



Private schooling and gender justice: An empirical snapshot from Rajasthan, India's largest state



Orla Kelly^{a,b,*}, Aditi Krishna^b, Jacqueline Bhabha^a

^a FXB Center for Health and Human Rights, 651 Huntington Avenue, Boston, MA 02115, United States

^b Department of Social and Behavioral Sciences, Harvard School of Public Health, 677 Huntington Avenue, Boston MA 02115, United States

ARTICLE INFO

Article history:

Received 11 February 2015

Received in revised form 3 October 2015

Accepted 12 October 2015

Available online 20 December 2015

Keywords:

India

Girls' education

Gender equality

Private schools

Education policy

ABSTRACT

In this paper, we compare the key attributes and experiences of a sample of 413 young women, who attended government versus private schools at the primary and secondary level. Study participation was limited to those whose parents had completed only upper primary education or less. At the time of the study, participants were in their second year of undergraduate study in government colleges across Rajasthan, the largest state in India. We found, among this socially narrow sample, that caste more than income or years of parental education was the biggest predictor of school type attended at the primary and secondary level. We found other significant differences. Private schools had better infrastructural provisions (including girls' toilets), marginally higher rates of reported peer bullying and better 10th standard exam outcomes. Those who attended private schools reported substantially elevated educational costs (direct fees but also disqualification from government schemes). Paradoxically, a larger portion of participants who attended government schools reported their families had fallen into debt to support their education. These findings support the theory that the most disadvantaged continue to rely on a public education system that yields poor exam results. Reports of teacher violence and teacher absenteeism were largely consistent across institution types. While overall rates of teacher violence were low, those whose parents had the lowest rates of educational attainment were the most likely to report having been victimized in both government and private schools. We explore the implications of these findings for the achievement of gender equality at the post-primary level.

© 2015 Elsevier Ltd. All rights reserved.

In the decades since independence the government of India has made remarkable strides in increasing average per capita years of education. It has built a large-scale national education infrastructure, largely absent when the country emerged from colonial rule, and made significant progress in raising education attainment rates through the national policy to universalize primary education – Sarva Shiksha Abhiyan (SSA) – first codified in 2009¹. At the secondary level too, year on year increases in enrollment are being achieved with more planned for the future: the government aims to attain an enrollment rate of 90 percent at secondary and

75 percent at higher secondary level by 2017 ([Government of India \(GOI\), 2014](#)). Government policies and concomitant increased spending have been critical to raising the average educational attainment rates of the country's youth ([Bapna and Sharma, 2015](#)). However, the government is not the only purveyor of education. According to the Annual Status of Education Report (ASER-Rural) 2014, even in rural areas 29 percent of enrollments in the six-to-14 age-group are now in private schools. At the secondary level 60 percent of institutions are private ([Government of India \(GOI\), 2014](#)). The proportion of Indian children and adolescents attending private and semi-private institutions grows every year ([Government of India \(GOI\), 2012](#)). The upsurge in the market share of these schools, particularly those serving low income communities, (often referred to as low fee schools), is due to a confluence of factors including a growing middle class, the government's inability to keep up with the educational demands of a mushrooming youth population, and a lack of faith in the quality of the government schools ([Desai et al., 2008](#); [Srivastava, 2008](#); [James and Woodhead, 2014](#)). Taking note of these trends and challenges, national education policy is increasingly relying on

* Corresponding author. Tel.: +1 8572947889.

E-mail addresses: okelly@hsph.harvard.edu (O. Kelly), adk190@mail.harvard.edu (A. Krishna), jbbhabha@hsph.harvard.edu (J. Bhabha).

¹ The Government's flagship program for the achievement of Universalization of Elementary Education began in 2001. Through the program country has achieved near universal enrolment at the lower primary level through massive infrastructural development, teacher training and community mobilization. In 2009, the program was codified by 86th amendment to the Constitution of India which made free and compulsory education a fundamental right for all children aged 6–14 years.

private infrastructure to help provide educational opportunities for the nation's youth (Government of India (GOI), 2013a).

Progress in overall enrollment has meant a reduction in the portion of girls excluded from the system; in 2011 the national gross enrollment rate for girls at the lower secondary level was 68 percent (Government of India (GOI), 2012) up from 45 percent in 2005 (Government of India (GOI), 2007). However national level enrollment rates often mask the plight of the most marginalized. In many Indian states, girls, disadvantaged in terms of household income, religion, caste, or location are still the least likely to attend school beyond primary level. In Rajasthan for example 69 percent of girls who enroll in class I do not complete lower secondary school. The situation is even more troubling for young women from minorities; dropout rates for girls from scheduled caste and tribal communities rise to 78 and 80 percent, respectively (Government of India (GOI), 2012). Research suggests that girls' underrepresentation in private schools, even among low fee institutions, is even more acute than it is in government schools (Härmä and Rose, 2012; Mehrotra and Pancharukhi, 2006; Woodhead et al., 2013). Maitra et al. (2011) find the gender gap in private school enrollment twice as large as that in public schools, worse in younger children, and increasing over time in rural areas.

Given these trends, the government's concomitant goals of embracing a more active private sector and the achievement of universal secondary enrollment raises some key questions. Are the parallel objectives of privatization and equality within the education system attainable? Will the growing state dependence on the private sector for provision of primary and secondary schooling condemn the most disadvantaged citizens to an underfunded public system crippled by poor learning outcomes? How do the experiences of girls from underserved communities attending private schools differ from their counterparts in government schools? Finally, what implications does the growing private sector have for poor households' ability to avail themselves of government incentives for girls' education such as books, uniforms, and stipends?

To address these questions, we examine the attributes and deconstruct the experiences of a successful minority of young women, from economically and educationally deprived households across Rajasthan, who managed to progress to tertiary level education. All our study participants have parents who have completed no more than primary school education; the young women themselves were enrolled in their second year of an undergraduate degree in a government college at the time of the study. Some participants attended private institutions at the primary and secondary level, others attended government schools. In what follows we examine the individual and familial differences between those who attended public as opposed to private primary and secondary level schools. Relying on retrospective reporting, we also explore the differences in experiences and outcomes between these two groups. Finally, we discuss the implications of the growing privatization of education for achieving gender equality in Indian education. The findings of this study generate key insights into the enduring challenge of improving gender equality given the proliferation of private schooling in India and beyond.

1. The rise of private schooling

There are four types of schools in India: (i) government schools which are those institutions established, run, and funded by the State or Central Governments (ii) local body schools which are established by elected local government bodies; (iii) Private aided schools, which are operated by private entities such as civil society organizations but receive State Government grants-in-aid; and (iv) unaided private schools which received no financial or operational support from the government. Private unaided schools serving

disadvantaged communities make up the largest share of private institutions. They vary significantly in quality and price and many low fee unaided private schools are 'not recognized' by the government. According to Kingdon (2007) receiving recognition from the government is an arbitrary process:

Government 'recognition' is an official stamp of approval and for this a private school is required to fulfil a number of conditions, though hardly any private schools that get 'recognition' actually fulfil all the conditions of recognition. (p.183)

It is widely accepted that the portion of the population served by low fee unaided private schools is underestimated because teachers in government schools over report attendance, and many official national education censuses do not take unrecognized schools into account.

The growing role of the private sector in the provision of education in the developing context is a polarizing topic (Day Ashley et al., 2014; Tooley and Longfield, 2015). The rise of private schools has been heralded by some as a positive step toward the achievement of an accessible, quality education system (Tooley, 2001; Tooley and Dixon, 2007). Proponents of private sector involvement in education highlight evidence of higher quality education in private schools (Tooley et al., 2011). In India there is evidence that private sector institutions tend to have increased teacher accountability (Aslam and Kingdon, 2011) leading to lower levels of absenteeism (Kingdon and Banerji, 2009; Muralidharan and Kremer, 2006), lower pupil-teacher ratios (Goyal and Pandey, 2009; Maitra et al., 2011) resulting in better teaching practices. A variety of studies in India have found that private schools perform better than their public school counterparts in learning achievement (Desai et al., 2008; Goyal, 2009; Muralidharan and Kremer, 2006; Tooley et al., 2010). French and Kingdon (2010) exploited the natural experiment of children from the same families attending different institution types. They found a significant advantage for those attending private schools—an effect most markedly observable among low income families. Studies with the parents of children in low cost unaided private schools have found that their motivations include: dissatisfaction with the teacher performance, poor attitude and lack of accountability in government institutions; and higher perceived returns due to better quality teachers, improved prospects of upward mobility due to peer effects, and a focus on English language in private institutions (Harma, 2009; James and Woodhead, 2014; Srivastava, 2008).

Conversely, some argue that the role of low cost unaided private institutions in reaching the underserved constituencies is overstated (Woodhead et al., 2013), and that the increasing role of the private sector in the provision of this fundamental right will in fact further disadvantage the most vulnerable (Colclough, 1996). Recent evidence from India suggests that the upsurge in low cost private schooling is indeed exacerbating gender- and class-based inequalities within and outside the families, forcing many into debt in the pursuit of upward mobility for their children, while the poorest of the poor remain completely excluded from the systems (Härmä, 2009, 2011; Azam and Kingdon, 2013; Goyal and Pandey, 2009; Singh and Bangay, 2014; Woodhead et al., 2013). There is alarm that the growing low cost private sector will erode the employment protections and training requirements for teachers (Aslam and Kingdon, 2011). There is also some dissent about the universality of the low-cost private school learning outcome advantage (Chudgar and Quin, 2012). Singh (2015) found that positive effects of these private schools do not extend to mathematics or psychosocial skills. Further he found no evidence of a significant private school effect in urban areas. Others question the extent to which it is even possible to control for individual

factors affecting schooling choice and learning outcomes, such as differences in intrinsic ability and motivation between the students that gravitate toward private versus public school (Kingdon, 2008).

Despite the mixed evidence on the superiority of low-cost unaided private schools, consistently low income families, who are able, or willing to make the economic sacrifices to afford private schooling, are doing so.

The government is also actively embracing a more active private sector through public–private partnerships at both the primary and secondary level. As noted in the most recent national five year plan for the period 2012–2017:

Private providers (including NGOs and nonprofits) can play an important role in elementary education. Their legitimate role in expanding elementary education needs to be recognized and a flexible approach needs to be adopted to encourage them to invest in the sector. (p.64)

Most of the growth of secondary schools in the private sector in the last two decades has occurred among unaided schools (25 per cent of schools). About 60 per cent of schools are now aided or unaided. It is essential, therefore, that the private sector's capabilities and potential are tapped through innovative public–private partnerships, while concurrently stepping up public investment by the Central and State Governments at the secondary level. (p. 68)

According to government data, in Rajasthan, nearly all recognized private schools are unaided, with less than one percent of schools classified as private aided. Specifically, 71 percent of primary schools (covering classes I–VIII) are government-run while 27 percent are privately run. At the secondary level, the proportion changes dramatically: only 49 percent of schools are government-run while 51 percent are completely private. At the upper secondary level an even larger portion of students attend wholly private institutions, with government schools accounting for 41 percent and private schools, 59 percent of the total number of schools (National University of Educational Planning and Administration (NUEPA), 2013)².

In Rajasthan the role of the private sector is likely to increase with the implementation of two large public–private partnership initiatives. First, the national Right to Education Act 2009, which guarantees children the right to a free and quality education, now requires 25 percent of places in private primary schools to be reserved for children from poor and marginalized backgrounds; fees for these places have to be subsidized by government. At the secondary level too there is a trend toward greater private sector involvement. The State of Rajasthan is in the midst of implementing a pilot program called “Gyanodaya Yojana” which will establish 165 new secondary and senior secondary institutions in partnership with the private sector (Government of Rajasthan, 2012). Under this initiative, private enterprises establish, maintain and manage education institutions in underserved districts. Physical infrastructure, such as school building, furniture and fixtures, is provided by the government. The private enterprise recovers operating costs through fees paid by students. In addition at least half of all these new places are reserved for under-privileged students availing themselves of the “voucher system”. The local government authority reimburses private schools for these vouchers³.

² It is likely that these figures underestimate the role of the private sector in the State as unrecognized private schools will not have been included in this official data.

³ According to the terms of the Gyanodaya Scheme of the Government of Rajasthan education vouchers are available for payment of fees against Voucher Seats at the rate of Rs. 7200 (Rupees seven thousand two hundred) for classes IX to XII and Rs. 4000 (Rupees four thousand) per student for classes VI to VIII.

2. Gender equality in Rajasthan

The research on which this article draws took place in Rajasthan. It is the Indian state with the largest land mass and has a population of 73.5 million. Gender inequalities in the state are particularly acute as exemplified by a range of social indicators such as the alarmingly low 0–6 child sex ratio⁴ (Government of India (GOI), 2011), persistently high levels of under-five mortality among girls⁵ (Government of India (GOI), 2013b), and low female literacy rates (Government of India (GOI), 2011).

The legacy of a conservative patriarchal system is also evident in the State's low rates of female educational attainment, particularly at the point where girls transition to secondary school. In 2003, girls were only half as likely to be enrolled in secondary school as boys, leaving Rajasthan with the lowest ranking on the nation's gender parity index for secondary enrollment at the time (World Bank, 2006). It is at the critical stage of adolescence that supply-side issues, such as poor quality education, are exacerbated for adolescent girls; they face a wide range of hurdles to long-term educational engagement due to underlying political, economic, social and cultural power asymmetries (Unterhalter, 2005). Particularly in North India restrictive gender norms such as early marriage (Moore et al., 2009), the insistence on limited mobility within the public domain and onerous domestic responsibilities (Reddy and Sinha, 2010) compound the deeply engrained social hierarchies and increased opportunity costs of school participation to the detriment of adolescent girls' education (Kelly and Bhabha, 2014). There is also a lower perceived return from educating girls. According to Kingdon (2007):

A demand-side factor that likely militates against higher secondary school participation is parents' perceived futility of educating girls, since many families adhere to traditional gender roles and do not envisage daughters' participation in the labour market (p.172)

Low levels of parental, particularly maternal, education are associated with poor education outcomes for daughters (Azam and Kingdon, 2013; Woodhead et al., 2013). In 2011, Rajasthan recorded a female literacy rate of just 52 percent as opposed to 79 percent for males. While this represents a 10 percent gain for females on the previous decade, it is still well below the national average of 65 percent (Government of India (GOI), 2011).

Despite challenging circumstances, progress in gender equity is being made at all levels of education, as Table 1 shows. Between 2004 and 2010 the gross enrollment ratio for girls at the upper primary level increased from 55 to 73 percent. At the lower secondary level enrollment rates for girls almost doubled with an increase from 28 to 50 percent. The progress is due to a number of interrelated factors. As discussed earlier the supply of education is increasing through government and private investment. The country has experienced significant economic growth accompanied by a lowering in fertility rates over the last two decades which has enabled more families to afford education for their children (Kingdon, 2007). Demand for girls' education has increased even among poor families (The PROBE Team, 1999) due to increased returns from girls' education with the opening up of white collar jobs (Jensen, 2010), legislative and policy reform (Bapna and Sharma, 2015), shifting social norms (Tiwari and Ghadially, 2009)

⁴ Rajasthan has the fourth lowest child sex ratio at birth in India, with 870 girls born to 1000 boys.

⁵ While both under-five mortality rate and infant mortality rates in Rajasthan have declined, the rate of decline among girls is lower with 79 deaths per 1000 live births compared with 60 deaths for males which is indicative of their continued neglect during infancy and early childhood.

Table 1
Gross enrollment ratio Rajasthan.

	Lower primary I–V (6–11 yrs)		Upper primary VI–VIII (11–14 yrs)		Secondary IX–X (14–16 yrs)		Upper secondary XI–XII (16–18 yrs)	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
2004–2005	125	116	85	55	58	28	29	14
2010–2011	110	110	91	73	72	50	50	31

Source: Educational Statistics at a Glance, Government Of India Ministry Of Human Resource Development Bureau Of Planning, Monitoring & Statistics New Delhi 2012 Select Education Statistics 2004–2005, Ministry of Human Resource Development New Delhi 2007.

and campaigns for girls' education led by the international organizations, the government and civil society ([Government of India \(GOI\), 2015](#)).

It is important to note that while increases in female enrollment rates are a positive step, gender parity alone does not mean a gender equal education system ([Unterhalter, 2012](#)). Young women from disadvantaged backgrounds still face a challenging landscape in their efforts to realize their right to quality education, even when the problem of initial access or enrollment is solved ([Kelly et al., 2015](#); [Tiwari and Ghadially, 2009](#)). To understand this, in addition to the determinants of private school enrollment our study examines how the schooling experience differed, in terms of access to sanitation and exposure to teacher and peer violence, for young women in private schools as opposed to their counterparts in the government system.

3. Methodology

3.1. Overview

The results explored in this study are based on an analysis of quantitative data collected with 413 young women from across Rajasthan who took part in the 'Champions' project. Champions is a mixed methods, positive deviance research project that has been conducted with first generation learners across three states in India. The term Positive Deviance (PD) coined by [Zeitlin et al. \(1991\)](#) was first developed in nutrition research and applies to the study of individuals who demonstrate above-average outcomes in impoverished environments.

Specifically, Champions (CHs) are defined as young women enrolled in their second year of an undergraduate degree in a government college whose parents have completed no more than upper primary education. An aim of our research was to study the determinants of private school enrollment within this successful minority. In addition we wanted to compare the differences in experiences and outcomes between those who reported attending government as opposed to private institutions at primary and/or secondary level within the group. Given the growth of private schooling in India and elsewhere in the developing world, we were concerned that a new set of barriers to gender equality in education might be occurring, particularly for the poorest. Our questionnaire gathered extensive information on participants' personal and familial profiles.

3.2. Sampling

Participants were drawn from government colleges in five districts across five administrative zones in Rajasthan: Banswara, Dholpur, Jaipur, Jhunjhunu and Jodhur. We selected the districts purposefully based on their socio-economic diversity. The state Department of Education supplied lists of government colleges

with female enrollment rates for each district. We used proportionate random sampling based on female tertiary enrollment rates to select colleges and their respective participant quotas. The Rajasthan Department of Education wrote to each of the selected colleges requesting their assistance in facilitating data collection. Between December 2013 and January 2014 a research team from the Institute of Development Studies—Jaipur traveled to each of the selected institutions. At each college, all female second-year students were gathered in a classroom, told about the study, and asked to complete a short eligibility questionnaire to ascertain the parental education level. Students consented and completed a short screening questionnaire. Results from this initial screening questionnaire were tabulated and a list of eligible students compiled, namely those whose parents had completed no more than upper primary school education. Eligible students were then immediately invited to complete a longer questionnaire. If there were more Champions than our study quota for a particular college, we employed a lottery system to randomly select participants. 430 students were identified as Champions and invited to complete the long questionnaire, of whom 413 completed the survey.

3.3. Statistical analyses

Descriptive analyses of participant profiles including social and demographic characteristics were conducted. We also examined differences in the individual and household characteristics of participants by types of schooling. To understand differences in distributions of these characteristics, we created a new summary variable for schooling type that categorized participants into attending public schools through all four schooling levels, attending private schools through all levels, and attending a mixture of school types through schooling levels. We also examined differences in their schooling experiences by individual and household characteristics and by schooling type. In order to retrospectively deconstruct participants' schooling experience the questionnaire contained batteries of questions that were then constructed into scales to measure infrastructure, peer relationships, teacher absenteeism and performance at the primary, upper primary, secondary and upper secondary level. Chi-squared tests identified whether differences in individual and household characteristics and schooling experiences were statistically significant between participants attending different school types at each schooling level.

In addition, we conducted regression analyses examining the likelihood of attending government schools by individual and household characteristics. Using logit models appropriate for binary outcomes, we estimated odds ratios for attending government schools from participants' characteristics. Individual and household characteristics selected were ones that we had identified from the literature as key predictors of schooling type ([Azam and Kingdon, 2013](#); [Kelly and Bhabha, 2014](#); [Woodhead et al., 2013](#)). Analyses were conducted for each schooling level to understand associations at different stages of educational attainment. Robustness checks also included tests of collinearity using variance inflated factors and tolerance statistics.

We also used regression models to investigate the educational experiences of study participants. Univariate regression models examined associations between parental education and violence perpetrated by teachers. Teacher violence was operationalized using an adapted Population Council survey. Our questionnaire included a 15-point scale measuring the extent to which participants' experienced physical, sexual or verbal violence at the hands of school teachers (see [Appendix A](#) for further details). These analyses used ordinary least squares (OLS) models, treating scores on the teacher violence scale as continuous outcomes. We

also used OLS models to understand whether attending private school conferred higher quality education, operationalized through better performance on 10th standard exams.

4. Results

4.1. Participant profiles

The average age of the 413 participants in the study is 18.8 years. 78 percent are single and 95 percent live at home with their parents. As Table 2 shows, almost half of the sample identified as coming from other backward caste (OBC) communities, and a further 38 percent identified as scheduled caste (SC) or scheduled tribe (ST) leaving just 17 percent from the ‘General’ population⁶. These minorities are over-represented in our pro-poor sample of young women from disadvantaged backgrounds as compared to the general population. Study participation was contingent on parental education levels, with those whose parents had completed more than upper primary school education (greater than 10th standard) excluded. Traditionally marginalized groups such as SC/ST and to a lesser extent OBC communities have been found to have lower educational and economic outcomes than the general population (Hnatkovska et al., 2012). It is therefore not surprising that our inclusion criterion of low parental education levels yielded a high number of these minority groups. At the same time, the presence of these young women from minority communities in tertiary education represents a significant intergenerational shift and may reflect the changing nature of educational disadvantage in India. Conversely, just one percent of the sample identified as Muslim compared to 8.5 percent in the general population in Rajasthan (Government of India (GOI), 2011). The conspicuous absence of this group at tertiary level education, despite the study inclusion criterion, is in keeping with national data which shows that Muslim girls are the least likely of all minorities to progress beyond the primary level (Government of India (GOI), 2013a,b, p. 251). This may be due to a social conservatism within this religious group. It is also possible that parents are aware that returns to education can be lower to minorities such as Muslims because of discrimination within the labor market (Unni, 2007). Participants were asked to give an approximation of their familial annual income level. More than three out of four reported an average family income of less than 50,000 RPS per year.

In Rajasthan the rate of adult female literacy, 48 percent, is well below the national average. The state also has the greatest discrepancy between male and female literacy rates in the country (Government of India (GOI), 2011). This gender disparity in adult female educational outcomes was reflected in our sample; education levels were particularly low for participants’ mothers with 71 percent never having attended any kind of formal schooling. On the other hand just 23 percent of fathers had no formal schooling (Table 3).

4.2. School choice

The majority (67 percent) of study participants reported attending government schools at the primary level. These rates of government school enrollment at the primary level are largely consistent with state level data during this period (Assessment Survey Evaluation Research (ASER), 2008). At the secondary level 63 percent of participants reported attending government schools. According to official data government schools accounted for just

Table 2
Socioeconomic status of participants.

	Percentage
Religion	
Hindu	97
Muslim	1
Other	2
Caste	
General	17
SC/ST	38
OBC	45
Income	
Less than 50,000 INR (<₹500)	76
50,000–74,999 INR (₹500–₹750)	11
75,000–100,000 INR (₹750–₹1000)	3
More than 100,000 INR (>₹1000)	12

Table 3
Parental education levels.

	Mother (%)	Father (%)
No education	71	23
Lower primary	16	14
Upper primary	6	23
Some lower secondary	7	19

46 percent of total student enrollment at the upper secondary level at this time (National University of Educational Planning and Administration (NUEPA), 2012). The larger portion of study participants in government secondary schools compared to the general population is due to our study inclusion criteria, namely female gender and low parental education levels, which are both associated with higher than average rates of government school attendance, particularly at the upper levels of schooling (Azam and Kingdon, 2013; Lewin, 2011; Woodhead et al., 2013). Consistent with State level trends less than three percent of the sample reported attending government aided institutions at any level. As such the majority of participants who did not attend government schools attended wholly private institution (Table 4)⁷.

We analyzed individual and household characteristics of participants who attended public vs. private schools. As Table 5 shows, the strongest patterns in school type were dictated by caste. Across all schooling levels, a higher proportion of participants from SC and ST backgrounds were enrolled in government schools compared to other caste groups. There was no income gradient in type of school attended⁸. Within our restricted sample of Champions, we found patterns in school type by parental education, with a more statistically significant relationship between mother’s education than father’s education. A higher proportion of girls in government schools had two completely uneducated parents compared to girls in private schools. A larger portion of girls in private schools had mothers who were housewives while more of those in government schools had mothers who worked as casual laborers. Mothers’ occupation may reflect differences in socioeconomic status that have also been noted in other studies, which have found that a greater proportion of women living in very poor households work as casual laborers

⁷ We do not have the data to determine whether these private unaided institutions are recognized or unrecognized.

⁸ A weakness of this study is the questionnaire income measurement question. The lowest “average household annual income” response option was less than 50,000 RPS. Three quarters of the sample fell into this category. Given to the coarseness of our income measure it is likely that there are associations between income and school choice and other such relationships that we are unable to detect.

⁶ SC/ST are official designations given to various groups of historically economically and socially disadvantaged people. Various affirmative action social and political programs target these groups.

Table 4
Type of institution attended by level.

School type	Lower primary	Upper primary	Lower secondary	Upper secondary
Government	67	67	63	63
Private unaided* (private)	29	28	30	29
Other**	4	5	7	8

* Maybe recognized or unrecognized.

** Other includes distance learning initiatives, as well as private aided institutions.

(Olsen and Mehta, 2006). A parallel trend can be observed between fathers' occupation and school type: a larger portion of participants attending government schools had fathers who were casual laborers while more of those who attended private schools had fathers who worked as salaried employees, a more economically secure position.

Results from logit models presented in Table 6 showed that participants from the SC community were twice as likely to report enrolling in government schools at the primary level and three times as likely at the secondary level compared to those from the General caste group. Those from ST communities were almost ten times more likely to be enrolled in government schools at both levels than those in the general category. The overall trend we identified is in keeping with the findings of the large-scale Young Lives study undertaken in Andhra Pradesh and Telangana where higher caste, socioeconomic status and parental education were found to be associated with private school enrollment (Woodhead et al., 2013). Although robustness checks showed evidence of multicollinearity (see Appendix A.4), correlations between socio-demographic variables will not bias our estimates but will lower the precision of estimates. Unfortunately this is a limitation of our analysis and many observational studies that cannot be avoided; however, in this context, it supports our findings that constellation of sociodemographic factors, which are admittedly highly correlated, influence girls' educational attainment.

4.3. Schooling experience

In addition to understanding socio-demographic characteristics of the participants and their households, another salient aim of this study was to investigate how the schooling experiences of these young women from educationally marginalized backgrounds differed in relation to the type of educational institution they attended. Participants were asked to retrospectively report on various aspects of their schooling experience including infrastructure, bullying, teacher absenteeism and performance at each level of schooling. The survey contained a nine-point scale assessing the presence of facilities such as desks, drinking water and the availability of a science lab, to measure school infrastructure. Consistent with other studies such as Desai et al. (2008), we found that good facilities were reported by a larger proportion of those in private schools compared to those in government schools, though the difference tended to narrow as participants progressed through the education system (see Appendix A for further details). Girls attending private schools reported 0.95 units higher on the scale in lower primary, 0.70 units in upper primary, 0.34 units in lower secondary, and 0.25 units in upper secondary compared to those in government schools. Differences in infrastructural scores are only significant in primary school with marginally significant differences in lower secondary. Private institutions were also more likely to have a functioning girls' toilet than government schools. As Table 7 shows, at the

Table 5
Demographic characteristics of participants, by schooling experiences¹.

	All govt (n = 190)	All private (n = 57)	Mix of govt, private, and other (n = 166)	Significance
Caste				***
SC	20.00	10.53	13.41	
ST	13.16	26.32	18.29	
General	25.26	5.26	4.27	
SBC	4.21	7.02	12.20	
OBC	37.37	50.88	51.83	
Household income				
Poorest	77.37	70.18	75.90	
Poor	9.47	15.79	11.45	
Middle	1.58	1.75	4.22	
Rich	8.95	10.53	4.82	
Richest	2.63	1.75	3.61	
Mother's education				
No education	75.26	73.68	66.27	
Lower primary	15.79	17.54	16.87	
Upper primary	4.74	3.51	7.23	
Secondary	4.21	5.26	9.64	
Father's education				
No education	25.26	21.05	22.29	
Lower primary	15.79	10.53	13.25	
Upper primary	20.53	26.32	24.70	
Secondary	38.42	42.11	39.76	
Mother's occupation				***
Housewife	86.32	98.25	94.58	
Regular wage/salaried employee	2.11	0.00	1.20	
Casual laborer (including agricultural)	6.84	0.00	1.81	
Home maid	4.74	1.75	1.20	
Retired	0.00	0.00	1.20	
Father's occupation				
Self-employed	36.32	52.63	36.75	
Regular wage/salaried employee	27.89	29.82	28.92	
Casual laborer	27.89	17.54	27.11	
Unemployed	4.74	0.00	1.81	
Retired	2.11	0.00	3.01	

¹ This variable is created from the schooling type variable for each level of schooling. We classified participants who attended public schools from lower primary to upper secondary school as "All public" and similarly categorized participants who attended private schools for all levels. The last category "Mix of public, private, and other" includes participants who switched school types or attended "Other" types of schools at some schooling level.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

lower primary school 13 percent of participants attending private schools reported that their school had either no toilet or a non-functioning toilet as opposed 32 percent of those that attended government schools. The portion of girls who reported not having access to a functioning toilet decreased as they progressed through school levels as did the difference between government and private institutions; for example by lower secondary level 11 percent of those in government schools reported not having access to a functioning toilet as opposed to 5 percent of those in private institutions.

The crisis in student learning outcomes in India has been partly attributed to the high levels of teacher absenteeism particularly in government schools (Kremer et al., 2005). Contrary to those finding, in this study we found no significant differences in the participants' experiences of teacher absenteeism in private as

Table 6
Odds ratios from logit models predicting attendance in government schools based on socio-demographic characteristics.

		Lower primary	Upper primary	Lower secondary	Upper secondary
Caste (ref: general)	SC	1.96 [*] (0.75)	1.85 (0.72)	3.04 ^{***} (1.18)	2.99 ^{***} (1.20)
	ST	9.72 ^{***} (5.66)	5.57 ^{***} (2.87)	10.6 ^{***} (5.65)	9.13 ^{***} (4.82)
	SBC	1.74 (0.84)	0.71 (0.32)	1.79 (0.83)	0.41 [*] (0.20)
	OBC	1.29 (0.39)	1.07 (0.33)	1.12 (0.34)	1.09 (0.33)
	Poor (ref: poorest)	0.79 (0.27)	0.68 (0.23)	0.74 (0.25)	1.16 (0.41)
Income	Middle	0.13 ^{**} (0.11)	0.21 ^{**} (0.14)	0.25 [*] (0.18)	1.56 (1.13)
	Rich	1.00 (0.45)	0.87 (0.37)	1.07 (0.46)	1.45 (0.65)
	Richest	0.23 [*] (0.18)	0.23 ^{**} (0.16)	0.31 [*] (0.22)	0.43 (0.31)
Mother's education (ref: none)	Lower primary	0.69 (0.21)	0.94 (0.28)	1.15 (0.35)	1.30 (0.40)
	Upper primary	0.46 [*] (0.22)	0.89 (0.42)	2.54 [*] (1.32)	2.80 ^{**} (1.46)
	Secondary	0.34 ^{**} (0.16)	0.69 (0.32)	1.42 (0.66)	2.61 [*] (1.35)
Father's education (ref: none)	Lower primary	0.89 (0.35)	0.79 (0.30)	1.48 (0.57)	2.35 ^{**} (0.96)
	Upper primary	0.76 (0.26)	0.99 (0.34)	1.05 (0.35)	1.19 (0.40)
	Secondary	0.98 (0.32)	0.94 (0.30)	1.16 (0.36)	1.06 (0.33)
Constant	1.83 [*] (0.65)	1.99 ^{**} (0.69)	0.92 (0.31)	0.83 (0.29)	
Log-likelihood	-235.52	-243.72	-246.43	-241.17	

Standard errors in parentheses.
^{***} $p < 0.01$.
^{**} $p < 0.05$.
^{*} $p < 0.1$.

opposed to non-private institutions. As Table 8 illustrates, participants reported consistently high rates of teacher absenteeism across every level and type of schooling.

Reported levels of violence were low at all levels and the only significant difference between students' experience based on institution type was at the lower primary level where rates of violence were higher in government schools. Further, we found no differences in teacher violence by type of school after controlling for age, caste, and religion. Across all schooling levels, girls whose parents are more educated report significantly lower levels of teacher abuse compared to girls with uneducated parents. As Table 9 shows mothers' education only matters for girls whose

Table 7
Girls' toilets by level.

	Lower primary			Upper primary			Lower secondary			Upper secondary		
	Gov (%)	Priv. (%)	Other (%)	Gov (%)	Priv (%)	Other (%)	Gov (%)	Priv (%)	Other (%)	Gov (%)	Priv (%)	Other (%)
No toilet	23	9	12	10	6	5	6	2	7	6	2	3
Unusable	9	3	6	13	3	5	5	4	18	7	3	11
Usable but unclean or not private	21	19	18	18	16	19	20	14	14	17	9	9
Usable private and well-kept	48	69	65	59	75	71	69	80	61	70	87	77
Sig.	***			**			**			**		

^{***} $p < 0.01$.
^{**} $p < 0.05$.
^{*} $p < 0.1$.

mothers have some lower secondary education. The largest inverse association between fathers' education and teacher violence is observed for girls whose fathers have some lower secondary education; however, fathers' level of primary schooling is also inversely related to rates of teacher violence.

To probe school-level factors that may explain teacher abuse, we examined whether changes in schooling type led to greater experiences of violence. We found no evidence that girls who switched school types between levels, and more specifically those who switched from government to non-government or from non-government to government schools, experienced more violence from teachers.

To gain insight into participants' relationships with peers in school, the questionnaire included a scale to measure their experience of bullying including verbal, physical and sexual harassment. A scale score maximum of 20 indicates very frequent experiences of peer bullying. As shown in Table 10 experiences of bullying are similar across institutions. Statistically significant differences only arose in upper secondary school, with higher scores for those in private school.

Examining differences in bullying among different caste groups, we find that those in the 'General' caste group experience lower harassment in primary and lower secondary school than their lower caste peers. We find no evidence that parental education matters or that switching schools is associated with differences in peer bullying. We also do not observe an income gradient in bullying.

Various studies have found that those who attend non-government institutions in India fare better in academic outcomes than their counterparts in government schools (Assessment Survey Evaluation Research (ASER), 2014; Muralidharan and Kremer, 2006; Tooley et al., 2010). Participants in this study were all enrolled in the second year of college which means that they had all at least passed the 10th and 12th standard exams to progress to tertiary level. Even within this restricted sample, we found that those who attended government schools on average scored lower in their 10th standard exams than those who attended private schools. Table 11 shows predicted values for 10th standard exams from ordinary least squares (OLS) models examining the association between 10th exam scores and schooling type, controlling for socio-demographic characteristics.

4.4. Economic implications of private school attendance

Nearly all participants reported paying some fees at each level of schooling. As expected, those who attended private institutions reported paying the largest fees, followed by those who attended 'Other' institutions namely distance learning, residential or private aided schools. The majority of those participants who reported attending government schools had some fees, though reported

Table 8
Teacher absenteeism, by types and levels of schooling.

	Lower primary			Upper primary			Lower secondary			Upper secondary		
	Govt (%)	Priv (%)	Other (%)	Govt (%)	Priv (%)	Other (%)	Govt (%)	Priv (%)	Other (%)	Govt (%)	Priv (%)	Other
At least once a week	20	12	19	16	11	25	15	10	17	15	10	15
1–2 Days a month	43	59	44	46	54	41	45	50	39	45	46	41
5–10 Days a year	28	23	22	28	26	22	28	23	29	26	24	22
>5 Days a year	10	7	15	10	9	13	12	17	15	14	19	22
Total	100	100	100	100	100	100	100	100	100	100	100	100

Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

amounts are considerably lower than those attending non-government institutions. For example on average those who attended government schools at the lower secondary level reported average annual fees of 535RPS. Private school attendees on the other hand reported average fees that were ten times greater, at 6026RPS (Table 12).

For 98 percent of Champions these fees were paid by parents which in many cases put a strain on family resources. For example 65 percent of participants enrolled in private school for their lower secondary education reported that their families made economic sacrifices to fund their education as compared to 39 percent of those enrolled in government schools. Three quarters of the students who attended private schools at the upper secondary level reported that their families made economic sacrifices to fund their education as opposed to 33 percent of their counterparts in government schools at the upper secondary level. More than one in five study participants reported that their parents took out loans to support their education. Somewhat paradoxically a larger portion of those who took out loans were attending government as opposed to private schools (see Table 13). In keeping with the findings of Härmä (2009), these statistics suggest that participants from the most impoverished families, for whom even low fees caused economic distress, are more likely to continue to rely on the public education system.

Table 9
Associations between parental education^a and teacher violence at schooling levels.

	Participant schooling levels			
	Lower primary	Upper primary	Lower secondary	Upper secondary
Mother's education				
Lower primary	-0.16 (0.33)	-0.15 (0.32)	-0.16 (0.32)	-0.028 (0.30)
Upper primary	-0.43 (0.54)	-0.24 (0.52)	-0.29 (0.51)	-0.23 (0.48)
Lower Secondary	-1.16** (0.50)	-1.23** (0.48)	-1.38*** (0.48)	-1.44*** (0.45)
Constant	2.87*** (0.14)	2.67*** (0.14)	2.38*** (0.14)	2.10*** (0.13)
R-squared	0.014	0.016	0.020	0.025
Father's education				
Lower primary	-0.43 (0.41)	-0.77* (0.40)	-0.71* (0.39)	-0.82** (0.37)
Upper primary	-0.66* (0.36)	-0.74** (0.34)	-0.74** (0.34)	-0.84*** (0.32)
Lower secondary	-0.98*** (0.32)	-1.10*** (0.31)	-1.02*** (0.30)	-0.97*** (0.28)
Constant	3.34*** (0.25)	3.27*** (0.24)	2.92*** (0.24)	2.68*** (0.23)
R-squared	0.024	0.031	0.028	0.030

Standard errors in parentheses.

*** $p < 0.01$

** $p < 0.05$

* $p < 0.1$.

^a Models separately model each parent's education.

Schemes that support and incentivize families to invest in girls' education have been a central plank in the government's quest for gender equality. These low-income families' decisions to send their daughters to private schools not only generated direct costs but also prevented access to many government schemes such as scholarships, books and stipends. As illustrated in Table 14, at every level of schooling those who attended government schools were more likely to have received school supplies, scholarships and a mid-day meal.

5. Discussion

This unique focus of this research project enabled us to delve into several interesting aspects of the relationship between the rise of low cost private schooling and gender equitable education in Rajasthan. We examined the determinants of enrollment among this group, the differences in experience for girls in government versus private school, the implications of private school enrollment for poor families economically as well as their ability to benefit from programs designed to support and incentivize girls' educational participation.

Study participation was purposefully limited by gender and parental education level which in turn restricted the variation in income levels. This resulted in an over representation of disadvantaged groups namely SC, ST and OBC communities. However, Muslim girls were conspicuously absent from the sample, which may indicate a change in caste-based gradients of educational attainment.

Within our restricted sample, we found caste to be the most significant predictor of school type, demonstrating consistent associations with the type of school attended across different schooling levels. Overwhelmingly, Champions from traditionally marginalized groups were more likely to have relied on the government schooling to facilitate their progression to tertiary level education. For example Champions who identified as coming from scheduled tribe background were ten times more likely to have attended a government secondary school than their peers from the 'General' caste. We also found that those whose mothers had no education were more likely to attend government schools. Within this particular population we did not find a relationship between income and private school enrollment. It is possible that the coarseness of our income measure⁹ may have inhibited our ability to detect such a relationship. We did however find an association between parental occupation and private school enrollment. On average participants whose fathers had regular salaried employment were more likely be enrolled in private schools. Our finding points to an underlying social hierarchy beyond income level that plays a role in determining low cost private school enrollment. This is in keeping with the findings of

⁹ Three quarters of the sample fell into the lowest bracket; less than 50,000 RPS per annum.

Table 10

Peer harassment scores.

	Lower primary			Upper primary			Lower secondary			Upper secondary		
	Priv	Gov	Other	Priv	Gov	Other	Priv	Gov	Other	Priv	Gov	Other
Mean	6.80	7.09	7.59	6.75	6.84	7.71	6.75	6.69	7.21	5.88	5.49	5.89
SD	(1.62)	(1.88)	(1.33)	(1.65)	(1.74)	(1.38)	(1.79)	(1.81)	(1.69)	(1.84)	(1.70)	(1.53)

Sig.: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.**Table 11**

Predicted 10th standard exam scores from OLS models controlling for age, caste, and religion.

	Lower primary	Upper primary	Lower secondary	Upper secondary
Government ¹	55.79 (54.54–57.04)	55.65 (54.42–56.89)	55.70 (54.41–56.99)	55.84 (54.55–57.13)
Private	60.99*** (59.14–62.84)	61.17*** (59.28–63.06)	60.10*** (58.28–61.92)	59.52*** (57.66–61.39)
Other	62.54*** (58.63–66.45)	63.15*** (59.58–66.72)	63.00*** (59.83–66.18)	63.50*** (60.51–66.50)

Confidence intervals in parentheses.

¹ Reference category.*** $p < 0.01$.** $p < 0.05$.* $p < 0.1$.

James and Woodhead (2014) who noted that caregivers select and move children between schools that they feel are appropriate for their 'class of people'. The authors note the presence of informal hierarchies within the private sector. Similar trends have been identified in other contexts. In Chile studies have shown that a nationwide private school voucher¹⁰ system did not materially improve average test scores but did lead to increased sorting, as the students from more upwardly mobile families left the public school for the private sector. The authors hypothesize that parents' school selection was primarily driven by finding suitable peer groups for their children (Chang-Tai and Urquiola, 2006). In Ghana, Ajayi (2013) found that those who attended lower performing elementary schools were less likely to apply to more selective secondary schools than students with the same test scores from higher performing elementary schools due to social and psychological barriers such as imperfect information about admission chances. Similar trends have been identified at the tertiary level in the United States. For example Hoxby and Avery (2013) have found that low-income high achievers are less likely to apply to more selective/élite colleges than their higher income counterparts despite the fact that selective institutions typically cost them less, owing to generous financial aid. In a review of voucher systems González et al. (2004) note, particularly in the context of countries where income inequality is rampant, that vouchers need to be income dependent to avoid perpetuating existing inequalities. This finding has implications for public/private partnership initiatives such as the 25 percent reservation for those from economically and socially marginalized groups as part of the SSA. As the experience of other countries has shown, such schemes need to be accompanied by sustained outreach to minorities to ensure that the most marginalized families' deep-seated social and psychological barriers to private school enrollment are addressed, lest inequalities in the system be further exacerbated.

A second aim of this study was to explore how participants' experience of private and public schools at the primary and secondary level compare. While our study was limited by a reliance on retrospective reporting from participants, we identified

several trends that were consistent with other related research. Tooley et al. (2010) and Muralidharan and Kremer (2006) found that girls who attended private schools had higher predicted scores in their 10th standard exams, which would indicate a better schooling experience. Consistent with Srivastava (2008) we found that on average those who attended private institutions reported having better infrastructure including access to girls' toilets. While Glewwe et al. (2009) failed to find a relationship between school

Table 12

Average fees by type and levels of schooling.

		Reported paying fees	Average fees amount	Significance
Lower primary	Government	66	190.7	
	Private	90	2764.4	***
	Other	89	2280.6	***
Upper primary	Government	72	318.5	
	Private	87	4394.8	***
	Other	81	3364.5	***
Lower secondary	Government	85	534.9	
	Private	91	6026.3	***
	Other	85	5390.7	***
Upper secondary	Government	86	720.2	
	Private	92	9691.1	***
	Other	87	8761.2	***

*** $p < 0.01$.** $p < 0.05$.* $p < 0.1$.**Table 13**

Proportion of students whose parents took out loans for girls' schooling, by schooling type and level.

	Lower primary	Upper primary	Lower secondary	Upper secondary
Government	27	26	25	22
Private	11	12	14	19
Other	29	29	39	31
Total	22	22	22	22
Significance				

*** $p < 0.01$.** $p < 0.05$.* $p < 0.1$.

¹⁰ In 1981, Chile introduced nationwide school choice by providing vouchers to any student wishing to attend private school. As a result, more than 1000 private schools entered the market, and the private enrollment rate increased by 20 percentage points.

Table 14
Government schemes by types and levels of schooling.

		Lower primary			Upper primary			Lower secondary			Upper secondary		
		Govt	Private	Other	Govt	Private	Other	Govt	Private	Other	Govt	Private	Other
Mid-day Meal	Yes Sig	60 ***	3	11	56 ***	3	13	7	4	2	3	3	2
Scholarship	Yes Sig	18 ***	3	0	20 ***	4	9	41 ***	5	17	48 ***	3	13
Hostel	Yes Sig	1	0	0	1 ***	1	6	2 *	0	5	3	0	4
Bicycle	Yes Sig	3 ***	1	0	3	2	0	25 ***	0	2	4 **	0	0
Books	Yes Sig	71 ***	7	4	73 ***	4	19	69 ***	6	12	65 ***	3	20
Uniform	Yes Sig.	2	1	0	2	3	0	1	1	5	1	0	0

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

inputs and learning outcomes, access to toilets has been found to be positively correlated with higher rates of girls' school retention (Herz and Sperling, 2004). In many of the other measurements of schooling experience study participants reported similar experience across both government and low cost private institutions. Reported rates of teacher absenteeism were high at all school levels and there were no significant differences across public and private institutions. Teacher absenteeism is an issue that the government has so far failed to address within the public sector. This paper suggests that outsourcing the running of educational institutions through public private partnerships may not be enough to remedy this problem and could potentially reduce the scope for civic oversight. We also found that levels of violence at the hands of teachers and peers were similar across institutions. The most significant predictor of teacher violence was found to be parental education levels; those whose parents have the lowest levels of education were more likely to be victimized. On the other hand the most significant predictor of peer violence was caste with those from the 'General' category the least likely to be victimized. As more children from traditionally marginalized backgrounds enter into private schools through reservation and voucher systems, social classes are going to be mixing more and more. Across the board, therefore, schools must invest in anti-peer bullying efforts to ensure that those from low income and caste backgrounds are not victimized. The role of the State in monitoring private institutions to redress peer and teacher gender related violence remains unclear. Evidence from a variety of developing contexts suggests that state oversight of private educational institutions, when it exists, is often inadequate and susceptible to corruption (Day Ashley et al., 2014).

This study found that girls who attended private institutions paid ten times the fees at the secondary level that those in government schools paid. This expenditure had significant implications for family resources. A larger portion of those who attended private schools reported that their families made economic sacrifices to support their education. These young women's families not only had to pay these costs but also lost out on educational incentive schemes including free school supplies and meals at the primary level, and scholarships and stipends at the secondary level. If the government is to continue embracing a larger role of the private sector, conditions for eligibility for educational incentive schemes will need to be loosened to ensure

that all girls whose families are struggling financially, whether they are attending public and private schools, can benefit. Fortunately, this trend is already becoming apparent. In Rajasthan for example merit based scholarship schemes such as the Gargi prize¹¹ and the Balika Shiksha Protsahan Yojana, traditionally restricted to those studying in government school, have recently been opened to girls studying in private schools too. Other schemes, however, remain restricted to girls in low cost private institutions¹².

6. Conclusion

The results of this study show the complex and evolving ecology of educational participation and experience. These findings and the rise of privatized education, driven in part by government partnerships, raise several policy and research questions that warrant further attention.

Social gradients along traditional lines such as place of residence and caste are evolving. We found evidence that even among our selective pro-poor sample of girls with poorly educated parents, Muslim girls are conspicuously absent from tertiary level education. This is a concerning finding that needs urgent attention. Of those who did make it to college, despite familial economic and education disadvantage, Champions from SC/ST and OBC backgrounds were far more likely to rely on the government schools to facilitate their educational progression than their 'General' caste peers. Given the similarity of the economic and educational backgrounds of participants in this study the finding suggests that barriers to private school enrollment may be social as well as financial. This finding suggests that more careful thought needs to be given to improving incentives to stimulate access to quality secondary education for low caste girls.

We found that those who attended private schools generally attended institutions with better facilities and did marginally better in their 10th standard exam. However other indicators of educational experience such as teacher absenteeism, teacher violence and peer violence were similar across institution types.

¹¹ Though which Rs. 2000 is given to girls getting 75 percent or more marks in the secondary examination, and continue their studies in class 11th and 12th are awarded Rs. 1500 and a certificate.

¹² Such as the Indira Gandhi Priyadarshini Award.

We found the underlying factors associated with exposure to violence to be linked once again to parental education levels and caste group, another powerful and gendered disincentive to equal educational progression. The extent to which private institutions will be overseen and answerable to government and civil society for such infractions remains to be seen.

Unsurprisingly those who attended private schools had much higher costs associated with their education both in terms of school fees and foregone opportunities to benefit from school based governments education programs. Currently, eligibility criteria and administrative proceedings for girls' education programs such as incentive schemes remain prohibitive complex. A careful review of existing programs, at both state and national levels, will be needed to ensure that the increased private sector involvement in education does not undermine efforts to address persistent inequality in the national schooling system.

Acknowledgements

We would like to thank Shobhita Rajagopal and Kanchan Mathur from Institute of Development Studies, Jaipur our research partners.

Funding support provided by the Gustav and Rita Hauser Foundation, Passport Foundation, Population Foundation of India and the South Asia Institute.

Appendix A. Construction of scales

A.1. School infrastructure scale

For each level of schooling, participants were asked if their school had any of the following items:

- Tables/desks
- Science lab
- Drinking water facilities
- Playground
- School canteen
- Computers
- Blackboards
- Library
- Boundary wall

A response of "yes" gave each participant one point for each item. The scale was constructed from a sum of each of the 9 items above, equally weighting each item, for a maximum score of 9 and minimum of 0. Each participant received a score at each schooling level.

A.2. Teacher violence scale

For each schooling level, participants responded to the following questions:

- Did teachers ever treat boys more favorably than girls?
 - Did teachers ever hit or beat you?
 - Did teachers ever tease you on the basis of caste or ethnicity?
- Participants responded regarding the frequency of the occurrence of these events, using the following responses with the relevant scores

1. Never
2. Very rarely
3. 5–10 days a year
4. 1–2 days per month
5. At least once per week

To create the scale, responses for each of the three items above were added, with each of the items equally weighted. The maximum possible score was 15, indicating much teacher abuse, and the least was 3 indicating no teacher abuse.

A.3. Peer harassment scale

The Peer Harassment Scale was constructed in a similar way to the Teacher Abuse Scale with participants reporting the frequency of four scenarios occurring. These events were:

- Was bullying common?
- Did students mock or tease you on the basis of caste or ethnicity?
- Did students hit or beat you?
- Did you experience harassment from boys?

Participants responded regarding the frequency of the occurrence of these events, using the following responses with the relevant scores

1. Never
2. Very rarely
3. 5–10 days a year
4. 1–2 days per month
5. At least once per week

To create the scale, responses for each of the three items above were added, with each of the items equally weighted. The maximum possible score was 15, indicating much peer harassment, and the minimum was 3 indicating no harassment from peers.

A.4. Multicollinearity statistics

	Lower primary			Upper primary		
	VIF	Tolerance	R-squared	VIF	Tolerance	R-squared
School type	1.06	0.9478	0.0522	1.02	0.9811	0.0189
Caste	1.04	0.9607	0.0393	1.04	0.9596	0.0404
Religion	1.05	0.9502	0.0498	1.06	0.9472	0.0528
Mother's education	1.19	0.8434	0.1566	1.15	0.8674	0.1326
Father's education	1.14	0.8748	0.1252	1.14	0.8757	0.1243

	Lower secondary			Upper secondary		
	VIF	Tolerance	R-squared	VIF	Tolerance	R-squared
School type	1.01	0.9933	0.0067	1.02	0.9802	0.0198
Caste	1.04	0.9574	0.0426	1.05	0.9531	0.0469
Religion	1.05	0.9511	0.0489	1.05	0.9518	0.0482
Mother's education	1.15	0.8729	0.1271	1.15	0.8673	0.1327
Father's education	1.14	0.8757	0.1243	1.14	0.8743	0.1257

References

- Ajayi, K., 2013. *A Welfare Analysis of School Choice Reforms in Ghana*. University of California Berkley (<http://www.tayfunsonmez.net/wp-content/uploads/2013/10/Ajayi>) (last accessed 6/13/15).
- Aslam, M., Kingdon, G., 2011. *What can teachers do to raise pupil achievement?* *Econ. Educ. Rev.* 30 (3), 559–574.
- Assessment Survey Evaluation Research (ASER), 2014. *Annual Status of Education Report* (<http://www.asercentre.org/Keywords/p/234.html>) (last accessed 6/13/15).
- Assessment Survey Evaluation Research (ASER), 2008. *Annual Status of Education Report* (<http://www.asercentre.org/p/82.html>) (last accessed 6/13/15).
- Azam, M., Kingdon, G.G., 2013. *Are girls the fairer sex in India? Revisiting intra-household allocation of education expenditure*. *World Dev.* 42, 143–164.
- Bapna, A., Sharma, N., 2015. *School Education in India: A Handbook* (http://www.evaldesign.com/uploads/2/3/8/2/23823775/school_education_india_-_evaldesign.pdf) (last accessed 6/13/15).

- Chang-Tai, H., Urquiola, M., 2006. [The effects of generalized school choice on achievement and stratification: evidence from Chile's voucher program](#). *J. Public Econ.* 90, 1477–2150.
- Chudgar, A., Quin, E., 2012. [Relationship between private schooling and achievement: results from rural and urban India](#). *Econ. Educ. Rev.* 31 (4), 376–390.
- Colclough, C., 1996. [Education and the market: which parts of the neo-liberal solution are correct?](#) *World Dev.* 24, 589–610.
- Day Ashley, L., McLoughlin, C., Aslam, M., Engel, J., Wales, J., Rawal, S., Batley, R., Kingdon, G., Nicolai, S., Rose, P., 2014. [The role and impact of private schools in developing countries: a rigorous review of the evidence](#). In: Final Report. Education Rigorous Literature Review. Department for International Development, (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307032/Private-schools-2014.pdf) (last accessed 6/13/15).
- Desai, S., Dubey, A., Vanneman, R., Banerji, R., 2008. [Private schooling in India: a new educational landscape](#). University of Maryland, Maryland, MD.
- French, R., Kingdon, G., 2010. [The Relative Effectiveness of Private and Government Schools in from Private School Enrolment in India](#). Institute for the Study of Labor, Bonn.
- Glewwe, P., Kremer, M., Moulin, S., 2009. [Many children left behind? Textbooks and test scores in Kenya](#). *Am. Econ. J.: Appl. Econ.* 1 (1), 112–135.
- González, P., Mizala, A., Romaguera, P., 2004. [Vouchers, inequalities, and the Chilean experience](#). Center for Applied Economics, University of Chile, Santiago, Chile (http://www.ncspe.org/publications_files/Voucher_ChileOP94.pdf) (last accessed 6/13/15).
- Government of India (GOI), 2014. [Framework for Implementation of Rashtriya Madhyamik Shiksha Abhiyan](#) (http://rmsaindia.org/images/files/website_detail_contents/guidelines/rmsa/Framework_20for_20Implementation_20of_20RMSA.pdf) (last accessed 6/13/15).
- Government of India (GOI), 2007. [Selected Educational Statistics 2004–2005](#). Ministry of Human Resource Development Bureau of Planning, Monitoring & Statistics New Delhi (www.educationforallindia.com/SES2004-05.pdf) (last accessed 06/29/15).
- Government of India (GOI), 2011. [Census See](#) (<http://censusindia.gov.in/2011-common/censusdataonline.html>) (last accessed 6/13/15).
- Government of India (GOI), 2012. [Statistics of School Education 2009–2010](#). Ministry of Human Resource Development Bureau of Planning, Monitoring & Statistics New Delhi (http://mhrd.gov.in/sites/upload_files/mhrd/files/SES-School_201011_0.pdf)
- Government of India (GOI), 2013a. [Twelfth Five Year Plan \(2012–2017\), Volume 3: Social Sectors](#). Sage, New Delhi (http://planningcommission.nic.in/plans/planrel/fiveyr/12th/pdf/12fyp_vol3.pdf) (last accessed 6/13/15).
- Government of India (GOI), 2013b. [Annual Health Survey Bulletin: Rajasthan 2011–2012](#). Office of the Registrar General & Census Commissioner, New Delhi (http://www.censusindia.gov.in/vital_statistics/AHSBulletins/files2012/Rajasthan_Bulletin_202011-12.pdf)
- Government of India (GOI), 2015. [Beti Bachao Beti Padhao](#) (http://wcd.nic.in/BBBPScheme/launch/workshop/SchemeDocument_2220Dec20201.pdf) (last accessed 6/13/15).
- Government of Rajasthan, 2012. [Twelfth Five Year Plan Chapter 20: Education](#) (http://www.planning.rajasthan.gov.in/Twelfth_20Plan/Chapters/Chap_20_Education.pdf) (6/13/15).
- Goyal, S., 2009. [Inside the house of learning: the relative performance of public and private schools in Orissa](#). *Educ. Econ.* 17 (3), 315–327.
- Goyal, S., Pandey, P., 2009. [How do Government and Private Schools Differ? Findings from Two Large Indian States](#). World Bank, Washington, DC (<https://openknowledge.worldbank.org/handle/10986/17962>) (last accessed 6/13/15).
- Härmä, J., 2009. [Can choice promote education for all? Evidence from growth in private primary schooling in India](#). *Comp.: J. Comp. Int. Educ.* 39 (2), 151–165.
- Härmä, J., Rose, P., 2012. [Is low-fee private primary schooling affordable for the poor? Evidence from rural India](#). In: Robertson, R., Mundy, K. (Eds.), *Public Private Partnerships in Education: New Actors and Modes of Governance in a Globalizing World*. Edward Elgar Publishing, Cheltenham, pp. 243–258.
- Härmä, J., 2011. [Low cost private schooling in India: is it pro poor and equitable?](#) *Int. J. Educ. Dev.* 31 (4), 350–356.
- Herz, B., Sperling, G., 2004. [What Works in Girls' Education: Evidence and Policies from the Developing World](#). Council on Foreign Relations, New York, NY.
- Hnatkovska, V., Lahiri, A., Sourabh, P., 2012. [Castes and labor mobility](#). *Am. Econ. J. Appl. Econ.* 4 (2), 274–307.
- Hoxby, C., Avery, C., 2013. [The Missing "One-Offs": The Hidden Supply of High-Achieving, Low-Income Students](#). Brookings Papers on Economic Activity (http://www.brookings.edu/~media/projects/bpea/spring_202013/2013a_hoxby.pdf)
- James, Z., Woodhead, M., 2014. [Choosing and changing schools in India's private and government sectors: Young Lives evidence from Andhra Pradesh](#). *Oxford Rev. Educ.* 40 (1), 73–90.
- Jensen, R., 2010. [Economic Opportunities and Gender Differences in Human Capital: an Experimental Test for India](#). Mimeo, UCLA.
- Kingdon, G., Banerji, R., 2009. [School Functioning in Rural North India: Evidence from SchoolTELLS Survey](#) Härmä J (2009) [Can choice promote Education for All? Evidence from growth in private primary schooling in India](#). Compare: A J. Comp. Int. Educ. 39 (2), 151–165.
- Kelly, O., Bhabha, J., 2014. [Beyond the education silo? Tackling adolescent secondary education in rural India](#). *Br. J. Sociol. Educ.* 35 (5), 731–752.
- Kelly, O., Bhabha, J., Krishna, A., 2015. [Champions: The Realities of Realizing the Right to Education in India](#). *Hum. Rights Quart.* 37, 1046–1070.
- Kingdon, G., 2007. [The progress of school education in India](#). *Oxford Rev. Econ. Policy* 23 (2), 168–195.
- Kingdon, G., 2008. [School-sector effects on student achievement in India: School Choice International: Exploring Public–Private Partnerships](#), (http://dise.in/Downloads/Use_20of_20Dise_20Data/Geeta_20Gandhi_20Kingdon.pdf) (retrieved August 30, 2014).
- Kremer, M., Muralidharan, K., Chaudhury, N., Hammer, J., Rogers, F.H., 2005. [Teacher absence in India: a snapshot](#). *J. Eur. Econ. Assoc.* 3 (2–3), 658–667.
- Lewin, K.M., 2011. [Expanding access to secondary education: can India catch up?](#) *Int. J. Educ. Dev.* 31 (4), 382–393.
- Maitra, P., Pal, S., Sharma, A., 2011. [Reforms, growth and persistence of gender gap: recent evidence rural India](#). Discussion Paper No. 6135 IZA DP, Bonn, Germany. (<http://ftp.iza.org/dp6135.pdf>)
- Mehrotra, S., Pancharukhi, P.R., 2006. [Private provision of elementary education in India: findings of a survey in eight states](#). *Comp.: J. Comp. Int. Educ.* 36 (4), 421–442.
- Moore, A.M., Singh, S., Ram, U., Remez, L., Audam, S., 2009. [Adolescent Marriage and Childbearing in India: Current Situation and Recent Trends](#). Guttmacher Institute, New York, NY (<http://www.guttmacher.org/pubs/2009/06/04/AdolescentMarriageIndia.pdf>)
- Muralidharan, K., Kremer, M., 2006. [Private and Public Schools in Rural India](#). Mimeo, March, Harvard University, Cambridge, MA.
- National University of Educational Planning and Administration (NUEPA), 2013. [Elementary education in India progress towards UEE: DISE 2011–12 Flash Statistics](#). NUEPA, New Delhi (http://www.dise.in/Downloads/Publications/Publications_202011-12/Flash202011-12.pdf)
- National University of Educational Planning and Administration (NUEPA), 2012. [Secondary Education In India Progress Towards UEE Flash Statistics SEMIS 2010–11](#) (http://semisonline.net/SemisStatus/Flash_20Statistics-2010-11.pdf)
- Olsen, W., Mehta, S., 2006. [A Pluralist Account of Labour Participation in India](#). Global Poverty Research Group Working Paper. University of Manchester, UK (<http://www.gprg.org/pubs/workingpapers/pdfs/gprg-wps-042.pdf>) (last accessed 6/13/15).
- Reddy, A.N., Sinha, S., 2010. [School Drop Outs or Push Outs? Overcoming Barriers for the Right to Education](#). CREATE Research Monograph No. 40.
- Singh, A., 2015. [Private school effects in urban and rural India: panel estimates at primary and secondary school ages](#). *J. Dev. Econ.* 113, 16–32.
- Singh, R., Bangay, B., 2014. [Low-fee Private Schooling in India: more questions than answers? Observations from the Young Lives Longitudinal Research in Andhra Pradesh](#). *Int. J. Educ. Dev.* 39, 132–140.
- Srivastava, P., 2008. [School choice in India: disadvantaged groups and low-fee private schools](#). In: Forsey, M., Davies, S., Walford, G. (Eds.), *The Globalisation of School Choice?* Symposium Books, Oxford, pp. 185–208.
- The PROBE Team, 1999. [Public Report on Basic Education in India](#). Oxford University Press, New Delhi.
- Tiwari, N., Ghadially, R., 2009. [Changing gender identity of emerging adults](#). *J. Indian Acad. Appl. Psychol.* 35 (2), 313–332.
- Tooley, J., Bao, Y., Dixon, P., Merrifield, J., 2011. [School choice and academic performance: some evidence from developing countries](#). *J. Sch. Choice* 5 (1), 1–39.
- Tooley, J., Dixon, P., Shamsan, Y., Schagen, I., 2010. [The relative quality and cost effectiveness of private and public schools for low-income families: a case study from developing countries](#). *Sch. Eff. Sch. Improv.* 20 (4), 1–28.
- Tooley, J., Longfield, D., 2015. [The Role and Impact of Private Schools in Developing Countries: A Response to the DFID-commissioned "Rigorous Literature Review"](#). Pearson, London (https://research.pearson.com/content/plc/prkc/uk/open-ideas/en/articles/role-and-impact-of-private-schools/_jcr_content/par/articledownloadcompo/file.res/150330_Tooley_Longfield.pdf)
- Tooley, J., 2001. [Serving the needs of the poor: the private education sector in developing countries](#). In: Hepburn, C. (Ed.), *Can the Market Save our Schools?* The Frazer Institute, Vancouver.
- Tooley, J., Dixon, P., 2007. [Private Education for low-income families: results from a global research project](#). In: Srivastava, P., Walford, G. (Eds.), *Private, Schooling in Less Economically Developed Countries*. Symposium Books, Oxford.
- Unni, J., 2007. [Earnings and education among social groups](#). In: Shariff, A. (Ed.), *State, Markets and Inequalities: Human Development in Rural India*. Orient Longman, New Delhi.
- Unterhalter, E., 2005. [Fragmented frameworks: researching women, gender, education and development](#). In: Aikman, S., Unterhalter, E. (Eds.), *Beyond Access: Developing Gender Equality in Education*. Oxfam Publishing, Oxford, pp. 15–35.
- Unterhalter, E., 2012. [Mutable meanings: gender equality in education and international rights frameworks](#). *Equal Rights Rev.* 8, 67–84.
- Woodhead, M., Frost, M., James, Z., 2013. [Does growth in private schooling contribute to education for all? Evidence from a longitudinal, two cohort study in Andhra Pradesh, India](#). *Int. J. Educ. Dev.* 33, 65–73.
- World Bank, April, 2006. [Secondary Education in India: Investing in the Future](#). Human Development Unit, South Asia Region, World Bank.
- Zeitlin, M., Ghassemi, H., Mansour, M., 1991. [Nutritional Resilience in a Hostile Environment: Positive Deviance in Child Nutrition](#). *Nutr. Rev.* 49 (9), 259–268.

Orla Kelly (LLM, MBA) is a research fellow at the François Xavier Bagnoud Center for Health and Human Rights, at Harvard University, Boston, United States. She is also a doctoral student in Sociology at Boston College. The focus of her research and publications is gender, adolescence and education.

Aditi Krishna (MSPH) is a doctoral student at the Harvard School of Public Health in the Department of Social and Behavioral Sciences. The focus of her research is on social determinants of health specifically pertaining to women's health in lower and middle income countries.

Jacqueline Bhabha (JD, MSc) is FXB Director of Research, Professor of the Practice of Health Human Rights at the Harvard School of Public Health, the Jeremiah Smith Jr. Lecturer in Law at Harvard Law School, and an Adjunct Lecturer in Public Policy at the Harvard Kennedy School. She has published extensively on issues of adolescent rights, education, transnational child migration, refugee protection, children's rights and citizenship.