary age children) and

**Figure 1: Progress in Primary Net Enrollment Rate (NER) and Gross Enrollment Rate (GER) in Bangladesh, 1990-2011**
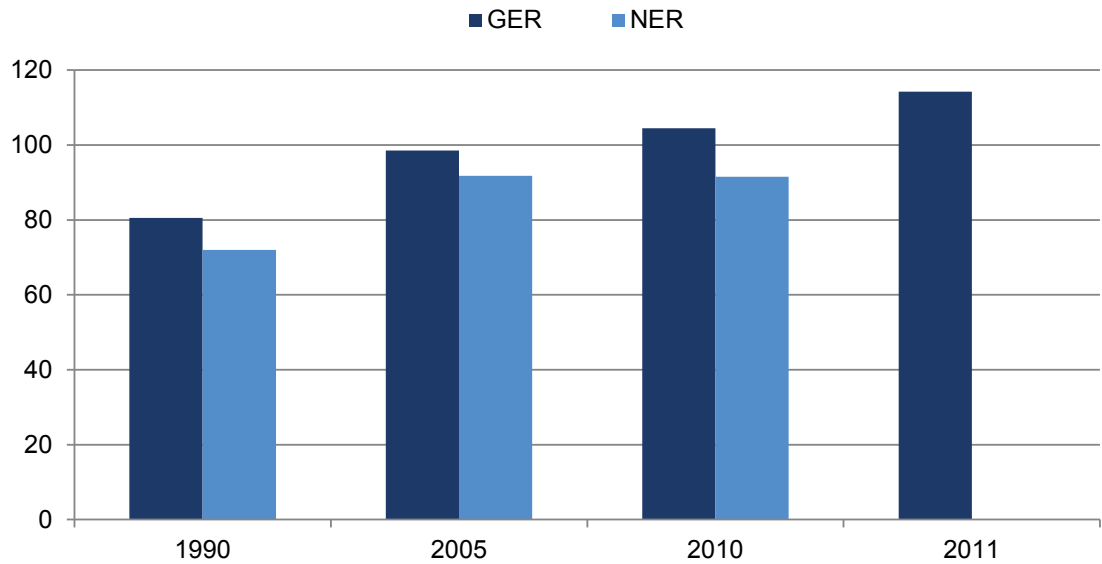


Source: UNESCO – UIS (2013)

**Figure 2: Primary Net and Gross Enrollment in the South Asia Region, 2011**
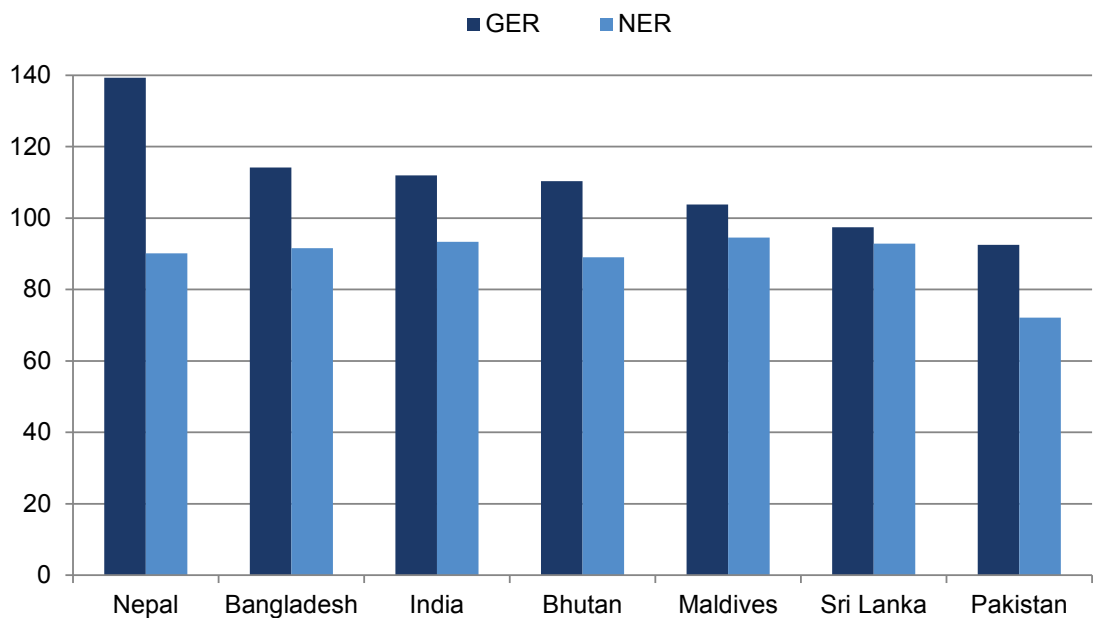


Source: UNESCO – UIS (2013)

the accuracy of the numerator (the enrollment figures). Some of the inconsistencies arise from using different definitions; for example, the definitions of out-of-school children are different in the annual school census and the various household surveys.

**Bangladesh can be commended for its emphasis on equity in education, and in particular for its efforts to create more equal opportunities for boys and girls.** It is one of the few countries in the developing world that has essentially eliminated disadvantages in access for girls in both primary and secondary education. In fact, boys today are less likely to be in primary and lower secondary school than girls. Girls are also more likely to make the transition to secondary school—at a rate of 95 percent, compared with 84 percent for boys (Arunatilake and Jayawardena 2013). In upper secondary school, there is near gender parity, with girls slightly more represented, despite overall low levels of enrollment (about 40 percent in 2011).

**Bangladesh has also made progress in improving access to schooling in marginalized areas.** During the 1990s and early 2000s, much of this expansion was led by nonstate providers, and more recently also by the government. NGOs have extended the reach of schooling to the most disadvantaged and have complemented the resources provided by the state by mobilizing domestic and international finance. Since the mid-2000s, PEDPs II and III have rapidly improved access for children from remote areas like the river islands and ethnic language communities who do not speak Bangla, the national language. In part as a result of this effort, the number of nonformal schools has been declining over the past five years, though they remain critically important in the most marginalized areas that are currently not covered by the

formal system. To further extend the reach of the education system into remote communities, the government is also in the process of establishing an additional 1,500 government schools in communities where no school exists. The current sector program is also constructing an additional 39,000 classrooms in overcrowded schools, which resulted from more children enrolling and staying in primary education.

**An analysis of school enrollment across upazilas using the Annual School Census data confirms that, overall, a large majority of upazilas are close to or meeting the GER target** (figure 3). In 40 percent of upazilas, average GERs were above the 105 percent government target, and in another 30 percent of upazilas the rates were above 95 percent. The GER is still lower in poorer areas, however, at an average of 101 percent in the poorest quintile of upazilas compared with 107 percent in the wealthiest quintile.

## *Spending on Primary Education Is Pro-Poor*

**The allocation of education financing can have a significant effect on disparities in education outcomes.** An adequate and equitable allocation will be particularly important for poor communities, which rely more heavily on public funding than the wealthy who can afford to pay. In many countries, resources are allocated in ways that favor wealthier groups in society, thereby exacerbating existing inequalities. A number of countries have funding models that apply an "equal per student" allocation principle providing equal levels of funding for individual students. This often increases the achievement gap between the most and least advantaged as such funding models do not account for

**Figure 3: Gross Enrollment Rate (GER) across Upazilas**
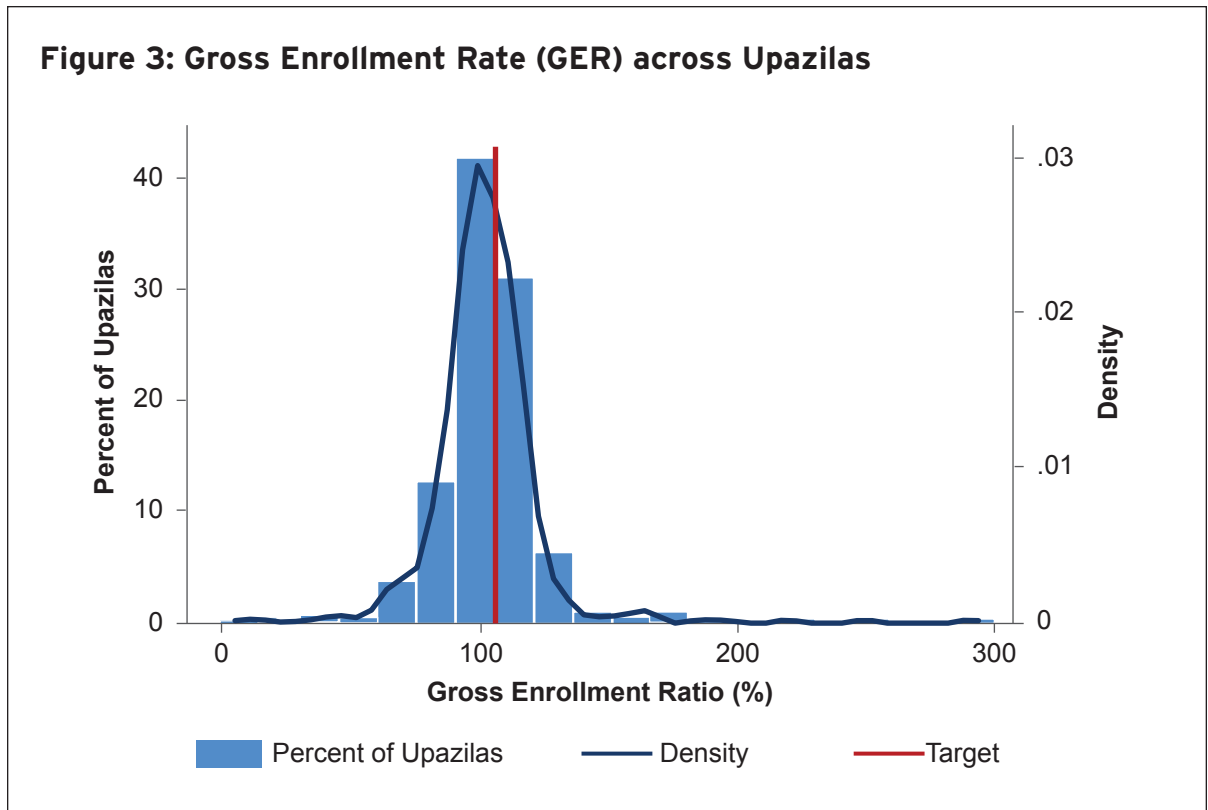


the higher costs that are often associated with achieving equal outcomes among students from disadvantaged backgrounds. Funding models based on student populations also do not account for out-of-school children, who are often found among poorer and disadvantaged communities (Save the Children 2014).

There is little publicly available information about the allocation of financial resources within the education system in Bangladesh.[7] This makes it difficult to accurately assess the allocation of resources across regions and population groups and relate them to education outcomes. Using data from the 2011 ASC, we therefore calculate estimates of school- and upazila-level spending based on four types of spending: teacher salaries, School-Level Improvement Plan (SLIP) grants, repair costs and student stipends. The data on teachers, SLIP

grants and repair costs were derived from the ASC 2011. Stipend amounts were estimated using upazila-level poverty data.

Certain limitations of this approach must be noted, demanding caution when interpreting the results. It is important to keep in mind what is not included in the data. Many teachers in government schools receive a number of allowances for living expenses and as a bonus for experience. These allowances are not included because the data did not allow us to determine levels of allowances by school or upazila. Additionally, capital investments cannot be tracked at the upazila level and so are not included. Finally, household spending is often an important component of education financing, which is not included in the analysis. It should also be noted that the estimates assume that implementation matches

policy as they are based on policies in place and not on actual expenditures. The evidence suggests, for example, that teachers are not always paid in full or on time (World Bank 2014).

The government of Bangladesh spends $23 per primary student per year across these types of spending in the average upazila. This estimate does not account for out-of-school children, however. When considering the total primary-age population, average government spending is slightly lower, at $22 per primary-age child. There is a wide variation in this figure across upazilas. Average public spending in the highest-spending quintile of upazilas was $30 per student, while it was only half that ($15) in the lowest-spending quintile of upazilas.

In a large number of upazilas, total public spending is higher than what would be their "fair" share based on the number of primary-age children in the upazila. While Bangladesh does not have an explicit funding formula, its allocations do not follow an "equal per student" allocation principle. Figure 4 shows upazila-level shares of primary education spending as a proportion of the school-age population. The figure highlights that some upazilas get less than half their fair share, while other receive more than twice their fair share. Assuming the range between 0.9 and 1.1 as a fair share (i.e., the upazila's share in public spending on primary education is roughly equal to the share of primary age children), we find that about half the upazilas receive their fair share or less and the other 50 percent of upazilas receive more than their fair share.

**Figure 4: Upazilas' Share of Primary Education Spending as a Proportion of the School-Age Population**
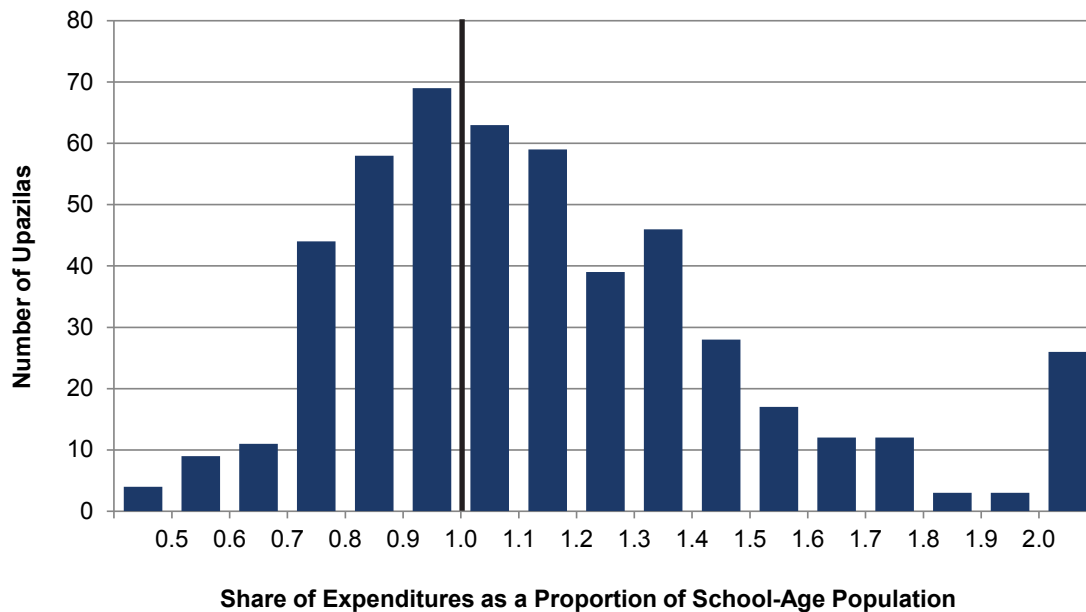


*Note: A value of 1 means that upazilas are receiving a share of the budget allocation that is exactly equal to their share in the school-aged population. A value of less than 1 means that upazilas are receiving a share of the total spending that is less than their share in the school-aged population. Values above 2.0 or less than 0.5 were collapsed into one bin for ease of presentation.*

**Figure 5: Spending per Student by Upazila Poverty Incidence**



**Figure 6: Spending per Primary-Age Child by Upazila Poverty Incidence**
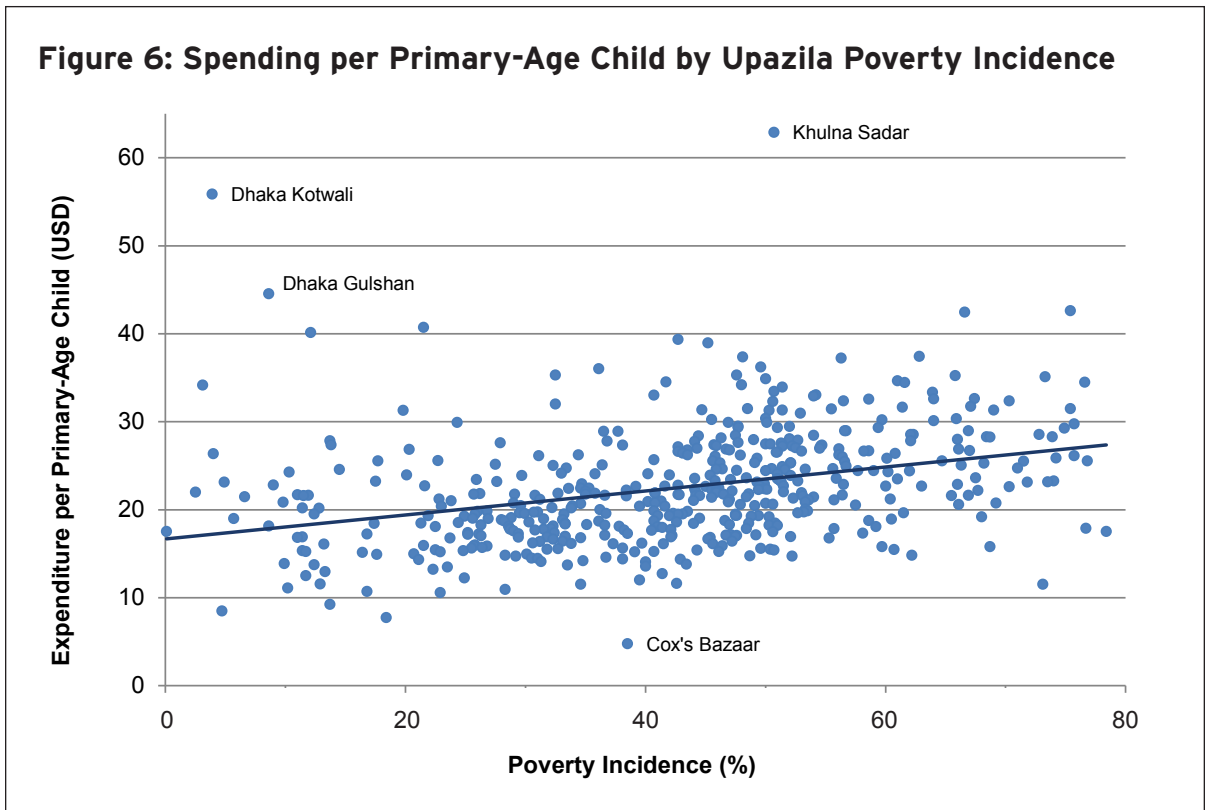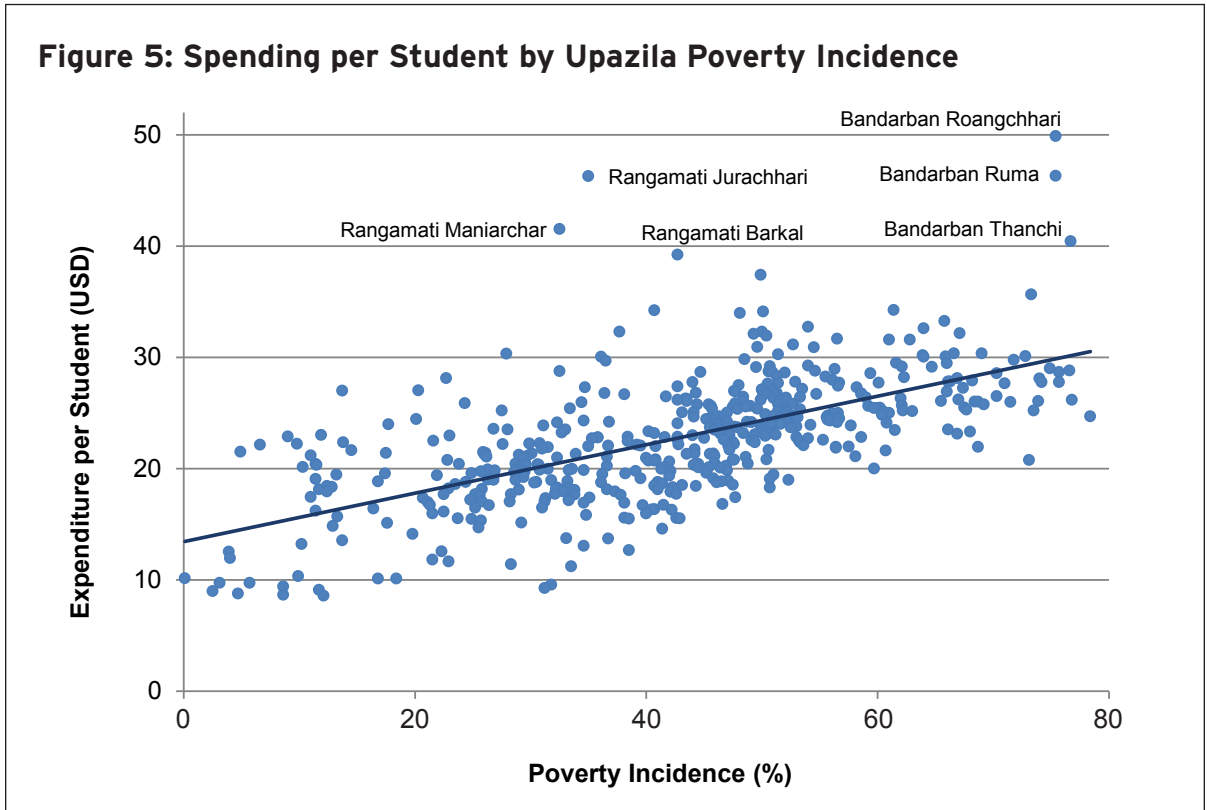
Of particular importance, we find that upazilas receiving more than their fair share have a significantly higher poverty incidence than those receiving less than their fair share. We thus find that per-student spending is pro-poor (figure 5). This is a remarkable achievement. Average spending per student was $18 in the wealthiest quintile of upazilas, compared with $27 in the poorest quintile. However, the relationship is weaker when we consider the total primary-age population. In other words, spending per primary-age child is less pro-poor (figure 6). Average spending per child in the wealthiest quintile of upazilas was $20, compared with $26 in the poorest quintile.

Our analysis also shows that the nationalization of the registered nongovernment schools, initiated in 2013, will reinforce this spending pattern and have a slightly pro-poor effect on the allocation of spending across upazilas. Since there is a higher share of RNGPS in poorer areas, and teacher salaries will be raised to GPS levels, the net effect will be positive, albeit modest. The poorest quintile of upazilas will capture 27 percent of the additional spending under the new arrangement (see box 2).

## Box 2. Effects of the Nationalization of RNGPS on Equity

In 2013 Bangladesh embarked on an effort to nationalize many of its RNGPS. This move would make the government responsible for these schools and their maintenance, while making the teachers at these schools government employees. This has implications for the financing of primary education in Bangladesh and the equitability with which it is distributed throughout the country. To get an idea of the effects of this change, the analyses on the distribution of spending to upazilas by their poverty incidence has been rerun, giving RNGPS the same funding as government primary schools.

Overall, the effects are not large. Spending per student in the average upazila increases from $23 across categories considered to $24. Spending per primary-age child similarly increases, from $22 to $23. Nationalizing RNGPS also marginally improves the pro-poor nature of upazila-level allocations found in the original analysis. Under the policy, upazilas would on average receive an extra 2.2 cents per student for every 1-percentage-point increase in their poverty rates. This increase is driven primarily by increased pay going to teachers in poorer upazilas when they become government employees. In terms of the share of spending that upazilas receive, the policy would shift one upazila from receiving below its fair share of funding to above.

Finally, the effect of the policy nationwide would be to increase spending on the items covered by $20 million. Of this, 27 percent would be captured by the poorest quintile of upazilas. The wealthiest quintile, conversely, would capture only 12 percent of this increase. In this sense, the policy can be expected to have a pro-poor effect on the upazila-level allocation of education funds, albeit not a terribly large one.

Earlier studies have also found that the distribution of government spending on primary education is largely pro-poor. Analysis of the 2000 HIES found that the poorest 40 percent of the population received 45 percent of government spending on primary education. The same study found that the poor (representing 50 percent of the population at that time) benefited from 56 percent of government spending on primary education (World Bank 2002). This trend continued in the 2010 HIES, an analysis of which found that the poorest 40 percent of the population benefited from 50 percent this spending. The poor, representing 31.5 percent of the population at that time, benefited from 37 percent of the spending (World Bank 2013b). These household-level analyses of primary education are in line with the findings of the present study. This study builds on these findings by providing a much more systematic and comprehensive subnational picture of the pro-poor nature of the spending.

# MAPPING OUTSTANDING CHALLENGES

**Bangladesh has formulated strong policies, created access to primary education through a vast education system and invested heavily in poor areas.** But despite these strong intentions and unprecedented progress, it continues to face critical challenges in delivering education, in particular to the poor and marginalized. The remainder of this paper explores why pro-poor financial allocations have not yet led to overall equity and high quality in outcomes.

**To understand these outstanding challenges, we organize the analysis in three parts.** First, we unpack a number of education input and output indicators across upazilas. In this analysis we pay particular attention to performance in poorer communities. Second, we summarize our findings using the Education Development Index and explore variations across geographical areas. Finally, we explore the relation with spending patterns.

**The analysis combines data from a number of sources.** The most important source is the 2011 Annual School Census. We review the performance of Bangladesh's subdistricts, or upazilas, on a number of input and output indicators. For each indicator, we compare the distribution of performance with the overall government target (represented graphically, where possible, by a red line).

## *Equal Access, but Not Equal Schooling*

While Bangladesh has rapidly expanded access to education, it has also struggled to keep children in school and to improve the quality of its education system. This has particularly affected the poor. Data from the school census and household surveys suggest significant problems with school attendance and completion. In addition, learning assessments suggest that children are not learning. Despite pro-poor spending, schooling outcomes are worse for the poor.

## *Dropout Rates Are High, and Worse Among the Poor*

**School attendance of children is much lower than the high enrollment figures might suggest.** While quite a few upazilas reach the 82 percent attendance target set by the government, attendance remains a serious issue in a number of upazilas. In 30 upazilas, average school attendance was below 60 percent. Average dropout rates in 2012 suggest that more than 25 percent of primary-age students would drop out before completing primary school. The rate was higher for boys, at 28 percent, than for girls, at 24 percent. Official data seem to suggest a significant improvement in these rates, however, as they have nearly halved from close to 50 percent in 2008. Bangladesh also struggles with high repetition rates, which have averaged between 10 and 12 percent each year since 2005 (GoB-DPE 2013).

**Very few upazilas have an average dropout rate that meets the target of 20 percent set by the government, and the dropout rate is worse in poor areas.** The majority of upazilas have average dropout rates ranging between high 20 and high 30 percent (figure 7). The poorest quintile of upazilas had average dropout rates of nearly 35 percent, compared with 30 percent in wealthier areas.

**Figure 7: Dropout Rates Across Upazilas Are High**
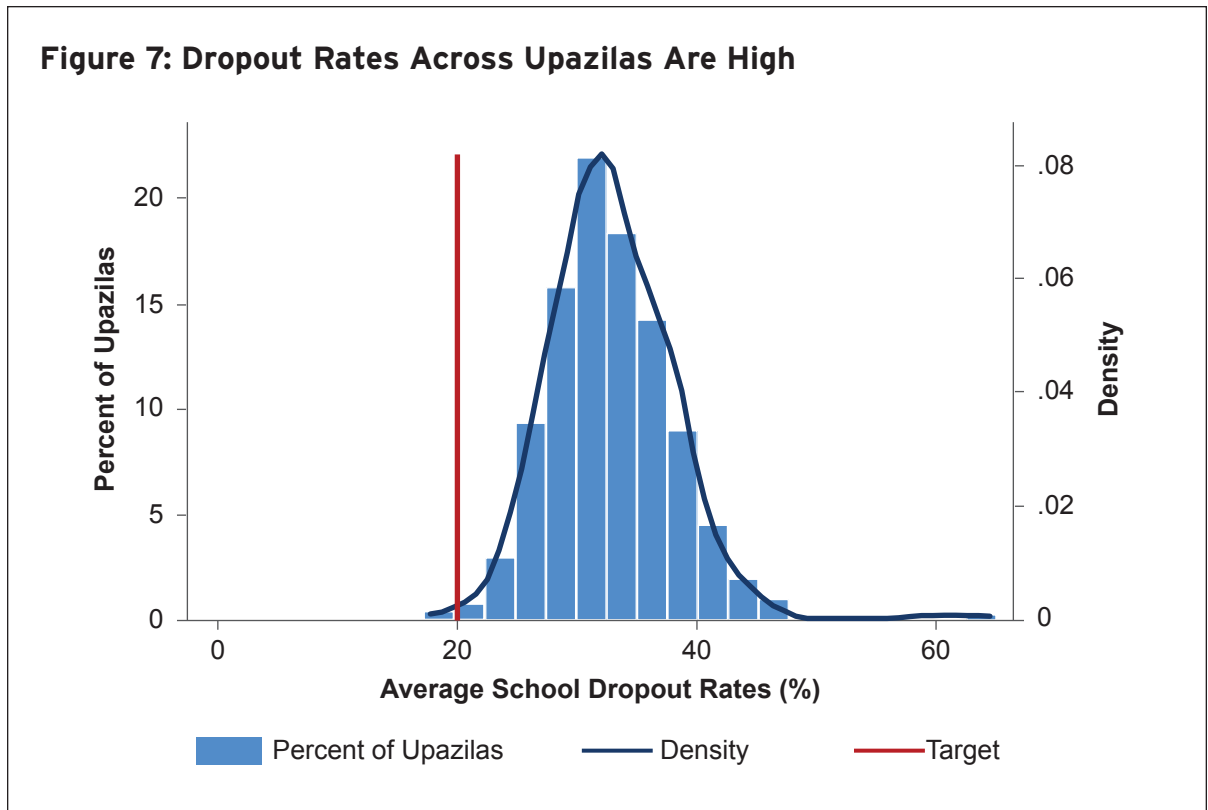


The attendance and dropout rates are also consistent with the relatively high numbers of out-of-school children recorded in Bangladesh. A recent report by UNICEF estimates that 2.6 million children of primary school age (6–10 years) are out of school. This represents 16 percent of the primary-school-age population (UNICEF 2014). Other estimates based on household surveys (e.g., DHS 2011) and the population census (BBS 2011) record that 9 to 23 percent of primary-age children are out of school (GoB-DPE 2013). These numbers stand in stark contrast with the relatively high NERs.

Household surveys and our case studies also confirm that poor children are more likely to be out of school. Calculations based on the DHS 2011 indicate that the poorest children are nearly three times as likely to be out of school as children from the wealthiest households, although the gap is larger between rich and poor boys (6 and 19 percent, respectively) than between rich and poor girls (6 and 14 percent, respectively). Interviews conducted in Char Kamarzani highlight some of the many challenges that marginalized children face in accessing education. Poor access to health care services in many places keeps children out of school longer. Poverty has many side effects that reduce access to education, including an inability to provide educational materials or meals during the school day. And while rural and urban differences are not particularly acute (10 percent of urban children are out of school compared to 9 percent of rural children), overlapping disadvantages in

terms of gender, wealth and rural/urban location can be severe. As figure 8 shows, 22 percent of the poorest urban males are out of school, compared to only 2 percent of the richest rural females.

**Other regional and socioeconomic disparities have also been found.** For example, children living in Sylhet have significantly higher rates of exclusion compared with the national average. Ethnolinguistic minority children living in the Chittagong Hill Tracts have much lower enrollment rates than other parts of the country. A lack of resliance to natural disasters also plays a part, with areas that are prone to natural disasters characterized

by lower school attendance. Cyclones in Bangladesh in 2007 and 2009 resulted in 1.5 million children being unable to attend school, and schools in poor areas affected by monsoons often double as disaster shelters.

*Levels of Learning Are Low, Particularly among the Poor*

Due to a lack of adequate data, we are unable to assess disparities in learning outcomes across all upazilas. Bangladesh's extensive examination system, which includes a grade 5 completion examination, does not accurately reflect the learning levels in the system, be-



**Figure 8: Who Is Out of School? Percentage of Out-Of-School Children of Primary School Age, by Household Characteristics, Bangladesh, 2011**
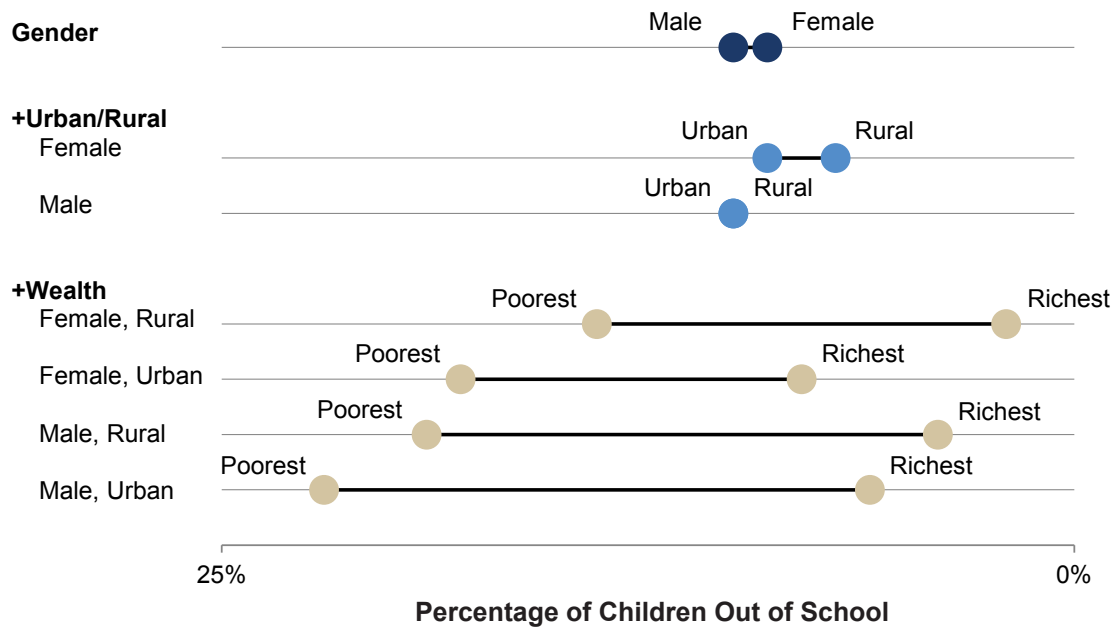
*Source: UNESCO-WIDE, Calculations based on Bangladesh DHS 2011*

cause examinations are not yet competency based. While the pass rate for grade 5 exams has been increasing in recent years, from 92 percent in 2010 to 97 percent in 2012, survey-based assessments of learning competencies have shown that most students are performing below grade level.[8] In order to get a sense of the learning achievements, we use a sample-based National Student Assessment (NSAs), which covers about 10 percent of all upazilas. Since 2006, the DPE has initiated NSAs among primary-age pupils in grade 3 and grade 5. While the tests are still being improved[9], they provide a good sense of the quality of education.[10]

**The available data indicate low levels of learning.** In 2011, about 75 percent of grade 5 students and more than one-third of grade 3 students were found to be working below grade level on achieve-

ment tests in Bangla. Just under 20 percent of grade 5 students were found to be working below grade 3 level (figures 9 and 10). Similarly in mathematics, only one-third of grade 5 students and only half of grade 3 students were performing at or above grade level (GoB-DPE 2013). Performance was also inconsistent across different types of schools. Performance in GPS was found to be significantly higher than in RNGPS. This applied to both Bangla and mathematics (ACER 2012).

**The NSA data also highlight that inequities in learning are significant.** For example, about 20 percent of the best performers in grade 3 perform better than the bottom 20 percent of students in grade 5 in Bangla. Of particular importance, inequities were found to be correlated with socioeconomic characteristics. Students from poor households performed generally lower than

**Figure 9: Student Achievement in Bangla: Share of Grade 3 and 5 Students, by Level**
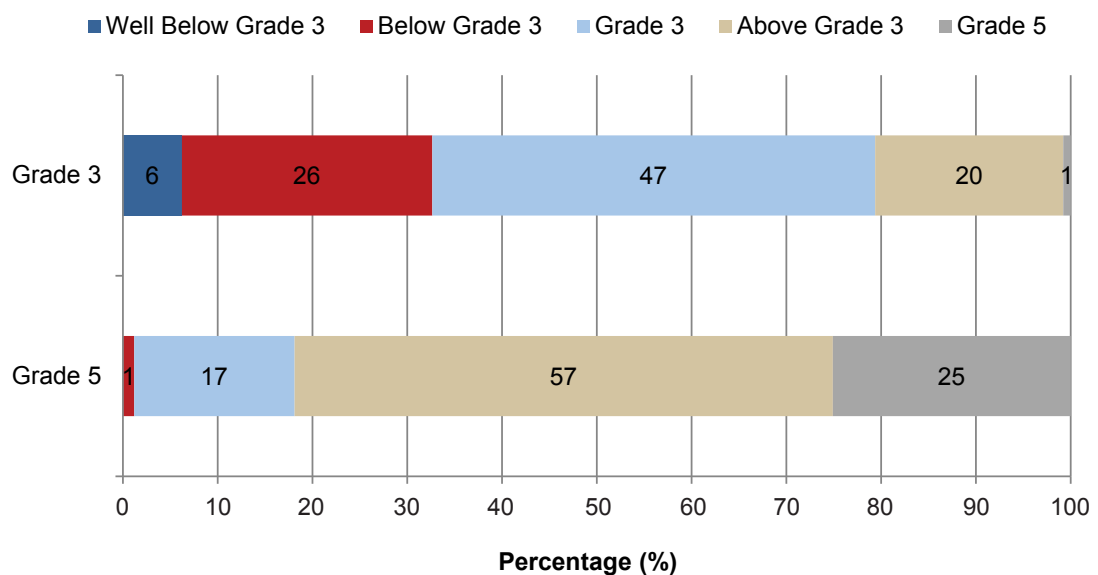


*Source: NSA 2011 cited in ASER 2012 and ASPR 2012*

**Figure 10: Student Achievement in Math: Share of Grade 3 and 5 Students, by Level**

| Legend | ■ Well Below Grade 3 | ■ Below Grade 3 | ■ Grade 3 | ■ Above Grade 3 | ■ Grade 5 |

| | Well Below Grade 3 | Below Grade 3 | Grade 3 | Above Grade 3 | Grade 5 |
|---|---|---|---|---|---|
| Grade 3 | 18 | 32 | 35 | 14 | 1 |
| Grade 5 | | 5 | 29 | 34 | 32 |

Percentage (%)
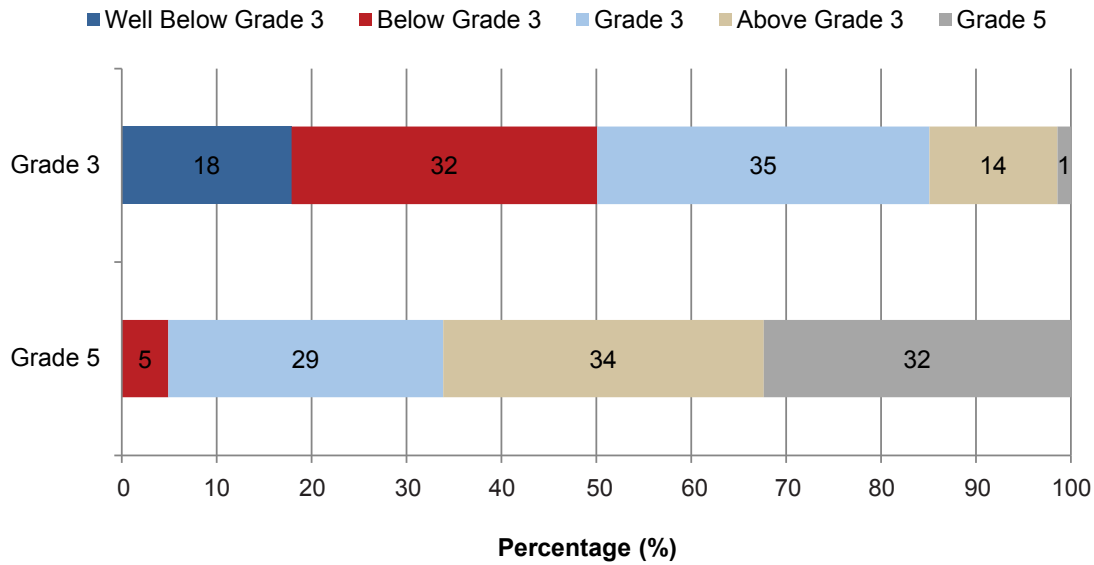
*Source: NSA 2011 cited in ASER 2012 and ASPR 2012*

students from wealthy households. Inequities are worse for Bangla than for mathematics. Grade 5 children from poor households are at least three-quarters of a school year behind their richer counterparts in Bangla and half a school year in mathematics (World Bank 2013b; figure 11).

**A recent study of learning in rural Bangladesh confirms these findings and finds continued low levels of learning in secondary-age children.** In a survey of these children in rural Bangladesh, only 43 (52) percent of the children attained basic competence in oral (written) mathematics and required additional schooling beyond primary grades. The study also found that girls systematically score lower than boys. This is despite the

fact that girls, on average, have completed more years of schooling and have a higher enrollment rate than boys (Asadullah and Chaudhury 2013).

## Schooling Inputs Are Inadequate and Often Not Pro-Poor

**Analysis of the national student assessment highlights a number of school-, teacher- and student-related factors that seem to be correlated with—or have proven to impact—learning.** They include teacher availability and qualifications, teaching and learning materials, time spent in school (e.g., the number of school active days and years in school) and

**Figure 11: Wealth Gaps in Learning Outcomes, Grade 5, 2011**

[Chart: Line graph showing Average Scale Score (y-axis, 110 to 121) vs wealth from Poorest to Richest (x-axis). Two lines: Bangla (dark blue, filled circles) and Math (red, open circles). A "gap" is marked on the right side between the dashed lines at approximately 113.5 (Bangla) and 116.3 (Math).]

*Source: World Bank 2013b*
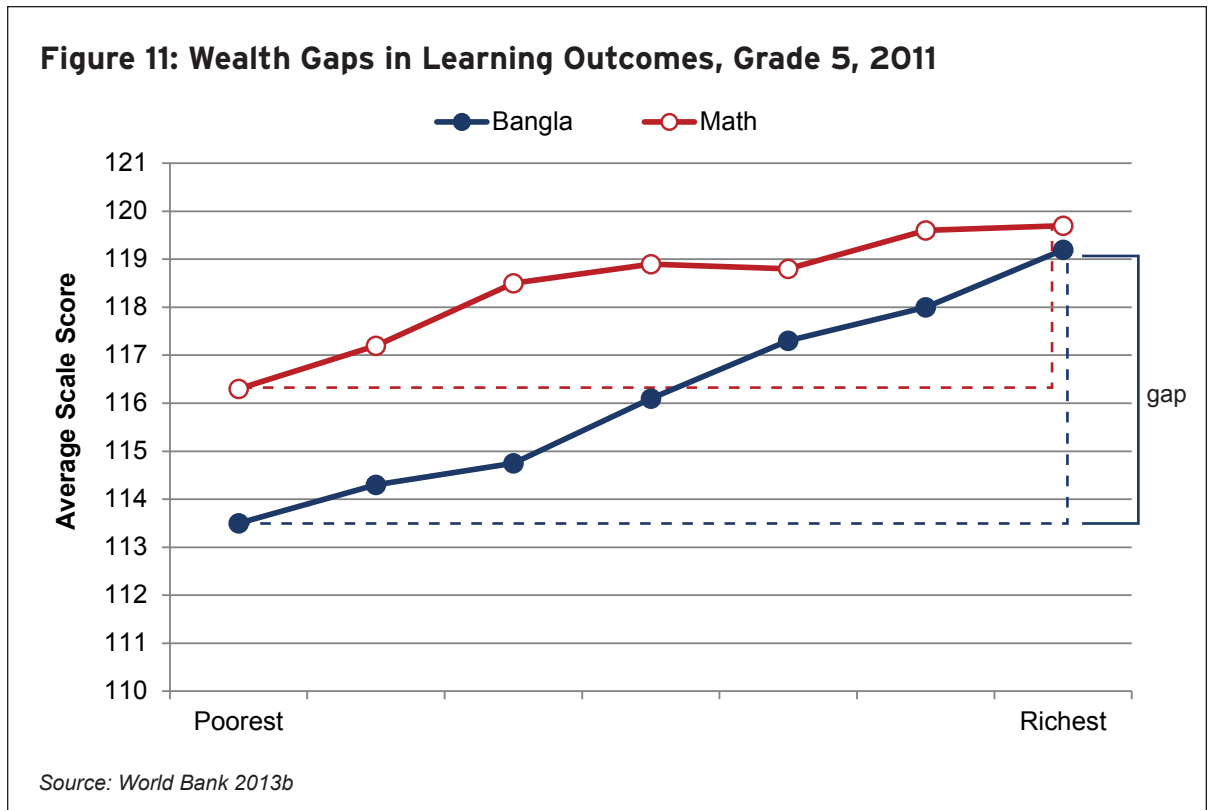
class size (Asadullah and Chaudhury 2013; World Bank 2013b). School-related factors accounted for 73 percent of the differences in student performance, while only 27 percent of the difference can be attributed to student-related factors. This implies that improving the level and distribution of school inputs, along with improved school governance, would be an effective strategy to improve learning outcomes (World Bank 2013b).[11]

A deeper analysis of schooling inputs suggests that despite strong commitment and pro-poor spending patterns, schooling inputs remain inadequate across the board and are often worse in poor areas and for girls. Inequities were found, particularly in accessibility and infrastructure indicators. Teaching inputs are more equitable but are also deeply inadequate across the board.

## A Sufficient Number of Schools, but Not Always Within Reach

Overall, the data suggest that on average there are a sufficient number of schools in Bangladesh, but they are overcrowded and not always easily accessible. On average, upazilas have 0.7 schools per 1,000 people or 6.4 schools per 2,000 households. This is well above the government target of 1 school per

2,000 households.[12] The average number of schools per 1,000 population is also higher in the poorest quintile of upazilas (0.7) compared with the richest quintile (0.6). However, the government target presents a rather low threshold. With an average of 0.6 children per household, this target translates into 1 school per 1,200 primary-age children, which is rather large. There is also quite a bit of variation in the school density, with some upazilas having more than 20 times the targeted number of schools (figure 12). Moreover, while upazilas are reaching the target in terms of number of schools, they are well below target in terms of the number of classrooms and the space provided per pupil within each school. So despite having a significant number of school buildings, Bangladesh has a serious problem of overcrowding (see the discussion on infrastructure below).

**Schools are often not located in—or easily accessible from—remote communities.** The school census indicator measuring accessibility confirms that many upazilas have a significant share of schools that are not easily accessible. Accessibility seems to be more restricted in poorer areas, where an average of 25 percent of schools were difficult to access, compared with an average of 12 percent in wealthier upazilas. The issue with accessibility is somewhat surprising, given the fact that Bangladesh has invested so much in the expansion of its rural road system (Mahmud et al. 2013). Studies reveal that perceived ease of access to school depends on a number of factors, including distance, the condition of roads in wet and dry seasons, the cost of transportation and the perception of the safety of the route (Hossain and Tavakoli 2008). These factors vary considerably across regions.



**Figure 12: The Number of Schools in Upazilas Is Adequate**

*Source: ASC 2011*
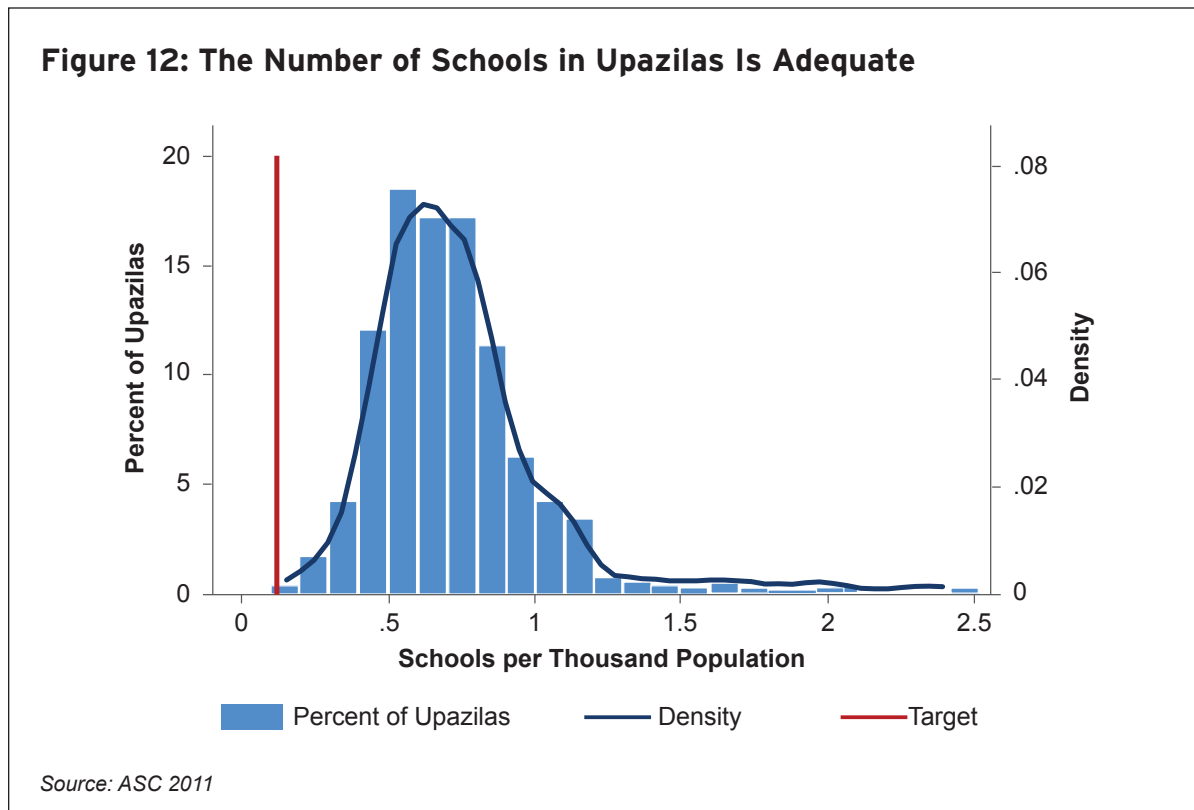
Accessibility is a particular constraint in areas that are prone to flooding, such as the char and hoar areas. During the monsoon season, large areas get flooded and schools become shelters for poor people, interrupting school operation and children's ability to attend school. In some areas, however, accessibility is a year-round concern affecting the availability and presence of teachers. In interviews, teachers in the Nungola Government Primary School in Char Kamarzani noted they have to travel 3 to 4 hours from where they live (in Gaibandha city) to reach the school (Raihan et al. 2014a).

Poor access to schools underlines the importance of innovative efforts by nongovernmental schools to reach marginalized communities. One such initiative is BRAC schools, which had some of the highest accessibility scores even though they are often located in hard-to-reach communities (see box 1). Another initiative is the Gram Bangla Unnayan Committee, which has provided education through "school boats" to the Bede community. The nearly 1 million strong Bede, or River Gipsy, community lives on boats in groups of 10 to 15 families, and they travel long distances across the country. Teachers are recruited from the community and given basic training. The boats provide education for a couple of years, after which children living with sedentary relatives can get access to government primary schools (UNESCO 2010).

Finally, infrastructure development plans under PEDP III are also trying to remedy this situation by setting clear allocation criteria for schools and classrooms construction. Habitations with catchment areas of more than 2,000 households and no school within 2 kilometers would be eligible for a new school (GoB-DPE 2011). For classrooms the criteria is to prioritize overcrowded schools. In the Chittagong Hill Tracts area, where the population density is far lower than the plain land, the government is constructing hostels so that children do not have to travel a long distance to schools. Despite good intentions, it has been very challenging for the government to calculate habitations without schools due to a lack of data, and plans have been put in place to obtain Geographic Information System data to identify settlements.

## Infrastructure Conditions Are Often Poor

An average of 85 percent of schools in 2011 had access to safe water, but far fewer had appropriate sanitation. The widespread availability of safe water is a major achievement, even though it is still below the government target of having all schools gain access to safe water. While less pronounced than other variables, regional disparities also exist. In the worst-performing quintile of upazilas, only about two-thirds of schools have safe water. No significant disparities were found, however, between poorer and richer upazilas, suggesting that challenges with water provision are not restricted to poorer areas. Despite the fairly widespread availability of safe water, broader sanitation conditions are much weaker. While on average upazilas reach the government target of 1 toilet per 100 students, significant disparities can be found across upazilas. The top-performing quintile of upazilas has more than twice as many toilets as the bottom quintile. The top-performing quintile of schools has more than 6 times as many toilets per 100 students (2.1) as the bottom quintile (0.3).

Access to electricity (proxied by the presence of an electric fan) is problematic. Less than 30 percent of schools have access to electricity, and disparities between upazilas are quite pronounced. The top-performing quintile of upazilas has more than 70 percent of schools with electricity, while in the bottom quintile the figure is less than 10 percent. Poorer upazilas were particularly affected. In the poorest quintile of upazilas, less than 20 percent of schools had electricity, compared with more than 50 percent in the richest quintile. Some relation also exists with the types of schools. Availability of electricity was highest among GPS (41 percent on average), followed by RNGPS (12 percent). Access to electricity was less than 10 percent for most other school types, however.

Finally, average room size per student falls below the target (of 1.18 square meters, or 12.7 square feet)[13] in all upazilas, confirming significant overcrowding. More than 15 million children in Bangladesh, nearly 97 percent of the primary and preprimary students for whom we have room size data, attend schools with insufficient classroom space.[14] Even after accounting for double shifting, at least 12 million children are in overcrowded classrooms. However, the double shifting goes on at the expense of contact hours, which have also been related to learning achievement. The learning time, or number of contact hours, is about half the international average of 1,000 hours per school per year (Ahmed and Govinda 2010).

Room size varies significantly across upazilas in both poorer and wealthier areas (figure 13). The average room size per student in the best-performing quintile of upazilas is more than twice that in the worst-performing

quintile of upazilas. Case study interviews indicate that the standard school design implemented as part of the PEDP leaves little flexibility to adjust the size of classrooms and that rooms are often too small to accommodate the number of students in lower grades. Interviews with individuals from the Bhashantek Slum demonstrate the ill effects of a lack of space. Four to five students often have to share a bench made at most for three, and the lack of space makes it impossible to consider converting the school to a single shift. In one school, 557 students share 3 classrooms. Teachers reported difficulty keeping students' attention in this situation, impairing their learning (Raihan et al. 2014a).

On average, 75 percent of schools in all upazilas have room conditions of at least moderate quality. But the case studies highlight that despite this overall rating, many schools have rooms that lack decoration and education materials expected for high-quality learning. Moreover, room conditions seemed to be significantly worse in GPS, RNGPS and community schools than in other types of (unsupported) schools.

The government has recognized that the shortage of adequate classrooms is affecting the quality of teaching, and thus infrastructure improvement and construction has been a major objective of ongoing government programs, including the PEDP. Since 2000 both the number and size of schools have increased in Bangladesh. The total number of primary schools, as reported in the 2013 Annual Sector Performance Report, is nearly 107,000, including about 15,000 nonformal schools. A significant amount of resources has also been committed to constructing new classrooms in existing schools in order to cope with increased enrollment and

**Figure 13: Classrooms Are Too Small (average room size in square feet)**
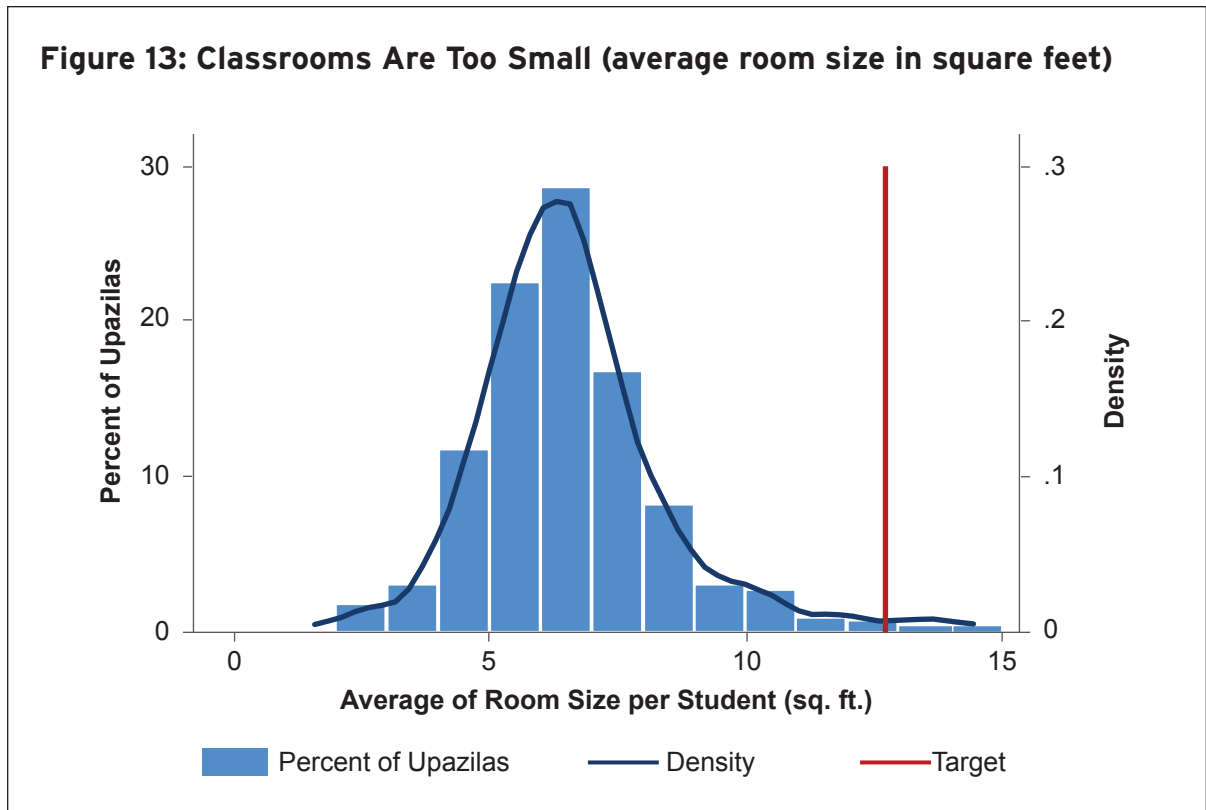


retention. The original aim of PEDP II was to construct 30,000 new classrooms, but in 2009 this target was updated to more than 43,000 classrooms. According to DPE records, some 40,000 classrooms had been constructed by March 2011 (GoB-DPE 2013).

**However, despite significant efforts, overcrowding remains a critical problem.** In part, this has been the result of Bangladesh's progress in improving access and retention in primary school, which has outpaced the school construction efforts. The focus of PEDP II had been creating sufficient classrooms to enable a transition from double-shift to single-shift schools and thus enhance the contact hours between teachers and students. While the program increased the number of single-shift schools, overcrowding remained a huge problem, and

it was recognized that attempting to universalize the single-shift system would not be feasible in the short term. Therefore, under PEDP III the government decided to focus its attention on the issue of overcrowding and developed a needs-based infrastructure plan to eliminate overcrowded classrooms. This plan identified the need to add another 39,000 classrooms for all GPS, RNGPS and community schools so they could run without overcrowding (and using not more than a double shift) (GoB-DPE 2011).

*Teachers in Many Upazilas Are Scarce and Underqualified*

**The availability of qualified teachers is a major problem in Bangladesh.** Only just over half of GPS and

RNGPS were meeting the required standard of 1 teacher per 46 students in 2012. The situation has slightly improved in GPS since 2005, but the percentage of RNGPS that meet the requirement has not improved (GoB-DPE 2013). Addressing teaching quality is also key. Despite fairly high qualifications in some schools, teachers' subject knowledge has been found to be very low, having a negative impact on learning outcomes. In addition, teachers were found to have low motivation. There are very few incentives for innovative effective teaching and learning practices. In addition, surveys have highlighted problems with school closures and teacher absenteeism (more than 10 percent of surveyed teachers) and tardiness (over 40 percent of surveyed teachers) (Nath and Chowdhury 2009). These factors all affect teachers' ability to provide high-quality teaching.

Detailed upazila-level data highlight the problem showing that a large percentage of upazilas do not meet the average student/teacher ratio (STR) required. The distribution is also skewed to the left, suggesting that some upazilas have very high average STRs (figure 14). STRs were also found to be higher in poorer areas. The average STR in the poorest quintile of upazilas was 54 students per teacher, compared with 48 students per teacher in the wealthiest quintile. About 60 percent of upazilas do not meet the national target for STR. STRs were much higher (average of close to 60 students per teacher) in GPS, RNGPS and community schools compared to other types of schools (average around 40 STR or below). Problems with deploying sufficient teachers are particularly acute in marginalized areas, where the inaccessibility of schools is a disincentive for teachers. For



**Figure 14: Student/Teacher Ratios Are Too High in the Majority of Upazilas**
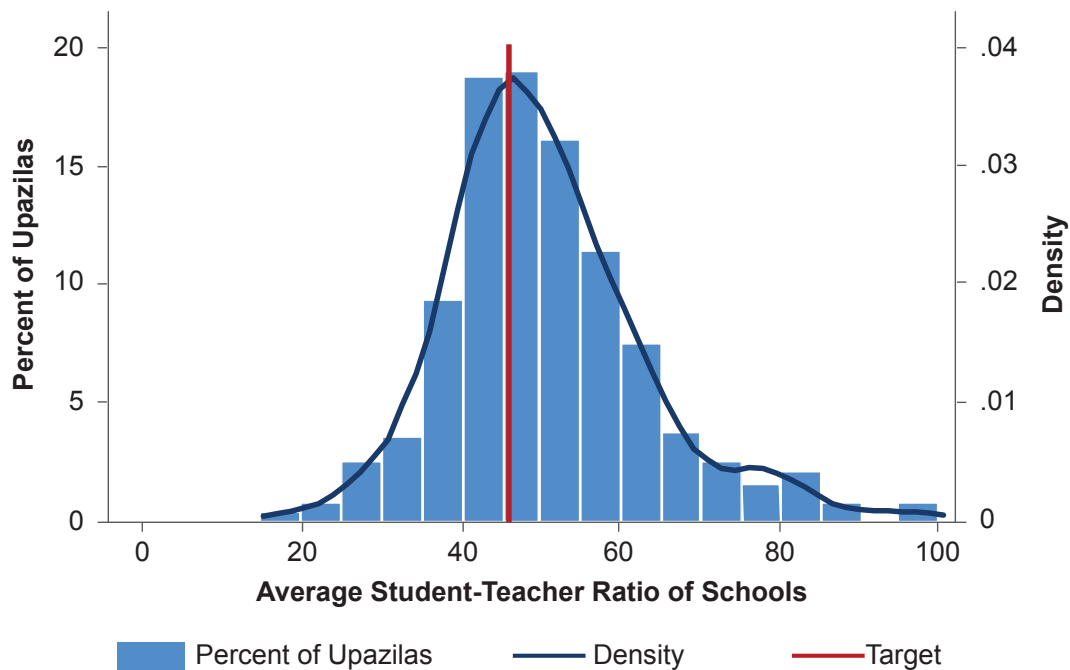
instance, some teachers in Char Kamarzani face a four-hour commute to work due to the remoteness of the posting, and thus must leave home at 6 am and only return at 9 pm. In all four marginalized areas that were surveyed (Char Kamarzani, Kheippapara, Kumardhonpara, and Bhashantek slum), teachers were found to be teaching multiple classes a day due to an insufficient number of teachers (Raihan et al. 2014a).

All upazilas also still have some way to go in achieving the government target that all teachers should have at least a certificate-in-education qualification. Figure 15 shows that the majority of upazilas have an average of between 60 and 80 percent of teachers who are qualified. However, the graph has a significant tail to the left, which suggests that a number of upazilas

have many fewer qualified teachers. In more than 10 percent of upazilas, the average proportion of qualified teachers was less than 40 percent. In the most extreme example, only 5 of the 139 teachers in the 94 schools in Dhakin Sunamganj have the minimum qualifications.

Interestingly, and unlike other indicators, poor upazilas have a higher share of trained teachers than wealthier upazilas. This can be explained by the relatively higher share of government-supported schools and teachers in these areas. The proportion of trained teachers is significantly higher in GPS and RNGPS, where on average about 80 and 84 percent of teachers, respectively, are trained. Teacher qualifications are much lower in other types of schools, however. For example, in community schools, just under half the teachers are

**Figure 15: The Availability of Teachers with Qualifications Is Extremely Low in Some Upazilas**
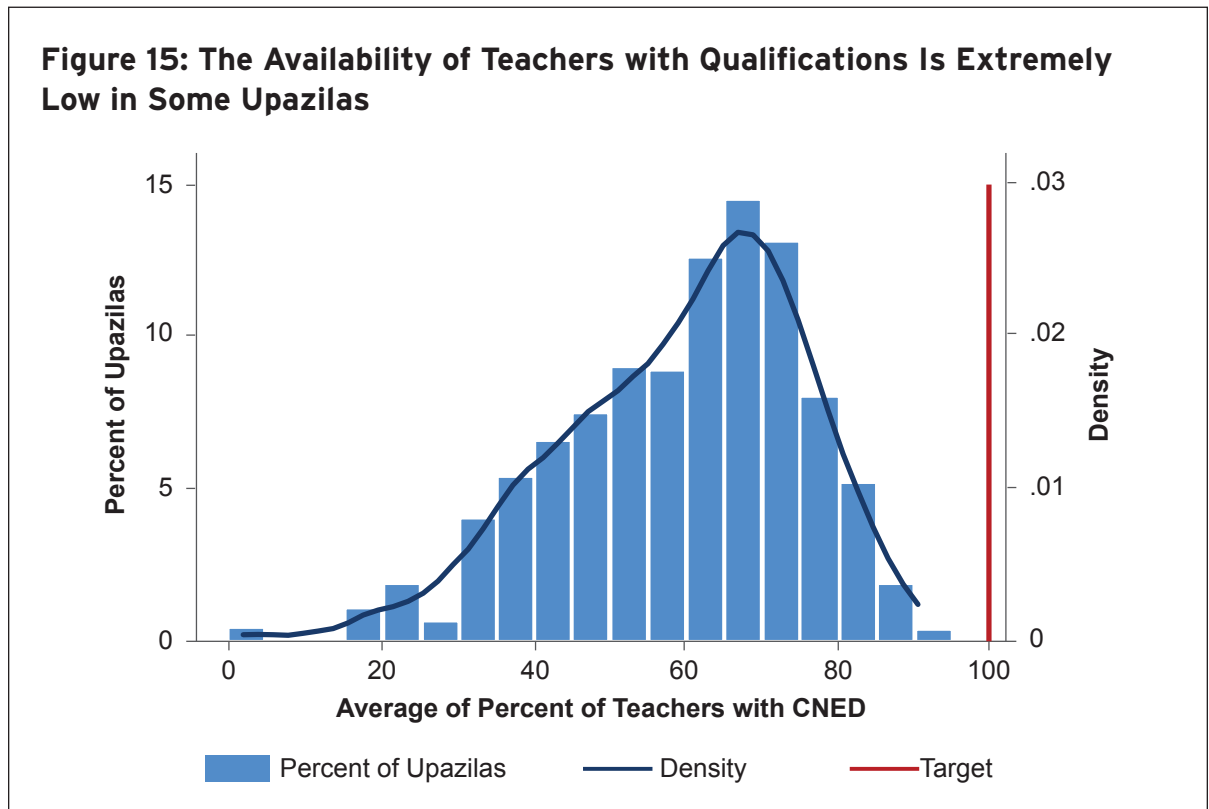
trained. In nonregistered NGPS, an average of 10 percent of teachers are trained, and in madrasas fewer than 5 percent of teachers are trained.

The school census does not include detailed data on textbooks supplied to schools, making it difficult to assess the availability of teaching materials. To try and get a sense of teaching tools in the classrooms, we examined the availability of chalkboards in schools and found that the majority of upazilas have chalkboards available in all or nearly all schools.

*Good Access to Primary School for Girls, but School Conditions Are Not Gender Sensitive*

As noted above, Bangladesh has been remarkably successful at creating access to primary education for girls, so much so that boys are now lagging be-

hind girls. However, despite this reverse gender gap in access, girls continue to be disadvantaged in terms of their schooling experience, which may have an impact on their sense of safety, consistency in their attendance and their potential to learn. A significant number of upazilas do not achieve the government targets of having 66 percent of teachers be female and having at least one separate functioning female toilet in each school. In some upazilas, the average share of female teachers is well below 40 percent (figure 16), and only about 20 percent of upazilas reached the target of having 66 percent of schools with a separate female toilet in 2011. The share of female teachers is particularly low in poorer areas. In the poorest quintile of upazilas, only 45 percent of teachers were female, compared with nearly 60 percent in the wealthiest quintile. The lack of appropriate toilets for girls was recognized in the infrastructure development plan under PEDP III as one of the three main priori-



**Figure 16: Prevalence of Female Teachers Across Upazilas**

Average Percent of Teachers that are Female by School

Percent of Upazilas | Density | Target
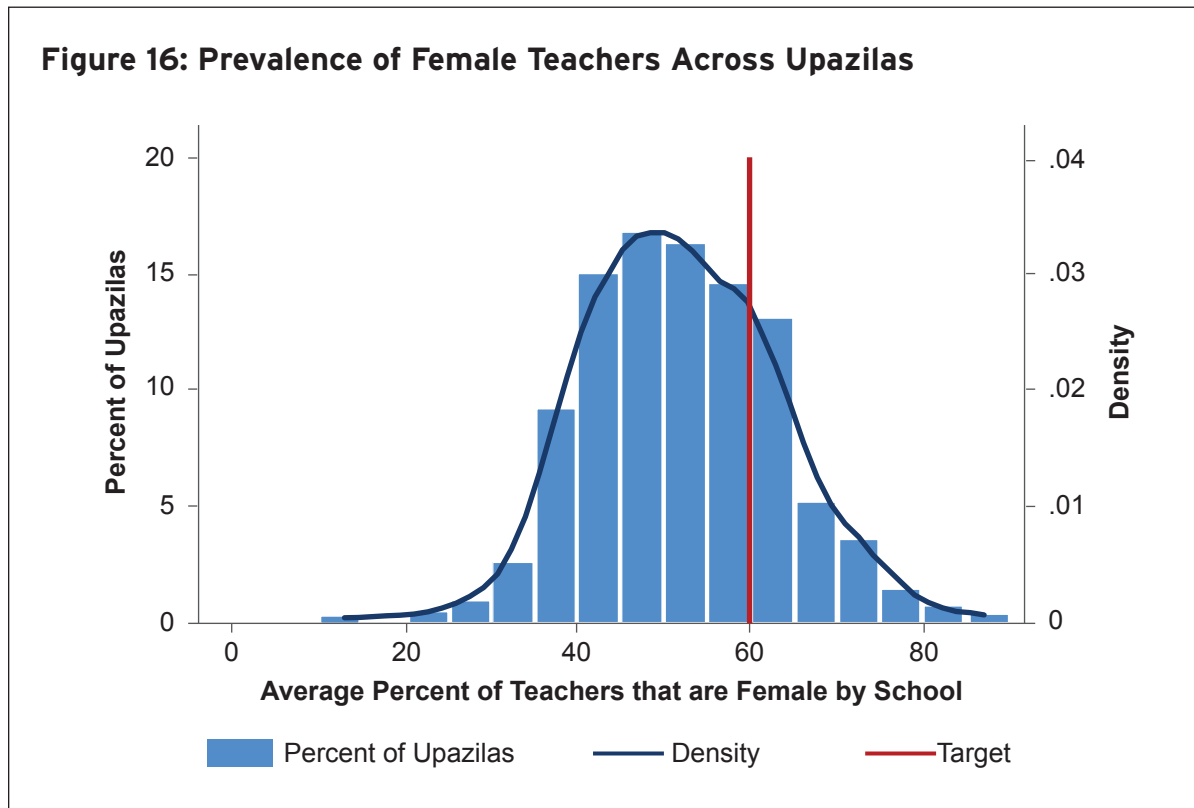
ties (together with classroom construction and repair) for additional investment; (GoB-MoPME 2012). Results of the most recent 2012 school census highlight significant improvements as a result of this program, which are not reflected in the 2011 census data used here (GoB-DPE 2013).

## *The Education Development Index*

**Analyzing disparities in education provision is a complex task due to the multiplicity and heterogeneous nature of the indicators describing education provision and outcomes.** In addition to analyzing individual indicators, this paper therefore develops a composite index, the Education Development Index (EDI), which enables the simultaneous assessment of a set of indicators across various regions and locations in Bangladesh.

**Using 19 indicators of education inputs and outputs, some of which were presented in the previous section, the Education Development Index is calculated for 497 of the 503 upazilas and all 64 districts** (see annex 1 for details). The EDI is a composite index that summarizes education data across the 19 indicators. The EDI is calculated by estimating weights for individual indicators, which are then combined into 5 subindices. Annex 1 provides a detailed overview of the methodology, and annexes 2 and 3 provide a list of the upazilas and districts ranked according to their EDI scores.

## *Methodology: Constructing the EDI*

**The construction of the EDI draws on the methodology developed by the World Bank** (World Bank 2009; Raihan et al. 2014b).[15] The EDI is calculated in a two-step process. In the first step, 5 subindices were created by grouping 19 indicators drawn from the ASC 2011 and the Population Census 2011 into broad categories (access, infrastructure, quality, gender equity and outcomes). These subindices were created using weights derived from Principal Components Analysis (PCA). PCA is a statistical technique designed to reduce the dimensions of a data set (in this case, from 19 indicators to 1 EDI) while retaining as much of the original information as possible. In the second step, each of the 5 subindices was subjected to PCA and weighted. These weights were then used to create the overall EDI score. Table 2 presents the list of subindices and indicators considered. A detailed methodology is provided in annex 1.

**The EDI is constructed with four main objectives in mind.** First, the EDI can help benchmark the status of education development geographically and highlight the disparities and distribution of overall education performance across upazilas and broader regions. The EDI allows us to rank various upazilas according to their relative performance on the overall index, as well as each of the subindices. Second, the EDI makes it possible for policymakers to get a sense of the situation in various geographical areas and make comparisons between areas. Composite indices have proven to be important starting points for debates with broader audiences because the information can be presented in a simple manner (Foa and Tanner 2012). The ranking can help policymakers identify areas that are being left behind and need urgent attention across a number of indicators. It can also help identify areas that are performing strongly and could be examined for best practices. Third, the index also allows us to study the correlations between inputs and outputs as well as the relation between overall education per-

formance and other broader socioeconomic indicators, including poverty. Fourth and finally, the EDI allows us to study the relation between education performance and spending on education, which could aid the decision-making process for resource allocation.

**The EDI includes both input and output indicators.** This allows us to assess the status of inputs in-dependently of outputs by decomposing the EDI into its constituent subindices and analyzing the subindices separately. This is important for two reasons. First, there is a time lag in translating inputs and processes into outputs and outcomes, so recent improvements in inputs, though important, may not yet have translated into improvements in outputs or outcomes. Second, experience shows that adequate resources do not nec-

| Table 2: Education Development Index: Subindices, Indicators and Targets | | |
|---|---|---|
| **EDI Sub-indices** | **Indicators** | **Government target by 2015** |
| **Access** Indicators related to school coverage. | 1. Schools per thousand population* | 1 per 2,000 households |
| | 2. Accessibility of schools* | |
| **Infrastructure** Subindex based on indicators related to the physical infrastructural environment of the schools. | 1. Schools with safe water* | 100% |
| | 2. Schools with electricity* | |
| | 3. Schools with 1 toilet per 100 students* | 85% |
| | 4. Average room condition of the school* | Rooms must be (1) pacca (built with durable materials) (2) min. 47 m$^2$ or 1.18 m$^2$ per student (3) good condition (4) max. 40 students per classroom |
| | 5. Room size per student++ | |
| **Quality teaching** Subindex based on indicators related to quality teaching facilities. | 1. Student/teacher ratio++ | 46 |
| | 2. Qualification of teachers* | All teachers trained to at least C-in-Ed |
| | 3. Availability of teaching-learning materials* | 100% of schools |
| **Gender Equity** Subindex based on indicators related to gender equity. | 1. Share of girls in total number of students* | |
| | 2. Share of female teachers in total number of teachers* | 60% of teachers |
| | 3. Schools having separate toilet for girls* | 66% of schools |
| | 4. Gender equity in dropout rate++ | 0.5 |
| **Outcome** Subindex based on indicators related to outcomes. | 1. Gross enrollment ratio* | 105% |
| | 2. Pass rate at grade five* | 98% |
| | 3. Attendance rate* | 82% |
| | 4. Dropout rate* | 20% |
| | 5. Repetition rate* | |

*Sources: Based on Raihan et al. (2014b) and World Bank (2009)*
*\* Indicator used in World Bank (2009) study; ++ Indicator introduced in Raihan et al. (2014b)*

essarily translate into desired outcomes unless they are used effectively. Unfortunately, the EDI cannot provide a complete picture of the effectiveness of education inputs because it does not include an assessment of learning outcomes. This is because consistent data on education achievements across all upazilas are not available. However, some assessment of the quality of education can be made based on the analysis of the quality and availability of important education inputs (e.g., the availability and quality of teachers). Below, we also provide an assessment of variations in learning outcomes based on the National Student Assessment.

The EDI is a composite index that summarizes a complex reality into one simple measure. Like any composite measure, however, the EDI needs to be interpreted with caution. While the EDI allows us to

summarize a complex set of indicators in one measure, it also obscures information about changes in individual indicators. The value of the indicator is also dependent on the choice of indicators and weights calculated from the PCA for the various indicators and subindices. This is why, in addition to analyzing the overall index, a more disaggregated analysis of individual indicators is also needed. Further research is also needed to analyze the specific challenges and policy solutions in areas identified as problematic by the EDI.

*Performance across Upazilas Has a Wide Spread*

Looking at the upazila-level performance, we find a relative wide spread in the performance of different upazilas. The majority of upazilas perform closer to



**Figure 17: The Majority of Children Are in Upazilas Scoring Above 0.5 on the EDI**
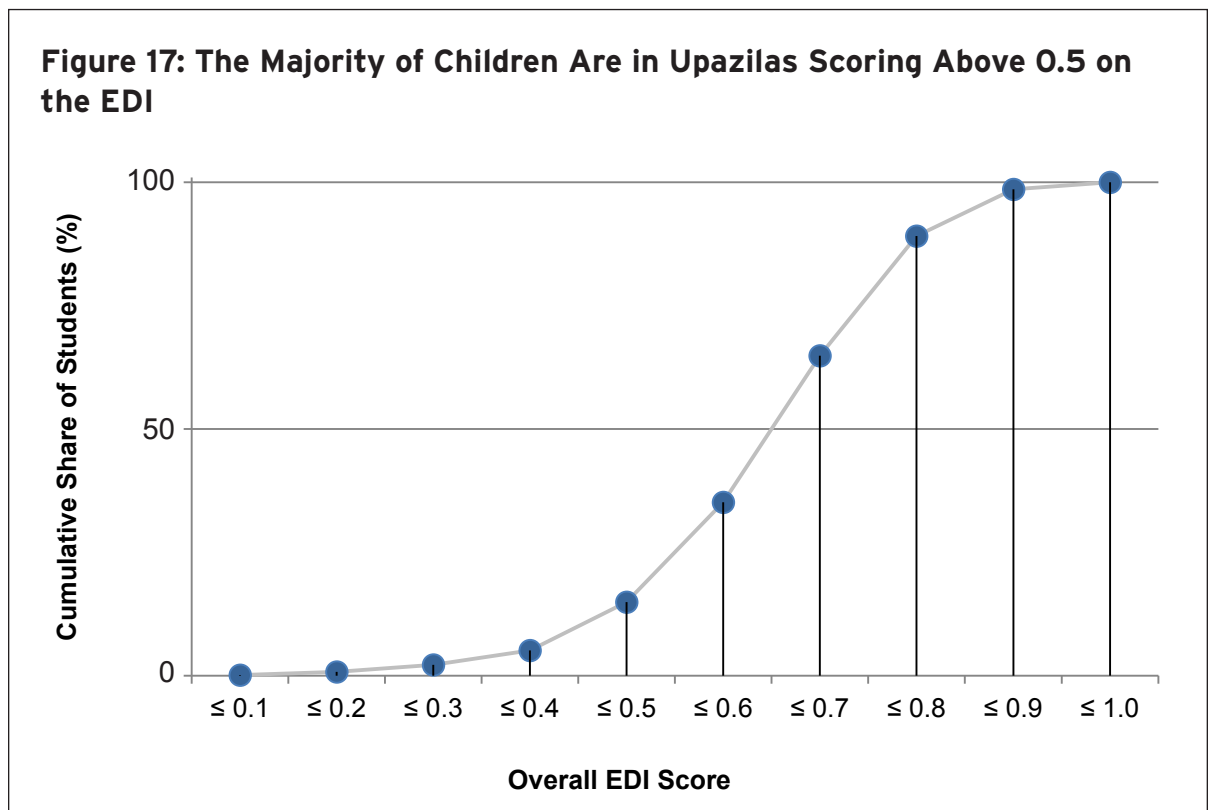
the top- than to the bottom-performing upazila. About 54 percent of upazilas score between 0.6 and 0.8 on the overall EDI, which puts them relatively close the best-performing upazila (which has a score 1 by definition)[16]. This means that the largest proportion of upazilas is closer to the best-performing (EDI score of 1) than to the worst-performing upazila (EDI score of 0). Accounting for the number of children in various upazilas, we find that 75 percent of all children are in upazilas with scores between 0.5 and 0.8. Caution is needed when interpreting this data, however, because the EDI measures perfor-

mance relative to the best scoring upazila, not relative to the government target or what would be needed to deliver quality education. So while many upazilas score above 0.5 on the EDI, their performance is far from ideal.

**Disparities are also found across districts, which is the second level of education administration above upazilas.** Table 3 provides an overview of the 10 best- and worst-performing districts on the overall EDI and three subindices. A detailed ranking of all districts can be found in annex 2. While there is obviously some variation

| Table 3: EDI Scores of 10 Best and Worst Districts | | | |
|---|---|---|---|
| **Best 10 Districts by:** | | | |
| **Overall EDI** | **Infrastructure Subindex** | **Quality Subindex** | **Outcome Subindex** |
| Dinajpur | Rajshahi | Jhalokathi | Barisal |
| Munshigonj | Dinajpur | Narail | Munshigonj |
| Rajshahi | Joypurhat | Dinajpur | Khulna |
| Narail | Thakurgaon | Bagerhat | Patuakhali |
| Thakurgaon | Naogaon | Khagrachhari | Pirojpur |
| Jessore | Pirojpur | Rangamati | Bagerhat |
| Magura | Jhalokathi | Patuakhali | Chandpur |
| Natore | Jhenaidah | Pirojpur | Jhenaidah |
| Panchagarh | Meherpur | Bandarban | Jessore |
| Jhenaidah | Khagrachhari | Thakurgaon | Jhalokathi |
| **Worst 10 Districts by:** | | | |
| **Overall EDI** | **Infrastructure Subindex** | **Quality Subindex** | **Outcome Subindex** |
| Faridpur | Bhola | Brahmanbaria | Meherpur |
| Pabna | Kurigram | Kurigram | Shariatpur |
| Madaripur | Chandpur | Dhaka | Mymensingh |
| Brahmanbaria | Madaripur | Madaripur | Faridpur |
| Noakhali | Luxmipur | Manikgonj | Sylhet |
| Bhola | Mymensingh | Noakhali | Kishorgonj |
| Cox's Bazar | Noakhali | Bhola | Moulvibazar |
| Hobiganj | Comilla | Pabna | Cox's Bazar |
| Sunamgonj | Faridpur | Sirajgonj | Sunamgonj |
| Mymensingh | Brahmanbaria | Mymensingh | Hobiganj |

in performance across the five subindices of the EDI, we find that top-performing districts generally perform relatively well across a number of the EDI indicators. There is also some consistency in performance within districts. For example, of the 13 upazilas in Dinajpur, 8 are in the top decile of EDI scores and the rest are in the second and third deciles of EDI scores. Similarly, of the 11 upazilas in Sunamgonj, 8 are in the bottom decile of overall EDI scores and the rest are in the second-worst decile (see annex 3).

| Table 4: Upazila EDI and EDI Subindex Scores by EDI Quintiles, Average | | | | | | |
|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 | Difference (Q5-Q1) |
| Access | 0.38 | 0.56 | 0.64 | 0.69 | 0.76 | 0.38 |
| Infra | 0.22 | 0.34 | 0.42 | 0.52 | 0.67 | 0.45 |
| Quality | 0.50 | 0.63 | 0.70 | 0.77 | 0.87 | 0.37 |
| Equity | 0.41 | 0.55 | 0.62 | 0.68 | 0.78 | 0.37 |
| Outcome | 0.53 | 0.69 | 0.76 | 0.82 | 0.90 | 0.36 |
| **Overall** | **0.43** | **0.59** | **0.67** | **0.74** | **0.84** | **0.40** |

### Poor Upazilas Score Worse on Infrastructure but Better on the Quality Subindex

**Overall, poorer areas seem to perform only slightly worse in terms of the overall EDI, but the overall index hides much more pronounced differences in subindices.** Significant disadvantages in the infrastructure, access and gender subindices are compensated by the pro-poor nature of the quality subindex (mainly driven by higher teacher qualifications in poorer areas). Challenges in disadvantaged areas with school accessibility, school infrastructure and gender equity in schooling inputs are likely contributing to the much more pronounced differences in learning outcomes found in learning assessments (but not included in the EDI).

**The largest disparities are found in the infrastructure subindex.** An analysis of the average EDI scores by quintiles shows that the biggest spread in performance can be found in the infrastructure subindex, where the difference in the EDI score between the lowest and the highest quintiles of upazila EDI scores is 0.45. This suggests significant disparities in capital investments between upazilas (see table 4).

While poorer upazilas had relatively higher student/teacher ratios, they had a higher share of teachers who were trained, **resulting in a positive relationship between poverty incidence and the EDI quality subindex**. This does not mean, however, that poor communities therefore get better teaching inputs than wealthier areas. As was noted above, teacher absenteeism and tardiness is a serious issue in many rural areas, likely affecting education outcomes. This may also be one of the contributing factors in explaining why relatively higher-quality inputs have not translated into better education achievements in terms of dropout and national learning assessments.

**Figure 18: Overall EDI Scores by Poverty Incidence**
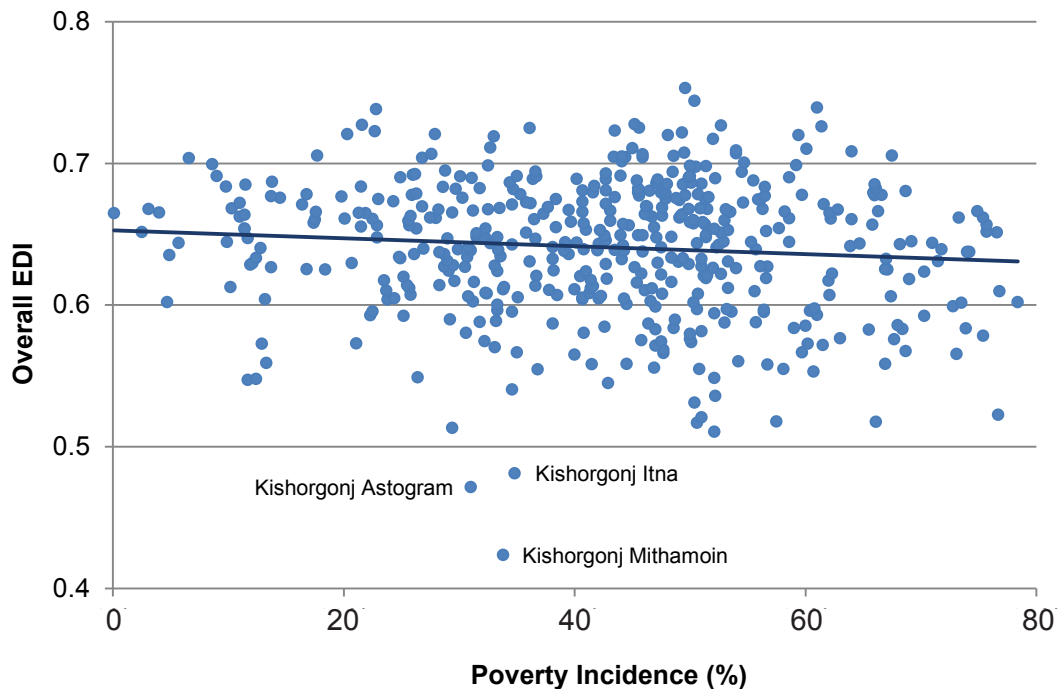


**Figure 19: Quality EDI Scores by Poverty Incidence**
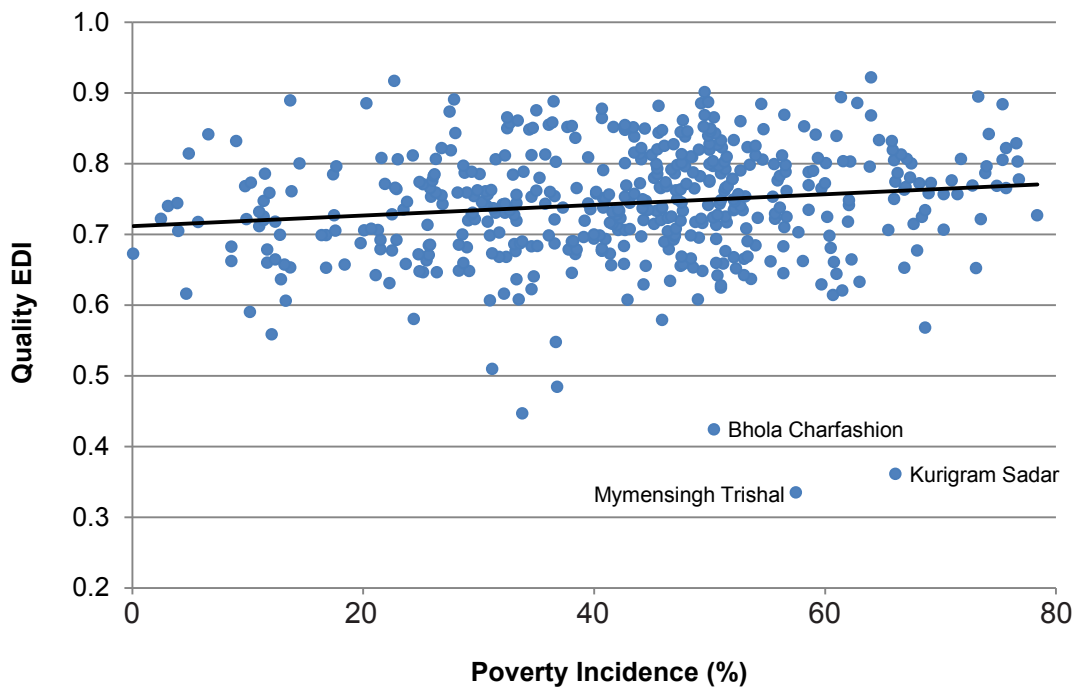
# WHY IS PRO-POOR FINANCING FALLING SHORT?

The quality and equity challenges facing Bangladesh's education system are caused by a number of complex and interrelated factors. Historical legacies, geographical characteristics, economic growth and political context have all contributed. Public financial management—including planning, implementation and monitoring of public spending—has also played a role. Recurrent spending has been pro-poor, leading to good results in education access. But inequities have continued to persist in school conditions, such as school infrastructure, and, as in most countries, in education outcomes such as dropout rates and learning achievements.

In this section we examine why Bangladesh's seemingly favorable financing system has not yet delivered the results needed. Four factors seem to be hampering further progress in the education sector. First, inadequate overall levels of funding result in general low learning outcomes but are particularly detrimental for the poor, who are unable to fill the financing gap. The value of stipends has been declining and inadequate to compensate the poor. Second, pro-poor patterns of spending are mainly related to stipends and teacher salaries. Capital investments are falling short in poor areas. Third, a complex financing and education management system results in allocations that are often incremental or discretionary and not needs based. They are also in-transparent. Fourth and finally, the lack of data and systematic analysis of the relation between spending and education outcomes makes it difficult for the Bangladesh government to pursue its quality and equity objectives.

## Inadequate Overall Levels of Spending Hurt the Poor

Bangladesh's consistent commitment to education has been a contributing factor to its achievements in education over the past decade. The nature of the political settlement vis-à-vis social services in general and health and education in particular has reinforced this commitment. Some studies suggest that expansions of social services come with multiple political benefits for the politicians: the enhancement of the electoral and international legitimacy of the party, a nurturing of vote banks, and the opportunity to dole out patronage to several layers of clientele, both urban and rural (Hassan 2013). Political elites, therefore, have self-enforcing incentives to perpetuate the commitment to pro-poor social provision.

However, despite this strong overall commitment and the pro-poor nature of much of its recurrent spending, overall funding for education has been too low. As a result, Bangladesh has not been able to adequately resource particular education policy objectives, such as improving education quality. Inadequate resources have also shifted some of the education financing burden onto households, which are often unable to pay (Antoninis and Mia 2014).

## Total Public Spending Is Far Below International Benchmarks

Education spending by the Ministry of Education and the Ministry of Primary and Mass Education,

the two most important ministries engaged in primary education, represented about 2 percent of GDP, or 11 percent of total government spending, in FY 2013. The share of education in the overall budget has remained more or less the same over the past decade. However, real spending has increased by about 45 percent due to economic growth. Spending on primary education as a share of total education spending has been strong over the past decade, representing 45 percent of the education budget in FY 2013. However, a troubling trend is the decline in the share of the total budget going to the MoPME (responsible for primary education) shown in table 5. This is especially troubling given the government's plans, as stated in the NEP, to extend basic education to grade 8.

| Table 5: MoPME Budget Share of the Government's Budget, 2007–8 to 2013–14 | | | | |
|---|---|---|---|---|
| Period | Total GoB Budget (BDT billions) | MoPME Budget (BDT billions) | MoPME share of GoB Budget (%) | % of GDP |
| 2007-08 | 796.1 | 56.5 | 7.1 | 1.34 |
| 2008-09 | 999.6 | 59.7 | 6.0 | 1.46 |
| 2009-10 | 1,138.2 | 66.2 | 5.8 | 1.07 |
| 2010-11 | 1,321.7 | 80.7 | 6.1 | 1.20 |
| 2011-12 | 1,635.9 | 89.6 | 5.5 | 0.97 |
| 2012-13 | 1,917.4 | 98.3 | 5.1 | 0.95 |
| 2013-14 | 2,224.9 | 119.4 | 5.4 | N/A |

*Source: Ministry of Finance, 2013.*

Compared with other countries in the region, as well as countries at similar levels of income, spending on education—as a percentage of GDP—is low in Bangladesh. The 2 percent of GDP that Bangladesh spent on education in 2013 was 66 percent below the benchmark recommended by the EFA initiative and was the lowest figure of any country in South Asia. This low spending in Bangladesh is a result of the government's small overall budget. At 16.7 percent of GDP (FY 2012), Bangladesh's public expenditures remain among the lowest in the world, consistent with its low revenue-to-GDP ratio of about 12.4 percent over the same period (IMF 2013).

Donors are playing a strategic role in supporting Bangladesh's development agenda, including in education. Foreign loans and grants accounted for 11 percent of the 2011–12 budget. In 2012, Bangladesh received nearly $3 billion from donors reporting to the Development Assistance Committee of the Organization for Economic Cooperation and Development. About $500 million (17 percent) of total aid went to education in 2012. This amount has been steadily increasing since 2007. The largest education donors were the World Bank, Asian Development Bank, Australia, United Kingdom and the Netherlands, together accounting for more than three-quarters of the funding. Aid to

**Figure 20: Public Spending on Education as a Percentage of GDP in South Asia, 2009**
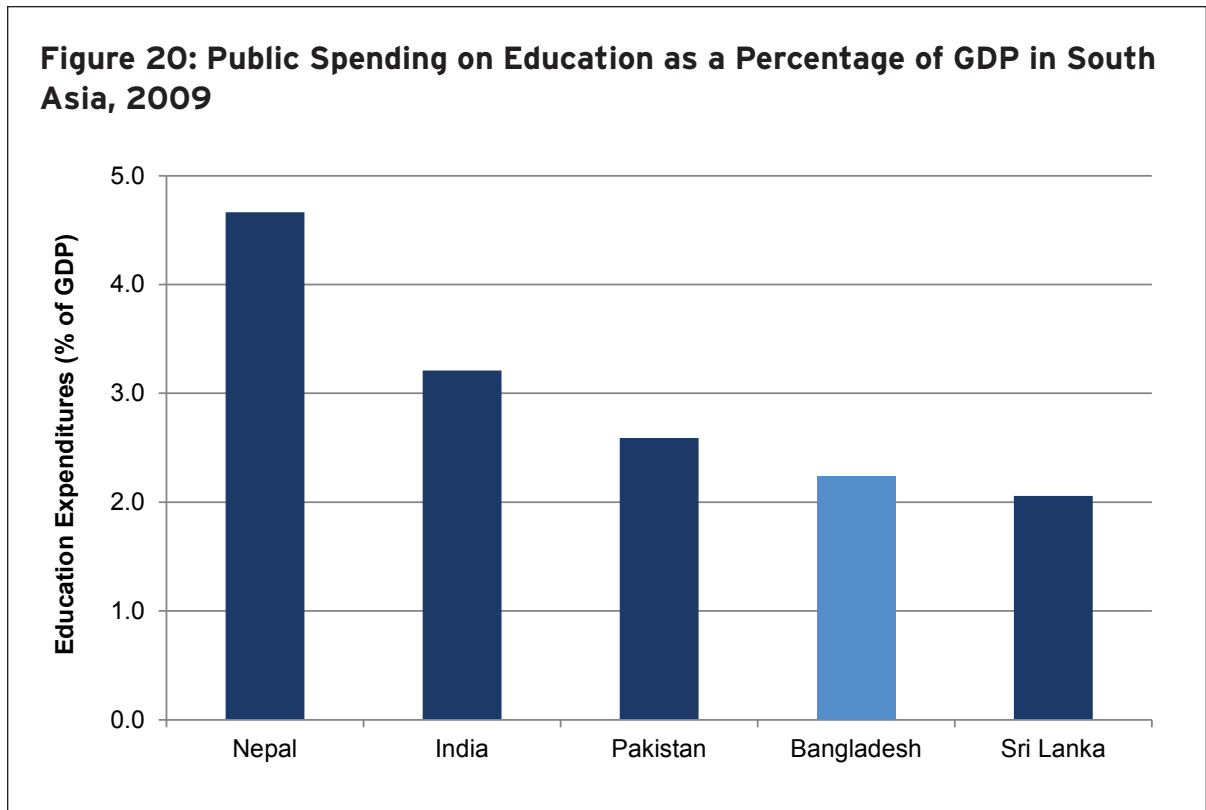


the sector may decline in 2013 with the withdrawal of Netherlands from education support. However, additional funding from the World Bank and the ADB and a funding commitment from the GPE will help to compensate. The PEDP is by far the largest donor-supported education program in Bangladesh, and it has a total of nine international donors. Donors finance more than 15 percent of this large government-funded program. This implies that donors have a significant role to play in making sure funds are allocated equitably and effectively.

*Poor Households Are Less Able to Compensate for Low Public Spending*

Our analysis has focused on government spending at the upazila level, but this does not provide a complete picture of education spending in Bangladesh. Some studies have illustrated the high share of household spending on education in Bangladesh, which reinforces disparities in education.

**On average, households roughly match the government's per-pupil contributions at the primary level** (Al-Samarrai 2007). While there are tuition fees for private schools, there are also significant additional costs for those attending government schools, despite a policy of free and compulsory primary education in Bangladesh. Costs include fees for exams, which are conducted three times annually; transportation; lunch and other food during school hours; and school supplies such as uniforms, pens, notebooks and bags (Sommers 2013). One 2005 study found that close to 90 percent of all households in Bangladesh made "some type of direct payment to schools." The study also found wide dispari-

ties based on income. The poorest quintile living in rural areas spent approximately 1,313 Tk annually per primary student, compared with 3,188 Tk for the richest quintile in rural areas. In urban areas, the poorest households spent 1,457 Tk annually compared with 4,514 Tk for the richest families. Private contributions to education also vary by school type. The share of total annual per-student costs borne by households ranged from 54 percent in Quomi madrasas, 59 percent in GPS, 77 percent in RNGPS and 82 percent in nonregistered nongovernment schools (Ahmad et al. 2007).

A significant amount of household spending on education goes to private tutoring, a practice that is widespread and expanding in Bangladesh. The use of tutoring varies by school type. Government schools, which do not charge tuition, have the highest prevalence of tutoring. In 2005, about 32 percent of students in GPS used tutors, compared with 28 percent in nongovernment primary schools, 20 percent in madrasas, and 12 percent in nonformal schools (Hossain and Zeitlyn 2010). Sommers (2013) notes that children attending government-funded schools typically need to pay for tutoring in order to ensure that they are learning, yet the often poor families of children attending these schools are on average the least able to bear these additional costs.

Students from families with little parental education or that are food insecure are significantly less likely to employ tutors. In 2005, 20 percent of children whose mothers had no education employed a tutor, compared with approximately 50 percent of children with mothers who had a secondary school education or higher. Similarly, 17 percent of primary students from food-insecure families used a tutor, compared with close to 50 percent in food-secure families (Nath 2006). First-generation learners and poor households are thus further disadvantaged by this practice.

When factoring household spending into total education expenditures, poor students receive substantially less than nonpoor students. This gap in spending almost certainly results in diverging education outcomes based on income. The income divide in education spending also continues throughout the schooling cycle. While not addressed in this study, previous research has found that overall spending is not pro-poor due to inequities at higher levels of education. In 2000 the poorest 40 percent benefited from only 27 percent of overall spending on education and only 12 percent of spending on tertiary education (World Bank 2002). A study based on the 2005 HIES found that while the poor represented 40 percent of the total population of school-age children, they received only 32 percent of total spending (World Bank 2010b). The numbers in 2010 were in some ways improved, with the poorest 40 percent benefiting from 40 percent of overall spending but only 6.6 percent of spending on tertiary education (World Bank 2013b). This demonstrates that disparities in allocations grow as children progress in the education system and are the largest at the tertiary level.

*Stipends are Insufficient to Lessen the Financing Burden on the Poor*

Bangladesh has a long history of using demand-side programs to redress imbalances in education and lessen the burden of private costs of schooling on the poor. The largest such program, the Primary Education Stipend Program (see box 3), was expanded in

2010 to reach a larger number of students in the poorest upazilas. This welcome move increased the number of stipend recipients, from 4.8 million in the 2009–10 school year to 7.8 million in the 2010–11 school year (GoB-DPE 2013). Students attending certain schools and meeting the appropriate criteria are eligible for stipends under the PESP. Eligibility criteria include SES and attendance measures. Eligible schools include GPS; RNGPS; independent, primary-level madrasas; community schools; and NGO schools. Initially, the program was not geographically targeted, but more recent phases have included geographic targeting to give poorer upazilas eligibility for higher coverage, which can reach up to 90 percent of a school's children. A recent study found the program had contributed to increased enrollment and attendance and a reduction in dropouts (GoB-MoPME et al. 2013).

**While stipend spending has been pro-poor and targeting approaches have improved, some poor people are still not being reached and the value of stipends has been declining.** Average stipend allocations are higher (by design) in poorer upazilas, amounting to $12 per student in the poorest quintile of upazilas and $6 in the wealthiest quintile. Despite improved targeting of the stipends in poor areas in recent years, studies have highlighted there is still unmet demand particularly in medium poverty areas. Moreover,

## Box 3. Primary Education Stipend Program (PESP)

The PESP grew out of a number of earlier demand-side support programs aimed at ensuring more equal educational outcomes. The Food for Education (FFE) was introduced in 1993 on a pilot basis to encourage enrollment. At its height in 2002, FFE covered 27 percent of the nation's children (Ahmed and del Ninno 2002). The program offered 40 percent of enrolled students from poor families 15 kg of wheat or 12 kg of rice per month (an amount that was subsequently reduced). This program was later augmented by a cash-based program known as the Primary Education Stipend Project (PES). The PES was introduced in April 2001, and during its two years of operation provided payments of 25 Tk to eligible pupils. Both FFE and PES were replaced by the Primary Education Stipend Program (PESP) in late 2002 (Tietjen 2003). Complementing these programs, community mobilization campaigns have had some success in fostering positive attitudes to education and changing sociocultural norms related to education in Bangladesh (UNICEF 2014).

Due to the dramatic expansion of non-government primary schools in recent years, the program has been extended to include a broader range of schools including full primary schools run by NGOs. However, BRAC community schools and other NGOs without the full range of grades are excluded from the program. So too are all urban schools. School Management Committees with the assistance of head teachers are responsible for selecting children who meet the eligibility criteria.

the nominal amount of the stipend has not changed since 2002, resulting in a real value that has been halved over the subsequent years. In terms of rice equivalents, the real value of the stipend declined from 7kg to 3.7kg between 2003 and 2012 (GoB-MoPME et al. 2013). This, combined with the limited marginal value of the stipend in households with more than one child, led one report to conclude that "demand-side financing in primary education is becoming less relevant" in Bangladesh (Watkins 2013). Stipends have become less effective in lessening the burden of private costs of schooling for the poor and encouraging households to send their children to school.

## Recurrent Spending is Pro-Poor but Capital Investments Are Not

The pro-poor nature of the spending estimates is based on recurrent spending and in particular



**Figure 21: Positive Relationship between Spending and the Quality EDI**

*Note: Indicators in the quality EDI include these inputs: student/teacher ratio, teacher qualification and learning materials.*
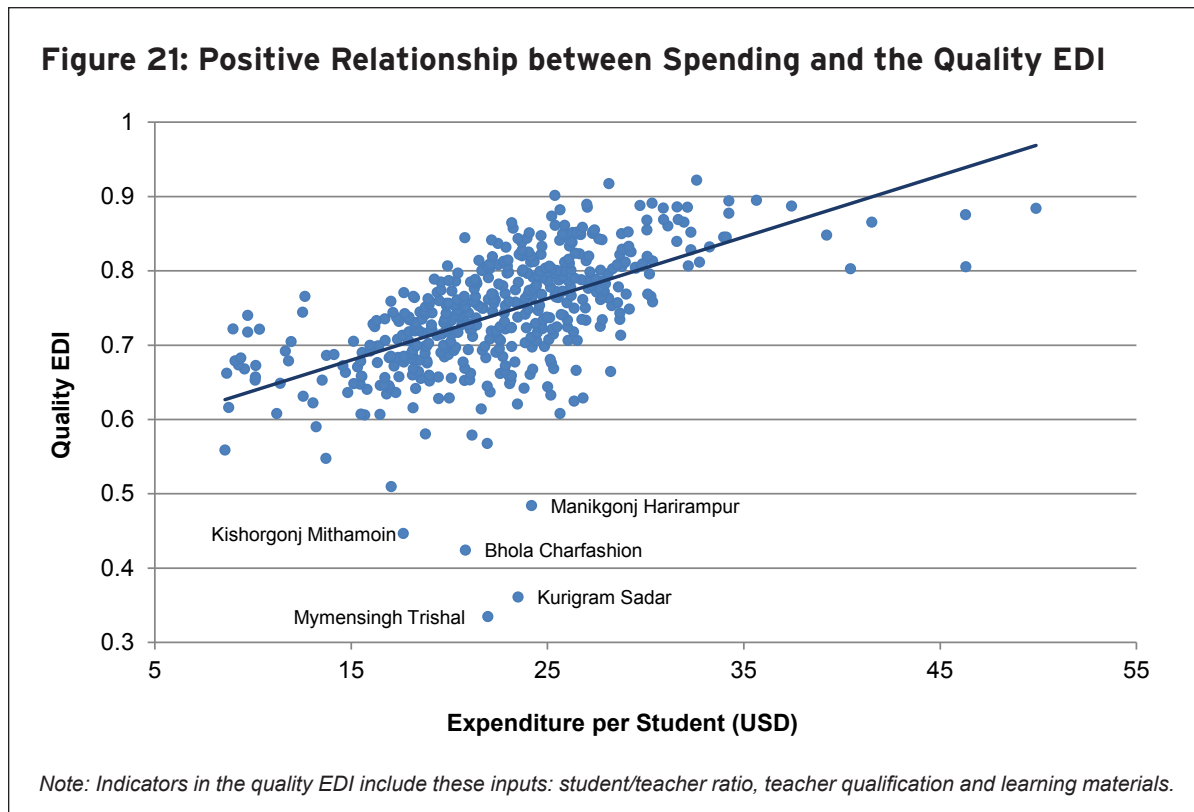
**spending on stipends and teaching inputs.** About 60 percent of the difference in spending estimates between the poorest and richest quintile of upazilas is due to the differences in stipend spending. Non-stipend spending accounts for the remaining 40 percent of the difference and largely involves teaching inputs. Higher spending on teaching inputs in poor areas seems to be driven by the fact that these areas have a higher share of government supported schools. These schools also have a relatively higher share of qualified teachers, resulting in higher overall and average salary spending. Seventy-eight percent of schools in the poorest quintile of upazilas are GPS or RNGPS, compared with 58 percent in the richest quintile of upazilas.

### Figure 22: School Infrastructure Is Much Worse in Poorer Areas
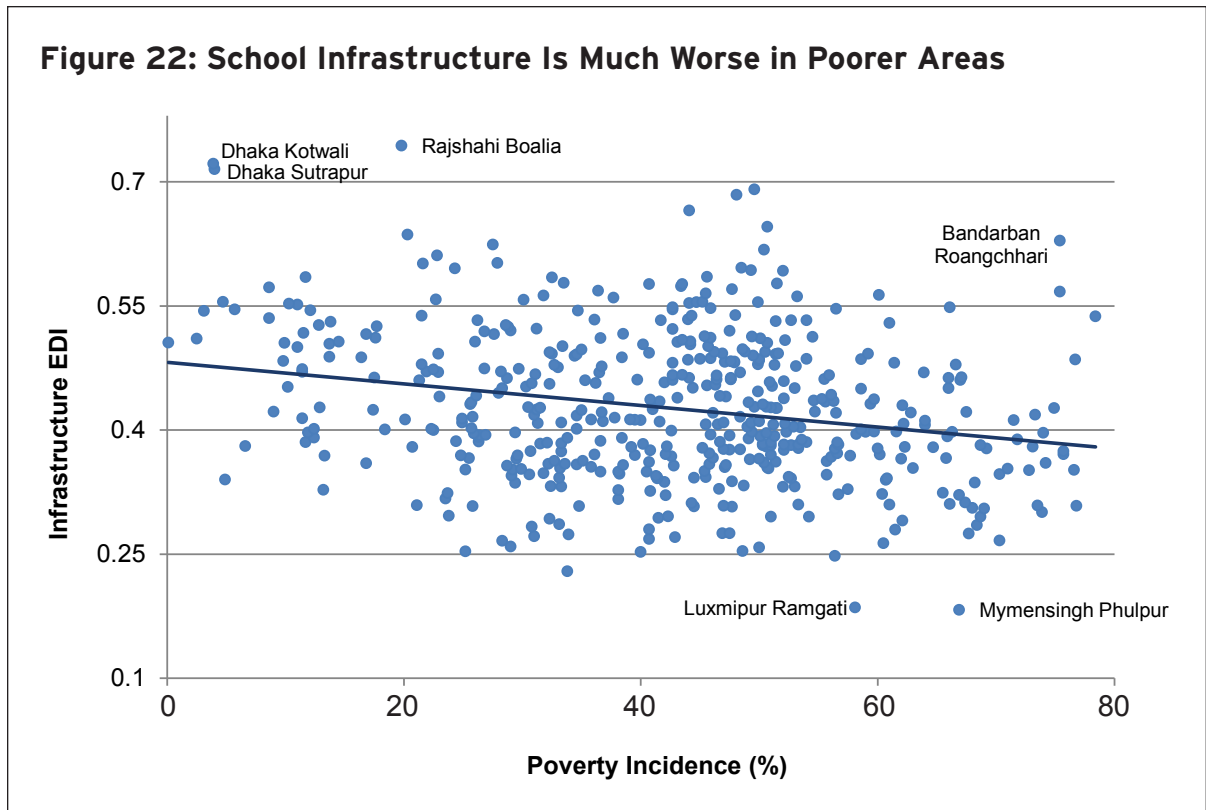


While recurrent expenditures seem to be at least partially pro-poor, capital spending does not appear to follow this trend. Unfortunately, data on capital spending by upazila are not publicly available, making it difficult to assess the allocations. However, the analysis of the EDI indicators and a review of the allocation process suggest that this part of government spending is not sufficiently addressing the needs of the poor. Capital spending has been insufficient to address disparities and existing needs, resulting in a strong negative relation between the infrastructure EDI and poverty incidence (figure 22).

These findings are consistent with observations about the budgeting practices (see below) and other studies of capital spending. Even though pro-poor social welfare programs (e.g., the stipend program) are financed from the development budget, the World Bank's public expenditure review found that aggregate per capita allocations from the development budget, which covers most capital spending, were inversely related to poverty levels in some districts (World Bank 2010a).

## Spending Allocation Processes Are Fragmented and Not Needs Based

Spending allocations and the management of education financing are strongly influenced by Bangladesh's overall governance context, which is highly centralized. For a country of its size, Bangladesh has very little in the way of subnational government; that

is, subnational units with decisionmaking power. In general, the subnational units reflect administrative—rather than governmental—boundaries. Most service provision at the subnational level is performed and administered by the staffs of the line ministries posted around the country. There is no elected government at the division or district level, and until 2009 there was no elected government at the upazila level. Those elected subnational governments that do exist tend to have little power and to be poorly funded. Subnational expenditures tend to represent only 3 or 4 percent of total government expenditures in Bangladesh. This is quite low compared with other countries in the region. In Indonesia, subnational governments accounted for 36 percent of all expenditures in 2011, and in Vietnam the figure was 47.7 percent in 2002 (World Bank 2010a, 2010b). The concentration of administrative and fiscal powers makes it difficult to effectively manage the various dispersed elements of the education system.

**The management of education happens through a large system of national agencies and deconcentrated subnational administrative units. The diversity of responsible agencies, combined with a wide range of providers, results in a highly complicated system** (Oulai and da Costa 2009). At the national level, the administration of the education system in Bangladesh is primarily split between two separate ministries: the Ministry of Primary and Mass Education, and the Ministry of Education (MoE). By and large, primary education falls under the purview of the MoPME. Its Directorate for Primary Education (DPE) is responsible for the administration of formal primary education, and operates through a complex network of divisional, dis-

trict and upazila/thana education offices. The MoE is the second-largest ministry in primary education (managing 8 percent of primary students) and is responsible for education in all madrasas (through the Bangladesh Madrasa Education Board) and the national curriculum and textbooks (through the National Curriculum and Textbook Board). Additional entities involved in primary education include the Ministry of Commerce (8 percent of primary students), the NGO Bureau (2 percent of primary students) and the Ministry of Social Welfare (less than 1 percent of primary students). Other agencies involved in education delivery are the Ministry of Local Government Rural Development and Cooperatives, which is in charge of school construction, and the Bangladesh Public Service Commission, which is in charge of teacher recruitment (figure 23). One key problem adding to this organizational complexity is that the delegation of authority among the central, divisional, district and upazila levels is neither clear nor complete. For instance, teacher deployment is managed centrally, but a transfer between the upazilas is delegated to the district level. Selection for the Certificate Course is done at the DPE level, often leaving a school empty of teachers. The PSC, DPE, MoPME, district and upazila education offices and PTIs all play roles in teacher recruitment, deployment, transfers, promotion, performance appraisal and training.

**The budgeting process that determines the ultimate funding situation of educational institutions in Bangladesh is also highly complex.** This arises from three main factors, including some that were already discussed above. First, the budget in Bangladesh is divided into two accounts: the development budget and the revenue budget[17], each of which has a separate budgeting

**Figure 23: Management of Primary Education: A Complex Bureaucracy**



Managerial Control — Budget Creation — Funding Disbursement — Audit Accountability
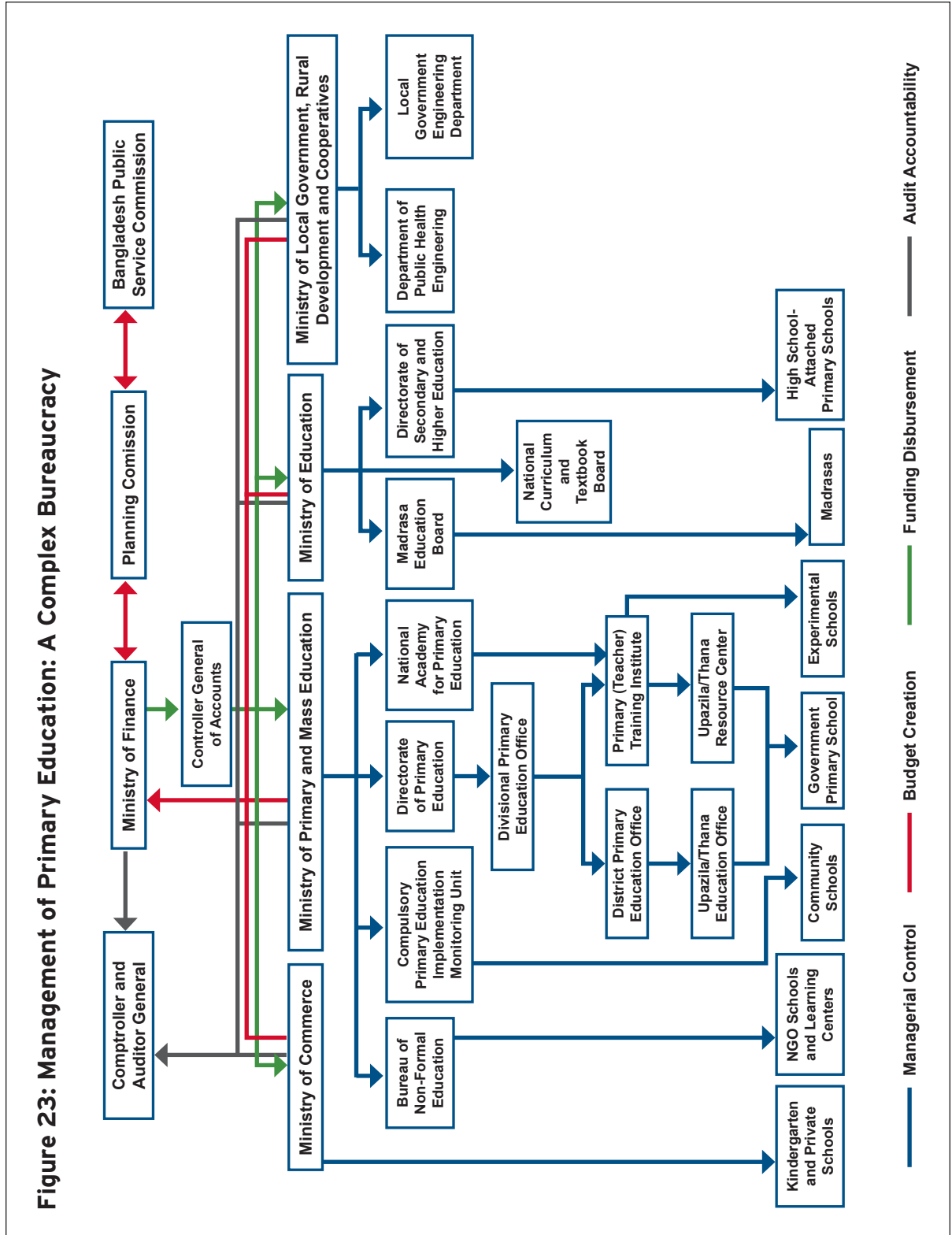
process. Second, the education system in Bangladesh is characterized by a large array of providers. These all have different financial relationships to the government and are administrated or overseen by a complex system of devolved local entities. Third and finally, the financing system and budgeting process are not transparent but are buried within a large bureaucracy. Few existing studies of public financial management have included an analysis of the budget planning process, budget execution, or accountability for spending (World Bank 2014).

*Revenue and Development Budget Processes Differ and Are Not Based on Need*

**The exact division between the development and revenue budgets is not clear and does not follow the distinction between capital and recurrent spending.** The revenue budget includes expenditures on salaries, allowances, supplies and services, repairs, maintenance, miscellaneous investments and food purchases. The development budget includes capital investments and specific government-led and/or donor-supported programs such as the PEDP and the stipend program. The revenue budget is financed almost exclusively from internal government revenue.[18] The development budget also draws from internal government revenues, though with substantial funds also coming from external aid, loans and grants. For example, the development partners' contribution to the PEDP amounts to over 15 percent of the total cost. The stipend program, however, is fully funded from internal resources.

**Bangladesh employs an incremental budget approach for its revenue budget and is developing a program-based budgeting approach for the prepa-**

ration of its development budget (see box 4 for an explanation of budgeting techniques). The budgeting processes for both budgets are heavily centralized. The revenue budget is an incremental, line-item process. Receipts and expenditures from the previous year are used, according to instructions from the Ministry of Finance, to forecast into the next fiscal year. The budgeting process is owned by the Ministry of Finance. The necessary budget forms are distributed through the MoPME down to the individual schools, which then submit the forms back up the chain, where they are aggregated at each relevant level. The final totals are approved by senior MoPME staff members and are submitted to the Ministry of Finance, where negotiations over the totals occur. Top-level figures are submitted to the Parliament for approval. The process does not make any explicit per capita or student/teacher ratio link, following instead established staffing patterns that vary by provider. Once schools reach a certain size, they can apply for additional sections and teachers to accommodate the increasing enrollment. In fact, the evidence suggests that changes in the allocations of the revenue budget seem to have largely resulted from decisions to build additional schools funded under the development budget. These decisions have often been driven by special initiatives, such as the decision in 2010 to build a school in every village.[19]

**The development budget is almost entirely project oriented and is based on the government's Five-Year Plan as operationalized in the Annual Development Program (ADP).** The allocation of the development budget has been largely discretionary, however, and the funding allocation process lacks transparency and predictability (World Bank 2011a, 2011b). The evidence suggests that the allocation of the budget

## Box 4. Budgeting Techniques

There are a number of budgeting techniques used around the world. Three of particular relevance to this study are incremental line-item budgeting, program-based budgeting, and formula-based budgeting.

### Incremental/Line-Item Budgeting

This is the most traditional method of budgeting and helps a government to control changes in expenditures with regard to anticipated revenue. In this system, the Ministry of Finance will set budget ceilings for ministries based on revenue projections. The ministries will then incrementally adjust their budget lines accordingly to stay under the ceiling.

### Program-Based Budgeting

Program-based budgeting calls for establishing objectives for the budget and determining the programs and relevant resources that will be needed to achieve them. Two strategies employing this technique are planning-programming budgeting systems (PPBS) and zero-based budgeting (ZBB). While PPBS aims to build programming from scratch to meet the objectives, ZBB seeks rather to eliminate or replace existing programs that do not match the prioritized objectives.

### Formula-Based Budgeting

Formula-based budgeting applies a consistent set of criteria to determine funding levels across the school system. These formulas can have a number of focuses, from inputs to outputs and results. They can also be guided by a number of equity principles, such as horizontal equity, vertical equity, or equity of opportunity (these are discussed in greater detail later in the paper). Per-capita funding is one example of formula-based budgeting.

to different regions may be influenced by the regions' economic and possibly political power rather than their needs (Mahmoud et al. 2008). Moreover, due to inefficiencies, funds disbursed out of the budget have often not matched the level budgeted.

In 2010, the government introduced a Medium-Term Budget Framework (MTBF) to bring a more program-based and results-oriented approach to budgeting across its line ministries. It is not clear at the moment to what extent this approach has led to a greater emphasis on performance in the allocation of the education budget. A lack of disaggregated data on the regional and sector allocations of the development and revenue budget has limited the tracking of spending patterns. However, the MTBF has been enormously useful in maintaining a predictable trajectory of allocation to education.

*Financial Support Varies across Schools*

**In 2011, there were at least five tiers of government support for schools based on ownership.** At the top level, the government provides full funding for the school. Schools in this category include GPS, primary sections of high schools and government Alia madrasas. In the second tier, the government provides only basic pay and some limited allowances. The schools in this category are RNGPS and the primary sections of high Alia (regulated) madrasas.[20] In the third tier, the government provides a 750 Tk (< $10) monthly stipend to teachers but no further support. Schools in this category include independent primary-level madrasas and community schools. The final two tiers are considerably murkier. In the fourth tier are providers who receive funding from the government (and possibly some from international donors) but at a level that does not seem to be publicly available. Providers in this category include experimental schools and informal ROSC and Sishu Kollyan schools. Finally, in the fifth tier are all the other providers. These schools receive free textbooks from the government (schools in higher tiers also receive these textbooks) if they follow the approved curriculum (e.g., BRAC follows an accelerated curriculum instead) but who otherwise seem to receive no direct support. In this system, government money does not follow students, but rather depends on the school a student and their family chooses (World Bank 2010a, 2010b).

| Table 6: Government Support for Schools by Ownership ||
|---|---|
| **Type of Support** | **Types of Schools** |
| Full government funding | • GPS<br>• Government Alia madrasas<br>• Primary sections of high schools<br>• Nationalized RNGPS (since 2013) |
| Government provides basic pay and limited allowances | • RNGPS, before nationalization (with rural students eligible for stipend)<br>• Primary sections of high madrasas |
| Teacher stipend, rural students eligible for stipend | • Independent primary (*ebtadayee*) madrasas<br>• Community schools |
| Government and international donor funding, amount unclear | • ROSC schools<br>• Sishu Kollyan schools<br>• Experimental schools |
| Textbooks or no support | Textbooks only (for approved curriculum)<br>• Private schools<br>• NGO schools<br>No support<br>• Quomi madrasas |

## *The Effects of Spending Are Unclear*

Little research has been done on the effectiveness of spending in Bangladesh and the extent to which differences exist in spending effectiveness in government and nongovernment schools. This study provides only a snapshot of the financing situation in Bangladesh, and much more information over time would be needed to truly identify the effectiveness of spending.

Figure 24 shows a weak but positive relation between the upazila-level spending per student and the outcome subindex of the EDI described above. This suggests that higher-performing schools (in terms of the GER, and the pass, attendance, dropout and

repetition rates) tend to have higher per-student expenditures. Correlations do not provide information on causation. However, the pro-poor nature of spending discussed above suggests that money is not simply going to wealthier, already higher-performing schools and therefore that higher spending may have been effective at improving educational outcomes.

An analysis of the relation between EDI input subindices and the EDI outcome index (including enrollment, attendance, dropout, repetition and pass rates) also confirms that greater investment in education inputs is correlated with better outcomes. The relation is strongest between the quality subindex and the outcome subindex (correlation of 0.36 signifi-



**Figure 24: Positive Relationship between Spending and the Outcome EDI**

*Note: Indicators in the outcome EDI include gross enrollment rate, pass rate, attendance, dropout and repetition rates.*
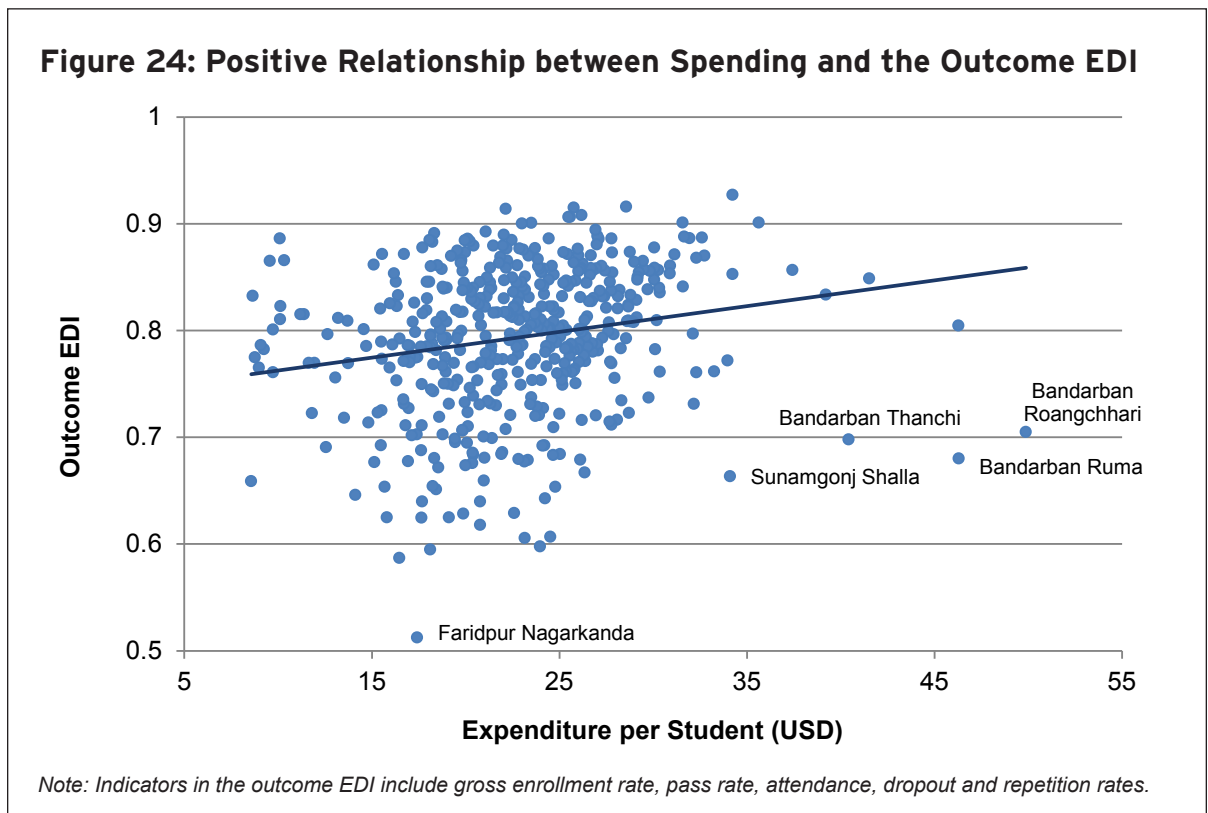
cant at the 5 percent level). The quality subindex is also positively and significantly correlated with poverty. While stressing that this analysis does not confirm causality and that other factors—such as the types of schools available in poorer areas—may be influencing the finding, the evidence suggests that higher spending on teachers may be offsetting some of the disadvantages due to the low infrastructural resources that have been observed in poorer areas. The correlation coefficients are presented in table 7.

**It should be emphasized that the outcome EDI does not represent learning outcomes.** Our analysis of learning data suggests that poorer upazilas score worse in learning assessments, suggesting that the pro-poor spending has not been effective in addressing learning disparities between the rich and the poor. If Bangladesh wants to improve its learning outcomes, it will be important to analyze the relationship between spending, education inputs and schooling outcomes in a more systematic way.

| Table 7: Strong Correlation between Input and Outcome Subindices | | | | | |
|---|---|---|---|---|---|
| | **Access** | **Infrastructure** | **Quality** | **Equity** | **Outcome** |
| Access | 1 | | | | |
| Infrastructure | 0.24* | 1 | | | |
| Quality | 0.02 | 0.35* | 1 | | |
| Equity | 0.06 | -0.00 | -0.10* | 1 | |
| Outcome | 0.21* | 0.20* | 0.36* | 0.14* | 1 |

*\* = Significant at 5 percent level*

## INTERNATIONAL LESSONS AND POLICY OPTIONS

The Bangladesh government invests in pro-poor programs at the primary level. Nonetheless, overall the poor still receive less resources and do less well in school than wealthier children, due to early disadvantage, a more limited ability to fill the financing gap through private spending and capital spending skewed to the wealthy. Many other countries, of course, are also struggling with the same issues. Governments around the world have used intergovernmental transfers, targeted interventions and improved accountability mechanisms to address inequities and establish a minimum standard of service delivery for all children. Often this has involved providing more voice and power to local governments, schools and communi-

ties, which have an incentive to lobby for more resources and use them more effectively. Some countries have also introduced targeted programs to reach particular groups and populations.

**Experiences in other countries show that there are no silver bullets.** Education systems have evolved in many different ways, and no particular design will guarantee the desired outcomes. What works will depend on the national context. Yet, international experience provides some useful lessons and has highlighted some principles of how greater equity in education outcomes can be achieved.

**Figure 25: Domestic Public Spending as a Percentage of GDP (left axis) and as a Percentage of Total Spending (right axis), 1998-2011**
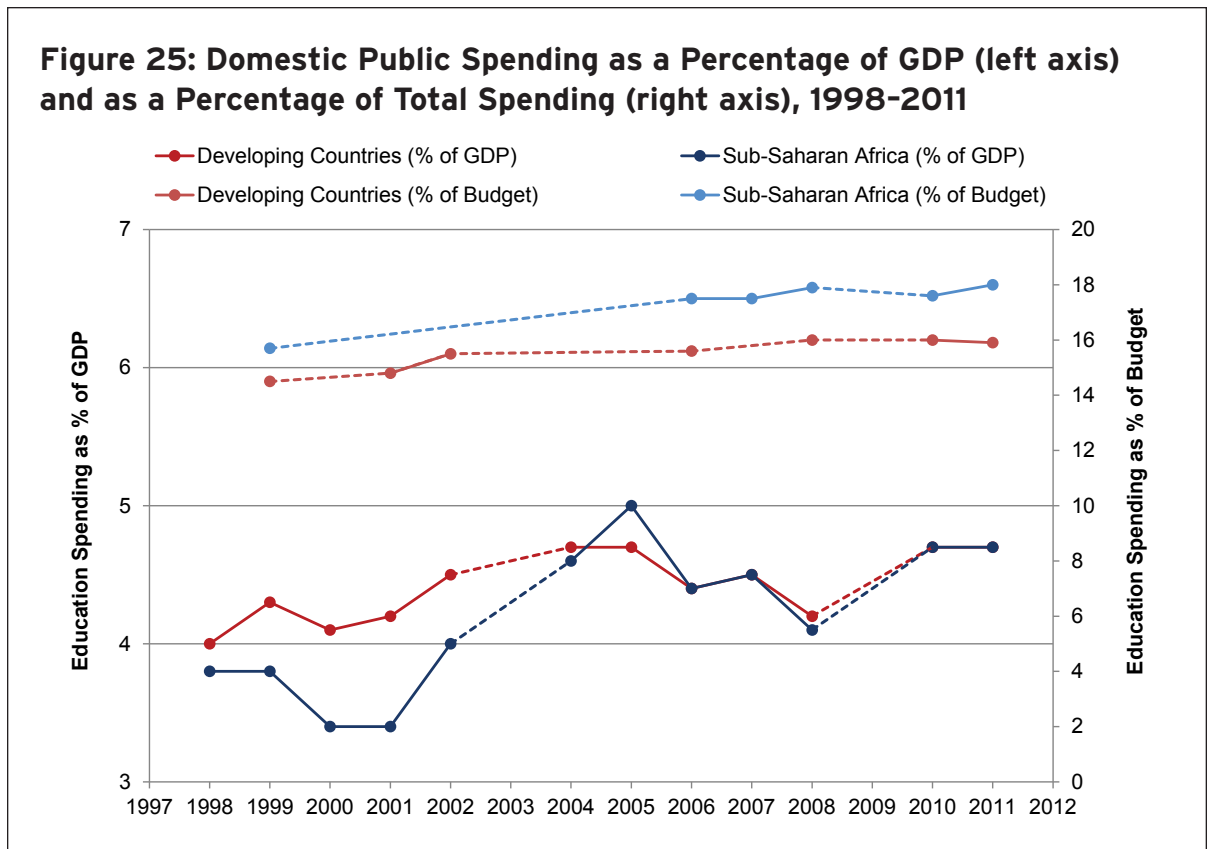
## Growing Public Spending for Education

Overall public spending on education in the developing world has increased significantly over the past decade, both as a percentage of GDP and as a percentage of total public spending.

In recent years, Bangladesh has been trying to implement a common legal framework—for example, through the Education Act 2013—that includes ensuring adequate public finance for primary and secondary education and education loans and other facilities for tertiary education. The recent nation-

**Figure 26: Domestic Spending as a Percentage of GDP in Selected Countries, 2011**
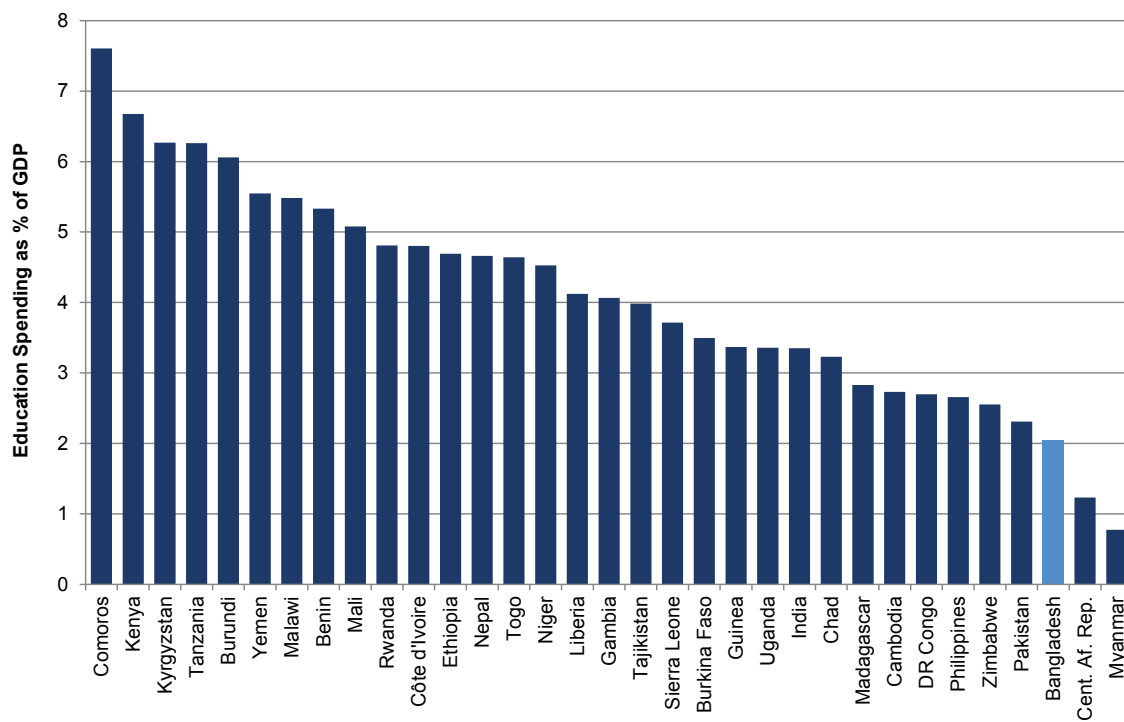


alization of RNGPS and the imposition of a 1 percent surcharge on mobile telephone usage to raise funds for rural education are examples of strong political will in the government for stronger oversight and generating more resources for education. Despite these efforts, Bangladesh is among the countries with the lowest spending in the developing world (figure 26).

Other countries that have increased public financing for education may provide further useful experiences from which Bangladesh can learn as it seeks to further increase its funding. Large increases in education spending in Kenya, for example, were made possible by improvements in revenue collection, the implementation of fee-abolition programs, a leveraging

of political moments generated by elections and the prioritization of education in capital spending (Nicolai et al. 2014). In Indonesia, a constitutional commitment requires 20 percent of the total budget to be spent on education. In order to reach this target, public spending increased by over 60 percent in real terms between 2005 and 2009. Rising revenues were in part the result of economic growth and growing public revenues, but a major boost in spending was made possible by the decision to cut high fuel subsidies—specifically, to remove school fees and improve education through major national programs such as the School Operation Grant program (Tobias et al. 2014).

## Improving Financial Management and Accountability through Decentralization

International experience suggests that the twin objectives of reducing inequity and improving the quality of education can be facilitated by decentralizing and allocating resources more equitably. Recent research has highlighted that the centralized approach used to expand education systems is less effective to achieve high quality in education (see, e.g., Pritchett 2013; King and Cordeiro-Guerra 2005, 179–208). The importance of strong and empowered local governments for the quality of education service delivery was also emphasized in World Development Report 2004 (World Bank 2003). Strengthening local governments can provide an important channel whereby parents and other beneficiaries of education services can demand better quality (referred to as the long route of accountability).

However, decentralization also carries risks, in terms of growing inequity, which need to be managed — and quality is by no means guaranteed. Transferring fiscal responsibilities to local areas and relying on local resources and expertise to deliver education can widen educational gaps between areas that have stronger or weaker resource bases and capacity. Evidence from decentralization efforts shows how governments have had to establish mechanisms for equalizing education resources across subnational governments to mitigate such inequalities (King and Cordeiro-Guerra 2005, 179–207). Results from international tests also confirm that such equitable allocations tend to pay off. High-performing countries tend to allocate resources more equitably between advantaged and disadvantaged schools (Schleicher 2014).

Strong local governance and decentralized decisionmaking have been important elements of other successful education systems in the region. A recent study shows that Indonesia's strong subnational governance has contributed to successful education outcomes, including improvements in the quality of its education (Tobias et al. 2014). In contrast, the highly centralized nature of the Malaysian education system has been highlighted as a key factor in its performance shortfall. Malaysia has seen its science and reading scores on the PISA decline alongside its scores on the TIMSS assessment. This occurred simultaneously with an increase in the amount of resources spent on education, and Malaysia's performance on international learning assessments has placed it below the value expected based on its national income. This demonstrates the importance of how educational resources are spent and the roles that decentralization and accountability might play (Sander et al. 2013).

While still one of the most centralized countries in the world, Bangladesh has taken some steps and is now at a critical point in its transition toward greater decentralization. With the recent political transition and the election of its new government in January 2014, Bangladesh has a unique opportunity to strengthen its local governance, particularly at the upazila and union parishad levels. In 2009, the first upazila-level elections in nearly 20 years were held. A recent report highlights a mismatch, however, between the ongoing political decentralization and the lack of decentralization of real power and resources to local governments. In order for decentralization to have any meaningful impact on education service delivery, much greater attention will need to be given to the allocation of powers between central and local governments, the role of different tiers of government in service delivery, the size and the nature of resources allocated to local governments through their own revenues and the national budget, and the system of checks and balances (World Bank 2012). Evidence for the effectiveness of certain decentralized approaches has begun to emerge. For example, the provision of direct grants to schools to support school-level improvement plans has been found to work well under certain circumstances (UNICEF 2014). Overall, the analysis of the implementation of decentralization and the impact on education is limited, however, and there is very little information on how the government at the national and subnational levels oversees and supports primary schools (World Bank 2014). The strengthening of planning, management and monitoring at the district, upazila and school levels is a key component of PEDP III.

## *School-Based Management*

In many countries, decentralization processes in education have involved the implementation of school-based management (SBM) models. School effectiveness, and attention to the specific needs of student groups, can be enhanced significantly if school managers and teachers are given greater authority over how the school is operated (Pritchett 2013). SBM is a form of decentralization, including the transfer of decisionmaking authority to principals, teachers, parents and other community actors. SBM focuses on the individual school as the unit of autonomy and improvement. Many countries in South and Southeast Asia have begun, to varying degrees, to implement SBM principles. Different versions of SBM have involved various degrees of autonomy and participation based on which decisions are devolved and to whom they are devolved (Barrera-Osorio et al. 2009).

Regional experiences with SBM have generally been positive, but some country studies have found that their effectiveness could often be improved. In Vietnam, school management contributed positively to progress; but a study highlighted a need to strengthen reforms aimed at improving the accountability of teachers, through principals as well as through improved parental involvement (World Bank 2011a, 2011b). In Indonesia, principals were given both administrative and professional control of school activities with positive effects. But a review recommended strengthening bottom-up accountability by further empowering school committees and parents vis-à-vis the principal and school administration (Chen 2011).

Bangladesh's School Management Committees could also be made more effective. SMCs have been quite active, but their role in holding teachers and the school system accountable has been quite weak. Because the education system is highly centralized, upazila- and school-level agents have very limited authority in decisionmaking and financial matters. At the same time, the capacity of head teachers to play a greater role is often constrained (World Bank 2013b). Studies have also found other challenges. For example, positions on SMCs are often politicized and used as a way to distribute patronage in the form of teacher appointments, which has a negative impact on education by providing teachers who are unqualified (OPM 2007). Other mechanisms—such as Upazila Education Committees, which operate at a higher administrative level, and Parent Teacher Associations—have been found to have similar problems of politicization or were found to be inactive and only exist on paper (Ahmed et al. 2005; OPM 2007). The weakness of these bottom-up accountability mechanisms has meant that the system has remained overly reliant on the top-down accountability provided by central education ministry officials.

Bangladesh could draw on the experiences (both positive and negative) with SBM reforms carried out by some of its regional neighbors. In particular, SMCs could be formulated in a way that separates them as much as possible from higher-level political influences and that actively engages the community and parents of children (rather than political leaders). SMCs could also be empowered through more clearly delineated rights and responsibilities to hold teachers and other education administrators accountable for the quality of education

that they deliver. Since 2012, the MoPME has begun a process of reform to implement some these principles. As part of this effort, it revised the SMC guidelines to give SMCs a more active role in school management and monitoring (World Bank 2013b).

As a complement to or component of efforts to improve SBM, countries have also devolved more funds directly to schools that can be spent at the discretion of local actors. For instance, the Bantuan Operational Sekolah (BOS) is a mechanism whereby the central government of Indonesia transfers funds directly to schools on a per-pupil basis. This is intended to reduce or eliminate school fees and improve attendance rates for impoverished children. In 2012, primary schools received over $60 per pupil per year from the BOS program, with money also given to junior secondary schools. BOS funds can be put to a wide variety of uses, ranging from textbooks and examination fees to school repairs and utilities. A shortcoming of this program is that it does not directly target poor households, schools or districts. Despite this, the program seems to have had some effect on encouraging poorer children to attend school (del Granado et al. 2007).

## *Greater Equity in Financing Models*

As Bangladesh takes further steps in its decentralization, as it plans to do under its current Primary Education Development Program, it will be all the more important for it to establish more formal and transparent techniques for resource allocation in education. Its current incremental budgeting approach has worked relatively well under a centralized approach

and has resulted in a fairly pro-poor allocation of recurrent spending; but decentralization carries the risk of growing inequity in spending. Moreover, the much more discretionary approach to the development budget has already resulted in inequities in the allocation of capital expenditures, as discussed above. Incremental and discretionary budget approaches typically do not result in a clear relationship between the funding needs of schools and the actual resources they receive. In contrast, formula funding models are based on a consistent set of objective criteria for allocating resources that are impartially applied to each school (Alonso and Sanchez 2011).[21] Experiences with different financing models that have been central to a number of decentralization reforms and have made an impact on education service delivery may provide useful lessons here.

A number of countries have developed formulas or allocation rules to determine resource allocation for education across lower levels of government accounting for inequities. Funding models are typically based on one or more of the following three principles (Berne and Stiefel 1984):

• **Horizontal equity: equal amounts of money per child.** Many countries allocate funding based on the number of children or the number of pupils without accounting for differing needs or costs of providing education. Allocations based on this fairness principle can be highly inequitable if they are not combined with other measures that compensate for variations in needs or costs across populations or regions. In some countries per-pupil funding is combined with per-school allocations to offset regressive effects.

• **Vertical equity: different amounts of money per child based on need.** Needs-based funding models allocate resources according to the needs of individual students. Needs-based financing models require detailed data to identify disadvantaged groups and their needs, which often makes them less suitable for developing countries with weak data systems.

• **Equal opportunity.** Under this principle, funding models are built on the assumption that there should be no relation between certain student characteristics and schooling outcomes. Socioeconomic status, for example, should not predict school participation or achievement levels.

Variations on these principles exist, and models will not always be neatly aligned with one of the principles. Some countries also include performance elements in financing formulas. For example, countries have used different methods to incentivize schools and teachers to comply with standards. These models are used less frequently in developing countries. However, Bangladesh is experimenting with performance-based finance in the second phase of its Local Government Support Program (LGSP). This program aims to introduce block grants that include fixed and performance-based components. The performance-based component is distributed based on a performance assessment and is adjusted for population and area (World Bank 2011a, 2011b).

Bangladesh has already demonstrated its commitment to vertical equity through its pro-poor revenue budget spending and targeted program interventions. As it seeks to translate this idea more formally and transparently into a funding model, it could

learn from other models, such as the Education Quality Inputs (EQI) model in Sri Lanka. EQI is an example of a needs-based funding model which has been found to improve teaching, school attendance and learning in that country. The amount of the EQI for each school is determined by a formula based in part on school needs and the per-pupil funding needed by smaller and more rural schools. Besides the construction of the formula, the Sri Lankan experience also offers lessons for implementation. This includes the need to build in enough flexibility to allow teachers and administrators to employ creativity in using the funds to improve teaching methods (Arunatilake and Jayawardena 2013).

**Experience from a number of African countries may also be relevant.** Several countries—including Rwanda, Tanzania, Zambia and South Africa—have adopted needs-based financing models, including proxy weighting for the cost of service provision (accounting for higher costs to reach pupils with disadvantages). In 2006, Rwanda introduced an allocation formula for block grants to local governments including weights for population, poverty, area and an estimated financing gap between revenue collection and the costs of administration. South Africa's financing model is one of the most developed systems of intergovernmental transfers aimed at reducing inequities. The "Provincial Equitable Share" formula attaches varying weights to population and equity goals. For example, in education, the size of the school-age population is adjusted by the size of the out-of-school population (Watkins and Alemayehu 2012). Bangladesh's current allocations do not explicitly account for out-of-school children.

Developed countries also have a long tradition of using funding formulas to allocate resources to schools. This started in the 1960s, when governments recognized the relationship between economic disadvantage and poor educational attainment. Policies to allocate additional resources to schools with particularly large concentrations of disadvantaged children were first developed in countries like the United States, Australia, Britain and France. Early formula funding models were program specific and were confined to small parts of the budgets. However, over time these models have been expanded and updated to provide stronger linkages between needs and financing. Notable improvements in these models were implemented when education systems in many of these countries were decentralized in the 1990s. This involved the introduction of school-based management models, whereby significant resources were placed under the direct control of schools. The introduction of these models led to a strong demand for formula funding because it was seen as the only way to establish valid and defensible methods for determining how much each school should receive from the budget (Ross and Levacic 1999). These models continue to be updated and refined today.

## Demand-Side Financing to Address Inequities

As Bangladesh continues to deepen its focus on improving the quality as well as the equity of its education system, it should carefully consider whether and how its stipend program can most effectively help achieve these objectives. International experience highlights that cash transfer programs like the stipend program can be highly effective in improving access

and retention in education in particular among the poor, as has been the case in Bangladesh (Fiszbein and Schady et al. 2009). However, in countries with near universal enrollment such programs have been found to be more costly and their impact on broader education outcomes has been unclear. This raises questions about the scope of the existing demand side programs in Bangladesh and whether alternative approaches further strengthening the supply side could be more effective.

**The effectiveness of cash transfer programs in reaching marginalized groups, in particular in countries with close to universal enrollment rates, is highly dependent on governments' capacity to target these groups.** Effective targeting can be costly and difficult to implement. In many countries targeting of cash transfer programs has suffered from inclusion (paying those not eligible for the program) and exclusion (excluding those who should be in the program) errors (Slater and Farrington 2009). In these cases, governments have had to rethink how effective targeted cash transfers are in achieving equity goals. This includes assessing whether targeting approaches are achieving the objectives set out for the program as well as analyzing whether cash transfers are the most cost effective intervention to achieve the objectives.

**International evidence around conditional cash transfers' effectiveness in improving long term learning remains unsettled.** Most programs do not measure whether children are learning more, as well as attending. Where there is evidence, it suggests cash transfers have no impact on learning. Transfers could be made conditional on performance but this could disadvantage the poorest. Findings suggest that supply side interventions to improve school quality are needed alongside conditional cash transfers. Given scarce resources, this implies that a careful balance needs to be struck between demand side and supply side spending (Krishnaratne et al. 2013). The success of non-formal education programs such as BRAC, which are not benefiting from the stipend programs, also suggests supply side factors may be more important determinants of participation and learning outcomes (Manzoor et al. 2014).

**The Bangladesh government has steadily improved the targeting of its stipend program but more detailed data and analysis will be needed to assess the impact on reaching the poor and improving education outcomes on a continuous basis.** Whatever the approach taken, however, it is clear that the value of the stipends will need to increase for the program to remain relevant. Proposals to increase the value and apply the stipend value equally to all children have been made and are currently under consideration (GoB-MoPME et al. 2013).

## Improving Data and Accountability Systems

Bangladesh's progress toward more equitable and efficient allocations of its education spending will depend on its ability to develop improved public spending data, as well as fully leverage the available data on education inputs, outcomes, and the socioeconomic characteristics of students. The past decade has seen significant growth in the availability of data and increasingly effective use of this information to improve education in Bangladesh (see annex 4 for an overview of surveys). As it further develops its education

information system, it will be important to fill in gaps in the available data and to improve the way in which information is used to improve the equity and quality of service delivery.

Bangladesh has made efforts to improve the use of data by establishing performance standards codified in the Primary School Quality Levels (PSQL) as part of the PEDP. However, there are a few shortcomings to these as they currently exist. The PSQL indicators are primarily conceived of as national indicators. The target values of these indicators are generally presented as percentages of schools (nationally or at a lower level) that meet a particular standard, such as having a separate toilet for girls. Bangladesh could potentially find constructive lessons from the more detailed performance tracking effort in Vietnam. Vietnam's Fundamental School Quality Level (FSQL) standards provide aspirational yet achievable standards against which individual schools are measured to ensure a minimum level of quality. The standards are closely monitored through a mechanism known as the District FSQL Audit (DFA). The results of the DFA are analyzed and reported in a disaggregated way, which has enabled local governments to use the measures to plan investments in schools (Attfield and Vu 2013). Bangladesh is already moving in this direction through the introduction in 2010 of Upazila Education Performance Profiles (UEPPs). These profiles include selected indicators disaggregated at the national, district and upazila levels. It is not yet clear how useful education administrators have found these profiles in planning expenditures and targeting areas in need.

Building on the UEPPs, Bangladesh could reexamine the PSQLs with an eye toward creating a holistic minimum school-level standard to which educational administrators at all levels could be held accountable. With this accomplished, the preexisting Annual School Census (or a separate survey using the same infrastructure) could be modified to track progress toward these indicators at the school level. Tracking these data in a transparent and consistent way would provide improved accountability and help Bangladesh allocate its scarce developmental education resources to the areas in greatest need. Going even further, public reporting of these results would complement existing channels of accountability by allowing parents and communities to hold providers accountable for the quality of education they are delivering. Finally, the disaggregated nature of the data collected would complement any efforts toward decentralization, both within education and of governance more broadly.

Transparent and disaggregated data on education spending could greatly improve the allocation and monitoring of public expenditures for service delivery in Bangladesh. Indeed, the unavailability of such data was a significant constraint for the present study. As education input, output, and learning outcome data are increasingly collected and are presented in a disaggregated way, financial data should parallel this trend, in order to maximize the usefulness of both. Such data would improve the ability of education administrators to plan effectively; and perhaps most important, making these data publicly available would improve accountability for effective service delivery. Finally, school-level data

collected through instruments such as the ASC—while incredibly useful and rapidly improving—suffer from missing observations of data that the instruments are designed to collect. For example, fewer than 16,000 schools (out of roughly 90,000) responded to the question about the availability of electricity in the school during ASC 2011. Improving the effectiveness of data use may be one way to improve this coverage, by increasing buy-in among the teachers filling out the survey instruments.

**Improving the collection of financing data is often part of wider public financial management reforms.** Such reforms have also been ongoing in Bangladesh for a number of years and have resulted in the introduction of the Medium-Term Expenditure Framework, the development of a basic information system for budgeting and a more rule-based budget execution system. But reforms have mainly focused on central public financial management functions, which now need to be extended to line ministries, including the education ministries. Financing information systems also need to move beyond national aggregates and include the collection and analysis of

more detailed subnational expenditures. Explicit efforts to generate and monitor subnational spending data may be needed. In some countries, civil society organizations have played an important role in strengthening the monitoring of public spending. Other countries, such as Australia, have introduced interesting data platforms that bring together spending and learning outcome data in an easily accessible and policy-relevant way (Acara 2014).

**An analysis of learning is already available through the National Learning Assessment in Bangladesh.** As laid out in a recent World Bank report, Bangladesh could further enhance the monitoring of its learning by (1) setting national targets for achievement; (2) widely disseminating the results of assessments to enhance accountability; (3) collecting representative data at the upazila level; and (4) benchmarking performance through participation in international assessments (World Bank 2013b). For instance, some countries in the region, such as Vietnam and Malaysia, already participate in the PISA assessments.

## CONCLUSION

Bangladesh is at a critical juncture in the development of its education system. Last year, the government nationalized more than 26,000 nongovernment schools in an attempt to improve the quality of its education service delivery. The education system is in an important transition phase in which it is moving from a heavy emphasis on providing access to primary education to a focus on access plus quality.

The analysis in this paper has shown that Bangladesh's recurrent education spending is pro-poor and is achieving good outcomes. But inequities in education persist because of overall low levels of spending, capital investments favoring the wealthy, complex financing allocation mechanisms and weak attention to financing effectiveness. The poorest quintile of upazilas scored lower on the access, infrastructure and equity EDI subindices. Poorer upazilas were also found to have significantly higher dropout rates, and children from poor households scored lower on national learning assessments.

Providing a high-quality primary education to all Bangladeshi children, in particular those in difficult-to-reach areas, will require action on multiple fronts, including improving early childhood education, strengthening the teaching force and improving infrastructure. Many of these actions have been discussed elsewhere (e.g., World Bank 2013b; Watkins 2013). We propose five possible areas of action that could contribute to a more effective allocation and monitoring of education financing for improved service delivery:

- Overall public spending on education needs to increase. While allocations to education have grown over time, this has mainly been due to economic growth rather than a reallocation of resources within the budget. Spending on education is too low compared with other developing countries at similar levels of development and well below the recommended international benchmark of 20 percent of total spending and 6 percent of GDP. Earlier proposals have called for an increase in government spending, from 2 to 3 percent of GDP by 2016 (Watkins 2013). Instead, the MoPME is actually seeing a decrease in its funding allocations. Given the central role of the MoPME in the financing and delivery of primary education, it is important that this trend be reversed.

- Bangladesh should consider introducing a more transparent formula funding model that is needs based. Developing such an approach will take time and will likely move through various stages. Other countries have tended to move gradually from horizontal to more needs-based funding models, eventually adopting outcome-based models. As noted above, however, Bangladesh is already applying needs-based approaches in some of its programs, such as the stipend program, and its recurrent spending is already pro-poor. This reflects an important recognition of vertical inequities and the need for higher spending on children in disadvantaged areas. It could build on this and develop a more transparent formula or set of rules that explicitly accounts for the higher spending needs of disadvantaged areas and applies to both recurrent and capital spending.

- **Bangladesh should devolve more funds to schools that can be spent at the discretion of local actors, such as schools and SMCs.** This effort could, for example, take the form of an increased SLIP grant, which currently provides only about $250 per school, regardless of the number of students. Bangladesh could increase the amount of the SLIP grant while ensuring that schools and SMCs have the capacity and administrative discretion to use the funds creatively to improve learning, in particular in disadvantaged areas. A review and expansion of SMCs' functions and responsibilities is already planned under PEDP III in an effort to improve decentralized management and governance.

- **As Bangladesh reaches universal access at the primary education level and deepens its focus on quality and equity, it should carefully weigh the effectiveness of its demand side financing against alternative programs strengthening the supply side.** If demand side financing programs are continued, the targeting of programs and incentives for students to attend school and improve their performance should be strengthened. Better targeting and enforcement of the stipend program are needed to have a greater impact on access to schooling and educational outcomes for the poor. The value of the stipends also needs to be increased for the program to retain its relevance in addressing demand-side constraints. As highlighted in the World Bank education review, proposals to introduce incentives or disincentives (e.g., through the cancellation of cash transfers) to improve performance should be considered carefully to ensure that they do not negatively affect those children with the greatest disadvantages (World Bank 2013b).

- **Efforts should be further strengthened to improve the collection and use of education spending data, in addition to education outcome data, at the school and upazila levels.** Donor agencies could play an important supporting role in this area. The need to provide long-term support to ongoing efforts to develop a reliable and valid school examination and learning assessment system has been discussed elsewhere. Recommendations include the dissemination of assessment data to enhance accountability within the system and for informing policy (World Bank 2013b). The policy relevance of this data could be enhanced if data on education outcomes are combined with reliable data on education spending. This would allow school leaders and staff members, as well as the school community and policymakers, to analyze how much is spent per student in different schools and regions and to relate this to education outcomes. Such efforts could build on ongoing programs to strengthen information flows and local accountability systems under the Local Government Support Project, which includes more frequent financial and performance reporting and auditing related to block grants to the subnational authorities.

## ANNEX 1: TECHNICAL GUIDE

### Data Sources

The two main sources of data were the 2011 Annual School Census and the 2011 Population and Housing Census. The 2011 Annual School Census was conducted in the first half of 2011 and covers the state of schools as they existed at that time. Fortuitously, this matches almost exactly with the population census, the first phase of which was conducted March 15–19, 2011. This phase was followed by a postenumeration check survey conducted April 10–14, 2011, and finally by a detailed socioeconomic survey conducted October 15–25, 2011. These two data sets were merged at the upazila level for calculations, described below, involving both school and population data. Additional data on poverty rates at the upazila level were obtained from a joint BBS/WFP study based on the 2001 population census and the 2005 HIES.

The ASC includes data on 13 types of schools: government primary schools (GPS), registered nongovernment primary schools (RNGPS), nonregistered nongovernment primary schools (NRNGPS), experimental schools, independent *ebtedayee* (primary-level) madrasas, kindergartens, NGO schools, community schools, primary sections of high madrasas, primary sections of high schools, BRAC schools, ROSC schools and Sishu Kollyan primary schools. A discussion of the level of coverage that the ASC provides for each of the different types of schools appears in the ASPR. Data from the ASC were checked for internal logical consistency between different values entered for the same schools.

The 2011 Annual School Census contained information on 503 upazilas. When matching data between the 503 upazilas from the ASC and the 2011 population census, 3 upazilas from the ASC were not found in the population census: Bandar in the Chittagong district, Jessore Sadar in the Jessore district, and Tongi in the Gazipur district. Because of these missing data, two indicators used to construct the EDIs (GER and schools per thousand population) cannot be calculated for these three upazilas. They therefore do not have values for the equity, outcome or overall EDIs. Three additional upazilas were excluded from the GER calculation due to their extreme values. Gulshan and Kotwali in the Dhaka district and Khulna Sadar in the Khulna district had calculated GERs of over 300 percent and were thus outliers that skewed calculations based on this indicator. They therefore do not have values for the outcome or overall EDIs. Finally, upazila-level poverty rate data were also matched to the 503 upazilas from the ASC. Twenty upazilas from the ASC (listed below) were not found in the poverty rate data, including the three previously mentioned upazilas not found in the population census. Poverty rate data were not used in the EDI calculation but were used in other analyses, and the consequences of these missing observations are discussed below in this annex.

### EDI Indicator Descriptions

The indicators listed in the table below were used to calculate the various EDIs. Values are calculated for as many of the 503 upazilas as possible, and then normalized according to the following formula:

*NV=1- (Best-Observed)/(Best-Worst)*

Normalization resulted in the scaling of all indicators from zero to 1, with values indicating progress toward that of the best-performing upazila for each indicator. Depending on whether the indicator being normalized was positive or negative, either the lowest or highest values could be considered "best" or "worst." In some instances, as indicated below, value substitutions were made that substituted a policy target for the "best" value to indicate progress toward that goal.

## The EDI Calculation Process

The indicators described above were combined into a single composite index through a two-stage process using Principal Components Analysis (PCA).

### Stage One

In the first stage, each of the five subindices (access, infrastructure, quality, gender equity and outcome) was calculated from those indicators falling within its category. To accomplish this, PCA was first performed on all the groups of normalized indicators making up each subindex. Next, weights for each indicator within each subindex were calculated based on the outcome of the PCA. The weights were calculated by multiplying the absolute value of each of the factor loadings by the eigenvalue of each of the corresponding retained principal components (i.e., principal components with eigenvalues greater than 1). The weight of a given variable is calculated as the summation of all the products calculated in the above step using its factor loadings. These are then transformed into a percentage. Finally, each subindex was calculated as a linear combination of its component indicators and their weights, and were normalized according to the formula described in the previous section.

| District Name | Upazila Name |
|---|---|
| Bogra | Shajahanpur |
| Chittagong | Bandar |
| Comilla | Comila Sadar Dakhin |
| Comilla | Manoharganj |
| Comilla | Titas |
| Cox's Bazar | Pekua |
| Faridpur | Shaltha |
| Feni | Fulgazi |
| Gazipur | Tongi |
| Jessore | Jessore Sadar |
| Luxmipur | Kamalnagar |
| Moulvibazar | Juri |
| Noakhali | Kabirhat |
| Noakhali | Sonaimuri |
| Noakhali | Subarnachar |
| Pirojpur | Zianagar |
| Rajbari | Kalukhali |
| Sunamgonj | Dhakhin Sunamgonj |
| Sylhet | Dakhin Surma |
| Tangail | Dhanbari |

### Stage Two

In the second stage, PCA was performed on all of the EDI subindices computed from stage one. The calculation of the weights is presented in the table below and follows the same formula used for stage one. The overall EDI is calculated as a linear combination of each of the subindices and their weights, and was then normalized according to the formula described in the previous section.

| Education Development Index | |
|---|---|
| **EDI Subindices** | **Indicators** |
| **Access** Indicators related to school coverage. | 1. Schools per thousand population* |
| | 2. Accessibility of schools* |
| **Infrastructure** Subindex based on indicators related to the physical infrastructural environment of the schools. | 1. Schools with safe water* |
| | 2. Schools with electricity* |
| | 3. Schools with 1 toilet per 100 students* |
| | 4. Average room condition of the school* |
| | 5. Room size per student++ |
| **Quality teaching** Subindex based on indicators related to quality teaching facilities. | 1. Student/teacher ratio++ |
| | 2. Qualification of teachers* |
| | 3. Availability of teaching-learning materials* |
| **Gender** Subindex based on indicators related to gender equity. | 1. Share of girls in total number of students* |
| | 2. Share of female teachers in total number of teachers* |
| | 3. Schools having separate toilet for girls* |
| | 4. Gender equity in dropout rate++ |
| **Outcome** Subindex based on indicators related to outcomes. | 1. Gross enrollment ratio* |
| | 2. Pass rate at grade five* |
| | 3. Attendance rate* |
| | 4. Dropout rate* |
| | 5. Repetition rate* |

*Sources: Based on Raihan et al. (2014b) and World Bank (2009)*
*\* Indicator used in World Bank (2009) study; ++ Indicator introduced in Raihan et al. (2014b)*

| Overall EDI | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Eigenvalues** | | | **Weights in Percentage** |
| **Indicator** | **Principle Component** | | **1** | **2** | **Weights** | |
| | **1** | **2** | 1.7218 | 1.1272 | | |
| Access EDI | 0.3467 | 0.4205 | 0.5969 | 0.4740 | 1.0709 | 18.74% |
| Infrastructure EDI | 0.5366 | 0.1664 | 0.9239 | 0.1876 | 1.1115 | 19.45% |
| Quality EDI | 0.5493 | 0.3981 | 0.9458 | 0.4487 | 1.3945 | 24.40% |
| Equity EDI | 0.0679 | 0.7712 | 0.1169 | 0.8693 | 0.9862 | 17.26% |
| Outcome EDI | 0.5344 | 0.2056 | 0.9201 | 0.2317 | 1.1519 | 20.16% |
| **Sum** | | | | | **5.7149** | |

## Upazila-Level Spending Estimates

Spending estimates for each upazila were based on four types of spending: teacher remuneration, SLIP grants, repair costs and stipends. The first three of these were calculated at the school level before being aggregated to the upazila level, while stipend expenditures were calculated only at the upazila level.

Spending on teacher remuneration is dependent on the type of school where the teachers are employed. Teachers in government schools are paid based on their position (head or assistant teacher) and level of training (whether or not they have a certificate in education). Trained head teachers are paid 6,400 Tk per month, untrained head teachers and trained assistant teachers are paid 5,900 Tk per month and untrained assistant teachers are paid 4,700 Tk per month. Allowances for living costs or experience raises are not included for government teachers. Teachers working in RNGPS or in the primary sections of high madrasas are paid 90 percent of the "basic pay" of teachers in government schools. Basic pay is assumed to be 4,700 Tk per month, making the salary of teachers in these schools 4,230 Tk per month. The government only provides support for up to five teachers at RNGPS, so such schools with more than five teachers are given a flat amount of 21,150 Tk per month. Finally, teachers at independent, primary-level madrasas and community schools are given 750 Tk per month by the government.

Spending on SLIP grants and repair costs are very straightforward. Schools listed in the ASC as receiving a SLIP grant receive 30,000 Tk from the government. Government primary schools only are given funds from the government toward repairs, in the amount of 7,000 Tk.

Finally, stipend expenditures were calculated at the upazila level based on the government's eligibility criteria, which are based in turn on the poverty rate in that upazila. In upazilas with a poverty rate greater than 60 percent, 90 percent of primary students are eligible for stipends. In upazilas with a poverty rate greater than 48 percent but less than or equal to 60 percent, 75 percent of primary students are eligible. In upazilas with a poverty rate of 36 to 48 percent (inclusive), 50 percent of primary students are eligible. Finally, in upazilas with a poverty rate lower than 36 percent, 45 percent of primary students are eligible. To determine the amount spent on stipends in each upazila, the number of primary students is multiplied by the eligibility rate, which is in turn multiplied by 1,200 Tk (the annual value of each stipend).

In much of the reported analysis, the values above are converted into U.S. dollars for easier interpretation by an international audience. The conversion factor is 1 Tk = $0.013.

## ANNEX 2: EDI DISTRICT RANKING

**Blue** = top ten districts, **Gray** = bottom ten districts

| Name | Overall EDI | Access | Infrastructure | Quality | Equity | Outcome |
|------|-------------|--------|----------------|---------|--------|---------|
| Dinajpur | 1 | 16 | 2 | 3 | 24 | 17 |
| Munshigonj | 2 | 49 | 22 | 21 | 1 | 2 |
| Rajshahi | 3 | 3 | 1 | 27 | 21 | 40 |
| Narail | 4 | 14 | 34 | 2 | 8 | 26 |
| Thakurgaon | 5 | 7 | 4 | 10 | 33 | 35 |
| Jessore | 6 | 9 | 13 | 23 | 20 | 9 |
| Magura | 7 | 10 | 31 | 11 | 19 | 16 |
| Natore | 8 | 42 | 17 | 19 | 3 | 20 |
| Panchagarh | 9 | 1 | 11 | 30 | 12 | 31 |
| Jhenaidah | 10 | 17 | 8 | 35 | 11 | 8 |
| Pirojpur | 11 | 50 | 6 | 8 | 43 | 5 |
| Naogaon | 12 | 15 | 5 | 14 | 45 | 19 |
| Jhalokathi | 13 | 25 | 7 | 1 | 61 | 10 |
| Khulna | 14 | 35 | 25 | 12 | 25 | 3 |
| Barisal | 15 | 56 | 21 | 18 | 10 | 1 |
| Chuadanga | 16 | 36 | 20 | 20 | 6 | 36 |
| Lalmonirhat | 17 | 29 | 40 | 28 | 5 | 18 |
| Patuakhali | 18 | 46 | 32 | 7 | 44 | 4 |
| Khagrachhari | 19 | 44 | 10 | 5 | 52 | 29 |
| Moulvibazar | 20 | 11 | 16 | 32 | 4 | 61 |
| Bagerhat | 21 | 18 | 53 | 4 | 59 | 6 |
| Meherpur | 22 | 19 | 9 | 15 | 31 | 55 |
| Chapai Nababganj | 23 | 26 | 29 | 31 | 37 | 12 |
| Barguna | 24 | 5 | 24 | 16 | 60 | 27 |
| Joypurhat | 25 | 21 | 3 | 36 | 51 | 46 |
| Feni | 26 | 13 | 44 | 26 | 58 | 13 |
| Kushtia | 27 | 41 | 33 | 24 | 26 | 41 |
| Rajbari | 28 | 12 | 47 | 17 | 36 | 44 |
| Gazipur | 29 | 27 | 35 | 44 | 29 | 25 |
| Chittagong | 30 | 52 | 19 | 34 | 15 | 43 |
| Bogra | 31 | 33 | 12 | 43 | 55 | 24 |
| Chandpur | 32 | 22 | 57 | 25 | 48 | 7 |

| Name | Overall EDI | Access | Infrastructure | Quality | Equity | Outcome |
|---|---|---|---|---|---|---|
| Nilphamari | 33 | 20 | 36 | 13 | 56 | 47 |
| Gaibandha | 34 | 8 | 45 | 22 | 54 | 42 |
| Tangail | 35 | 39 | 49 | 49 | 14 | 21 |
| Rangpur | 36 | 34 | 23 | 50 | 42 | 22 |
| Satkhira | 37 | 30 | 52 | 47 | 27 | 15 |
| Narsingdi | 38 | 32 | 51 | 48 | 16 | 30 |
| Gopalganj | 39 | 31 | 54 | 29 | 41 | 34 |
| Rangamati | 40 | 55 | 15 | 6 | 63 | 28 |
| Sherpur | 41 | 2 | 41 | 40 | 47 | 53 |
| Sylhet | 42 | 43 | 27 | 45 | 9 | 59 |
| Jamalpur | 43 | 57 | 46 | 37 | 23 | 39 |
| Dhaka | 44 | 58 | 14 | 57 | 17 | 49 |
| Narayangonj | 45 | 48 | 37 | 52 | 18 | 50 |
| Shariatpur | 46 | 62 | 43 | 54 | 2 | 56 |
| Luxmipur | 47 | 37 | 59 | 41 | 53 | 14 |
| Comilla | 48 | 28 | 62 | 42 | 49 | 23 |
| Bandarban | 49 | 47 | 18 | 9 | 64 | 51 |
| Sirajgonj | 50 | 6 | 26 | 63 | 32 | 54 |
| Manikgonj | 51 | 51 | 42 | 59 | 13 | 38 |
| Kurigram | 52 | 45 | 56 | 56 | 30 | 32 |
| Netrokona | 53 | 53 | 48 | 33 | 39 | 52 |
| Kishorgonj | 54 | 38 | 50 | 46 | 35 | 60 |
| Faridpur | 55 | 4 | 63 | 51 | 57 | 58 |
| Pabna | 56 | 59 | 39 | 62 | 28 | 33 |
| Madaripur | 57 | 60 | 58 | 58 | 38 | 11 |
| Brahmanbaria | 58 | 61 | 64 | 55 | 7 | 48 |
| Noakhali | 59 | 40 | 61 | 60 | 34 | 45 |
| Bhola | 60 | 23 | 55 | 61 | 62 | 37 |
| Cox's Bazar | 61 | 63 | 38 | 53 | 22 | 62 |
| Hobiganj | 62 | 54 | 30 | 39 | 46 | 64 |
| Sunamgonj | 63 | 64 | 28 | 38 | 50 | 63 |
| Mymensingh | 64 | 24 | 60 | 64 | 40 | 57 |

## ANNEX 3: EDI RANKINGS BY UPAZILA (ALPHABETICAL)

Blue = top decile of upazilas, Gray = bottom decile of upazilas

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|---|---|---|---|---|---|---|---|
| Bagerhat | Bagherhat Sadar | 194 | 144 | 39 | 277 | 181 | 50 |
| Bagerhat | Chitalmari | 53 | 335 | 55 | 205 | 4 | 37 |
| Bagerhat | Fakirhat | 221 | 305 | 81 | 162 | 78 | 100 |
| Bagerhat | Kachua | 48 | 63 | 31 | 190 | 111 | 10 |
| Bagerhat | Mollahat | 224 | 427 | 85 | 461 | 202 | 290 |
| Bagerhat | Mongla | 251 | 498 | 392 | 446 | 56 | 405 |
| Bagerhat | Morolganj | 449 | 274 | 1 | 400 | 18 | 190 |
| Bagerhat | Rampal | 83 | 139 | 86 | 442 | 82 | 80 |
| Bagerhat | Sarankhola | 257 | 243 | 10 | 478 | 130 | 154 |
| Bandarban | Alikadam | 420 | 60 | 296 | 474 | 432 | 394 |
| Bandarban | Bandarban Sadar | 155 | 31 | 26 | 466 | 382 | 91 |
| Bandarban | Lama | 471 | 289 | 140 | 469 | 339 | 432 |
| Bandarban | Naikhangchhari | 368 | 405 | 186 | 481 | 311 | 399 |
| Bandarban | Roangchhari | 282 | 9 | 14 | 496 | 436 | 183 |
| Bandarban | Ruma | 430 | 33 | 108 | 503 | 461 | 441 |
| Bandarban | Thanchi | 497 | 135 | 114 | 501 | 444 | 484 |
| Barguna | Amtali | 435 | 451 | 162 | 409 | 73 | 382 |
| Barguna | Bamna | 255 | 101 | 70 | 436 | 105 | 104 |
| Barguna | Barguna Sadar | 100 | 147 | 87 | 445 | 151 | 109 |
| Barguna | Betagi | 29 | 57 | 181 | 431 | 188 | 76 |
| Barguna | Patharghata | 33 | 214 | 93 | 460 | 233 | 150 |
| Barisal | Agailjhara | 170 | 152 | 157 | 7 | 10 | 18 |
| Barisal | Babuganj | 35 | 70 | 58 | 104 | 9 | 3 |
| Barisal | Bakherganj | 459 | 258 | 221 | 165 | 39 | 304 |
| Barisal | Banoripara | 481 | 51 | 20 | 37 | 17 | 85 |
| Barisal | Barisal Sadar | 343 | 48 | 172 | 281 | 45 | 87 |
| Barisal | Gournadi | 130 | 219 | 100 | 12 | 2 | 17 |
| Barisal | Hizla | 475 | 361 | 301 | 477 | 128 | 451 |
| Barisal | Mehendiganj | 477 | 477 | 302 | 204 | 50 | 434 |
| Barisal | Muladi | 440 | 356 | 126 | 255 | 244 | 343 |
| Barisal | Wazirpur | 339 | 195 | 42 | 73 | 3 | 35 |
| Bhola | Bhola Sadar | 323 | 421 | 327 | 335 | 248 | 363 |
| Bhola | Borhanuddin | 30 | 387 | 198 | 483 | 402 | 335 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|---|---|---|---|---|---|---|---|
| Bhola | Charfashion | 356 | 382 | 501 | 443 | 239 | 483 |
| Bhola | Daulatkhan | 28 | 446 | 300 | 417 | 304 | 319 |
| Bhola | Lalmohan | 169 | 481 | 50 | 426 | 166 | 266 |
| Bhola | Manpura | 182 | 495 | 445 | 458 | 186 | 431 |
| Bhola | Tozumuddin | 233 | 169 | 101 | 495 | 405 | 327 |
| Bogra | Adamdighi | 199 | 34 | 135 | 414 | 245 | 99 |
| Bogra | Bogra Sadar | 307 | 29 | 38 | 129 | 253 | 33 |
| Bogra | Dhunut | 227 | 437 | 166 | 471 | 157 | 323 |
| Bogra | Dhupchanchia | 166 | 58 | 472 | 438 | 165 | 281 |
| Bogra | Gabtoli | 297 | 162 | 422 | 150 | 125 | 237 |
| Bogra | Kahaloo | 111 | 45 | 75 | 288 | 184 | 32 |
| Bogra | Nandigram | 353 | 244 | 72 | 292 | 95 | 171 |
| Bogra | Shajahanpur | 139 | 20 | 146 | 486 | 140 | 97 |
| Bogra | Shariakandi | 213 | 277 | 125 | 286 | 147 | 163 |
| Bogra | Sherpur | 177 | 292 | 453 | 355 | 40 | 296 |
| Bogra | Shibganj | 191 | 178 | 117 | 369 | 206 | 143 |
| Bogra | Shonatola | 44 | 303 | 43 | 301 | 171 | 73 |
| Brahmanbaria | Akhaura | 181 | 234 | 498 | 84 | 326 | 392 |
| Brahmanbaria | Ashuganj | 289 | 491 | 451 | 16 | 209 | 356 |
| Brahmanbaria | Bancharampur | 451 | 448 | 346 | 39 | 193 | 386 |
| Brahmanbaria | Brahmonbaria Sadar | 147 | 423 | 384 | 108 | 349 | 315 |
| Brahmanbaria | Kashba | 388 | 435 | 251 | 191 | 439 | 407 |
| Brahmanbaria | Nabinagar | 472 | 473 | 442 | 43 | 403 | 468 |
| Brahmanbaria | Nasirnagar | 479 | 487 | 487 | 62 | 283 | 480 |
| Brahmanbaria | Sarail | 470 | 497 | 354 | 86 | 358 | 462 |
| Chandpur | Chandpur Sadar | 340 | 317 | 214 | 78 | 136 | 216 |
| Chandpur | Faridganj | 101 | 417 | 317 | 485 | 91 | 330 |
| Chandpur | Haimchar | 260 | 478 | 224 | 468 | 203 | 381 |
| Chandpur | Hajiganj | 333 | 294 | 141 | 140 | 54 | 165 |
| Chandpur | Kachua | 174 | 325 | 288 | 378 | 27 | 228 |
| Chandpur | Matlab | 424 | 485 | 142 | 306 | 77 | 359 |
| Chandpur | Shahrasti | 26 | 278 | 388 | 337 | 66 | 207 |
| Chandpur | Uttar Matlab | 71 | 297 | 231 | 181 | 31 | 108 |
| Chapai Nababganj | Bholahat | 82 | 215 | 330 | 137 | 23 | 98 |
| Chapai Nababganj | Gomastapur | 272 | 207 | 249 | 280 | 71 | 195 |
| Chapai Nababganj | Nababganj Sadar | 399 | 165 | 220 | 384 | 122 | 277 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Chapai Nababganj | Nachole | 158 | 104 | 219 | 218 | 52 | 65 |
| Chapai Nababganj | Shibganj | 153 | 285 | 390 | 282 | 35 | 234 |
| Chittagong | Anwara | 392 | 160 | 201 | 51 | 287 | 209 |
| Chittagong | Bandar | 501 | 19 | 474 | 1 | 498 | |
| Chittagong | Banshkhali | 406 | 368 | 438 | 316 | 332 | 430 |
| Chittagong | Boalkhali | 115 | 69 | 210 | 154 | 281 | 71 |
| Chittagong | Chandanaish | 410 | 203 | 159 | 25 | 442 | 287 |
| Chittagong | Chandgaon | 281 | 24 | 486 | 11 | 207 | 144 |
| Chittagong | Doublemuring | 149 | 99 | 412 | 139 | 180 | 169 |
| Chittagong | Fatikchhari | 280 | 315 | 383 | 381 | 268 | 357 |
| Chittagong | Hathazari | 425 | 40 | 154 | 8 | 137 | 58 |
| Chittagong | Kotwali | 253 | 100 | 311 | 487 | 59 | 249 |
| Chittagong | Lohagora | 437 | 268 | 270 | 184 | 259 | 352 |
| Chittagong | Mirsharai | 284 | 97 | 171 | 48 | 143 | 52 |
| Chittagong | Pahartali | 205 | 36 | 419 | 105 | 62 | 86 |
| Chittagong | Panchlaish | 21 | 75 | 411 | 271 | 310 | 156 |
| Chittagong | Patiya | 337 | 153 | 227 | 17 | 280 | 140 |
| Chittagong | Rangunia | 363 | 78 | 216 | 309 | 352 | 244 |
| Chittagong | Rowzan | 74 | 73 | 131 | 187 | 127 | 30 |
| Chittagong | Sandwip | 413 | 442 | 266 | 386 | 407 | 439 |
| Chittagong | Satkania | 376 | 226 | 258 | 63 | 437 | 320 |
| Chittagong | Sitakunda | 271 | 146 | 374 | 145 | 176 | 210 |
| Chuadanga | Alamdanga | 245 | 157 | 182 | 133 | 346 | 168 |
| Chuadanga | Chuadanga Sadar | 187 | 158 | 215 | 122 | 342 | 153 |
| Chuadanga | Damurhuda | 208 | 166 | 170 | 94 | 297 | 126 |
| Chuadanga | Jiban Nagar | 220 | 64 | 155 | 76 | 269 | 51 |
| Comilla | Barura | 195 | 378 | 279 | 261 | 168 | 257 |
| Comilla | Brahmanpara | 241 | 375 | 287 | 285 | 313 | 314 |
| Comilla | Burichang | 202 | 193 | 247 | 148 | 87 | 119 |
| Comilla | Chandina | 142 | 360 | 360 | 334 | 212 | 305 |
| Comilla | Chowddagram | 154 | 247 | 363 | 450 | 67 | 280 |
| Comilla | Sadar Dakhin | 78 | 286 | 335 | 435 | 150 | 270 |
| Comilla | Adarsha Sadar | 179 | 89 | 348 | 362 | 69 | 162 |
| Comilla | Daudkandi | 345 | 265 | 319 | 201 | 29 | 238 |
| Comilla | Debidhar | 152 | 493 | 394 | 141 | 26 | 302 |
| Comilla | Homna | 380 | 256 | 367 | 20 | 255 | 282 |
| Comilla | Laksham | 234 | 450 | 457 | 428 | 292 | 427 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Comilla | Manoharganj | 61 | 488 | 458 | 424 | 320 | 421 |
| Comilla | Meghna | 456 | 397 | 409 | 101 | 282 | 422 |
| Comilla | Muradnagar | 198 | 496 | 456 | 274 | 278 | 418 |
| Comilla | Nangalkot | 145 | 460 | 386 | 366 | 294 | 377 |
| Comilla | Titas | 426 | 237 | 461 | 410 | 103 | 410 |
| Cox's Bazar | Chakoria | 290 | 363 | 252 | 41 | 404 | 288 |
| Cox's Bazar | Cox'S Bazar | 500 | 82 | 196 | 251 | 266 | |
| Cox's Bazar | Kutubdia | 421 | 327 | 130 | 439 | 388 | 395 |
| Cox's Bazar | Maheshkhali | 408 | 428 | 483 | 396 | 408 | 474 |
| Cox's Bazar | Pekua | 499 | 411 | 410 | 264 | 473 | 491 |
| Cox's Bazar | Ramu | 434 | 288 | 473 | 147 | 469 | 457 |
| Cox's Bazar | Teknaf | 372 | 338 | 449 | 326 | 483 | 461 |
| Cox's Bazar | Ukhiya | 267 | 469 | 495 | 257 | 386 | 456 |
| Dhaka | Cantonment | 8 | 54 | 496 | 246 | 476 | 310 |
| Dhaka | Demra | 7 | 59 | 399 | 75 | 416 | 82 |
| Dhaka | Dhamrai | 291 | 109 | 207 | 67 | 33 | 56 |
| Dhaka | Dhanmondi | 172 | 92 | 308 | 340 | 357 | 224 |
| Dhaka | Dohar | 219 | 390 | 402 | 128 | 448 | 379 |
| Dhaka | Gulshan | 3 | 30 | 393 | 27 | 499 | |
| Dhaka | Keraniganj | 222 | 151 | 497 | 149 | 225 | 340 |
| Dhaka | Kotwali | 10 | 2 | 250 | 488 | 503 | |
| Dhaka | Lalbag | 312 | 194 | 492 | 240 | 218 | 360 |
| Dhaka | Mirpur | 98 | 61 | 429 | 3 | 156 | 40 |
| Dhaka | Mohammadpur | 310 | 22 | 401 | 352 | 293 | 243 |
| Dhaka | Motijheel | 140 | 56 | 262 | 287 | 368 | 149 |
| Dhaka | Nawabganj | 316 | 186 | 334 | 110 | 389 | 279 |
| Dhaka | Ramna | 314 | 41 | 481 | 490 | 329 | 393 |
| Dhaka | Savar | 249 | 84 | 447 | 36 | 21 | 105 |
| Dhaka | Sutrapur | 135 | 3 | 349 | 494 | 345 | 164 |
| Dhaka | Tejgaon | 262 | 52 | 324 | 470 | 250 | 255 |
| Dinajpur | Birampur | 246 | 200 | 57 | 209 | 81 | 61 |
| Dinajpur | Birganj | 52 | 132 | 71 | 227 | 96 | 26 |
| Dinajpur | Birol | 162 | 4 | 3 | 254 | 113 | 1 |
| Dinajpur | Bochaganj | 65 | 17 | 11 | 346 | 262 | 13 |
| Dinajpur | Chirirbandar | 80 | 137 | 80 | 391 | 24 | 43 |
| Dinajpur | Dinajpur Sadar | 248 | 21 | 15 | 44 | 317 | 9 |
| Dinajpur | Fulbari | 347 | 140 | 60 | 174 | 208 | 102 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|---|---|---|---|---|---|---|---|
| Dinajpur | Ghoraghat | 209 | 118 | 190 | 183 | 219 | 117 |
| Dinajpur | Hakimpur | 50 | 190 | 188 | 360 | 228 | 141 |
| Dinajpur | Kaharole | 56 | 11 | 24 | 302 | 19 | 2 |
| Dinajpur | Khanshama | 34 | 240 | 44 | 290 | 80 | 39 |
| Dinajpur | Nawabganj | 212 | 230 | 96 | 407 | 86 | 148 |
| Dinajpur | Parbotipur | 159 | 124 | 35 | 119 | 170 | 25 |
| Faridpur | Alphadanga | 24 | 267 | 309 | 222 | 222 | 172 |
| Faridpur | Bhanga | 167 | 410 | 361 | 221 | 381 | 341 |
| Faridpur | Boalmari | 4 | 438 | 469 | 476 | 429 | 391 |
| Faridpur | Char Bhadrasan | 168 | 299 | 47 | 248 | 457 | 230 |
| Faridpur | Faridpur Sadar | 134 | 336 | 283 | 276 | 115 | 221 |
| Faridpur | Madhukhali | 86 | 430 | 292 | 103 | 380 | 274 |
| Faridpur | Nagarkanda | 11 | 463 | 439 | 373 | 496 | 460 |
| Faridpur | Sadarpur | 361 | 459 | 357 | 256 | 434 | 435 |
| Faridpur | Shaltha | 443 | 500 | 353 | 500 | 471 | 492 |
| Feni | Chagalnaiya | 90 | 138 | 189 | 356 | 61 | 83 |
| Feni | Dagonbhuiya | 51 | 279 | 321 | 447 | 299 | 295 |
| Feni | Feni Sadar | 192 | 252 | 298 | 297 | 99 | 214 |
| Feni | Fulgazi | 92 | 238 | 111 | 253 | 55 | 70 |
| Feni | Parshuram | 211 | 293 | 217 | 491 | 131 | 313 |
| Feni | Sonagazi | 228 | 384 | 359 | 377 | 138 | 326 |
| Gaibandha | Fulchhari | 466 | 345 | 178 | 444 | 306 | 429 |
| Gaibandha | Gaibandha Sadar | 117 | 374 | 173 | 279 | 164 | 199 |
| Gaibandha | Gobindoganj | 112 | 334 | 242 | 425 | 379 | 316 |
| Gaibandha | Palashbari | 43 | 331 | 112 | 299 | 369 | 193 |
| Gaibandha | Shadullapur | 58 | 380 | 136 | 327 | 360 | 233 |
| Gaibandha | Shaghata | 110 | 419 | 223 | 215 | 334 | 262 |
| Gaibandha | Shundorganj | 148 | 369 | 265 | 456 | 201 | 317 |
| Gazipur | Gazipur Sadar | 278 | 282 | 441 | 185 | 220 | 328 |
| Gazipur | Kaliakoir | 286 | 112 | 325 | 125 | 32 | 121 |
| Gazipur | Kaliganj | 123 | 171 | 248 | 332 | 204 | 175 |
| Gazipur | Kapasia | 27 | 275 | 278 | 401 | 348 | 248 |
| Gazipur | Sreepur | 91 | 291 | 450 | 143 | 227 | 267 |
| Gazipur | Tongi | 503 | 306 | 426 | 111 | 501 | |
| Gopalganj | Gopalgonj Sadar | 206 | 352 | 236 | 219 | 343 | 276 |
| Gopalganj | Kashiani | 72 | 204 | 137 | 389 | 319 | 179 |
| Gopalganj | Kotalipara | 445 | 263 | 285 | 106 | 322 | 358 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Gopalganj | Maksudpur | 427 | 392 | 185 | 365 | 79 | 345 |
| Gopalganj | Tongipara | 299 | 309 | 61 | 268 | 25 | 124 |
| Hobiganj | Azmiriganj | 496 | 261 | 124 | 113 | 421 | 443 |
| Hobiganj | Bahubal | 14 | 176 | 417 | 453 | 490 | 375 |
| Hobiganj | Banichang | 474 | 296 | 435 | 467 | 492 | 488 |
| Hobiganj | Chunarughat | 75 | 318 | 299 | 289 | 485 | 364 |
| Hobiganj | Habigonj Sadar | 254 | 259 | 370 | 283 | 441 | 365 |
| Hobiganj | Lakhai | 469 | 398 | 128 | 383 | 493 | 472 |
| Hobiganj | Madhabpur | 383 | 407 | 282 | 42 | 413 | 353 |
| Hobiganj | Nabiganj | 401 | 249 | 95 | 32 | 463 | 294 |
| Jamalpur | Bakshiganj | 305 | 396 | 470 | 429 | 387 | 442 |
| Jamalpur | Dewanganj | 438 | 483 | 329 | 242 | 347 | 444 |
| Jamalpur | Islampur | 441 | 443 | 344 | 217 | 341 | 436 |
| Jamalpur | Jamalpur Sadar | 379 | 221 | 303 | 26 | 104 | 201 |
| Jamalpur | Madarganj | 184 | 475 | 260 | 408 | 366 | 378 |
| Jamalpur | Melandah | 360 | 373 | 322 | 178 | 323 | 349 |
| Jamalpur | Sharishabari | 417 | 332 | 263 | 57 | 359 | 336 |
| Jessore | Avoynagar | 275 | 35 | 118 | 55 | 118 | 22 |
| Jessore | Bagarpara | 103 | 98 | 341 | 224 | 270 | 157 |
| Jessore | Chougachha | 185 | 211 | 200 | 197 | 47 | 107 |
| Jessore | Jessore Sadar | 502 | 126 | 158 | 97 | 500 | |
| Jessore | Jhikargachha | 141 | 173 | 237 | 216 | 12 | 78 |
| Jessore | Keshabpur | 39 | 68 | 193 | 322 | 88 | 44 |
| Jessore | Manirampur | 36 | 67 | 92 | 374 | 53 | 23 |
| Jessore | Sharsha | 97 | 217 | 368 | 163 | 149 | 181 |
| Jhalokathi | Jhalokathi Sadar | 393 | 49 | 32 | 437 | 161 | 135 |
| Jhalokathi | Kanthalia | 400 | 116 | 16 | 455 | 100 | 161 |
| Jhalokathi | Nolchhiti | 204 | 134 | 68 | 349 | 57 | 54 |
| Jhalokathi | Rajapur | 285 | 87 | 13 | 418 | 98 | 49 |
| Jhenaidah | Harinakunda | 88 | 164 | 204 | 192 | 58 | 62 |
| Jhenaidah | Jhenaidah Sadar | 131 | 26 | 405 | 245 | 210 | 130 |
| Jhenaidah | Kaliganj | 235 | 83 | 82 | 155 | 37 | 27 |
| Jhenaidah | Kotchandpur | 114 | 14 | 99 | 109 | 107 | 6 |
| Jhenaidah | Moheshpur | 189 | 74 | 147 | 300 | 44 | 46 |
| Jhenaidah | Soilkupa | 173 | 362 | 64 | 89 | 101 | 75 |
| Joypurhat | Akkelpur | 243 | 76 | 119 | 123 | 258 | 66 |
| Joypurhat | Jaipurhat Sadar | 270 | 62 | 180 | 347 | 428 | 231 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|---|---|---|---|---|---|---|---|
| Joypurhat | Kalai | 165 | 95 | 239 | 475 | 372 | 263 |
| Joypurhat | Khetlal | 105 | 53 | 233 | 294 | 272 | 92 |
| Joypurhat | Panchbibi | 87 | 103 | 271 | 419 | 316 | 203 |
| Khagrachhari | Dighinala | 454 | 106 | 27 | 448 | 251 | 278 |
| Khagrachhari | Khagrachhari Sadar | 342 | 123 | 90 | 90 | 354 | 138 |
| Khagrachhari | Luxmichhari | 409 | 37 | 338 | 498 | 336 | 403 |
| Khagrachhari | Mahalchhari | 418 | 163 | 8 | 427 | 141 | 189 |
| Khagrachhari | Manikchhari | 256 | 418 | 225 | 420 | 401 | 373 |
| Khagrachhari | Matiranga | 300 | 257 | 98 | 173 | 167 | 155 |
| Khagrachhari | Panchari | 350 | 38 | 37 | 415 | 367 | 142 |
| Khagrachhari | Ramgarh | 321 | 55 | 40 | 339 | 275 | 90 |
| Khulna | Batiaghata | 320 | 143 | 5 | 71 | 1 | 8 |
| Khulna | Dakope | 468 | 246 | 4 | 258 | 8 | 180 |
| Khulna | Dighulia | 96 | 333 | 280 | 18 | 94 | 95 |
| Khulna | Dumuria | 292 | 119 | 41 | 229 | 42 | 42 |
| Khulna | Kayra | 403 | 494 | 169 | 459 | 315 | 440 |
| Khulna | Khulna Sadar | 2 | 7 | 294 | 320 | 502 | |
| Khulna | Paikgacha | 265 | 224 | 21 | 412 | 72 | 110 |
| Khulna | Phultala | 22 | 42 | 163 | 60 | 110 | 5 |
| Khulna | Rupsha | 210 | 241 | 121 | 22 | 7 | 29 |
| Khulna | Terakhada | 119 | 381 | 25 | 278 | 142 | 93 |
| Kishorgonj | Astogram | 494 | 486 | 488 | 194 | 495 | 494 |
| Kishorgonj | Bajitpur | 352 | 284 | 406 | 72 | 484 | 409 |
| Kishorgonj | Bhairob | 298 | 280 | 471 | 179 | 450 | 416 |
| Kishorgonj | Hossainpur | 31 | 467 | 246 | 434 | 456 | 390 |
| Kishorgonj | Itna | 493 | 461 | 465 | 402 | 487 | 493 |
| Kishorgonj | Karimganj | 85 | 444 | 437 | 158 | 412 | 369 |
| Kishorgonj | Katiadi | 341 | 449 | 273 | 23 | 422 | 348 |
| Kishorgonj | Kishoregonj Sadar | 95 | 340 | 340 | 361 | 330 | 309 |
| Kishorgonj | Kuliarchar | 364 | 456 | 462 | 247 | 411 | 449 |
| Kishorgonj | Mithamoin | 492 | 499 | 500 | 345 | 489 | 496 |
| Kishorgonj | Nikli | 483 | 301 | 455 | 262 | 397 | 475 |
| Kishorgonj | Pakundia | 23 | 205 | 105 | 394 | 295 | 125 |
| Kishorgonj | Tarail | 99 | 401 | 452 | 358 | 467 | 419 |
| Kurigram | Bhurungamari | 250 | 431 | 179 | 153 | 264 | 260 |
| Kurigram | Char Rajibpur | 467 | 466 | 148 | 353 | 285 | 433 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Kurigram | Chilmari | 311 | 465 | 218 | 176 | 363 | 346 |
| Kurigram | Kurigram Sadar | 371 | 453 | 502 | 159 | 350 | 487 |
| Kurigram | Nageswari | 358 | 490 | 342 | 263 | 302 | 417 |
| Kurigram | Phulbari | 13 | 372 | 65 | 463 | 361 | 206 |
| Kurigram | Rajarhat | 102 | 260 | 22 | 156 | 34 | 24 |
| Kurigram | Rowmari | 432 | 457 | 312 | 243 | 126 | 396 |
| Kurigram | Ulipur | 295 | 447 | 203 | 350 | 189 | 325 |
| Kushtia | Bheramara | 214 | 179 | 272 | 116 | 338 | 197 |
| Kushtia | Daulatpur | 332 | 402 | 183 | 270 | 385 | 342 |
| Kushtia | Khoksha | 146 | 125 | 45 | 305 | 309 | 72 |
| Kushtia | Kumarkhali | 203 | 326 | 212 | 380 | 177 | 253 |
| Kushtia | Kushtia Sadar | 268 | 156 | 290 | 79 | 290 | 188 |
| Kushtia | Mirpur | 258 | 235 | 156 | 212 | 276 | 200 |
| Lalmonirhat | Aditmari | 223 | 379 | 289 | 169 | 246 | 273 |
| Lalmonirhat | Hatibandha | 77 | 245 | 337 | 35 | 129 | 113 |
| Lalmonirhat | Kaliganj | 129 | 425 | 139 | 324 | 194 | 227 |
| Lalmonirhat | Lalmonirhat Sadar | 357 | 311 | 79 | 56 | 84 | 128 |
| Lalmonirhat | Patgram | 127 | 454 | 376 | 5 | 211 | 220 |
| Luxmipur | Kamalnagar | 366 | 501 | 432 | 363 | 215 | 463 |
| Luxmipur | Luxmipur Sadar | 239 | 300 | 256 | 397 | 145 | 271 |
| Luxmipur | Ramganj | 69 | 255 | 347 | 341 | 22 | 186 |
| Luxmipur | Ramgati | 359 | 502 | 428 | 399 | 321 | 471 |
| Luxmipur | Raypur | 252 | 323 | 257 | 161 | 205 | 235 |
| Madaripur | Kalkini | 455 | 468 | 306 | 146 | 14 | 380 |
| Madaripur | Madaripur Sadar | 431 | 310 | 379 | 241 | 117 | 366 |
| Madaripur | Razoir | 218 | 324 | 468 | 211 | 175 | 331 |
| Madaripur | Shibchar | 480 | 422 | 443 | 370 | 135 | 466 |
| Magura | Magura Sadar | 186 | 307 | 103 | 127 | 123 | 103 |
| Magura | Mohammadpur | 47 | 254 | 88 | 208 | 365 | 131 |
| Magura | Shalikha | 41 | 239 | 66 | 395 | 38 | 55 |
| Magura | Shreepur | 274 | 136 | 84 | 126 | 116 | 53 |
| Manikgonj | Daulatpur | 444 | 482 | 373 | 343 | 390 | 470 |
| Manikgonj | Ghior | 273 | 189 | 94 | 237 | 410 | 215 |
| Manikgonj | Harirampur | 473 | 262 | 499 | 82 | 152 | 473 |
| Manikgonj | Manikgonj Sadar | 180 | 187 | 213 | 168 | 192 | 134 |
| Manikgonj | Saturia | 308 | 129 | 414 | 80 | 158 | 212 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Manikgonj | Shibaloy | 386 | 281 | 232 | 95 | 196 | 261 |
| Manikgonj | Singair | 324 | 208 | 267 | 58 | 119 | 170 |
| Meherpur | Gangni | 133 | 96 | 120 | 235 | 392 | 120 |
| Meherpur | Meherpur Sadar | 138 | 46 | 176 | 267 | 431 | 145 |
| Meherpur | Mujibnagar | 231 | 81 | 152 | 249 | 148 | 79 |
| Moulvibazar | Baralakha | 244 | 115 | 254 | 61 | 475 | 242 |
| Moulvibazar | Juri | 197 | 111 | 484 | 152 | 375 | 303 |
| Moulvibazar | Kamalganj | 407 | 201 | 52 | 19 | 395 | 184 |
| Moulvibazar | Kulaura | 45 | 188 | 323 | 81 | 486 | 268 |
| Moulvibazar | Moulvibazar Sadar | 163 | 80 | 76 | 14 | 378 | 36 |
| Moulvibazar | Rajnagar | 335 | 229 | 106 | 31 | 455 | 236 |
| Moulvibazar | Sreemangal | 62 | 198 | 385 | 202 | 430 | 286 |
| Munshigonj | Gazaria | 302 | 182 | 164 | 87 | 124 | 106 |
| Munshigonj | Lowhajang | 190 | 12 | 194 | 2 | 121 | 4 |
| Munshigonj | Munshigonj Sadar | 348 | 183 | 345 | 46 | 48 | 167 |
| Munshigonj | Sirajdikhan | 355 | 90 | 228 | 15 | 28 | 47 |
| Munshigonj | Sreenagar | 419 | 250 | 197 | 10 | 76 | 176 |
| Munshigonj | Tongibari | 306 | 253 | 174 | 6 | 41 | 60 |
| Mymensingh | Bhaluka | 261 | 320 | 387 | 171 | 300 | 324 |
| Mymensingh | Dhubaura | 215 | 464 | 404 | 273 | 464 | 428 |
| Mymensingh | Fulbaria | 336 | 445 | 364 | 385 | 284 | 408 |
| Mymensingh | Gaffargaon | 460 | 416 | 307 | 175 | 331 | 424 |
| Mymensingh | Gouripur | 106 | 455 | 460 | 310 | 417 | 415 |
| Mymensingh | Haluaghat | 175 | 424 | 431 | 206 | 449 | 402 |
| Mymensingh | Iswarganj | 137 | 480 | 480 | 413 | 406 | 452 |
| Mymensingh | Muktagachha | 318 | 283 | 184 | 52 | 191 | 185 |
| Mymensingh | Mymensing Sadar | 216 | 395 | 464 | 136 | 393 | 376 |
| Mymensingh | Nandail | 225 | 492 | 396 | 198 | 377 | 406 |
| Mymensingh | Phulpur | 161 | 503 | 448 | 284 | 466 | 467 |
| Mymensingh | Trishal | 12 | 439 | 503 | 440 | 452 | 486 |
| Naogaon | Atrai | 458 | 117 | 69 | 325 | 36 | 211 |
| Naogaon | Badalgachhi | 126 | 28 | 59 | 233 | 68 | 11 |
| Naogaon | Dhamurhat | 59 | 93 | 83 | 473 | 247 | 118 |
| Naogaon | Manda | 236 | 206 | 127 | 193 | 11 | 67 |
| Naogaon | Mohadebpur | 230 | 85 | 122 | 330 | 65 | 69 |
| Naogaon | Naogaon Sadar | 232 | 145 | 259 | 124 | 243 | 147 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Naogaon | Niamatpur | 150 | 185 | 255 | 199 | 182 | 146 |
| Naogaon | Patnitala | 276 | 15 | 97 | 411 | 93 | 48 |
| Naogaon | Porsha | 67 | 161 | 134 | 499 | 223 | 264 |
| Naogaon | Raninagar | 17 | 177 | 304 | 393 | 257 | 174 |
| Naogaon | Shapahar | 157 | 133 | 275 | 452 | 286 | 251 |
| Narail | Kalia | 73 | 272 | 78 | 167 | 235 | 88 |
| Narail | Lohagara | 391 | 298 | 34 | 114 | 160 | 160 |
| Narail | Narail Sadar | 70 | 148 | 30 | 83 | 252 | 20 |
| Narayangonj | Araihazar | 331 | 371 | 427 | 107 | 298 | 355 |
| Narayangonj | Bandar | 188 | 218 | 416 | 382 | 414 | 361 |
| Narayangonj | Narayangonj Sadar | 301 | 121 | 375 | 88 | 344 | 241 |
| Narayangonj | Rupganj | 296 | 264 | 454 | 74 | 190 | 297 |
| Narayangonj | Sonargaon | 183 | 128 | 358 | 98 | 155 | 137 |
| Narsingdi | Belabo | 68 | 377 | 389 | 390 | 438 | 383 |
| Narsingdi | Monohordi | 93 | 393 | 253 | 260 | 174 | 226 |
| Narsingdi | Narsingdi Sadar | 325 | 388 | 478 | 130 | 373 | 411 |
| Narsingdi | Palash | 132 | 220 | 332 | 77 | 301 | 194 |
| Narsingdi | Raypura | 387 | 479 | 407 | 68 | 179 | 389 |
| Narsingdi | Shibpur | 37 | 154 | 310 | 151 | 162 | 89 |
| Natore | Bagatipara | 144 | 131 | 89 | 59 | 70 | 21 |
| Natore | Baraigram | 293 | 376 | 161 | 24 | 216 | 177 |
| Natore | Gurudashpur | 365 | 150 | 230 | 121 | 74 | 152 |
| Natore | Lalpur | 288 | 108 | 145 | 53 | 6 | 31 |
| Natore | Natore Sadar | 54 | 86 | 328 | 69 | 261 | 77 |
| Natore | Shingra | 447 | 192 | 74 | 102 | 102 | 198 |
| Netrokona | Atpara | 315 | 400 | 206 | 180 | 198 | 275 |
| Netrokona | Barhatta | 452 | 415 | 211 | 210 | 453 | 438 |
| Netrokona | Durgapur | 329 | 476 | 293 | 376 | 477 | 454 |
| Netrokona | Kalmakanda | 482 | 248 | 391 | 416 | 465 | 481 |
| Netrokona | Kandua | 178 | 434 | 420 | 207 | 391 | 374 |
| Netrokona | Khaliajhuri | 490 | 432 | 291 | 464 | 458 | 489 |
| Netrokona | Madan | 394 | 412 | 352 | 367 | 364 | 423 |
| Netrokona | Mohanganj | 429 | 355 | 226 | 166 | 435 | 398 |
| Netrokona | Netrokona Sadar | 326 | 391 | 129 | 186 | 355 | 289 |
| Netrokona | Purbadhala | 346 | 474 | 286 | 142 | 351 | 372 |
| Nilphamari | Dimla | 84 | 354 | 77 | 454 | 178 | 205 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Nilphamari | Domar | 104 | 399 | 168 | 403 | 234 | 254 |
| Nilphamari | Jaldhaka | 136 | 295 | 132 | 379 | 424 | 284 |
| Nilphamari | Kishoreganj | 151 | 312 | 102 | 404 | 396 | 272 |
| Nilphamari | Nilphamari Sadar | 200 | 346 | 177 | 272 | 312 | 247 |
| Nilphamari | Saidpur | 238 | 120 | 56 | 47 | 288 | 41 |
| Noakhali | Begumganj | 217 | 364 | 415 | 100 | 231 | 293 |
| Noakhali | Chatkhil | 40 | 170 | 295 | 333 | 296 | 191 |
| Noakhali | Companiganj | 240 | 223 | 371 | 398 | 305 | 332 |
| Noakhali | Hatiya | 422 | 433 | 199 | 228 | 447 | 420 |
| Noakhali | Kabirhat | 313 | 484 | 395 | 252 | 242 | 401 |
| Noakhali | Noakhali Sadar | 328 | 452 | 316 | 308 | 314 | 387 |
| Noakhali | Senbagh | 122 | 316 | 493 | 423 | 132 | 385 |
| Noakhali | Sonaimuri | 121 | 404 | 477 | 298 | 195 | 354 |
| Noakhali | Subarnachar | 405 | 472 | 490 | 234 | 440 | 479 |
| Pabna | Atgharia | 414 | 348 | 365 | 336 | 237 | 400 |
| Pabna | Bera | 397 | 313 | 466 | 307 | 197 | 412 |
| Pabna | Bhangura | 375 | 337 | 333 | 318 | 415 | 404 |
| Pabna | Chatmahar | 423 | 227 | 150 | 223 | 289 | 299 |
| Pabna | Faridpur | 439 | 429 | 281 | 421 | 420 | 455 |
| Pabna | Ishwardi | 242 | 130 | 494 | 131 | 106 | 283 |
| Pabna | Pabna Sadar | 317 | 343 | 331 | 203 | 265 | 322 |
| Pabna | Santhia | 411 | 344 | 73 | 303 | 271 | 306 |
| Pabna | Sujanagar | 374 | 232 | 408 | 230 | 241 | 344 |
| Panchagarh | Atwari | 15 | 142 | 133 | 422 | 362 | 123 |
| Panchagarh | Boda | 18 | 175 | 234 | 85 | 307 | 68 |
| Panchagarh | Debiganj | 109 | 366 | 351 | 177 | 75 | 213 |
| Panchagarh | Panchagarh Sadar | 42 | 199 | 144 | 172 | 172 | 59 |
| Panchagarh | Tentulia | 60 | 202 | 160 | 117 | 374 | 127 |
| Patuakhali | Bauphal | 237 | 287 | 110 | 232 | 85 | 136 |
| Patuakhali | Dashmina | 283 | 403 | 67 | 348 | 154 | 225 |
| Patuakhali | Dumki | 319 | 32 | 29 | 462 | 92 | 64 |
| Patuakhali | Golachipa | 463 | 458 | 167 | 338 | 5 | 370 |
| Patuakhali | Kolapara | 450 | 383 | 54 | 321 | 20 | 285 |
| Patuakhali | Mirzaganj | 294 | 66 | 36 | 387 | 213 | 81 |
| Patuakhali | Patuakhali Sadar | 404 | 209 | 62 | 304 | 163 | 217 |
| Pirojpur | Bhandaria | 378 | 44 | 274 | 265 | 224 | 208 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Pirojpur | Kaukhali | 367 | 13 | 6 | 120 | 134 | 15 |
| Pirojpur | Mothbaria | 402 | 441 | 33 | 441 | 51 | 300 |
| Pirojpur | Nazirpur | 465 | 102 | 7 | 195 | 30 | 114 |
| Pirojpur | Nesarabad (Swarupkati) | 396 | 8 | 12 | 269 | 16 | 14 |
| Pirojpur | Pirojpur Sadar | 344 | 39 | 2 | 91 | 159 | 12 |
| Pirojpur | Zianagar | 428 | 27 | 19 | 354 | 230 | 115 |
| Rajbari | Baliakandi | 118 | 212 | 138 | 371 | 335 | 202 |
| Rajbari | Goalanda | 264 | 394 | 205 | 49 | 328 | 240 |
| Rajbari | Kalukhali | 362 | 406 | 479 | 250 | 459 | 459 |
| Rajbari | Pangsha | 108 | 420 | 153 | 236 | 324 | 232 |
| Rajbari | Rajbari Sadar | 81 | 233 | 235 | 291 | 353 | 219 |
| Rajshahi | Bagha | 124 | 141 | 339 | 40 | 112 | 74 |
| Rajshahi | Baghmara | 16 | 79 | 202 | 406 | 325 | 101 |
| Rajshahi | Boalia | 9 | 1 | 381 | 465 | 481 | 116 |
| Rajshahi | Charghat | 32 | 6 | 366 | 342 | 169 | 38 |
| Rajshahi | Durgapur | 25 | 88 | 264 | 38 | 173 | 28 |
| Rajshahi | Godagari | 63 | 94 | 269 | 66 | 260 | 63 |
| Rajshahi | Mohanpur | 79 | 105 | 191 | 200 | 303 | 96 |
| Rajshahi | Paba | 120 | 72 | 355 | 64 | 199 | 84 |
| Rajshahi | Puthia | 38 | 50 | 268 | 45 | 238 | 34 |
| Rajshahi | Tanore | 19 | 18 | 165 | 188 | 226 | 19 |
| Rangamati | Baghaichhari | 487 | 43 | 9 | 489 | 89 | 312 |
| Rangamati | Barkal | 395 | 181 | 46 | 497 | 153 | 311 |
| Rangamati | Bilaichari | 412 | 25 | 326 | 492 | 183 | 338 |
| Rangamati | Jurachhari | 486 | 236 | 17 | 502 | 240 | 458 |
| Rangamati | Kaptai | 354 | 16 | 91 | 480 | 114 | 129 |
| Rangamati | Kowkhali (Betbunia) | 369 | 172 | 104 | 482 | 263 | 301 |
| Rangamati | Langadu | 491 | 329 | 208 | 368 | 340 | 469 |
| Rangamati | Maniarchar | 433 | 23 | 23 | 479 | 108 | 151 |
| Rangamati | Rajasthali | 143 | 5 | 49 | 323 | 337 | 16 |
| Rangamati | Rangamati Sadar | 461 | 10 | 18 | 388 | 370 | 182 |
| Rangpur | Badarganj | 164 | 290 | 149 | 312 | 97 | 158 |
| Rangpur | Gangachhara | 381 | 342 | 63 | 317 | 217 | 258 |
| Rangpur | Kawnia | 171 | 180 | 192 | 449 | 425 | 298 |
| Rangpur | Mithapukur | 330 | 269 | 113 | 313 | 43 | 187 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Rangpur | Pirgachha | 55 | 339 | 425 | 472 | 144 | 334 |
| Rangpur | Pirganj | 76 | 222 | 241 | 359 | 109 | 166 |
| Rangpur | Rangpur Sadar | 277 | 210 | 430 | 70 | 187 | 250 |
| Rangpur | Taraganj | 193 | 197 | 109 | 372 | 63 | 111 |
| Satkhira | Ashashuni | 304 | 414 | 222 | 331 | 277 | 333 |
| Satkhira | Debhata | 382 | 321 | 143 | 157 | 90 | 222 |
| Satkhira | Kaliganj | 266 | 231 | 187 | 238 | 64 | 159 |
| Satkhira | Kolaroa | 57 | 276 | 485 | 311 | 120 | 307 |
| Satkhira | Satkhira Sadar | 247 | 114 | 175 | 239 | 254 | 139 |
| Satkhira | Shamnagar | 156 | 358 | 195 | 328 | 146 | 223 |
| Satkhira | Tala | 309 | 191 | 51 | 344 | 83 | 112 |
| Shariatpur | Bhedorganj | 377 | 251 | 403 | 28 | 451 | 367 |
| Shariatpur | Damudda | 398 | 365 | 229 | 13 | 468 | 350 |
| Shariatpur | Goshairhat | 279 | 413 | 377 | 34 | 376 | 329 |
| Shariatpur | Naria | 373 | 353 | 261 | 29 | 356 | 292 |
| Shariatpur | Palong (Sadar) | 453 | 174 | 434 | 4 | 273 | 318 |
| Shariatpur | Zanjira | 446 | 386 | 482 | 164 | 267 | 446 |
| Sherpur | Jhenaigati | 351 | 389 | 238 | 96 | 333 | 308 |
| Sherpur | Nakla | 1 | 271 | 400 | 144 | 383 | 94 |
| Sherpur | Nalitabari | 160 | 436 | 423 | 329 | 462 | 425 |
| Sherpur | Sherpur Sadar | 259 | 370 | 380 | 405 | 274 | 368 |
| Sherpur | Sreebordi | 128 | 302 | 318 | 357 | 419 | 337 |
| Sirajgonj | Belkuchi | 207 | 225 | 372 | 244 | 200 | 256 |
| Sirajgonj | Chowhali | 390 | 471 | 305 | 484 | 418 | 464 |
| Sirajgonj | Kamarkhanda | 94 | 149 | 209 | 170 | 318 | 122 |
| Sirajgonj | Kazipur | 415 | 322 | 476 | 364 | 221 | 437 |
| Sirajgonj | Rayganj | 125 | 330 | 418 | 432 | 308 | 362 |
| Sirajgonj | Shajadpur | 338 | 347 | 459 | 275 | 371 | 413 |
| Sirajgonj | Sirajgonj Sadar | 263 | 273 | 436 | 226 | 291 | 339 |
| Sirajgonj | Tarash | 116 | 122 | 297 | 266 | 426 | 239 |
| Sirajgonj | Ullapara | 5 | 196 | 463 | 115 | 409 | 192 |
| Sunamgonj | Biswambarpur | 495 | 270 | 245 | 189 | 491 | 482 |
| Sunamgonj | Chatak | 436 | 350 | 444 | 65 | 470 | 447 |
| Sunamgonj | Derai | 478 | 266 | 151 | 392 | 454 | 453 |
| Sunamgonj | Dhakhin Sunamganj | 488 | 77 | 491 | 493 | 497 | 495 |
| Sunamgonj | Dharampasha | 484 | 328 | 240 | 351 | 472 | 476 |

| District | Upazila | Access | Infra | Quality | Equity | Outcome | Overall |
|----------|---------|--------|-------|---------|--------|---------|---------|
| Sunamgonj | Dowarabazar | 485 | 470 | 475 | 138 | 445 | 485 |
| Sunamgonj | Jagannathpur | 448 | 168 | 350 | 314 | 446 | 426 |
| Sunamgonj | Jamalganj | 196 | 184 | 421 | 430 | 482 | 414 |
| Sunamgonj | Shalla | 489 | 91 | 48 | 457 | 474 | 448 |
| Sunamgonj | Sunamgonj Sadar | 389 | 357 | 315 | 315 | 488 | 445 |
| Sunamgonj | Tahirpur | 498 | 351 | 277 | 451 | 478 | 490 |
| Sylhet | Balaganj | 322 | 155 | 243 | 50 | 394 | 218 |
| Sylhet | Bianibazar | 66 | 47 | 336 | 134 | 399 | 133 |
| Sylhet | Bishwanath | 113 | 71 | 356 | 295 | 460 | 269 |
| Sylhet | Companiganj | 462 | 228 | 467 | 132 | 427 | 450 |
| Sylhet | Dakhin Surma | 46 | 110 | 397 | 93 | 400 | 196 |
| Sylhet | Fenchuganj | 269 | 107 | 284 | 99 | 327 | 178 |
| Sylhet | Goainghat | 384 | 367 | 489 | 220 | 479 | 465 |
| Sylhet | Golapganj | 176 | 159 | 314 | 30 | 384 | 173 |
| Sylhet | Jaintapur | 442 | 319 | 433 | 213 | 494 | 478 |
| Sylhet | Kanaighat | 476 | 308 | 424 | 160 | 480 | 477 |
| Sylhet | Sylhet Sadar | 303 | 127 | 446 | 92 | 423 | 321 |
| Sylhet | Zakiganj | 226 | 440 | 440 | 54 | 443 | 388 |
| Tangail | Bashail | 287 | 385 | 382 | 112 | 139 | 291 |
| Tangail | Bhuapur | 370 | 167 | 343 | 118 | 185 | 246 |
| Tangail | Delduar | 327 | 242 | 115 | 21 | 15 | 57 |
| Tangail | Dhanbari | 20 | 314 | 369 | 296 | 236 | 229 |
| Tangail | Ghatail | 334 | 359 | 276 | 182 | 60 | 259 |
| Tangail | Gopalpur | 6 | 341 | 320 | 319 | 433 | 252 |
| Tangail | Kalihati | 201 | 489 | 398 | 293 | 232 | 384 |
| Tangail | Mirzapur | 416 | 409 | 313 | 9 | 13 | 245 |
| Tangail | Modhupur | 229 | 426 | 413 | 225 | 249 | 347 |
| Tangail | Nagarpur | 385 | 349 | 362 | 196 | 214 | 351 |
| Tangail | Shokhipur | 464 | 462 | 244 | 135 | 133 | 397 |
| Tangail | Tangail Sadar | 349 | 408 | 378 | 33 | 46 | 265 |
| Thakurgaon | Baliadangi | 89 | 304 | 116 | 214 | 398 | 204 |
| Thakurgaon | Horipur | 457 | 216 | 123 | 433 | 279 | 371 |
| Thakurgaon | Pirganj | 49 | 65 | 28 | 259 | 49 | 7 |
| Thakurgaon | Ranishonkoil | 64 | 213 | 107 | 375 | 229 | 132 |
| Thakurgaon | Thakurgaon Sadar | 107 | 113 | 53 | 231 | 256 | 45 |

## ANNEX 4: SURVEYS IN BANGLADESH

A number of surveys, mostly conducted by the Directorate of Primary Education, provide the key primary education data in Bangladesh. These data are collected, collated, analyzed and reported by the DPE with support from an external team of international consultants. UNICEF and the Campaign for Popular Education, a coalition of education NGOs, also provide some data and reports through independent surveys and analysis. Apart from these various education programs and projects, various organizations do their own in-depth thematic studies using a number of methodologies. Especially noteworthy in this category are the studies conducted by the World Food Program and the Global Alliance for Initiatives in Nutrition on education and nutrition, by Action Aid on disaster risk reduction in education, and by Save the Children on the impact of preschooling on learning and also on early grade reading using EGRA tools.

**Annual School Census:** The ASC, conducted annually since 2002, is the main source for information on primary education. The questionnaire, piloting and implementation of the survey, management of data and the analysis are all conducted by the DPE with support from a team of international experts. The ASPR draws on the ASC and several other surveys and shows the status of 15 key performance indicators for the primary education sector in Bangladesh.

**Primary Completion Examination:** Another important administrative source of information is the nationwide primary completion examination. It provides information on the number of grade 5 students who are eligible to take the exam, participate in the exam and pass—as well as the number of schools where they are enrolled.

**Primary School Quality Level Indicators Survey:** This survey collects data on a set of 18 indicators about school quality. The indicators include all aspects of school, including the condition of classrooms and the availability of textbooks, qualified teachers, school grants, drinking water and sanitation facilities, plus the student/teacher ratio. The survey is issued as a part of the ASC, and the analysis is reported in the ASPR.

**National Student Assessment:** This survey measures the achievement of grade 3 and grade 5 students on a set of curriculum learning outcomes in Bangla and mathematics. The sample is designed to be nationally representative of GPS and RNGPS students. The instruments have been evolving over time, and the latest 2011 NSA is the most informative to date because the standardization of test items allowed for the construction of a common measurement scale for Grade 3 and Grade 5 students for each subject.

**2010 Child Education and Literacy Survey:** This survey was the fifth of its kind to be conducted in Bangladesh. It was designed to capture and analyze educational information on children aged 0–14 years in all households and also to survey the literacy status of those age 15 and above. Organized by the DPE and the BBS, it was conducted by teachers, who went to all households in their catchment areas. The data, disaggregated by gender, were collected on categories of schools, children with disabilities and out-of-school children, together with reasons for their being out of school.

**Bangladesh Bureau of Statistics Population Census:** The population census provides critical information on the size of the primary school-age population (6–10). This is the national census conducted every 10 years.

**Bangladesh Bureau of Statistics Household Income and Expenditure Survey:** The BBS conducts the HIES on a nationally representative sample of households every five years. It collects information on food and nonfood consumption (to measure the rate of poverty) and on household characteristics, including education.

**Bangladesh Bureau of Statistics / UNICEF Multiple Indicator Cluster Survey:** These surveys were part of an international program to collect data on children and women around the world. In 2006, the sample size was 62,000 households (representative at the district level); and in 2009, the sample size was 300,000 households (representative at the upazila level). An education module provided information on enrollment, including in the nonformal sector.

**2008 Education Watch CAMPE Survey:** As part of the Education Watch series, CAMPE conducted a survey of 440 primary schools and 24,000 households. This was valuable for primary education because it built on previous CAMPE surveys and thus allows trends to be seen for some key indicators for the period 1998–2008.

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## ENDNOTES

1. This is the number of upazilas included in the Annual School Census in 2011, covering the entire country. The number of upazilas appears to be shifting over time, and different sources quote different numbers for this figure, based seemingly on a change in the borders of individual upazilas rather than changing coverage.

2. Secondary education includes grades 6–10, and higher secondary education covers grades 11 and 12.

3. Upazilas within city corporation areas are called thanas; in this paper, we refer to this level of government as upazilas.

4. Constitution of the People's Republic of Bangladesh, English Translation, section 17(a), http://bdlaws.minlaw.gov.bd/pdf_part.php?act_name=&vol=&id=367/.

5. Ibid., section 28(3), http://bdlaws.minlaw.gov.bd/pdf_part.php?act_name=&vol=&id=367.

6. The ASC does not yet cover all types of nonformal schools and English medium schools. It is expected that the ASC 2013 will significantly improve its coverage of nonformal schools and madrasas.

7. The Ministry of Finance website provides some information on budget allocations and expenditures in the primary education sector in various reports, including annual budget statements, monthly fiscal reports and ADP utilization reports. While these reports provide records of aggregate revenue and nondevelopment expenditures across ministries, they do not provide detailed information on regional allocations; World Bank (2014).

8. PEDP III includes the gradual introduction of competency-based items in the examinations over the 2013–15 period.

9. The test items are not yet sufficiently standardized. As a result, surveys cannot be compared over time.

10. There are three national data sources on learning: (1) the National Student Assessment, which has been conducted every 2 years since 2008, but whose results so far are not comparable due to insufficient standardization; (2) the Education Watch CAMPE survey, which is conducted each year, but not regularly after 2010; and (3) the grade 5 terminal examination, which is an administrative source and has been conducted since 2009 but whose test items are not yet competency based.

11. It needs to be pointed out that the relationship between inputs and outcomes found in this model are exceptional compared with similar studies in other countries. Thus the results will need to be corroborated as more and better data become available.

12. It needs to be pointed out that the government's target of 1 school per 2,000 households represents a rather low threshold and assumes very large schools. Bangladesh has an average of 0.6 primary age children per household, which means the target requires having only 1 school per 1,200 children.

13. This is the international standard, which Bangladesh uses as a benchmark in its policy documents.

14. There are roughly 4.3 million children for whom we do not have these data.

15. The calculations of the EDI build on a background note by Raihan et al. (2014b). However, estimates were revised due to errors in the original data set.

16. This is because all scores are normalized against the best-scoring upazilas (see the methodology section above, and annex 1).

17. In the literature, this is sometimes referred to as the "non-development budget."

18. The PEDP III financing model, however, does allow for some revenue budget lines—like school maintenance, school grants and textbooks printing and distribution—to be financed by donor money.

19. See http://bangladesheconomy.wordpress.com/2011/12/02/govt-ensures-99-47-percent-school-enrolment-of-children-pm/.

20. With regard to RNGPS, this section describes the state of affairs as it existed in 2011, when the data used were collected. As has previously been mentioned, RNGPS schools have since been nationalized, making their financing identical to that of government schools. The consequences of this for financing and equity are discussed in box 2.

21. It needs to be pointed out that the formula does not need to be expressed in a purely algebraic form, but it must apply a consistent set of criteria for distributing resources.

BROOKINGS