

**EDUCATION FOR ALL: A CASE OF  
RURAL HIMALAYAN**

**SURESH SHARMA  
NILABJA GHOSH**



**सत्यमेव जयते**

**Institute of Economic Growth  
University of Delhi Enclave  
North Campus  
Delhi – 110 007, India  
Fax: 91-11-27667410  
Gram: GROWTH – Delhi – 110 007  
Phones: +91-11-27667101, 27667288, 27667365,  
WEBSITE: iegindia.org**

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# Education for All: A Case of Rural Himalayan

Suresh Sharma  
Nilabja Ghosh

Institute of Economic Growth  
University of Delhi Enclave Delhi 110007  
[suresh@iegindia.org](mailto:suresh@iegindia.org)  
[nila@iegindia.org](mailto:nila@iegindia.org)

## Abstract

The 1990s described as the Education for All or EFA decade in India witnessed unprecedented dynamism and policy determination in the spread of school education across rural India with attention to quality. Considered as a state known for its historical lead in education as also its geographical constraints the paper finds present here considerable advance in infrastructure and access to it for rural the population of Uttarakhand in the Himalayas. A regressions analysis with household survey data however reveals unevenness and traditional areas of disadvantage lingering in the diffusion of school education with respect to generation, gender, location and social class. Even after elapse of the EFA decade, the governments working in the state need to address these disparities by attending specifically to the marginalized sections of namely, female citizens, the minority religion or backward caste, remote villages, higher –altitude, less-developed districts and all that also undoes the wrongs of bygone years, through a system that is less sharply stratified by ages.

**Key words:** *Education, Rural, Gender and Diffusion.*

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## **Education for All: A Case of Rural Himalayan**

The decade of the 1990s is noted for some landmark initiatives in the economic and social fields in India and in many developing countries. Not least among these is the long under-emphasised goal of extending primary, elementary or other school education to the common people, especially in the lagging rural sector that is evenly spread across the country. The emphasis laid on school education is a policy initiative with radical implications. Many imbalances that arise at higher levels of education and employment are further reflected in consequences such as poverty, lawlessness, class prejudices and poor levels of living, these can be corrected by promoting universal quality education at the school level. Also, desirable attitudes towards society, gender and environment can be infused in society only by explosive to well-planned and balanced curricular from an early and formative stage.

The National Education Policy, 1986 and the inclusion by UNDP of education as an important component of human development however provided an impetus to this important aspect of development in India and the 1990s often described as Education For All decade or EFA decade witnessed unprecedented dynamism in the effort to spread of school education. As in all development programmes, the inequalities that are found imbedded in Indian society were kept in focus while drawing up suitable policies and designing schemes. It is pertinent for the nation at this point to take stock of the progress achieved in disseminating this basic facility.

This paper contributes to this literature by assessing the performance in terms of educational diffusion and identifying lingering areas of unevenness in the achievement so far even after the EFA decade using the data available for the state Uttarakhand in North India. This state is mountainous and has less accessible areas but as will be seen subsequently it is a relatively progressive Indian states in terms of education and literacy. The study makes special reference to females especially among backwards classes thus emphasising the capability approach to gender equality (Sen, 2006). After sketching the background to the topic under question, the paper presents a brief overview of the

progress of literacy and infrastructural development achieved by the state in a comparative perspective. Based on primary data collected from three districts in the state, the spread of school education is further examined across generations, gender and sections. Both school entry (enrolled) and completion (retention) are considered as indicators of the success of school education. The complexities of unevenness are further exposed with spatially disaggregated analysis for identifying policy focus.

### **Background**

The Indian Constitution mentioned free and compulsory education for all children up to the age 14. At that point of time the literacy rate was just 18%. The gross school enrolment ratio of only 43% at the primary stage held little promise for the future of literacy. More appalling were the corresponding figures for literacy and enrolment specific to females reported respectively at 9% and 25%. The gender bias against the female sex was not just by itself an indicator of social inequality but was also a further prophesy of the slow progress that the country was to make in the field of education in the coming years.

Yet, the goal of universal primary education was not pursued with the vigour it demanded until the 1991 Census of India announced the shameful reality that nearly four decades later half of the population, now measured as population above 7 years of age, remained illiterate. Half of 6-14 years children were either un-enrolled in schools or were drop-outs there from. The failure of the State to educate the children was more glaring among the poor and the backward castes, among women, and in regions that were geographically disadvantaged or difficult to access. Needless to say that as the State dragged its feet, it was the rural people who bore the major brunt of this negligence. The backward castes, the women and the people in remote areas continued to be among the most disadvantaged. It is tragic that basic education remained the right of only the privileged sections.

The 1990s was a watershed decade for education in India. First, the Supreme Court of India (Unnikrishnan case, 1993) declared basic education as a Fundamental Right of the

citizen. Second, after being shackled to bureaucracy for years, education especially in rural and remote regions saw new light with the decentralisation process ushered by the 73<sup>rd</sup> and 74<sup>th</sup> amendments of the Constitution. Finally, primary education gained importance the world over especially when the urgency of targeted social welfare measures found recognition in the structural adjustment programmes with a so-called 'human face'. The decade followed the announcement of the National Education Policy 1986 in India, which outlined the strategies to be pursued to achieve universal elementary education (UEE). External assistance for primary education following the Jomtien Conference further enhanced the motivation. 'Operation Blackboard' and the 'Sarva Siksha Abhiyan' are state-sponsored movements that popularised the notion of education as the emergent need of the hour.

Women's education, health and empowerment in general gained emphasis in recent decades. Further, the gender issue was increasingly being viewed as a part of sound economics rather than simply as a moral commitment in Indian planning. It is widely believed that female literacy is negatively related to fertility rate, population growth rates, infant and child mortality rates and positively with female marriage age, life expectancy, female participation in the modern sectors of the economy and (future) female enrolment in school (Govinda, 2002). It is inextricably linked to the status of women in rural India and with the overall empowerment of women (National Policy of Education 1986, 1992). Following the United Nation's International Women's decade, Indian plans that were undergoing an attitudinal reversal began to address women more as human resources and participants in development stressing their employment potential began viewing them and less as targets of welfare. Taking advantage of the constitutional empowerment to practice protective discrimination in favour of women the states have been drawing up several schemes and incentives to encourage education of the girl child.

Infrastructure, institutions and innovative schemes are all part of the efforts. Attention has been directed to improvement in the access to school especially in rural and remote areas by building schools within a reasonable distance of habitation and by providing at least 2 classrooms in each primary school with toilets for boys and girls. Primary education

cannot be denied due to physical distance. Recruitment of teachers is promoted where necessary. The whole focus of the development is on backward areas and backward classes while girls are encouraged to enrolment and discouraged from dropping out. Democratisation, transparency and efficiency of operations are attempted through initiatives like provision of elected management, decentralisation of management and involvement of Panchayats and Local bodies. Measures are taken to provide incentives to not only for school enrolment but also for attendance and retention. The Panchayat sometimes provides scholarships for attendance. The Mid-day meal is a scheme modelled after a constituent state's (Tamil Nadu) successful School Lunch Programme is meant to encourage school attendance while improving food security. A minimum reservation in public and unaided schools for the weaker sections and free education for the single girl-child are other schemes under active consideration.

### **Literacy**

The literacy rate is a minimum measure of the educational achievement of a community. Uttarakhand itself was part of the large state of the Uttar Pradesh that had a poor standard in social development. Uttar Pradesh had a literacy rate of only 12% against India's 18% in 1951 given the definition used by Census 2001. In the EFA decade, in India literacy has improved from 52.2 % in 1991 to 65.4% in 2001.

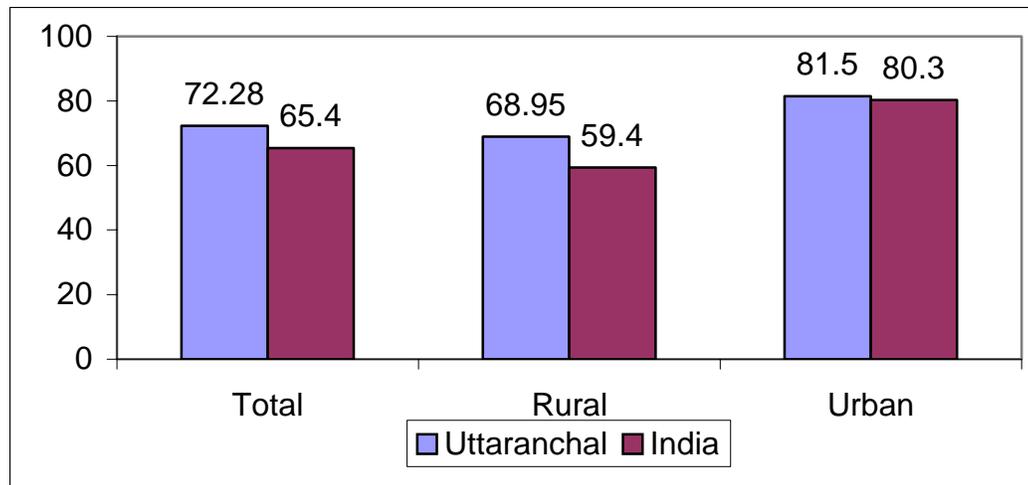
Despite its daunting topography, disadvantages and its historical links to Uttar Pradesh, Uttarakhand largely a mountainous state cradled in the Himalayas ranks high among the most literate states in the country with a literacy rate at 72% reported in 2001. Literacy in the geographical expanse now called Uttarakhand, is reported to be more at 57.75% than all India level even in 1991<sup>1</sup>. The state has a tri-fold strategy of achieving a 100% enrolment, 100% retention and a continuous education programme. The people of the state have been credited for their progressive attitude (Joshi, 1995) and awareness of a better life, environment and autonomy. While Uttar Pradesh itself had a system of a free and compulsory education system aiming for universalisation of education at the primary

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<sup>1</sup> Literacy rate of newly formed Uttarakhand separately is estimated at 19% for 1951 (Economic Survey 2004-05) even then above national average.

and secondary levels, Uttarakhand ranks third in ‘Education Development and Achievement at the elementary level in India’ (India Today Survey 2005)

**Figure 1: Literacy in Uttarakhand**



However, as elsewhere in India, Uttarakhand also shows imbalances with respect to its rural regions (Fig. 1) that also in general coincide with the hilly segments of the state. Table 1 further brings out the progress of literacy in Uttarakhand calculated by using the Census data along with the gender imbalance. The female literacy rate inched upwards in the decade 1951 to 1961 from 4.8% to 7.8% but 1971 showed more significant improvement and in 2001 the female literacy rate stood at 60%. During the same period, 1951 to 2001, the male literacy rate improved from 32% to a relatively impressive 84%. However, due to a change in the definition of literacy rate, the universal literacy goal shifted upwards.

Year	Total	Male	Female
1951	18.93	32.15	04.78
1961	18.05	28.17	07.78
1971	33.26	46.95	18.61
1981	46.06	63.35	25.00
1991	57.75	72.79	41.63
2001	72.28	84.01	60.26

With the gender gap still wide, the male literacy rate being 1.4% of that for females the importance of encouraging girls for education cannot be over-emphasised.

<b>Table 2: Percentage Distribution of the Household Population by Education</b>			
<b>Level: Uttarakhand</b>			
<b>Background characteristics</b>	<b>Urban</b>	<b>Rural</b>	<b>Total</b>
<b>Female Education</b>			
Illiterate	18.8	44.8	38.9
Literate, incomplete primary school	13.1	19.0	17.7
Primary school complete	14.9	16.6	16.2
Middle school complete	11.1	9.0	9.4
High school complete	10.1	5.9	6.8
Higher secondary complete and above	3.2	4.8	10.9
<b>Male Education</b>			
Illiterate	9.6	13.5	12.6
Literate, incomplete primary school	19.5	23.1	22.3
Primary school complete	11.4	21.3	19
Middle school complete	8.9	16.9	15
High school complete	13.4	12.9	13
Higher secondary complete and above	37.4	12.1	18
Source: NFHS-2, 1998-99			

The literacy rate, though important as a minimum measure has limited capacity to capture school education in its entirety or at various stages of education. The different levels of education through school can be associated with various dimensions of awareness and capability and the success of the school system will be largely reflected not just by the enrolment but also by its ability to retain students till completion. Such information cannot be obtained from the Census through the decades. The National Family Health Survey (NFHS-2) an alternative and smaller (sample) survey conducted by the International Institute of Population Sciences in 1998-99 also found (Table 2) similar gender and sectoral (rural-urban) dimensions at various levels. At the lower stages of education the rural sector is ahead of the urban. The urban sector has a higher share of its population educated in the higher brackets, middle school onwards for male and high school onwards for females. The gender gap is glaring in the rural sector. For females the share of high-school completed members is about double that for males and the shares of middle-school completed members are nearly as different.

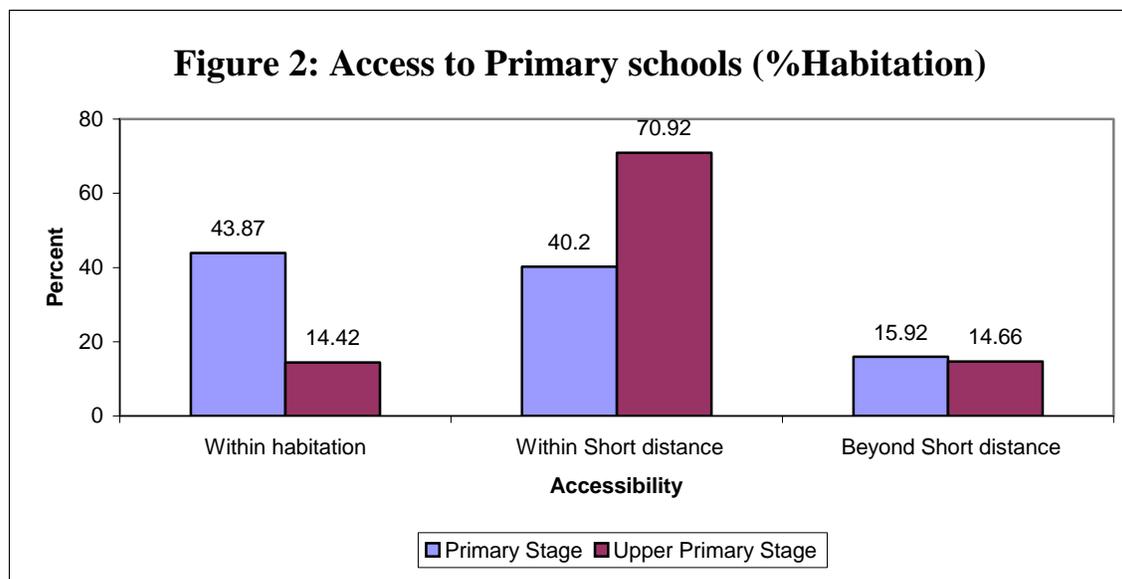
### Infrastructure and Facilities

The All India Education Survey conducted by the National Council of Educational Research and Training (NCERT) makes it possible to examine the progress in school education and especially in primary education through its information on infrastructure, access and adoption. In Uttarakhand the hilly landscape of the state and the scattered nature of the village population are an obstacle to the creation of any social infrastructure. However, with the expansion of schools, in rural areas, Uttarakhand now has a primary school covering every 506 persons and school coverage (including higher schools) is 375. The pupil to teacher ratio also is favourable at 28. Table 3 shows that Uttarakhand compares well with all India and neighbouring state levels in having a higher (more than 100%) enrolment ratio, lower pupil teacher ratio, better gender balance in schooling and higher growth rate of schools at the primary level.

	Enrolment ratio		Pupil/Teacher		% increase over 1993		% Enrolment of Girls	
	Rural	Total	Rural	Urban	Rural	Urban	Rural	Urban
<b>Uttarakhand</b>	105	104	29	27	37	62	49	46
<b>U.P.</b>	88	88	61	36	48	49	36	45
<b>Himachal</b>	111	112	22	23	42	1	48	44
<b>Haryana</b>	81	78	42	35	82	111	46	45
<b>Punjab</b>	74	68	39	36	4	14	47	46
<b>India</b>	92	93	44	36	13	24	47	47

Source: NCERT, 2002.

The provision of schools within the habitations or at least within a short distance is an indicator of access available to rural children. Although the access is significant with more than 71% of habitations having a primary school within a 1km distance and 44 % within, a non-significant section 16% of habitations have schools beyond 1km (Fig.2).



Note: Short distance measures 1 km at primary stage and 3 km at upper primary stage.

With lack of transport, the distance poses a problem for education and especially for girls whose safety is a concern for the families. At the upper primary stage, the access is not as good and the largest section (71%) have schools outside the habitations but within 3 km. More than 70% of all schools are primary schools in rural areas. Enrolment of girls accounts for more than a 40% share.

Performance	Level	Uttarkashi	Nainital	Dehradun
Net Enrolment Ratio	Primary	84.8	35.2	51.5
	Upper Primary	37.5	20.0	21.3
% Schools with Single Class room	Primary only	2.4	5.5	5.3
	Upper Primary + Secondary	0.0	0.0	0.0
% Schools with Girls Toilet	Primary only	11.1	59.7	29.2
	Upper Primary + Secondary	37.8	42.1	74.5
% Schools with Drinking Water	Primary only	76.8	73.2	78.5
	Upper Primary + Secondary	86.5	68.4	98.0
% Schools without Black Board	Primary only	4.6	2.3	1.2
	Upper Primary + Secondary	5.4	21.1	3.9

Source: NCERT, 2002

Table 4 presents certain indicators of school infrastructure in the three districts Uttarkashi, Nainital and Dehradun along with the net enrolment ratio. The indicators are given both for the primary and secondary levels. Enrolment is found to be highest in the higher altitude, hilly and rural district of Uttarkashi followed by the Dehradun, the most urbanized district that includes the capital city, while Nainital comes last. Considering the different physical infrastructure indicators of the schools, important for educational, social and natural reasons and including the sensitivity for gender, diversity exists in performance. Nainital falls back in 'physical accommodation' measured by proportion of schools with only one class-room as also in 'supply of drinking water' and 'possession of black-boards'. In general such schools are low in share. Uttarkashi comes first with respect to the absence of 'girls' toilet' (only 11%) and Dehradun performs better than at least one other district in all indicators and in fact leads in 'supply of drinking water', 'possession of black board' and of 'girls' toilet' at upper levels. The proportions of schools with 'girls' toilet' are not impressive, the highest shares recorded are at only 60% at the lower primary level and over 74% at the higher level. Comparing the varying ranks across indicators, infrastructure problem seems to be most acute in Nainital followed by Uttarkashi and are least present in Dehradun. Incidentally, Nainital lags behind the three districts both in infrastructure and in enrolment and that may be reflective of the important role of infrastructure.

### **Sampling method and Result of Regression analysis**

A primary survey was conducted in June-July 2004<sup>2</sup> to study the socio-economic status of the state of Uttarakhand with an eye on the rural sector (Ghosh, Sharma and Kar, 2006). Census data from 1991 giving details of the districts is used as a frame. Three leading districts are chosen purposively avoiding contiguity. These are Dehradun from the west, Nainital from the east and Uttarkashi from the northeast, Uttarakhand being roughly a triangular shaped state. All these districts include both hill and plain geography

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<sup>2</sup> The survey was done by the authors as part of a nation. wide study on rural development sponsored by the National Institute of Rural Development. Hyderabad.

but higher altitudes abound in Uttarkashi followed by Nainital. The districts also present a relatively balanced picture of occupational pattern spread over agriculture, manufacturing, trade and services. Census data 1991 on occupational profile was consulted in making the choice and none of the chosen districts has been newly created or reorganized<sup>3</sup> in recent years.

To select the villages in the rural sector the first step was to select one urban center from each district (to balance the urban occupations) and then choose six villages revolving around them. For convenience of sampling the adequacy of the number of households in a village is taken as a minimum condition. Since the proposal is to survey 30 households in each village, a cut-off number of 45 households is considered desirable. In order to give due consideration to the importance of urban influence that may vary across villages, these are considered at an increasing remoteness around the urban center in the following way. The Village and Town Directory 1981 (latest available) is used in this regard. All the villages within a radius of about 45 km of the urban center are grouped as: (1) least remote – 1 to 10 km from the UC, (2) remote – 11 to 20 km from the UC, and (3) most remote – 21 or more<sup>4</sup> from the UC. Two villages are then chosen from each remoteness category. The feasible villages are compared in terms of their shares of population engaged in the non-primary sectors, namely manufacturing, trade and services and in the agricultural sector. One village representing a high share in the non-primary sectors and one representing a low share in the same but reasonably high share in agriculture is chosen in each case.

The village population is then stratified by occupation of the household<sup>5</sup>. A random sample of 30 households is drawn from a village giving a total of 180 households around

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<sup>3</sup> Rudra Prayag, Bageswar, Champawat and Udham Singh Nagar and are the new districts carved out of existing districts in recent times and information on these specific areas are obviously not found in earlier censuses.

<sup>4</sup> Usually this category ranges from 31 to 40 km. In the case of a large district Uttarkashi with little urbanisation there appear to be villages inhabited but remote from the nearest UC. The range has therefore crossed the 40km mark.

<sup>5</sup> Medium and big farmers, small and marginal farmers, artisans, agricultural and non-farm labourers, self-employed in business, services, household industries, etc. government employees, workers in rural unorganized sector, others.

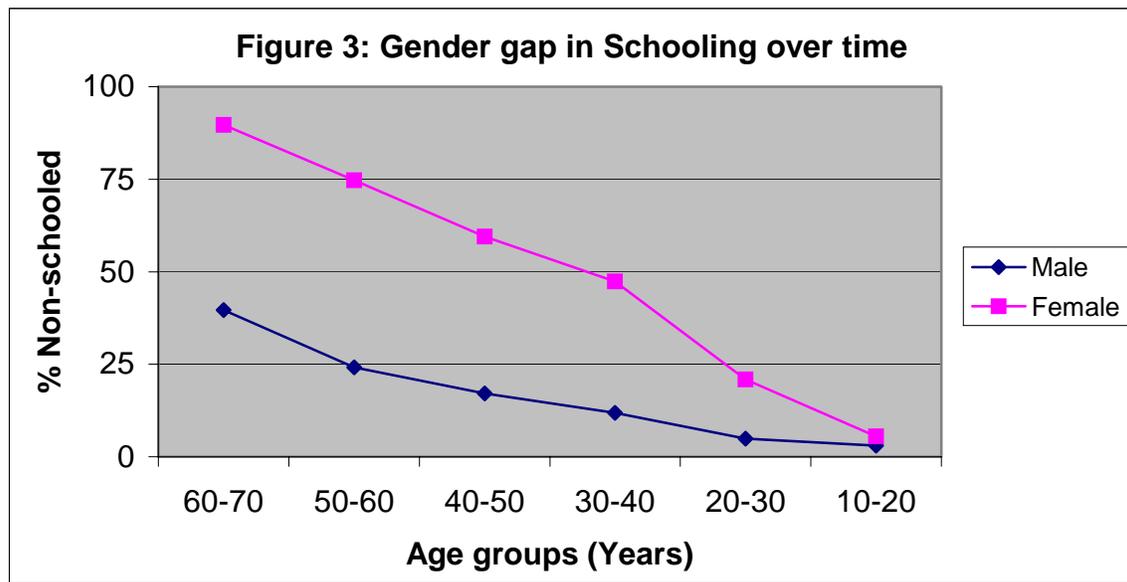
each urban center and 540 households for the rural sector. Questions regarding education status are then canvassed on members of all ages in the households.

### **Findings from the Sample Survey**

The overall picture that emerged during the household survey was fairly positive for school education, especially elementary education. Nearly all households had access to primary schools in the villages. The availability however, weakened at higher stages and some households complained about the remoteness of a high school from the village. This problem was accentuated by the transport difficulty in the hilly regions and the complaint was more pronounced in the case of girl students. In particular girl students were found keen towards higher education and future employment prospects and no particular bias was fortunately apparent against female education that might have characterised past generations. Other information on social attributes is also collected including age, sex and social class.

In analysing the data, the population covered is classified into age groups with 10-year size intervals. For the purpose of the study only members aged 10 years to 70 years are analysed. The successive age groups are often referred to as generations. Second, the level of schooling is considered to represent educational status. For this purpose various stages are considered and a particular emphasis is particularly given to the status 'non-schooled' for members who have not been to school at all. This status is however viewed in the analysis as a particular stage. Similarly, members who have gone on for education beyond school or higher education are viewed as marking another stage. The typically school educated members are further divided into intervals - primary, class 8 and school passed (Higher Secondary). It may be noted that the school stage for children need not imply the maximum education attained but may simply imply the current engagement. In any case as mentioned, the very young children, of mostly non-school going or primary school stage are excluded from the sample for simplicity.

A minimum schooling, measured by the proportion of the population who have never been to school, is first considered as an indicator of progress in school education. While the indicator conveys little information about the extent of achievement or quality and dimension of education, yet it gives some idea of the success of the state in motivating and drawing children to school. Figure 3 tells us that each generation of age group in the sample has shown some improvement over its previous counterpart tracing a gradual process of diffusion of schooling practice.

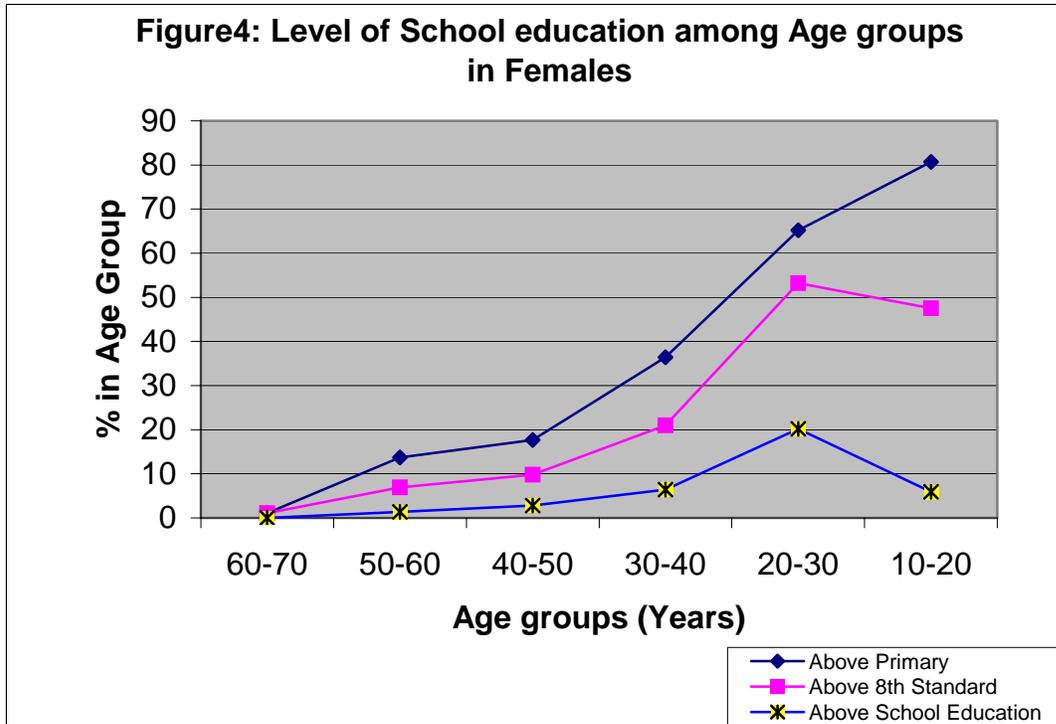


The graph also displays a wide historical gender gap. In fact in the highest age group considered i.e., 60 to 70 years, nearly 90% of the women in the sample did not cross the threshold of a school, while more than 60% of the men had been to school. As the social order gradually changed along with state intervention in infrastructure creation, female schooling did show improvement and a female belonging to any age group is more likely to have been in school sometime in life than another in the higher age group. However, among females in the higher age brackets, those who spent the early childhood in pre-independent or newly independent India, show relatively little improvement in respect of schooling compared to males in whose case the dynamism was obvious. The most visible break in the curves appears to be for females between the age groups 30-40 and 20-30. The latter group that constitutes members that is most likely to have been in the more relevant age in EFA decade. Males too showed improvement in this range but the change was not outstanding. The gender gap showed signs of convergence from the age group

30-40; it narrowed considerably in the group 20-30 and has nearly vanished in group 10-20. The gender gap was a shadow cast on an otherwise progressive state and its eradication would certainly mean a remarkable achievement.

<b>Table 5: Schooling level Completed, achieved by age groups</b>						
<b>Age (years)</b>	<b>60-70</b>	<b>50-60</b>	<b>40-50</b>	<b>30-40</b>	<b>20-30</b>	<b>10-20</b>
<b>Females</b>						
No school	89.7	74.7	59.5	47.4	20.9	5.5
Primary	9.2	11.6	22.8	16.2	13.9	13.7
8th Class	0	6.8	7.9	15.4	12.0	33.2
School Pass	1.1	5.5	7.0	14.6	33.0	41.6
Higher education	0	1.4	2.8	6.4	20.2	6.0
<b>Males</b>						
No school	39.6	24.2	17.1	11.9	4.9	3.0
Primary	27.7	27.5	17.1	15.6	7.9	20.4
8th Class	18.8	15.7	18.1	16.3	16.7	34.3
School Pass	10.9	25.5	33.7	39.0	47.9	39.0
Higher education	3.0	7.1	14.0	17.2	22.6	3.3

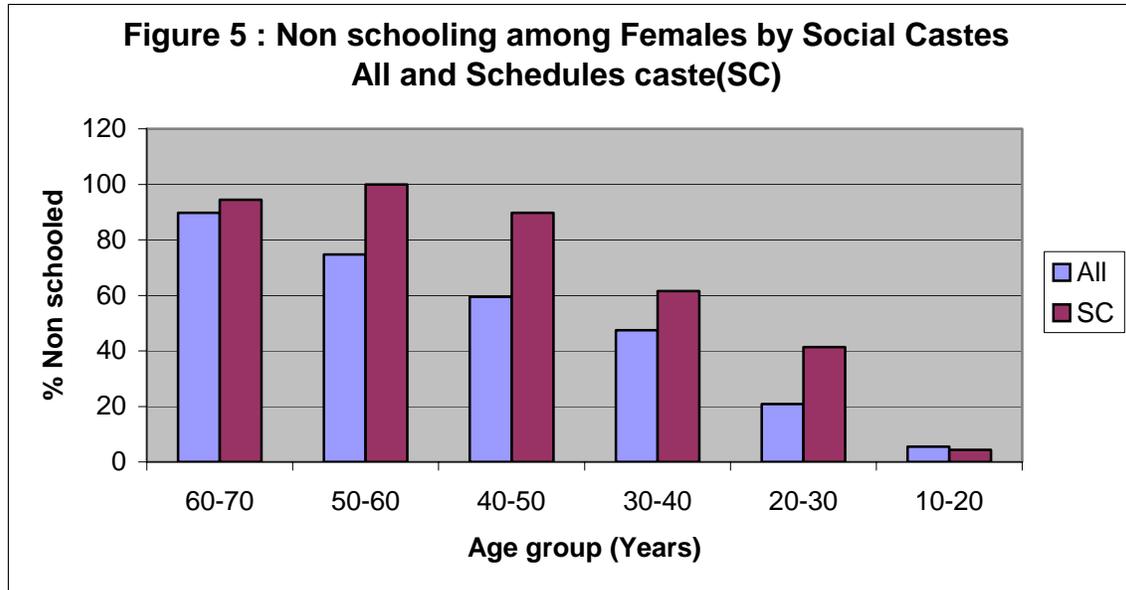
For many decades, while schooling remained far from universal in society in general, the women mostly stayed away from schools. Stepping into the 90s seems to have ended this exclusion. Whereas taking the girl child to the school precinct itself appears as a commendable accomplishment for the state, a more challenging and meaningful task is that of retaining the student through the various stages till completion or further into higher education. The focus has been on encouraging and motivating the girl student to carry on despite the difficulty of coping and managing the intellectual pursuit against the backdrop of a deprived family history, call for domestic commitments even marriage at early ages, safety. Related fears about the outside world and a general discriminatory attitude arising mostly from a male dominated employment environment. Figure 4 again depicts an inter-generational picture of the progress of females.



More women have crossed the primary stage of schooling in the lowest age group than the higher ones and the achievements of successive groups indicate the progress in diffusion of primary education. A similar progress is noted in higher education though not more than 20% of the 20-30 years age group bracket has completed school. The down swing in the 10-20 year age group is expected owing to the dominance of younger children. The fall in the percentage attaining at least up to class 8 observed in the 10-20 group compared to the earlier 20-30 group may be, though less confidently said, explained by the same reason. What comes out is that till the age group 20-30 years, progress is observed at all stages of school education.

Having observed the achievement in female school education, Fig 5 examines how inclusive this education has been by comparing the proportion of the non-schooled among minority group females called the scheduled caste<sup>6</sup> (SC) with that of all females in the sample.

<sup>6</sup> The other minority group, the schedules Tribe population is negligible in the state.



The gap is relatively low in the highest age group in which both categories record an above 80% incidence reminiscent of an age when girls cutting across all castes avoided school. The gap emerged between the classes with the 50-60 years age group and persisted all along. Only in the lowest age group 10-20 portraying the current school goers is there convergence. Even in the 20-30 years age group the proportion of non-school goers among scheduled caste is twice as large as that for all classes together. The effort to expand school education cannot stop at targeting females but a further focus on backwards caste within females must continue to receive priority.

#### *Statistical testing*

In minimum schooling accessed due to gender and social caste the disparities as apparent from the sample proportions can be subjected to statistical testing of the difference between the unknown population proportions. The hypothesis of equal proportions of non-schooled members is tested against the alternative of higher female proportion (as in Fig. 2) and of lower SC (backward) proportion among females in the different age groups. The corresponding Z-values are computed as,

$$Z = d / \sigma_d \quad \text{Where } d = p_i - p_j$$

Where  $p_i$  and  $p_j$  are the proportions.

Compared as provided in Table 6 and were compared with the corresponding t-statistics (one-tailed) for significance levels of 0.05 and 0.1. Since the Z values are less than 2.33 only for select age groups the null hypothesis is rejected in other cases. The differences are found highly significant except for the lowest age group in case of gender and for the lowest as well as the highest age groups in case of SC women.

<b>Table 6: Statistical T-test for Disparity between Gender and Caste by Age-group</b>				
Age Group (Years)	Gender Disparity		Caste Disparity (Female)	
	$p_i - p_j$	$Z_{ij}$	$p_i - p_j$	$Z_{ij}$
10-20	.025	1.95*	.016	0.86
20-30	.16	7.29**	.295	6.77**
30-40	.355	9.16**	.298	4.01**
40-50	.424	8.83**	.422	5.04**
50-60	.505	8.73**	.337	3.64**
60-70	.501	7.09**	.070	0.87

*Note:*  $H_0 = p_i = p_j$ ,  $H_1: p_i > p_j$  where i stands for female and j for male in the test for gender disparity and i for SC females and j is for General caste females is the test of caste. Based disparity. \*\* significant at 1 % level, \* significant 5% level.

### Explaining the attainments

To examine the unevenness in the diffusion of school education in rural Uttarakhand, a modeling exercise involving qualitative data can be attempted. In this case, information that is collected about the members belonging to rural households of the three districts is pooled and are categorized to reflect the educational achievement. The regression model will bring out the specific deficiency in any particular attribute category considering the other attribute as given.

Variations in the school educational attainment are explained empirically using simple logistic models that incorporate dummy dependent variables used for qualitative data.

School enrolment and retention are both addressed by first considering the event of non-schooled status examined against the composite event of schooled status and then considering school. Completed status against the event of incomplete schooling. The binary logistic model used in the two models is as follows:

$Y = 1$  if an individual is non-schooled in model 1 and if school completed i.e., at least Madhyamik (Class X) in model 2.

$Y = 0$  otherwise.

The probability of the event  $P_1 = P(Y=1)$  is as usual described by a logistic function and the odds are defined by,

$$P_1/P_0 = \exp(\beta'X) \dots 1,$$

Where  $X$  is a vector of attribute variables describing the individual and  $\beta$  is a vector of parameters  $b_j$ , showing the direction of relation, the value of  $\beta$  itself being hard to interpret.  $\text{Exp}(b_j)$  is presented in Table 6 indicative of the factor of change on the odds due to unit change in explanatory variables. Thus  $\text{Exp}(b_j) = 1$  signifies the odds that an individual is non-schooled (relative to being schooled in model 1) or school completed in model 2 is unaffected by a change in variable  $X_i$

### *Explanatory Variables and Results*

The explanatory variables denoted by vector  $X$  characterize the member by their relevant social attributes. To capture the generational dimension of the variations, the age of the member was considered as a continuous variable. A quadratic term with age was also initially considered but omitted as it failed to show any relevant impact. The residential location of the individual can be important as backwardness as well as government efforts to mitigate the same are usually not uniformly dispersed. The distance from the nearest urban center represents the location and can have an effect on school education through government effort as also spontaneous influence of urban life on society. The 'distance' is also taken as a continuous variable. A quadratic term of distance is retained. Another locational variable is the 'specific district of residence' as there can be wide spatial disparity of development even within the state. The 'District' is treated as a

categorical variable with Dehradun as the base so that the effects of the other two districts come out only as a comparison to the base. Uttarkashi located at a higher altitude than others has an undulated and hilly terrain and faces natural hazards. Nainital is a more accessible district with a railway station and major parts in the plains, while Dehradun housing the capital city of the state is known for its industries and institutions of repute.

Similarly, ‘sex of the member’ is a binary categorical variable with female as the base. To explore the impact of the social group on educational status, since society in India is highly segregated with considerable overlapping of ‘caste’ and ‘religion’. Based demarcations with levels of affluence, ‘Caste’ and ‘Religion’ are social variables taken to be as categorical. Based on the composition of sample, three castes namely, General, SC and OBC are considered with SC as the base where SC and Other Backward Castes (OBC) are backward castes though only the SC enjoyed reservation so far. For ‘Religion’, similarly, Hindu, Muslim and Sikh are taken and the last category is the base. Muslims and Sikhs belong to the minority in India. The estimated parameters and other statistics relating to the two models are presented in the Tables 6 and 7. Table II A provides the estimated odds ratios as exponents of the coefficients.

With ‘gender’ as a prime object of attention in this study, the significant and large negative value corresponding to the sex variable is noted as a sign of stark gender unevenness lingering in the system. A male is found merely 0.114 times as likely to be unschooled as a female is in the entire sample given all the other attributes. To the extent this draws from the neglects of past years, the unfortunate outcome is yet an unavoidable shadow captured in the present sample of pooled generations. To understand if the pooling and the past realities are entirely responsible for the result, the same model is estimated over varying and progressively younger samples. The results only corresponding to the gender variable of interest is reported in Appendix Table III A, which discovers that the negative sign fails to disappear. However, the coefficient magnitude has come down from -2.169 for the entire sample covering age groups from 10 to 70 years progressively as the sample becomes smaller to -0.590 for the sample age group 10 to 20 years indicating a slow but certain improvement in the gender disparity

that yet lingers. The coefficient is significant in each case though in the youngest sample group the male is less likely (.55 times) to be unschooled than the female but the coefficient is significant at 10% rather than 0.1% as in higher-age samples. Thus the gender gap in schooling has the tendency to narrow down but inquisitively is not removed even in a very young sample.

The binary model affirms that chances of being non-schooled as against being schooled increases with age representing the generational gap due to historical reasons. The same chance is considerably less for males than females capturing the persisting gender gap. Despite the commendable progress observed, the inter-generational result represents the societal deprivation of earlier age groups that happily have got corrected through time and possibly draws attention towards initiations for adult education while the gender result sadly captures the effect of a bias against female education that lingered through time. 'Religion' and 'caste' are also societal dividers with Muslims appearing less privileged than Sikhs and even Hindus and General and OBC caste being more likely to be schooled than SC. 'Location' is also found important. 'Influence of urban life' is evident since persons in remote villages appear deprived though the relation shows a quadratic pattern with the effect of distance from nearest town slowing down. The districts also vary in performance, Uttarkashi the hillier district being the most backward and Dehradun, the capital city being the leading.

Bare enrolment in school may be an achievement as a beginning but retention says more about the success of the system in educating people. Considering completion of schooling as the dependent variable, the results are consistent and move in line with the minimum schooling.

Table7: Explaining Variations In School Education Among Members: Logistic Model								
	No Schooling				Schooling Completed			
	Age group- 10 years to 70 years		Age group- 10 years to 20 years		Age group- 10 years to 70 years		Age group- 20 years to 30 years	
	Coefficient (β)	Exp (β)						
Age	0.95	1.10	.185	1.20	-0.38	.962	-.127	.881
Distance from nearest Urban Centre								
Distance	.079	1.08	.029	1.03	-.047	.954	-.072	.931
Distance <sup>2</sup>	-.002	.998	.000	1.00	.001	1.00	.002	1.00
Sex (Female as Base Sex)								
Male	-2.17	.114	-.590	.554	.769	2.156	.937	2.55
District (Dehradun as Base District)								
Uttarkashi	.406	1.50	-.318	.727	-.470	.625	-.352	.704
Nainital	.037**	1.04	.389	1.48	-.319	.727	-.221**	.802
Religion (Sikhs as Base Religion)								
Hindu	.022**	1.02	-1.67	.188	-.361	.697	-.370**	.691
Muslim	2.001	7.40	1.17	3.215	-2.210	.110	-2.759	.063
Caste (SC as Base Caste)								
General	-1.44	.238	-1.127	.324	1.119	3.062	1.579	4.850
OBC	-.397	.672	-.828	.437	.267	1.306	.833	2.300
% Correct Prediction	85.6 R2=.50		95.7 R2=.24		67.7 R2=.22		71.9 R2=.27	
<i>Note ** not significant 1% level. * Not significant that 10%</i>								

To focus on development recent years and recent generations the regression analysis is conducted for a narrower range of age group, 10 to 20 years for the no-schooling case and 20-30 years for the schooling completed case. In the case of no schooling the changes in coefficient signs are few while in the schooling completed case there are none. The magnitudes have however changed. In the case of age, the impact of generation has come down for both indicators. The gender effect is impressively lower for no schooling though such improvement is not noticed in the case of schooling completion. Among the districts, the order itself changed and Uttarkashi performs better than base Dehradun in schooling and Nainital's position deteriorated with the coefficient becoming significant. Muslims continue to lag but Hindus gained in schooling.

The empirical analysis based on sample age-group between 10 to 70 however is based on the premise of no migration after schooling age so that the population capture the facilities of the sampled region. This is mostly true for men as our survey experience showed that households in the patriarchal society of the area are long-term residents but in the case of women this may not be true. Women above certain ages may have moved in due to marriage. This possibility is largely avoided in the second regression equation for no schooling (though not completely ruled out as the average marriage age is below 20). In the case of schooling completion this limitation could not be completed and we go by the presumption that the sample districts represent the state and (as supported by our general experience during survey) that the majority of the married women in villages hail from other villages, mostly neighboring, of the state.

#### *District level results*

The policy directions indicated by the study of the pooled data from three districts related to the usual disadvantaged sections based on gender, caste, religion and distance.. Traditional areas of unevenness persist and need to be addressed even in the new century. To examine finer variations over space, the regression analysis is conducted separately at the district level. This is also mandated by the known geographical heterogeneity among the districts in Uttarakhand. Table 8 giving the exponents of the coefficients of the equations estimated show little variety in the results. The equations and signs given in the Appendix however illuminate a few subtle differences.

The distances or remoteness factor based on the proximate urban centre does not have the same impact on schooling. In Nainital the quadratic effect is also positive for non-schooling while for Dehradun, the remote villages show some improvement but in both cases the parameters are insignificant at the 10% level. Distance from urban centre appears as a significant variable in Uttarkashi. Sikh population is present mainly in Nainital (11.03% of rural population as per Census 2001) so for the other two districts, Muslim is taken as the base. In Nainital, differences among religious groups do not appear significant but in Dehradun Muslims lag in education. In Uttarkashi, the Hindu population is dominant and the minority Muslims do not appear left behind educationally. Among the castes, 'General caste' is more privileged but between OBC and SC, the

difference is not significant. Age as expected, is a significant variable for both non-schooling and school completion. The gender variable however remains significant in the usual direction in all cases. In Uttarkashi, a male is only 0.04 times likely as a female to be non-schooled. In other districts, the probability is higher at 0.16. Similarly, the male in Uttarkashi is nearly thrice as likely as a female to have completed school. The ratio is fairly high in Nainital and Dehradun at 1.9.

<b>TABLE 8: EXPLAINING VARIATIONS IN SCHOOL EDUCATION AMONG MEMBERS DISTRICTWISE (10-70 YEARS) – Exp (<math>\beta</math>)</b>						
	No Schooling			Schooling Completed		
	Uttarkashi	Nainital	Dehradun	Uttarkashi	Nainital	Dehradun
<b>Age</b>	1.110	1.105	1.10	.957	.965	.963
<b>Distance from nearest Urban Centre</b>						
Distance	1.102	1.010	.930	.953	.905	1.031
Distance <sup>2</sup>	.998	1.001	1.001	1.001	1.003	.999
<b>Sex (Female as Base Sex)</b>						
Male	.037	.166	.161	2.95	1.909	1.890
<b>Religion (Sikhs as Base Religion for Nainital and Muslim for Uttarkashi and Dehradun)</b>						
Hindu	16.032	1.260	.047	.401	.516	23.191
Muslim		1.534			.286	
<b>Caste (SC as Base Caste)</b>						
General	.359	.213	.130	2.95	2.279	5.07
OBC	.402	1.671	.435	3.32	.420	1.72
Constant	.001	.019	2.25	2.22	3.268	.024

## **Conclusion**

Education is a social good that confers multiple benefits on the subject along with external and inter-generational dividends. In India in recent decades commendable infrastructure is created for providing school education in the districts. However, as with many social goods, the diffusion of school education is far from uniform and has marked generational, gender, class and locational dimensions. The analysis with Uttarakhand data reveals that in India even in a relatively advanced state with a historical lead and where commendable recent development initiatives in infrastructure, institutions and innovative schemes have been observed there is yet considerable unevenness in the diffusion of school education across social groups.

From the regression analysis with qualitative primary data mostly capturing social attributes of rural Uttarakhand, the traditional lags and disadvantages are still found to be glaring with respect to location, gender and social class. Categorising the most likely cases based on the analysis, females are found in the lead conspicuously in respect of non-schooling but males lead in schooling to various stages. Hilly and remote district Uttarkashi leads in non-schooling while capital city, Dehradun is the most privileged. Proximity to an urban centre improves schooling reflecting on the balanced development aims of the country. Minority religion Muslim population falls back while majority Hindus or other minority religions win and similarly backward caste SC leads as a case of non-schooling while the general or the majority caste leads for all schooling categories. The generational gap is an unavoidable truth bearing testimony to past neglects.

Since education at the school level is a social good with potentials for both private and social benefits it is the duty of the governments and particularly the newly instituted local level governments to emphasise inclusiveness in school education if the objective of education for 'all' is to be pursued. That minority religions, backward castes, remote villages and less accessible and relatively underdeveloped districts deserve extra attention is a well-known dictum that is again salvaged from the data even at this stage. Above all the gender dimension possibly remains the most glaring and draws attention towards the disadvantaged female who embodies the other attributes of weakness also. The age

dimension can be addressed to some extent through the adult or non-formal educational route but mostly by drawing the population to school with 'softer' age boundaries for different stages of schooling as conventionally defined by social norms. While usual backward sections call for attention, it is useful to remember two things. Even among the backward classes women still call for special targeting efforts. Second the implications of religious groups and social castes on school education are varied across regions, deciding different levels of policy focus, but gender differences appear persistent and somewhat more intense in the less accessible location. Although the results do reflect the nature of generational pooling made in the data the unevenness though probably addressed in the EFA decade lingers on and is in any case a reminder of the agenda and the path to be traversed to reach a goal towards a balanced and educated rural India.

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## Appendix

Table IA: SCHOOLING level achieved by age groups of Females- scheduled CASTE (sc)						
LEVEL	60-70	50-60	40-50	30-40	20-30	10-20
No school	94.4	100	89.7	61.5	41.4	4.4
Primary	5.6		10.3	17.3	18.2	14.0
8th Class			0	11.5	12.1	37.7
School Pass				5.8	21.2	43.0

Table IIA: Explaining School Education: Results with Binary Logistic Model			
Dependent is Non-Schooled			
	Coefficient	Std.Error	Exp
Age	0.096	0.004	1.100
Distance from nearest Urban Centre			
Distance	0.079	0.022	1.080
Distance2	-0.002	0.000	0.989
Sex (Female as Base Sex)			
Male	-2.170	0.124	0.110
District (Dehradun as Base district)			
Uttarkashi	0.406	0.141	1.500
Nainital	0.037	0.139	1.038
Religion (Sikhs as Base Religion)			
Hindu	0.022	0.505	1.023
Muslim	2.001	0.558	7.398
Caste (SC as Base Caste)			
General	-1.436	0.127	0.238
OBC	-0.397	0.237	0.672
Constant	-3.860	0.600	
Number of observations=3349			
R-square (Nagelkerke) = 0.49			
Percentage correctly predicted= 85.6%			
<i>Note:</i> Significance levels are less than 0.001 except for (I) Religion=Hindu (insignificant at 1%), District= Uttarkashi (insignificant at 1%) and Caste=OBC.			

Table IIIA :Coefficient of Sex (male with female as base) with Varying samples for age groups							
Sample Age group	Sample Size	%Prediction correct	R-sq Pseudo	Coefficient B	Exp(B)	Std. Error	Significance
10-70	3349	85.6	.49	-2.169	0.114	0.124	0.000
10-60	3161	86.0	.45	-2.071	0.126	0.129	0.000
10-50	2862	86.8	.42	-1.929	0.145	0.140	0.000
10-40	2448	88.8	.38	-1.824	0.161	0.164	0.000
10-30	1906	92.0	.31	-1.518	0.219	0.212	0.000
10-20	978	95.7	.24	-0.590	0.554	0.356	0.097

<b>TABLE A : EXPLAINING VARIATIONS IN SCHOOL EDUCATION AMONG MEMBERS DISTRICTWISE (10-70 YEARS)</b>												
	Uttarkashi				Nainital				Dehradun			
	No Schooling		Schooling Completed		No Schooling		Schooling Completed		No Schooling		Schooling Completed	
	(β)	S.E.	(β)	S.E.	(β)	S.E.	(β)	S.E.	t (β)	S.E.	(β)	S.E.
Age	.104	.008	-.044	.005	.099	.007	-.036	.005	.095	.007	-.037	.005
Distance from nearest Urban Centre												
Distance	.098	.033	-.049*	.024	.010**	.082	-.100*	.055	-	.073**	.031**	.051
Distance <sup>2</sup>	-.002	.001	.001*	.000	.001**	.002	.003*	.002	.001**	.002	-	.001**
Sex (Female as Base Sex)												
Male	-3.29	.267	1.08	.139	-1.79	.210	.647	.130	.095	.007	.637	.136
Religion (Sikhs as Base Religion for Nainital and Muslim for Uttarkashi and Dehradun)												
Hindu	2.776**	1.452	-	.738	.231**	.554	-.661*	.362	-3.05	.392	3.144	.546
Muslim					.428**	.817	-	.931				
							1.251**					
Caste (SC as Base Caste)												
General	-1.026	.216	1.081	.170	-1.55	.220	.824	.152	-2.04	.249	1.62	.184
OBC	-.912*	.749	1.20*	.483	.514**	.545	-.867*	.547	-.832*	.311	.541*	.246
Constant	-6.570	1.52	.798**	.782	-3.95	.879	1.18	.583	.810**	.866	-3.71	.79
% Correct Prediction	85.4 (.55)		69.3 (.24)		86.7 (.59)		63.1 (.17)		85.8 (.51)		73.2 (.30)	
<i>Note: ** Not significant 1% level. * Not significant that 10%.</i>												

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