

# **Secondary School Madrasas in Bangladesh: Incidence, Quality, and Implications for Reform**

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*This report does not necessarily reflect the views of the World Bank or the Governments they represent.*

## Executive Summary

1. A unique feature of the Bangladeshi secondary education sector is the large presence of Islamic institutions of religious learning, commonly known as madrasas. However, unlike other countries in the region with large Muslim populations, the religious education sector comprises of both state regulated private madrasas as well as independent, private madrasas. The former are popularly known as *Aliyah* madrasas where alongside Islamic education, modern general education is also provided. Given that majority of these private registered madrasas operate with state funding, they are regulated in terms of curriculum content and teacher recruitment policy under a unified state recognized Madrasa Education Board. On the other hand, an unknown number of private, traditional madrasas exists outside the state sector. These seminaries specialize in religious education and are popularly known as “*Quomi*” madrasas.

2. Bangladesh has a long history of pragmatic reforms of madrasas at the secondary level which sets it apart from other countries in South Asia, and elsewhere. First it introduced fiscal incentives to traditional unregistered all-male madrasa high-schools to register and include modern subjects such as mathematics. Then it introduced another financial incentive to registered madrasa high schools to start admitting female students. Most madrasa secondary schools in Bangladesh are now registered, follow a modern curriculum alongside traditional religious subjects, and have become coeducational (50% of the enrolment in Madrasa high-schools are now females) – an unparalleled development in South Asia so far.

3. Despite having made considerable progress in increasing access to secondary education over the past decade, particularly for girls (gender parity has now been reached in secondary schooling), achieving further progress under the prevalence of widespread poverty requires reaching out to difficult-to-reach children. However, if there is a positive link between poverty and religious education this may further increase the share of pupils enrolled in religious institutions. Therefore, a clear understanding of the religious school sector is necessary if this institution is to serve as an instrument for the rural population in Bangladesh to escape future poverty traps. Nonetheless, for at least three reasons, there is a serious policy concern regarding the provision of education through the institution of madrasas. First, these schools may promote skills that are incompatible with a modern economy. The academic standard attained is popularly perceived to be much lower than in general education. Consequently, it is believed that madrasa graduates fail to pursue a productive economic life and therefore add to the pool of ‘educated’ unemployed. With little learning taking place, current attendance can only reinforce the curse of poverty in the future. Second, they may not promote civic values that are essential for a functioning democracy, thereby causing concerns among policy makers with an interest in the relationship between education and citizenship. Third, an unknown fraction of religious schools still remains completely outside the state system, making it a daunting task to regulate curriculum content and pedagogic practices.

4. For the above reasons, many hold non-state provision of education by Islamist groups and the expansion of madrasas as a contributing factor to radicalization. These concerns are extremely relevant in the age of globalization as Bangladesh today competes with other developing countries in the international market. Education system should not only create a skilled workforce it also needs to reduce social polarization in order to guarantee a stable political environment. Therefore, it is vital for the government to identify the strengths and weakness of the educational structure of the country in order to improve the skill set of the workforce on one hand, while improve social integration on the other.

5. Given certain deficiencies in the existing nationally representative household and administrative data, the World Bank (WB) initiated a detailed survey to integrate both demand and supply side information on secondary schooling to explicitly focus on the incidence and quality of madrasa schooling in Bangladesh. To this end, in the year 2008 the World Bank commissioned a multi-purpose sample survey – *Quality of Secondary School Madrasa Education in Bangladesh* (QSSMEB) - to gather detailed information on all types of secondary institutions in rural Bangladesh. A full census of all educational institutions was carried out in sample unions (primary sampling units) where secondary school quality was assessed by employing a battery of cognitive tests. Apart from detailed survey of secondary school and madrasa students, complete household census was carried out in sample villages, followed by a detailed survey of households with children of secondary school-going age. The research effort therefore combines data on educational institutions, teachers, students, households, parents, and children, from multiple inter-linked sources – census of primary and secondary schools, survey of secondary schools, household survey and census – in order to provide a detailed assessment of the secondary education with an emphasis on the institution of madrasa.

6. The two primary objectives of this report were to address the issues of:

- *Incidence* (how large is the madrasa sector?)
- *Quality* of educational institutions operating in rural Bangladesh (are learning outcomes poorer in madrasas compared to secular schools?)

This is the first ever comprehensive survey on the size, structure and quality of religious schools in a country with a large Muslim population using data from Bangladesh. The comprehensive nature of the data collected allows us to not only present a detailed picture of the madrasa education system in the country, but also to draw comparison with the mainstream secular state and state-aided education sectors. Given the diversity of the Bangladeshi education sector, the data collected, will help to dispel or confirm many popular myths about madrasa education. Household based survey data will be used to address issues in both the primary and secondary sector, while facility-based survey data will focus on the secondary sector. Given the vastness of the data collected at different levels (ranging from learning assessment to social and political preferences), it is not possible for one report to contain all the possible descriptions and analysis. Thus, in this initial report we focus on the incidence of madrasa enrolment and quality of public-aided madrasas (relative to public-aided schools).

### ***Findings from QSSMEB Survey***

#### *Incidence*

7. **The number and share of Quomi madrasas in both the primary and secondary sector is much lower than what is portrayed in the popular press.** Consistent with existing nationally representative household data, we find that even in terms of primary enrolment share, incidence of Quomi madrasa is not large in rural Bangladesh - they account for only 1.9% of the total primary enrolment (Figure E2). These numbers are very small when compared to enrolment in a similar non-religious, non-state school that also caters to children from poor families – Non-Government Organization (NGO) schools account for 8.2% of the primary enrolment in our study. Share of Aliyah madrasa, however, is

significant: They account for 8.4% of the total primary enrolment. Overall madrasa enrolment as a share of total primary enrolment is large (i.e. 13.8%) when we take into account enrolment in ‘other’ madrasas that are non-formal in nature and offer exclusively religious education. Thus, while as a group the number of madrasas might be less than the number of NGOs, the share of enrolment in madrasas is significant and larger than the NGO share. Turning to the secondary education segment, Quomis have a slightly higher share, accounting for 2.2% of the total enrolment. This is also true for Aliyahs (who have an enrolment share of almost 19%).

Figure E2a: Distribution of primary enrolment share of educational institutions by type

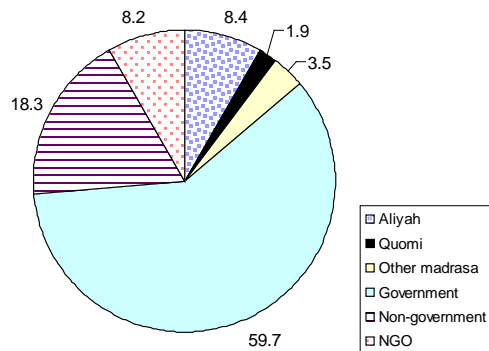
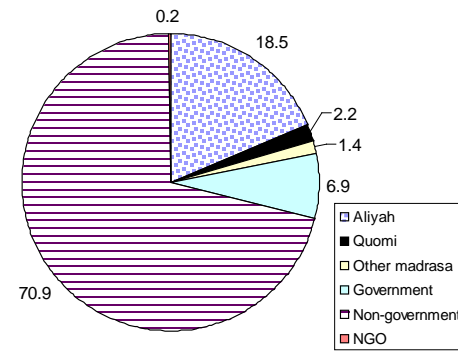


Figure E2b: Distribution of secondary enrolment share of educational institutions by type



Source: Author’s calculation based on data from QSSMEB

### *Quality of Learning from the Institutional Survey*

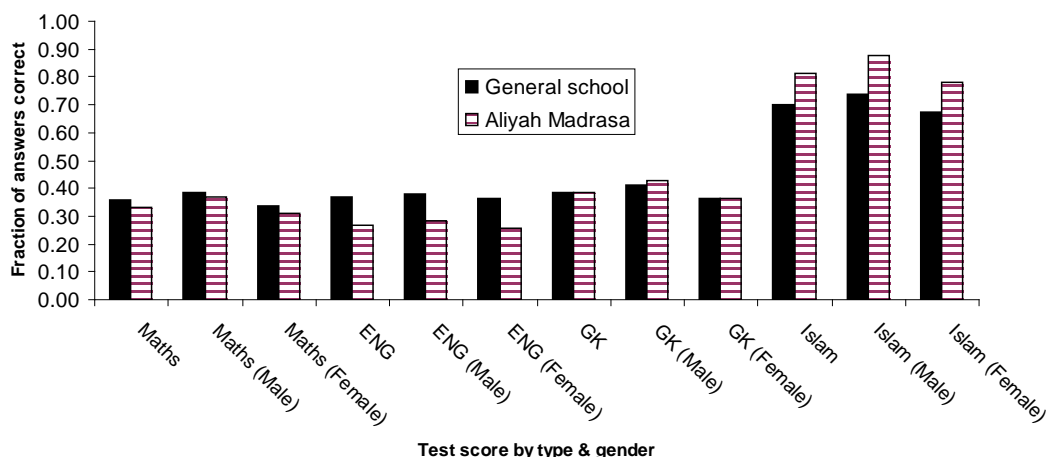
## 8. Patterns in Mathematics and English tests in public-aided secondary schools and madrasas show that:

- Learning achievement is poor across institution types
- Schools outperform Aliyahs
- Girls systematically score lower than boys

9. We administered four distinct cognitive tests to 8<sup>th</sup> grade students during the institutional survey. First, a Math test instrument was constructed by using 25 items previously used in the Trends in International Mathematics and Science Study (TIMSS). On the basis of the national curriculum we devised a test to assess proficiency in English (20 items), General Knowledge (6 items) and Islamic studies (10 items). The test on Islamic studies, however, was restricted to Muslims only. Given that Quomi education is structured in a pedagogic structure that is very different from schools and Aliyahs, it was difficult to identify 8<sup>th</sup> grade equivalence in Quomis, and hence Quomis were excluded from the analysis of learning outcomes.

10. Figure E3 reports % of question items correctly answered by our sample students across institution type, gender and tests. For presentational ease, we use the following groupings: schools (government schools, ‘private’ schools, private aided-schools) and Aliyah madrasa (aided and unaided). On average, only 35% of the math test questions could be correctly answered by students in our sample. This number is even lower (i.e. 33%) for English. Interestingly, the performance is far from satisfactory even if we consider performance in the general knowledge test: only 39% of the questions were correctly answered on average. However, when assessed in matters related to religion (i.e. Islam), the performance was very satisfactory: students on average correctly answered 75% of all the test items.

Figure E3: Distribution of test score by school type and gender



Source:

Author's calculation based on data from QSSMEB. Data corresponds to grade 8 students from sample secondary schools and madrasas.

11. The figure above only reports the fraction of correct answers in different subjects. As such, it is not obvious whether the questions have been set at a reasonable degree of difficulty. The state of poor-quality becomes even more evident if we consider few examples of student performance in individual questions where a majority of students were unable to answer. For instance, let us focus on two simple questions related to division and fractions. Only 62% of school students and 54% of Aliyah students could correctly answer the following question: “Divide:  $\frac{8}{35} \div \frac{4}{15}$ ”. By 8<sup>th</sup> grade, only 11% of school children and 8% of

Aliyah children can correctly divide 24.56 by 0.004. A simple measurement test “Which of these is the longest time? {(a) 15000 seconds (b) 1500 minutes (c) 10 hours (d) 1 day}” is too difficult for 46% of grade 8 children in our sample. When disaggregated by institution type, only 56% and 51% of the school and Aliyah students, respectively, could correctly answer the question.

#### *Distribution of Test Scores*

12. **There is considerable variation in quality within schools and Aliyahs, even greater than the difference between types of institution.** We then take a closer look at the full distribution of test scores across students instead of institutional averages. Even within institution type, there might be considerable variation in learning outcomes. Figure E4 below plots individual-level test score by institution type across the entire distribution of the test score. For the sake of brevity, our discussion focuses on two extreme points of the test score distribution, the bottom and top deciles. We tested over 9,311 pupils in Grade 8 where 73% and 27% of the students belong to school and Aliyah madrasa, respectively. If there are not major differences in the distribution of test scores between institution-type, then the fraction of a given institution-type in a particular decile should be similar to its sample fraction.

Figure E4a: Math score (decile distribution by institution type)

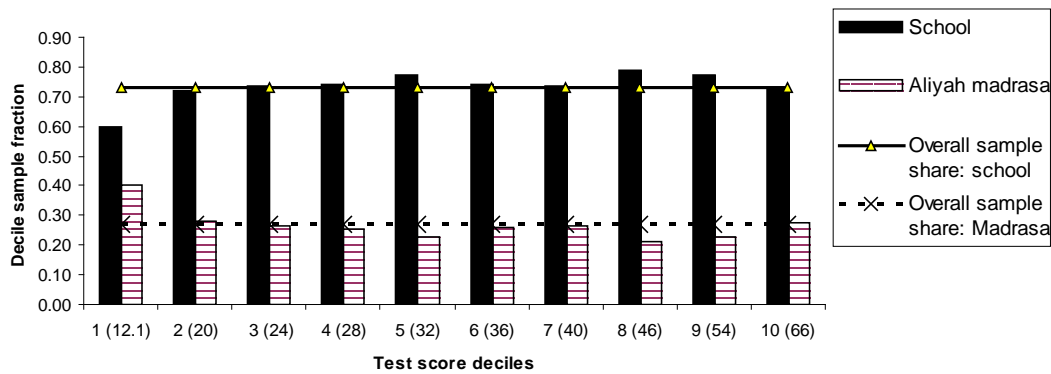
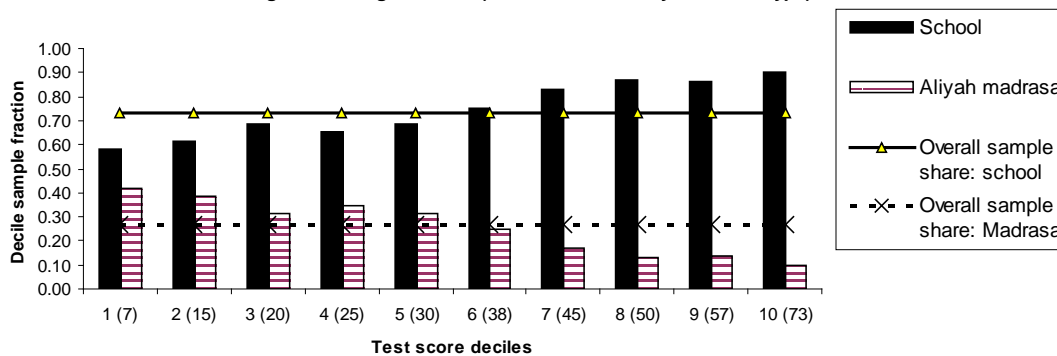


Figure E4b: English score (decile distribution by institution type)



Source: (a) Author's calculation based on data from QSSMEB. (b) Data corresponds to grade 8 students from sample secondary schools and madrasas. (c) For each decile/quartile, mean score is reported in the parenthesis.

13. First note that 12% of our sample students belong to the bottom 10% (with a mean score of 2.9 out of 25) of the Math score distribution while only 7% belong to top 10% (with a mean score of 16.8 out of 25). This means that on average, the bottom 10% could correctly answer only 12% of the Maths questions while even the top 10% could only correctly answer 66% of the questions. Now, the relative share of school and Aliyah students in the *bottom* 10% population is 60% and 40%, respectively. *This suggests that students of Aliyah madrasas are somewhat excessively represented in the lowest performing decile.* On the other hand, the relative share of school and Aliyah students in the *top* 10% population is 73% and 27% respectively - this suggests that both institutions are proportionally represented in the top decile (relative to their sample fraction).

14. The above analysis suggests that the distribution of individual Math test score is slightly skewed to the left for Aliyahs and normal for general schools. The non-normal nature of the test score distribution of Aliyah students is more evident if we look at the English test score data. The relative share of school and Aliyah students in the *top* 10% student population is 90% and 10%, respectively. This suggests that almost all of the top scorers in English come from schools, while Aliyah students are grossly under-represented in the top decile (relative to their sample fraction). The distribution of student performance in English test is therefore skewed to the right for schools and to the left for Aliyah.

### *Correlates of Test Scores*

15. **Irrespective of the regression specifications, the type of control variables used, there is a clear statistically significant learning disadvantage associated with madrasa education.** The madrasa penalty is largest (i.e. 10 percentage points) in case of English. Apart from test score gaps by institution type, girls suffer a significant learning disadvantage - *average gender gap in Math score is much larger than the average negative gap associated with any type of madrasa schooling.*

16. **Institutions matter in educational production in rural Bangladesh but little is known about what separates a “good” institution from a “bad” institution.** A large part of the test score variation is attributed to between-institution differences. Even within the madrasa and school sectors, most of the variation in test score is a between-institution phenomenon. Yet, only a small fraction of the “institution effect” can be explained by conventional indicators of quality such as institutional type, teacher characteristics and resources available to the institution for cognitive production.

### **Findings from national household surveys and institutional census**

17. **Irrespective of demand and supply, there appears to be a modest link between Aliyah madrasa education and poverty.** On the supply-side, Aliyah madrasas are found to concentrate in poor areas although there is no evidence that they arise in regions which are under-provided by the state in terms of availability of mainstream schools. On the demand side, children from poor households and poorer regions are more likely to enrol in madrasas. The income effect is, however, small in terms of magnitude indicating that there are other major factors besides household wealth that influences madrasa enrolment.

18. **Regardless of what factors ultimately shape household decision to send their children to madrasas, the incidence in terms of enrolment share of unregistered traditional madrasas in primary and secondary education is very small.** According to data from recent round of national household survey, 1.2% and 1.3% of primary and secondary aged population attend Quomi madrasa in Bangladesh respectively. This conclusion is also supported by evidence available for other sources for South Asian countries: available estimates for India and Pakistan range between 1% and 3%.

#### **Box 1: Summary of Key Findings**

- Madrasas are more likely to be found in poor rural areas
- While poorer households are more likely to send their child to a madrasas, there are other factors more important than income which shape household preferences for religious schooling
- Madrasa enrollment has grown rapidly, particularly for girls
- Despite this growth, the overall share of enrollment in traditional madrasas is very small; however, the share of enrollment in registered public-aided Aliyah madrasas is significant
- Quality of learning (in terms of Math and English) is relatively lower in Aliyah madrasas
- Overall quality of learning in terms of Math and English scores is low across the board reflecting the poor quality of all types of education service providers in rural Bangladesh
- Girls do worse than boys, particularly in Math; this gender-gap in learning outcomes is, however, more pronounced in Aliyah madrasas.
- There is strong between and within institutional influence despite overall low learning base. Within the madrasa/school sector, the difference in average Math score of top 10% and bottom 10% students is 42 percentage points. The top-bottom difference is also sizable in case of English score -- 28 and 25 percentage points in case of school and madrasa sectors respectively.



## ***Recommendations***

19. Some key recommendations arising out of the study are:

- There is need for a more nuanced policy discussion regarding madrasas reform – we must distinguish between Aliyah and Quomi madrasas not only for syntactic reasons but also for policy relevance. Private Aliyah madrasas, funded by the government and regulated by a state-sanctioned Board, have already reformed their curriculum to include modern subjects similar to those taught in secular schools. On the other hand, private unaided traditional Quomi madrasas still have a major difference in curriculum content and pedagogic structure. While Aliyah madrasas have a significant presence in both the primary and secondary sector, the share of children studying in traditional Quomi madrasas is still miniscule in comparison.
- There is need to reduce the quality gap between public-aided secondary schools and Aliyah madrasas. This finding also highlights the shortcomings of only relying upon Secondary School Certificate (SSC) pass rates as an indicator of quality. The SSC pass rate is higher for aided-Aliyah madrasas compared to aided-schools. However, we find that in terms of assessment of actual numerical and literacy skills, Aliyahs fare worse than schools. Currently the SSC examination system is under different regional and institutional boards – making it difficult to compare quality across providers using SSC exam scores.
- The discussion on quality should not only be about Aliyahs raising their standards to match schools – both have to be held accountable to improving basic numeracy and literacy skills. The ‘punch line’ of this report remains that quality of schooling in rural Bangladesh is low regardless of institution type. The Government should attempt to find more innovative ways to link substantial public resources that it gives these aided private institutions, religious or otherwise, with concurrent improvements in numeracy and literacy skills.
- There is need to empirically anchor the debate about madrasa reform in the metrics of learning outcomes. Currently there is no systematic assessment of basic literacy and numeracy skills. Learning assessments will not only help to shed light on the madrasa debate, but help to address other important issues such as gender and regional disparities as well. For example, we find that the average gender gap in Math score is much larger than the average negative gap associated with any type of madrasa schooling. This gender gap is most pronounced in madrasas. Thus, while Aliyah madrasas have played an instrument role in reducing gender inequality in access, the Government should ensure that they are also not inadvertently increasing gender inequality in learning.
- Quomi madrasas are structurally different than schools and Aliyah madrasas (e.g., curriculum, gender composition, classroom organization). Initiatives to reform traditional Quomis will be a challenging task given that they are unregistered, source of financing is unknown, and many are organized informally under numerous federations/boards. Despite this complex challenge, the Government should engage with this sector to discuss how students can best be imparted skills that are relevant to the needs of the modern economy.

## Chapter 1: Introduction

1. There is tremendous diversity in delivery of education services worldwide – ranging from public schools financed and operated by the state to purely private schools. Within that spectrum one finds a cornucopia of financing and delivery arrangements, such as public-aided private schools, school vouchers to subsidize household expenses for private schooling, and non-formal schools operated by NGOs. Often this blend is found even within education sub-sectors of the same country. What shapes the incidence and nature of these education delivery systems is a complex confluence of history, idiosyncrasies, and above all, politics. The public discourse about how the state should include or exclude the private sector rages vociferously across both rich and poor countries, and within that debate, the role of private religious providers is particularly contentious. For example, despite the constitutionally ingrained separation between Church and state in the USA and the constitutionally mandated financing of Catholic schooling in Canada, in both countries there is lively debate between political parties, religious groups, teachers unions, and parents about public financing of private religious providers (school voucher eligibility for parochial private schools in the USA; extending public-funding to all religious schools in Ontario, Canada).

2. While mass schooling of any type is a modern phenomenon, several Europe countries and the United States relatively have the longest experience with provision of schooling<sup>1</sup>. Particularly in Europe, historically schools were often founded and operated by Christian Churches to simultaneously serve as institutions of religious and worldly learning. Currently several European countries such as Ireland, Netherlands, and UK still have a significant numbers of state-financed religious schools as part of that historical legacy. For example, almost one third of schools in UK operate under a religious orientation. Most of these European schools operated by religious establishments and financed by the state are supposed to be open to all eligible pupils, however, like in the case of UK, these schools can ration based on denomination/religion in cases of over-subscription. Recently the public discourse of the role of state financing has been amplified due to concerns about the fact that these religious schools might be inculcating their graduates with values fundamentally different from the mainstream. For example, there is a major debate in Sweden about banning ‘creationism’ from biology classes in some Christian schools which receive public funding. The major policy concern in many European countries is, however, with public financing of Islamic schools (madrasas), reflecting the inter-twined concerns about extremism and ‘integration’ given that most children attending Islamic schools tend to be from immigrant households (e.g., polarizing public debate in Netherlands to change Article 23 of the Constitution to bar all public funding to private religious schools, with the subtext of stopping funding to Islamic schools). Since the terrorist attacks on September 11, 2001, madrasas have been of particular interest to the foreign policy formulation of many Western governments.

3. Muslim-majority countries with a large state-funded religious school sector such as Bangladesh, Indonesia, and Turkey are grappling with similar issues, reflecting recent geo-political events as well as intrinsic domestic concerns. For example, the contestation of the state between secular forces and political parties with a ‘Muslim identity’ has been at the forefront of the current Turkish political debate. While graduates of government-funded Islamic schools in Turkey have been characterised as being disproportionately partisan to the

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<sup>1</sup> Even compared to Europe, United States was a league ahead – it had mass provision of *secondary schooling* by early the 1900s (Golding and Katz 2008).

agenda of 'Muslim' parties, some graduates of madrasas in Bangladesh and Indonesia have been characterized with a more nefarious identification - terrorism. In the absence of evidence-based research, much of the current discourse on madrasas in Bangladesh (and South Asia is general) is predicated on anecdotal accounts. The rise of religious extremism and intolerance in South Asia has been traced to the growth of the madrasa education system (e.g. Stern, 2001; Bandyopadhyay, 2002; Lintner, 2003; Ahmed, 2005; Griswold, 2005). Some extremist madrasa school graduates in Bangladesh have indeed been involved in despicable acts such as killing of judges and bombing traditional musical festivals – i.e., targeting symbols of the state and secular society. Unsurprisingly, the local and international media has singled out madrasas as the key to the radicalization of countries like Bangladesh and Pakistan. Furthermore there has indeed been a steady increase in the number of religious schools in these countries. Madrasas in Bangladesh are the fastest growing sub-sector of the education sector, allegedly making up for the lack of government provision and as a response to poverty. A similar pattern is also observed in Pakistan, although, in terms of absolute and relative measures, Bangladesh hosts the largest number of registered religious seminaries in the sub-continent, 2<sup>nd</sup> largest in the world (after Indonesia). It is rarely noted that Islamic extremists associated with violence in Bangladesh tend to be associated with certain non-regulated private madrasas, rather than graduates of public-aided private madrasas. Long before 9/11 Bangladesh had embarked on a pragmatic direction to reform madrasas at the secondary level which sets it apart from other countries in the region. First it introduced fiscal incentives to traditional unregistered predominantly all-male madrasa high-schools to register and include modern subjects such as mathematics. Then it introduced another financial incentive to registered madrasa high-schools to start admitting female students. Most madrasa secondary schools in Bangladesh are now registered, follow a modern curriculum alongside traditional religious subjects, and have become coed (50% of the enrollment in Madrasa high-schools are now females) – an unparalleled development in South Asia so far.

4. Bangladesh has achieved impressive progress in certain human development outcomes. Gross primary enrolment rate is above 100 percent, secondary enrolment has more than doubled since independence, and the Millennium Development Goal (MDG) gender parity target has already been achieved at both the primary and secondary education level. These are all remarkable feats when compared to countries at similar levels of income in the region. Much of the achievement in the three-fold increase in overall secondary enrolments and seven-fold increase in female enrolments since 1980 has been a result of successful expansion of the private sector via supply-side incentives and gender-targeted demand-side incentives program since the early 1990s. However, despite these achievements, key challenges remain. These include: (a) low completion rates (only 50% of children complete primary schooling); (b) poor quality of learning outcomes, particularly in rural areas; and (c) many poor children are still left out of the secondary school system. The policy dialogue on these key issues is hampered by the fact that there is a dearth of rigorous studies on determinants of learning outcomes. In particular, we know very little about the religious segments of the education sector. This reflects the overall lack of rigorous documentation of learning quality of rural educational institutions in Bangladesh *regardless* of school-type (religious or secular). Thus, any discussion of *relative* school quality has to encompass the full spectrum of school-types operating in rural Bangladesh.

5. A unique feature of the Bangladeshi secondary education sector is the large presence of religious schools. However, unlike other countries in the region with large Muslim populations, the religious education sector comprises of both state regulated private madrasas as well as independent, private madrasas. The former are popularly known as *Aliyah*

madrastas where alongside Islamic education, modern general education is also provided. Given that these madrasas operate with state funding, they are well-regulated in terms of curriculum content and teacher recruitment policy. On the other hand, an *unknown* number of private, *traditional* madrasas exists outside the state sector. These seminaries specialize in religious education and are popularly known as “*Quomi*” madrasas.

6. Given that net secondary enrolment rate still remains low, achieving further progress under widespread poverty requires that we attract hitherto difficult-to-reach children from poor families to schools. However, if there is a positive link between poverty and religious education this will further increase the share of religious schooling. Therefore, a clear understanding of the religious school sector is necessary if this institution is to serve as an instrument for poverty reduction in rural Bangladesh. For at least three reasons, there is a serious policy concern regarding the provision of education through the institution of madrasas. First, these schools may not provide skills necessary a modern economy. The academic standard attained is popularly perceived to be much lower than in general education. Consequently, it is believed that madrasa graduates fail to pursue a productive economic life and therefore add to the pool of ‘educated’ unemployed. With little learning taking place, current attendance can only reinforce the curse of poverty in the future. Indeed, existing analysis of Bangladeshi labour market earnings data reveals a negative correlation between madrasa attendance and wages (Asadullah, 2009; Asadullah, 2006). Second, they may not promote civic values that are essential for a functioning democracy, thereby causing concerns among policy makers with an interest in the relationship between education and citizenship. Third, a segment of religious schools still remains completely outside the state system, making it a daunting task to regulate the curriculum content and practices.

7. For the above reasons, many hold non-state provision of education by Islamist groups and the expansion of madrasas as a contributing factor to radicalization. These concerns are extremely relevant in the age of globalization as Bangladesh today competes with other developing countries in the international market. Education system should not only create a skilled workforce it also needs to reduce social polarization in order to guarantee a stable political environment. Therefore, it is vital for the government to identify the strengths and weakness of the educational institutional structure of the country in order to improve the skill set of the workforce on one hand, while improve social integration on the other.

8. Unfortunately, none of the available national datasets provide reliable information on enrolment in madrasas. While the latest round of the nationally representative Household Income and Expenditure Survey (HIES) collected information on enrolment in both recognized and unrecognized madrasas<sup>2</sup>, reliable information is not available on quality of madrasas. Therefore, any assessment of secondary education with a focus on both the incidence and quality of faith schools in Bangladesh requires purposefully designed yet nationally representative survey data combining both demand and supply side information on schooling. To this end, in the year 2008 the World Bank commissioned a multi-purpose sample survey to gather detailed information on all types of secondary schools in rural Bangladesh. A full census of all educational institutions was carried out in sample unions (an administrative unit bigger than village but smaller than sub-district) where secondary school quality was assessed by employing a battery of cognitive tests. Apart from a detailed survey

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<sup>2</sup> Similar information is also available from another survey dataset compiled by CAMPE (2005), an NGO apex body in the education sector. Despite the comprehensive nature of the survey, it was not designed to shed light on the incidence of unregistered, Quomi madrasas, nor quality of education provided therein. For further details, see [http://www.campebd.org/content/EW\\_2005.htm](http://www.campebd.org/content/EW_2005.htm)

of secondary school and madrasa students, a complete household census was carried out in sample villages, followed by a detailed survey of households with children of secondary school-going age. The research effort therefore combines data on education institutions, teachers, students, households, parents, and children students, from multiple inter-linked sources –census of primary and secondary schools, survey of secondary schools, household survey and census – in order to provide a detailed assessment of the secondary education with an emphasis on the institution of madrasa.

9. This is the first ever comprehensive survey on the size, structure and quality of religious schools in a Muslim majority country using data from Bangladesh. The comprehensive nature of the data collected allows us to not only present a detailed picture of the madrasa education system in the country, but also to draw comparison with the mainstream secular state and state-aided education sectors. Given the diversity of the Bangladeshi education sector, the data collected will help to dispel or confirm many popular myths about madrasa education. Household based survey data will be used to address issues in both the primary and secondary sector, while facility based survey data will focus on the secondary sector. Given the vastness of the data collected at different levels (ranging from learning assessment to social and political preferences), it is not possible for one report to contain all the possible descriptions and analysis. The two primary objectives of this report is to address the issue of *incidence* (how large is the madrasa sector?), and touch upon the issue of *quality* of education institutions operating in rural Bangladesh (are learning outcomes poorer in madrasas compared to secular schools?).

10. In order to highlight various specific aspects of the madrasa education system, we structure the report along the following lines. Chapter 2 provides background information on the secondary education system in Bangladesh and discusses various reform initiatives in the madrasa sector. In Chapter 3 we provide new evidence from available national (survey and census) datasets on the incidence of religious schools. This is followed by a presentation of results from quantitative analysis where we use linked secondary school/madrasas census and household survey data. Using this dataset, we achieve two purposes: (a) shed light on the spatial distribution of registered madrasas across the country, and (b) provide a basic description of household demand for madrasa education in Bangladesh. We pay particular attention to the role of poverty in decisions to send children to madrasas. Chapter 4 describes the survey design and methodology. First, we provide an introduction to the WB survey on "Quality of Secondary School Madrasa Education in Bangladesh" (QSSMEB). We then explain the survey design, sampling and sample selection, sample size and finally the survey contents. Main findings based on the WB survey are presented in Chapter 5. Here, we begin by documenting the question of "size" of the madrasa sector. Then, we describe the structure briefly commenting on selected institutional features of secondary rural schools and madrasas. In the remaining two sub-sections, we present evidence on quality, measured in terms of level of student achievement in four cognitive tests. We conclude in Chapter 6 by providing a summary of the main findings, implication for policy reforms, and outlining an agenda for future research.

## Chapter 2: Background

### 2.1 Overview of the education sector

11. The Bangladeshi education sector has a complex structure where the composition of the sector changes as one moves from pre-primary to secondary levels. Primary education in Bangladesh spans grades 1 to 5, and falls under the purview of the Ministry of Primary and Mass Education (MOPME). While most primary school children study in government and registered aided non-government schools, there is a significant share of NGOs and non-registered madrasas. In 2005 the primary school NER in Bangladesh was 62.9% compared to 54.8% and 50.5% respectively for India and Pakistan during the same period. While the NER is high compared to neighboring countries, there is considerable variation by income groups within the country. The NER of children from the poorest quintile is only 56.8% compared to a NER of 77.3% for children from the richest quintile.

12. There has been a significant improvement in primary school completion rate, from 67% to 74% between 2000 and 2005. Further, unlike low female participation in neighboring countries like India and Pakistan, there is not only gender parity in the primary sector, however, girls also have higher completion rates than boys. Even though there is no national primary school leaving exam, nor do most secondary schools require entrance examinations, the transition rate to secondary schooling is low, particularly for children from poor households. The transition rate to secondary education is relatively low for the poorest children (58%) compared to that of children from the richest quintile (83%). In other words, about 42% of children from the poorest households who complete grade 5 do not enter secondary school.

13. Secondary education in Bangladesh spans grades 6 to 10, and is under the purview of the Ministry of Education (MOE). Bangladesh has pursued a service delivery strategy in the secondary education sector which combines a Public-Private-Partnership (PPP) model by combining public financing with private provision. Given the historical continuity of this policy strategy (through British and Pakistan periods as well), it is not surprising that the secondary education sector is dominated by registered aided non-government schools. These aided non-government schools accounted for 98% of the secondary enrollment share in 2003 (BANBEIS census 2004). There is also a strong historical precedence of engaging various types of non-state providers in provision of secondary education, notably, madrasas. While 81 percent of the share of secondary enrollment is in secular aided non-government schools (henceforth referred to as schools), 17 percent of the enrollment share is in registered reformed aided non-government madrasas. Government schools are fully funded and only charge nominal monthly fees to pupils who qualify for admission to those schools. In registered non-government schools and madrasas, public financing is provided primarily in the form of teacher salary where the government funds at least 9 teachers per institution. Since teacher salary is essentially covered by the government, government aided schools are supposed to only charge a nominal tuition fee to pupils.

14. Religious schools in Bangladesh are almost entirely in the non-state sector, operating in both primary and secondary levels. Moreover, majority of the state-recognized schools also benefit fiscally from the state under the PPP model. Little systematic information is available on those religious schools that remain outside the state sector and are unrecognized by the state. There is a perceived difference among the various madrasas in terms of in-school conduct and curriculum content. If so, lumping all Islamic schools together and calling them “madrasas” is seriously misleading. Indeed, madrasas operating at primary or secondary

levels in Bangladesh are classified in two broad categories: Aliyah madrasas and *Quomi* madrasas. Outside the primary/secondary sector, there are large number of pre-primary Islamic education institutions which are of two types: Maktab (or Nourani madrasa) and Furqania/Hafizia madrasas<sup>3</sup>.

15. The establishment of Aliyah madrasas and their activities follow government regulations as prescribed by the Madrasa Education Board. The Board approves curriculum for all registered madrasas from primary (i.e. Ebtidai) to masters (i.e. Kamil) level. For a madrasa operating at any level, there are clearly prescribed requirements for state recognition and support (for details, see Sattar (2004) and Abdalla, Raisuddin and Hussein (2004)). In terms of curriculum contents, Aliyah madrasas offer a hybrid education where students are taught in both religious education and modern general education. Students in government recognized (i.e. Madrasa Education Board affiliated) schools are taught subjects similar to those taught in general education primary schools in addition to a curriculum of religious and Arabic studies. In other words, in addition to Bengali, general mathematics, social science, general science, English and Arabic, students are taught Quran, Hadith and Aqaid and Fiqh (for a detailed description of curriculum followed in Aliyah sector, see Appendix Table A).

16. The secondary level of Aliyah stream is known as Dakhil which spans grades 6-10. Similar to mainstream education system, students appear in a public examination at the end of Dakhil education which is organized by the Bangladesh Madrasa Education Board. The Dakhil certificate is equivalent to the Secondary School Certificate (SSC) obtained after successful completion of secondary education from mainstream schools. There are four Dakhil Madrasa curriculum groupings: (a) General group where the focus is on subjects such as languages, mathematics, religious studies, and social studies; (b) Science group where in addition to languages, mathematics, and religious studies, students are examined in computer science, physics, chemistry, and biology; (c) Muzabbid group where students are taught in religious studies such as Quran, hadith, and fiqh; (d) Hifzul Quran group. Similarly, students in mainstream secondary schools can opt for different group specializations such as science, arts and commerce. However, they cannot specialise in religious studies. This is despite the fact that in up to grade 8, Muslim students in mainstream schools are taught Islamic studies on a compulsory basis. Therefore, in comparison to mainstream schools, Aliyah secondary madrasas use a hybrid curriculum, giving students the option to specialise in general, secular stream as well as Islamic theology (for a detailed of the grade-equivalent structure followed in Quomi sector, see Appendix Table B).

17. Lastly, Quomi madrasas operate completely outside the state sector. The final stage of the Quomi Madrasa education is called Dawrah Hadith, in which Hadith certificates are awarded to the students after successful completion of the "Dawrah" class. This is popularly perceived as being equivalent to a Kamil degree in Aliyah madrasas. The number of Quomi madrasas is unknown and has been subject to wild speculations. According to one source, there are about 8,000 madrasas of this type in Bangladesh (Mercer et al. 2006), while using information collected from officials from one Quomi Madrasa Association, Sattar (p. 352, 2004) puts the figure at 4,000. However, in Ahmed's (2005) expert testimony prepared on behalf of the International Crisis Group for the US Senate Foreign Relations Committee Hearing on 'Combating Terrorism through Education', she claims:

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<sup>3</sup> Abdalla, Raisuddin and Hussein (2004) provide an excellent discussion of the curriculum and structure of primary and pre- primary religious and secular schools within the state regulated sector.

"Bangladesh's madrasa sector has mushroomed, reaching an estimated 64,000 madrasas from roughly 4,100 in 1986, with little if any government oversight."

18. The author does not disclose the source of this statistics. As per published government education statistics for the year 2005, there were approximately 6,800 (primary) Ebtidai madrasas and 9,200 (post-primary) Aliyah madrasas recognized by the state. Therefore, if the number quoted in Ahmed (2005) is correct, there are at least 48,000 madrasas outside the state-sector in Bangladesh. In other words, the existing estimates of the number of Qoumi madrasas in the country ranges from 4,000 to approximately 48,000. However, these numbers are entirely anecdotal - they are not based on any systematic evidence on the incidence of traditional madrasas. Several decades ago, most of the Islamic seminaries in Bangladesh were indeed of traditional types, operating with little state oversight. As pointed out already, although privately managed, these primary and secondary madrasas today are largely regulated by the state and this has been owing to a number of important reforms. We discuss this issue next. Given that we are primarily interested in the secondary education sector, our discussion excludes Ebtidai madrasas.

#### *Brief Historical Background of Madrasas in Bangladesh*

19. The establishment of madrasas in South Asia goes back to ascendancy of the Delhi sultanate in the 13<sup>th</sup> century (however, there might have been some madrasas associated with earlier influx of Muslims from the Middle East and Central Asia). These madrasas under the patronage of the Mughals were institutions of both religious and worldly learning given that elite graduates mostly severed the needs of the Mughal courts. Despite the patronage of the Mughals, the overwhelming majority of Muslims in the sub-continent (as well as non-Muslims) never attended any type of school given that the supply of schooling (of any form, level, or location) was extremely limited. Modern mass education was only introduced in the Sub-Continent during the British Raj (and even then supply of schooling, particularly in rural areas was negligible). The British Raj was instrumental in changing the nature of madrasa orientation in South Asia in direct and indirect ways. First, the British stopped madrasas from receiving state land-based revenues which had been a major source of public financing during the Mughals (to maximize tax revenues going to the coffers of the Raj). Madrasas then increasingly turned to private sources of donations (Metclaf 1979). Also in response to the ascendancy of the Raj, there was a movement among certain Muslims to de-link themselves from any association with the usurped state. Madrasas supposedly began to remove subjects such as mathematics and science, and focusing solely on religion. The Dar-ul-Uloom Deoband madrasa was set upon in 1867 in the Indian state of Uttar Pradesh as a response to the British Raj. The focus was on introspection and in cultivating a religious identity.

20. Anecdotal evidence suggests that the majority of Qoumi madrasa today in Bangladesh are allegedly run along the Deobandi line. This is the same ideological pedigree of most madrasas in India and Pakistan. Historically, these madrasas have relied on own assets and charities to finance day to day activities. This is because, financial autonomy concerns five of eight fundamental principles laid down by Maulana Muhammad Qasim at the founding of the Deoband madrasa in 1867 (Ladbury, 2004):

*“As long as the madrassah has no fixed source of income, it will, God willing, operate as desired. And if it gain any fixed source of income, like jagir holdings, factories, trading interests or pledges from nobles, then the madrassah will lose the fear and the hope which inspire submission to God and will lose His hidden help. Disputes will begin among the*



workers. *In matters of income and buildings ...let there be a sort of deprivation*” (Quoted in Metcalf, 1978).

21. Traditional madrasas in the sub-continent, therefore, are alleged to exclusively rely on external finance and private donations made for religious purposes. A majority of these madrasas also supposedly house and educate orphans and children from poor families. But it is not known exactly how they differ in their interpretations of religious doctrine. No single curriculum applies to these madrasas so that some divisions prevail in terms of course contents. These madrasas focus on reciting the Koran and learning the duties of the Maulvi (pastor) in order to prepare students for running the mosques’ day-to-day operations.

22. As opposed to Deobandi madrasas which were shaped by their defiance to the state, the root of Aliyah madrasas goes back to a unique event during the British Raj as well. Governor Warren Hasting of Bengal established the first Aliyah madrasa, initially known as the Calcutta Madrasa in 1781. The madrasa taught both religious and secular subjects, and was supposed to be a model for madrasa reform for the rest of India – which never really took off (even in Bengal). After the India-Pakistan partition, the Calcutta Madrasa was transferred to Dhaka. Even then there were only a handful of Aliyah madrasas throughout the East Pakistan period – it was only in the early 1980’s that there was a proliferation of Aliyah madrasas in response to a series of reform measures initiated by the government.

## **2.2 Secondary madrasa reform initiatives**

23. In the late 1970s and early 1980s the government introduced financial incentives to madrasas to modernize – if the madrasas would register and introduce modern courses alongside religious subjects, then the state would cover a significant portion of teacher salary. Then it provided another financial incentive tied to increasing the share of female students (this incentive was offered to both secular and religious schools). Drawing upon administrative data, Asadullah and Chaudhury (2008a) show that the impact of financial incentives offered by the government was significant. A large number of madrasas opted to modernise in response to the government scheme. In terms of numbers, almost half of all modern madrasas today comprise of formerly traditional religious schools. It is also noteworthy that a significant number of them opted to convert following introduction of the female stipend scheme. This highlights the hitherto overlooked fact that the stipend scheme along with government’s modernisation scheme succeeded in converting orthodox, all-boys religious seminaries into modern madrasas that opened up to students of both sex.

24. The positive impact of the government reform programs on female secondary school participation rate today is an undisputed fact. The role played by modernised madrasa in promoting female education is unique. Asadullah and Chaudhury (2008b) show that Bangladeshi regions which have greater number of religious modernised schools experienced greater growth in female enrolment in recent years. Despite the mushrooming of government subsidized madrasa secondary school sector, we know very little about the quality of these schools. Previous field-based research (Asadullah et al. 2007) on learning outcomes in secular and modernised religious high schools provides partial answers to this question. Several findings are noteworthy:

- Religious school students have lower test scores in mathematics when compared to their peers in secular schools.
- Once we account for selection into a given school type, there is no significant learning differences across religious and secular schools.

- Level of learning (measured in terms of maths skills) in general is very low; Mathematics competency is low even when measured in terms of primary standard maths test.
- Gender-gap in test score prevails at the beginning of the secondary schooling cycle (grade 6) and prevails through grade 8.

25. The parallel expansion of the religious and secular education sub-sectors brought about by modernisation reform has given rise to an additional concern. Education of large number of girls in religious schools has implications for demographic outcomes (e.g. fertility choices) and labour market participation. Once again new research has documented differences in socio-economic attitudes among female graduates of religious and secular schools (see Asadullah and Chaudhury 2006). Key findings are:

- Even after controlling for differences in individual characteristics and family backgrounds, there are attitudinal differences by school type. Religious school students have perverse fertility choices- they are more likely to rely on God on the question of desired number of children. Additionally, madrasa graduates are less favourable to higher education for female than for male.
- Exposure to female and younger teachers helps close the attitudinal gaps between madrasa and school graduates. This therefore highlights the importance of the policy of recruiting more female teachers at the secondary level.

26. Success of the Bangladeshi experiment of reforming religious schools using financial incentives needs to be better documented, given the wider implication this may have for other countries with a large religious education sector, and for recalibrating reform measures in Bangladesh itself. On the basis of aggregate data, we have suggestive evidence that financial incentives can be an important instrument in modernising traditional religious schools (Asadullah and Chaudhury, 2008a; 2008b). However, we need clearer causal evidence of the supply-side response to the provision of financial incentives from independent sources of micro-level data as well.

27. It should be noted that a reform scheme similar to that in Bangladesh was attempted in India in 1986 when the Indian government proposed to introduce subjects like science, mathematics, English, and Hindi in the madrasa curriculum. Modernized madrasas were eligible to apply for government financial aid. The government also promised to arrange for recognition of certain madrasas by certain state-funded universities<sup>4</sup>. However, the success of this initiative has so far, been limited. Not surprising, the nature of the incentive was quite insignificant. Only one teacher would have been financed by the government to teach all modern subjects (Khan et al., 2003). Additionally, wary of the state's interventions in religious instruction and their academic and administrative freedom, most of India's 30,000 madrasas<sup>5</sup> have refused to participate in the scheme (Fahimuddin, 2004). Moreover, the financial incentive to modernize remains considerably weak. The Indian state only promises to provide financial assistance to madrasas to teach secular subjects whereas in Bangladesh, all teachers of a recognized madrasa qualifies for salary payments from state exchequer.

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<sup>4</sup> In contrast, Aliyah madrasa degrees are recognised by all universities in Bangladesh.

<sup>5</sup> This figure is from Kennedy (2004).

Consequently, most madrasas in India today are traditional and independent of the state for funds<sup>6</sup>.

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<sup>6</sup> At present, only seven Indian states (Assam, Bihar, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal) have government-sponsored madrasa education boards, to which a number of madrasas are affiliated.

### Chapter 3. Incidence of religious schools: New evidence from available national datasets

28. The Bangladesh Bureau of Statistics (BBS) carries out a nationally representative household survey which forms the basis of consumption based poverty measures and other important welfare metrics known as the Household Income and Expenditure Survey (HIES). This survey also includes information on education characteristics of households. On the other hand, BANBEIS, the Statistical arm of MOE conducts a census<sup>7</sup> of registered secondary educational institutions which provide administrative information on enrolment by school type. As pointed out earlier, however, existing efforts to gather educational data have so far remained limited to schools that are recognized by the state. Nonetheless, given the nationwide coverage, it is useful to document key trends in enrolment rates by school type. The following two sections describe findings from these two data sources in a descriptive manner. In addition, we shed some light on specific aspects of religious education, namely, who attends madrasas and where do religious schools operate. Answer to the latter two questions will help verify the veracity of the popular claim that madrasas are primarily attended by children from poor households and/or madrasas tend to locate in regions that are relatively poorer and under served by mainstream (private and state) schools.

#### 3.1 Trends in enrolment in religious schools

##### 3.1.1 Evidence from administrative census data

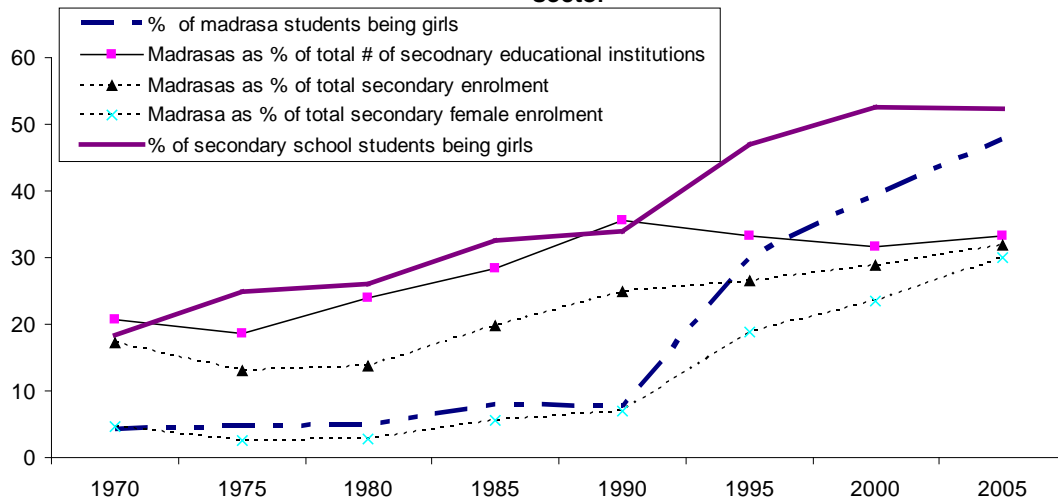
29. As per the latest census carried out by BANBEIS in 2005, there were 27,714 registered secondary educational institutions in Bangladesh of which 33% were Aliyah madrasas (i.e. recognized Islamic schools). Therefore, in terms of numbers, the religious education sector is quite large. It's noteworthy that most of these madrasas are not only registered with the government, they also receive fiscal support from the state to pay for teacher salary. Despite being managed by private bodies, most of the Aliyah madrasas in the country are actually regulated by the state in terms of curriculum and teacher recruitment policy. The Madrasa Education Board is the apex body that oversees functioning of these madrasas.

30. Figure 1 plots time-series data on the relative share of registered madrasas in secondary education in a variety of ways. In terms of numbers, share of madrasas have increased significantly up to 1990 after which growth in the number of schools outstripped madrasas. However, in terms of share in total secondary enrolment, madrasa sector grew faster than its secular counterpart since 1980. This growth is partly explained by the introduction of salary subsidy scheme by the state under which teachers of registered madrasas (like teachers of aided secular schools) would be eligible for monthly salary subsidies. However, in post-1980 period, secondary education sector in Bangladesh went through another important cash transfer program – Female Stipend Program (actually a collection of state-funded and donor-funded stipend projects) – which also led to the growth of enrolment in madrasas. Like schools, registered madrasas were eligible to participate in the scheme. However, given the gender targeted nature of the intervention, exposure to the scheme led to rise in enrolment via feminization of registered madrasas in the country. This is obvious from Figure 1 as well: *in post-1990 period, share of females in total madrasa enrolment rose astronomically from less than 10% in 1990 to nearly 50% by 2005.*

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<sup>7</sup> In most years the census consists of self-reported data provided by the headmaster of the institution; in some years it is a census carried out by visits to the institutions by enumerators.

**Figure 1: Relative size of Aliyah Madrasa sector**



**Source:** Author's calculation based on BANBEIS data.

31. To sum up, the size of the registered madrasa sector is large irrespective of how we measure it. And when measured in terms of enrolment share (in total as well as female enrolment), the madrasa education is even a growing phenomenon. However, most of the enrolment growth is explained by the rising participation of females in the post-1990 period.

### 3.1.2 Evidence from household data

32. While the estimates of the share of registered madrasas in total secondary enrolment are large, we don't know from the administrative data how large this share is as a percentage of total school age population<sup>8</sup>. To this end, we turn to an alternative source of enrolment data by school type as available from household based HIES data. While HIES does not include any metric on learning outcomes, an advantage of HIES is that it includes socio-economic information on the child's household. A further added advantage of using HIES data is that we are able to compare the relative share of madrasa enrolment with that of another non-state school which is known to target kids from poor households, namely NGO schools. In Bangladesh, a large number of non-formal schools are operated by NGOs (mainly BRAC) targeting drop-outs from public primary schools and out-of-school children from poor households. In other words, both NGO and madrasa schools arguably attract children from poorer households. Therefore, by means of comparing relative share of madrasas with NGO schools, we are also able to assess the veracity of the claim that poverty is the main correlate of demand for religious schools in Bangladesh. While the HIES survey data is available for various years since 1983, only from 2000 onwards does the dataset provide comparable information on enrolment by school type. Therefore, we restrict our analysis to HIES 2000 and 2005 data only. It should be pointed out that the 2005 HIES round was the first time data was collected specifically on Quomi madrasas (in 2000, the distinction was only between school and Aliyah madrasa). We should also point out that regardless of type of institution there is a serious problem with missing data. For example, for almost 34% of currently enrolled children in HIES 2005 there is no data on type of institution that the child is enrolled in. This further underscores our point that existing data sources are not comprehensive

<sup>8</sup> BANBEIS does collect age data – however, the credibility of that data is of serious concern (most headmasters just fill in the age that the child should be for that grade instead of the actual age of the child).

enough for a serious examination of madrasa education in Bangladesh. This should be kept in mind when reviewing the findings presented below.

33. The rise in madrasa enrolment holds even when we exclude enrolment in Quomi madrasas (as documented only in 2005). This indicates that the share of Quomi madrasas in school enrolment is very low in Bangladesh across both primary and secondary levels (Table 1). Table 2 shows data on enrolment for secondary and primary madrasas as well as primary NGO schools. Data is presented separately for primary and secondary age cohorts.

**Table 1: Enrollment share of currently enrolled in HIES 2005**

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	All
Government	57.3	53.0	43.6	38.7	36.0	43.4
Private Subsidized	27.4	34.4	47.8	53.6	56.1	46.9
Private (Not Sub)	2.0	2.0	1.7	1.8	4.2	2.6
NGO/Other	4.5	2.1	1.3	1.0	0.3	1.5
Madrasa (A <sup>1</sup> )	6.9	7.6	4.7	4.4	2.8	4.8
Madrasa (Q <sup>2</sup> )	1.8	1.0	1.0	0.5	0.7	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

\*Quintile groupings are from consumption-based poverty measure with Quintile 1 being the poorest and Quintile 5 being the richest.

1: Aliyah; 2: Quomi

**Source:** Author's calculation using HIES 2005 data.

**Table 2: Madrasa Enrolment (%) by Madrasa Type, Education Level and Year**

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Primary NGO 2000	8.9	7.5	1.7	0.8	0.4
Primary Madrasa 2000	3.7	1.4	2.1	2.7	2.5
Secondary Madrasa 2000	6.0	3.3	5.4	5.3	5.3
Primary NGO 2005	6.0	2.7	2.7	2.3	1.2
Primary Madrasa (A <sup>1</sup> ) 2005	3.5	4.2	3.8	2.3	0.5
Primary Madrasa (Q <sup>2</sup> ) 2005	1.7	0.6	1.4	0.9	0.7
Secondary Madrasa (A) 2005	9.2	9.0	4.9	5.0	3.8
Secondary Madrasa (Q) 2005	2.0	1.3	0.8	0.4	0.7

\*Quintile groupings are from consumption-based poverty measure with Quintile 1 being the poorest and Quintile 5 being the richest.

1: Aliyah; 2: Quomi

**Source:** Author's calculation using HIES 2000 and 2005 data.

34. Even when compared to enrolment in NGO schools, share of primary Quomi madrasas is miniscule. Given that both are known to target the poor, this comparison suggests that the incidence of Quomi madrasas is likely to be less significant than is otherwise suggested in the popular media. However, Quomi and Aliyah combined, *madrasas dominate NGO schools in terms of enrolment shares in primary education*<sup>9</sup>.

35. As pointed out earlier, female schooling in Bangladesh has made tremendous progress in the last two decades and much of this has been due to the fact that registered madrasas opened their gates to girls, particularly at the secondary level. HIES data shows a rise in madrasa enrolment during the period 2000-2005. This growth in madrasa enrolment is observed across gender groups, rural and urban areas and well across income quintiles. *However, it is more pronounced for girls, poorer households, and rural areas (see Appendix Tables 1.a – Tables 1.d).* The rise is also evident if we compare enrolment rates in madrasas

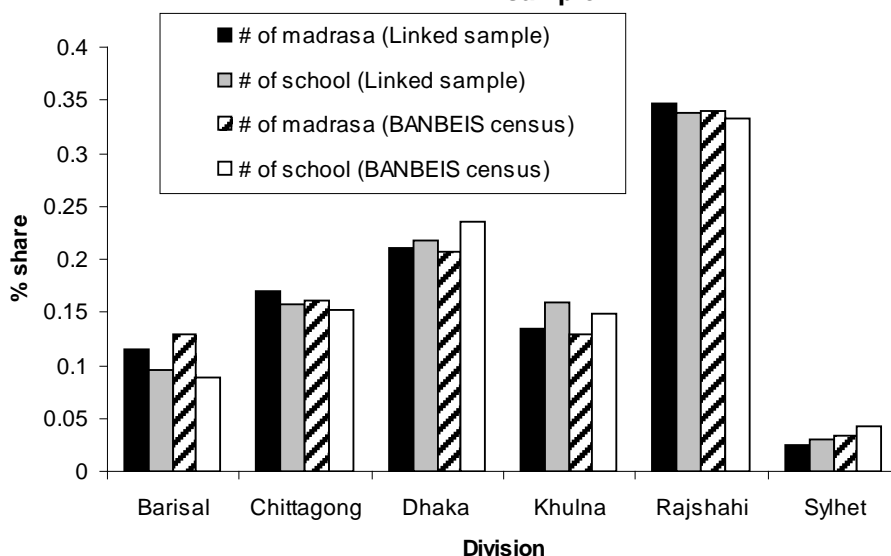
<sup>9</sup> We revisit this issue later using data from the World Bank survey.

across various age-cohorts. However, the rise is more prominent for secondary school age groups which are consistent with the fact that most registered Aliyah madrasas in the country are in the secondary sector.

### 3.2 Analysis of linked secondary school/madrasas census and household survey data

36. While the latest round of HIES data provides information on enrolment of children in all types of secondary educational institutions, there is no supply side information on these schools. As previously mentioned, this information is available in the 2005 administrative census dataset of BANBEIS (at least for registered schools). However, BANBEIS data by itself contains no demand-side information. Existing attempts to explain supply decisions of madrasas have so far remained partial, limiting the focus on either demand or supply-side factors only. To circumvent this data problem, we created a cross-walk between HIES and BANBEIS census data at the thana/upazila level<sup>10</sup>. A Thana geo-code was created which is unique across both datasets. This facilitated linking of BANBEIS data with HIES 2005 data spanning a total of 344 upazilas<sup>11</sup>. The linked sample contained 20515 registered secondary educational institutions of which 33% were madrasas. Figure2 below presents a division-wise breakdown of these secondary schools and madrasas in our linked sample (as a % of sample total). The same graph also plots % share of each division in the total number of schools as well as madrasas in the country (using BANBEIS census database).

**Figure2: Division-wise distribution of secondary registered schools and madrasas in BANBEIS census & linked BANBEIS-HIES sample**



37. Comparison with divisional share of schools and madrasas in the census database shows that the number of secondary educational institutions in our HIES-linked sample is fully representative of the division-wise national averages figures. This is reassuring although not surprising since HIES sample itself is representative of the country. Therefore, sub-districts that comprise our linked HIES-BANBEIS sample give a representative picture of educational infrastructure across the country. We carry out two separate analyses using this linked

<sup>10</sup> Thana/upazila is a sub-district; Bangladesh is administratively broken down into 6 divisions and 64 districts (Zilas).

<sup>11</sup> We could successfully match 96% of all HIES 2005 round sample sub-districts to BANBEIS 2005 census dataset.

sample dataset. First, we explore the spatial patterns in the distribution of madrasas across HIES sample thanas and ask what factors lead to higher concentration of madrasas in a sub-district. Second, we turn to the demand-side by estimating child-level regression model and study household decisions to enrol a child in madrasa. The rationale for such regression analysis is as follows.

38. As pointed out earlier, the current international ‘popular’ debate on madrasa education maintains that: (a) madrasas are of poor quality – little learning takes place there; (b) they arise as a response to under provision of education by the state; and (c) they primarily cater to the poor. In the light of this characterization, any analysis of madrasa education is incomplete without a discussion of the underlying demand and supply decisions. In other words, before we address the question of quality and incidence of traditional, unrecognized madrasas, we must attempt to have an understanding of how their registered, modernized counterparts operate. We also have to have an understanding of who attends Aliyah madrasas in Bangladesh.

### **3.2.1 Geography of religious schools: Analysis of spatial distribution of madrasas**

39. In order to explore the geographic concentration of madrasas, we estimate a simple regression model using “log of number of registered secondary madrasas” as the dependent variable. The unit of our analysis is thana or sub-district. There are 344 sub-districts in our linked sample spread across 6 divisions. As explanatory variables, we use (a) “log of number of secondary schools”, (b) “mean per capita household expenditure in the thana (in logs and constant price)”, (c) “fraction of thana population being religious minority”, (d) “thana being predominantly a rural one”, and (e) division dummies.

40. Using this regression framework, we can formally test whether madrasas are largely set up in locations where there’s a scarcity of mainstream schools and/or which are mostly inhibited by poor households. In other words, rise of religious schools is explained by the government’s failure to provide public schools in rural Bangladesh. Table 3 below reports results from the regression analysis. Column 1 reports a parsimonious model while column 2 adds controls for division dummies.



**Table 3: OLS regression of thana-level correlates of # of Aliyah madrasas (in logs)**

Number of secondary schools (in logs)	0.76*** (11.27)	0.73*** (10.26)
Mean per capita household expenditure	-0.70*** (-3.899)	-0.63*** (-3.293)
Fraction of population being Hindu	-0.37* (-1.916)	-0.27 (-1.393)
Rural area	0.23** (1.973)	0.21* (1.765)
Division: Barisal		0.51** (2.223)
Division: Chittagong		0.25 (1.278)
Division: Dhaka		0.23 (1.227)
Division: Khulna		-0.04 (-0.204)
Division: Rajshahi		0.36* (1.78)
Constant	4.75*** (3.543)	4.12*** (2.915)
N	338	338
R-squared	0.352	0.379

Notes: (a) \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; (b) t-stats in parentheses. (c) Author's calculations based on linked HIES-BANBEIS sample data. (d) Omitted (category) division is Sylhet.

41. A number of findings follow from column 1 of Table 3. First, the coefficient on “number of schools” is large, positively signed and highly significant. This implies that sub-districts with more mainstream schools are also more likely to have large number of Aliyah madrasas. Note that the measure of availability of mainstream secular schools in our data captures all government, private and state-aided (registered as well as unregistered) schools. Therefore, our estimate of the influence of availability of mainstream schools is not biased owing to measurement errors related issues.

42. Second, areas that are more rural have more madrasas. This is consistent with our earlier analysis which shows that madrasas are more of a rural phenomenon in Bangladesh. Third, regions with more non-Muslims have significantly less madrasas. This is also consistent with our prior- areas with more non-Hindus will see less demand for Islamic education. Fourth, high-income areas have fewer madrasas. This finding is important and lends support to the popular belief that madrasas tend to operate in poor areas. Therefore, while we find no evidence in support of the hypothesis that madrasas necessarily arise in educationally under-provided areas, we find a strong correlation between local area poverty and concentration of madrasas in the locality. The latter finding suggests that (Aliyah) madrasas target poor areas. Since poor households have low income and also tend to live in poorer areas, we may expect children from poor households to have a higher incidence of madrasa attendance. We will revisit this issue in the next section when we analysis household decisions to enrol children in madrasas.

43. It may be pointed out that these findings do not change when we add controls for division dummies in column 2 an exception is the Hindu variable which becomes

insignificant. The coefficients on division dummies, however, are interesting in their own right as well. Compared to the omitted base-category, only Barisal and Rajshahi have significantly more madrasas. The other 3 districts – Dhaka, Chittagong and Khulna – no longer have a statistical advantage in number of madrasas. This latter finding is interesting because in the raw data, these three divisions have 3 to 5 folds more madrasas than Sylhet division. The numerical advantage enjoyed by these 3 divisions in the raw data is potentially explained by the between-division difference in poverty and stock of mainstream schools. Net of the effects of these two correlates, therefore, we find no statistical difference in the stock of madrasas between these 3 divisions and Sylhet region. If true, what explains significantly higher stock of madrasas in Rajshahi and Barisal needs further examination.

44. Lastly, as an additional robustness test, we also controlled for district fixed-effects. This specification led to more precise estimates of the effect of availability of mainstream schools and local area poverty. However, both of these two variables retained positively and negatively signed (respectively) and retained their level of statistically significant, even when we fully controlled for district dummies<sup>12</sup>.

### **3.2.2 Household demand for madrasa education**

45. The analysis of the geographic concentration of madrasas presented in the previous section points towards a correlation between poverty and demand for religious education. Because madrasas tend to be located more in areas that are poor and the poor also tend to concentrate in under-developed regions, we may find a similar negative correlation between household income and children's participation in madrasas. This sub-section therefore examines the determinants of madrasa enrolment using HIES data.

46. As pointed out earlier, the latest round of HIES collects enrolment information on both traditional and recognized madrasas. Our earlier analysis of HIES data in section showed that the incidence of enrolment in traditional unregistered (Quomi) madrasas is an insignificant phenomenon. Nonetheless, we define madrasa attendance broadly, treating enrolment in modernised and traditional madrasa as one group.

47. In HIES 2005, we have a total of 7,830 children aged between 6 and 18 years, 5.48% of whom were enrolled in madrasas<sup>13</sup>. If disaggregated by school type, 4.52% and 0.86% were reported to be enrolled in recognized (Aliyah) and unrecognized (Quomi) madrasas respectively. After ignoring cases where data on other regression controls are missing, we had a sample size of 6,492 of which 5.64% were madrasa enrollees.

48. The probability of (ever) enrolment in madrasas for children is analysed in a regression framework where we regress the binary dependent variable (1 if the child is/was in madrasa; 0 otherwise) controlling for socio-economic background of the student, parental educational profile, and household income. A further innovation in our analysis is that we bring into the HIES data thana level controls for the number of secondary schools and madrasas on one hand and control for sub-district level per capita expenditure on the other. Therefore, on the basis of the estimated regression model, we can test two specific hypotheses: (a) is there a correlation between madrasa attendance and household poverty? (b) Is madrasa attendance related to local poverty level?

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<sup>12</sup> Results not shown, however, available from authors.

<sup>13</sup> Because our analysis is about decision to enrol in Islamic schools, we have excluded all non-Muslim households from the regression sample.

49. The results are reported in Table 4. In addition, we estimate an extended enrolment regression model where we hold differences in the availability of secondary schools and madrasas constant at sub-district level. Given the small fraction of children in HIES 2005 who reported to have even enrolled in madrasas, we do not repeat our analysis separately for primary and secondary enrolment decisions. For the same reason, we restrict our analysis to ever enrolment decision (instead of current enrolment status). We indeed find a positive correlation between poverty and madrasa enrolment. Children from poor households are more likely to be enrolled in madrasas. However, the magnitude of that effect is very small, being close to zero. At the mean, a 10% increase in "log of per capita household expenditure" reduces the probability of madrasa enrolment by only 0.3% (see column 1). The effect is even smaller if we further control for a full set of district dummies (see column 2). Note however that this income effect is much lower than what's been found previously in current enrolment regressions using HIES data. For example, in Asadullah and Chaudhury (2009, Forthcoming), found that a 10% increase in log of per capita household expenditure increased the probability of current enrolment by 1.8% and 2.9 % in rural and urban Bangladesh, respectively. Therefore, while household wealth plays a significant role in children's school attendance decision in Bangladesh, the effect appears to be modest when it comes to religious school attendance.

50. The above finding holds even when we replace the continuous expenditure variable by a set of 4 expenditure quintile dummies (leaving out dummy for the poorest 20% as the base category); enrolment probability declines as we move to higher quintiles although the coefficient on the highest quintile dummy still remains very small (see columns 3 and 4). The finding suggests that poverty only partly explains the incidence of religious education in Bangladesh and is consistent with the descriptive analysis of enrolment data by school type and expenditure quintiles presented earlier. Overall, our finding is consistent with that of Andrabi et al. (2006) who using survey data from Pakistan also find an association between lower-income households and madrasa enrollment, but at the same time, report the magnitude of this association to be small. As pointed out earlier, only 10% of ever enrolled children from poorest quintile attend madrasas, and even some children from well-off households are enrolled in secondary madrasas. Second, poor children from the same household are not equally likely to be enrolled in madrasas. In other words, HIES data suggests that madrasa enrolment is not entirely a between-household phenomenon in Bangladesh.

**Table 4: Probit regression of madrasa enrolment (matched HIES 2005-BANBIES 2005 data)**

	(1)	(2)	(3)	(4)
<b>Child's age</b>	0.02*** (3.07)	0.02*** (2.87)	0.02*** (3.09)	0.02*** (2.86)
<b>Child's age square</b>	-0.00*** (2.85)	-0.00*** (2.71)	-0.00*** (2.87)	-0.00*** (2.70)
<b>Child is female</b>	-0.01 (1.26)	-0.01 (1.60)	-0.01 (1.26)	-0.01 (1.57)
<b>Education of the household head</b>	0.01*** (3.48)	0.01*** (3.91)	0.01*** (3.44)	0.01*** (3.89)
<b>Education of the head's spouse</b>	-0.00 (1.56)	-0.00* (1.65)	-0.00* (1.66)	-0.00* (1.74)
<b>Log of per capita household expenditure</b>	-0.03*** (4.29)	-0.02*** (3.86)		
<b>Household expenditure quintile 2</b>			0.01 (0.04)	0.01 (0.37)
<b>Household expenditure quintile 3</b>			-0.02** (2.23)	-0.01* (1.92)
<b>Household expenditure quintile 4</b>			-0.03*** (4.01)	-0.02*** (2.75)
<b>Household expenditure quintile 5</b>			-0.03*** (3.91)	-0.03*** (3.62)
<b>Mean Household expenditure in sub-district</b>	-0.05*** (3.59)	-0.04* (1.90)	-0.05*** (3.73)	-0.04** (2.11)
<b>Number of madrasas in sub-district in 2000 (in logs)</b>	<b>0.01*</b> (1.80)	<b>0.02**</b> (2.14)	<b>0.01*</b> (1.84)	<b>0.02**</b> (2.12)
<b>Number of schools in sub-district in 2000 (in logs)</b>	-0.01 (0.78)	-0.01 (0.69)	-0.01 (0.80)	-0.01 (0.66)
<b>Rural area</b>	0.02*** (2.97)	0.02*** (3.15)	0.02*** (2.98)	0.02*** (3.13)
<b>N</b>	6492	6012	6492	6012
<b>Division dummies</b>	Yes	No	Yes	No
<b>District dummies</b>	No	Yes	No	Yes
<b>Pseudo R<sup>2</sup></b>	0.06	0.11	0.06	0.11

**Note:** (a) Sample is restricted to Muslim households and children aged 6-18 years old only. (b) Per capita expenditure data is in logs, deflated using regional CPI. (c) Marginal effects reported instead of coefficients. (d) The regressions also control for age-squared of the child. (e) Dependent variable is 1 if the child ever enrolled in Madrasa; 0 otherwise. (f) The number of madrasas and schools in the year 2000 was calculated by using information on the year in which an institution was established. Data on all other variables correspond to the year 2005.

51. We also formally tested this in a regression framework, adding a dummy indicator if a sibling also attends madrasa on the right hand side of the model. We carry out an additional test by comparing enrolment pattern of children within the household by schools type. Even after holding household and local poverty constant, we find a significant albeit small correlation between sibling's madrasa attendance and the index child's enrolment in a madrasa<sup>14</sup>. In other words, while poverty is certainly a strong correlate of madrasa enrollment, household poverty by itself cannot be the only explanation for the growth of religious school enrolment in Bangladesh. In the country madrasa enrollment has been increasing while overall poverty level has been falling.

52. Our finding that household poverty only partly explains the incidence of madrasa education does not capture the effect of living in poor areas where there is under provision of

<sup>14</sup> Results not presented, however, available from authors upon request.

public goods by the state. Note that our model already controls for the stock of educational institutions in the sub-district. In addition, we hold constant sub-district income level constant as well. However, increases in mean per capita expenditure of the sub-district indeed reduces the probability of enrolment in madrasa, the effect (-0.04) being twice that of household per capita expenditure (-0.02). This therefore once again confirms a modest effect of poverty on madrasa enrolment.

53. Turning to supply-side factors, our model includes two measures of availability of secondary educational institutions (brought in from BANBEIS data). One may argue that these correlates suffer from reverse causality problem: madrasas may be set up in areas where demand for religious education is high. We partially circumvent this problem by using lag measures of supply side variables. Consistent with the common belief, indeed we find that greater availability of mainstream schools in the sub-district reduces the probability of enrolment in madrasas. But the effect is small and insignificant. On the contrary, availability of registered secondary madrasas has an equally small but statistically significant effect on the decision to attend madrasas<sup>15</sup>.

54. Lastly, note that all the models control for regional influence on household enrolment decision. Models 1 and 3 control for division of residence whilst models 2 and 4 holds the effect of district of residence constant. Although suppressed in Table 4, controls for region effect were always significant in all specifications. Of all the 6 divisions in Bangladesh, residence in Barisal raises the probability of madrasa attendance (relative to the omitted division, Sylhet). This result is consistent with our earlier analysis of geographic concentration of madrasas: after controlling for local poverty and stock of schools, we found Barisal to have the largest number of religious schools in the country (see Table 3).

55. Note that the very small size of the madrasa sub-sample in HIES data has constrained our analysis in important ways. If poverty is indeed the only explanation for madrasa enrolment, the correlation between poverty and madrasa enrolment should hold true for all children from same (poor) households. Owing to limited sample size and missing data problem, we did not carry out further investigation into the sibling story. Even if we take the largest possible sub-sample (by not discarding observations where other data is missing) of 429 children who ever attended madrasas in HIES 2005 data, they come from as many as 328 households yielding only 1.27 madrasa children per household where at least one child is enrolled in madrasas. More importantly, the school type data in HIES 2005 is missing for 38% currently enrolled school children (aged between 6 and 18 years). Therefore, it is difficult to shed light on intra-household incidence of madrasa attendance using the latest round of HIES data. This issue is instead left to future work where we will use household census data from the World Bank survey which has a larger household sample of madrasa students.

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<sup>15</sup> Note that such an analysis is common plagued by concern over the direction of causality. We addressed this issue by replacing our measures of school and madrasa availability in 2005 by those in 2000. Even using lagged measures (which are arguably more exogenous regressors in the context of our model), our earlier findings remain unchanged.

## Chapter 4: Survey design and methodology

56. A specifically designed large education institution and household based sample survey, “*Quality of Secondary School Madrasa Education in Bangladesh*” (QSSMEB) was initiated by the World Bank in 2008 to primarily address the quality of education in public-aided secondary school madrasas (the survey was executed by the firm DATA). We randomly selected 12 districts from 6 divisions (highest administrative unit in Bangladesh). The probability proportional to size (PPS) method of random sampling was used, based on division/district level secondary school going age population data from the 2001 national population census and the concentration of secondary schools and madrasas based on BANBEIS website 2007. Two upazilas (sub-districts) were randomly selected using PPS from each of the selected 12 districts. Then 2 unions were randomly selected with PPS from each of the selected 24 upazilas. Again, the population weight was union level population data from the 2001 national population census.

### *Fielding the Institutional Survey*

- Census all pre-primary, primary, and secondary education institutions in the Union
- Survey of all secondary educational institutions, which included:
  - Detailed information about the institution
  - Survey of all Teachers
  - Testing all children from one randomly selected section of Grade 8 (Math, English, General Knowledge test given to all of those pupils; Islamic knowledge test given to only Muslim pupils)
  - Collecting self-reported household information from tested children
  - Basic information from the students tested in Grade 8
  - Basic information about the Math class and homework
  - Basic information about the English class and homework
  - Anthropometric data of tested students
  - Specific math teacher survey
  - Specific English teacher survey
  - Math Teacher’s evaluation about those students in grade 8 who were tested
  - English Teacher’s evaluation about those students in grade 8 who were tested
  - Socio-Economic Attitudes of Pupils and Students

### *Fielding the Household Survey*

57. In each of the 96 villages randomly selected using with PPS based on village-level population data from the 2001 national census:

- A complete census of all households in the village
- From the census, 25 households that have at least one school-aged child (aged 6–18 years) regardless of current enrollment status, was randomly selected from each village.
  - i. Detailed multi-module household survey was administered (e.g., complete roster, education history, employment status, assets, consumption, religious practices)

- ii. A numeracy and literacy competency test was given to all primary and secondary school-aged child in the household
  - iii. A RAVEN progressive-matrix test was given to all primary and secondary school-aged children in the household
  - iv. Anthropometric data collected on children and mothers
- A village-level survey on availability of other services, price-levels, etc, was also administered

58. It is noteworthy to mention that in the rare event when institutions attended by children were outside our original sample union, we also covered those secondary schools and madrasas located in neighbouring unions. Below in Table 5 we present a snap-shot of some selected QSSMEB statistics:

**Table 5**

Characteristics	No.	Remarks
# of divisions	6	
# of districts	12	
# of upazilas	24	
# of unions	48	
# of villages	96	
# of institutions in school census	2,229	
# of pre-primary institutions	585	
# of primary institutions	1,224	
# of secondary institutions in detailed survey	403	
# of households in census	24,841	
# of households in detailed survey	2,400	
Gross primary enrolment from census	92.3	excluding children living away from household
Net primary enrolment from census	72.6	excluding children living away from household
Gross secondary enrolment from census	72.7	excluding children living away from household
Net secondary enrolment from census	63.3	excluding children living away from household
% share of primary enrolment madrasa (census)	<b>13.8</b>	8.14% is in Aliyah, 1.9% is in Quomi, and 43.5% is in Other madrasa that includes Nurania/Quiratia/Furkania madrasa
% share of secondary enrolment madrasa (census)	<b>22.1</b>	18.65% is in Aliyah, 2.32% is in Quomi, and 1.34% is in Other madrasa that includes Nurania/Quiratia/Furkania madrasa
Gross primary enrolment from hh survey	108.4	excluding children living away from the household
Net primary enrolment from hh survey	76.7	excluding children living away from the household
Gross secondary enrolment from hh survey	81.1	excluding children living away from the household
Net secondary enrolment from hh survey	72.2	excluding children living away from the household
% share of primary enrolment madrasa from survey	15.7	9.48% is in Aliyah, 2.3% is in Quomi, and 43.76% is in Other madrasa that includes Nurania/Quiratia/Furkania madrasa
% share of secondary enrolment madrasa from survey	24.5	20.53% is in Aliyah, 2.56% is in Quomi, and 1.76% is in Other madrasa that includes Nurania/Quiratia/Furkania madrasa
# of 8 <sup>th</sup> grade pupils tested in Math	9,436	
# of 8 <sup>th</sup> grade pupils tested in English	9,286	
# of Math teachers surveyed	413	
# of English teachers surveyed	508	
# of children given household based numeracy and literacy tests	3,244	
# of children given Ravens tests	3,232	

## Chapter 5: Preliminary Findings

59. The survey designed for this study is among one of the most detailed educational surveys in South Asia and the first where alongside secular schools, complete information is available on both state and non-state schools providing secular and religious education. The findings presented in this report represent the ‘first-cut’ exploratory analysis restricted to the incidence of religious schools and the relative quality of education provided therein. These findings are presented separately in two sections. In addition, we briefly highlight key institutional differences between secular and religious schools in Bangladesh. Analyzing the entire volume of the data collected will take considerable time and specific studies will have to be tailored to address different issues (and audiences). We discuss major research outputs plans from this survey in section 6.2.

### 5.1 Incidence- Size of the madrasa sector

60. Using information on both the relative share of religious schools in the total number of educational institutions and total number of students enrolled, this section provides first-hand evidence on the size of the *traditional* madrasa education sector in Bangladesh. For this purpose, we not only draw upon three types of datasets (school census, household census and household surveys), we report the statistics separately for primary and secondary education sectors. The key objective of this section therefore is to establish whether enrolment rates in madrasas are high in Bangladesh. To this end, we also comment on trends in enrolment over time. While we cannot comment on enrolment patterns in traditional madrasas over time, it is possible to shed some light on student enrolment in registered madrasas. We have commented earlier on whether enrolment rates in madrasas are on the rise using national representative household sample surveys and administrative data.

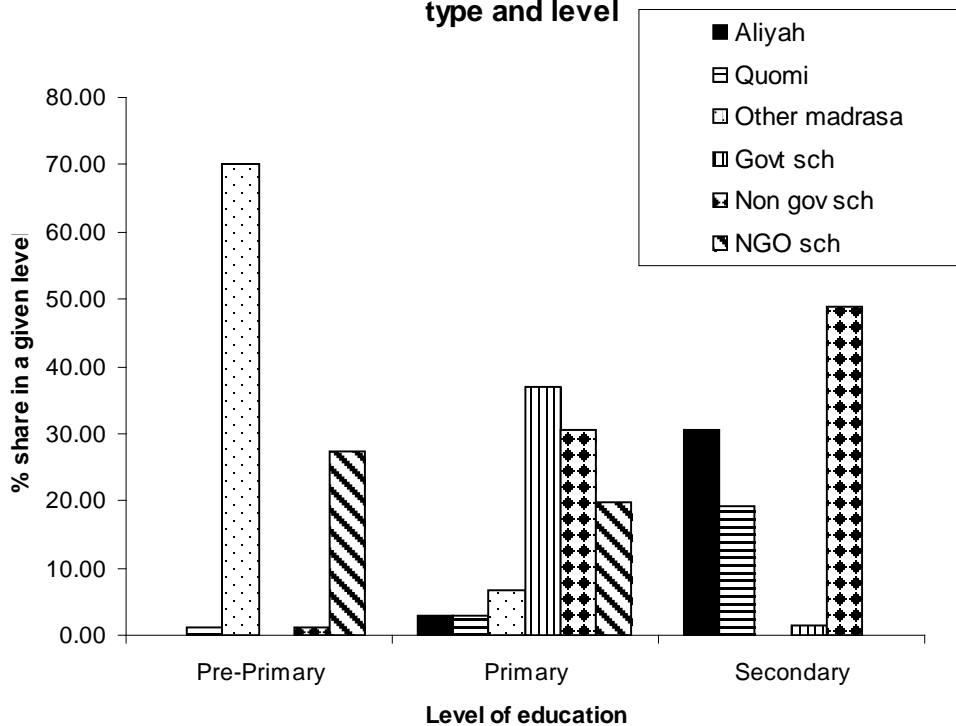
61. By means of a complete census of educational institutions in 48 unions, we could locate a total of 2,229 schools of which 26% and 54% of were pre-primary and primary educational institutions, respectively. The rest were secondary educational institutions. A crude measure of the numeric size of madrasa sector is its relative sample share in pre-primary, primary and secondary sectors. To this end, Figure 3 below plots data on distribution of our sample educational institutions by type and levels of education<sup>16</sup>.

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<sup>16</sup> There were no private primary schools in our rural sample unions given that purely for-profit private schooling is still an urban phenomenon in Bangladesh. In the secondary sector there are private schools and private-aided schools. Most schools in rural Bangladesh are established as private schools before they apply for public financing. Hence most private-schools in rural Bangladesh are ‘public-aided’ schools in waiting. In Figure 7 and subsequent graphs/tables we have lumped them with non-government schools unless noted otherwise.



**Figure 3: Distribution of # of sample educational institutions by type and level**



Source: Author's calculation based on data from QSSMEB

62. Starting with the pre-primary sector, madrasas retain the largest share accounting for 71.28% of all educational institutions. However, as little as 1.2% of these are formally attached to a Quomi madrasa; the remaining are “other madrasas” such as Nurania, Quiratia, Furkania and Hafizia madrasas. Very little is known about these madrasas, however, the common perception is that at the pre-primary level they are essentially teaching elementary religion in a non-formal setting. In our sample only 10% of the currently enrolled children attend a pre-primary institution. Turning to the primary level, the sector is represented by all types of institutions – government, government-aided and NGO schools. Only 2.48% of all the primary madrasas are of Quomi stream while 3.02% of them are “Ebtidai” (i.e. they belong to Aliyah stream). However, a sizable fraction (6.78%) belongs to “other madrasa” type as well. At the primary level, a useful benchmark to ascertain the relative size of the madrasa is the relative share of NGO schools which also target the poor. In the primary sector, all three types of madrasas together (Aliyah, Quomi and ‘others’) constitute 12.57% of the sample primary educational institutions, while NGO schools account for 19.48%. In other words, even when taking into account all types of madrasas, their numerical share in the primary sector is less than that of NGO run schools. Numerical share of the madrasa sector is largest if we restrict attention to secondary level. Aliyah and Quomi together account for 49% of the total secondary educational institutions in our study area. However, the largest share belongs to Aliyah madrasas (30% of the sample total).

63. Assessing the madrasa sector simply in terms of the number of existing madrasas can be misleading. A more relevant metric is the enrolment share of madrasas. For this purpose, we exploit data from complete population census carried out in 96 villages in our study area which covered approximately 24,000 households. If madrasa sector is sizable, as indicated by their sample share in the distribution of total educational institutions in our study area,

households should also report a large fraction of children being enrolled in madrasas in our sample villages.

64. Figure 4 below plots data on enrolment share of different schools by levels of education in our survey area. Once again, even in terms of primary enrolment share, incidence of Quomi madrasa is not large in rural Bangladesh: They account for only 1.9% of the total primary enrolment. These numbers are very small when compared to enrolment in a similar non-religious, non-state school that also caters to children from poor families – NGO schools account for 8.2% of the primary enrolment in our study. Share of Aliyah madrasa, however, is significant: They account for 8.4% of the total primary enrolment. Overall madrasa enrolment as a share of total primary enrolment (13.8%) is large when we take into account enrolment in ‘other’ madrasas that are non-formal in nature and offer exclusively religious education. Thus, as a group the share of enrolment in madrasas is significantly larger than the NGO share.

65. Turning to the secondary education segment, Quomis have a slightly higher share, accounting for 2.2% of the total enrolment. This is also true for Aliyahs (who have an enrolment share of almost 18.5%). Interestingly enough, these estimates are consistent with enrolment figures reported in another large-scale secondary school survey (see CAMPE, 2005) where of those enrolled in secondary level, 76% students were found to be in non-government secondary schools while secondary registered madrasas accounted for 14% of enrolment. Only 2% of the enrolled children were in Quomi madrasas.

66. To summarize, the number and share of Quomi madrasas in both the primary and secondary sector is much lower than what is portrayed in the popular press. As discussed earlier in this report, nationally representative HIES survey dataset for the year 2005 indicates even a smaller share of these madrasas in rural Bangladesh (1.2% and 1.3% of primary and secondary aged population, respectively). Overall though, madrasas as a group (registered and non-registered) do constitute a significant share of the educational institutions and share of enrolments in rural Bangladesh.

Figure 4a: Distribution of primary enrolment share of educational institutions by type

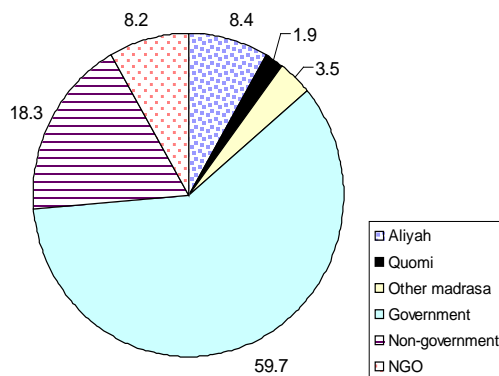
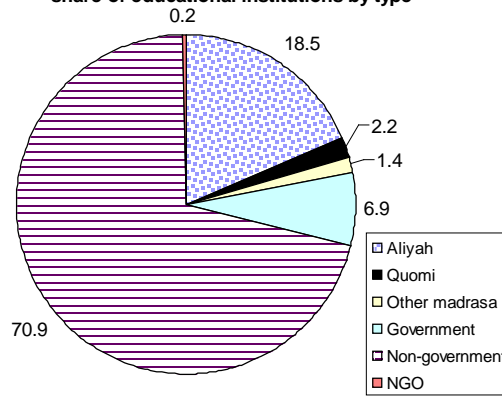


Figure 4b: Distribution of secondary enrolment share of educational institutions by type



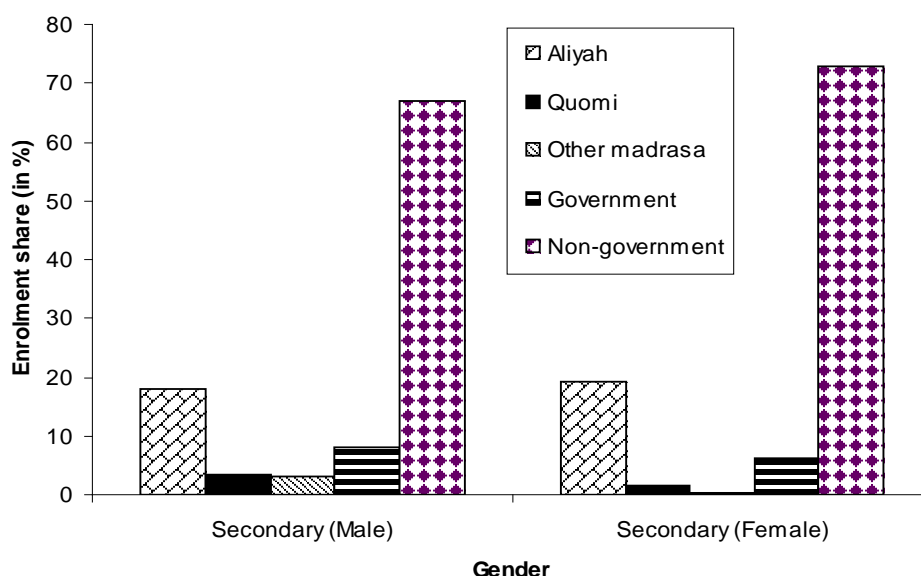
Source: Author’s calculation based on data from QSSMEB

67. One of the challenges facing estimation of enrolment share in madrasas using household records is that of missing data. A fraction of the madrasas is residential and hence enrolled children reside away from home. Consequently, enrolment figures based on household surveys such as HIES are likely to under-estimate the actual share of religious schools. To

circumvent this problem, we also gathered data on children of the household head in two additional ways. We completed the household roster separately for all non-resident children in addition to asking the head the reasons for why child is living away from home. We therefore re-estimated the share of madrasas in enrolment on the basis of household records accounting for both resident and non-resident children. This exercise did not alter the relative share of madrasas as reported above. Even if we go as far as including all the non-resident siblings who are currently living elsewhere for educational purposes and/or for other reasons, our conclusion remains unaltered. This is true both irrespective of whether we focus on primary as well as secondary schools.

68. Lastly, our estimate of madrasa sector size based on enrolment share does not change significantly if we disaggregate the enrolled child sample by gender (see Figure 5). Two notable differences are as follows: (a) Quomi madrasas have a larger share in male enrolment (3.5%) than female enrolment (1.4%); (b) “other” madrasas largely educate boys. In sum, the share of un-recognized, traditional religious schools (i.e. Quomis) depends on how we measure it (share of educational institutions or total enrolment) and in which sector we focus on (pre-primary, primary or secondary). In the secondary sector, Quomis have a large share when assessed in terms of number of educational institutions. However, given that the average student population in these Quomis is small, the Quomi share is almost insignificant when assessed in terms of student enrolment share. The debate over religious schools in the secondary sector in Bangladesh therefore is largely about the state of recognized pubic-aided Aliyah madrasas which have a large share not only in terms of the numbers of educational institutions but also in terms of share of total secondary enrolment.

**Figure 5: Enrolment share of secondary educational institutions by gender and type**

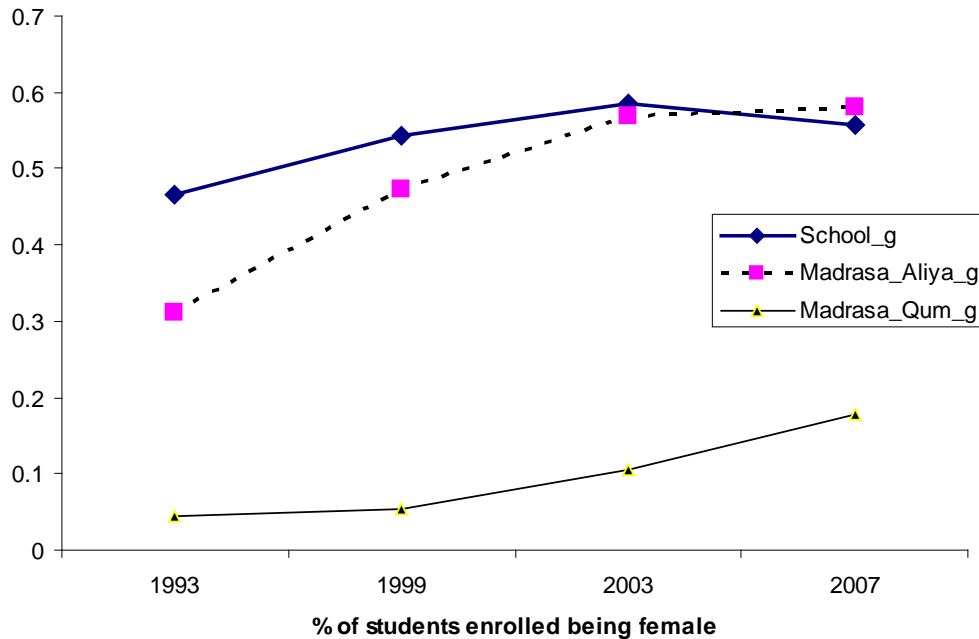


Source: Author’s calculation based on data from QSSMEB

69. The other finding from the preceding discussion is the hitherto overlooked role played by state recognized secondary madrasas in educating female students. In our study area, these madrasas account for 19% (18%) of the total secondary female (male) enrolment. This finding is consistent with patterns observed in national level secondary school enrolment

figures (e.g. see Asadullah and Chaudhury, 2008a). The ‘feminization’<sup>17</sup> of the Aliyah system was arguably induced by the secondary school scholarship scheme which was initiated in 1994. This is also evident in our sample schools. From enrolment records we collected retrospective information on the share of female students in total enrolment spanning the period 1993-2007. Figure 6 below plots this data separately for secular schools, Aliyah and Quomi madrasas.

**Figure 6: Trends in Female enrolment by school type**



Source: Author’s calculation based on data from QSSMEB

70. Indeed, there has been a steep rise in the share of females in total enrolment in Aliyah madrasas since 1993 so much so that by the year 2003, share of girls in total enrolment in these madrasas exceeded that of boys. More importantly, by the year 2007, Aliyah madrasas in our study unions have become more feminized than main stream secular schools. For the sake of comparability, Figure 10 also reports enrolment share of females in Quomi madrasas. Interestingly enough, even in the state unregulated part of the religious education sector, a rise in female enrolment is evident. This is particularly so in the post-1999 years. In the absence of any national level enrolment figures on un-regulated madrasas, however, it is not possible to generalize on the basis of this pattern that like their counterpart in the state-regulated sector, Quomi madrasas in Bangladesh are also becoming increasingly feminised. However, our sample data certainly highlights yet another previously unknown phenomenon, namely the role played by state un-regulated madrasas in educating females in rural Bangladesh. In other words, while share of these madrasas in total female enrolment still remains miniscule (i.e. 1.4%) in our study area, it is nonetheless much higher than what it was a decade ago.

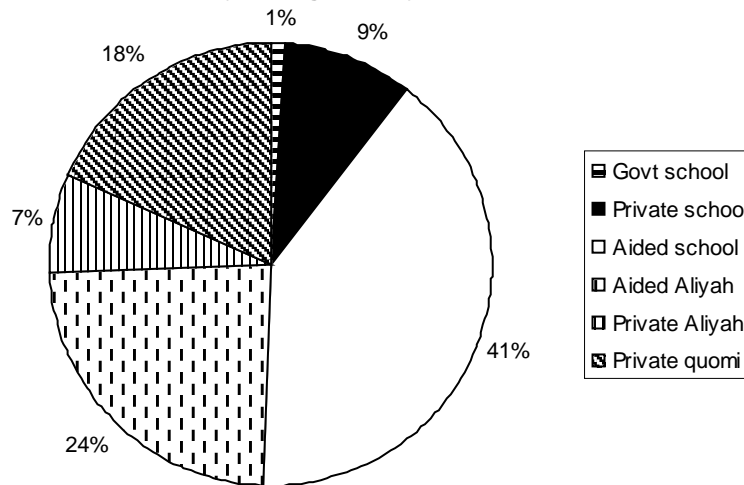
<sup>17</sup> By ‘feminization’ we only mean that madrasas have gone from all-male institutions to co-ed institutions.

## 5.2 Structure: A selective institutional profile

71. How do madrasas financially sustain themselves in rural Bangladesh? Who monitors them? What is specifically included in the curriculum? How are classrooms organized in these schools? Do these institutions reinforce or influence gender norms? Do they provide other services besides schooling? These are all important issues in their own right and we will pay detailed attention to them in future research, however, for now we briefly highlight some salient features to give readers an idea of the complexity of these institutions.

72. **Fiscal aid:** Figure 7 reports the distribution of our sample secondary schools by management type also highlighting whether the school receives fiscal aid from the government. Sixty-Four percent of all sample secondary recognized schools and madrasas are privately managed but aided by the government where another 1.24% is fully government schools. This implies that the remaining 34% secondary educational institutions are outside the state sector which includes all Quomi madrasas. This confirms that majority of the state recognized secondary religious schools operate with state-funding. While 24% of our sample institutions are Aliyah madrasas, only 29% of this Aliyah sub-sample (or 7% of the total sample) survive entirely on self-finance. At the same time, it highlights that a fraction of Aliyah madrasas in rural Bangladesh operate with limited state oversight as do their Quomi counterparts.

**Figure 7: Distribution of sample secondary schools (N=403) by management type**



73. **Funding:** The above observation that Quomi madrasas receive no aid from the state implies that their sources of funding will differ significantly from schools and madrasas in the state sector. Indeed from our analysis of data on annual earnings of Quomi madrasas, we find that 57% of the total income comes from private donations. This confirms the popular belief that these types of institutions survive under community patronage and with private donations from Muslim households and individuals (e.g. through a process of alms-giving or *zakat*). In addition, 30% of their total income does not fall under any category<sup>18</sup>. In comparison, unaccounted income comprises only 4% of total income in Aliyah madrasas. At the same

<sup>18</sup> The issues of foreign funding and the growing madrasa system outside of government regulation is a common concern in the popular press. While the large fraction of unaccounted income reported could be attributed to foreign funding, we are unable to verify this.

time 11% of total income comes from student fees, pointing out that not all of these traditional madrasas provide free education. Nonetheless, revenue earned from student fees is insignificant as a fraction of total revenue in Quomi madrasas if compared to the private unaided schools where 65% of total income comes from student fees.

74. **External monitoring:** In 54.1% cases, our sample Quomi madrasas were inspected by someone in the last one year and in 62% cases, the visitor was someone from the respective education Board. In contrast, in 44% cases, our sample unaided Aliyah madrasas were inspected by someone in the last one year and in only 15% cases, the visitor was someone from an education Board. Therefore, compared to Aliyahs, Quomis seem to be part of a more active network where they are subject to some degree of internal monitoring.

75. This point becomes clearer when we look at data on affiliation to a central education authority - 85% of Quomis in our sample are affiliated to an education Board. However, the number of Boards providing affiliation was found to be 14 and all of these are managed by private bodies outside the state sector (i.e. they are not approved by Government’s madrasa board). This is not surprising as these madrasas have no connection with the government, as was the case during the British Colonial period, when they were called “Khariji” i.e. outside the government jurisdiction. One of these private Boards -- the Befaql Madaris of Bangladesh (i.e. Quomi Madrasa Education Board) – is the umbrella under which the majority of our sample unaided Quomis have been found to be organized.

76. **Gender orientation:** Seventy-Four percent of our samples Quomis are all male-institutions while only a mere 9.5% are coeducational<sup>19</sup>. In contrast, 80% of our sample Aliyah madrasas (aided and unaided together) are coeducational. Similarly, 83% of our sample schools (government, aided and private unaided together) are coeducational.

77. A hallmark of madrasas in South Asia is their visible focus on religious symbolism. They are known to implement strict dress codes along an orthodox Islamic style, particularly for girls. Our survey design explicitly looked into this issue and we had a specific interview with the principals about the prevalence and nature of dress code by gender. The issue of dress code is also important given the increasing trend amongst female secondary students to attend madrasas. If even aided and recognized madrasas officially imposes gender norms in dressing, this may have implications for government’s broader social implication of subsidizing female education in madrasas.

**Table 6: Presence and nature of policy regarding uniform for female students**

	No official uniform	If yes, what type of uniform?				N
		Burka	Shalower-Kamiz	Nikab	Head-scarf/cover	
School	0.11	0.01	0.87	0.03	0.38	199
Aliyah Madrasa	0.15	0.69	0.30	0.10	0.35	123
Quomi Madrasa	0.00	1.00	0.32	0.21	0.32	19

Note: (a) Calculation is based on co-educational or girls-only institutions (i.e. boys-only institutions are excluded from the calculations). (b) The table above is based on multiple responses. Therefore, a madrasa can report having all 4 types of uniforms – burka (body is covered but face is visible), salwar-kamiz (tunic-pant set), nikab (burka plus only eyes are visible), and head scarf. (c) All number refers to fractions. (d) Source: Author’s calculation based on data from QSSMEB.

<sup>19</sup> In all of our coeducational Quomi madrasas, however, boys and girls had separate classroom.

78. Table 6 above reports data on official policies related to female dress-codes in school. First note that there is not a single Quomi madrasas (out of 19 coeducational or girls-only) in our study area that does not impose a dress code on female students. On the other hand, their counterpart in the state-regulated sector appears to practice a slightly more liberal regime - 15% of the Aliyah madrasas in our sample do not have any official dress code for their female students. The same pattern prevails when we look at the nature of the required attire female students are officially expected to wear. In all Quomi madrasas, girls are required to wear 'burka' (compared to 69% of Aliyah madrasas). Similarly, the incidence of Nikab (full cover of body, head and face) is most common in traditional madrasas: 21% of our Quomi madrasas implement this as a dress code compared to only 10% Aliyah madrasas.

79. We explicitly asked principals to comment on any official policies relating to the practice of 'purdah' inside the madrasa/school compound. 'Purdah' is a nebulous concept and can range from strict segregation of the sexes to wearing a loose scarf around one's head when out in public. Once again, Quomi madrasas appear to strictly implement the policy of 'purdah' irrespective of whether it is outside or inside the classroom. But so do state-regulated madrasas: 85% of Aliyah madrasas require female students to practice 'purdah' inside the classroom compared to 95% of Quomi students (see Table 7 below).

**Table 7: Presence of policy regarding 'purdah' for female students**

	Yes: inside the classroom	Yes: outside the classroom
School	0.18	0.18
Aliyah Madrasa	0.85	0.84
Quomi Madrasa	0.95	1.00

Note: (a) Based on head-teacher response. (b) Excludes all institutions where there is no girl student. (c) All number refers to fractions. (d) Source: Author's calculation based on data from QSSMEB.

80. Now interpreting the information presented above is complicated. It could very well be that madrasas are simply catering to the preferences of some conservative rural households and imposing dress codes that are culturally more appealing to parents in rural Bangladesh. Even 3% of our 'secular' aided private schools had policies mandating Nikab. Are these schools signalling to parents who prefer this drastic (and up till recently, a rare) form of appearance for their daughters that they are more accommodative of their preferences compared to other institutions, or are they imposing their own conservative social norms on poor parents? Is this an 'education' issue or a social issue? These are deeply complex questions which ultimately require policymakers to make uncomfortable normative political decisions.

81. **Student accommodation:** A common perception is that traditional madrasas are attractive because they provide services outside of education such as food and lodging. Indeed 33% of our Quomi madrasas are fully residential (compared to only 4% of Aliyah madrasas). As a matter of fact, only 87% of our Quomi madrasas offer at least some residential facilities (compared to only 19% of Aliyah madrasas). This finding is therefore consistent with the popular belief that madrasas offer a free education, and board to their students, and thus they appeal to poor households.

82. **Class size:** One of the most widely studied institutional aspect of schools is number of students enrolled in a given grade or class-size. Bigger class size is associated with lower learning outcomes. Looking across institutions type, we find significant difference in this proxy for education quality. The distribution of class size is more favourable in the Quomi

sector: the mean “class size” (in grade 8 or its equivalent) in Quomi is 10 compared to 48 and 32 in school and Aliyah, respectively. However, care is needed in comparing class size data between Quomi and registered schools/madrasas. First, as already pointed out, Quomi madrasas are predominantly residential where learning takes place throughout the day and is not necessarily limited to the classroom. In many cases, the same room may be used for residential and teaching purposes. Second, in a majority cases, Quomi classrooms do not have desks and chairs - rather, students are seated on ground. Such differences in classroom organization once again make it less straightforward to compare class size (defined as the number of students in a classroom) between Quomis and educational institutions in the state financed sector.

83. **Difference in subjects offered:** We will not go into this issue in detail in this report, however, we just highlight the fact that there are major differences between School/Aliyah (aided and unaided) and Quomi madrasas. It is interesting to note that besides not offering any Math or English, many Quomis do not have Bengali (the national language) as a subject in grade 8 or its equivalent (see Table 8 below). This goes back to the Urdu pedigree of the Deoband line. However, this does not mean that “secular subjects” are not taught in Quomi madrasas at all. When assessed in terms of curriculum used for grade 5 (or its equivalent), only around 5% Quomis were found not to teach Bengali, Mathematics or English at all. Therefore, majority (over 90%) of Quomis do have at least one teacher responsible for teaching primary level Mathematics and/or English, albeit at a lower grade equivalence (primary level).

**Table 8: Subjects not offered in the institution (%)**

Type	No Bengali	No English	No Math	No Science
Aided-Aliyah	0.0	0.0	0.0	0.0
Unaided Aliyah	0.0	0.0	0.0	0.0
Quomi	40.6	26.6	56.3	29.7

Source: QSSMEB. Data corresponds to grade 8 (or its equivalent).

84. **Professional background of Teachers:** Compared to educational institutions in the state or state-aided sector, Quomi madrasas are predominantly staffed by untrained teachers. A staggering 82% of all Math teachers in Quomi madrasa are untrained compared to their counterparts in schools and Aliyah madrasas (16% and 42% respectively). Note that the problem of unqualified teachers is not limited to Mathematics. Similarly, 80% of all English teachers in Quomi madrasa are untrained compared to their counterparts in schools and Aliyah madrasas (19% and 44% respectively). The poor qualifications of Quomi teachers are also evident when assessed in terms of years of education acquired in mainstream educational institutions, the only place where they could in the past learn Math and English. On average a Math and English teacher in our sample Quomi only have SSC-level education from the mainstream, state-recognized education system. Compare this to aided school and Aliyah madrasas where Maths and English teachers are on average are educated in secular schools beyond the HSC-level. Overall, therefore, not only do Quomi madrasas often not offer subjects such as Maths and English, they do poorly in terms of teacher recruitment for teaching these subjects.

85. We have only provided a partial characterization of Quomi madrasas in this section. A host of other institutional factors have not been commented on and instead left for future work. In this context, we are planning to revisit two unique aspects of the Bangladeshi



madrassa system, namely, feminization of registered madrassas and extensive reform of the curriculum followed in these schools. Furthermore, QSSMEB also provides a unique description of a traditional madrassa in Bangladesh where we focus on physical conditions of madrassas, nature of curriculum (e.g. modern subjects taught; religious content of the curriculum) and textbooks used, gender norms (e.g. dress codes and rules regarding how male teachers interact with female students), educational, demographic and socio-economic profile of teachers, issues related to school governance (e.g. accountability of students/teachers); learning environment (e.g. classroom organization; seating arrangements, teacher-student positioning) and student background (e.g. parental education; past school type attended by the child).

### 5.3 Quality: Levels of student learning by school type and gender

86. We administered four distinct cognitive tests to 8<sup>th</sup> grade students<sup>20</sup> during the institutional survey. First, a maths test instrument was constructed by using items previously used in the Trends in International Mathematics and Science Study (TIMSS). The TIMSS has been administered three times by the International Association for the Evaluation of Educational Achievement (IEA), the latest in 2003. The study has released several secondary-standard (grade 8) mathematics items indicating what each item measures and the results of every participating country. The TIMSS instrument assessed competency in data, measurement, number, algebra and geometry using 125 multiple-choice format mathematics items. On the basis of pilot test experience and given the time constraint in the field, a total of 25 original items were retained in our test instrument<sup>21</sup>. That is what we mean when we refer to the ‘TIMSS Math test’ throughout the report – not the actual TIMSS administered by IEA given that Bangladesh does not participate in this (nor any other) internationally comparable standardized test. On the basis of the national curriculum we devised a test to assess proficiency in English (20 items), General Knowledge (6 items) and Islamic studies (10 items). The test on Islamic studies, however, was restricted to only Muslim students. In Bangladesh Islamic studies is a compulsory subject in government approved schools for all Muslim students. The test was given to all students of Grade 8 who were present on the day of the survey<sup>22</sup>. If a school/Aliyah madrassa had multiple-sections of the same Grade, one section was randomly selected. In case of Quomi madrassas identification of Grade 8 was a not so obvious. This is because they often use a subject-based system rather than a grade-based system<sup>23</sup>. In such cases, we requested the madrassa authorities to select the equivalent grade on our behalf and carried out the test in the selected cohort of pupils assuming equivalence. However, because of potential ambiguity over equivalent grade selection in Quomi madrassas, combined with the variation in organization structure within the Quomi, we have restricted our analysis of learning outcomes to schools and Aliyah madrassas only. In total, we tested 9,436 pupils in Grade 8 where 68%, and 24% of the students belong to general school and Aliyah, respectively. Therefore, excluding the Quomi students (N=663 or 7% of the original sample), we were left with 8733 observations. In this sub-section, we first

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<sup>20</sup> We also administered basic numeracy and literacy tests to children during the household survey. Analysis of household based assessment is planned for future studies.

<sup>21</sup> For a similar exercise to assess student learning in rural secondary schools, see Asadullah et al (2006).

<sup>22</sup> Apart from English, all tests were based on multiple-choice questions (MCQ) format.

<sup>23</sup> The non-standard grade structure of Quomi madrassas in Bangladesh has been also noted by other researchers in previous work. For instance, Sattar in his detailed monograph on madrassa education system points out that some Quomis organize education in a total of 9 grades while others use a 15-grade system (see Sattar, p. 378, 2004). Such divergence in institutional structure can be partly explained by the fact that Quomi madrassas in Bangladesh are organized under different regional associations (as explained in section 5.2) which pursue independent pedagogical models and standards.

discuss how raw student test scores in our dataset vary by school type and gender on one hand, and within and between schools on the other. In order to highlight the heterogeneity in quality, however, we also discuss the entire distribution of the test score statistics. In the next sub-section, we then discuss the correlates of individual test scores with a focus on institutional factors.

87. Table 9 reports average math and English scores (i.e. fraction of correct answers) by institution-type, gender and tests. For presentational ease, we use the following groupings: schools (government schools, ‘private’ schools, private aided-schools); Aliyah madrasa (aided and unaided). On average, only 35% of the math test questions could be correctly answered by students in our sample. This number is even lower (i.e. 33%) for English. Interestingly, the performance is far from satisfactory even if we consider performance in the general knowledge test: only 39% of the questions were correctly answered on average. However, when assessed in matters related to religion (i.e. Islam), the performance was very satisfactory: students on average correctly answered 75% of all the test items. Our sample average Math score is strikingly similar to mean student performance in similar tests for secondary school students elsewhere in South Asia. For instance, in a recent study on two Indian states Orissa and Rajasthan, Das and Zajonc (2008) report mean scores (i.e. % correct answer) of 34 and 37 respectively. Their findings are based on a survey of 9<sup>th</sup> grade students in Math carried out in the year 2005 using a 36-item TIMSS test.

**Table 9: Average Math and English Test Scores by Management-type**

	Math	Math-M	Math-F	ENG	ENG-M	ENG-F
Gov-school	0.33 (107)	0.41 (47)	0.28 (60)	0.40 (107)	0.49 (47)	0.33 (60)
Private-school	0.35 (519)	0.36 (197)	0.35 (322)	0.37 (519)	0.37 (197)	0.37 (322)
Aided-School	0.36 (5,805)	0.39 (2,286)	0.34 (3,519)	0.37 (5,805)	0.38 (2,286)	0.36 (3,519)
Aided-Aliyah	0.33 (1,983)	0.37 (742)	0.31 (1,241)	0.26 (1,983)	0.28 (742)	0.25 (1,241)
Private Aliyah	0.31 (359)	0.34 (86)	0.30 (273)	0.28 (359)	0.30 (86)	0.27 (273)
Total	0.35 (8,773)	0.37 (3,358)	0.33 (5,415)	0.33 (8,773)	0.33 (3,358)	0.33 (5,415)

**Note:** (a) Numbers in parenthesis indicate sample size (b) each cell number refers to fraction of total questions being answered correctly.

Source: QSSMEB.

88. Table 9 above only reports the fraction of correct answers in different subjects. As such, it is not obvious whether the questions have been set at a reasonable degree of difficulty. As a matter of fact, the state of poor-quality becomes even more evident if we consider few examples of student performance in individual questions where a majority of students were unable to answer. For instance, let us focus on two simple questions related to division and fractions. Only 62% (54%) of school (Aliyah) students could correctly answer the following question: “Divide:  $\frac{8}{35} \div \frac{4}{15}$ ”. By 8<sup>th</sup> grade, only 11% of school children and 8% of Aliyah children can correctly divide 24.56 by 0.004.

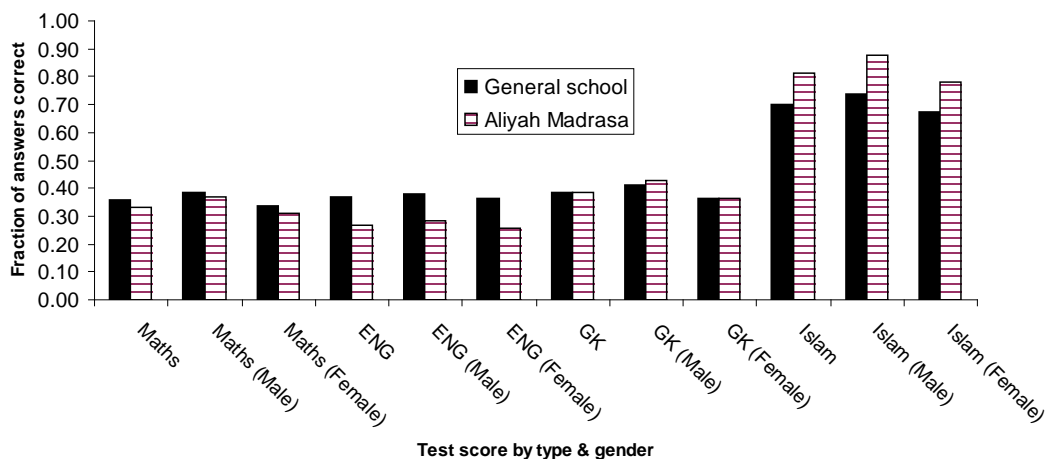
89. Turning to questions relating to other domains of learning, a similar picture can be painted. For instance, the question " The number of 750 mL bottles that can be filled from 600 L of water is \_\_\_\_\_? " could be correctly answered by only 13% sample students on

average (where 12% and 17% of school and Aliyah students provided correct answers, respectively). A simple measurement test “Which of these is the longest time? {(a) 15000 seconds (b) 1500 minutes (c) 10 hours (d) 1 day}” is too difficult for 46% of grade 8 children in our sample. When disaggregated by institution type, only 56% and 51% of the school and Aliyah students, respectively, could correctly answer the question. In a simple problem related to probability -- “In a bag of cards 1/6 are green, 1/12 are yellow, 1/2 are white and 1/4 are blue. If someone takes a card from the bag without looking, which colour is it most likely to be?” -- only 34% of our sample students could correctly answer this question.

90. The English test assessed students in 3 domains: correct use of words in sentence, (knowing) word meaning, and sentence construction. The dismal state of English language learning is evident when we take into account the basic nature of the individual questions. When asked to fill in the blank using the correct form of the word highlighted in the parenthesis, 80% of our sample students failed to do so for the following sentence: “He (go) \_\_\_\_\_ to school yesterday”. When disaggregated by institution type, only 23% and 15% of school and Aliyah students, respectively, could correctly answer the question. Similarly, another 76% of our sample students failed to complete the following sentence: “My father currently (live) \_\_\_\_\_ in Dhaka”.

91. In case of “general knowledge” test, 46% students could correctly name the current president of Bangladesh at the time of the survey i.e. January 2008. Only 18% students could correctly write down the date (day, month and year) when Bangladesh became independent. Performance in the last question is shocking considering the fact that students are taught these facts at a much earlier stage (e.g. primary grades) in Bangladesh.

**Figure 8: Distribution of test score by school type and gender**



Source: Author’s calculation based on data from the “Quality of Secondary School Madrasa Education in Bangladesh”. Data corresponds to grade 8 students from sample secondary schools and madrasas.

92. Figure 8 reports % of question items correctly answered by our sample students across school types, gender and tests. A number of interesting patterns follow from the figures presented above. Something that we can conclusively say is that girls fare worse than boys in both Math and English in almost all school types – we will come back to this point later on. Looking at the % of Math questions answered correctly, school students (36%) have a slight advantage over Aliyah (33%). A slightly bigger advantage is noticeable in case of the English test: school students correctly answered 37% of the test items whereas Aliyah students could

answer only 27% of the answers correctly. When judged in terms of performance in general knowledge, there was no major difference across students by school type. However, a performance advantage prevails for Aliyah madrasa students in Islamic studies – while 70% of school students answered all Islamic studies questions correctly, 80% of Aliyah students answered all Islamic studies questions correctly.

93. These patterns highlighted above are based on mean student test scores. As such, it hides important distributional issues. For instance, within the state sector, there can be some very good schools and madrasas. If so, the under-performance of a school/madrasa cannot be exclusively explained by the underlying institutional regime - i.e. state regulation or the lack thereof. Simple one-way analysis of variance (ANOVA) indicates that the *within* variation in test scores (e.g., variation between pupils studying in schools) is greater than the *between* variation in test scores (e.g., variation between schools and Aliyah)<sup>24</sup>. Figure 9 below plots individual-level test score by school type across the entire distribution of the test score. For the sake of brevity, our discussion will focus on two extreme points of the test score distribution, the bottom and top deciles. Of the sample pupils 73% (27%) of the students belong to general school (Aliyah madrasa) shown by the unbroken (broken) horizontal line in Figures 9a and 9b. If there are not major differences in the distribution of test scores between institution-type, then the fraction of a given institution-type in a particular decile should be similar to its sample fraction. Hence the height of the decile bar should be equal to that of the respective overall sample share horizontal line.

Figure 9a: Math score (decile distribution by institution type)

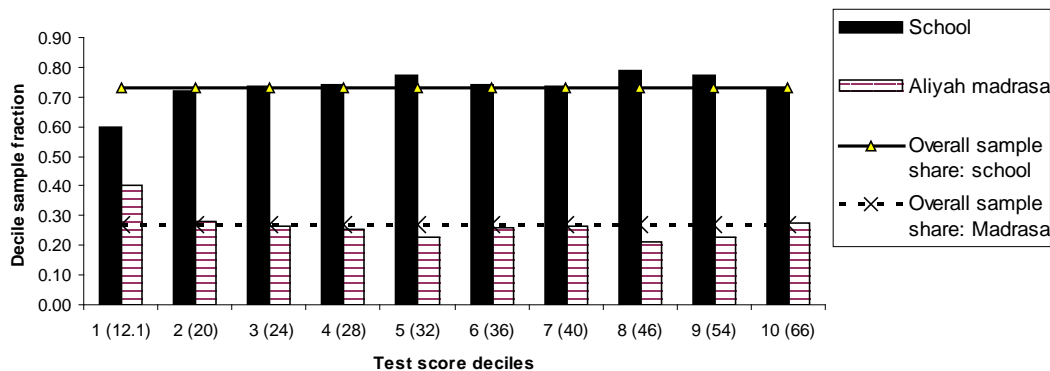
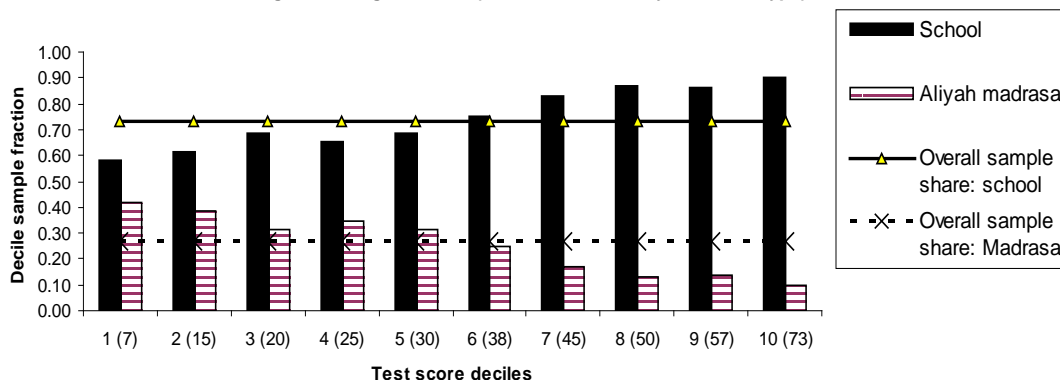


Figure 9b: English score (decile distribution by institution type)



Source: (a) Author's calculation based on data from QSSMEB. (b) Data corresponds to grade 8 students from 327 sample secondary schools and Aliyah madrasas. (c) Numbers in parenthesis indicate mean overall test score (rounded up to the nearest integer) in a given decile.

<sup>24</sup> Results not presented, however, available from authors upon request.

94. On average, the bottom 10% could correctly answer only 12% of the Maths question while even the top 10% could only correctly answer 66% of the questions. Now, the relative share of school and Aliyah in the *bottom* 10% population is 60% and 40%, respectively. This suggests that students of Aliyah madrasas are somewhat excessively represented in the lowest performing decile. On the other hand, the relative share of school and Aliyah students in the *top* 10% population is 73% and 27%, respectively - this suggests that both types are proportionally represented in the top decile (relative to their sample fraction).

95. The above analysis suggests that the distribution of individual Math test score is slightly skewed to the left for Aliyahs and even for general schools. This is also evident if we look at the school-specific distribution more formally using non-parametric Kernel density functions. Appendix Figure 1a plots Kernel density estimates of individual student's Math score. Here we can see that the Aliyah distribution has a slight lower mean and a more left-skewed distribution compared to the school distribution which closely follows a bell-shaped normal distribution.

96. The non-normal nature of the test score distribution of Aliyah students is more evident if we look at the English test score data. The relative share of school and Aliyah students in the *top* 10% student population is 90% and 10%, respectively. This suggests that almost all of the top scorers in English come from schools, while Aliyah students are grossly under-represented in the top decile (relative to their sample fraction). The distribution of student performance in English test is therefore skewed to the right for schools and to the left for Aliyah. Once again, we produce kernel density plots of individual-level test scores by school type (see Appendix Figure 2a). The bottom heavy nature of the test score distribution of madrasas becomes more evident when we use plot aggregated data (see Appendix Figure 2b).

97. Lastly, we carry out a similar distributional analysis of student performance at the institutional level. This is achieved by aggregating test score data at school/madrasa level. Therefore, observed differences in aggregated test score highlight the between (instead of within) school difference in quality. Figure 10 below plots aggregate data on test score by school type across various deciles of the aggregate test score distribution.

Figure 10a: Math score (decile distribution by institution type)

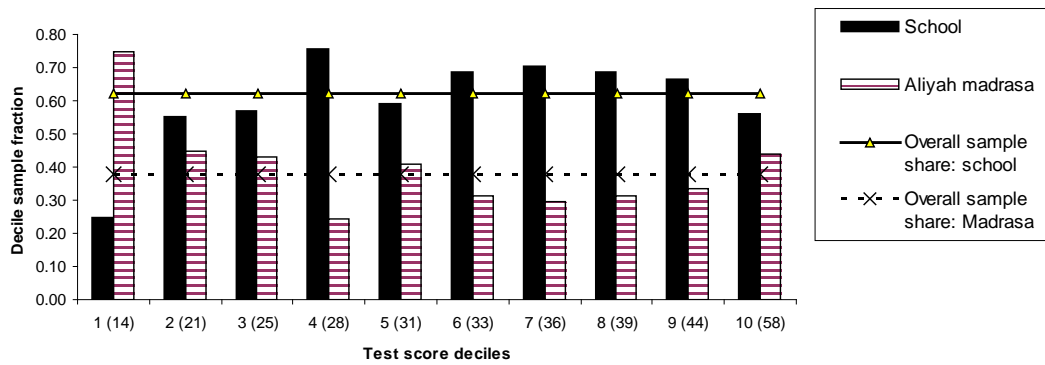
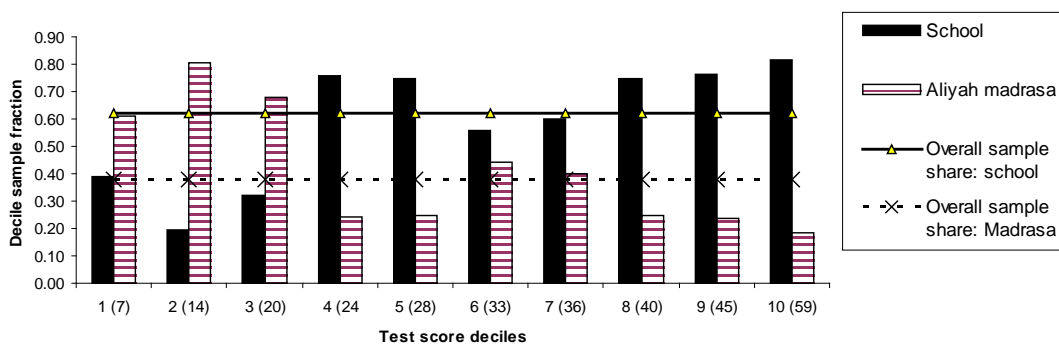


Figure 10b: English score (decile distribution by institution type)



Source: (a) Author's calculation based on data from QSSMEB. (b) Data corresponds to 327 sample secondary schools and Aliyah madrasas. (c) Numbers in parenthesis indicate mean overall test score (rounded up to the nearest integer) in a given decile.

98. Once again, for the sake of brevity, our discussion will focus on two extreme points of the test score distribution. Note that 62% of our sample educational institutions (excluding Quomis) belong to general school. This is shown by the bold solid line in Figure 10. Therefore, we can see that visually at the aggregate level (i.e. between institutions), differences in test score appears to be much larger. In the bottom (top) 3 deciles, the share of schools is less much (more) than its population share in English test (see Figure 10b). For Aliyah madrasas, it is the opposite. For instance, in the bottom (top) 3 deciles, the share of madrasas is much more (less) than its population share as shown by the dashed line with crosses (see Figure 10b). A somewhat similar albeit less striking pattern can be seen in the aggregate distribution of Math score. For example, schools (madrasas) are under (over) represented in the bottom decile compared to their sample share. However, in the top decile, madrasas have a slightly higher share (relative to population fraction) whilst schools are under-represented (relative to population fraction).

99. The very low level of achievement in Math and English is a matter of serious concern. Nonetheless, this evidence is not surprising. It is fully consistent with findings from an earlier attempt to assess student learning in rural secondary schools. Asadullah et al. (2007) employed a similar Mathematics test to Grade 8 students and found that on average they could correctly answer only 38% of the sample questions. This is very similar to the % of correctly answered Math questions (i.e. 34%) in our QSSMEB sample. Findings of low achievement documented in this and the previous studies therefore call for greater insights

into the determinants of student achievement. In the next sub-section, therefore, we focus on explaining differences in these outcomes in a regression framework using individual/student level data.

#### **5.4 Quality: Correlates of test scores**

100. The regression analysis excludes data on Quomi madrasas and is restricted to the sample with no missing cases for any correlate. This lead to exclusion of another 125 cases yielding a regression sample of 8,648 observations. For the sake of brevity, we only discuss regression estimates of correlates of student learning achievement using scores from Math and English (regression results for the remaining tests are presented in the Appendix Tables 3a and 3b). The dependent variable has been scaled by the number of questions items in the respective test so that they now correspond to % of questions being correctly answered (on a scale of 0-100). Table 10 reports regression estimates for Math score (summary statistics of variables used in the regression are presented in the Appendix Table 2). Column 1 reports a parsimonious specification only controlling for a dummy indicator for Aliyah madrasa attendance (with schools being the base-category) while column 2 changes the base category to aided schools. Therefore, in column 1 the regression constant corresponds to the unconditional mean test score of school students while in column 2, the constant corresponds to mean score of aided school students. The latter 3 models employ detailed specifications and therefore highlight the role of various other factors in explaining learning outcomes beyond that of institutional type. Estimates reported in specifications 3-5 therefore relate to conditional gaps in test score by institutional type (with "school" being the omitted category). Specification 3 adds control for (self-reported) family background (e.g. maternal and paternal education, household assets and newspapers/magazines at home), while in columns 4 and 5 we introduce controls for school and teacher characteristics, respectively. Column 6 estimates the model fully controlling for institution-specific (fixed) effects following least square dummy variable approach.

**Table 10: OLS regression of correlates of Math score**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Madrasa: Aliyah</b>	-2.653 (7.39)**	-2.727 (7.49)**	-1.955 (5.71)**	-2.778 (6.77)**	-1.675 (3.05)**	
<b>Govt. school</b>		-2.444 (1.69)				
<b>Private school</b>		-0.397 (0.58)				
<b>Female</b>			-5.058 (16.35)**	-4.986 (16.17)**	-5.155 (16.40)**	-5.541 (22.23)**
<b>Mother_edu: primary</b>			1.026 (2.39)*	1.313 (3.09)**	1.267 (2.94)**	0.046 (0.14)
<b>Mother_edu: some secondary</b>			1.249 (2.75)**	1.150 (2.55)*	1.112 (2.45)*	0.237 (0.69)
<b>Mother_edu: secondary complete</b>			1.281 (2.46)*	1.378 (2.67)**	1.307 (2.52)*	0.604 (1.55)
<b>Mother_edu: post-secondary</b>			2.464 (3.61)**	2.327 (3.45)**	2.212 (3.26)**	1.155 (2.27)*
<b>Father_edu: primary</b>			0.382 (0.75)	0.716 (1.43)	0.741 (1.46)	0.612 (1.62)
<b>Father_edu: some secondary</b>			0.410 (0.91)	0.442 (0.99)	0.604 (1.33)	0.680 (2.02)*
<b>Father_edu: secondary complete</b>			0.647 (1.37)	0.902 (1.93)+	1.050 (2.22)*	0.759 (2.16)*
<b>Father_edu: post-secondary</b>			2.199 (4.45)**	2.312 (4.72)**	2.401 (4.88)**	1.413 (3.82)**
<b>Newspaper at home</b>			-0.329 (0.98)	-0.172 (0.52)	-0.060 (0.18)	0.484 (1.82)+
<b>Household asset index</b>			0.797 (4.86)**	0.554 (3.38)**	0.598 (3.62)**	0.344 (2.70)**
<b>log(school land)</b>				-0.562 (4.52)**	-0.508 (3.98)**	
<b>School inspected</b>				-5.198 (13.32)**	-5.403 (13.55)**	
<b>School has mobile</b>				-0.465 (1.26)	-0.066 (0.17)	
<b>log(# of rooms in sch)</b>				1.582 (3.55)**	0.367 (0.74)	
<b>Ln(fees in tot)</b>				0.566 (2.72)**	0.512 (2.39)*	
<b>Log(class size)</b>				0.218 (0.64)	-0.045 (0.13)	
<b>Fraction of female teacher</b>					1.386 (1.00)	
<b>Fraction of trained teachers</b>					2.840 (3.90)**	
<b>Fraction of temporary teacher</b>					-6.383 (3.64)**	
<b>log(mean teacher salary)</b>					-0.050 (0.21)	
<b>Constant</b>	35.753 (191.46)**	35.827 (182.10)**	46.617 (3.85)**	33.876 (2.79)**	38.537 (3.15)**	43.698 (3.51)**
<b>N</b>	8648	8648	8483	8393	8107	8483
<b>R<sup>2</sup></b>	0.01	0.01	0.15	0.17	0.17	0.57

**Note:** (a) Regression constant suppressed; (b) t-statistics in parenthesis; (c) base category for parental education variable is “never schooled” or “less than primary” (i.e. grade 5) education; (d) Columns 3-5 include district dummies; (e) Column 6 includes a full set of “institution” dummies. (f) All regressions control for child age and age-squared. (g) Asset index is computed by aggregating binary indicators of household ownership of various assets using the principal component method.



101. In all specifications, irrespective of the type of control variables used, there is a clear statistically significant learning disadvantage associated with madrasa schooling. Starting with the most parsimonious specification, column 1 tells us that the mean score by school students is 35.75% correct answer while for madrasa students, this is only 2.6% less. In model 2, the base category is changed to aided school so that the regression constant now captures mean score of aided schools students. The fact that the regression constant does not differ across specifications 1 and 2 implies that within the school sector, there is not a large difference in test score. Indeed, this is also confirmed by the coefficients on dummies for government and private unaided schools in column 2. Columns 3-5 report alternative estimates of learning gaps associated with madrasa attendance by additionally controlling for family background, school characteristics and teacher attributes in a sequential manner. In all these four specifications, once again madrasa attendance variable has a large negatively signed coefficient which is statistically significant. However, given the low overall mean achievement in the data, this negative penalty is not large in magnitude. In other words, the observed test score gap between Aliyah and schools is rather minor.

102. What is noteworthy is the relatively low  $R^2$  obtained from our model. As discussed later in this section, test score variance decomposition analysis indicates substantial association between institutional factors and learning outcomes. In case of Math (English) test, 42% (34%) of the total variation could be explained by institutions net of observed child and family characteristics. The smaller  $R^2$  simply indicates that while institutions do matter, available indicators of institutional effectiveness as captured by observed characteristics (such as class size, teacher characteristics and most importantly “institution type”) do a poor job in explaining the institution effect. This is yet another reason why the observed negative test score gap between school and Aliyahs should not take centre stage in the current discourse over education quality in rural Bangladesh.

103. Apart from test score gaps by institution type, there is a significant learning disadvantage experienced by girls in our sample. The coefficient on the female dummy is large, negative and statistically significant. *As a matter of fact, average gender gap in Math score is much larger than the average negative gap associated with madrasa schooling.* The substantive significance of this gap is also evident if compared to the gap observed between school and Aliyah students. Comparing the regression coefficients on female and Aliyah dummy, we find that the ‘gender’ penalty in our data is several times the penalty associated with Aliyah madrasa attendance (see column 5).

104. Almost identical results are obtained from the regression analysis of English test score (see Table 11 below). However, compared to Math, the penalty associated with being female is less severe - but not so for madrasa attendance. The coefficient on madrasa dummy is now even a bigger negative

**Table 11: OLS regression of correlates of English score**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Madrasa: Aliyah</b>	-10.412 (23.10)**	-10.400 (22.74)**	-9.311 (20.74)**	-10.809 (19.88)**	-8.132 (11.18)**	
<b>Govt. school</b>		2.794 (1.54)				
<b>Private school</b>		-0.436 (0.51)				
<b>Female</b>			-2.063 (5.09)**	-1.686 (4.13)**	-2.097 (5.04)**	-1.108 (3.12)**
<b>Mother_edu: primary</b>			2.167 (3.85)**	2.200 (3.90)**	2.355 (4.13)**	1.145 (2.47)*
<b>Mother_edu: some secondary</b>			2.442 (4.11)**	2.276 (3.81)**	2.433 (4.05)**	1.544 (3.17)**
<b>Mother_edu: secondary complete</b>			2.323 (3.40)**	2.296 (3.36)**	2.519 (3.67)**	1.825 (3.28)**
<b>Mother_edu: post-secondary</b>			3.726 (4.16)**	3.485 (3.89)**	3.596 (4.00)**	1.599 (2.21)*
<b>Father_edu: primary</b>			0.349 (0.52)	0.551 (0.83)	0.596 (0.89)	0.418 (0.78)
<b>Father_edu: some secondary</b>			0.766 (1.30)	0.737 (1.25)	0.823 (1.37)	1.264 (2.64)**
<b>Father_edu: secondary complete</b>			1.102 (1.78)+	1.244 (2.01)*	1.158 (1.85)+	1.759 (3.51)**
<b>Father_edu: post-secondary</b>			3.972 (6.13)**	3.756 (5.78)**	3.619 (5.55)**	3.354 (6.37)**
<b>Newspaper at home</b>			0.057 (0.13)	-0.089 (0.20)	0.043 (0.10)	0.132 (0.35)
<b>Household asset index</b>			0.821 (3.82)**	0.675 (3.11)**	0.742 (3.39)**	0.352 (1.94)+
<b>log(school land)</b>				-0.653 (3.96)**	-0.617 (3.65)**	
<b>School inspected</b>				-3.334 (6.45)**	-3.646 (6.90)**	
<b>School has mobile</b>				0.169 (0.34)	0.438 (0.87)	
<b>log(# of rooms in sch)</b>				4.258 (7.20)**	3.330 (5.08)**	
<b>Ln(fees in tot)</b>				0.577 (2.10)*	0.722 (2.54)*	
<b>Log(class size)</b>				-2.446 (5.44)**	-2.753 (5.80)**	
<b>Fraction of female teacher</b>					7.905 (4.29)**	
<b>Fraction of trained teachers</b>					4.930 (5.12)**	
<b>Fraction of temporary teacher</b>					-15.332 (6.59)**	
<b>log(mean teacher salary)</b>					0.330 (1.03)	
<b>Constant</b>	37.124 (158.26)**	37.113 (150.16)**	88.234 (5.56)**	78.176 (4.86)**	79.355 (4.90)**	-15.675 (0.88)
<b>N</b>	8648	8648	8483	8393	8107	8483
<b>R<sup>2</sup></b>	0.06	0.06	0.13	0.14	0.15	0.48

**Note:** (a) Regression constant suppressed; (b) t-statistics in parenthesis; (c) base category for parental education variable is “never schooled” or “less than primary” (i.e. grade 5) education; (d) Columns 3-5 include district dummies; (e) Column 6 includes a full set of “institution” dummies. (f) All regressions control for child age and age-squared. (g) Asset index is computed by aggregating binary indicators of household ownership of various assets using the principal component method.

105. We also carried out similar regression analysis using test score data on general knowledge and Islamic studies (see Appendix Tables 3a and 3b). We found no madrasa-school learning gap in general knowledge. This finding is not surprising as the regression models control for family and parental background of the child and hence we do not expect much residual learning that is shaped by the institution. However, significant institution-type effect is observed in the regression model explaining student score in Islamic studies test, with the effect being in favour of madrasas.

106. A large gender gap in test score is also evident from Appendix Tables 3a and 3b. In general knowledge test, for instance, while there is no penalty for enrolment in Aliyah, there still remains a very large gender gap. These findings together with results reported in Tables 10 and 11 imply that in rural secondary education sector in Bangladesh, the learning disadvantage associated with a child's gender is much larger and persistent than that of religious schooling.

107. The gender difference in test score is important for another reason. Compared to Aliyah madrasas, secondary schools in rural Bangladesh (as well as those in our sample) have more girls who on average tend to do worse compared to boys. In other words, madrasas in our sample on average have lower score despite the fact that they have more boys who tend to perform better.

108. To further explore the origin of gender gap in learning outcomes, Appendix Table 4 reports estimates of gender gaps in Math and English test scores separately for the school and madrasa sample, net of institution fixed effects. The regressions also hold observed differences in family backgrounds constant. Yet for both samples, the gender disadvantage remains sizable across all outcomes<sup>25</sup>. However, the disadvantage is more pronounced in the Aliyah sector. In Math test, for instance, girls on average have 5.2 percentage points deficit (when compared to boys who on average correctly answer 38.9%). The female disadvantage is more evident in the madrasa sample. Whilst madrasa boys could answer 37% questions correctly, this is 6.3% less for girls of same madrasas. Compared to Math, the gender deficit is much smaller in case of English test. However, it is still significant for the madrasa sample and sizable (i.e. 1.5 percentage point). There is no significant difference between English test score of boys and girls enrolled in the same school, however.

109. Therefore, while girls perform poorly in Math and English, their performance is worse in the madrasa sample. This finding is also consistent with patterns observed in the raw data (see Figure 8) and therefore highlights a new challenge for policy makers in Bangladesh – increasing share of female enrolment in Aliyah madrasas may do little in terms of closing the gender gap in achievement.

110. There are other interesting findings from the regression analysis that we do not address given our primary focus is on the madrasa coefficient. For instance, there is a systematically positive correlation between household wealth (measured by an aggregate asset index) and test score. Amongst institutional factors, there is a significant positive relationship between learning outcomes and trained teachers, while there is a significant negative relationship between temporary teachers and learning outcomes particularly for English. Similarly, our

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<sup>25</sup> Similar analysis is also presented for “General Knowledge” and “Islamic studies” tests (see Appendix Table 5). In both tests, girls once again significantly under-perform when compared to boys enrolled in the same institution. However, the gap is particularly large in case of General Knowledge score -- in case of school (Aliyah madrasa) sample, it is 5.35 (6.81) percentage points.

analysis suggests a negative and statistically significant association between larger class size and English test score. However, in case of Math, the effect is not significant. Although popularly perceived and rigorously documented as an important influence on learning outcomes, there is no systematic evidence of this effect from Bangladesh so far. An earlier attempt to identify the class size effect in secondary schools found no systematic evidence in support of the hypothesis that smaller class sizes aid student learning (see Asadullah 2005). Given the institutional differences across schools and madrasas in our sample, the issue needs a careful treatment and hence is left for future research.

111. Finally, it should be borne in mind that the regressions presented above do not show causation<sup>26</sup>. They only highlight a negative correlation between religious school attendance and learning outcomes. First, as found in a previous study on Bangladesh, religious school students do have lower test scores in mathematics when compared to their peers in secular schools. However, conditional on selection into a given school type, there is no significant learning differences across religious and secular schools (Asadullah et al. 2007). That finding was similar to Newhouse and Beegle (2006) who find little difference in learning outcomes between madrasa and non-madrasa students in Indonesia. It suggests that students who would otherwise perform worse even in schools are disproportionately likely to enrol in madrasas. In this report we do not elaborate upon the selection question – an issue we hope to revisit in our future research (which will also bring in detailed household-level controls). Re-analysis of this issue taking into account the problem of selection will also make a general contribution to the broader international literature on state-aided faith schools. Nonetheless, preliminary econometric analysis of the issue yields results consistent with the previous study on the issue for Bangladesh -- When we instrument for selection into institution-type (i.e., net out factors that influence decision to enrol a child in an Aliyah madrasa from factors that are associated with learning outcomes), the Aliyah madrasa coefficient becomes insignificant for both mathematics and English specifications<sup>27</sup>. This further underscores our point that quality is low across the board – regardless of institution-type.

112. The other issue left for future research is the analysis of educational production in Quomi madrasas. As mentioned earlier, many of the Quomis do not use a grade based system. Therefore, enumerators in the QSSMEB survey had to rely on principals or teachers for identification of the equivalent grade and hence, selection of students to be tested. This practice meant that an analysis of test score data collected on Quomis could be subject to statistical bias. Quomi authorities may have exploited the ambiguity over grade equivalency and deliberately identified an older, selective cohort of students for testing purposes. In the absence of a grade-based class registrar, it was not possible for the enumerator to physically verify these issues. Indeed, analysis of student characteristics in sample Quomi madrasas indicate that they are much older compared to their counterparts in registered schools and madrasas (aged 16 years compared to the sample average of 13; see Appendix Table 1).

113. In sum, our detailed analysis of various correlates of learning in the state regulated segment of secondary education sector in rural Bangladesh highlights the following. First, while statistically significant, test score difference between schools and madrasas is not

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<sup>26</sup> For example the negative correlation between school inspections and test scores could be due to the fact that poorly performing schools are more likely to be visited.

<sup>27</sup> We do not present the IV-regressions in this report, but are available from the authors upon request. We use total number of schools and Quomi madrasas in the union as excluded instruments to predict selection into Aliyah madrasas. In the first stage regression, both instruments were highly significant and negatively influenced the probability of enrolment in Aliyah madrasa. Most importantly, they both comfortably passed the over-identification tests.

substantively: overall level of learning is so low that the apparent learning disadvantage associated with (Aliyah) madrasa attendance is not large. Second, even after detailed control for a battery of factors all of which are widely believed to promote learning, we can only explain 17% (15%) of the total variation in Math (English) test score. Note that the final regression model (i.e. column 5) in Tables 10 and 11 control for conventional educational inputs such as class-size, institution type, total land area of the institution, whether the institutions is being inspected by an external authority, total number of rooms in the school, total amount of fees charged in a year and a wide selection of teacher attributes (such as fraction teachers being female, fraction of trained teachers, fraction of teachers being on a temporary contract, and mean teacher salary). Inclusion of such an extensive set of controls does partly explain the learning gap between schools and madrasas: the penalty associated with madrasa attendance is reduced by nearly 40% (26%) in case of Math (English) as we move from column 1 to column 5 in Table 10 (Table 11). However, the overall gain in the explanatory power of the model remains modest. In other words, while the conventional correlates of learning do have some explanatory power in the context of rural schools in Bangladesh, most of the process of test score production still remains unknown. It certainly does not mean that no learning takes place in school. In both Tables 10 and 11, the explanatory power of the regression reported in column 6 is substantial: Holding school specific fixed effects constant, we can explain 57% (48%) of the variation in Math (English) test score. However, the commonly perceived observed institutional features of schools and madrasas do very little in explaining this otherwise large association between institutions and learning outcomes.

114. To further probe into this issue, Appendix Table 6 reports results from (regression based) variance decomposition analysis. Total variance in test score is decomposed in 3 parts: portion explained by (a) district of residence, (b) child and family characteristics and (c) institution effects. For this purpose, we started with a simple model of student score only controlling for district fixed effects. We then sequentially added further controls for child (and family) characteristics and institution fixed effects. On the basis of resultant changes in  $R^2$  value across the three estimated models, it was possible to work out what fraction of achievement variation was explained by observable characteristics specific to the child and school above and beyond the district effect. After accounting districts, child and family specific observables, and institutions, the remaining variation is idiosyncratic and is reported as the fourth element in the table. This analysis is carried out separately for student scores in each of the four tests. We also report the result separately for the school and Aliyah sample. The usual caveat applies, as before. Given that our regression models are not causal, the decomposition analysis carried out does not imply causal relations either.

115. In the full sample, institutions account for 42% (34%) of the total variation in Math (English) test score. When compared to test score on other subjects, institutions have strongest effect in Math. Similar patterns are obtained when sub-sample specific results are considered. In the school (madrasa) sub-sample, institutions explain an additional 38 % (51%) of Math test score variation above districts and observable child/family characteristics. This is almost three times the amount of variation explained by districts and household characteristics in school as well as in the madrasa sample. In sum, the institution effect is very large and all of this cannot be dismissed on the basis of selection on unobservables: institutions do matter! Once again, looking across subjects, we find that the “institution” effect is relatively small in general knowledge and Islamic studies. However, in case of the latter, the effect is larger for madrasa sample.

116. In sum, the lack of sizable between-sector (school vs. Aliyah) difference in learning outcomes in our study does not mean that no large between-institution difference exists. Rather, the institutions' role appears even more significant when compared to the importance of family influence and place of residence in explaining test score variance. But more research is needed to unpack the 'black-box' policy of the institution effect (e.g., detailed information on teacher time-on-task). We neither know what observed institutional metric and teacher attribute can explain the effect best and/or to what extent these are conflated with the effect of unobserved family-specific correlates or learning.

## Chapter 6: Conclusion

### 6.1 Summary

117. The evidence presented herein constitutes by far the most detailed account of secondary educational institutions in Bangladesh, and unregistered traditional madrasas in general in any Muslim majority country. The evidence presented on the incidence of religious education in this report comes from a variety of sources, namely: (a) multiple rounds of nationally representative household survey data; (b) nation-wide census records on registered secondary educational institutions; (c) complete census of all educational institutions in 48 unions across 12 districts; (d) a near census assessment of secondary students enrolled in grade 8 (or its equivalent) in the sample unions; and (e) complete population census in 96 villages in our sample unions. While the analysis in this report only represents an initial foray into the vast data collected in this endeavour (please see appendix for examples of specific studies to be conducted with the dataset), a number of conclusions can be drawn on the basis of the findings reported in this study.

118. We do find some evidence that *madrasas are more likely to be located in poor rural areas, and there is a relationship between household poverty and madrasa attendance*. The income effect is, however, small in magnitude indicating that there are other major factors besides household wealth that influences madrasa enrolment. Regardless of what factors ultimately shape household decision to send their children to madrasas, *the incidence in terms of enrolment share of unregistered traditional madrasas in primary and secondary education is very small*. This finding is similar to the only other serious study on the incidence of madrasas which finds that enrolment share of madrasas in three districts of Punjab Pakistan is also extremely small (Andrabi et al, 2005). It is also consistent with the available data on enrolment share of madrasas in India where most of the Islamic seminaries operate outside the state sector: A high level government commissioned study on the educational status of the Muslim community in India report only 3% of Muslim children among the school going age going to Madarsas (Sachar, 2006). However, unlike India and Pakistan, Bangladesh does have a large registered reformed madrasa sector. For example, *the combined enrolment share of madrasas (Aliyah and traditional combined) is larger than the NGO share in primary*. While there is a lot of emphasis given to the role of NGOs in the primary sector of Bangladesh, there is very little discussion on the role played by madrasas in service provision in rural Bangladesh. This finding is extremely important for the exact size of the madrasa education sector in Bangladesh has been subject to intense media speculation. Again, going back to our earlier citation of Ahmed (2005) on behalf of the International Crisis Group (ICG): “Bangladesh's madrasa sector has mushroomed, reaching an estimated 64,000 madrasas from roughly 4,100 in 1986, with little if any government oversight”. While there indeed has been an expansion in the share of students studying in the madrasa sector, it has not been without any government oversight – to a large extent it has rather been due to a conscious government policy to bring secondary school madrasas into the mainstream.

119. The first recommendation from our report is that there needs to be a more nuanced policy discussion regarding madrasas reform – we must distinguish between Aliyah and Quomi madrasas not only for syntactic reasons but for policy relevance. Private Aliyah madrasas funded by the government and regulated by the state sanctioned Madrasa Board now have a similar curriculum to that of aided private secular schools. Private unaided traditional Quomi madrasas still have a major difference in curriculum content and in pedagogic orientation. Theoretically at least, further Aliyah reform is relatively easier than

trying to reform Quomis. The transaction costs of Aliyah reform should be lower given that the state has to negotiate with one central Board, not to mention that Aliyahs themselves are dependent upon state financing. On the other hand, the overwhelming number of Quomis are not registered, operating without any government oversight, some under a plethora of informal undocumented boards, and most of all – *financially independent* of the state.

120. For the sake of argument, let us assume away the small traditional madrasa sector. Is there an issue with the rising share of enrolments in registered government-aided Aliyah madrasas? This study tries to explore this from the dimension of learning outcomes.<sup>28</sup> It is our hope that the policy dialogue can be anchored along the metrics of learning assessments in subjects such as Mathematics, Science, English, and Bengali. To that end our report draws upon the near census assessment of secondary students enrolled in Grade 8 in the sample unions to focus on achievement levels in Math and English. We do find that Aliyah madrasas fare worse than their school counterparts, particularly in English.

121. The second recommendation from this report is that we need to reduce the quality gap, particularly in English, between public-aided secondary schools and Aliyahs – Aliyahs must be held responsible for improving learning outcomes. Efforts to improvement learning outcomes should also have a gender focus. The gender gap in quality of learning outcomes is most pronounced in madrasas. Thus, while Aliyah madrasas have played an instrument role in reducing gender inequality in access, the Government should ensure that they are also not inadvertently increasing gender inequality in learning. This finding also highlights the shortcomings of only relying upon SSC pass rates as an indicator of quality. The SSC pass rate is higher for aided-Aliyah madrasas compared to aided-schools<sup>29</sup>. However, we find that in terms of assessment of actual numerical and literacy skills, Aliyahs fair worse than schools. Currently the SSC examination system is under different regional and institutional boards – making it difficult to compare quality across providers.

122. Having underscored the learning deficiency in Aliyahs, we should immediate stress the point that it should not be about Aliyahs raising their standards to match schools – both need to be held accountable for raising learning outcomes. *The ‘punch line’ of this report remains that quality of schooling in rural Bangladesh is poor regardless of institution type.* Thus, the third recommendation is that the government should find more innovative ways to link substantial public resources that it pours into these aided private institutions, religious or otherwise, with concurrent improvements in numeracy and literacy skills. This requires holding each and every type of provider accountable to improving quality standards. In that regard the government has to take learning assessments seriously. It would be ideal if Bangladesh participated in international testing such as TIMSS or institutionalize a national assessment of numeracy and literacy skills. Furthermore widespread dissemination of information on learning outcomes should be made available to parents, communities, schools, media, and larger civil society to increase ownership of the quality discourse. More information flows and parental/community involvement should also help to improve the governance and accountability of these institutions. Ultimately, it is up to the state to link its financial support to providers with minimum performance standards based on student

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<sup>28</sup> There is the dimension of social outcomes that this paper has not explored in detail. Issues such as these require careful exploration of a host of individual, household, institutional, and community factors that ultimately shape social attitudes. For example, Asadullah and Chaudhury (2009, *Forthcoming*) have shed some light on this issue, and do find that female Aliyah madrasa graduates have a more traditional view of female roles (schooling, work, family life) compared to their counterparts in schools.

<sup>29</sup> <http://www.banbeis.gov.bd>



learning outcomes. The Government has done an excellent job tying provision of schooling to teacher pay – it needs to be more creative in beginning to seriously tie performance to teacher payment as well, particularly in the non-state sector where it is less encumbered by civil-service bureaucratic constraints.

123. Besides fiscal incentives tied to performance, the government should also facilitate identification and placement of qualified teachers. Recently the government has carried out several policy reforms and project interventions to improve the quality of aided institutions. For example, under a World Bank supported education sector reform credit, the government has implemented a National Teacher Registration and Certification Authority (NTRCA) body to ensure that only qualified teachers could be hired in these aided schools and Aliyahs. Initiatives such as NTRCA are a major step in the right direction towards improving transparency and accountability. The government has also recently launched an innovative project with World Bank support (Secondary Education Quality and Access Enhancement Project - SEQAEP) to improve learning outcomes. Under SEQAEP, a series of fiscal incentives tied to improvement in performance are given to institutions, teachers, and pupils. Furthermore, acknowledging the difficulty these private institutions have in recruiting qualified mathematics and English teachers to work in rural areas, the government is helping to identify and post a pool of qualified mathematics and English teachers to work with teachers and pupils in project schools on a temporary basis. Programs and projects such as these are essential in improving the quality of education in rural Bangladesh.

124. Given the difficulty in coordinating improvements in quality and governance in thousands of aided private schools, some have called for increasing the provision of public secondary schooling. The government voted into office in December 2008, has already expressed the need for setting up some more government high schools in rural areas. It is not automatic that these new government high schools will do better than aided private schools. Currently government high schools (on average) do better (in terms of 10<sup>th</sup> grade secondary school completion exams) than their private aided counterparts - given that the government focuses on a handful of high schools located predominantly in urban areas/district headquarters with tight admission standards and staffed with highly qualified teachers. However, it is not known to what extent this apparent government school advantage is owing to selection of students of higher socio-economic backgrounds and screening out of lower-ability students through entrance exams. Besides, it will be non-trivial to replicate the 'model high school' experience in remote rural areas. Note that instead of increasing the supply of public high school staffed with civil-servant teachers, these new schools could be instead still managed by the government, however, staffed by non-civil servant teachers on a contract basis with payment/contract tied to performance. While the government contemplates various options, at least in the short to medium term, it should continue to focus on improving quality and accountability in these private aided institutions.

125. The first National Education Commission in Bangladesh 1974, headed by Dr. Kudrat-e-Khuda, recommended uniform, free and compulsory primary education of 8-years' duration. Anyone wishing to pursue Madrasa education could do so after the 8th grade according to the Commission. Interestingly, a new commission formed in 2003 had the following recommendations: introduction of the same textbooks in Bangla, English and Mathematics in Ebtidai Madrassas (primary Aliyah equivalent) as in public (and government-aided) primary schools. The current Government has announced that the Kudrat-e-Khuda 1974 Commission findings will form the basis of its overall education reform agenda. We hope that key

insights from that Commission, as well as more recent serious empirical studies will help to inform the madrasa reform dialogue.

126. Now coming back to the issue of unregistered Quomi madrasas – what is the role that the government can play? Even though a tiny fraction of rural children attend these institutions, the state should have an obligation to ensure quality education for all. The issue of school choice, particularly in rural Bangladesh is quite complicated though. Many of these households who send their children to Quomis might actually have had alternatives – they could have sent their child to a school or an Aliyah madrasa, but still picked a Quomi madrasa. Is the customer always right? If the parents only care about whether their child excels in religious studies, then as we point out in the report Quomis are actually doing a good job. Unlike traditional madrasas in Pakistan, traditional madrasas in Bangladesh seem to have undergone some structural changes even in the absence of any state intervention. Some have started to admit girls in recent years in addition to undertaking some modernization of the curriculum. Still, the pace of this change is unsystematic and slow. The fourth recommendation from this report is that we cannot ignore Quomis given that the overwhelming majority of their graduates have very limited exposure to subjects that are universally recognized as critical to a modern economy. The government should engage in a dialogue with Quomi madrasas to explore options such as introducing modern subjects, paired with fiscal incentives (*a la* Aliyahs), and oversight under a unified regulatory body.

127. A final ‘recommendation’ from the authors is that the policy discourse on madrasas in Bangladesh should have a sound empirical basis. Unfortunately, that is currently not the situation. For example, in a recent edition of the *Harvard International Review*, Evans (2008) states that madrasas in Bangladesh have risen as competition against private English medium schools – which could not be further from reality.

128. While the focus of this report has been on the secondary sector, it is important to note that there has not been any serious attempt to reform madrasas in the primary sector. Even though a small fraction of children graduate from primary madrasas, there is serious concern about quality of learning had persistence of underperformance through secondary cycle (Asadullah et al. 2007). Compared to MOE, there has not been any major reform initiative from MOPME. Similar to the secondary sector, this reform agenda must be embodied in a larger reform agenda to improve quality across the board for all primary institutions given the low quality of learning.

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**Appendix Table A: Aliyah madrasa by grade, equivalence, duration, type of study and core subjects**

Grade	Mainstream equivalent	Duration (years)	Type of study	Core subject	Optional subjects
<i>Ebtidai</i>	Primary	5	General and religious	Qur'an, Bangla, English, grammar, mathematics, history, geography, science, jurisprudence, sports, handicrafts	Urdu and Persian
<i>Dakhil</i>	Secondary	5	General, science, <i>Mujabbid</i> , <i>Hifzul Qur'an</i>	Qur'an, Arabic, Bangla, English, jurisprudence, mathematics, geography, Islamic history, science	Urdu, Persian, Hadith
<i>Alim</i>	Higher secondary	2	General, science, <i>Mujabbid</i>	Religious: Qur'an, Hadith, Bangla jurisprudence. Science: Arabic, mathematics, science. Humanities: Arabic, Islamic history, economics	Either English, Urdu or Persian
<i>Fazil</i>	Bachelors	2	General, science	Tafsir, Hadith , Arabic, Bangla. General: Jurisprudence, Islamic history, Aqaid and Balagat. Science: English, physics, chemistry, mathematics, biology	Either English, Urdu or Persian
<i>Kamil</i>	Masters	2	Theology	Hadith, Tafsir, Fiqh, Adab (i.e. traditions, interpretation, jurisprudence, etiquette)	

Source: Mercer et al. (2006)

**Appendix Table B: Quomi madrasa by grade, equivalence, duration, type and core subjects**

Grade	Mainstream equivalent	Duration (years)
<i>Ebtidai</i>	Primary	5
<i>Mutwasita</i>	Secondary	5
<i>Sambia Ulya</i>	Higher Secondary	2
<i>Fazeelat</i>	Bachelors	2
<i>Taqmeel</i>	Masters	2
<i>I'imul Qiraat Wat Taujid</i>	Post Masters elective	1
<i>Hifzul Qur'an</i>	Post Masters elective	1

Source: Mercer et al. (2006).

**Appendix Table 1.a: Madrasha enrolment (%) of girls by education level and year**

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Primary NGO 2000	12.2	10.6	0.9	1.5	0.8
Primary Madrasha 2000	2.2	2.4	2.6	0.8	1.6
Secondary Madrasha 2000	3.6	2.9	3.4	6.0	3.0
Primary NGO 2005	6.0	4.0	1.1	1.7	1.6
Primary Madrasha 2005	4.6	4.7	4.5	1.7	0.5
Secondary Madrasha 2005	9.1	9.8	5.3	4.9	3.8

Source: Author's calculation based on HIES 2000 and 2005 data.

**Appendix Table 1.b: Madrasha enrolment (%) of boys by education level and year**

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
Primary NGO 2000	5.9	3.3	2.5	-	-
Primary Madrasha 2000	5.0	-	1.7	4.8	3.4
Secondary Madrasha 2000	9.3	3.8	7.7	4.7	7.7
Primary NGO 2005	5.9	1.6	4.2	2.9	0.9
Primary Madrasha 2005	5.9	4.8	5.8	4.7	1.8
Secondary Madrasha 2005	14.3	10.9	5.9	5.9	5.3

Source: Author's calculation based on HIES 2000 and 2005 data.

**Appendix Table 1.c: Urban Madrasha Enrolment (%)**

	Quitile1	Quitile2	Quitile3	Quitile4	Quitile5
Primary Madrasha 2000	-	-	1.1	2.0	1.2
Secondary Madrasha 2000	3.2	1.7	4.4	1.6	1.9
Primary Madrasha 2005	4.96	4.65	3.40	4.35	1.30
Secondary Madrasha 2005	7.46	7.96	3.01	4.03	3.05

Source: Author's calculation based on HIES 2000 and 2005 data.

**Appendix Table 1.d: Rural Madrasha Enrolment (%)**

	Quitile1	Quitile2	Quitile3	Quitile4	Quitile5
Primary Madrasha 2000	5.8	2.4	2.8	3.2	3.2
Secondary Madrasha 2000	7.9	4.6	6.2	7.3	6.9
Primary Madrasha 2005	5.38	4.85	6.36	2.16	1.12
Secondary Madrasha 2005	13.39	11.27	6.94	6.27	6.10

Source: Author's calculation based on HIES 2000 and 2005 data.

**Appendix Table 2: Summary statistics of regression variables**

Variable	Full		School		Madrasa: Aliyah		Madrasa: Quomi	
	Mean	sd	Mean	sd	Mean	sd	Mean	sd
<b>TIMSS score</b>	34.51	15.06	35.57	14.46	33.14	15.84	29.34	16.40
<b>English score</b>	33.33	19.33	36.88	19.31	26.69	16.70	22.54	17.90
<b>Islam score</b>	74.72	21.40	69.94	20.91	81.54	19.84	92.92	13.04
<b>General knowledge score</b>	38.67	20.49	38.35	20.50	38.52	20.27	42.43	20.77
<b>Female</b>	0.59	0.49	0.61	0.49	0.65	0.48	0.24	0.42
<b>Age</b>	13.32	1.39	13.04	0.96	13.34	1.16	15.95	2.50
<b>Mother_edu: primary</b>	0.19	0.39	0.18	0.39	0.20	0.40	0.18	0.38
<b>Mother_edu: some secondary</b>	0.17	0.37	0.17	0.37	0.17	0.37	0.17	0.37
<b>Mother_edu: secondary completed</b>	0.13	0.33	0.13	0.34	0.12	0.32	0.09	0.29
<b>Mother_edu: post secondary</b>	0.06	0.24	0.08	0.26	0.04	0.19	0.04	0.18
<b>Father_edu: primary</b>	0.12	0.32	0.12	0.32	0.13	0.33	0.09	0.29
<b>Father_edu: some secondary</b>	0.17	0.37	0.17	0.37	0.17	0.37	0.18	0.38
<b>Father_edu: secondary completed</b>	0.16	0.36	0.16	0.37	0.16	0.37	0.14	0.35
<b>Father_edu: post secondary</b>	0.18	0.38	0.19	0.39	0.14	0.35	0.21	0.41
<b>Newspaper at home</b>	0.38	0.49	0.39	0.49	0.33	0.47	0.54	0.50
<b># of hh assets</b>	0.38	0.19	0.39	0.19	0.35	0.18	0.32	0.17
<b># of tot. farm animals</b>	2.21	2.57	2.27	2.58	2.38	2.55	0.98	2.05
<b>Govt. school</b>	0.01	0.11	0.02	0.13				
<b>Private school</b>	0.06	0.23	0.08	0.27				
<b>Aided school</b>	0.62	0.49	0.90	0.30				
<b>Aided Aliyah</b>	0.21	0.41			0.85	0.36		
<b>Private Aliyah</b>	0.04	0.19			0.15	0.36		
<b>Quomi</b>	0.07	0.26					1.00	0.00
<b>log(school land)</b>	4.89	1.28	4.91	1.26	4.77	1.26	5.09	1.49
<b>School inspected</b>	0.77	0.42	0.82	0.38	0.69	0.46	0.53	0.50
<b>School has mobile</b>	0.33	0.47	0.32	0.46	0.25	0.44	0.71	0.46
<b>log(# of rooms in sch)</b>	2.67	0.53	2.61	0.41	2.70	0.30	3.19	1.32
<b>Ln(fees in tot)</b>	4.77	0.89	4.95	0.77	4.20	0.91	5.00	1.04
<b>Fraction of female teacher</b>	0.15	0.14	0.18	0.12	0.09	0.12	0.10	0.23
<b>Fraction of trained teachers</b>	0.55	0.32	0.69	0.25	0.25	0.18	0.21	0.32
<b>Fraction of temporary teachers</b>	0.05	0.12	0.06	0.12	0.03	0.11	0.05	0.17
<b>log(mean teacher salary)</b>	8.49	0.72	8.63	0.36	8.29	1.20	7.92	0.46
<b>District: Barisal</b>	0.08	0.27	0.08	0.26	0.08	0.28	0.14	0.34
<b>District: Bogra</b>	0.07	0.26	0.07	0.26	0.07	0.25	0.08	0.27
<b>District: Chandpur</b>	0.10	0.30	0.11	0.31	0.12	0.32	0.01	0.10
<b>District: Chittagong</b>	0.08	0.27	0.06	0.24	0.07	0.26	0.26	0.44
<b>District: Comilla</b>	0.14	0.35	0.16	0.36	0.13	0.33	0.08	0.27
<b>District: Faridpur</b>	0.08	0.27	0.08	0.27	0.07	0.25	0.08	0.27
<b>District: Jessore</b>	0.11	0.32	0.12	0.32	0.11	0.32	0.05	0.21
<b>District: Kurigram</b>	0.07	0.25	0.07	0.25	0.08	0.27	0.02	0.14
<b>District: Laksham</b>	0.10	0.30	0.10	0.31	0.11	0.31	0.05	0.23
<b>District: Mymensing</b>	0.06	0.24	0.06	0.24	0.06	0.25	0.07	0.26
<b>N (sample size)</b>	9407		6431		2322		654	

**Appendix Table 3a: OLS regression of determinants of General Knowledge test**

	(1)	(2)	(3)	(4)
<b>Madrasa: Aliyah</b>	-0.043 (0.09)	0.619 (1.29)	-0.548 (0.94)	0.767 (0.99)
<b>Female</b>		-4.943 (11.38)**	-5.220 (11.91)**	-5.454 (12.24)**
<b>Mother_educ: primary</b>		1.043 (1.73)+	1.341 (2.22)*	1.641 (2.69)**
<b>Mother_educ: some secondary</b>		1.947 (3.05)**	2.149 (3.36)**	2.384 (3.70)**
<b>Mother_educ: secondary complete</b>		1.532 (2.09)*	1.788 (2.44)*	1.917 (2.61)**
<b>Mother_educ: post-secondary</b>		1.442 (1.50)	1.883 (1.96)+	2.066 (2.15)*
<b>Father_educ: primary</b>		0.521 (0.73)	0.503 (0.70)	0.854 (1.19)
<b>Father_educ: some secondary</b>		0.691 (1.09)	0.382 (0.60)	0.573 (0.89)
<b>Father_educ: secondary complete</b>		0.081 (0.12)	0.058 (0.09)	-0.014 (0.02)
<b>Father_educ: post-secondary</b>		2.048 (2.95)**	2.126 (3.05)**	2.057 (2.95)**
<b>Newspaper at home</b>		0.542 (1.15)	0.517 (1.09)	0.477 (1.00)
<b>Household asset index</b>		0.880 (3.82)**	0.877 (3.76)**	0.868 (3.70)**
<b>log(school land)</b>			0.114 (0.64)	0.276 (1.53)
<b>School inspected</b>			-1.599 (2.88)**	-1.900 (3.36)**
<b>School has mobile</b>			1.050 (2.00)*	1.490 (2.75)**
<b>log(# of rooms in sch)</b>			-2.457 (3.87)**	-0.810 (1.15)
<b>Ln(fees in tot)</b>			-0.353 (1.20)	-0.386 (1.27)
<b>Log(class size)</b>			-2.241 (4.65)**	-2.118 (4.17)**
<b>Fraction of female teacher</b>				0.090 (0.05)
<b>Fraction of trained teachers</b>				4.018 (3.89)**
<b>Fraction of temporary teacher</b>				-1.227 (0.49)
<b>log(mean teacher salary)</b>				-1.397 (4.07)**
<b>Constant</b>	38.593 (149.89)**	69.494 (4.09)**	87.666 (5.08)**	91.194 (5.26)**
<b>N</b>	8648	8483	8393	8107
<b>R<sup>2</sup></b>	0.00	0.12	0.12	0.13

**Note:** (a) Regression constant suppressed; (b) Columns 2-4 include district dummies; (c) t-statistics in parenthesis. (e) All regressions control for child age and age-squared. (g) Asset index is computed by aggregating binary indicators of household ownership of various assets using the principal component method.



**Appendix Table 3b: OLS regression of determinants of Islamic studies test score**

	(1)	(2)	(3)	(4)
<b>Madrasa: Aliyah</b>	11.370 (22.40)**	1.201 (24.15)**	1.140 (18.84)**	1.267 (15.38)**
<b>Female</b>		-0.749 (16.30)**	-0.726 (15.67)**	-0.720 (15.18)**
<b>Mother_edu: primary</b>		0.110 (1.75)+	0.105 (1.67)+	0.094 (1.47)
<b>Mother_edu: some secondary</b>		0.158 (2.34)*	0.146 (2.15)*	0.160 (2.32)*
<b>Mother_edu: secondary complete</b>		0.152 (1.97)*	0.153 (1.98)*	0.158 (2.02)*
<b>Mother_edu: post-secondary</b>		0.197 (1.92)+	0.191 (1.86)+	0.202 (1.95)+
<b>Father_edu: primary</b>		-0.072 (0.96)	-0.055 (0.73)	-0.056 (0.74)
<b>Father_edu: some secondary</b>		0.151 (2.27)*	0.150 (2.24)*	0.142 (2.08)*
<b>Father_edu: secondary complete</b>		0.170 (2.42)*	0.186 (2.65)**	0.165 (2.30)*
<b>Father_edu: post-secondary</b>		0.353 (4.82)**	0.364 (4.95)**	0.350 (4.71)**
<b>Newspaper at home</b>		0.076 (1.54)	0.062 (1.26)	0.078 (1.55)
<b>Household asset index</b>		0.048 (1.97)*	0.044 (1.81)+	0.040 (1.60)
<b>log(school land)</b>			-0.115 (6.12)**	-0.101 (5.19)**
<b>School inspected</b>			-0.344 (5.96)**	-0.364 (6.12)**
<b>School has mobile</b>			-0.017 (0.30)	-0.000 (0.00)
<b>log(# of rooms in sch)</b>			0.129 (1.93)+	0.127 (1.70)+
<b>Ln(fees in tot)</b>			0.101 (3.26)**	0.110 (3.42)**
<b>Log(class size)</b>			-0.202 (3.99)**	-0.258 (4.79)**
<b>Fraction of female teacher</b>				-0.315 (1.50)
<b>Fraction of trained teachers</b>				0.439 (3.97)**
<b>Fraction of temporary teacher</b>				-0.705 (2.69)**
<b>log(mean teacher salary)</b>				-0.056 (1.56)
<b>Constant</b>	70.172 (256.79)**	10.348 (5.87)**	10.278 (5.74)**	10.761 (5.93)**
<b>N</b>	8011	7862	7776	7511
<b>R<sup>2</sup></b>	0.06	0.15	0.16	0.17

**Note:** (a) Regression constant suppressed; (b) Columns 2-4 include district dummies; (c) t-statistics in parenthesis. (d) Sample restricted to Muslim children only. (e) All regressions control for child age and age-squared. (f) Asset index is computed by aggregating binary indicators of household ownership of various assets using the principal component method.

**Appendix Table 4: Within-institution estimates of gender gap in Math and English scores**

	Math				English			
	School		Aliyah		School		Aliyah	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Female	-5.215 (17.73)**	-5.281 (17.83)**	-6.353 (14.25)**	-6.374 (13.94)**	-0.620 (1.42)	-0.816 (1.88)+	-1.542 (2.72)**	-2.107 (3.66)**
Age		-1.231 (0.64)		0.357 (0.16)		-5.149 (1.83)+		0.227 (0.08)
age, sq		0.021 (0.30)		-0.036 (0.47)		0.124 (1.19)		-0.052 (0.54)
Mother_edu: primary		0.229 (0.58)		-0.431 (0.76)		1.084 (1.87)+		1.193 (1.68)+
Mother_edu: some secondary		0.529 (1.28)		-0.506 (0.85)		1.708 (2.81)**		1.002 (1.33)
Mother_edu: secondary complete		1.065 (2.27)*		-0.686 (0.99)		1.883 (2.73)**		1.501 (1.72)+
Mother_edu: post-secondary		1.790 (3.07)**		-1.552 (1.43)		1.973 (2.30)*		-0.811 (0.59)
Father_edu: primary		0.743 (1.62)		0.278 (0.42)		0.458 (0.68)		0.446 (0.54)
Father_edu: some secondary		0.474 (1.17)		1.281 (2.14)*		1.236 (2.09)*		1.294 (1.72)+
Father_edu: secondary complete		1.086 (2.54)*		-0.160 (0.26)		1.960 (3.13)**		1.178 (1.54)
Father_edu: post-secondary		1.478 (3.36)**		0.999 (1.47)		3.598 (5.57)**		2.395 (2.80)**
Newspaper at home		0.407 (1.29)		0.684 (1.39)		-0.021 (0.05)		0.496 (0.80)
Asset index		0.287 (1.90)+		0.469 (1.97)*		0.593 (2.68)**		-0.469 (1.57)
Constant	38.917 (176.71)**	50.215 (3.88)**	37.207 (108.14)**	38.829 (2.49)*	37.500 (114.98)**	81.327 (4.28)**	27.709 (63.33)**	32.765 (1.67)+
N	6306	6196	2342	2287	6306	6196	2342	2287
Number of institution dummies	202	201	125	123	202	201	125	123
R-squared	0.05	0.06	0.08	0.09	0.00	0.03	0.00	0.03

**Note:** Asset index is computed by aggregating binary indicators of household ownership of various assets using the principal component method.

**Appendix Table 5: Within-institution estimates of gender gap in General Knowledge and Islamic Studies test scores**

	GK				Islam			
	School		Aliyah		School		Aliyah	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Female	-5.352 (11.26)**	-5.590 (11.73)**	-6.814 (9.56)**	-6.620 (9.08)**	-0.620 (11.34)**	-0.638 (11.70)**	-0.771 (9.51)**	-0.775 (9.31)**
Age		0.338 (0.11)		-6.602 (1.88)+		-0.150 (0.43)		-0.695 (1.74)+
age, sq		-0.047 (0.41)		0.224 (1.82)+		0.002 (0.13)		0.022 (1.56)
Mother_edu: primary		0.809 (1.27)		1.372 (1.52)		-0.025 (0.34)		0.149 (1.46)
Mother_edu: some secondary		2.104 (3.16)**		0.227 (0.24)		0.093 (1.21)		0.095 (0.88)
Mother_edu: secondary complete		1.945 (2.57)*		0.866 (0.78)		0.068 (0.78)		0.209 (1.66)+
Mother_edu: post-secondary		1.109 (1.18)		0.318 (0.18)		0.056 (0.52)		0.275 (1.38)
Father_edu: primary		0.648 (0.88)		-0.272 (0.26)		-0.002 (0.02)		-0.087 (0.73)
Father_edu: some secondary		1.004 (1.54)		2.333 (2.45)*		0.188 (2.52)*		0.120 (1.10)
Father_edu: secondary complete		0.588 (0.86)		0.935 (0.97)		0.190 (2.40)*		-0.065 (0.59)
Father_edu: post-secondary		2.736 (3.86)**		1.948 (1.80)+		0.310 (3.83)**		0.131 (1.06)
Newspaper at home		1.096 (2.15)*		-1.686 (2.15)*		0.100 (1.73)+		-0.004 (0.04)
Asset index		0.534 (2.20)*		0.348 (0.92)		0.043 (1.55)		0.003 (0.06)
Constant	41.841 (117.51)**	43.484 (2.08)*	42.954 (78.09)**	90.194 (3.62)**	7.399 (179.38)**	8.914 (3.81)**	8.655 (138.13)**	13.898 (4.89)**
N	6306	6196	2342	2287	5689	5593	2322	2269
Number of institution dummies	202	201	125	123	201	200	125	123
R-squared	0.02	0.03	0.04	0.05	0.02	0.03	0.04	0.05

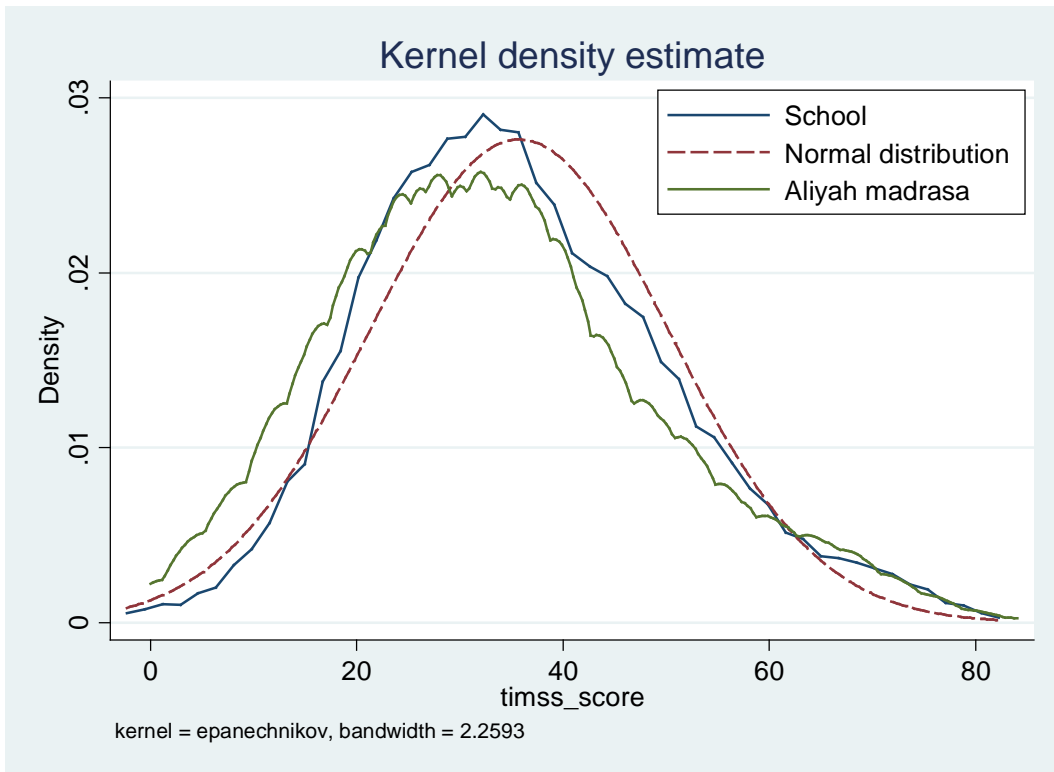
**Note:** Asset index is computed by aggregating binary indicators of household ownership of various assets using the principal component method.

**Appendix Table 6: Variance decomposition: Districts, child and family backgrounds and schools**

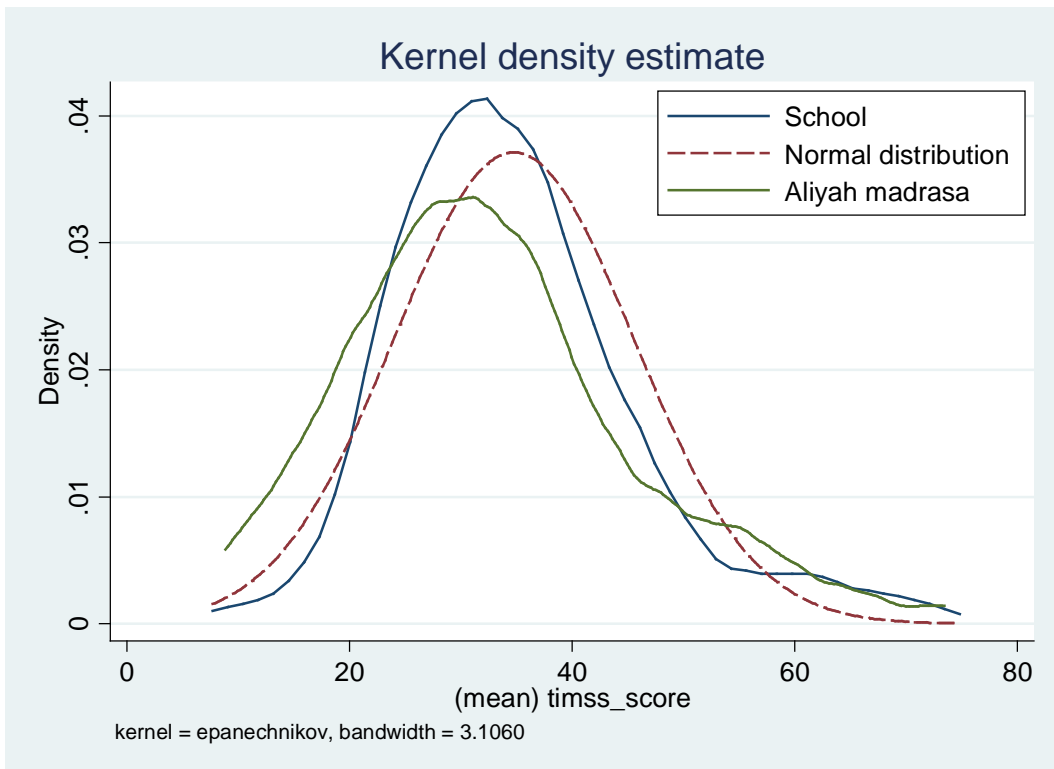
		Math	English	General Knowledge	Islamic studies
	<i>% of variance explained by:</i>				
<b>Full sample</b>	<b>Same district</b>	10	5	9	5
	<b>Same household characteristics</b>	5	9	3	10
	<b>Same institution</b>	42	34	30	20
	<b>Residuals</b>	43	52	58	65
<b>School sample</b>	<b>Same district</b>	9	4	11	7
	<b>Same household characteristics</b>	5	4	2	4
	<b>Same institution</b>	38	34	25	19
	<b>Residuals</b>	48	58	62	70
<b>Madrasa sample</b>	<b>Same district</b>	14	11	7	5
	<b>Same household characteristics</b>	5	2	5	1
	<b>Same institution</b>	51	47	41	24
	<b>Residuals</b>	30	40	47	61

Notes: (i) Cells contain the % of variance explained by (a) a district fixed effect; (b) a district fixed effect and child age, age-squared, gender, mother's education, father's education, number of household assets, number of farm animals at home, whether household keeps newspapers/magazines; (c) a school fixed effect and child age, age-squared, gender, mother's education, father's education, number of household assets, number of farm animals at home, whether household keeps newspapers/magazines. (ii) All estimations exclude Quomi madrasas.

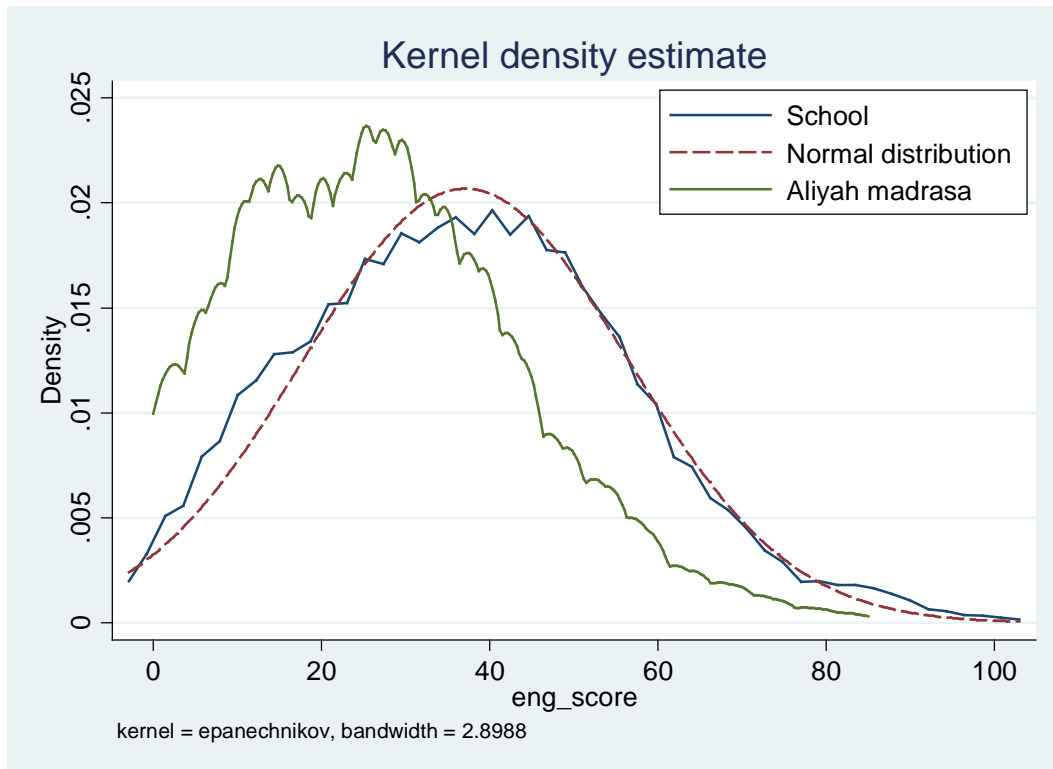
**Appendix Figure 1a: Kernel density plot of student-level score (on a scale of 0-100) in Maths test**



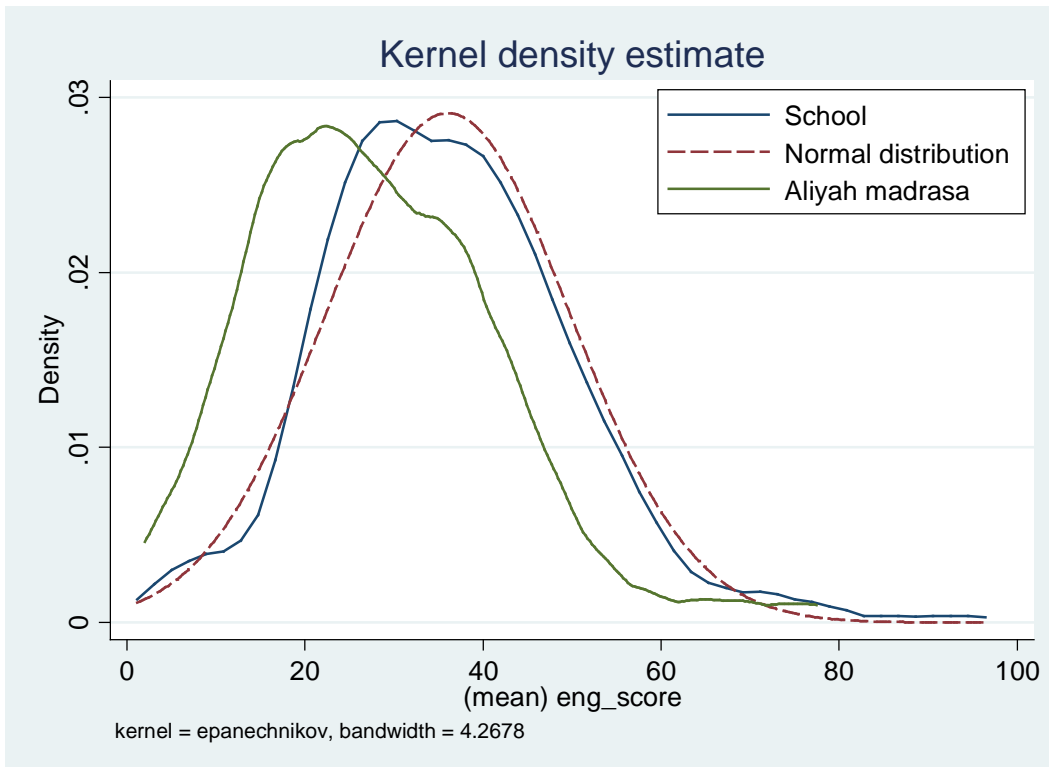
**Appendix Figure 1b: Kernel density plot of *aggregate* score (on a scale of 0-100) in Maths test**



**Appendix Figure 2a: Kernel density plot of student-level score (on a scale of 0-100) in English test**



**Appendix Figure 2b: Kernel density plot of aggregate score (on a scale of 0-100) in English test**



## Appendix

### An agenda for potential future research

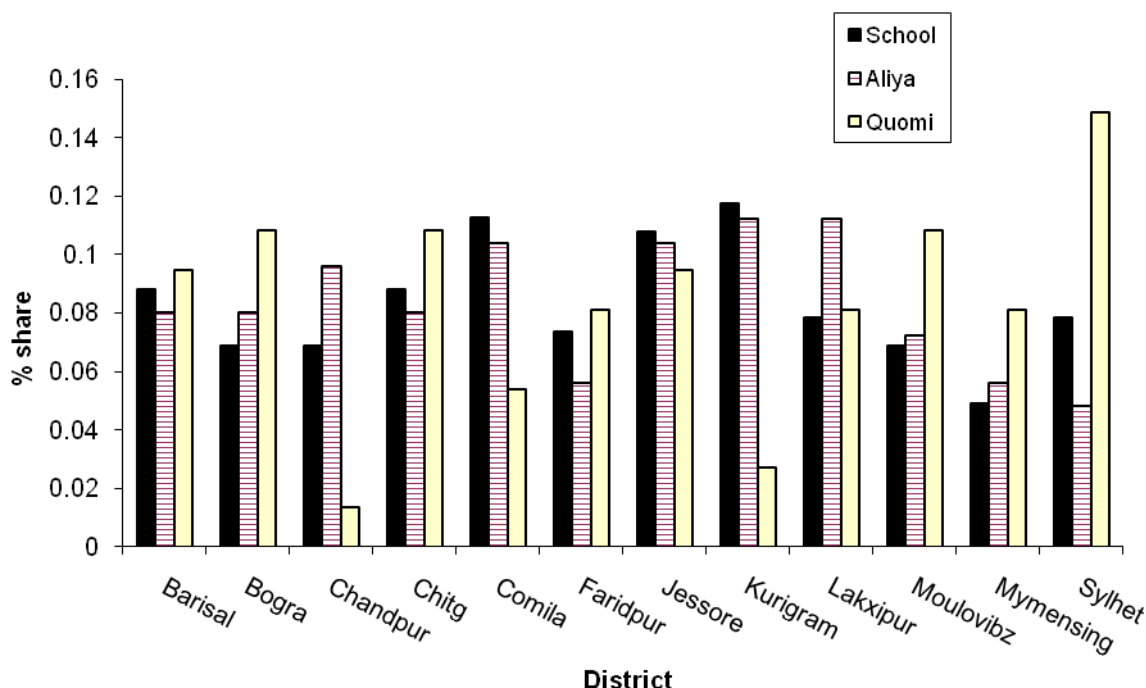
1. The need for further detailed work on Bangladesh is because (a) this is a country with a large Muslim population where a traditional madrasa sector co-exists with a large number of modernized religious schools, (b) madrasas operating in and outside the state sector are both exposed to and compete with a diverse set of non-religious state and non-state schools, and (c) religious and non-religious schools in the state-regulated sectors are exposed to a variety of incentive schemes. This provides a fertile ground for policy orientated research on madrasas which can inform the wider debate on madrasa education in South Asia and elsewhere.

2. In this report we have only highlighted issues concerning incidence and quality of learning of madrasas in a descriptive manner. Even then we have primarily touched upon the institutional portion of the survey – the comprehensive household portion of the survey has yet to be fully analyzed. Given the richness of the data collected at both the institution and household level as part of the World Bank QSSMEB survey, we are planning to do more detailed analysis of issues covered in the report (e.g., quality of learning) as well as additional issues of interest (e.g., madrasa education and social attitudes). Furthermore, it is our hope that QSSMEB can serve as a baseline for spanning a dialogue on issues that will require longitudinal data, particularly if we want to address post-graduation outcomes. Following a cohort of school and madrasa graduates from the QSSMEB sample over time will allow policymakers to engage in an empirically-based discussion on issues related to post-secondary schooling decisions, labour market participation, occupational choice, earnings, civic and political participation. Regardless of any additional follow-up survey rounds in the future, here is an example of questions we plan to revisit or address with the existing cross-sectional data from QSSMEB:

3. *Supply decisions of madrasas*: In section 3 of this report, we highlighted the positive correlation between incidence of madrasas and sub-district level poverty. However, that analysis remained limited to madrasas under the state sector. As a result, we could not comment whether this pattern holds for traditional madrasas that operate without any state regulation. The data collected in this study therefore provides a rare opportunity to formally investigate this issue. In future research, for instance, we intend to examine whether traditional madrasas arise in villages where there is a scarcity of public schools and where there is greater income poverty. Such analysis will be informative for other countries as well where the rise of traditional madrasas is popularly explained away by state failure to provide public schools in poor rural areas. In addition, GPS coordinates on traditional madrasas including all other secondary educational institutions will provide a rare description of the geography of religious schools. This way, it would be possible to physically verify whether these institutions indeed prevail in poorer neighbourhoods within a given locality, in addition to being located in a poor region.

4. More needs to be done to understand the relative supply of traditional Quomi madrasas. Our sample indicates that the largest share of these traditional madrasas is in Sylhet division. Interestingly, this is also a division where the number of registered secondary schools and Aliyah madrasas are lowest in the country. This points towards a negative correlation between availability of state/state aided schools and traditional madrasas. However, looking at other regions such as Chittagong and Bogra, support for this hypothesis is not evident.

**Figure 11: District-wise distribution of sample secondary educational institutions**



Source: Author's calculation based on data from the QSSMEB. Data corresponds to 403 sample secondary schools and madrasas.

5. Similarly, more research is needed on the geography of religious schools. Do they form clusters across various layers of the education? Or is there no systematic link between the supply of madrasas across different levels of education within a locality? This issue is important for it has important implication for the current debate on madrasa reform. As pointed out in Asadullah and Chaudhury (2008b), a large number of children are educated in NGO-run primary. Presence of these non-formal primary schools in a locality significantly raises the female enrolment in registered secondary madrasas. This finding needs to be revisited using data on traditional madrasas which has also seen a modest rise in female enrolment in recent years.

6. *Demand for religious education:* Using household data from HIES, in this report we have reported descriptive regressions explaining the probability of enrolment in madrasas controlling for socio-economic background of the student, parental educational profile and household income. While we highlighted the correlation between madrasa attendance and poverty, this issue needs to be revisited. Currently, we do not know whether children from poor families are more likely to attend madrasas because their parents cannot afford private expenses associated with enrolment in mainstream schools or the explanation is more due to household preferences. In the absence of information on the 'religiosity' of the household and religious preference in HIES dataset, for example, we could not formally test the hypothesis of that religious school choice in rural Bangladesh determined by the religious proclivity of households. Such research however is possible using the household part of QSSMEB data.

7. *Gender disparity in learning outcomes:* The education debate in Bangladesh is still stuck around the issue of access. Bangladesh does indeed rightly deserve credit for already achieving gender-parity in primary and education, something which still remains a challenge for several South Asian countries. However, it is high-time to shift the focus of the debate towards quality – and the most to gain from this will be girls. We have presented evidence that the learning gap for girls is significant which is also consistent with earlier studies (e.g. Asadullah et al 2007) on the state of student learning in secondary sector in rural Bangladesh. Besides doing more detailed analysis with institutional data



(e.g., brining in gender-specific class-room practices), we plan to thoroughly examine this issue with the detailed household data. Even though the incidence of sibling-pairs (i.e., households with both a boy and girl in school around the same grade level) is small, we will draw upon that sub-sample given that we can factor out household unobservable. Additionally we can explore in depths as to whether this is caused by differences in intra-household allocations towards education input and time use.

8. *Quality of primary madrasas relative to other schools (Government, Government-Aided and NGOs)*: While documentation of quality in the primary sector is important in its own right, it also has important implications on how it effects learning achievement in secondary schooling. Asadullah et al. 2008 find that graduates of primary madrasa do particularly poorly in secondary schools and registered Aliyah madrasas. As highlighted in our report, there is a significant number of both recognized and unrecognized madrasas in the primary sector. However, very little evidence is available on their relative quality when assessed in terms of student learning. While we did not conduct any testing in primary schools, we did conduct numeracy and literacy tests of all school-going aged children in our detailed household survey. Furthermore, in a companion survey to QSSMEB we have also collected similar household-level data from a large survey spread over 4 divisions and 15 districts which was purposefully designed to cover poor areas (survey was conducted by Gana Shahajjo Kendra, a national NGO). For example, the remote costal area of Charfassion which falls in that sample is unfortunately known for being a particularly vulnerable part of Bangladesh. The institution survey included government primary schools, registered government-aided primary schools, NGO schools, and madrasas. Detailed socio-demographic data was collected from 43,199 households from 65 villages. There was also a specifically matched institution-household survey for 1,600 5<sup>th</sup> grade primary school pupils. Furthermore these pupils were tested in Mathematics, English, General Knowledge, and Science. Therefore, analysis based on this complementary survey dataset will not only provide new evidence on the relative quality of madrasas education in the primary sector, it will also shed light on the state of education in remote poverty-stricken areas. There the dynamics of poverty, adverse shocks, vulnerability, and schooling can be explored in greater details.

9. *Non-cognitive outcomes*: In addition to data on cognitive performance, we have gathered valuable information on other aspects of child development such as: extra-curricular activities, socio-economic attitudes, educational and occupational aspiration, and subjective well-being.