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in India: 1983-2004**

M. Niaz Asadullah
Uma Kambhampati
Florencia Lopez Boo

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M. Niaz Asadullah

*University of Reading
and IZA*

Uma Kambhampati

University of Reading

Florencia Lopez Boo

*Inter-American Development Bank
and IZA*

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IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

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ABSTRACT

Social Divisions in School Participation and Attainment in India: 1983-2004*

This study documents the size and nature of “Hindu-Muslim” and “boy-girl” gaps in children’s school participation and attainments in India. Individual-level data from two successive rounds of the National Sample Survey suggest that considerable progress has been made in decreasing the Hindu-Muslim gap. Nonetheless, the gap remains sizable even after controlling for numerous socio-economic and parental covariates, and the Muslim educational disadvantage in India today is greater than that experienced by girls and Scheduled Caste Hindu children. A gender gap still appears within as well as between communities, though it is smaller within Muslim communities. While differences in gender and other demographic and socio-economic covariates have recently become more important in explaining the Hindu-Muslim gap, those differences altogether explain only 25 percent to 45 percent of the observed schooling gap.

JEL Classification: I21, O15

Keywords: gender inequality, India, religion, social disparity

Corresponding author:

Florencia Lopez Boo
Inter-American Development Bank
1300 New York Avenue, N.W.
Washington, DC 20577
USA
E-mail: florencial@iadb.org

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Social divisions in school participation and completion in India: 1983-2004

1. Introduction

Acknowledging the importance of education for economic growth and poverty reduction, a number of studies in recent years have sought to document the constraints facing households in India with respect to investment in children's education (e.g., De and Dreze, 1999; Dreze and Kingdon, 2001; Kingdon, 2007; Kochar, 2004). The reasons identified for low participation range from factors such as rural infrastructure (e.g. roads), conditions in the local village economy, the functioning and size of the relevant labor market, household credit constraints and sex discrimination to the poor quality and inadequate supply of schools. While many studies have controlled for the role of religion and other social divisions in influencing participation, the latter have not been central to their analysis. More recently, however, it is this variation across social groups that is attracting increasing attention with concern centering on the possibility that lower schooling participation rates may mirror wider economic and social disadvantages that these groups face. Thus, it is widely believed that Muslims and lower-caste Hindu groups in India are economically deprived relative to the Upper-caste Hindu groups (Borooah, 2005; Gang, Sen and Yun, 2008) and suffer poor health, a lack of treatment and premature death (Borooah, 2004; 2010). The reasons for the gap in educational outcomes are not clear though it is thought be driven by a variety of demand and supply side factors. The 2006 Sachar Committee Report in India highlighted the educational gap between Hindus and Muslims, arguing that it may also arise from a number of supply-side factors including limited access of Muslim parents to government schools and poorer education infrastructure being available in villages with a larger Muslim population (Sachar Committee, 2006).

In this paper, we add to the literature by systematically estimating the size of the gap in education achievements of Muslims and Hindus in India across 11 states with sizeable Muslim populations. We also consider changes in this gap across two decades (1983-2004), which have seen many socio-economic changes in India including economic reforms in many sectors (Basu and Maertens, 2007), increased growth, some (albeit debated) decline in poverty as well as a number of educational interventions (like Operation Blackboard, Sarva Shiksha Abhiyan and the Mid-Day Meal programme). In the recent past, the Indian government has also introduced a range of policy interventions targeting the Scheduled Caste (SC) and Scheduled Tribe (ST)

groups in India and there is some evidence that these interventions have been successful in decreasing the education disadvantage suffered by these groups (Jenkins and Barr, 2006). All of these changes are likely to have influenced educational outcomes either directly or indirectly and the time interval covered by our data is sufficiently long to capture at least some of these effects.

Our analysis also considers the extent to which the gap in Hindu-Muslim educational outcomes is affected by a range of socio-economic factors (which might be expected to influence the demand for education). This allows us to estimate the extent to which the H-M gap can be explained by household level socio-economic factors and state level supply of schooling correlates using the Oaxaca method of decomposition. We find that these factors can explain a significant proportion, though not all, of the gap between Hindu and Muslim educational achievement in India.

This paper makes a number of contributions to the literature. It analyses patterns of school enrolment and completion across two decades during which average enrolment in India has increased significantly. Few studies to date have considered both enrolment and completion over such a long period of time. Second, it analyses gaps across social groups – boys and girls and Hindus and Muslims, SC, ST and other – explicitly and in doing so contributes to the growing body of evidence on the social gradient to child schooling in India. Given that some of these groups have been differently affected by positive discrimination interventions, comparing the patterns for these groups with those of Muslims helps provide some insight into the role that policy can play in bridging such gaps. Third, we integrate our analysis of the H-M gap with the gender gap to specifically consider if the latter provides an explanation for the former. No other study has so systematically considered this issue to date. In doing so, we also revisit the controversy over the size of gender penalty in Muslim communities and re-evaluate the finding of Deolalikar (2008) that gender penalty is in fact lower for Muslim girls in India. Fourth, it considers whether completion rates have followed the patterns of enrolment rates. This is especially important because school completion is more resource intensive than school enrolment and in a context where primary school enrolment is nearly universal, attention needs to shift towards the harder task of completion.

2. Background and Literature

Cross-country descriptive studies suggest that children growing up in Muslim communities in general have less schooling compared to those in non-Muslim communities (Bjørnskov, 2009; Stewart, 2008). While most existing studies on school participation and attainment in India today have also included religion and caste as correlates (e.g., Dreze and Kingdon, 2001; Kingdon, 2002; Dostie and Jayaraman, 2006)¹, evidence from these studies is mixed. Dreze and Kingdon (2001) find no evidence of intrinsic educational disadvantage among Muslim children, while Kingdon (2002) and Dostie and Jayaraman (2006) report some evidence of Muslim disadvantage in schooling even after netting out differences in family background and personal attributes.

More recently, three papers (Bhalotra and Zamora (2008), Deolalikar (2008) and Desai and Kulkarni (2008)) have concentrated specifically on gaps in school participation across social groups. Bhalotra and Zamora (2008) analyse primary school enrolment for 6-14 year olds across 3 social groups – Upper Caste Hindus, lower caste Hindus and Muslims – using the National Family Health Survey data. They analyse a 6 year period in the 1990s (post-liberalisation) and find that lower caste Hindus (SC/ST) and Muslims are disadvantaged with respect to school enrolment. While the disadvantage decreases during the 6 year period that they study, there remains a gap of 13% (relative to Upper Caste Hindus) for low caste Hindu children and a gap of 10% amongst Muslim children. This study does not analyse completion rates² and is unable to consider longer term trends in school participation and completion across social groups. Additionally, it does not separate SC/ST groups and is therefore unable to comment on the differential trends in schooling across these groups. The second recent study focusing on social gaps in schooling is that Deolalikar (2008). The study reports the schooling profile of adults belonging to different social groups using data on various age cohorts. The analysis is based on NSS 1999-2000 data. The paper therefore does not document changes over time in the relative schooling gap for a given cohort of children or the reasons for the observed changes. The third study, Desai and Kulkarni (2008), uses several rounds of the more comprehensive NSS data spanning the period 1983-2000 to examine caste inequalities in educational attainment and the role of affirmative

¹ Existing studies on determinants of children's health status also point out a Hindu-Muslim gap. Borooah (2004), for example, finds that Hindu children were 20 percent more likely than Muslim to be completely vaccinated than Muslim children. These findings are confirmed by a later study by Borooah (2004). However, compared to the literature on education outcomes, the evidence on health is mixed. Bhalotra, Valente and van Soest (2007) finding that Muslim girls have an advantage in child survival rate which they attribute to unobservable factors.

² Bhalotra and Zamora (2006) however analyses completion rates albeit only for primary school students.

action policies in reducing the schooling disadvantage of scheduled caste children in India. This study does not consider religious gaps in educational participation and completion.

The schooling gap in Muslim populations has been remarked upon in studies elsewhere in the world (Unicef, 2005; Cooray and Potrafke, 2010). In a search for explanations for this gap, Borooah and Iyer (2005a), conjecture that the Muslim educational deficit may in part result from a preference for religious over secular education. Others have argued that, to the extent that Muslim fertility in India is significantly higher than Hindu fertility (Dharmalingam and Morgan, 2004; Borooah and Iyer, 2004; Dharmalingam, Navaneetham, and Morgan, 2005)³, Muslim children grow up in larger families and face all the attendant disadvantages. Additionally, Kingdon (2005) in a study of the intra-household allocation of education expenditure in India finds evidence of lower budgetary allocation of household resources to education in Muslim households⁴. These group-specific background factors adversely affect both boys and girls in Muslim households. Bhalotra and Zamora (2008), however, argue that while most of the enrolment gap between low and high caste Hindus can be attributed to socio-economic differences between these groups, the Muslim disadvantage is unexplained by these factors. They conclude that ‘Muslim children appear to suffer from less positive attitudes towards or less good opportunities for primary education. This could be explained in terms of discrimination but could equally be explained in terms of Muslim parents being less ambitious about their children’s education or being faced with poorer quality schools.’

Other explanations for Muslim educational backwardness put forward in Sachar (2006) include the under-provision of government schools in Muslim neighborhoods, a lack of political participation and representation of Muslims in governance structures, under-representation of Muslims in mainstream economic activities and occupations and inequality in access to credit between Muslims and non-Muslims. Therefore, apart from being poor and more credit-constrained, Muslim households are likely to be concentrated in states that are institutionally

³ Some demographers (e.g. Jeffery and Jeffery, 2002) argue that most of the H-M differences in fertility are the result of differences in region, class, residence and schooling, rather than any difference in religion. Some even attribute the claim of higher Muslim fertility in India to the political propaganda of the Hindu right. But recent studies using large scale survey data not only confirm differential fertility gap by religion in India, the gap remains even after controlling for region and other demographic and socio-economic factors (e.g. for a review of the relevant studies, see Weigl 2010).

⁴ Kingdon finds that religion matters in intra-household allocation in India, even amongst non-poor households: “...even after controls for household per capita expenditure and head’s education, Muslim households have significantly lower education budget sub-shares than Hindus and Sikhs.”

(e.g. schools, banks, roads and so on) under-provided by the government. Recent studies that have examined the influence of state characteristics on the allocation mechanism of education services in rural India using district-level data report evidence of selectivity in the allocations against Muslims (e.g., see Betancourt and Gleason, 2000). On the demand side, Muslim children may be more disadvantaged in terms of family factors such as poverty, lack of parental motivation or labor demands on children. Muslim parents have lower average levels of education compared to Hindus, and Muslim children are therefore often first-generation entrants into schooling. Muslims also have limited ownership of land in rural areas and hence are likely to be poor. They are primarily engaged in traditional trades such as weaving, trading and crafts where demand for child labor may be high and where returns to education may be perceived to be low. In addition, Muslims predominantly select into non-farm self-employment instead of formal salaried work (Das, 2003). In this paper, we include as many of the observable and measurable factors discussed above as possible into our model as correlates of school participation and completion. We then estimate in section 4.3 the proportion of the Hindu-Muslim gap in schooling that can be explained by these covariates and the proportion that remains unexplained.

One explanation that has not been touched on above but which is often alluded to is the possibility that gender-differentiated effects may adversely affect Muslim educational attainments. Is it possible that the H-M gap in participation and completion is driven by a larger gender penalty attached to Muslim girls than Hindu girls? The literature is once again divided on this issue. Borooah and Iyer (2004) argue that Muslims have lower daughter aversion compared to Hindus. This, in turn, could have two contrasting effects. On the one hand, lower daughter aversion may imply that Muslims invest more in their girl children than Hindus. On the other hand, the larger families that it leads to might also result in lower average investment per child.

As seen from the literature review above, while many studies point to a Muslim disadvantage in education in India, there is little systematic evidence regarding the size of this gap or its trajectory over the last few decades. Quantitative studies on the extent and evolution of the Hindu-Muslim educational gap in India are limited, let alone studies explaining the underlying reasons for Muslim educational disadvantage. In this paper, we use two rounds of the National Sample Survey of India (1983 and 2004) to systematically analyse this issue. We consider whether this educational gap can be explained by a range of household demand and supply-side covariates. We attempt to formalize this using the Oaxaca decomposition which

indicates the proportion of the gap between Hindu-Muslim children which remains unexplained by these factors. Finally, we also analyse the interaction of religion with gender to try and understand whether the educational gap is an artifact of a gender gap⁵. Our results indicate significant H-M gaps in school participation and completion, even after netting out differences in household and socio-economic characteristics. While the Muslim educational disadvantage in India today is smaller than in 1983, it remains larger than that experienced by SC children and girls. We also reject the hypothesis that differential treatment of girls by Hindu and Muslim households can to explain this persistent educational disparity between India's two largest religious groups. The last finding is consistent with Deolalikar (2008) who noted that Muslim women improved educational attainment faster than Muslim men over the past decades.

The rest of the paper is organized as follows. Section 2 explains the regression framework and discusses the data, and Section 3 presents the main results. Section 4 concludes.

3. Methodology and Data

Our analysis draws upon unit level NSS data for the years 1983 and 2004 to study school enrollment (for children aged 6-18) and completion (for individuals aged 10-21)⁶. Our data therefore covers primary, middle and secondary school and by extending our completion statistics to 21 year olds, we capture those who complete late and also those who might have been in school for however short a period in either round of the data. In doing this, we follow other studies on education in India (Dreze and Kingdon, 2001)⁷. Our analysis is restricted to the 11 major states in India with a sizable Muslim population. These are: West Bengal, Uttar Pradesh, Tamil Nadu, Rajasthan, Maharashtra, Madhya Pradesh, Kerala, Karnataka, Gujarat,

⁵ It is worth noting that apart from covering a longer time period (i.e. 24 years), our paper differs from the Desai and Kulkarni (2008) paper in a number of different ways. First, we abstract away from caste inequality and explicitly focus on Hindu-Muslim attainment gap by decomposing this into explained and unexplained variations. Second, we additionally look into enrolment gaps and control for supply-side effects which are not considered by Desai and Kulkarni (2008). Lastly, we examine the progress made in reducing gender gap to understand the persistence in Hindu-Muslim education gaps in India.

⁶ Whilst NSS 1996 round contains detailed education data, this is not used for the sake of comparability with other rounds. Published studies on school enrolment and grade completion in India consider somewhat narrower age groups (e.g. see Dreze and Kingdon, 2001).

⁷ For school completion, we use a slightly older age bracket. This is to account for the fact that school completion is not observed for a large number of children before they are 10 years or older because they enter into school at a later age.

Bihar and Andhra Pradesh⁸. Our study separately considers 4 socio-economic groups – Upper caste Hindus, Muslims, Scheduled caste and Scheduled Tribe – to see whether they exhibit distinct patterns with regard to school enrolment and completion. This is especially important in the context of the large number of policy interventions, primarily aimed at the SC groups.

Table 1 reports mean values of current enrolment and school completion variables by religion, caste and gender groups. Analysis of enrollment data for the past two decades reveals significant progress in schooling. For instance, enrollment rates for ST children more than doubled in the last 20 years, increasing from 26 percent in 1983 to 56 percent in 2004. In fact, with the exception of Hindu boys and children in the “other religion” category⁹, enrollment rates have increased significantly across all gender, religion and caste groups in India. Nonetheless, as shown in Table 1, significant social gaps continue to exist. First, irrespective of gender, enrollment of Muslim children is systematically lower when compared to Upper caste Hindu (excluding SC and ST) children in 1983. Similar gaps also prevail between SC and ST children and the upper-caste Hindu sample. Second, irrespective of caste and religion groups, girls systematically had lower enrollment rates than boys in 1983. Third, the religion, caste and gender gaps that prevailed in 1983 had narrowed greatly by 2004: the enrollment difference between Hindu and SC children was no longer statistically significant, and the ratio of Muslim-Hindu enrolment rates was 0.93 in 2004, up from 0.78 in 1983.

While the observed pattern in school completion is consistent with that of enrollment, the difference between the groups is larger. Table 1 reveals that completion rates increased significantly across all gender, religion and caste groups. However, in contrast to the near convergence in enrolment statistics across social groups, progress in closing social and religious gaps in completion has been less rapid. For instance, the ratio of Muslim to Hindu completion rates increased from 0.73 to 0.83 between 1983 and 2004—compared to an increase in the ratio of the current enrollment rate between these groups from 0.78 to 0.93, as noted above. This pattern holds for both boys and girls. In other words, the 2004 completion figures indicate wider social disparities than do the enrollment rates. While Muslim boys and girls had better completion rates than SC/ST boys and girls in 1983, our figures show that by 2004, SC boys had

⁸ We dropped all states for which NSS data reported less than 4% of child population as Muslims.

⁹ For the sake of comparability, we maintain the same group definition across 1983 and 2004 rounds.

higher grade completion rates in these states than Muslim boys. Muslim girls, on the other hand, continued to do better on grade completion than SC/ST girls.

Table 1. Religion-Caste-Gender Schooling Gaps in Raw Data

		1983			2004		
		N	Mean	Sd	N	Mean	Sd
Current enrollment (children aged 6-18 yr olds) <i>Pooled sample</i>	Muslim	19,465	0.427	0.495	18,063	0.552	0.497
	Hindu (no SC, no ST)	85,548	0.541	0.498	59,466	0.591	0.492
	SC	20,968	0.377	0.485	18,003	0.581	0.493
	ST	9,674	0.266	0.442	5,975	0.561	0.496
	Other religion	5,888	0.707	0.455	3,333	0.581	0.493
Boys	Muslim	10,071	0.497	0.500	9,403	0.569	0.495
	Hindu (no SC, no ST)	45,107	0.628	0.483	31,518	0.602	0.490
	SC	11,252	0.476	0.499	9,530	0.597	0.491
	ST	5,080	0.357	0.479	3,179	0.595	0.491
	Other religion	3,058	0.742	0.438	1,769	0.594	0.491
Girls	Muslim	9,394	0.353	0.478	8,660	0.535	0.499
	Hindu (no SC, no ST)	40,441	0.444	0.497	27,948	0.579	0.494
	SC	9,716	0.262	0.440	8,473	0.563	0.496
	ST	4,594	0.167	0.373	2,796	0.523	0.500
	Other religion	2,830	0.669	0.471	1,564	0.566	0.496
Grade completion (children aged 10-21 yr olds) <i>Pooled sample</i>	Muslim	14,935	1.210	1.267	14,825	1.908	1.130
	Hindu (no SC, no ST)	68,365	1.642	1.338	50,642	2.281	1.072
	SC	15,838	0.981	1.227	14,480	1.890	1.119
	ST	7,112	0.640	1.043	4,691	1.681	1.163
	Other religion	5,075	2.193	1.212	2,897	2.575	0.963
Boys	Muslim	7,793	1.379	1.278	7,707	1.950	1.098
	Hindu (no SC, no ST)	36,643	1.876	1.279	26,975	2.346	1.021
	SC	8,732	1.253	1.265	7,817	2.008	1.062
	ST	3,757	0.895	1.144	2,522	1.828	1.112
	Other religion	2,655	2.247	1.154	1,545	2.573	0.943
Girls	Muslim	7,142	1.024	1.228	7,118	1.863	1.161
	Hindu (no SC, no ST)	31,722	1.371	1.355	23,667	2.206	1.122
	SC	7,106	0.646	1.089	6,663	1.752	1.168
	ST	3,355	0.356	0.828	2,169	1.511	1.198
	Other religion	2,420	2.133	1.271	1,352	2.578	0.985

Note: (a) Calculation based on NSS data, restricted to 11 states with sizable Muslim population. (b) School completion is a categorical variable and takes 5 values; it is defined as follows: “0” if no schooling (never attended-school); “1” if 1-4 years of schooling (ever enrolled); “2” if 5 years of schooling (Completed Primary education); “3” if 5-12 years of schooling (Middle and secondary); “4” if 12 years of schooling or more.

In order to estimate the extent to which these H-M schooling gaps can be explained by individual and household characteristics or by the state in which the individuals live, we estimate school enrollment and school completion models using probit and ordered probit techniques respectively.¹⁰ These regressions are estimated separately for NSS 1983 and 2004. Apart from child age and gender, our regression specification controls for a range of family factors and parental characteristics that have been suggested as relevant covariates in the literature. These include family size and composition, education of father, mother and highest educated non-parent (and non-sibling) member, household expenditure, female headship, economic activity of the household head and rural location, among other features. In addition, we also include a

¹⁰ Our choice of estimation technique is consistent with other studies on India (e.g. see Dreze and Kingdon, 2001).

Muslim dummy (alongside controls for the household belonging to a Scheduled-caste (SC), a Scheduled-tribe (ST) or being a member of a non-Hindu and non-Muslim (i.e. Christian, Sikh, Jain, Buddhist etc) community, leaving (upper caste) Hindu as the base category.¹¹ The coefficient on the Muslim dummy is expected to capture the part of the observed Muslim disadvantage (if any) in the data that is not explained by the other control variables (i.e., the child's gender, socioeconomic background and/or state of residence) that have been included.

We extend the analysis further to estimate the proportion of the raw Hindu-Muslim gap that is explained by the covariates as opposed to the proportion that is left unexplained. To do this, we decompose the raw Hindu-Muslim differences in schooling using the familiar Oaxaca method¹². The decomposition technique first involves estimating separate schooling equations for the relevant groups. Mean differences in the explanatory variables between the groups are then weighted to estimate education differentials. Following this approach, one can examine how much of the average schooling gap between, say, Hindu and Muslim children can be explained by differences in personal/family characteristics (our covariates) and how much remains unexplained by between group characteristics differences (i.e., the residual component). If the unexplained component is substantial, then one may argue that there is an advantage enjoyed by Hindu children as compared with Muslim children's education, which is not explained even by their otherwise favorable background characteristics relative to Muslim children.

In most of our analysis, supply side characteristics are controlled for using state-level dummies. However, in our final section (section 4.4), we include some schooling supply variables at district level into our 2004 estimations. Unfortunately, this data is unavailable for 1983 and we cannot therefore include it in both sets of estimations. Thus, the 2004 estimations can be viewed as sensitivity tests indicating whether the inclusion of supply side controls changes the size of the gap or the proportion of it that is explained by the covariates. Appendix Tables 1A, 1B, 2A and 2B report mean values of outcome variables, current enrolment and grade completion, and other control variables by survey year and religious groups.

¹¹ This means that the base category also includes "other backward caste" (OBC). There is no consensus in the literature on whether to explicitly treat this category as a separate social group. Jenkins and Barr (2006) consider SC and ST as separate from other backward castes on the grounds that completion rates are much lower than for other groups. We have however repeated our analysis separating out this group from the base category and explicitly controlling for OBC membership. This did not significantly alter our main conclusions (results available upon request).

¹² The only published paper on schooling in India that follows a similar methodology is Borooah and Iyer (2005b).

Appendix Tables 1B and 2B reproduce the summary statistics by further disaggregating the sample into upper caste Hindu, SC, ST, Muslim and other religious groups. Looking at the household background variables, we find a considerable increase in adult literacy and household socio-economic conditions for our sample of households between 1983 and 2004. This provides some evidence, albeit unsystematic¹³, of the improvement in socio-economic conditions in India over the last 2 decades (see also Datt and Ravallion, 2002). However, these tables confirm that there remains a socioeconomic gap between Muslim and non-Muslim children. For instance, while family size is on the decline in India, Muslim children continue to come from larger households than Hindu children (Appendix Table 1B, 2B). Similarly, despite an increase in the adult school completion rate, the household head's schooling remained significantly higher among Hindu than Muslim households. In the next section, we investigate these preliminary findings more systematically in a multivariate setting to see whether these observed differences in socio-economic backgrounds of Hindu and Muslim children can fully explain schooling gaps between these groups.

4. Results

4.1 Analysis of School Attendance and Completion Regressions

Table 2 reports Probit estimates for selected determinants of current enrolment for children aged 6-18. Results are reported separately for 1983 and 2004 samples. While detailed results are reported in Appendix Table 4, in this section, we concentrate on the variables of interest and do not discuss the entire estimation. Model 1 only controls for Muslim, SC, ST and other religion dummies and state dummies, while Model 2 fully controls for child and household characteristics. In both models, upper caste Hindus are the base category.

Muslim children in general have lower rates of enrollment than other groups in India after controlling for their state of residence in 2004 (Table 2, Model 1) as well as family background (Table 2, Model 2). The relative importance of overall family background is confirmed by a simple F-test which always returns a highly significant F-statistic (see Table 2) leading us to conclude that a significant amount of the difference between H-M educational outcomes relates

¹³ There is some debate over what happened to poverty in India during the 1990s (Deaton and Kozel 2005). This ongoing debate over poverty trends in India has implications for the interpretation of our results. However, whilst findings on declining poverty have been challenged (e.g. see Patnaik, 2010), in many cases these challenges did not stand up to careful scrutiny (e.g. see Deaton and Drèze, 2009).

to family background. Table 2 also indicates that while, in both years, Muslim enrollment was lower than SC enrollment, it was higher than ST enrollment. By 2004, however, the Muslim position had improved relative to both Upper caste Hindu and ST groups. Thus, the coefficient on Muslim dummy which indicates the Muslim position relative to Upper caste Hindus reduced from -0.124 (Model 1, 1983) to -0.042 (Model 1, 2004). Further controls for socioeconomic characteristics of the child's family and the child's age and gender do not significantly alter the coefficient size between/within survey rounds (see Model 2).

Table 2. Estimates of Social and Gender Gaps in Current Enrollment

	1983		2004	
	(1)	(2)	(1)	(2)
Female		-0.278*** (0.0040)		-0.080*** (0.0050)
Muslim	-0.124*** -0.004	-0.121*** (0.0050)	-0.042*** -0.004	-0.049*** (0.0060)
Other religion	0.131*** -0.007	0.074*** (0.0080)	0.01 -0.009	-0.013 (0.0120)
Scheduled tribe	-0.261*** -0.005	-0.127*** (0.0060)	-0.037*** -0.007	-0.096*** (0.0090)
Scheduled caste	-0.158*** -0.004	-0.033*** (0.0050)	-0.018*** -0.004	-0.015*** (0.0060)
Child and Household Controls	Yes	Yes	Yes	Yes
N	141543	141543	104846	104846
Pseudo R2	0.034	0.28	0.00297	0.461
Mean predicted enrolment probability	0.4890	0.4890	0.5810	0.5810
Chi-square test	10433	54903	465.7	65761
F-Test: Family and child attributes		34529		40534
F-Test: state dummies		3422		785

Note: (a) The coefficient on the Muslim dummy in 1983 is significantly different from that coefficient in 2004 (Chi-sq= 91.63 and Prob> chi2 = 0.0000). (b) For full specification and further notes on the estimates presented, see Appendix Table 4. Base category is Upper caste Hindu.

Turning now to grade completion, we present conditional social gaps in grade completion in Table 3 below. Detailed results are reported in the Appendix (Table 5) and we discuss only the results of interest (i.e. the size of the H-M gap before and after controlling for household socioeconomic conditions) in this section. As before, therefore, model 1 only controls for Muslim, SC, ST and other religion dummies and state dummies while Model 2 includes a full set of child and household-specific controls. Results are reported separately for the 1983 and 2004 samples. On the basis of the Model 1 estimate, the Muslim penalty in grade completion remains unchanged between the two survey rounds. However, once we control for various aspects of the socioeconomic characteristics of the child's family and the child's age and gender, we find a significant reduction in Muslim disadvantage: the coefficient on the Muslim dummy falls from -0.325 in 1983 to -0.225 in 2004. This implies that Muslims are becoming better off in terms of

household characteristics and once this is taken into account the size of their completion gap relative to Hindus has decreased. Once again, we find that while in 1983, the Muslims were better off in terms of grade completion than SC/ST groups, by 2004, their position improved relative to the ST groups but became worse than that of SC groups.

Table 3. Estimates of Social and Gender Gaps in School Completion

	1983		2004	
	(1)	(2)	(1)	(2)
Female		-0.621***		-0.214***
		-0.008		-0.008
Muslim	-0.386***	-0.325***	-0.383***	-0.225***
	-0.01	-0.011	-0.01	-0.011
Other religion	0.321***	0.117***	0.137***	-0.028
	-0.016	-0.017	-0.021	-0.021
Scheduled tribe	-0.880***	-0.418***	-0.590***	-0.280***
	-0.015	-0.016	-0.016	-0.017
Scheduled caste)	-0.563***	-0.169***	-0.332***	-0.073***
	-0.01	-0.011	-0.01	-0.01
Child and Household Controls	Yes	Yes	Yes	Yes
Observations	111325	111325	87540	87540
Pseudo_R2	0.048	0.209	0.0399	0.183
Chi-square test	14786	64323	10275	46993
F-Test: Family and child attributes		48169		35533
F-Test: state dummies		3981		4049

Note: (a) The coefficient on the Muslim dummy in 1983 is significantly different from that coefficient in 2004 (Chi-sq= 93.63 and Prob> chi2 = 0.0000). (b) For full specification and further notes on the estimates presented, see Appendix Table 5. (c) Base category is Upper caste Hindu.

The results shown in Tables 2 and 3 together present a mixed story. First, it is clear that Muslim disadvantage with respect to enrollment and completion has decreased between 1983 and 2004, with greater progress on the enrollment front (where the Muslim coefficient has decreased from -0.121 to -0.049) than on completion (-0.325 to -0.225). It is possible that this arises because grade completion requires the improvement in availability and quality of provision to be sustained for a significant number of years. Thus, it is arguably easier to increase enrolment through legislation and improvement of school availability, for instance but harder to persuade children to stay in school and benefit from their education when families face socio-economic constraints. Secondly, our results indicate that while the observed relative gain in enrolment amongst Muslim communities is independent of their socio-economic background (with the Muslim coefficient decreasing for both Models 1 and 2 in Table 2) the decline in Muslim disadvantage in completion rates seems bound up with household socio-economic characteristics.

Before we consider the role of gender in influencing the H-M education gap systematically, it is worth considering its impact more generally on school participation and

completion. Our results so far indicate that the coefficient on gender is systematically negatively signed. Indeed, the gender penalty in school completion in 1983 was double that of the Muslim penalty (see Table 3, Model 2). However, significant progress seems to have been made in decreasing this gender penalty so that by 2004, the gender disparity coefficient in school completion decreased to almost the same level as the Muslim coefficient. There was also a large decrease in gender disparity in enrollments during this period, from -0.27 to -0.08 between 1983 and 2004.

Our results indicate that school enrolment and completion of the average Indian girl improved significantly more than that of the average Muslim child between 1983 and 2004. In the next section, we will explore this issue further by decomposing the H-M gap.

4.2 Can the Gender Gap Explain the Hindu-Muslim Schooling gap?

As shown in the results so far, there has been significant progress in attracting more girls to schools in India. Despite this, a sizable gender disparity prevails especially in school completion even after controlling for differences in socioeconomic backgrounds and religious membership of the household. In this section, we assess whether the observed schooling gap between Hindu and Muslim communities can be explained by the differential treatment of girls across the two communities. We first examine the size of the Muslim penalty within gender group before looking at the extent of gender inequality within Muslim and Hindu households.

Table 4. Estimates of Social Gaps in Attendance by Gender, Children Aged 6-18

	1983		2004	
	Boys	Girls	Boys	Girls
Muslim	-0.121*** (0.0060)	-0.109*** (0.0060)	-0.059*** (0.0080)	-0.040*** (0.0080)
Other Religions	0.038*** (0.0110)	0.118*** (0.0120)	-0.019 (0.0170)	-0.005 (0.0180)
Scheduled tribe	-0.134*** (0.0080)	-0.110*** (0.0090)	-0.089*** (0.0120)	-0.105*** (0.0130)
Scheduled caste	-0.019*** (0.0060)	-0.053*** (0.0070)	-0.007 (0.0080)	-0.024*** (0.0080)
Child and household Controls	Yes	Yes	Yes	Yes
N	74568	66975	55403	49443
Pseudo R ²	0.211	0.351	0.48	0.444
Chi-square test	35922	30073	35924	30076
F-Test: Family and child attributes	14955	17096	21962	18571
F-Test: state dummies	934	3338	420	469

Estimates of the Hindu-Muslim enrolment gap by gender are reported in Table 4. Detailed results are reported in Appendix Table 6. Irrespective of gender, children from Muslim and lower-caste households were disadvantaged in 1983, holding differences in family background and state of residence constant. By 2004, the extent of disadvantage for Muslim boys and girls is significantly reduced. Looking across gender groups, the Muslim penalty is larger for boys¹⁴. The evidence of a smaller Muslim penalty in the female sample is not so surprising given that girls across all communities in India lag behind boys but it does confirm that Muslim girls are not significantly worse off in terms of enrolment than other girls.

Table 5. Estimates of Social Gaps in Grade Completion by Gender, Children Aged 10-21

	1983		2004	
	Boys	Girls	Boys	Girls
Muslim	-0.371*** (0.0150)	-0.274*** (0.0170)	-0.257*** (0.0150)	-0.200*** (0.0160)
Other Religions	0.040* (0.0230)	0.215*** (0.0250)	-0.02 (0.0300)	-0.033 (0.0310)
Scheduled tribe	-0.429*** (0.0200)	-0.428*** (0.0270)	-0.261*** (0.0230)	-0.320*** (0.0250)
Scheduled caste	-0.135*** (0.0140)	-0.247*** (0.0180)	-0.057*** (0.0140)	-0.097*** (0.0150)
Controls				
N	59580	51745	46569	40971
Pseudo R ²	0.16	0.269	0.183	0.194
Chi-square test	27003	36300	24470	23819
Join test of significance: Family & child attributes	21465	24480	19211	17100
Joint test of significance: State dummies	1301	3632	1648	2631

Similar estimates of Hindu-Muslim gaps in completion rates by gender are reported in Table 5. Detailed results are reported in Appendix Table 7. Once again, irrespective of gender, children are disadvantaged in Muslim and SC/ST households in 1983, holding differences in family background and state of residence constant. While this penalty decreased between 1983 and 2004, it remains large and significant. When compared to boys, the Muslim penalty is smaller in the girl sample both in 1983 and 2004. However, the Muslim penalty has been reduced by 45 percent (25 percent) for boys (girls) between 1983 and 2004.

Table 6. Estimates of Social Gaps in Grade Enrollment by Gender, Children Aged 6-18

	1983		2004	
	MUSLIM	HINDU (no SC, ST or OR)	MUSLIM	HINDU (no SC, ST or OR)
Female	-0.222*** (0.009)	-0.281*** (0.005)	-0.048*** (0.011)	-0.083*** (0.007)

¹⁴ T-test results of difference of means confirmed the statistical significance of these gender gaps. Results are available from the authors upon request.

Pseudo_R2	0.258	0.273	0.395	0.515
Chi-square test	4088	21038	6389	24410
F-Test: Family and child attributes	976.5	1664	183.9	465.8
F-Test: state dummies	6949	32267	9940	41408
N	19719	85548	18279	59466

Note: (a) Underlying detailed regression models for Hindu and Muslim samples are not reported but are available from the authors upon request. (b) Standard errors in parenthesis.

Table 7: Estimates of gender gaps in grade completion by gender, children aged 10-21

	1983		2004	
	MUSLIM	HINDU (excludes SC, ST or OR)	MUSLIM	HINDU (excludes SC, ST or OR)
Female	-0.480*** -0.021	-0.630*** -0.01	-0.131*** -0.02	-0.212*** -0.011
N	15131	68365	14995	50642
Chi-square test	7423	38441	7758	27830
F-Test: Family and child attributes	4608	30135	4735	22515
F-Test: state dummies	1344	1914	1193	1651
Pseudo_R2	0.184	0.199	0.175	0.191

Note: (a) Underlying detailed regression models for Hindu and Muslim samples are not reported but are available from the authors upon request. (b) Standard errors in parenthesis.

In Tables 6 and 7, we consider how girls' schooling within Muslim households compares with that of boys. Our results indicate that the gender penalty is always smaller in Muslim households compared to Hindu households. This is true both for current enrolment (Table 6) and school completion (Table 7). This suggests that, if anything, girls face greater disadvantage relative to boys in Hindu households than Muslim ones. Thus, it seems unlikely that our H-M gap results are driven by the greater disadvantages of females in Muslim communities. We explore this point further in the following section.

4.3 Decomposing the Hindu-Muslim Gap

Our analysis so far has focused on Hindu-Muslim gaps conditional on differences in observed characteristics. Our results suggest that these gaps cannot be fully explained by differences in socio-economic conditions of the two communities or by variation in gender disparity across the religious groups. In this section, we decompose the Hindu-Muslim schooling gap in raw data into explained (in terms of family background and child characteristics) and unexplained components using the Oaxaca decomposition technique. This technique assumes that the underlying regression models are linear. Since our outcome variables are probabilities and the underlying models are therefore probit models, the decomposition analysis should ideally

be based on non-linear models. Fairlie (2005) has amended the Oaxaca method for non-linear models such as a probit regression. We use his extension for the school enrolment decomposition. Since the Fairlie technique does not extend to ordered probit models, we use the original Oaxaca technique for completion gaps assuming an underlying OLS model¹⁵. Decomposition results are reported in Table 8. For comparison purposes, we report the results for both religion and gender gaps.

Table 8. Decomposition of Hindu-Muslim and Gender Schooling Gaps

	Enrolment gaps		Completion gaps	
	1983	2004	1983	2004
Hindu-Muslim				
Mean prediction: Hindu	0.54	0.59	1.642	2.281
Mean prediction: Muslim	0.43	0.55	1.21	1.908
Raw differential: Hindu-Muslim	0.11	0.04	0.433	0.372
Total unexplained	0.10	0.03	0.319	0.199
(% unexplained)	(90.91)	(75)	(73.7)	(53.4)
Total explained	0.01	0.01	0.114	0.173
(% explained)	(9.09)	(25)	(26.3)	(46.6)
Boy-Girl	1983	2004	1983	2004
Mean prediction: Boy	0.60	0.59	1.789	2.258
Mean prediction: Girl	0.43	0.57	1.308	2.127
Raw differential: Boy-Girl	0.18	0.03	0.482	0.13
Total unexplained	0.21	0.04	0.505	0.146
(% unexplained)	(116.67)	(133.33)	(104.9)	(111.6)
Total explained	-0.03	-0.01	-0.024	-0.015
(% explained)	(-16.67)	(-33.33)	(-4.9)	(-11.6)

Note: (a) Results based on 11 major states. (b) Regression specifications control for state dummies and household and child characteristics. (c) Enrolment gap estimates are based on Probit models whilst completion gap estimates are based on OLS. (d) Estimation sample for 1983 contains 105,013 observations (children aged 6-18 years) where 18 percent are Muslims and 52 percent are males. Estimation sample for 2004 contains 77,529 observations where 23 percent are Muslims and 52 percent are males. (e) Majority (i.e. Hindu in case of Hindu-Muslim gaps and boys in case of Boy-Girl gaps) coefficient vector is used as weights.¹⁶

The Oaxaca decomposition estimates reveal that the proportion of the enrolment gaps explained by individual gender, age and household socio-economic characteristics included in

¹⁵ We also took into account recent development in the literature and followed Bauer and Sinning (2008) in order to implement a non-linear decomposition analysis using ordered probit regressions. However, this approach failed in couple of instances because of convergence problem. Therefore, we retained the conventional linear decomposition results for grade completion in the paper.

¹⁶ The estimated value of the unexplained portion of Hindu-Muslim schooling differentials may depend on choice of weights i.e. whether the coefficient vector is assumed to correspond to the Hindu or Muslim schooling structure or some weighted function of the two. We experimented with different weights but our conclusions remained unchanged to the choice of alternative weights.

our model in Tables 2 to 4 increased from a mere 9 percent in 1983 to a sizable 25 percent in 2004. The explained variation in the completion gap registered an even greater increase of 20 percentage points between 1983 and 2004. Having said this, 75 percent of the enrolment gap and 53 percent of the completion gap remain unexplained by our covariates in 2004.

The unexplained variation in turn has two components - factors that are omitted from our covariate vector because of lack of data and factors that are not included in our covariate vector because they cannot be directly observed. The former might include location-specific factors such as variation in public provision of schools and other infrastructure in Muslim communities which could explain the remaining gap but for which there is no specific data that we can draw on. In section 4.4, we will attempt to analyse this for 2004, with the limited data that we currently have. The latter might include community-specific unobserved factors such as a preference among Muslims for Islamic education or differences in parental taste for educational investment between Hindu and Muslim households. This point is difficult to verify using available data. Besides, since the unexplained component is estimated as a residual, it is subject to measurement error problems in the data.

Turning to consider the gap in schooling across the two communities, our decomposition estimates (lower half of Table 8) indicate that the gender disadvantage in enrollment and completion is largely unexplained by background variables and is therefore suggestive of within-household discrimination. Table 9 reports decomposition estimates of Hindu-Muslim gaps separately for the samples of boys and girls.

Table 9. Decomposition of Hindu-Muslim Enrolment and Completion Gaps by Gender

	Enrollment gaps		Completion gaps	
	1983	2004	1983	2004
Boys				
Mean prediction: Hindu	0.63	0.60	1.88	2.35
Mean prediction: Muslim	0.50	0.57	1.38	1.95
Raw differential: Hindu-Muslim	0.13	0.03	0.50	0.40
Total unexplained	0.07	0.01	0.37	0.25
(% unexplained)	(56%)	(25%)	(74.6%)	(74.3%)
Total explained	0.06	0.02	0.12	0.08
(% explained)	(44 %)	(75 %)	(25.4%)	(25.7%)
Girls				
Mean prediction: Hindu	0.44	0.57	1.37	2.20
Mean prediction: Muslim	0.35	0.53	1.02	1.86
Raw differential: Hindu-Muslim	0.09	0.04	0.35	0.34
Total unexplained	0.08	0.01	0.21	0.18

(% unexplained)	(85%)	(27%)	(54.5 %)	(53.2 %)
Total explained	0.01	0.03	0.18	0.16
(% explained)	(15 %)	(63 %)	(25.5 %)	(46.8 %)

Note: (a) Results based on 11 major states. (b) Regression specifications control for state dummies and household and child characteristics. (c) Enrollment gap estimates are based on Probit models while completion gap estimates are based on OLS. (d) Majority (i.e., Hindu excluding SC and ST) coefficient vector is used as weights.

Our results indicate that 75% of enrolment gaps (between Hindu and Muslim) for boys and 63% for girls is explained by the underlying characteristics and background difference. Contrary to this, in 2004, the proportion explained by such factors for girls (47%) is larger than for boys (26%) in 2004 data. Our results therefore lead us to two conclusions: the proportion that is unexplained is larger for the completion gap than the enrolment gap; and it is larger for boys than for girls. This is surprising because, if discrimination is part of the unexplained component, then we would expect it to be greater for girls (for whom gender discrimination also exists) than for boys. The fact that this unexplained component is larger for boys indicates that, at least in explaining the Hindu-Muslim gap, gender discrimination is not an important issue.

4.4 The Role of Supply-Side Factors

As mentioned earlier, one observable factor which we have not so far allowed for is the difference in infrastructure and the supply of public goods across Muslim and Hindu villages. To explore this issue formally, we use the 2002 NSS village level dataset on supply of schools, merging it with NSS 2004 at the district level¹⁷. We do not have similar data for 1983. Since the main purpose of our paper is to trace changes over time, we did not include these supply-side factors in the main models discussed in Tables 2-4. Instead, we include them in this section for the year 2004 to see if they make a difference to our results. This allows us to judge the sensitivity of our findings to supply-side factors.

¹⁷ The school supply data comes from the questions on ‘distance from nearest facility’ from the ‘Village facilities’ module in the 58th round of the NSS conducted between July and December 2002. There is data on distance from pre-primary, primary, middle, secondary, higher secondary/junior college, college, industrial training institute and non-formal education centres. This data was available for 3,053 villages in the 11-states (against 7,748 villages in the 11-state in NSS 2004 data). However, given that the village identification code was not maintained from 2002 to 2004 as names are not provided, it was impossible to merge the data at the village level. Therefore, after assigning comparable codes based on district names, we merged the data using the district identification code (therefore aggregating data in the school supply dataset). We had data from 313 districts in the 11-states school data (against 367 villages in the 11-states in NSS 2004) The distribution of districts by state and proportion-of-Muslims-in-district by state in both datasets was similar (statistics available upon request)

Figures 1-3 plot data on school availability in Indian villages for our sample districts. Clearly, there is a negative correlation between the availability of a primary/middle/secondary school in an average village in the district and the district population having more than 20% Muslims. In other words, Muslim households systematically incur higher travel costs compared to Hindus when it comes to children's schooling. More importantly, the relative disadvantage associated with greater distance increases as we move from primary to secondary school availability because 92% of Indian villages have at least one primary school whilst only 25% of the villages have a secondary school.

Inequalities in the provision of schools might be expected to influence Hindu-Muslim schooling gaps. Estimates of the regression models including school supply variables are presented in Appendix Tables 8 and 9. The two variables we include are: "whether villages in a given district have, on average, a primary school located outside the village" and "whether villages in a given district have, on average, a secondary school located outside the village". Our results indicate that the non-availability of primary and secondary schools in the village (measured at the district level) does not affect school enrolment for either Hindus or Muslims. We also find that school availability is positively correlated with school completion for both Muslim and Hindu samples at the primary level but not at the secondary level (see Appendix Table 9). Our results therefore indicate no systematic variation across the H-M samples to school availability. As an alternative test, we re-estimated the model for 2004 data including a full set of controls for district dummies in place of state-specific dummies. The full regression models are not reported but are available from the authors upon request. We find that our results hold true even when district dummies are included as additional controls. The revised estimates of Muslim-Hindu gap in school attendance and completion are -0.054 and -0.233 respectively as opposed to -0.049 in Table 2 and -0.225 in Table 3 respectively. We can therefore conclude that our results are not driven by across-district differences in the supply of educational and other relevant public goods to which Hindu and Muslim populations have differential access. Overall, therefore, the influence of school availability remains weak, a conclusion which is consistent with the available evidence on the impact of school supplies on children's educational outcomes in India (e.g. see Filmer, 2007).

To complete our analysis, we use the 2004 regressions with supply side covariates (reported in Appendix Tables 8 and 9) to carry out the Oaxaca analysis. We first carried out the

decomposition analysis without control for the supply-side variables and worked out the explained variation. Then we repeated the analysis by including two supply-side variables in the regression models. Comparison of Oaxaca results indicated that allowing for provision of schooling does not reduce the share of the unexplained variation between Hindus and Muslims (results available from the authors upon request). We also repeated the Oaxaca decomposition analysis based on regression models with district dummies for NSS 2004. Once again our results remain unchanged. These results suggest that whilst access to schools matters for educational attainment and there remains inequality in educational access across religious communities, it does not account for the observed Hindu-Muslim gap in school attainment¹⁸.

4.5 Social gaps in schooling across states

To complete our analysis, we will consider the Hindu-Muslim gaps in schooling participation and attainment across states in India. This is especially important because schooling is largely a state policy issue. Our analysis so far has focused on H-M differences in mean schooling outcomes. However, from a policy point of view, examining the differences across states is useful. Table 10 reports coefficients from state-specific school enrolment and grade completion regressions. A number of important patterns can be identified. First, there is a decline across all states in H-M gaps in enrolment and grade attainment between 1983 and 2004. This is consistent with the national trends discussed earlier in the paper. Second, by 2004 the H-M enrolment gap remains significant only in the states of UP, Rajasthan, MP and Bihar, though with the exception of Rajasthan, each of these states has a very large Muslim population. Compared to the H-M disparity, the gender gap is more persistent and prevails in 9 out of 11 states even in 2004. Third, in the case of completion, H-M gaps persist in all states with the exception of Tamil Nadu. This is particularly striking when compared to the progress achieved

¹⁸ However, care is needed in interpreting the results. One potential problem is that Oaxaca technique makes a number of simplifying assumptions about the way markets operate in order to disentangle the independent effects of various factors on the price structure (Champlin and Knoedler, 2004). For instance, in studies of gender wage gap decomposition it is typically assumed there is a degree of independence between gender differences in personal characteristics and gender differences in rewards to these characteristics (Greenshaw and Rubery, 2002). To give a concrete example, females may have less schooling and hence low wage. But reasons for low schooling are also related to low returns to female education in the labor market. In the context of schooling in India, therefore, Muslim households may be poorer because for instance of discrimination in the access to public goods. But the same reason could also mean that schooling of education in Muslim communities is less responsive to the availability of public goods.

by scheduled castes. Thus, the disaggregated results by state confirm the aggregate cross-country patterns discussed so far.

Table 10. State-specific estimates of social gaps in school enrolment and completion

Enrolment		AP	WB	UP	TN	Rajasthan	Maharashtra	MP	Kerala	Karnataka	Gujarat	Bihar
1983	muslim	-0.077*** (0.017)	-0.186*** (0.014)	-0.173*** (0.009)	-0.014 (0.020)	-0.180*** (0.016)	-0.162*** (0.015)	-0.077*** (0.021)	-0.041*** (0.013)	-0.063*** (0.018)	-0.050** (0.023)	-0.085*** (0.012)
	Female	-0.255*** (0.013)	-0.175*** (0.012)	-0.339*** (0.008)	-0.218*** (0.014)	-0.417*** (0.012)	-0.209*** (0.010)	-0.320*** (0.011)	-0.031*** (0.010)	-0.188*** (0.014)	-0.204*** (0.015)	-0.367*** (0.010)
	schtribe	-0.171*** (0.025)	-0.213*** (0.025)	-0.158*** (0.025)	-0.027 (0.053)	-0.069*** (0.021)	-0.166*** (0.016)	-0.099*** (0.012)	-0.162** (0.066)	-0.140*** (0.028)	-0.080*** (0.020)	-0.107*** (0.016)
	schcaste	0.047*** (0.016)	-0.059*** (0.013)	-0.073*** (0.010)	0.017 (0.016)	-0.083*** (0.015)	-0.047*** (0.016)	0.019 (0.015)	0.014 (0.014)	-0.061*** (0.019)	0.024 (0.020)	-0.059*** (0.013)
	otherreligion	0.081*** (0.030)	0.114** (0.049)	0.077* (0.041)	0.174*** (0.019)	0.014 (0.036)	0.004 (0.016)	0.141*** (0.032)	0.035*** (0.011)	0.091** (0.036)	0.152*** (0.049)	0.166*** (0.036)
2004	muslim	0.008 -0.026	-0.019 -0.016	-0.111*** -0.011	0.029 -0.033	-0.059** -0.024	-0.002 -0.022	-0.044* -0.023	0.007 -0.036	-0.002 -0.032	-0.001 -0.032	-0.038** -0.017
	Female	-0.079*** -0.021	-0.035** -0.016	-0.076*** -0.01	-0.025 -0.024	-0.181*** -0.016	-0.029* -0.018	-0.080*** -0.015	0.008 -0.039	-0.061** -0.027	-0.082*** -0.026	-0.100*** -0.015
	schtribe	-0.078** -0.033	-0.073** -0.032	-0.03 -0.056	-0.06 -0.173	-0.045** -0.021	-0.198*** -0.023	-0.149*** -0.018	0.056 -0.128	0.035 -0.04	-0.064** -0.031	-0.081 -0.075
	schcaste	0.025 -0.023	0.007 -0.017	0.001 -0.011	0.029 -0.02	-0.023 -0.018	-0.021 -0.022	-0.040** -0.018	0.026 -0.053	-0.089*** -0.029	0.080** -0.035	-0.066*** -0.016
	otherreligion	-0.130** -0.053	-0.062 -0.06	0.118** -0.048	-0.013 -0.038	-0.136*** -0.046	0.064** -0.028	0.028 -0.056	-0.011 -0.042	0.124* -0.068	-0.076 -0.073	-0.057 -0.094
Completion		AP	WB	UP	TN	Rajasthan	Maharashtra	MP	Kerala	Karnataka	Gujarat	Bihar
1983	muslim	-0.195*** (0.041)	-0.583*** (0.034)	-0.570*** (0.025)	-0.060 (0.042)	-0.513*** (0.052)	-0.307*** (0.033)	-0.212*** (0.049)	-0.296*** (0.041)	-0.205*** (0.042)	-0.192*** (0.049)	-0.251*** (0.035)
	Female	-0.534*** (0.029)	-0.391*** (0.026)	-0.890*** (0.020)	-0.456*** (0.027)	-1.199*** (0.035)	-0.462*** (0.023)	-0.791*** (0.026)	-0.007 (0.033)	-0.377*** (0.031)	-0.490*** (0.031)	-1.048*** (0.027)
	schtribe	-0.462*** (0.076)	-0.657*** (0.063)	-0.420*** (0.080)	-0.282*** (0.107)	-0.367*** (0.063)	-0.580*** (0.039)	-0.396*** (0.033)	-0.492*** (0.155)	-0.413*** (0.077)	-0.349*** (0.049)	-0.276*** (0.047)
	schcaste	-0.005 (0.041)	-0.258*** (0.031)	-0.244*** (0.026)	-0.106*** (0.036)	-0.290*** (0.043)	-0.258*** (0.036)	-0.124*** (0.037)	-0.158*** (0.052)	-0.152*** (0.047)	-0.019 (0.045)	-0.219*** (0.039)
	otherreligion	-0.034 (0.068)	0.185* (0.101)	0.099 (0.084)	0.263*** (0.046)	0.341*** (0.078)	0.025 (0.035)	0.259*** (0.066)	0.053 (0.040)	0.173** (0.073)	0.171* (0.097)	0.290*** (0.079)
2004	muslim	-0.133*** (0.040)	-0.188*** (0.031)	-0.412*** (0.023)	0.008 (0.057)	-0.364*** (0.046)	-0.109*** (0.035)	-0.120*** (0.044)	-0.142*** (0.047)	-0.244*** (0.045)	-0.131** (0.052)	-0.217*** (0.038)
	Female	-0.167*** (0.029)	-0.154*** (0.027)	-0.288*** (0.018)	0.062* (0.032)	-0.656*** (0.029)	0.015 (0.025)	-0.331*** (0.027)	0.198*** (0.043)	-0.052 (0.034)	-0.261*** (0.036)	-0.410*** (0.030)
	schtribe	-0.400*** (0.059)	-0.292*** (0.062)	-0.089 (0.125)	-0.689*** (0.241)	-0.167*** (0.043)	-0.329*** (0.041)	-0.392*** (0.037)	-1.240*** (0.205)	-0.290*** (0.065)	-0.123** (0.050)	-0.166 (0.164)
	schcaste	0.027 (0.036)	-0.070** (0.032)	-0.079*** (0.023)	-0.008 (0.035)	-0.148*** (0.035)	-0.057 (0.036)	-0.170*** (0.036)	-0.146** (0.068)	-0.037 (0.042)	-0.053 (0.057)	-0.150*** (0.038)
	otherreligion	0.028 (0.086)	-0.036 (0.112)	-0.061 (0.102)	0.112* (0.062)	0.033 (0.081)	0.104** (0.046)	-0.205** (0.102)	-0.076 (0.057)	-0.042 (0.105)	0.043 (0.114)	0.100 (0.185)

Our state level results however do indicate that progress so far has been faster in some states than in others. Some of this might well relate to specific government initiatives undertaken by the respective state and Central governments. Thus, Tamil Nadu's success in decreasing the H-M gap both in enrolment and completion unlike the other states in our sample as well as in decreasing the gender gap may relate to its pioneering adoption of the Mid-Day Meal programme in 1965, three decades earlier than most states in India. More generally, it can be argued that the progress in schooling in India has significantly benefited from several Central government sponsored education initiatives (Kingdon, 2007). The first of these within the period of our study is the National Policy on Education (NPE) of 1986 which emphasized three aspects in relation to elementary education: universal access, universal enrolment and universal retention of children up to 14 years of age. Since then, the District Primary Education Project and its follow-up, the *Sarva Shiksha Abhiyan* (SSA) launched in 2001, which focuses on achieving universal elementary (grades 1 to 8) education by the year 2010 in the age group 6–14 years have both been important.

The ongoing Sarva Shiksha Abhiyan (SSA) is the main vehicle for providing elementary education to all children in India. In addition to the above programs, special initiatives were introduced to ensure that these facilities reached marginalized communities, weaker sections of the people and in particular of the Scheduled Castes and Scheduled Tribes. SSA provides additional funding to enable states to enrol out-of-school children and to improve school quality. SSA also included specific demand side measures to bridge all gender and social category gaps at the primary stage by 2007 and at elementary education level by 2010.

The second large-scale nationwide intervention - the Mid day meal (MDM) scheme or National Programme of Nutritional Support to Primary Education - was started in 1965 in Tamil Nadu and was expanded to cover the entire country in 1995. This aims to improve enrollment and attendance at the primary level through the provision of a cooked midday meal to all children in grades 1–5 and is arguably the world's largest school feeding program.

An evaluation of the District Primary Education Project by Schmid (2006) found significant program impact, in particular for socially disadvantaged children (e.g. low caste) and girls. On the other hand, researchers looking at the MDM program's impact in specific states find that its presence is associated with increased school enrollments. While school enrollment rates have improved in response to these interventions, elementary school completion continues

to be a challenge: “retaining the children in school to complete the full cycle of eight years has remained an elusive goal” (Govinda and Bandyopadhyay, 2007) as confirmed by our results in Table 10.

5. Conclusion

For a multi-ethnic country like India with less than universal coverage of education, an important MDG challenge is that of closing school participation gaps across gender and social groups. In this paper, we analyzed schooling differences across groups of India’s children, distinguished by religion and gender, focusing in particular on India’s two largest religious groups, namely Hindu and Muslim.

Our analysis of household schooling decisions spanning the period of 1983-2004 reveals two things. First, there has been a significant decline in the Hindu-Muslim gap in both school participation and completion, although a significant gap still persists in school completion over time. Second, the persistent Muslim penalty in completion is independent of socio-economic background differences even though these socio-economic factors influence schooling participation and completion more generally both amongst Hindu and Muslim households. Third, there is no obvious pattern across states though our results indicate that TN is leading while UP, Bihar, MP and Rajasthan are lagging in the quest for more equitable schooling.

Our findings indicate that though the schooling of children from other socially disadvantaged groups such as SC, continues to be low, there has been an improvement over the past two decades. In fact, the changes in the educational patterns across these communities suggest that the SC have benefited from affirmative action programs supporting their educational progress. These benefits have meant that the relative penalty experienced by SC children today is smaller than that experienced by Muslim children, a pattern that is more pronounced in school participation than completion. Within this overall pattern, we find a significant boy-girl disparity.

To analyse whether the Muslim disadvantage arises from a disadvantage faced by Muslim girls in particular, we considered the interaction of the religious and gender gaps in schooling. We found that the Muslim disadvantage cannot be solely explained in terms of discrimination against Muslim girls. The within-household gender penalty is smaller in Muslim (relative to Hindu) communities, even after controlling for socio-economic backgrounds. Moreover, the Muslim penalty (conditional on socio-economic differences) is smaller in the case

of females than males. This suggests that low schooling of Muslims in India is not an artifact of poor treatment of women in Muslim communities¹⁹.

Overall, we find that observed family backgrounds and gender of the child remain strong predictors of school participation and attainment in India. They explain a higher proportion of the completion gap than the enrolment gap leading us to conclude that while policy and government can incentivize school enrolment, the extent to which children continue in school and complete remains more strongly dependent on the socio-economic characteristics of their families. Having said this, the Muslim disadvantage in school participation and completion is not fully explained by these factors. Standard decomposition analysis of the schooling gaps shows that a significant proportion of the Hindu-Muslim gap remains unexplained by covariate differences across the two communities. Therefore, more research is needed to understand the origin of India's persistent Hindu-Muslim gap in educational attainment looking beyond observed socio-economic characteristics.

In sum, our study contributes to the growing body of evidence on the existence of a social gradient to education in India. Nonetheless, the findings are subject to some caveats. First, the Oaxaca method followed in this paper is essentially a residual approach which defines discrimination as the proportion of schooling differential that is left over after the best possible specification of schooling regression (Champlin and Knoedler, 2004). Given the number of intangible factors that influence schooling as well as the lack of data on many of the tangible factors, future research could consider a case study approach or other pluralistic research methods to try and analyse this issue. Second, a disaggregated decomposition which documents the specific contributions of decline in poverty, fertility rate and parental literacies across communities to the closure of H-M schooling gaps might be useful in understanding the causes of the Hindu-Muslim gap further.

¹⁹ Available evidence using data from other countries with large Muslim population is not conclusive of a systematic female disadvantage in school participation (see Hajj and Panizza, 2008). More importantly, in some countries where a gender gap existed, it was possible to reverse the gap in school participation and completion. One example is Bangladesh—a South Asian country with a large Muslim population in South Asia which had a very low level of female school participation two decades earlier (Asadullah and Chaudhury, 2009). Using a nationwide gender-targeted conditional cash transfer program, it was possible to reverse the gender gap in secondary schooling within only five years of the program's introduction of the program. Such international experience provides important lesson for education debate in India. This suggests that even when female disadvantage is explained by community-specific norms, households can be induced to send girls to schools irrespective of their community membership with proper policy interventions.

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Appendix Table 1A: Summary statistics of regression variables (children aged 6-18 yrs)

	1983						2004					
	Non-muslim		Muslim		ttest		Non-muslim		Muslim		ttest	
	mean	sd	mean	sd	t	p value	mean	sd	Mean	sd	t	p value
attendingschool_618	0.500	0.500	0.426	0.494	19.251	0.000	0.587	0.492	0.553	0.497	17.593	0.000
Age7	0.086	0.280	0.083	0.275	1.358	0.174	0.078	0.268	0.077	0.267	1.422	0.155
Age8	0.099	0.298	0.107	0.309	-3.466	0.001	0.092	0.288	0.093	0.290	-2.496	0.013
Age9	0.068	0.252	0.067	0.251	0.461	0.645	0.064	0.244	0.064	0.244	0.627	0.531
Age10	0.109	0.312	0.112	0.315	-1.303	0.193	0.098	0.297	0.097	0.296	-0.192	0.848
Age11	0.060	0.238	0.056	0.230	2.267	0.023	0.058	0.234	0.058	0.233	1.819	0.069
Age12	0.102	0.303	0.108	0.310	-2.318	0.021	0.096	0.295	0.100	0.300	-2.616	0.009
Age13	0.063	0.243	0.058	0.234	2.576	0.010	0.070	0.254	0.065	0.246	3.161	0.002
age14	0.069	0.253	0.072	0.258	-1.409	0.159	0.077	0.267	0.080	0.271	-2.266	0.024
age15	0.069	0.253	0.063	0.242	3.211	0.001	0.073	0.260	0.074	0.262	1.687	0.092
age16	0.065	0.247	0.064	0.246	0.346	0.729	0.070	0.256	0.073	0.260	-0.803	0.422
age17	0.045	0.207	0.040	0.195	3.153	0.002	0.056	0.230	0.056	0.229	1.689	0.091
age18	0.075	0.264	0.075	0.263	0.156	0.876	0.086	0.281	0.084	0.278	0.208	0.835
female	0.472	0.499	0.483	0.500	-2.897	0.004	0.470	0.499	0.481	0.500	-3.9	0.000
hhheadedu	3.477	4.390	2.876	3.902	18.112	0.000	5.031	5.315	3.788	4.473	30.421	0.000
hhspouseedu	1.411	3.028	1.012	2.457	17.611	0.000	2.417	4.094	1.822	3.278	22.19	0.000
logpcce	9.247	0.571	9.188	0.555	13.594	0.000	8.081	0.553	8.149	0.522	16.769	0.000
femalehead	0.077	0.266	0.095	0.293	-8.601	0.000	0.088	0.283	0.123	0.328	-17.215	0.000
highesteducadult	2.623	3.033	2.312	2.582	13.609	0.000	4.209	3.415	3.878	2.777	12.055	0.000
ruralresident	0.686	0.464	0.482	0.500	56.674	0.000	0.685	0.465	0.539	0.499	67.292	0.000
farmhh	0.335	0.472	0.169	0.375	47.121	0.000	0.264	0.441	0.147	0.354	58.94	0.000
agriclabhh	0.191	0.393	0.122	0.327	23.331	0.000	0.114	0.318	0.084	0.277	27.732	0.000
schtribe	0.083	0.276					0.070	0.256				
schcaste	0.174	0.379					0.218	0.413				
loghhsze	1.866	0.380	1.977	0.376	-37.978	0.000	1.779	0.394	1.907	0.385	-52.374	0.000
otherreligion	0.048	0.214	0.000	0.000	31.646	0.000	0.039	0.193	0.000	0.000	41.957	0.000
own_land	0.458	0.498	0.256	0.437	53.664	0.000	0.489	0.500	0.296	0.456	71.331	0.000
propfemaleunder5	0.044	0.081	0.057	0.088	-20.902	0.000	0.037	0.078	0.050	0.085	-27.003	0.000
propmaleunder5	0.046	0.080	0.057	0.085	-18.806	0.000	0.040	0.078	0.052	0.087	-25.748	0.000
propfemale616	0.187	0.149	0.197	0.145	-8.867	0.000	0.185	0.156	0.201	0.154	-15.007	0.000
propmale616	0.208	0.154	0.210	0.147	-1.763	0.078	0.205	0.158	0.216	0.157	-6.796	0.000
propfemale50more	0.046	0.079	0.039	0.072	10.7	0.000	0.045	0.078	0.037	0.069	17.148	0.000
propmale50more	0.054	0.082	0.047	0.073	10.484	0.000	0.046	0.080	0.041	0.070	13.815	0.000
N	121,824		19,719				86,567		18,279			

Appendix Table 1B: Summary statistics of regression variables (children aged 6-18 yrs), by religion-caste

	1983		2004																	
	Muslim		Hindu (noSCnoST)		SC		ST		OR		Muslim		Hindu (noSCnoST)		SC		ST		OR	
	mean	sd	mean	sd	mean	sd	Mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
attendingschool_618	0.427	0.495	0.541	0.498	0.377	0.485	0.266	0.442	0.707	0.455	0.552	0.497	0.591	0.492	0.581	0.493	0.561	0.496	0.581	0.496
female	0.483	0.500	0.473	0.499	0.463	0.499	0.475	0.499	0.481	0.500	0.479	0.500	0.470	0.499	0.471	0.499	0.468	0.499	0.469	0.499
muslim	1.000	0.000	0.000	0.000	0.008	0.088	0.009	0.097	0.000	0.000	1.000	0.000	0.000	0.000	0.009	0.010	0.098	0.000	0.000	0.000
hhheadedu	2.889	3.907	4.015	4.571	1.780	3.179	1.271	2.807	5.256	4.601	3.786	4.463	5.608	5.417	3.414	4.551	2.894	4.423	7.224	5.000
hhspouseedu	1.013	2.453	1.661	3.237	0.439	1.628	0.253	1.353	3.129	3.982	1.823	3.276	2.755	4.293	1.251	2.833	0.942	2.627	5.279	5.000
hhspouseedu_miss	0.144	0.351	0.140	0.347	0.145	0.352	0.120	0.325	0.142	0.349	0.152	0.359	0.128	0.334	0.135	0.342	0.116	0.320	0.141	0.320
logpccc	9.189	0.556	9.319	0.560	9.044	0.525	8.932	0.509	9.439	0.620	8.150	0.521	8.147	0.558	7.902	0.476	7.868	0.488	8.254	0.620
femalehead	0.095	0.293	0.077	0.267	0.078	0.268	0.054	0.225	0.102	0.302	0.122	0.328	0.085	0.279	0.096	0.295	0.078	0.268	0.106	0.302
highesteducadult	2.321	2.593	2.858	3.225	1.948	2.241	1.640	1.917	3.176	3.337	3.878	2.770	4.491	3.640	3.502	2.527	3.217	2.524	4.756	3.800
highesteducadult_miss	0.540	0.498	0.504	0.500	0.548	0.498	0.523	0.500	0.601	0.490	0.625	0.484	0.565	0.496	0.631	0.483	0.598	0.490	0.629	0.490
ruralresident	0.481	0.500	0.656	0.475	0.430	0.888	0.316	0.475	0.499	0.537	0.538	0.499	0.670	0.470	0.451	0.822	0.383	0.533	0.490	0.490
farmhh	0.169	0.375	0.369	0.482	0.192	0.394	0.455	0.498	0.160	0.367	0.147	0.354	0.298	0.457	0.161	0.367	0.311	0.463	0.129	0.320
agriclabhh	0.122	0.328	0.128	0.335	0.392	0.488	0.309	0.462	0.186	0.389	0.084	0.277	0.078	0.269	0.199	0.399	0.212	0.409	0.109	0.320
schtribe	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.088	0.283	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.050	0.320
schcaste	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.070	0.255	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.301	0.490
loghhsze	1.977	0.376	1.880	0.385	1.826	0.368	1.847	0.378	1.840	0.344	1.908	0.384	1.785	0.408	1.783	0.359	1.799	0.369	1.640	0.320
otherreligion	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000
own_land	0.256	0.437	0.487	0.500	0.298	0.458	0.639	0.480	0.299	0.458	0.295	0.456	0.524	0.499	0.361	0.480	0.622	0.485	0.313	0.490
propfemaleunder5	0.057	0.088	0.043	0.079	0.049	0.085	0.050	0.084	0.036	0.077	0.050	0.085	0.035	0.075	0.045	0.087	0.046	0.084	0.026	0.000
propmaleunder5	0.057	0.085	0.045	0.078	0.052	0.085	0.051	0.084	0.035	0.073	0.052	0.087	0.038	0.076	0.045	0.084	0.052	0.088	0.028	0.000
propfemale616	0.198	0.145	0.187	0.149	0.184	0.147	0.190	0.152	0.192	0.152	0.200	0.154	0.183	0.156	0.194	0.156	0.183	0.149	0.175	0.000
propmale616	0.211	0.147	0.208	0.154	0.211	0.154	0.209	0.154	0.207	0.157	0.216	0.157	0.202	0.157	0.213	0.158	0.216	0.160	0.198	0.000
propfemale50more	0.039	0.072	0.047	0.078	0.042	0.079	0.042	0.079	0.045	0.080	0.037	0.069	0.047	0.079	0.039	0.075	0.038	0.074	0.054	0.000
propmale50more	0.047	0.073	0.055	0.082	0.053	0.085	0.048	0.080	0.051	0.081	0.041	0.070	0.048	0.080	0.041	0.077	0.039	0.074	0.047	0.000
Andhra_Pradesh	0.065	0.246	0.097	0.297	0.077	0.266	0.050	0.218	0.069	0.253	0.062	0.242	0.095	0.294	0.074	0.261	0.084	0.277	0.058	0.000
West_Bengal	0.127	0.333	0.077	0.267	0.146	0.353	0.058	0.234	0.024	0.154	0.176	0.381	0.062	0.242	0.133	0.340	0.070	0.255	0.040	0.000
Uttar_Pradesh	0.255	0.436	0.176	0.381	0.217	0.412	0.033	0.179	0.037	0.188	0.269	0.443	0.210	0.408	0.244	0.429	0.017	0.130	0.044	0.000
Tamil_Nadu	0.052	0.223	0.086	0.280	0.080	0.272	0.011	0.106	0.130	0.337	0.027	0.161	0.082	0.274	0.083	0.276	0.004	0.062	0.126	0.000
Rajasthan	0.051	0.220	0.067	0.249	0.076	0.266	0.081	0.273	0.047	0.211	0.048	0.214	0.083	0.276	0.101	0.302	0.175	0.380	0.063	0.000
Maharashtra	0.100	0.301	0.113	0.316	0.062	0.242	0.150	0.357	0.251	0.434	0.095	0.294	0.123	0.328	0.066	0.249	0.169	0.375	0.299	0.000
Madhya_Pradesh	0.037	0.190	0.093	0.291	0.092	0.290	0.347	0.476	0.065	0.247	0.053	0.225	0.091	0.287	0.089	0.285	0.268	0.443	0.044	0.000
Kerala	0.087	0.282	0.039	0.194	0.032	0.175	0.006	0.075	0.249	0.433	0.096	0.295	0.034	0.181	0.026	0.161	0.006	0.078	0.247	0.000
Karnataka	0.068	0.252	0.069	0.253	0.055	0.228	0.042	0.200	0.049	0.215	0.053	0.224	0.058	0.234	0.058	0.234	0.064	0.245	0.037	0.000
Gujarat	0.038	0.191	0.062	0.241	0.045	0.207	0.101	0.301	0.027	0.163	0.035	0.183	0.057	0.232	0.028	0.164	0.132	0.339	0.033	0.000
Bihar	0.118	0.323	0.122	0.327	0.117	0.322	0.121	0.326	0.052	0.222	0.084	0.277	0.105	0.306	0.097	0.295	0.010	0.097	0.009	0.000
N	19,465		85,548		20,968		9,674		5,888		18,063		59,466		18,003		5,975		3,333	

Source: Authors' calculation based on NSS data for 11 major states.

Appendix Table 2A: Summary statistics of regression variables (children aged 10-21 yrs)

	1983						2004					
	Non muslim		Muslim		ttest		Non muslim		Muslim		ttest	
	mean	sd	mean	sd	t	p value	mean	sd	Mean	sd	t	p value
attainment	1.489	1.347	1.208	1.269	24.054	0.000	2.177	1.104	1.908	1.130	27.041	0.000
Age	14.682	3.389	14.566	3.369	3.926	0.000	15.051	3.398	14.940	3.335	3.659	0.000
female	0.463	0.499	0.478	0.500	-3.436	0.001	0.465	0.499	0.481	0.500	-3.577	0.000
muslim	0.000	0.000	1.000	0.000			0.000	0.000	1.000	0.000		
hhheadedu	3.522	4.398	2.880	3.882	16.949	0.000	5.127	5.355	3.946	4.525	25.195	0.000
hhspouseedu	1.405	2.995	0.986	2.428	16.385	0.000	2.402	4.058	1.855	3.273	15.498	0.000
hhspouseedu_miss	0.156	0.363	0.156	0.363	-0.038	0.970	0.141	0.348	0.159	0.366	-5.799	0.000
logpcce	9.294	0.573	9.224	0.556	13.885	0.000	8.124	0.558	8.195	0.523	-14.417	0.000
femalehead	0.084	0.277	0.096	0.295	-5.046	0.000	0.095	0.294	0.126	0.332	-11.313	0.000
highesteducadult	2.798	3.290	2.441	2.861	12.632	0.000	4.339	3.563	4.018	2.983	10.295	0.000
highesteducadult_miss	0.464	0.499	0.484	0.500	-4.431	0.000	0.556	0.497	0.593	0.491	-8.311	0.000
ruralresident	0.664	0.472	0.462	0.499	48.501	0.000	0.669	0.471	0.517	0.500	35.577	0.000
farmhh	0.332	0.471	0.168	0.374	40.752	0.000	0.265	0.441	0.149	0.356	30.174	0.000
agriclabhh	0.178	0.383	0.115	0.319	19.327	0.000	0.108	0.310	0.077	0.267	11.329	0.000
schtribe	0.078	0.267					0.066	0.248				
schcaste	0.167	0.373					0.211	0.408				
loghhsze	1.871	0.391	1.988	0.390	-34.203	0.000	1.758	0.400	1.901	0.390	-40.019	0.000
otherreligion	0.053	0.224	0.000	0.000	29.03	0.000	0.040	0.196	0.000	0.000	24.996	0.000
own_land	0.458	0.498	0.258	0.437	46.691	0.000	0.491	0.500	0.304	0.460	42.457	0.000
propfemaleunder5	0.036	0.071	0.048	0.081	-19.582	0.000	0.027	0.065	0.036	0.071	-15.617	0.000
propmaleunder5	0.037	0.070	0.047	0.075	-16.564	0.000	0.029	0.066	0.040	0.074	-17.462	0.000
propfemale616	0.170	0.148	0.184	0.145	-10.746	0.000	0.156	0.155	0.181	0.153	-17.613	0.000
propmale616	0.191	0.154	0.196	0.148	-3.905	0.000	0.178	0.160	0.192	0.159	-10.026	0.000
propfemale50more	0.052	0.085	0.045	0.078	9.146	0.000	0.049	0.085	0.041	0.075	10.242	0.000
propmale50more	0.066	0.089	0.058	0.079	11.338	0.000	0.059	0.091	0.053	0.079	7.407	0.000
N	96,194		15,131				72,545		14,995			

Source: Authors' calculation based on NSS data for 11 major states.

Appendix Table 2B: Summary statistics of regression variables (children aged 10-21 yrs), by religion-race

	1983		2004																	
	Muslim		Hindu (noSCnoST)		SC		ST		OR		Muslim		Hindu (noSCnoST)		SC		ST		OR	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
attainment	1.210	1.267	1.642	1.338	0.981	1.227	0.640	1.043	2.193	1.212	1.908	1.130	2.281	1.072	1.890	1.119	1.681	1.163	2.575	
Age	14.564	3.368	14.732	3.387	14.487	3.395	14.448	3.370	14.960	3.387	14.943	3.335	15.107	3.398	14.875	3.391	14.921	3.398	15.139	
female	0.478	0.500	0.464	0.499	0.449	0.497	0.472	0.499	0.477	0.500	0.480	0.500	0.467	0.499	0.460	0.498	0.462	0.499	0.467	
muslim	1.000	0.000	0.000	0.000	0.008	0.089	0.010	0.099	0.000	0.000	1.000	0.000	0.000	0.000	0.009	0.093	0.010	0.097	0.000	
hhheadedu	2.887	3.884	4.040	4.565	1.733	3.146	1.256	2.770	5.258	4.600	3.945	4.514	5.695	5.445	3.433	4.581	2.945	4.487	7.113	
hhspouseedu	0.984	2.418	1.635	3.185	0.416	1.565	0.231	1.279	3.030	3.936	1.856	3.271	2.729	4.246	1.223	2.793	0.930	2.638	4.920	
hhspouseedu_miss	0.156	0.363	0.155	0.362	0.164	0.371	0.133	0.339	0.172	0.377	0.159	0.365	0.138	0.345	0.149	0.356	0.139	0.346	0.158	
logpcce	9.226	0.557	9.361	0.561	9.084	0.526	8.968	0.516	9.489	0.622	8.196	0.523	8.185	0.563	7.948	0.483	7.907	0.498	8.281	
femalehead	0.097	0.295	0.084	0.277	0.084	0.278	0.058	0.233	0.121	0.326	0.126	0.331	0.091	0.288	0.104	0.305	0.093	0.291	0.123	
highesteducadul	2.452	2.873	3.051	3.463	2.021	2.518	1.599	2.093	3.448	3.563	4.018	2.976	4.629	3.773	3.608	2.726	3.249	2.818	4.674	
highesteducadul_miss	0.483	0.500	0.455	0.498	0.478	0.500	0.447	0.497	0.575	0.494	0.593	0.491	0.543	0.498	0.591	0.492	0.546	0.498	0.635	
ruralresident	0.462	0.499	0.635	0.481	0.739	0.439	0.877	0.328	0.520	0.500	0.515	0.500	0.656	0.475	0.699	0.459	0.803	0.398	0.535	
farmhh	0.168	0.374	0.362	0.481	0.196	0.397	0.458	0.498	0.163	0.370	0.148	0.355	0.298	0.457	0.162	0.368	0.306	0.461	0.130	
agriclabhh	0.115	0.319	0.120	0.324	0.378	0.485	0.300	0.458	0.171	0.376	0.077	0.266	0.074	0.262	0.191	0.393	0.211	0.408	0.113	
schtribe	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.082	0.274	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.047	
schcaste	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.069	0.253	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.319	
loghhsze	1.989	0.390	1.883	0.394	1.835	0.384	1.857	0.390	1.837	0.353	1.902	0.390	1.761	0.412	1.769	0.370	1.779	0.383	1.626	
otherreligion	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000	
own_land	0.258	0.438	0.484	0.500	0.307	0.461	0.650	0.477	0.297	0.457	0.301	0.459	0.526	0.499	0.366	0.482	0.614	0.487	0.317	
propfemaleunder5	0.048	0.081	0.035	0.070	0.040	0.075	0.041	0.075	0.027	0.066	0.036	0.071	0.026	0.062	0.032	0.071	0.033	0.071	0.017	
propmaleunder5	0.047	0.075	0.036	0.069	0.042	0.076	0.042	0.074	0.025	0.062	0.040	0.074	0.028	0.064	0.032	0.070	0.038	0.075	0.016	
propfemale616	0.184	0.145	0.170	0.148	0.170	0.147	0.177	0.151	0.169	0.150	0.180	0.154	0.153	0.155	0.169	0.156	0.158	0.151	0.147	
propmale616	0.196	0.148	0.190	0.154	0.194	0.154	0.195	0.155	0.184	0.157	0.192	0.159	0.174	0.159	0.188	0.162	0.193	0.164	0.167	
propfemale50more	0.045	0.078	0.053	0.085	0.049	0.086	0.048	0.085	0.053	0.088	0.042	0.075	0.051	0.085	0.043	0.082	0.042	0.079	0.057	
propmale50more	0.058	0.079	0.067	0.088	0.066	0.092	0.058	0.087	0.065	0.089	0.053	0.079	0.062	0.092	0.054	0.088	0.049	0.084	0.061	
Andhra_Pradesh	0.066	0.249	0.096	0.294	0.073	0.260	0.047	0.211	0.063	0.243	0.062	0.242	0.099	0.298	0.076	0.265	0.077	0.266	0.058	
West_Bengal	0.121	0.327	0.082	0.274	0.146	0.353	0.060	0.238	0.026	0.158	0.174	0.379	0.068	0.251	0.139	0.346	0.073	0.261	0.040	
Uttar_Pradesh	0.249	0.432	0.168	0.374	0.214	0.410	0.032	0.176	0.036	0.187	0.253	0.435	0.195	0.397	0.229	0.420	0.015	0.123	0.039	
TamiL_Nadu	0.054	0.227	0.091	0.288	0.083	0.275	0.013	0.114	0.127	0.333	0.028	0.166	0.086	0.281	0.093	0.290	0.004	0.062	0.122	
Rajasthan	0.051	0.219	0.066	0.248	0.077	0.267	0.083	0.276	0.046	0.210	0.049	0.217	0.083	0.275	0.097	0.296	0.164	0.370	0.065	
Maharashtra	0.106	0.308	0.116	0.320	0.069	0.253	0.154	0.361	0.238	0.426	0.101	0.302	0.129	0.336	0.071	0.257	0.185	0.388	0.318	
Madhya_Pradesh	0.041	0.198	0.090	0.287	0.089	0.285	0.338	0.473	0.062	0.242	0.053	0.224	0.089	0.285	0.086	0.280	0.260	0.439	0.041	
Kerala	0.094	0.292	0.044	0.205	0.037	0.189	0.007	0.084	0.273	0.445	0.107	0.310	0.036	0.187	0.030	0.170	0.006	0.076	0.232	
Karnataka	0.067	0.250	0.070	0.255	0.053	0.224	0.041	0.197	0.051	0.220	0.061	0.239	0.063	0.242	0.065	0.247	0.068	0.252	0.040	
Gujarat	0.043	0.202	0.066	0.247	0.051	0.219	0.105	0.307	0.029	0.167	0.037	0.189	0.060	0.237	0.031	0.175	0.138	0.345	0.035	
Bihar	0.108	0.311	0.112	0.315	0.109	0.312	0.121	0.326	0.049	0.215	0.075	0.263	0.092	0.289	0.083	0.276	0.009	0.096	0.011	
N	14,935	68,365	15,838	7,112		5,075	14,825		50,642	14,480	4,691	2,897								

Appendix Table 4: Determinants of current enrolment, children aged 6-18

	1983		2004	
	(1)	(2)	(1)	(2)
age7		0.152*** (0.0070)		0.135*** (0.0090)
age8		0.177*** (0.0060)		0.149*** (0.0080)
age9		0.212*** (0.0070)		0.204*** (0.0090)
age10		0.160*** (0.0060)		0.130*** (0.0080)
age11		0.158*** (0.0080)		0.160*** (0.0100)
age12		0.083*** (0.0070)		-0.065*** (0.0090)
age13		0.033*** (0.0080)		-0.317*** (0.0080)
age14		-0.049*** (0.0080)		-0.486*** (0.0050)
age15		-0.141*** (0.0070)		-0.581*** (0.0040)
age16		-0.240*** (0.0070)		-0.625*** (0.0030)
age17		-0.307*** (0.0070)		-0.637*** (0.0020)
age18		-0.398*** (0.0050)		-0.678*** (0.0020)
Female		-0.278*** (0.0040)		-0.080*** (0.0050)
Religion: Muslim	-0.124*** (0.004)	-0.121*** (0.0050)	-0.042*** (0.004)	-0.049*** (0.0060)
Religion: Other	0.131*** (0.007)	0.074*** (0.0080)	0.01 (0.009)	-0.013 (0.0120)
Religion: Scheduled tribe	-0.261*** (0.005)	-0.127*** (0.0060)	-0.037*** (0.007)	-0.096*** (0.0090)
Religion: Scheduled caste	-0.158*** (0.004)	-0.033*** (0.0050)	-0.018*** (0.004)	-0.015*** (0.0060)
Household head's schooling		0.033*** (0.0010)		0.010*** (0.0010)
Schooling years of head's spouse		0.021*** (0.0010)		-0.001 (0.0010)
log (monthly pc expenditure)		0.117*** (0.0030)		0.018*** (0.0050)
Female head		0.132*** (0.0080)		0.011 (0.0120)
Schooling of highest-educated adult		0.022*** (0.0010)		0.009*** (0.0010)
Rural area		-0.089*** (0.0050)		0.033*** (0.0060)
Farm household		-0.041*** (0.0050)		0 (0.0060)
Agricultural labor household		-0.124*** (0.0050)		-0.082*** (0.0070)
log of HH size		0.081*** (0.0060)		-0.027*** (0.0090)
Household owns more 1 acre land		0.020*** (0.0040)		0.036*** (0.0050)
Proportion of HH member being female & under 5		-0.252*** (0.0220)		-0.124*** (0.0290)
Proportion of HH member being male & age < 5		-0.272*** (0.0220)		-0.170*** (0.0290)
Proportion of HH member being female & age 6-16		0.004 (0.0150)		0.080*** (0.0210)
Proportion of HH member being male & age 6-16		-0.144*** (0.0150)		0.014 (0.0210)
Proportion of HH member being female & age > 50		0.062*** (0.0230)		-0.007 (0.0350)
Proportion of HH member being male & age > 50		0.084*** (0.0210)		-0.142*** (0.0310)
West Bengal	0.089*** (0.0060)	0.100*** (0.0070)	0.085*** (0.0070)	0.155*** (0.0090)
Uttar Pradesh	-0.045*** (0.0060)	-0.042*** (0.0060)	0.051*** (0.0060)	0.027*** (0.0080)
Tamil Nadu	0.095*** (0.0070)	0.072*** (0.0070)	0.053*** (0.0080)	0.088*** (0.0100)

Rajasthan	-0.067*** (0.0070)	-0.053*** (0.0080)	0.072*** (0.0070)	0.073*** (0.0100)
Maharashtra	0.132*** (0.0060)	0.126*** (0.0070)	0.009 (0.0070)	0.023** (0.0090)
Madhya Pradesh	-0.032*** (0.0060)	0.001 (0.0070)	0.073*** (0.0070)	0.103*** (0.0090)
Kerala	0.309*** (0.0060)	0.329*** (0.0070)	0.015* (0.0090)	0.012 (0.0120)
Karnataka	0.01 (0.0070)	-0.015* (0.0080)	0.001 (0.0080)	0.018 (0.0110)
Gujarat	0.086*** (0.0070)	0.083*** (0.0080)	0.025*** (0.0080)	0.030*** (0.0110)
Bihar	-0.074*** (0.0060)	-0.057*** (0.0070)	0.043*** (0.0070)	-0.055*** (0.0100)
N	141543	141543	104846	104846
Pseudo R ²	0.034	0.28	0.00297	0.461
Mean predicted enrolment probability	0.4890	0.4890	0.5810	0.5810
Chi-square_test	10433	54903	465.7	65761
Join test of significance: Family & child attributes		34529		40534
Join test of significance: State dummies		3422		785

Note: (a) Omitted state category is Andhra Pradesh. (b) Results based on 11 major states. (c) Join test statistics refers to F-test. (d) The variable “Schooling of highest-educated adult” is calculated excluding parents and siblings. (e) All regressions additionally control for a missing data dummy for the variable “Schooling of highest-educated adult” and “household landholding”. (f) Marginal effects instead of coefficients are reported. (g) Omitted religion category is “Hindu”. (h) The coefficient on the Muslim dummy in 1983 is significantly different from that coefficient in 2004 (Chi-sq= 91.63 and Prob> chi2 = 0.0000).

Appendix Table 5: Determinants of grade completion, children aged 10-21

	1983		2004	
	(1)	(2)	(1)	(2)
female		-0.621*** -0.008		-0.214*** -0.008
Religion: Muslim	-0.386*** -0.01	-0.325*** -0.011	-0.383*** -0.01	-0.225*** -0.011
Religion: Other	0.321*** -0.016	0.117*** -0.017	0.137*** -0.021	-0.028 -0.021
Religion: Scheduled tribe	-0.880*** -0.015	-0.418*** -0.016	-0.590*** -0.016	-0.280*** -0.017
Religion: Scheduled caste	-0.563*** -0.01	-0.169*** -0.011	-0.332*** -0.01	-0.073*** -0.01
hhheadedu		0.089*** -0.001		0.055*** -0.001
hhsponseedu		0.029*** -0.002		0.016*** -0.001
hhsponseedu_miss		-0.132*** -0.015		-0.134*** -0.018
logpcce		0.256*** -0.007		0.268*** -0.01
Age		0.358*** -0.011		0.591*** -0.011
Agesq		-0.010*** 0		-0.015*** 0
femalehead		0.416*** -0.019		0.241*** -0.021
highesteducadult		0.091*** -0.001		0.078*** -0.001
ruralresident		-0.241*** -0.011		-0.024** -0.01
farmhh		-0.086*** -0.012		-0.016 -0.011
agriclabhh		-0.397*** -0.013		-0.189*** -0.014
loghsze		0.159*** -0.012		-0.229*** -0.016
own_land		0.054*** -0.01		0.083*** -0.01
propfemaleunder5		-0.809*** -0.054		-0.985*** -0.062
propmaleunder5		-0.791*** -0.056		-1.068*** -0.061
propfemale616		0.099*** -0.032		-0.093*** -0.034
propmale616		-0.276*** -0.032		-0.424*** -0.033
propfemale50more		0.228*** -0.047		0.371*** -0.054
propmale50more		0.530*** -0.046		-0.036 -0.048
own_land_miss				-0.089*** -0.014
West_Bengal	0.223*** -0.016	0.049*** -0.017	-0.114*** -0.017	-0.290*** -0.017
Uttar_Pradesh	-0.031** -0.014	0.012 -0.015	-0.289*** -0.015	-0.361*** -0.016
Tamil_Nadu	0.386*** -0.016	0.301*** -0.017	0.261*** -0.018	0.178*** -0.019
Rajasthan	-0.207*** -0.018	-0.185*** -0.019	-0.363*** -0.017	-0.444*** -0.018
Maharashtra	0.384*** -0.015	0.282*** -0.016	0.349*** -0.016	0.174*** -0.017
Madhya_Pradesh	0.066*** -0.016	0.024 -0.017	-0.258*** -0.017	-0.356*** -0.018
Kerala	0.864*** -0.018	0.872*** -0.019	0.641*** -0.02	0.388*** -0.022
Karnataka	0.086*** -0.017	0.002 -0.018	0.062*** -0.019	-0.031 -0.019
Gujarat	0.338*** -0.018	0.228*** -0.018	0.134*** -0.02	-0.070*** -0.02
Bihar	-0.139*** -0.016	-0.060*** -0.017	-0.484*** -0.018	-0.477*** -0.019
Observations	111325	111325	87540	87540
Pseudo_R2	0.048	0.209	0.0399	0.183

Chi-square test	14786	64323	10275	46993
F-Test: Family and child attributes		48169		35533
F-Test: state dummies		3981		4049

Note: (a) Omitted state category is Andhra Pradesh. (b) Results based on 11 major states. (c) Join test statistics refers to F-test. (c) The variable “Schooling of highest-educated adult” is calculated excluding parents and siblings. (d) All regressions additionally control for a missing data dummy for the variable “Schooling of highest-educated adult”. (e) Omitted religion category is “Hindu”. (f) The dependent variable is categorical and takes 5 values; it is defined as follows: 0 if no schooling (never attended-school); 1 if 1-4 years of schooling (ever enrolled); 2 if 5 years of schooling (Completed Primary education); 3 if 5-12 years of schooling (Middle and secondary); 4 if 12 years of schooling or more. (f) Note: The coefficient on the Muslim dummy in 1983 is significantly different from that coefficient in 2004 (Chi-sq= 93.63 and Prob> chi2 = 0.0000).

Appendix Table 6: Determinants of attendance by year and gender

	1983		2004	
	Boys	Girls	Boys	Girls
age7	0.158*** (0.0080)	0.124*** (0.0110)	0.152*** (0.0110)	0.117*** (0.0130)
age8	0.188*** (0.0070)	0.135*** (0.0100)	0.166*** (0.0110)	0.130*** (0.0120)
age9	0.224*** (0.0070)	0.160*** (0.0110)	0.233*** (0.0110)	0.172*** (0.0140)
age10	0.199*** (0.0070)	0.080*** (0.0100)	0.166*** (0.0110)	0.091*** (0.0130)
age11	0.203*** (0.0080)	0.068*** (0.0120)	0.205*** (0.0120)	0.109*** (0.0150)
age12	0.149*** (0.0080)	-0.024** (0.0100)	-0.014 (0.0120)	-0.119*** (0.0120)
age13	0.118*** (0.0090)	-0.087*** (0.0100)	-0.281*** (0.0120)	-0.348*** (0.0100)
age14	0.054*** (0.0090)	-0.172*** (0.0090)	-0.475*** (0.0080)	-0.492*** (0.0070)
age15	-0.034*** (0.0100)	-0.245*** (0.0070)	-0.585*** (0.0050)	-0.573*** (0.0050)
age16	-0.138*** (0.0110)	-0.304*** (0.0060)	-0.640*** (0.0040)	-0.608*** (0.0040)
age17	-0.236*** (0.0120)	-0.327*** (0.0050)	-0.658*** (0.0030)	-0.616*** (0.0030)
age18	-0.353*** (0.0090)	-0.378*** (0.0030)	-0.704*** (0.0030)	-0.649*** (0.0030)
Religion: Muslim	-0.121*** (0.0060)	-0.109*** (0.0060)	-0.059*** (0.0080)	-0.040*** (0.0080)
Religion: Other	0.038*** (0.0110)	0.118*** (0.0120)	-0.019 (0.0170)	-0.005 (0.0180)
Religion: Scheduled tribe	-0.134*** (0.0080)	-0.110*** (0.0090)	-0.089*** (0.0120)	-0.105*** (0.0130)
Religion: Scheduled caste	-0.019*** (0.0060)	-0.053*** (0.0070)	-0.007 (0.0080)	-0.024*** (0.0080)
Householdhead's schooling years	0.030*** (0.0010)	0.034*** (0.0010)	0.008*** (0.0010)	0.012*** (0.0010)
Schooling years of head's spouse	0.015*** (0.0010)	0.024*** (0.0010)	-0.002* (0.0010)	0 (0.0010)
log (monthly per capita consumption expenditure	0.105*** (0.0040)	0.126*** (0.0050)	0.023*** (0.0070)	0.013 (0.0080)
Whether household head female	0.096*** (0.0100)	0.177*** (0.0130)	-0.002 (0.0160)	0.025 (0.0170)
Schooling years highest-educated adult	0.021*** (0.0010)	0.022*** (0.0010)	0.007*** (0.0010)	0.010*** (0.0010)
Whether rural resident	-0.040*** (0.0060)	-0.143*** (0.0070)	0.048*** (0.0080)	0.018** (0.0080)
Whether farm household	-0.031*** (0.0070)	-0.055*** (0.0070)	0.003 (0.0080)	-0.004 (0.0090)
Whether agricultural labor household	-0.118*** (0.0070)	-0.122*** (0.0070)	-0.075*** (0.0100)	-0.088*** (0.0100)
log HH size	0.039*** (0.0070)	0.119*** (0.0080)	-0.055*** (0.0120)	-0.004 (0.0130)
owns more 1 acre land	0.034*** (0.0050)	0 (0.0060)	0.046*** (0.0070)	0.026*** (0.0080)
propfemaleunder5	-0.143*** (0.0280)	-0.377*** (0.0310)	-0.071* (0.0420)	-0.171*** (0.0420)
propmaleunder5	-0.182*** (0.0290)	-0.378*** (0.0320)	-0.150*** (0.0420)	-0.178*** (0.0420)
propfemale616	0.037* (0.0200)	-0.072*** (0.0220)	0.121*** (0.0290)	0.035 (0.0300)
propmale616	-0.156*** (0.0200)	-0.102*** (0.0220)	0.002 (0.0280)	0.029 (0.0310)
propfemale50more	0.02 (0.0300)	0.097*** (0.0340)	-0.031 (0.0480)	0.021 (0.0520)
propmale50more	0.064** (0.0270)	0.106*** (0.0320)	-0.139*** (0.0410)	-0.144*** (0.0450)
West_Bengal	0.055*** (0.0090)	0.155*** (0.0110)	0.144*** (0.0120)	0.167*** (0.0120)

Uttar_Pradesh	-0.008 (0.0080)	-0.090*** (0.0090)	0.038*** (0.0120)	0.014 (0.0120)
Tamil_Nadu	0.061*** (0.0100)	0.079*** (0.0110)	0.083*** (0.0140)	0.095*** (0.0150)
Rajasthan	0.021** (0.0100)	-0.153*** (0.0100)	0.132*** (0.0120)	0.008 (0.0140)
Maharashtra	0.109*** (0.0080)	0.137*** (0.0100)	0.015 (0.0130)	0.031** (0.0130)
Madhya_Pradesh	0.026*** (0.0090)	-0.033*** (0.0100)	0.121*** (0.0120)	0.081*** (0.0140)
Kerala	0.238*** (0.0090)	0.434*** (0.0110)	0.008 (0.0170)	0.02 (0.0180)
Karnataka	-0.041*** (0.0110)	0.018 (0.0110)	0.01 (0.0150)	0.025 (0.0160)
Gujarat	0.062*** (0.0100)	0.110*** (0.0120)	0.046*** (0.0150)	0.011 (0.0170)
Bihar	-0.007 (0.0090)	-0.121*** (0.0090)	-0.024* (0.0130)	-0.092*** (0.0140)
Observations	74568	66975	55403	49443
Pseudo_R2	0.211	0.351	0.48	0.444
Chi-square test				
F-Test: Family and child attributes	14955	17096	21962	18571
F-Test: state dummies	934	3338	420	469

Appendix Table 7: Determinants of completion by year and gender

	1983		2004	
	Boys	Girls	Boys	Girls
Age	0.396*** (0.0140)	0.308*** (0.0170)	0.624*** (0.0160)	0.573*** (0.0170)
Agesq	-0.011*** 0.0000	-0.009*** (0.0010)	-0.015*** (0.0010)	-0.015*** (0.0010)
Religion: Muslim	-0.371*** (0.0150)	-0.274*** (0.0170)	-0.257*** (0.0150)	-0.200*** (0.0160)
Religion: Other	0.040* (0.0230)	0.215*** (0.0250)	-0.02 (0.0300)	-0.033 (0.0310)
Religion: Scheduled tribe	-0.429*** (0.0200)	-0.428*** (0.0270)	-0.261*** (0.0230)	-0.320*** (0.0250)
Religion: Scheduled caste	-0.135*** (0.0140)	-0.247*** (0.0180)	-0.057*** (0.0140)	-0.097*** (0.0150)
Household head's schooling	0.086*** (0.0020)	0.096*** (0.0020)	0.055*** (0.0010)	0.056*** (0.0010)
Schooling years of head's spouse	0.015*** (0.0020)	0.041*** (0.0020)	0.010*** (0.0020)	0.021*** (0.0020)
log (monthly pc expenditure)	0.234*** (0.0090)	0.295*** (0.0110)	0.289*** (0.0130)	0.251*** (0.0140)
Female head	0.368*** (0.0250)	0.506*** (0.0290)	0.249*** (0.0290)	0.246*** (0.0310)
Schooling of highest-educated adult	0.079*** (0.0020)	0.109*** (0.0020)	0.059*** (0.0020)	0.097*** (0.0020)
Rural area	-0.144*** (0.0150)	-0.370*** (0.0170)	0.035** (0.0140)	-0.087*** (0.0150)
Farm household	-0.066*** (0.0160)	-0.117*** (0.0190)	0.013 (0.0150)	-0.048*** (0.0160)
Agricultural labor household	-0.394*** (0.0170)	-0.434*** (0.0210)	-0.198*** (0.0190)	-0.180*** (0.0200)
log of HH size	0.084*** (0.0160)	0.233*** (0.0200)	-0.279*** (0.0220)	-0.211*** (0.0230)
Household owns more 1 acre land	0.094*** (0.0130)	0.006 (0.0150)	0.129*** (0.0140)	0.033** (0.0150)
Proportion of HH member being female & under 5	-0.519*** (0.0730)	-1.138*** (0.0840)	-0.583*** (0.0890)	-1.288*** (0.0870)
Proportion of HH member being male & age< 5	-0.418*** (0.0750)	-1.187*** (0.0860)	-0.809*** (0.0890)	-1.204*** (0.0850)
Proportion of HH member being female & age 6-16	0.090** (0.0440)	-0.131*** (0.0500)	-0.091* (0.0490)	-0.384*** (0.0490)
Proportion of HH member being male & age 6-16	-0.181*** (0.0410)	-0.207*** (0.0520)	-0.252*** (0.0440)	-0.325*** (0.0520)
Proportion of HH member being female & age>50	0.02 (0.0630)	0.434*** (0.0740)	0.008 (0.0740)	0.675*** (0.0790)
Proportion of HH member being male & age>50	0.437*** (0.0590)	0.727*** (0.0730)	-0.013 (0.0650)	-0.02 (0.0730)
West Bengal	-0.007 (0.0220)	0.126*** (0.0260)	-0.307*** (0.0240)	-0.277*** (0.0250)
Uttar Pradesh	0.122*** (0.0200)	-0.167*** (0.0240)	-0.341*** (0.0220)	-0.397*** (0.0230)
Tamil Nadu	0.314*** (0.0230)	0.291*** (0.0260)	0.145*** (0.0260)	0.213*** (0.0270)
Rajasthan	0.009 (0.0240)	-0.534*** (0.0310)	-0.304*** (0.0250)	-0.605*** (0.0270)
Maharashtra	0.280*** (0.0210)	0.296*** (0.0240)	0.150*** (0.0230)	0.201*** (0.0240)
Madhya Pradesh	0.087*** (0.0220)	-0.071*** (0.0270)	-0.342*** (0.0240)	-0.381*** (0.0260)
Kerala	0.715*** (0.0270)	1.045*** (0.0290)	0.329*** (0.0300)	0.457*** (0.0310)
Karnataka	-0.056** (0.0240)	0.077*** (0.0280)	-0.046* (0.0270)	-0.013 (0.0280)
Gujarat	0.226*** (0.0250)	0.244*** (0.0280)	-0.017 (0.0280)	-0.123*** (0.0300)
Bihar	0.101*** (0.0220)	-0.316*** (0.0270)	-0.408*** (0.0250)	-0.578*** (0.0270)
Observations	59580	51745	46569	40971
Pseudo_R2	0.16	0.269	0.183	0.194
Chi-square test	27003	36300	24470	23819
F-Test: Family and child attributes	21465	24480	19211	17100
F-Test: state dummies	1301	3632	1648	2631

Appendix Table 8: Determinants of enrolment by religion, 2004

	No control for school unavailability		With control for school unavailability	
	Muslim	Hindu	Muslim	Hindu
Household head's schooling	0.015*** (0.0020)	0.015*** (0.0020)	0.005*** (0.0010)	0.005*** (0.0010)
Schooling years of head's spouse	0 (0.0030)	0 (0.0030)	-0.001 (0.0010)	-0.001 (0.0010)
log (monthly pc expenditure)	0.090*** (0.0180)	0.090*** (0.0180)	0.025** (0.0110)	0.024** (0.0110)
age7	0.180*** (0.0270)	0.180*** (0.0270)	0.127*** (0.0180)	0.127*** (0.0180)
age8	0.174*** (0.0260)	0.174*** (0.0260)	0.176*** (0.0160)	0.176*** (0.0160)
age9	0.249*** (0.0270)	0.249*** (0.0270)	0.216*** (0.0170)	0.215*** (0.0170)
age10	0.180*** (0.0260)	0.181*** (0.0260)	0.181*** (0.0160)	0.181*** (0.0160)
age11	0.205*** (0.0290)	0.205*** (0.0290)	0.186*** (0.0190)	0.186*** (0.0190)
age12	0.035 (0.0270)	0.036 (0.0270)	0.002 (0.0180)	0.002 (0.0180)
age13	-0.164*** (0.0290)	-0.164*** (0.0290)	-0.272*** (0.0190)	-0.272*** (0.0190)
age14	-0.370*** (0.0210)	-0.370*** (0.0210)	-0.490*** (0.0130)	-0.490*** (0.0130)
age15	-0.478*** (0.0160)	-0.478*** (0.0160)	-0.604*** (0.0090)	-0.604*** (0.0090)
age16	-0.562*** (0.0110)	-0.562*** (0.0110)	-0.666*** (0.0060)	-0.666*** (0.0060)
age17	-0.589*** (0.0080)	-0.589*** (0.0080)	-0.681*** (0.0050)	-0.681*** (0.0050)
age18	-0.626*** (0.0070)	-0.626*** (0.0070)	-0.725*** (0.0040)	-0.725*** (0.0040)
female	-0.040** (0.0160)	-0.040** (0.0160)	-0.097*** (0.0110)	-0.097*** (0.0110)
Female head	0.02 (0.0400)	0.021 (0.0400)	0.034 (0.0240)	0.035 (0.0240)
Schooling of highest-educated adult	0.012*** (0.0030)	0.012*** (0.0030)	0.005*** (0.0010)	0.005*** (0.0010)
Rural area	0.025 (0.0180)	0.025 (0.0180)	0.013 (0.0120)	0.013 (0.0120)
Farm household	0.039* (0.0210)	0.038* (0.0210)	-0.003 (0.0120)	-0.003 (0.0120)

Agricultural labor household	-0.067***	-0.066***	-0.088***	-0.088***
	(0.0240)	(0.0240)	(0.0200)	(0.0200)
log of HH size	-0.067**	-0.067**	-0.044**	-0.044**
	(0.0270)	(0.0270)	(0.0190)	(0.0190)
Household owns more 1 acre land	-0.005	-0.005	0.043***	0.044***
	(0.0180)	(0.0180)	(0.0120)	(0.0120)
Proportion of HH member being female & under 5	-0.131	-0.13	-0.111*	-0.111*
	(0.0890)	(0.0890)	(0.0640)	(0.0640)
Proportion of HH member being male & age< 5	-0.1	-0.1	-0.232***	-0.231***
	(0.0870)	(0.0870)	(0.0650)	(0.0650)
Proportion of HH member being female & age 6-16	-0.08	-0.079	0.156***	0.156***
	(0.0670)	(0.0670)	(0.0440)	(0.0440)
Proportion of HH member being male & age 6-16	-0.108	-0.107	0.043	0.042
	(0.0670)	(0.0670)	(0.0440)	(0.0440)
Proportion of HH member being female & age>50	-0.13	-0.129	-0.024	-0.024
	(0.1250)	(0.1250)	(0.0730)	(0.0730)
Proportion of HH member being male & age>50	-0.151	-0.147	-0.098	-0.097
	(0.1100)	(0.1100)	(0.0620)	(0.0620)
Primary school out of village (=1)		-0.021	-0.013	
		(0.0230)	(0.0180)	
Secondary school out of village (=1)		-0.024	0.007	
		(0.0180)	(0.0110)	
West Bengal	0.209***	0.210***	0.123***	0.121***
	(0.0180)	(0.0180)	(0.0140)	(0.0140)
Tamil Nadu	0.123*	0.121*	0.008	0.009
	(0.0630)	(0.0630)	(0.0220)	(0.0220)
Rajasthan	0.004	-0.006	0.01	0.008
	(0.0310)	(0.0320)	(0.0150)	(0.0140)
Maharashtra	0.062*	0.045	-0.048*	-0.053**
	(0.0370)	(0.0390)	(0.0250)	(0.0230)
Madhya Pradesh	0.166***	0.166***	0.072***	0.072***
	(0.0300)	(0.0300)	(0.0140)	(0.0140)
Kerala	0.045*	0.051**	-0.070***	-0.074***
	(0.0240)	(0.0250)	(0.0200)	(0.0190)
Karnataka	0.084**	0.071*	-0.060**	-0.063**
	(0.0400)	(0.0420)	(0.0250)	(0.0250)
Gujarat	0.067	0.06	0.034	0.032
	(0.0570)	(0.0570)	(0.0300)	(0.0290)
Bihar	0.011	0.005	-0.01	-0.011
	(0.0270)	(0.0280)	(0.0160)	(0.0160)
Observations	8849	8849	22988	22988
Pseudo_R2	0.385	0.385	0.49	0.49
chi-square_test	4671.0000	4674.0000	15067.0000	15066.0000

F-Test: Family and child attributes	2945	2942	9207	9208
F-Test: state dummies	157.5000	156.1000	157.1000	163.4000

Note: (a) Omitted state category is Uttar Pradesh (Andhra Pradesh dropped due to non-available school supply data for this state). (b) Results based on 11 major states. (c) Join test statistics refers to F-test. (c) The variable “Schooling of highest-educated adult” is calculated excluding parents and siblings. (d) All regressions additionally control for a missing data dummy for the variable “Schooling of highest-educated adult” and “household landholding”. (e) Marginal effects instead of coefficients are reported (f) Definition of school supply data is provided in the text.

Appendix Table 9: Determinants of completion by religion, 2004

	No control for school unavailability		With control for school unavailability	
	Muslim	Hindu	Muslim	Hindu
Age	0.460*** (0.0400)	0.614*** (0.0240)	0.463*** (0.0400)	0.614*** (0.0240)
Agesq	-0.012*** (0.0010)	-0.015*** (0.0010)	-0.012*** (0.0010)	-0.015*** (0.0010)
female	-0.160*** (0.0290)	-0.288*** (0.0180)	-0.159*** (0.0290)	-0.288*** (0.0180)
Household head's schooling	0.063*** (0.0040)	0.053*** (0.0020)	0.063*** (0.0040)	0.053*** (0.0020)
Schooling years of head's spouse	0.034*** (0.0060)	0.016*** (0.0030)	0.033*** (0.0060)	0.016*** (0.0030)
log (monthly pc expenditure)	0.311*** (0.0340)	0.268*** (0.0210)	0.319*** (0.0340)	0.268*** (0.0210)
Female head	0.246*** (0.0780)	0.230*** (0.0440)	0.248*** (0.0780)	0.229*** (0.0440)
Schooling of highest-educated adult	0.095*** (0.0050)	0.081*** (0.0020)	0.094*** (0.0050)	0.081*** (0.0020)
Rural area	-0.04 (0.0350)	-0.036 (0.0230)	-0.05 (0.0350)	-0.037 (0.0230)
Farm household	-0.035 (0.0410)	-0.034 (0.0220)	-0.037 (0.0410)	-0.033 (0.0220)
Agricultural labor household	-0.204*** (0.0500)	-0.210*** (0.0370)	-0.201*** (0.0500)	-0.209*** (0.0370)
log of HH size	-0.316*** (0.0520)	-0.262*** (0.0340)	-0.329*** (0.0520)	-0.261*** (0.0340)
Household owns more 1 acre land	0.090** (0.0350)	0.054** (0.0210)	0.096*** (0.0350)	0.053** (0.0220)
Proportion of HH member being female & under 5	-0.420** (0.1970)	-0.969*** (0.1330)	-0.428** (0.1970)	-0.969*** (0.1330)
Proportion of HH member being male & age < 5	-0.702*** (0.1910)	-1.260*** (0.1320)	-0.692*** (0.1910)	-1.262*** (0.1330)
Proportion of HH member being female & age 6-16	-0.181 (0.1180)	0.047 (0.0730)	-0.188 (0.1180)	0.045 (0.0730)
Proportion of HH member being male & age 6-16	-0.389*** (0.1160)	-0.598*** (0.0720)	-0.388*** (0.1160)	-0.597*** (0.0720)
Proportion of HH member being female & age > 50	-0.216 (0.2060)	0.488*** (0.1150)	-0.216 (0.2070)	0.490*** (0.1150)
Proportion of HH member being male & age > 50	0.477** (0.1920)	-0.198* (0.1020)	0.480** (0.1920)	-0.203** (0.1020)
Primary school out of village (=1)			-0.200*** (0.0430)	-0.074** (0.0330)

Secondary school out of village (=1)			-0.029 (0.0370)	0.007 (0.0210)
West Bengal	0.283*** (0.0390)	-0.029 (0.0280)	0.319*** (0.0400)	-0.02 (0.0280)
Tamil Nadu	0.864*** (0.1290)	0.357*** (0.0390)	0.851*** (0.1290)	0.354*** (0.0390)
Rajasthan	-0.157** (0.0620)	-0.162*** (0.0260)	-0.174*** (0.0640)	-0.162*** (0.0280)
Maharashtra	0.878*** (0.0750)	0.416*** (0.0410)	0.856*** (0.0790)	0.418*** (0.0440)
Madhya Pradesh	0.395*** (0.0640)	-0.065** (0.0280)	0.399*** (0.0640)	-0.065** (0.0280)
Kerala	1.091*** (0.0460)	0.594*** (0.0340)	1.154*** (0.0490)	0.613*** (0.0350)
Karnataka	0.379*** (0.0750)	0.135*** (0.0420)	0.359*** (0.0780)	0.135*** (0.0440)
Gujarat	0.515*** (0.1110)	0.206*** (0.0550)	0.505*** (0.1120)	0.205*** (0.0550)
Bihar	-0.036 (0.0610)	-0.131*** (0.0320)	-0.043 (0.0620)	-0.130*** (0.0320)
Constant				
Observations	7103	19271	7103	19271
Pseudo_R2	0.202	0.197	0.203	0.197
Chi-square test	4243.0000	11117.0000	4267.0000	11122.0000
F-Test: Family and child attributes	2294	8800	2296	8795
F-Test: state dummies	739.1000	687.3000	752.1000	687.1000

Note: (a) Omitted state category is Uttar Pradesh (Andhra Pradesh dropped due to non-available school supply data for this state). (b) Results based on 11 major states. (c) Join test statistics refers to F-test. (d) The variable “Schooling of highest-educated adult” is calculated excluding parents and siblings. (e) All regressions additionally control for a missing data dummy for the variable “Schooling of highest-educated adult” and “household landholding”. (f) Marginal effects instead of coefficients are reported (f) Definition of school supply data is provided in the text.

