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RESEARCH ARTICLE

Inequality in Educational Opportunity in India: A Case of Social Exclusion of Primary Education

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Abstract

Inequality in educational opportunities is of a growing concern in research as well as in the political discussion owing to the increased relevance of cognitive and non-cognitive skills in the labour market. Educational and social policies with the goal to reduce educational inequality and to achieve universalisation of education are thus central issues in the enduring political and scientific debate in developing countries. This study intends to address four basic issues in Indian context, viz., (i) to measure inequality in educational opportunities by estimating school attendance rates by income deciles groups, (ii) to test statistically, if low economic status is the key obstacle in achieving the universalisation of primary schooling, (iii) to formulate appropriate statistical hypotheses for testing regional and gender disparities; and, (iv) to check if empowering of adult women, in terms of education and workforce participation appear as effective means in improving school attendance rates of Indian children, particularly in the context of poverty. The study also finds that India is out flying to achieve the goal to complete a full course of primary schooling by 2015 and it is also away from ensuring gender equality, even in primary school attendance.

Introduction

Exclusion of children from accessing to school is a manifestation of educational deprivation that suppresses their freedom to actively participate in and benefit from elementary education. Lack of accessing to education is a compromise with human capital formation causing dreadful cost to the society in terms of generating social exclusion and economic deprivation. "The basic capabilities to lead a life with elementary freedom tend to be severely compromised by keeping large sections of the population out of educational opportunities, and in addition, these exclusions also contribute to making the process of economic growth less participatory" (Sen, 2000). Example may be given of South and West Asian experience where persistent illiteracy has great importance in generating

social exclusion and economic deprivation, both having constitutive significance and instrumental consequence. Educational and social policies with the goal to reduce educational inequality and to achieve universalisation of education are thus central issues in the enduring political and scientific debate in developing countries.

Over half of the illiterate adults in the world live in just four developing countries: Bangladesh, China, India and Pakistan, the progress being painfully slow and threatens to obstruct the Millennium Development Goals (MDG) of attaining education for all by 2015 (UNESCO, 2010). Gender disparities remain deeply engrained, with twenty eight nations across the developing world having nine or fewer girls in school for every ten boys. The report alleged two-thirds of the total illiterate people are women. Of children who enroll in primary school, only two-thirds reach the last grade. Country-level data (UNESCO, 2010) shows India having been improved survival rates only marginally in 2008 since 1999.

As in most developing countries, one of the key reasons cited for low levels of school participation is the cost of education. Not surprisingly, therefore, school participation rates of children from non-poor households are significantly higher than those from households in absolute poverty. A recent study (Chaudhri and Jha, 2010) estimates, in the population as a whole, 82 per cent of children aged 5–14 are in school, while only 71 per cent of children in ultra-poor households and 72 per cent in poor households are in schools, in India. Montgomery, M. R. and P. C. Hewett (2005) find that living standards have substantial impact on schooling in Senegal. A marked urban advantage in schooling is apparent too. Rural-urban difference in schooling decision is also shown in Ersado (2002) who find that in Nepal, Peru and Zimbabwe, unlike in urban areas, poverty is a key determinant of this decision in rural areas.

Although financial constraint is the main driving force towards intra-household decision of sending children to school, adult education can have significant positive impact in raising school attendance and thereby reducing dropout rates and improving primary school completion rates. Low attendance rates can also be attributed to backward caste identity of the household. It can be negatively associated with age and female gender too. Impact studies of cooked school meals indicate a positive participation impact of such scheme in developing countries (Vermeersch and kremer, 2005; Ahmed, 2004). It has also positive impact on poor daily attendance of students (Ahmed, 2004). In a review of educational outcomes of school feeding programmes Kristjansson et al. (2007) find that school-feeding programmes improve attendance, particularly in rural, low-income schools in developing countries. While enrolment has been the focus of most research on this issue, the practical need for fulfilment of the target of a full course of primary schooling of all children is not only enrolment, but that children must continue to attend classes.

With alarming statistics of country-level estimates of UNESCO, that about eight million Indian children between 6 and 14 years age group were out-of-school in 2010, this study intends to address the following issues in Indian context:

(i) to measure inequality in educational opportunities by estimating school attendance rates by income deciles groups;

(ii) to test statistically, if low economic status is the key obstacle in achieving the universalisation of primary schooling, by utilising information on alternative responses of households explaining currently not sending their children to school;

(iii) to formulate appropriate statistical hypotheses for testing regional (rural/urban) and gender disparities (girls/boys) and to see how far the country has been able to mitigate these disparities; and,

(iv) to check if empowering of adult women, in terms of education and workforce participation appear as effective means in improving school attendance rates of Indian children and thereby increasing primary school completion rates, particularly in the context of poverty.

The study will be based on unit level household survey data on "Employment and Unemployment Situation in India", conducted by the National Sample Survey (NSS) for 66th Round during 2009-2010.

The article begins with a discussion of the issues and related hypotheses. Section 3 provides details on the data and methodology used. The results are presented in Section 4. Section 5 discusses the results and concludes.

2. Issues and hypotheses

2.1 General level of education of Indian children

*General education level: 01: Not literate; 02: Literate without formal schooling; 03: Below primary; 04: Primary; 05: Middle; 06: Above middle & others.
Source: Employment and Unemployment Situation in India, 2009-2010; Report no. 537.

In Table 1, general education level of Indian children (5-14 years) is presented by sex and region separately. For working out education specific distribution, children have been classified into six categories, viz., 'not literate (01)', 'literate without formal schooling (02)', 'below primary level (03)', 'primary (04)', 'middle (05)', and 'above middle (06)'. During 2009-10, among the rural boys, about 13 per cent (22 per cent in 5-9 years age group and 5 per cent in 10-14 years age group) were not literate. 52 per cent of them were in below primary level and only 25 per cent reported as completed their primary education. Estimates for rural girls are quite similar to that for boys. Urban scenario is much impressive and the estimates of the proportions of literate children were much higher in urban areas (15 per cent boys and 10 per cent girls in 5-14 years age group reporting as illiterate). 78 per cent of boys and girls in 5-9 years age group have entered in formal primary education, while only 49 per cent in higher age group have been completed primary education. In both rural and urban areas, percentages of children completed primary education (25 per cent in rural areas and 26/27 per cent in urban area) are far low to ensure that, by 2015, all girls and boys complete a full course of primary schooling.

2.2 Drop outs

To achieve MDG by the target date, all children at the official entry age for primary school should be attending classes by 2009 or so depending on the duration of the primary level and how well schools retain children to the end of the cycle (UNESCO, 2010). For examining Indian situation in this respect needs study based on school attendance status of the Indian children, whether the enrolled children attend school regularly or they dropout in mid-way[1]. It can be noted from Table 2 that among drop out children, one in ten children in urban area and one in 12 children in rural area remain illiterate although they were enrolled and attended school at least for few days. More than 30 per cent of drop out children drop out before reaching the primary final grade and about 35 per cent of them drop out after passing out primary level. Getting children into school is a vital first step. But to receive the full benefits of education, they must continue to attend classes.

2.3 Poverty and school attendance

Figure 1 and Figure 2 show percentage distribution of children, currently not attending school, by deciles classes of MPCE[2]. It is clearly evidenced from these two figures that the major obstacle to education in India is poverty. Both girls and boys irrespective of region, in the first deciles class (poorest) have the least chance of getting education. Boys, in the poorest deciles, are five times more likely to be not attending school than boys in the richest deciles in rural area. Similarly, girls, in the poorest deciles, are four times more likely to be not attending school than girls in the richest deciles in the rural area. Children in the richest deciles are least likely to be not attending school (about 3 to 6 per cent). This raises the question if poverty is the key obstacle to universal education in India or there are some other significant reasons behind it. It needs a detailed study of alternative responses of households explaining the reasons of not sending children to school as well as identification of socio-economic-cultural characteristics of households influencing the intra household decision on child education.

Response of households to non-attendance

[1] Drop out children are those who ever attended but currently are not attending school.
[2] The deciles classes are based on sample observations.

Households may respond differently in explaining currently not sending children to school. In NSS, school attendance of a child was classified into three categories as stated below:

(i) the child never attended school;
(ii) the child ever attended but currently not attending school; and
(iii) the child is currently attending school.

Five types of household-responses were reported as explaining the reasons of currently not attending school of their children[3]. These are as followings:

(i) school is too far (response group 1);
(ii) to supplement household income (response group 2);
(iii) education not considered necessary (response group 3);
(iv) to attend domestic chores (response group 4); and
(v) other reasons (response group 5).

Table 3 illustrates percentage distribution of children currently not-attending school by reasons for non-attendance. As mentioned previously, NSS classifies children in currently not attending status into two categories, "never attended school" and "ever attended but currently not attending school". Among "never attended school" 11 per cent boys and 10 per cent girls in rural area reported that they could not attend school as "school is too far". In urban area, as expected, these percentages are quite low (8 per cent for both boys and girls). Urban children are more engaged in supplementing household income compared to rural children. The possible reason is due to varied job opportunities available in urban area. Lack of motivation as a cause of school non-attendance is probably the most contentious and complex. Nevertheless, there can be no doubt that with regard to the perceptions about the value and role of education, the situation has altered dramatically, even in rural area, over the years. Still it is lagging behind the target to be fulfilled (10 per cent to 16 per cent family considered education as not being necessary).

Percentage of urban children in "ever attended bur currently not attending" status (drop out) is much higher compared to their rural counterpart. Urban male children drop out school mainly due to economic reason (25 per cent). Lack of awareness, reflected in the response, "education not considered necessary", stands as a major reason for drop out of girls in urban area (18 per cent). Domestic duties also hinder urban girls from attending school (17 per cent). Similar pattern is observed for rural drop out children, although percentages are quite low.

Distribution of currently not attending children by deciles classes of MPCE, show that low economic status is one major obstacle to education. This raises the question if the above stated five alternative responses are independent responses at all. It might be possible that actually low MPCE is the only independent response and all other responses are essentially due to low MPCE. This calls for testing if the differences in income of alternative response groups are statistically significant. Relevant test statistics have been formulated in Section 3 and test results are discussed in Section 4.

2.4 Gender and regional issues

Gender disparity in school attendance is a persistent problem in developing countries. Poverty puts girls at a distinct disadvantage in terms of education. Girls of primary school age from the poorest 60 per cent of households are three times more likely to be out of school as those from the wealthiest households. Household survey data also indicate that girls in rural areas face added challenges in getting on education (MDG, 2010). In developing countries like India, there is also social stigma that shapes parental motivation in favor of education of their male children thereby implanting gender inequality in the formative stage of life.

With pace of time research on primary education in India suggests that mid-day meals enhance school participation. Jayaraman and Smith (2011) provide a large scale assessment of the enrollment effects of India's midday meal scheme based on District Information System of Education (DISE). Using a panel data set from 2002 to 2004, they find that mid-day meals increases primary school enrollment substantially. Provision of mid-day school meals increased enrolment of girls (Dreze and Kingdon, 2000). This favorable effect for girls is similar to Afridi (2011) who find that transition from monthly distribution of free food grains to the daily provision of free cooked meals have a significant impact on improving the average monthly attendance rate of girls in grade one in a rural area of

[3] It includes children who never attended school, and those who ever attended but currently not attending school.

India. On the other hand, better infrastructure, more developed education facilities and a reinforcement of the Constitutional requirement of mandatory education for children over the age of 5 years must lead to higher school attendance in urban area compared to rural area. All this needs to investigate if gender and regional disparities in school attendance still persist in India significantly. Statistical hypotheses for this purpose have been formulated in Section 3 and test results are discussed in Section 4.

2.5 Influence of other variables on school attendance

Household size can be expected having adverse impact on school attendance rates in view of the fact that in large families with many children, it may have detrimental effect on school participation of children, especially elder children to manage domestic work, caring siblings and myriad of other household chores (Probe Team, 1999).

Adult education can be an important determinant of school attendance. Educated parents have a more progressive attitude towards education and may provide encouraging environment for education to their children as compared to uneducated parents (Das & Mukherjee, 2007; Mukherjee & Das, 2008). To test the importance of adult education, highest adult education in the family can be considered to be an effective determinant of schooling decision. To check whether adult male or adult female education has more influence on this decision, one should consider these as two separate determining variables.

Adult female wage earner can be expected to have either a favorable or unfavorable effect on school attendance, depending on how it works in a particular family. A number of female wage earners may require some of the children to stay at home to do household chores and take care of the younger siblings. On the other hand, it would have an enhancing bargaining power in intra-household decisions. Then with empirical evidence that women are more concerned about the education of children, greater number of female wage earners is expected to have positive effect on child schooling decision in the family.

Cultural factors like caste and religion of a child could be expected to act as a restraint to his/her access to education. Lack of exposure and access to education of minority classes of the society not considering education as something required for betterment of life could be possible reasons for low levels of school enrolment and attendance of their children.

3. Empirical Methods
3.1 Data

As stated earlier the present study is based on the eighth quinquennial large sample survey on employment and unemployment conducted in the 66th round of NSS during July, 2009 to June, 2010. The survey was spread over 7402 villages and 5252 urban blocks covering 100957 households (59129 in rural areas and 41828 in urban areas) and enumerating 459784 persons (281327 in rural areas and 178457 in urban areas).

3.2 Test statistics

For testing whether economic status is the only independent factor underlying school non-attendance, the testing hypotheses are as below,

H_{i0} : $\mu_i = \mu_2$, and there is no difference between the mean monthly per capita expenditure (MPCE[4]) of ith response group and 2nd response group.

H_{i1}: $\mu_i > \mu_2$, and the mean MPCE of the ith response group is greater than that of the 2nd response group.

Under hypothesis **H_{i0},**

$$\mu_{\bar{x}_i - \bar{x}_2} = 0 \text{ and } \sigma_{\bar{x}_i - \bar{x}_2} = \sqrt{\left(\frac{\sigma_i^2}{N_i} + \frac{\sigma^2{}_2}{N_2}\right)}$$

[4] Here MPCE has been taken in place of income as NSS collects data on consumption expenditure which is expected to serve as a close proxy of income.

Where sample standard deviations have been utilized as estimates of σ_i and σ_2. Thus,

$$Z_i = \frac{\bar{x}_i - \bar{x}_2}{\sigma_{\bar{x}_i - \bar{x}_2}}$$

For testing gender disparity in school attendance, test statistics has been formulated in following way. Let p_1 and p_2 denote the proportions of male and female children currently attending school, respectively. Here, two alternative hypotheses are given by,

H_0: $p_m = p_f$, and there is no difference between proportions of male and female children currently attending school.

H_1: $p_m > p_f$ and proportion of male children currently attending school is greater than female children currently attending school.

Under hypothesis H_0: $p_m = p_f$, we have $\mu_{p_m - p_f}$ =0 and $\sigma_{p_m - p_f} = \sqrt{\left[p_{mf} q_{mf} \left(\frac{1}{N_m} + \frac{1}{N_f} \right) \right]}$. Where, p_{mf} = proportion of school going children (male + female) and q_{mf} = (1− p_{mf}). N_m and N_f are total number of male and female children in 5-14 age group, respectively.

Thus, $Z_{mf} = \frac{p_m - p_f}{\sigma_{p_m - p_f}}$.

In a similar manner, for testing regional bias, let p_r and p_u denote the proportions of rural and urban children currently attending school, respectively. Here, decision is taken between following two hypotheses,

H_0: $p_r = p_u$, and there is no difference between proportions of rural and urban children currently attending school.

H_1: $p_r > p_u$ and proportion of urban children currently attending school is greater than rural children currently attending school.

Under hypothesis H_0: $p_r = p_u$, we have $\mu_{p_r - p_u}$ =0 and $\sigma_{p_r - p_u} = \sqrt{\left[p_{ru} q_{ru} \left(\frac{1}{N_r} + \frac{1}{N_u} \right) \right]}$. Where, p_{ru} = proportion of school going children (rural + urban) and q_{ru} = (1− p_{ru}). N_r and N_u are total number of rural and urban children in 5-14 age group, respectively.

Thus, $Z_{ru} = \frac{p_r - p_u}{\sigma_{p_r - p_u}}$.

3.3 Estimating Regression Equation

The estimating regression model of family decision on child schooling is given by,

$$Y_i^* = \beta_0 + \sum_{j=1}^{k} \beta_j x_{ij} + u_i \quad \text{.....(1)}$$

Where Y_i^* is not observed. and $u_i \sim N(0; 1)$ is a random noise term. As Y_i^* is an unobserved variable (latent variable), what one can observe is a dummy variable Y_i defined by,

$$Y_i = \begin{cases} 1 \ if \ Y_i^* > 0 \\ 0 \ otherwise \end{cases}$$

Here, Y_i is defined as,

Y_i = 1, in case of occurrence of currently not attending school; 0 otherwise.

Definition of variables

Status of school attendance (Y_i): In NSS survey (NSSO, 2011) it is first ascertained if the child is currently attending any educational institutions (government or private) or not. Children who are waiting for results are considered as 'currently attending' and the appropriate code for the level for which they have appeared in the examinations is recorded. Children who are not currently attending any educational institutions are classified into two categories, namely, "they have never attended" and "they have ever attended but currently not attending". In the present study children in the 5-14 years age group have been considered.

Household Size (HH): According to NSS (NSSO, 2011) the size of the sample household is the total number of persons normally residing together, i.e., under the same roof and taking food from the same kitchen (including temporary stay-away and excluding temporary visitors) will be recorded against this item.

Average Monthly Per Capita Expenditure (MPCE): Household income is highly related to employment characteristics and underlying earnings of the household members. As it is difficult to collect reliable income data, the NSS, collects data on consumption expenditure in its surveys. Household consumer expenditure is the sum total of monetary values of all goods and services consumed (out of purchase or procured otherwise) by the household on domestic account during a specific reference period. NSS work out monthly per capita consumer expenditure for each sample household, which is expected to serve as a close proxy for income.

Highest adult education: To check whether adult male or adult female education has more influence on this decision, one should consider these as two separate determining variables (Adedum and Adeduf in tables 5 and 6). Adult is defined in NSS (NSSO, 2011) as persons in 15+ year's age group. Information on the highest level of education successfully completed by each member of the household considering his/ her all general/ technical/ vocational educational level is recorded in NSS. As these are recorded in terms of codes, so, in the present study we transform them into years to attain highest level of education.

Adult female (s) engaged in economic activities (Fecoact): Identification of an adult female whether she is engaged in economic activity has been done using her usual principal activity status. In NSS, a person is defined as economically active or employed in usual principal activity status if he/she spent major part in economic activity during a period of 365 days preceding the date of survey (NSSO, 2011).

Cultural factors: One religion dummy (R in tables 5 and 6) has been constructed in the present study to check if children belonging to non-Hindu (representing minority religion) shows lower incidence of school attendance. Similarly, one caste dummy (Caste in tables 5 and 6) has been constructed to check if children belonging to backward castes (representing minority castes like, SC, ST and OBC) show lower incidence of school attendance.

4. Results

Table 4 presents test results of the null hypothesis that there is no difference in MPCE between 2nd response group and other response groups. Using a one-tailed test we reject H_{i0} for i^{th} group at 0.05 level of significance, if Z_i is greater than 1.645 and at 0.01 level of significance, if Z_i is greater than 2.33. From Table 5 it can be seen that, on the whole, both in rural and urban regions MPCE of 1st and 5th response groups are significantly greater than MPCE of 2nd response group at 0.01 levels. For 4th response group Z_i is significant at 0.05 level in rural area and at 0.01 level in urban area. So, in addition to the pure economic reason, inaccessibility to school and excessive household chores are two distinctly identified accountable factors for never sending children to school, even in urban area. In contrast, for children who ever attended but currently not attending school (drop outs), on the whole, there is no significant difference in MPCE between the 2nd response group and all other response groups, establishing low MPCE as being the key factor for drop outs.

Table 1: Percentage distribution of children (5-14 years) by general level of education, All India, 2009-2010

General	Rural		Urban	
	Male	Female	Male	Female

	5-9	10-14	5-14	5-9	10-4	5-14	5-9	10-14	5-14	5-9	10-14	5-14
01	22	05	13	23	07	15	15	03	09	16	03	10
02	02	00	01	01	00	01	02	01	01	01	00	01
03	73	31	52	72	29	50	78	24	51	78	23	50
04	04	45	25	04	47	25	04	49	26	05	49	27
05	00	19	09	00	17	08	00	22	11	00	24	12
06	00	01	00	00	01	00	01	01	01	00	01	01
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 2: Distribution of dropout children by level of education, All India, 2009-10

General education level*	Dropout children	
	Rural (%)	Urban (%)
01	12.01	10.95
02	1.37	2.31
03	32.86	35.64
04	35.47	34.91
05	16.61	14.84
06	1.68	1.34
Total	100	100

*Classification of general education level is as described in Table 1.

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

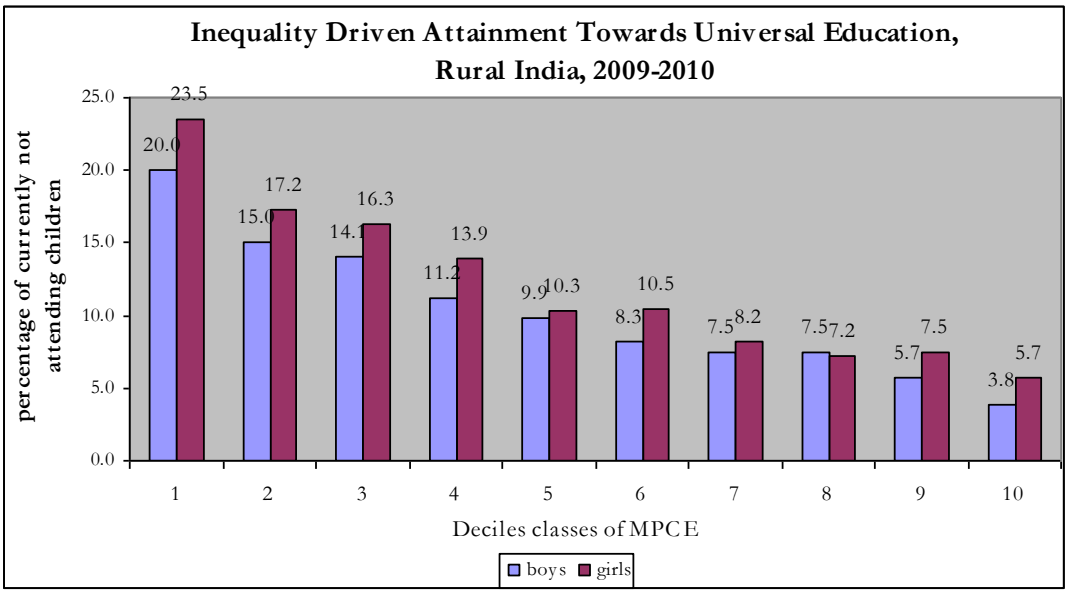

Figure 1

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

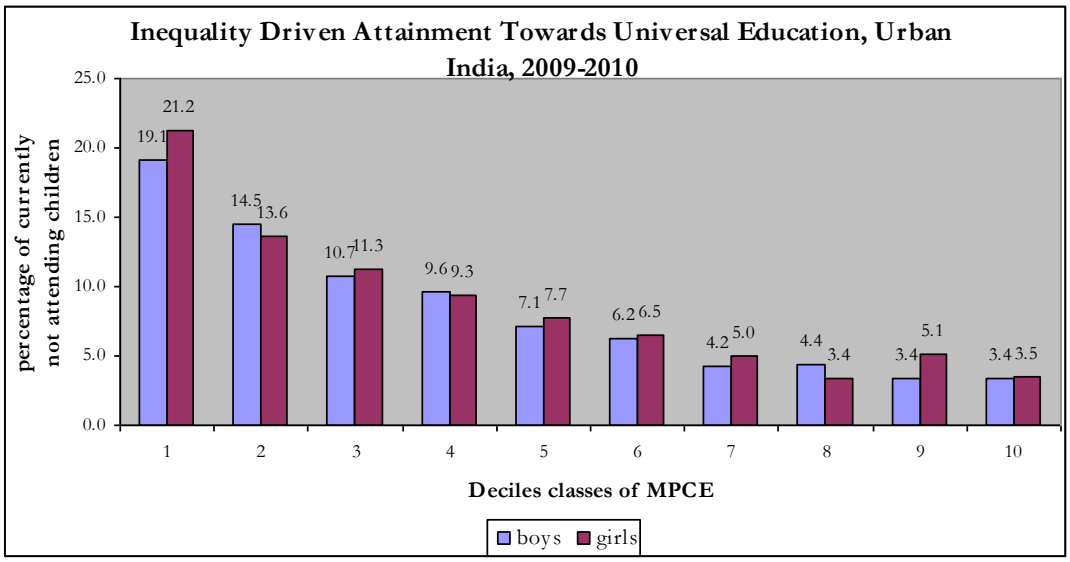

Figure 2

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

Table3: Percentage distribution of currently not attending school children by reasons of non-attendance, all India, 2009-2010

Reason for non-attendance	Rural		Urban	
	Boys	Girls	Boys	Girls
Never attended school				
school is too far	11	10	08	08
to supplement household income	04	02	08	04
education not considered necessary	10	13	14	16
to attend domestic chores	02	06	02	07
other reasons	73	69	69	65
Total	100	100	100	100
ever attended but currently not attending				
school is too far	02	03	03	05
to supplement household income	13	05	25	10
education not considered necessary	06	10	14	18
to attend domestic chores	02	09	03	17
other reasons	77	74	55	51
Total	100	100	100	100

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

Table 4: Test results of poverty and school attendance

Reason for non-attendance	Rural			Urban		
	$\bar{X}_i$	$\sigma_{\bar{x}_1-\bar{x}_2}$	Z_i	$\bar{X}_i$	$\sigma_{\bar{x}_1-\bar{x}_2}$	Z_i
Never attended school						
school is too far	121.49	6.72	2.71	158.09	17.03	2.72
to supplement household income	103.27	—	—	111.85	—	—
education not considered	104.47	6.01	-2.83	111.72	12.85	-0.01

necessary						
to attend domestic chores	119.20	9.49	1.68	162.58	21.29	2.38
other reasons	118.99	5.56	2.83	143.08	11.72	2.66
ever attended but currently not attending						
school is too far	147.23	11.14	0.79	241.64	71.53	0.78
to supplement household income	138.43	—	—	186.06	—	—
education not considered necessary	128.03	8.08	-1.29	154.91	23.61	-1.32
to attend domestic chores	141.11	8.89	0.30	145.98	23.41	-1.71
other reasons	154.71	8.09	2.01	208.46	20.81	1.08

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

Table 5 presents the test results of the null hypothesis that there is no gender inequality in terms of school attendance rates. Test results show that both in rural and urban area Z_{mf} values are greater than 2.33. So we reject our null hypothesis, H_0 at 0.01 level and conclude that there is gender bias in school attendance rates and that $p_m > p_f$, i.e., proportion of boys attending school is significantly greater than that of proportion of girls. We expected that implementation of mid day meal scheme would have a positive impact on minimizing gender bias at least at primary level. We repeated the same statistical test for 5-9 years age group (not presented here). But unfortunately our test result is showing significant gender bias in school attendance even for this age group also. The existing literature classifies benefits of education into private and social benefits. Private benefits accrue primarily to the individual and are measured in terms of an economic return (more specifically an increase in earnings). Social benefits accrue to a larger group, namely, family, community or country as a whole (eg. reduction in fertility and mortality, gender inequality etc). Parents may value returns to themselves from child labour more than the social returns from education, that does not accrue to them directly, or even private returns from education according to the child at a later date. The perceived difference in benefits for boys and girls has obviously led to an undervaluation of female education. While expanding literature shows a wide range of benefits from educating women, particularly in developing countries, the persistent gender gap in child education in India demands a closer look.

Table 5: Test results of gender disparity

Statistics	**Rural**	**Urban**
p_m	0.916	0.928
p_f	0.893	0.920
p_{mf}	0.905	0.924
N_m	46,481	18,490
N_f	39,776	15,980
p_{mf}	0.905	0.924
q_{mf}	0.095	0.076
$\sigma_{p_m - p_f}$	0.002	0.003
Z_{mf}	10.851	2.942

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

Table 6: Test results for regional disparity

Statistics	**Male**	**Female**
p_r	0.916	0.893
p_u	0.928	0.920

N_r	46,481	39,776
N_u	18,490	15,980
p_{ru}	0.919	0.901
q_{ru}	0.081	0.099
$\sigma_{p_r - p_u}$	0.002	0.003
$\mathbf{Z_{ru}}$	-5.27	-9.48

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.

Test results of the null hypothesis that there is no regional disparity in terms of school attendance rates are presented in Table 6. The proportion of school going children is given in Table 4, for India as a whole. During 2009-2010, in India, about 92 per cent of the boys in the rural areas and about 93 per cent in the urban areas were currently attending school. Girls were somewhat behind the boys, the respective percentages for them being 89 per cent and 92 per cent. Our test results reassure urban-bias, both for boys and girls, Z_{ru} values for both of them being negative and highly statistically significant. Hence, null hypotheses are rejected at 0.01 levels and one can conclude that there is regional bias in school attendance, unfavorable to rural children and that proportion of school going children in rural India is significantly lower than that in urban India.

Socio-economic-cultural impact on school attendance

To identify the household side variables, not directly reported by households explaining not sending children to school, we estimate the regression model stated in equation 1. We begin with descriptive statistics as salient features of the sample households under consideration (Table 7). As expected average MPCE of the families having children currently not attending school is lower than that of families with children currently attending school. Highest levels of adult male and female education also are showing similar pattern. Proportions of backward caste and non-Hindu population are higher for currently not attending children. These results are expected to be reflected in regression outputs discussed in subsequent paragraphs.

Table 7: Socio-economic background of sample households with 5-14 years old children, all India, 2009-2010

Household characteristics	Rural		Urban	
	Currently not attending school	Currently attending school	Currently not attending school	Currently attending school
Average MPCE	183.00 (225.27)	222.59 (290.49)	316.50 (622.60)	345.29 (463.55)
Average highest education years of adult male (s) in the family	3.86 (4.51)	6.54 (5.04)	4.43 (4.93)	8.14 (5.46)
Average highest education years of adult female (s) in the family	0.41 (1.97)	0.75 (2.71)	0.54 (2.28)	1.11 (3.42)
Average number of adult females in the family engaged in economic activities	0.39 (0.65)	0.40 (0.65)	0.25 (0.56)	0.24 (0.51)
Average household size	5.84 (2.54)	5.77 (2.36)	5.74 (2.67)	5.47 (2.26)
Proportion of backward caste population	0.79	0.25	0.60	0.30

Proportion of non-Hindu population	0.72	0.26	0.36	0.29
Sample size	7802	81981	3547	44638

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.
*Figures in parentheses are standard deviations.

Table 8: Determinants of non-attendance of school in India, Rural, 2009-2010

Variables	With observed values			With normalized values		
	Coefficient	**Standard Error**	**z-Statistic**	**Coefficient**	**Standard Error**	**z-Statistic**
Adedum	-0.061	0.001	-41.823*	-1.040	0.025	-41.823*
Adeduf	-0.061	0.003	-20.423*	-1.041	0.051	-20.423*
HH	-0.046	0.002	-20.693*	-1.627	0.079	-20.693*
MPCE	-0.001	0.000	-48.696*	-39.827	0.818	-48.696*
R	0.002	0.015	0.147	0.002	0.015	0.147
Caste	-0.178	0.013	-13.813*	-0.178	0.013	-13.813*
Fecoact	-0.038	0.010	-3.809*	-0.226	0.059	-3.809*
No. of observations	89,781			89,781		
S.E. of regression: 0.277405; Sum squared resid: 6908.365; Log likelihood: -25445.54; Akaike info criterion: 0.566998; Schwarz criterion: 0.567731; Hannan-Quinn criter: 0.56722.						

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.
*significant at 1%.

Table 9: Determinants of non attendance of school in India, Urban, 2009-2010

Variables	With observed values			With normalized values		
	Coefficient	**Standard Error**	**z-Statistic**	**Coefficient**	**Standard Error**	**z-Statistic**
Adedum	-0.086	0.002	-43.216*	-1.461	0.034	-43.216
Adeduf	-0.090	0.004	-24.259*	-1.534	0.063	-24.259
HH	-0.057	0.003	-18.068*	-1.866	0.103	-18.068
MPCE	-0.000	0.000	-23.688*	-17.249	0.728	-23.688
R	-0.009	0.020	-0.485	-0.009	0.020	-0.485
Caste	-0.199	0.017	-11.439*	-0.199	0.017	-11.439
Fecoact	-0.043	0.018	-2.447*	-0.259	0.106	-2.447*
No. of observations	48,185			48,185		
S.E. of regression: 0.25577; Sum squared resid: 3151.733; Log likelihood: -11829.12; Avg. log likelihood: -0.245494; Akaike info criterion: 0.491278; Schwarz criterion: 0.492554; Hannan-Quinn criter: 0.491678.						

Source: Unit level data of NSS for 66th round on Employment and Unemployment Situation in India.
* significant at 1%.

Regression outputs are presented in Table 8 and Table 9. We estimate probit regression equation with observed values of the variables as well as we normalize the variables by dividing their respective maximum values such that the variables become unit free as well as normalized values of all the variables would lie between 0 to 1. We do this to find out the explanatory power of the variables so that we can understand the relative strength of a particular variable influencing school attendance.

It can be noted from Table 8 and Table 9 that most coefficients of explanatory variables are statistically significant (at 1% level of significance). MPCE is undoubtedly marked as being the key explanatory variable for school attendance decision in India followed by household size. MPCE, in fact is far stronger compared to any other variable. Adult female education turns out to have marginally stronger effect on school attendance compared to adult male education, particularly in urban area. Hence we can infer that educated women can better understand the outcome of being educated. On the whole, educated parents are more inclined towards sending their children to school. This finding reinforces the universally accepted notion that parental education is the most consistent determinant of child education and employment decision in the family. Engagement of adult females in economic activities appears to have a strong impact on school attendance. This is an important finding, possibly reflecting the fact that higher rates of work force participation by women give them greater acquisition of bargaining power in household decisions. Since women are expected to be more concerned (also evident in this study) about the education of their children, it enhances school attendance of their children. The R (religion) coefficients are insignificant for both rural and urban areas. Being a child of minority caste reduces school attendance significantly, although with implementation of various measures aimed at promoting educational opportunities among disadvantaged communities, explanatory power of these variables appear to be very small. It may be possible that these classes are constrained by the basic explanatory factors like low MPCE, low adult education and larger household size.

5. Concluding observations

In this article education opportunities in India have been evaluated utilizing unit level data of NSS for 66^{th} round (2009-2010) on status of school attendance. It has been done by testing the relevance of alternative responses of households explaining reasons of currently not sending their children to school. Distribution of not attending children by deciles classes of MPCE have been estimated to measure inequality in education opportunity. Gender and regional bias in school attendance is a common feature in developing countries, so that also has been tested. To reduce gender inequality, women empowerment is one of the MDG. Present study examines whether empowering of women in terms of education and workforce participation improve school attendance rates of Indian children. The study also tries to identify other possible household side variables affecting intra-household decision on child education so that policy measures can be taken towards inducing demand for child education within the households giving some insights to a sustainable solution to the problem.

The issue of inaccessibility to school emerges as being an important household side factor for never attending school. This reasserts the inadequacy of school facilities in India, even in urban areas. It needs more state expenditure on elementary education, decentralized funding of education, the viability of small schools and the sustainability of such provision; and also how these schools link with formal schooling.

MDG calls for promotion of gender equality and elimination of gender disparity in primary and secondary education. Present study shows that even in terms of primary school attendance, India could not achieve gender parity. Urban bias still persists. Regression outputs indicate that non-schooling choice is more often than not explained by income variable. It needs targeted intervention that push poor households beyond the poverty line. Mention may be made of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREG) aiming to address causes of chronic poverty. Our findings also highlight adult education as having great consequence on school attendance of Indian children; the higher the level of adult education in the family, greater is the likelihood of a child being in school. Similar association is observed between adult female work force participation and likelihood of a child being in school indicating women empowerment as an effective means in improving school attendance, even in the presence of MPCE as a control variable.

Socio cultural variables (caste and religion) are still playing considerable role in school attendance in India. Programs like Tribal Development Program, provision of a primary school in every habitation with 200 and above for SCs as against 300 and above for non-SC populated habitations have been instituted to help traditionally

disadvantaged groups. However educational access and retention remains unsatisfactory. A ground-breaking Right to Education Act has come into force in India legalising the right to free and compulsory schooling for all children between the ages of 6 and 14. Hope it will improve the situation and lead India towards attainment of the MDG set out by UNESCO.

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