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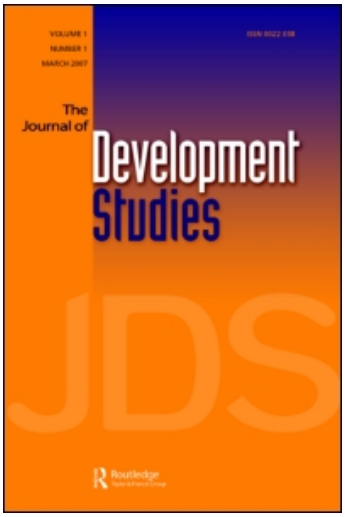


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# Reverse Gender Gap in Schooling in Bangladesh: Insights from Urban and Rural Households

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# Reverse Gender Gap in Schooling in Bangladesh: Insights from Urban and Rural Households

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ABSTRACT *This paper documents a reverse gender gap in secondary schooling outcomes in Bangladesh drawing upon several rounds of nationally representative household survey data. In terms of enrolment status and years of schooling completed, boys are found to lag behind girls in the rural as well as in the urban area. Within the urban sample, the gender gap is widest in the non-metropolitan area. These findings are robust to extensive control for demand and supply-side determinants of schooling and remain unchanged even when we use a within household estimator. We consider one hypothesis, namely gender-differentiated response to a conditional cash transfer program to reconcile the findings of this reverse gender gap.*

## I. Introduction

For a variety of micro- and macro-economic reasons, promoting gender equality and empowering women matters for economic development (Klasen, 2002; Knowles et al., 2002). Yet, in most developing countries, girls lag markedly behind boys in education. Governments in these countries should favour girls when investing in education because social returns, in terms of child health and fertility, are higher from girls' than from boys' education (Schultz, 2002). Recognising this, the Government of Bangladesh has introduced a number of reform programmes over the last two decades to remove various supply- and demand-side constraints to female education.

Growth in female enrolment in Bangladesh has been phenomenal since the introduction of an important conditional cash transfer scheme in 1994, namely the female secondary stipend (FSS) programme. However, a new gender gap has emerged lately where girls today outnumber boys in secondary schools. Indeed, analysis of school-level data shows that boys' enrolment has suffered in coeducational schools (Khandker et al., 2003) which are attended by the vast

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majority of Bangladeshi children.[1] There is limited evidence that a similar gap exists within the household and is driven by the secondary-school female stipend scheme (Arends-Kuenning and Amin, 2004).[2] These two pieces of evidence – relative fall in enrolment of boys in co-educational schools and within household sex inequality – suggest that the FSS programme may have aided the process of closing the gender gap not solely by raising female enrolment but also in an unintended way: cutting back participation of boys in secondary school. Findings from these two studies are difficult to generalise, however. Data used in Arends-Kuenning and Amin (2004) are for the year 1996 and come from just two villages limiting the policy implication given the small and non-representative nature of the sample. These two studies aside, little is known about the nature and extent of gender parity in secondary schooling using nationally representative household survey data. Nor has there been much research on potential reasons behind this reversal in gender gap.

This paper sets out to systematically document educational gender gaps in the primary and secondary school-age population using several rounds of nationally representative household survey data spanning the period 1995–2005. For various age cohorts, we assess whether a gap favouring girls exists at the household level in outcomes (such as child labour, current enrolment status, and grade completion) and allocation of inputs (individual level educational expenditure) and if so, how it varies across rural and urban (metropolitan and non-metropolitan) areas. The comparison between metropolitan and non-metropolitan areas is important for a particular reason. There are three major census clusters in Bangladesh – rural, non-metropolitan urban (periurban), and metropolitan. The FSS programme covered all rural areas. In urban areas, only non-metropolitan areas were covered under the programme. Therefore, comparison of gender differences across metropolitan and non-metropolitan areas and over time sheds some light on the programme's impact on gender gap in schooling and child labour outcomes for the urban population.

We find a reverse gender gap in secondary schooling outcomes in rural as well as urban areas but only for recent rounds of household survey data. This finding is robust to extensive control for various demand-side factors (such as parental background, household expenditure and landlessness). Most importantly, these gender gaps prevail even when we control for common family (and community) specific unobserved correlates of child outcomes using a within household estimator. Rural and urban sample specific estimates help us shed light on some possible explanations for the observed gender-inequality. In the urban sample, whilst boys residing in the non-metropolitan area have more education compared to those in the metropolitan area, they fare poorly when compared to girls. Boys are also more likely to be in employment in the non-metropolitan area. Consequently the urban gender gap is widest in the non-metropolitan area. Additionally, the evidence of gender gap is present only for recent cohorts of secondary school-age children who are more exposed to the FSS scheme. We therefore conjecture that part of the observed gender gap could be driven by the gender-differentiated impact of the FSS programme on schooling outcomes. Again, to reiterate, we do not make any causal claims of the impact of the programme given the absence of randomisation or sufficient lag in phasing in the project area. Regardless, it is undeniable that the programme was associated with a rapid increase in the proportion of female secondary school enrolment – the proportion of female enrolment went from less

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than 35 per cent before the programme, to more than 50 per cent in less than a decade after the programme. Our more modest agenda is to demonstrate the existence of a strong correlation between the programme and gender-differentiated enrolment patterns controlling for a variety of factors.

The rest of the paper is organised as follows. We explain the background of the study in the next section. In section III, we describe data and methodology whilst section IV elaborates on the data. In section V, we present regression results on the determinants of educational outcomes, child labour and educational expenditure by gender. In section VI we conclude by discussing the implications of our findings.

## II. Background: Female Stipend Programme and Girls' Schooling in Bangladesh

Significant bias against females prevailed in educational outcomes in Bangladesh in the early 1980s due to historical underinvestment in female education. Between 1990 and 2000, Bangladesh has seen a steep rise in girls' gross primary enrolment ratio from 64 to 98 per cent respectively. Similar progress has been made at the secondary level largely owing to the FSS scheme. An exponential jump in secondary schooling took place immediately following the introduction of the FSS programme in the early 1990s (see Figure 1). The female to male ratio in secondary school enrolment increased from 62 per cent in 1992 to 114 per cent in 2005 (that is the proportion of females in total enrolments is now close to 55 per cent, compared to less than 40 per cent in the early 1990s).

The private returns to education enjoyed by females in Bangladesh are substantially higher than those for males. For males returns to primary, secondary and tertiary education are 3.4 per cent, 3.2 per cent and 12.7 per cent respectively. For females, the respective figures are much higher: 8.9 per cent, 9.6 per cent and 12.4 per cent (Asadullah, 2006). Despite this, households may under-invest in girls for a number of reasons. For instance, households may gender discriminate in intra-household allocations. Under-investment in girls is rational if there is sex discrimination in the labour market.[3]

The observed intra-household disadvantages suffered by girls in schooling outcomes could still be attributed to non-discriminatory behaviour of parents, for example pre-natal son preference which leads to more siblings for girls. Intra-household differences may emerge despite equal treatment of children if there is sex preference in fertility so that girls are over-represented in larger families (Jensen,

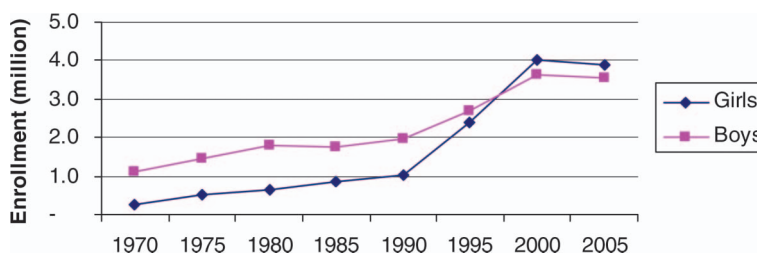


**Figure 1.** Trend in secondary school enrolment. *Source*: BANBEIS Secondary Education Census Report, 2005.

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2002). In such settings, conditional cash transfers (CCT) can create incentives for households to adjust their investment behaviour toward matching the social optimum (Janvry and Sadoulet, 2004). A girl-specific stipend intervention like the FSS can reduce the cost/benefit ratio at the level of the household more for girls than boys thereby boosting education of the former.[4] In other words, sex-specific distortions of school price restore gender parity in educational outcomes within the household in favour of girls by offsetting the disadvantage of growing up in larger families.

The FSS scheme is essentially a CCT intervention launched by the Bangladesh Government in 1994 with assistance from the World Bank and other donor agencies. The programme spans all rural and non-metropolitan secondary schools (secular or religious) that are recognised by the government. Female graduates of primary schools who enrol in grade 6 in a junior/high school are automatically eligible for the stipend. All eligible female students are awarded stipends if the following conditions are met: (i) the girl students must attend at least 85 per cent of the classes in an academic year; (ii) they must obtain on average 45 per cent marks at the half yearly/annual examination; and (iii) they must remain unmarried until passing the SSC (secondary school certificate) examinations. Students fulfilling all three criteria receive stipends up to grade 10. Stipends cover full tuition and other related costs (for example, examinations, school fees, textbooks, school supplies, uniforms and so on), the total stipend amount received being progressive across grades. The tuition part of the stipend is paid directly to the school and the rest of the stipend is paid directly to the female pupil beneficiary (via a bank account which is opened under her name).

Apart from the FSS scheme the Government of Bangladesh also undertook a number of important supply-side innovations to boost female enrolment such as efforts to increase the number of female teachers[5] and pluralistic educational provision – significant growth in secular and religious co-educational schools to help relax the supply constraint since females were less likely to travel long distances to attend high schools. In this context, the sex parity in educational outcomes could be explained by differential elasticity of girls' and boys' schooling with respect to changes in educational facilities. Glewwe and Kremer (2006) argue that the elasticity of demand for schooling may be higher for girls than for boys, so that even programmes that do not exclusively target girls may result in greater increases in school participation for girls than for boys. There is ample empirical evidence using South Asian data that support greater elasticity of girls' schooling to changes in educational supplies. Compared to boys, schooling outcomes of girls are found to be more responsive to local school availability (Sathar and Lloyd, 1994; Alderman et al., 1996; Lloyd et al. 2002), reduction in distance to school (Duraisamy, 1992), provision of a mid-day meal in school (Drèze and Kingdon, 2001), the presence of a bus stop in the village (Bhat, 2002), the availability of NGO-run schools in the village (Sukontamarn, 2005) and provision of additional (female) teachers (Banerjee et al., 2000). Therefore, gender parity in the non-metropolitan area is likely to be driven by supply-side reforms as well.

Nonetheless, even when supply-side changes are entirely specific to girl students, significant positive supply-side externalities may arise for boys. For instance, in order to ensure the physical safety of their daughters while they attend schools,

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parents may send daughters to schools only when they are accompanied by sons. In this case, the gender gap will narrow if boy-specific externalities are non-existent or weak.[6]

Summing up, distortion of sex-specific school price in the FSS area – rural and non-metropolitan (urban) regions – is likely to induce changes in intra-household allocations. Whilst this unambiguously increases female schooling, for a number of reasons the exact impact of this on gender equality within households remains ambiguous. Factors such as sex preference in fertility, boy-specific externalities and relative elasticity of female schooling with respect to supply-side changes interact in a complex way and often have offsetting effects. Which of these effects dominates in deciding the gender gap remains a matter for empirical investigation.

## III. Methodology

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As pointed out earlier, our intention is to document gender disparity in terms of outcomes as well as the intra-household allocation process. The rationale for using several outcome variables is as follows. Focusing on school participation and attainment is not sufficient. Households may respond to incentive schemes simply by reducing children's leisure time; school enrolment can increase without large-scale reduction in child labour (Ravallion and Wodon, 1999). If so, sons may simultaneously work and attend school in the stipend area to compensate for the fact that daughters are enrolled in secondary school. In this setting, one may observe a widening (and reversal) of the gender gap in child work as well as school participation. Lastly, measures such as grade completion and enrolment status may not adequately capture disparities in intra-household allocation of resources for education. Sons may continue to attend better quality schools than daughters and receive a higher share of the household budget.

We use regression models to explicate variation in each of the dependent variables in terms of the child's gender, additionally accounting for differences in family backgrounds (parental education, religion and age; sex of the household head; household's per capita expenditure and landholding) and individual characteristics (age and age-squared) of the child. The analysis, however, is carried out separately for the rural and urban sample. This is to account for structural differences between rural and urban Bangladesh. These differences also motivate different regression specifications for the two samples.

First, as pointed out earlier, only the metropolitan part of the urban area has remained exposed to the FSS programme. On the contrary, the whole of rural Bangladesh is covered by the stipend scheme. The second source of difference between rural and urban sample relates to the availability of supply-side data – the dataset used in this paper contains supply-side information only for the rural sample. Therefore, our detailed analysis of the determinants of children's schooling in urban Bangladesh exclusively centres on demand-side factors. Keeping these differences in mind, we estimate the following regression model for the urban sample:

$$\begin{aligned} S_i = {} & \alpha_1 \text{male} + \alpha_2 \text{non} - \text{metropolitan} + \alpha_3 \text{male} * \text{non} - \text{metropolitan} \\ & + \alpha_4 X_1 + \alpha_5 X_1 + \alpha_5 X_2 + e_i \end{aligned} \tag{1}$$

where $S_i$ is the outcome variable, $X_1$ is a vector of child attributes (religion, age and age-squared), $X_2$ is a vector of household and family attributes, and $e_i$ is a random error term. The dummy for the non-metropolitan area partially captures the effect of exposure to the FSS scheme.[7] To test whether the non-metropolitan area effect differs by gender, we interact the non-metropolitan dummy with the child's sex. Therefore, the key parameters of interest are $\alpha_1$, $\alpha_2$ and $\alpha_3$. The parameter $\alpha_3$ sheds some light on interaction of the potential impact of the stipend scheme and the child's gender.

Lastly, the school completion and educational expenditure regressions do not guarantee causal estimates for reasons related to the issue of sample selection – data is observed only for a sample of children who may have selected into schools on the basis of unobserved family (for example, parental taste for education) and individual specific correlates (for example, innate ability). Therefore, for each of our three census clusters, we report estimates of equation (1) controlling for household fixed-effects to partially address the problem of selection bias.[8] Control for fixed-effects also implies that any potential differences in local area endowments (e.g. availability and differential quality of schools) are differenced out as they are common to all children from the same household. This approach therefore yields by far the best account of gender gaps in schooling outcomes and how they differ across rural and urban (metropolitan as well as non-metropolitan) areas in Bangladesh.

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## IV. Data

Our data come from three rounds of the Household Expenditure Survey (HIES) for Bangladesh conducted during the years 1995, 2000 and 2005 by the Bangladesh Bureau of Statistics (BBS). The HIES is a comprehensive nationally representative socio-economic survey of randomly sampled households covering rural, urban metropolitan and urban municipal areas. Sampling is based on a two-staged methodology where in the first stage, primary sampling units (PSU) are selected from all divisions. Households were randomly selected from each PSU in the second stage.[9]

To better understand the evolution of boy–girl difference in school completion over time, Table 1 reports mean grade completion across six different age cohorts using three rounds of HIES data. Using this table, it is possible to describe inter-temporal trends in gender gaps across programme (rural and peri-urban) and non-programme (urban metropolitan) areas. A number of important observations can be made on the basis of these figures. First, a sex difference is present largely amongst secondary school age children (aged 11–17 years); in the primary school age group (6–10 years old), there is no significant gender gap. Whilst for individuals aged 18+ (that is the post-secondary cohort) there is a large gender gap, it is in favour of men. Second, a significant gap existed in favour of boys in the urban areas during 1995 amongst secondary school-aged children, the gap being larger for non-metropolitan areas. However, this was reversed in the post-1995 period: HIES data for the years 2000 and 2005 clearly show a gap in favour of girls in urban non-metropolitan areas. A similar pattern is observed in school enrolment trends across various rounds of HIES data. The gender gap in incidence of child labour[10] is also

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**Table 1.** Gender gap in school completion by location and age-cohorts, HIES 1995, 2000 and 2005

| | Total | | | Rural | | | Urban non-metropolitan area | | | Urban metropolitan area | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age group | Male | Female | Gap | Male | Female | Gap | Male | Female | Gap | Male | Female | Gap |
| **HIES 1995** | | | | | | | | | | | | |
| 6–10 | 0.03 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.03 | 0.04 | −0.01 | 0.05 | 0.03 | 0.02 |
| 11–17 | 0.74 | 0.77 | −0.02 | 0.66 | 0.75 | −0.09 | 0.97 | 0.82 | 0.16 | 0.86 | 0.77 | 0.09 |
| 18–24 | 2.90 | 2.77 | 0.12 | 2.40 | 2.33 | 0.08 | 3.86 | 3.65 | 0.21 | 3.43 | 3.36 | 0.07 |
| 25–29 | 4.16 | 2.88 | 1.29 | 3.17 | 1.95 | 1.22 | 6.55 | 4.88 | 1.66 | 5.64 | 4.13 | 1.51 |
| 30–34 | 4.06 | 2.31 | 1.75 | 2.95 | 1.68 | 1.28 | 6.42 | 3.54 | 2.88 | 5.57 | 3.73 | 1.84 |
| 35–39 | 4.03 | 2.59 | 1.44 | 2.90 | 1.61 | 1.29 | 6.05 | 4.42 | 1.63 | 6.53 | 4.29 | 2.23 |
| N | 12701 | 12958 | | 8550 | 8515 | | 2408 | 2623 | | 1743 | 1820 | |
| **HIES 2000** | | | | | | | | | | | | |
| 6–10 | 0.58 | 0.62 | −0.04 | 0.50 | 0.56 | −0.07 | 0.79 | 0.78 | 0.01 | 0.75 | 0.75 | 0.00 |
| 11–17 | 3.96 | 4.52 | −0.56 | 3.67 | 4.27 | −0.60 | 4.75 | 5.45 | −0.69 | 4.28 | 4.37 | −0.08 |
| 18–24 | 6.04 | 4.82 | 1.22 | 5.49 | 3.96 | 1.53 | 7.25 | 6.72 | 0.53 | 6.62 | 5.92 | 0.70 |
| 25–29 | 5.08 | 3.22 | 1.87 | 4.16 | 2.55 | 1.61 | 6.93 | 5.07 | 1.86 | 6.66 | 4.15 | 2.51 |
| 30–34 | 4.33 | 2.50 | 1.83 | 3.41 | 1.78 | 1.63 | 6.54 | 4.05 | 2.48 | 5.87 | 3.79 | 2.08 |
| 35–39 | 3.94 | 2.56 | 1.38 | 3.15 | 1.75 | 1.40 | 5.42 | 4.58 | 0.84 | 5.73 | 3.60 | 2.13 |
| N | 12240 | 12445 | | 8249 | 8331 | | 2258 | 2331 | | 1733 | 1783 | |
| **HIES 2005** | | | | | | | | | | | | |
| 6–10 | 1.70 | 1.72 | −0.02 | 1.60 | 1.64 | −0.04 | 1.95 | 1.90 | 0.05 | 1.61 | 1.76 | −0.15 |
| 11–17 | 5.69 | 5.97 | −0.28 | 5.51 | 5.81 | −0.31 | 5.96 | 6.29 | −0.33 | 6.10 | 6.05 | 0.06 |
| 18–24 | 7.43 | 7.22 | 0.21 | 6.91 | 6.66 | 0.24 | 8.28 | 8.07 | 0.21 | 8.18 | 7.65 | 0.53 |
| 25–29 | 7.45 | 6.15 | 1.30 | 6.99 | 5.35 | 1.64 | 8.06 | 7.21 | 0.86 | 8.17 | 7.49 | 0.68 |
| 30–34 | 6.95 | 5.54 | 1.41 | 5.90 | 4.34 | 1.56 | 8.16 | 6.84 | 1.32 | 8.37 | 7.37 | 1.00 |
| 35–39 | 6.49 | 4.88 | 1.61 | 5.28 | 3.79 | 1.49 | 7.76 | 5.98 | 1.78 | 8.43 | 7.14 | 1.29 |
| N | 10998 | 11167 | | 6650 | 6667 | | 3256 | 3341 | | 1092 | 1159 | |

evident for both rural and urban samples. However, there is no significant inter-temporal change in these gaps in the programme area during 1995–2005 (see Appendix Table A1). In sum, boys are the disadvantaged sex in terms of educational outcomes and child work. At the same time, the number of boys is higher in the sample highlighting the fact that girls are disadvantaged in terms of mortality rate.

The next section investigates how the evidence of reverse gender gap in educational outcomes and inputs varies once we account for gender differences in household conditions and school supplies. Given the evidence of geographic differences in inter-temporal changes in the gender gap presented in Table 1, the empirical analysis is carried out separately for the rural and urban sample.

## V. Results

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The working sample comprises children aged 6 to 17 years. We first present household fixed-effects estimates of gender gaps in educational and child labour outcomes as well as total educational expenditure on each sample child using three rounds of HIES survey data. These fixed-effects estimates help us examine whether the observed gender differences (or the lack thereof) are truly a within-household phenomenon or merely an artefact of boy–girl differences in various household-level determinants of child outcomes. We then report additional, detailed regressions for the same outcome variables using HIES 2000 data to shed some light on specific household-specific determinants of the gender gap.

The fixed-effects model is obtained by restricting data to households that have at least one brother and sister of relevant age. Although this regression framework does not yield estimates of correlates specific to common household and village attributes, it yields precise estimates of gender gap in inputs and outputs that are robust to the omission of common household-specific observed and unobserved correlates. Tables 2 to 4 present the results based on three rounds of HIES data where we only report the coefficients on the male dummy. Given control for household fixed-effects, all correlates apart from the child's age and age-squared drop out from the regression model. In addition to full sample (children aged 6–17 years old), results are reported separately for the primary and secondary school age groups.

As shown from raw data on sex-specific grade completion presented in Table 1 and Appendix Table A1, the reversal of the gender gap is a recent phenomenon. No gender gap in favour of females existed during the mid 1990s. Such boy–girl gaps emerged soon after 1995 and have prevailed ever since. Consistent with raw data, there was no evidence of a gender gap in favour of girls in school enrolment and grade completion probabilities in 1995 (Table 2). If anything, for rural children aged 6–17 years, boys had significantly higher grade completion compared to girls (see Table 2). By the year 2000 and 2005, not only has this finding been reversed, a gap in enrolment and grade completion favouring girls becomes evident for secondary school aged children in rural and urban non-metropolitan areas (Tables 3 and 4).

For the full sample (children aged 6–17 years), household fixed-effects estimates yield no evidence of gender gap in household expenditure on children's education in the rural area. For the urban sample, the coefficient on the male dummy is negative but insignificant. This is also true for the non-metropolitan (urban) area. These

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**Table 2.** Within-household estimates of gender gap in school participation, attainment, child labour and educational expenditure, HIES 1995

| | Children aged 6–10 years | | | | Children aged 11–17 years | | | |
|---|---|---|---|---|---|---|---|---|
| | Grade completion | Currently in school | Child work | Educational expenditure | Grade completion | Currently in school | Child work | Educational expenditure |
| **Rural sample** | | | | | | | | |
| Male dummy | 0.003 (0.23) | 0.016 (0.84) | 0.023 (3.26)** | −0.016 (0.34) | 0.185 (1.51) | −0.027 (1.03) | 0.267 (12.36)** | 0.238 (3.16)** |
| N | 4147 | 4147 | 4147 | 3223 | 3530 | 3530 | 3530 | 2147 |
| **Urban sample** | | | | | | | | |
| Male dummy | 0.019 (0.67) | −0.009 (0.26) | 0.015 (1.2) | 0.036 (0.38) | 0.033 (0.18) | −0.023 (0.73) | 0.171 (6.51)** | 0.133 (1.75)+ |
| N | 1645 | 1645 | 1645 | 1330 | 1766 | 1766 | 1766 | 1299 |
| **Urban non-metropolitan** | | | | | | | | |
| Male dummy | 0.001 (0.46) | −0.049 (1.09) | 0.016 (1.15) | 0.026 (0.24) | −0.018 (0.07) | −0.041 (0.86) | 0.194 (4.99)** | 0.069 (0.67) |
| N | 971 | 971 | 971 | 814 | 996 | 996 | 996 | 733 |
| **Urban metropolitan** | | | | | | | | |
| Male dummy | 0.041 (0.67) | 0.041 (0.82) | 0.013 (0.56) | 0.047 (0.28) | 0.087 (0.38) | 0 (0) | 0.139 (3.95)** | 0.208 (1.88)+ |
| N | 674 | 674 | 674 | 516 | 770 | 770 | 770 | 566 |

*Notes*: Robust t–stats are reported. + significant at 10 per cent; *significant at 5 per cent; **significant at 1 per cent. Grade completion regression and expenditure regressions are estimated by OLS. Enrolment and child labour regressions are estimated by linear probability models. All regressions control for household-fixed effects and the child's age and age-squared.

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**Table 3.** Within-household estimates of gender gap in school participation, attainment, child labour and educational expenditure, HIES 2000

| | Children aged 6–10 years | | | | Children aged 11–17 years | | | |
|---|---|---|---|---|---|---|---|---|
| | Grade completion | Currently in school | Child work | Educational expenditure | Grade completion | Currently in school | Child work | Educational expenditure |
| **Rural sample** | | | | | | | | |
| Male dummy | −0.076 (0.87) | −0.013 (0.47) | 0.018 (1.80)+ | 0.052 (0.79) | −0.648 (4.55)** | −0.105 (4.43)** | 0.236 (11.62)** | −0.007 (0.1) |
| N | 3552 | 3552 | 3552 | 2521 | 3652 | 3652 | 3652 | 2218 |
| **Urban sample** | | | | | | | | |
| Male dummy | 0.066 (0.41) | −0.034 (0.72) | 0.014 (0.89) | 0.024 (0.22) | −0.547 (2.98)** | −0.118 (3.52)** | 0.108 (3.83)** | −0.094 (1.2) |
| N | 1396 | 1396 | 1396 | 1043 | 1828 | 1828 | 1828 | 1224 |
| **Urban non-metropolitan** | | | | | | | | |
| Male dummy | 0.05 (0.24) | −0.06 (0.98) | 0.022 (1.04) | 0.112 (0.09) | −0.764 (3.05)** | −0.174 (3.70)** | 0.144 (4.17)** | 0.038 (0.33) |
| N | 841 | 841 | 841 | 642 | 1034 | 1034 | 1034 | 723 |
| **Urban metropolitan** | | | | | | | | |
| Male dummy | 0.148 (0.54) | 0.012 (0.16) | 0.001 (0.04) | −0.127 (0.59) | −0.266 (1.00) | −0.057 (1.2) | 0.063 (1.41) | −0.251 (2.58)* |
| N | 555 | 555 | 555 | 401 | 794 | 794 | 794 | 501 |

*Notes*: Robust t-stats are reported. + significant at 10 per cent; *significant at 5 per cent; **significant at 1 per cent. Grade completion regression and expenditure regressions are estimated by OLS. Enrolment and child labour regressions are estimated by linear probability models. All regressions control for household-fixed effects and the child's age and age-squared.

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**Table 4.** Within-household estimates of gender gap in school participation, attainment, child labour and educational expenditure, HIES 2005

| | Children aged 6–10 years | | | | Children aged 11–17 years | | | |
|---|---|---|---|---|---|---|---|---|
| | Grade completed | Currently in school | Child work | Educational expenditure | Grade completed | Currently in school | Child work | Educational expenditure |
| **Rural sample** | | | | | | | | |
| Male dummy | −0.026 (0.29) | −0.024 (1.73)+ | 0.008 (2.31)* | 0.066 (1.35) | −0.271 (2.93)** | −0.08 (5.36)** | 0.231 (21.39)** | 0.099 (2.45)* |
| N | 1972 | 3898 | 3209 | 2872 | 3666 | 4426 | 4405 | 2763 |
| **Urban sample** | | | | | | | | |
| Male dummy | 0.088 (0.79) | −0.004 (0.24) | 0 (0.05) | 0.134 (1.94)+ | −0.295 (2.47)* | −0.101 (5.43)** | 0.165 (12.11)** | 0.026 (0.49) |
| N | 1079 | 1893 | 1628 | 1499 | 2072 | 2328 | 2320 | 1610 |
| **Urban non-metropolitan** | | | | | | | | |
| Male dummy | 0.099 (0.76) | −0.003 (0.15) | 0.004 (1.07) | 0.106 (1.32) | −0.373 (2.71)** | −0.11 (5.15)** | 0.178 (11.54)** | 0.032 (0.53) |
| N | 823 | 1509 | 1260 | 1187 | 1570 | 1787 | 1779 | 1243 |
| **Urban metropolitan** | | | | | | | | |
| Male dummy | 0.051 (0.24) | −0.018 (0.45) | −0.012 (0.78) | 0.267 (2.09)* | −0.054 (0.22) | −0.071 (1.90)+ | 0.123 (4.15)** | 0.013 (0.11) |
| N | 256 | 384 | 368 | 312 | 502 | 541 | 541 | 367 |

*Notes*: Robust t-stats are reported. + significant at 10 per cent; *significant at 5 per cent; **significant at 1 per cent. Grade completion regression and expenditure regressions are estimated by OLS. Enrolment and child labour regressions are estimated by linear probability models. All regressions control for household-fixed effects and the child's age and age-squared.

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**Table 5.** Determinants of school completion, current enrolment, child labour and educational expenditure in urban areas (children aged 11–17 years, HIES 2000)

| | Pooled | | | | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grade completion | Currently in school | Child work | Educational expenditure | Grade completion | Currently in school | Child work | Educational expenditure | Grade completion | Currently in school | Child work | Educational expenditure |
| Child's age | 2.296 | −0.104 | 0.048 | 0.536 | 2.006 | −0.118 | 0.103 | 0.618 | 2.681 | −0.109 | 0.025 | 0.524 |
| | (4.56)** | (1.1) | (0.71) | (2.16)* | (2.79)** | (0.83) | (0.99) | (1.74)+ | (3.86)** | (0.9) | (0.34) | (1.5) |
| Child's age–squared | −5.98 | 0.091 | −0.034 | −1.313 | −4.935 | 0.091 | −0.156 | −1.573 | −7.363 | 0.158 | −0.018 | −1.316 |
| | (3.28)** | (0.27) | (0.15) | (1.48) | (1.90)+ | (0.18) | (0.42) | (1.24) | (2.92)** | (0.36) | (0.07) | (1.05) |
| Child is male | −0.543 | −0.085 | 0.054 | −0.166 | | | | | | | | |
| | (2.92)** | (2.60)** | (2.50)* | (1.87)+ | | | | | | | | |
| Non-Metro area | 0.94 | 0.164 | −0.076 | −0.648 | 0.274 | 0.077 | 0.007 | −0.578 | 1.019 | 0.136 | −0.05 | −0.619 |
| | (5.51)** | (4.56)** | (2.72)** | (7.63)** | (1.5) | (2.01)* | (0.24) | (6.31)** | (5.81)** | (4.51)** | (2.68)** | (7.08)** |
| Non-Metro*Male | −0.61 | −0.105 | 0.108 | 0.098 | | | | | | | | |
| | (2.56)* | (2.22)* | (3.04)** | (0.81) | | | | | | | | |
| Non-Muslim | 0.315 | 0.096 | 0.009 | 0.167 | 0.212 | 0.12 | −0.023 | 0.157 | 0.381 | 0.064 | 0.044 | 0.183 |
| | (1.48) | (2.22)* | (0.25) | (1.82)+ | (0.69) | (1.81)+ | (0.4) | (1.14) | (1.39) | (1.11) | (1.05) | (1.57) |
| Head is female | −1.801 | −0.029 | 0.105 | −0.394 | −1.126 | −0.163 | 0.179 | −0.089 | −2.567 | 0.028 | 0.066 | −0.886 |
| | (2.67)** | (0.27) | (1.41) | (1.04) | (0.97) | (0.71) | (1.32) | (0.19) | (3.92)** | (0.25) | (0.74) | (1.68)+ |
| Father's age | 0.014 | −0.003 | 0.001 | 0.01 | 0.006 | −0.003 | 0.002 | 0.005 | 0.021 | −0.002 | −0.001 | 0.014 |
| | (1.68) | (1.76)+ | (0.84) | (2.51)* | (0.53) | (1.47) | (1.27) | (0.89) | (1.97)* | (0.9) | (0.48) | (2.84)** |
| Mother's age | −0.01 | 0 | −0.001 | 0.004 | −0.011 | −0.001 | −0.001 | 0.003 | −0.01 | −0.001 | −0.002 | 0.004 |
| | (1.33) | (0.36) | (1.63) | (0.85) | (1.01) | (0.28) | (0.47) | (0.39) | (0.99) | (0.36) | (2.20)* | (0.78) |
| Father's education | 0.091 | 0.019 | −0.012 | 0.076 | 0.12 | 0.034 | −0.022 | 0.08 | 0.058 | 0.003 | −0.002 | 0.073 |
| | (4.30)** | (4.64)** | (4.37)** | (7.97)** | (3.89)** | (5.56)** | (4.83)** | (5.09)** | (2.08)* | (0.56) | (0.79) | (5.99)** |
| Mother's education | 0.248 | 0.022 | −0.01 | 0.081 | 0.265 | 0.02 | −0.008 | 0.082 | 0.224 | 0.025 | −0.012 | 0.081 |
| | (12.15)** | (5.74)** | (3.63)** | (8.30)** | (9.05)** | (3.43)** | (1.79)+ | (5.53)** | (7.95)** | (5.13)** | (4.47)** | (6.02)** |
| Landless household | −1.075 | −0.123 | 0.118 | −0.164 | −1.237 | −0.186 | 0.139 | −0.217 | −0.971 | −0.069 | 0.09 | −0.09 |
| | (4.43)** | (2.88)** | (5.49)** | (1.3) | (3.52)** | (3.01)** | (3.76)** | (1.13) | (2.91)** | (1.18) | (3.73)** | (0.54) |
| Log of per capita expenditure | 1.226 | 0.292 | −0.063 | | 1.051 | 0.36 | −0.159 | | 1.435 | 0.222 | 0.021 | |
| | (7.49)** | (8.46)** | (2.92)** | | (4.27)** | (7.24)** | (4.64)** | | (6.82)** | (4.86)** | (0.94) | |
| Constant | −24.104 | | | 1.884 | −21.288 | | | 1.422 | −28.225 | | | 1.71 |
| | (6.52)** | | | (1.09) | (4.04)** | | | (0.57) | (5.60)** | | | (0.7) |
| N | 1828 | 1828 | 1828 | 1224 | 963 | 963 | 963 | 588 | 865 | 865 | 856 | 636 |
| Adjusted $R^2$ | 0.48 | 0.29 | 0.21 | 0.39 | 0.46 | 0.31 | 0.23 | 0.4 | 0.48 | 0.25 | 0.16 | 0.38 |

*Notes*: Heteroscedasticity robust t-stats are reported. + significant at 10 per cent; *significant at 5 per cent; **significant at 1 per cent. Grade completion and expenditure regressions are estimated using an OLS. Enrolment and child labour regressions are estimated using a probit model. For probit estimates, only marginal effects (computed as means of the variables) are presented.

results hold for the primary as well as secondary school-aged children. The finding of no gender bias in household expenditure is consistent with earlier attempts to investigate gender bias in intra-household education investment in Bangladesh (for example Ahmad and Murdoch, 1993).[11]

What is puzzling however is the robust evidence of sex bias in favour of girls in educational outcomes and child labour participation probability. In the sample comprising children of ages 6–17 years, boys complete significantly fewer grades, have a lower enrolment rate and are more likely to engage in child labour. Separating primary and secondary school-aged children reveals that these gaps arise purely in the case of secondary school-aged children. It is important to bear in mind that there is no gender-targeted programme in the primary schooling sector. For primary school-aged children, coefficients on male dummy are rarely significant. However, for the secondary sample, boys are systematically worse-off in the rural area. In the urban sample, boys lag behind girls in the non-metropolitan area only.

Summing up, our analysis clearly documents a reverse gender gap in schooling and child labour outcomes amongst secondary school-aged children in Bangladesh in recent years. The only exception is the urban metropolitan area which has not been exposed to the FSS intervention. This suggests that the introduction of a sex specific secondary school incentive may have played a role in reversing the gender gap in favour of girls in Bangladesh. Furthermore, the disaggregate analysis presented in Tables 2–4 reveals that the reverse gender gap is exclusive to secondary school-aged children (11–17 year olds). We therefore strive to understand the nature and sources of these gaps at the secondary level by examining schooling outcomes using a pooled urban sample. In other words, using data on urban households, we assess how the gender gap varies between the non-metropolitan and metropolitan sub-samples. To this end, instead of a fixed-effects approach, detailed regression specification is used – all models of schooling outcomes control for large number of covariates such as child's religion, age, parental education and age, sex of the household head, household expenditure and landlessness. Whilst discussing the results, we abstract away from these covariates for the sake of brevity. Rather we limit our discussion to the effect of the child's gender and the impact of residing in the non-metropolitan area and its interaction with the child's gender.

Table 5 reports regressions for secondary school-aged (11–17 years) children in the urban area. Descriptive statistics for the HIES 2000 sample are reported in Appendix Table A2. Pooled (over boys and girls) regression results show that boys are clearly disadvantaged in terms of educational outcomes and allocation of inputs. These differences are always significant at the conventional level. Pooled specification masks important differences along the gender line, however. Gender-specific regressions reveal that among boys, no significant difference exists on grade completion because of residence in the non-metropolitan area. Boys in the non-metropolitan area have a marginally significant and higher probability of enrolment in school. On the contrary, among girls, those in the non-metropolitan area have significantly greater probability of enrolment and grade completion relative to girls in the non-metropolitan area. This finding bears testimony to the potential effect of the stipend scheme, given the fact that the non-metropolitan area constitutes the economically less-developed part of urban Bangladesh.

Similar results are obtained for child labour regressions. Residence in the non-metropolitan area has an insignificant (albeit negative) effect on child labour.

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Splitting the sample by gender yields consistent results: amongst girls, residence in the urban non-metropolitan area is associated with a significantly lower probability of work. For boys the impact is positive albeit insignificant.[12]

On the balance, data on urban households provide a powerful insight. Larger gender gap in outcomes in favour of girls in the non-metropolitan area are supportive of the hypothesis that the reverse gender gap has been induced by households' exposure to the stipend scheme which is likely to have adversely affected boys' education in urban Bangladesh.

## VI. Summary and Policy Implications

This paper has provided evidence of an intra-household gender gap in schooling and child labour across three major census clusters in Bangladesh. A systematic educational gender imbalance prevails in favour of girls in rural as well as urban areas. Within urban areas, boys are mostly disadvantaged in the non-metropolitan area. Furthermore, these results only hold for the secondary school-aged children – no evidence of a gender gap is found for primary school-aged children.[13] At the primary level and within the urban area, outcomes (school attendance, completion and participation in child labour) are invariant to residence in the non-metropolitan area. These findings are robust to controlling for a host of household correlates of child outcomes. Most importantly, the gender gap does not attenuate when we control for household fixed-effects. This is an important finding because our household fixed-effects estimates of gender gap are robust to the problem of omission of local area endowments (such as availability of schools) from the regression model as long as children from the same household attend schools located in the same village.

Compared to countries with similar levels of income, Bangladesh is an outlier in terms of impressive achievement in certain human development outcomes despite daunting constraints. Gross primary enrolment rate is around 90 per cent, secondary enrolment has more than doubled since independence, and the Millennium Development Goal (MDG) gender parity target of achieving gender parity by 2015 has already been achieved at both the primary and secondary education level. Neighbouring countries like India and Pakistan are far from meeting the MDG gender parity target in education. However, various sources of administrative and household level data consistently and unambiguously indicate that Bangladesh has now 'over-shot' the gender parity target in the secondary education sector. The result is striking in the South Asian context where households' fertility choices demonstrate a strong preference for sons, as evidenced from the skewed sex ratio in the population.

Besides presenting robust evidence of gender disparity favouring girls at the secondary level, more research is needed on what drives these inequalities. Our analysis of household data yields no evidence to suggest sex bias in intra-household allocation of educational expenditure. However, regression analysis of schooling outcomes/choices in urban households provide powerful insights into one potential explanation, namely a gender differentiated response to the stipend programme for secondary school-aged girls. We find that within urban areas, girls' enrolment rates and years of education completed are systematically higher in the non-metropolitan area (which was not exposed to the FSS scheme) compared to the metropolitan area.

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In other words, more than closing the gender gap, the stipend scheme may have led to a reversal of the gap. This gender gap is particularly pronounced among poor households where the female stipend programme would have the most impact. While there has been significant enrolment growth for even poor girls during the decade of the stipend programme, enrolment levels for poor boys has remained stagnant. The female-to-male ratio among the poor, consequently, has overshot from 80 per cent in mid-1990s to 125 per cent in 2005, reflecting a growing gender imbalance against poor boys.

If true, the above conjecture has important policy implications. Developing countries which face the dual challenge of removing gender inequality and raising the overall level of school participation for boys and girls have to exercise caution when using sex-specific social transfer schemes to close the gender gap. This study should at least suggest that countries which have adopted similar programmes to address the problem of low female participation in schooling should carefully track any unintended negative consequences on boys. Knowledge about the negative spill-over effects of the FSS programme on boys is important for similar interventions are either already in place or under consideration in a number of developing countries.[14] This is meant to inform the discussion – certainly not to generalise. The positive impact of CCT programmes on both boys and girls have been demonstrated in several studies (for example, Alderman et al., 2008; Chaudhury and Parajuli, 2008). On the other hand, other studies have shown negative impact along certain dimensions, such as labour supply of boys.

Identifying the causal effect of the female stipend programme was not the objective of this study. It is almost impossible to adequately evaluate the causal impact of FSS scheme given the absence of randomisation or a properly defined control and treatment group with baseline and follow-up data (due to rapid scaling-up of the programme nationwide). Given the concerns that a lot of poor children are still out of secondary school, and the reverse gender balance is particularly severe for poor boys, currently the government is in the process of designing a new phase of the scholarship project which will be more amenable to a proper evaluation. Therefore, future research identifying the gender-differentiated and causal impact of such social transfer programme will have significant added value.

From a broader policy point of view, the reversal of the gender gap does not mean that Bangladesh has succeeded in removing female disadvantage in all spheres of education. Women's literacy still remains extremely low when compared to that of men. The pass-rate of females in secondary school certificate (SSC) exams is lower relative to boys, particularly in rural areas. Sample based studies of numeracy and literacy skills also reveal a gender bias against girls. The evidence presented in this paper therefore does not necessarily call for a removal of pro-female incentive schemes and reform initiatives. Bangladesh still has a long way to go to overcome the barriers facing women and girls in and beyond school. There is a need to pursue initiatives to improve quality of female education, labour market access, and greater participation in political decision making. At the same time, responses to female incentive schemes needs to be better understood from a household perspective. Policy priority should be to promote female education minimising any potential unintended negative effects on boys within the household.

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Furthermore, given the achievement of parity in participation, the focus should shift to closing the gender gap in learning outcomes in schools.[15] Careful targeting of children of both sexes in poorer households provides a challenging, yet promising way forward.

## Notes

1. Whilst Khandker et al. (2003) use both household and school level data, their household analysis finds no effect on boys; a strong negative effect is gathered only from school data.
2. Using longitudinal data on households, they document a gender-differentiated increase in school participation rates between 1992 and 1996. Their findings suggest that adolescent boys were less likely to remain in school and more likely to do wage work following the introduction of the stipend scheme. The authors conjecture that parents may have decided to send adolescent girls to school and adolescent boys to work in response to the incentives.
3. However, extant evidence in support of gender discrimination in intra-household allocations in Bangladesh is weak or non-existent (Ahmad and Murdoch, 1993).
4. Lower household investment in girls could be also rational in the presence of labour market discrimination (Rosenzweig and Schultz, 1982). An educational gender gap prevails, given wage differentials in labour market in favour of men. Indeed there is evidence that similar wage gaps prevail in favour of men in the Bangladeshi labour market (Asadullah, 2006).
5. Interventions such as increased employment of female teachers are likely to have changed social norms in favour of female employment in rural societies.
6. Clear evidence of such externalities can be found in a girls' fellowship programme in Baluchistan province of Pakistan. Under this scheme, new private schools for girls were opened in selected urban and rural neighborhoods with financial aid from the Government. Evaluation of the programme indicates that within urban areas, neighbourhoods that benefited from the scheme saw an increase in girls and boys' school enrolment by equal magnitude (Alderman et al., 2003). Boys' enrolment increased despite the fact that schools didn't receive any subsidy for enrolling males. Alderman et al. reconcile this finding by arguing that boys' schooling was equally supply-constrained in the treatment neighbourhoods which have been relaxed with the opening of new low priced private schools.
7. The coefficient on the non-metropolitan dummy by no means captures the causal effect of the FSS scheme as there are other structural differences between the metropolitan and non-metropolitan areas (such as the former being relatively of poor and so on).
8. This approach yields a partial solution as it cannot address selection on individual-level unobservables such as ability.
9. In all three surveys, household interviews were conducted in the same set of Primary Sampling Units (PSUs), a feature that enhanced the degree of comparability between the three data sets.
10. The actual question enquiring about work status of individuals somewhat differs across various HIES rounds. For instance, HES 1995 inquired about various activities of individuals aged 5+ years including household work (where the question was: 'What was your normal activity last week?'). However, in the later rounds, this question was simplified with work defined only in terms of economic activity in the last seven days. Therefore, to be consistent, we measure the incidence of child labour if the child reports to be: (i) in employment, (ii) was looking for work, and (iii) was available for work in the past seven days.
11. Using Bangladesh Household Expenditure Survey 1988 data, Ahmad and Murdoch (1993) studied how household allocation of expenditure varies by sex and age of household members. In the absence of individual level data on expenditure, their analysis was carried out at the aggregate (i.e. household) level. They found no evidence in support of the hypothesis that parents favour boys in intra-household distribution of resources.
12. This finding is consistent with Ravallion and Wodon (1999) who found that the FFE stipend had a significant negative effect on children's labour force participation and a significant positive effect on their schooling.
13. This is consistent with the fact that primary education in Bangladesh is free for all children and the FSS scheme had no spill-over effects on primary education in the intervention area.

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14. More than 150,000 girls enrolled in grades six to eight in the poorer districts of Punjab are now receiving a stipend, as an encouragement to stay in school (Chaudhuri and Parajuli, 2006). The stipend initiative is part of a three-year education reform programme launched to address issues of high illiteracy, low primary enrolment, and high drop out rates. Similar programmes are underway in Yemen and Chad.
15. Gender gap in secondary school achievement is well documented for rural Bangladesh. Using internationally comparable mathematics test data on grade 8 students, Asadullah et al. (2007) find that girls have a significantly lower score than boys across secular as well as religious (registered) schools.

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## Appendix

**Table A1.** Gender gap in current enrolment, child labour and educational input allocation by location and age-cohorts, HIES 1995–2005

| Current enrolment | Full sample | | | Rural | | | Urban non-metropolitan area | | | Urban metropolitan area | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age group | Male | Female | Gap | Male | Female | Gap | Male | Female | Gap | Male | Female | Gap |
| **HIES 1995** | | | | | | | | | | | | |
| 6–10 | 0.80 | 0.80 | 0.01 | 0.80 | 0.80 | 0.00 | 0.83 | 0.83 | 0.00 | 0.79 | 0.75 | 0.04 |
| 11–17 | 0.59 | 0.63 | −0.04 | 0.56 | 0.60 | −0.04 | 0.64 | 0.66 | −0.03 | 0.68 | 0.68 | 0.00 |
| N | 6717 | 6266 | | 4694 | 4182 | | 1161 | 1224 | | 862 | 860 | |
| **HIES 2000** | | | | | | | | | | | | |
| 6–10 | 0.74 | 0.77 | −0.02 | 0.74 | 0.76 | −0.02 | 0.76 | 0.81 | −0.05 | 0.75 | 0.74 | 0.01 |
| 11–17 | 0.56 | 0.68 | −0.13 | 0.54 | 0.69 | −0.15 | 0.62 | 0.75 | −0.13 | 0.58 | 0.59 | −0.01 |
| N | 6278 | 5725 | | 4368 | 3886 | | 1106 | 1044 | | 804 | 795 | |
| **HIES 2005** | | | | | | | | | | | | |
| 6–10 | 0.80 | 0.82 | −0.02 | 0.78 | 0.80 | −0.02 | 0.83 | 0.84 | −0.01 | 0.83 | 0.86 | −0.02 |
| 11–17 | 0.60 | 0.68 | −0.09 | 0.57 | 0.68 | −0.10 | 0.64 | 0.72 | −0.07 | 0.60 | 0.62 | −0.01 |
| N | 7482 | 6841 | | 4939 | 4496 | | 2004 | 1793 | | 539 | 552 | |
| **Child labour** | | | | | | | | | | | | |
| **HIES 1995** | | | | | | | | | | | | |
| 6–10 | 0.02 | 0.01 | 0.01 | 0.02 | 0.00 | 0.02 | 0.01 | 0.02 | −0.01 | 0.01 | 0.03 | −0.01 |
| 11–17 | 0.33 | 0.06 | 0.27 | 0.36 | 0.04 | 0.32 | 0.28 | 0.12 | 0.16 | 0.26 | 0.07 | 0.19 |
| N | 6717 | 6266 | | 4694 | 4182 | | 1161 | 1224 | | 862 | 860 | |
| **HIES 2000** | | | | | | | | | | | | |
| 6–10 | 0.05 | 0.04 | 0.01 | 0.05 | 0.03 | 0.02 | 0.05 | 0.04 | 0.02 | 0.03 | 0.05 | −0.02 |
| 11–17 | 0.33 | 0.10 | 0.22 | 0.36 | 0.08 | 0.28 | 0.26 | 0.10 | 0.17 | 0.24 | 0.20 | 0.04 |
| N | 6278 | 5725 | | 4368 | 3886 | | 1106 | 1044 | | 804 | 795 | |
| **HIES 2005** | | | | | | | | | | | | |
| 6–10 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.02 | −0.01 |
| 11–17 | 0.27 | 0.04 | 0.23 | 0.29 | 0.03 | 0.27 | 0.23 | 0.05 | 0.18 | 0.26 | 0.15 | 0.11 |
| N | 6899 | 6304 | | 4525 | 4102 | | 1848 | 1655 | | 526 | 547 | |

(*continued*)

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**Table A1.** (*Continued*)

| Current enrolment | Full sample | | | Rural | | | Urban non-metropolitan area | | | Urban metropolitan area | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age group | Male | Female | Gap | Male | Female | Gap | Male | Female | Gap | Male | Female | Gap |
| **Education expenditure** | | | | | | | | | | | | |
| **HIES 1995** | | | | | | | | | | | | |
| 6–10 | 5.12 | 5.05 | 0.07 | 4.74 | 4.69 | 0.05 | 6.29 | 6.15 | 0.14 | 5.78 | 5.53 | 0.25 |
| 11–17 | 6.84 | 6.75 | 0.09 | 6.45 | 6.27 | 0.17 | 7.66 | 7.50 | 0.16 | 7.40 | 7.39 | 0.01 |
| N | 4611 | 4388 | | 3153 | 2893 | | 839 | 894 | | 619 | 601 | |
| **HIES 2000** | | | | | | | | | | | | |
| 6–10 | 5.66 | 5.56 | 0.10 | 5.31 | 5.25 | 0.07 | 6.06 | 5.85 | 0.21 | 7.18 | 7.09 | 0.09 |
| 11–17 | 7.13 | 7.05 | 0.08 | 6.83 | 6.73 | 0.10 | 7.51 | 7.42 | 0.09 | 7.94 | 7.97 | −0.03 |
| N | 3886 | 3975 | | 2653 | 2696 | | 724 | 783 | | 509 | 496 | |
| **HIES 2005** | | | | | | | | | | | | |
| 6–10 | 6.28 | 6.18 | 0.10 | 5.94 | 5.87 | 0.06 | 6.73 | 6.62 | 0.11 | 7.62 | 7.37 | 0.26 |
| 11–17 | 7.64 | 7.53 | 0.12 | 7.40 | 7.26 | 0.14 | 7.95 | 7.87 | 0.08 | 8.42 | 8.42 | 0.01 |
| N | 4916 | 4837 | | 3146 | 3141 | | 1404 | 1312 | | 366 | 384 | |

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

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**Table A2.** Summary statistics, urban sample (HIES 2000)

| | Children aged 6–10 years | | | | | | Children aged 11–17 years | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pooled | | Male | | Female | | Pooled | | Male | | Female | |
| Variable | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. |
| Grade completed | 3.18 | 3.49 | 2.97 | 3.46 | 3.4 | 3.5 | 4.97 | 3.47 | 4.6 | 3.62 | 5.38 | 3.26 |
| Currently in school | 0.72 | 0.45 | 0.68 | 0.47 | 0.77 | 0.42 | 0.68 | 0.47 | 0.62 | 0.49 | 0.75 | 0.43 |
| Child in work | 0.11 | 0.32 | 0.15 | 0.35 | 0.08 | 0.27 | 0.17 | 0.38 | 0.23 | 0.42 | 0.11 | 0.31 |
| Total educational expenditure | 7.05 | 1.6 | 7.07 | 1.62 | 7.03 | 1.59 | 7.64 | 1.33 | 7.65 | 1.36 | 7.64 | 1.31 |
| Age in years | 11.34 | 3.28 | 11.39 | 3.32 | 11.27 | 3.24 | 13.75 | 1.91 | 13.83 | 1.97 | 13.67 | 1.85 |
| Age squared | 1.39 | 0.75 | 1.41 | 0.77 | 1.38 | 0.74 | 1.93 | 0.53 | 1.95 | 0.55 | 1.9 | 0.52 |
| Male | 0.52 | 0.5 | | | | | 0.52 | 0.5 | | | | |
| Non-Muslim | 0.07 | 0.25 | 0.07 | 0.26 | 0.06 | 0.24 | 0.07 | 0.25 | 0.08 | 0.27 | 0.06 | 0.24 |
| Head is female | 0.08 | 0.28 | 0.08 | 0.28 | 0.08 | 0.28 | 0.1 | 0.3 | 0.09 | 0.29 | 0.1 | 0.3 |
| Father's age | 36.91 | 13.4 | 36.96 | 13.58 | 36.85 | 13.2 | 38.25 | 14.53 | 38.31 | 14.54 | 38.19 | 14.53 |
| Father's age missing | 0.08 | 0.27 | 0.08 | 0.27 | 0.07 | 0.26 | 0.09 | 0.29 | 0.09 | 0.29 | 0.09 | 0.29 |
| Mother's age | 39.96 | 10.65 | 39.96 | 10.78 | 39.96 | 10.52 | 41.96 | 10.99 | 42.07 | 11.22 | 41.83 | 10.74 |
| Mother's age missing | 0.01 | 0.1 | 0.01 | 0.1 | 0.01 | 0.09 | 0.01 | 0.11 | 0.01 | 0.12 | 0.01 | 0.1 |
| Father's education | 3.55 | 4.33 | 3.55 | 4.32 | 3.55 | 4.34 | 3.75 | 4.42 | 3.72 | 4.44 | 3.78 | 4.4 |
| Father's education missing | 0.08 | 0.27 | 0.08 | 0.27 | 0.07 | 0.26 | 0.09 | 0.29 | 0.09 | 0.29 | 0.09 | 0.29 |
| Mother's education | 3.87 | 4.41 | 3.81 | 4.45 | 3.93 | 4.36 | 4.14 | 4.52 | 4.1 | 4.58 | 4.19 | 4.45 |
| Mother's education missing | 0.01 | 0.1 | 0.01 | 0.1 | 0.01 | 0.09 | 0.01 | 0.11 | 0.01 | 0.12 | 0.01 | 0.1 |
| Landless household | 0.87 | 0.33 | 0.87 | 0.33 | 0.87 | 0.33 | 0.86 | 0.35 | 0.86 | 0.35 | 0.86 | 0.35 |
| Data on land is missing | 0.78 | 0.42 | 0.78 | 0.42 | 0.78 | 0.41 | 0.77 | 0.42 | 0.77 | 0.42 | 0.77 | 0.42 |
| Non-metropolitan area | 0.58 | 0.49 | 0.58 | 0.49 | 0.57 | 0.49 | 0.56 | 0.5 | 0.58 | 0.49 | 0.54 | 0.5 |
| Non-metropolitan* (child is male) | 0.3 | 0.46 | 0.58 | 0.49 | 0 | 0 | 0.3 | 0.46 | 0.58 | 0.49 | 0 | 0 |
| Log of per capita expenditure | 6.52 | 0.47 | 6.51 | 0.47 | 6.52 | 0.46 | 6.57 | 0.47 | 6.56 | 0.48 | 6.57 | 0.46 |
| N | 3088 | | 1610 | | 1478 | | 1766 | | 921 | | 845 | |

*Note*: Data on educational expenditure are available only for children who attended school the previous year (N = 2166).