Access to Higher Education in India
An Exploration of Its Antecedents

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This paper explores the role of socio-religious affiliations in determining participation in higher education in India, and whether the importance of these affiliations changes over time. Using National Sample Survey data it follows the change in the hierarchy of participation within a binary probit framework over the years. Since being eligible for higher education is found to be the key factor in participation, it also explores the role of supply-side constraints by controlling for the distance to a secondary school. Econometric estimations for rural and urban areas indicate a vast rural-urban divide in the role of socio-religious affiliations. Eligibility seems to be the key factor in participation, and a better understanding of the constraints on school education is critical if participation in higher education is to be increased.

This paper is a product of a larger research project entitled "Pathfinder – Assessing the Impact of Higher Education Expansion on Economics Restructuring, Occupational Change and Access to Opportunities in Brazil and India" funded by the Economic and Social Research Council, UK. The project was undertaken by the authors at the Observer Research Foundation, New Delhi. The authors are grateful to an anonymous referee of this journal for comments on the previous version of this paper.

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1 Introduction

The policy of affirmative action, essentially in the form of reservation in jobs and higher education (HE) in the government sector, has been in place in India for a long time but several issues remain unresolved. The two key unresolved issues relate to the factors that should inform the choice of the beneficiary population, and the duration for which affirmative action benefits should continue. The discussion has also explored the possibility of bringing the private sector under the ambit of affirmative action policies. The reservation debate resurfaced with the inclusion of Other Backward Classes (OBC) for affirmative action in Indian HE. By analysing two rounds of National Sample Survey (NSS) data in India from 1983 and 2000, Desai and Kulkarni (2008) show that there has been a narrowing trend in the gap in educational achievement between upper-caste Hindus and marginalised groups at higher income levels. Basant and Sen (2010) argue that an appropriate measure of "deficits" in participation among different "socio-religious groups" should inform the nature and scope of affirmative action. That paper explores various determinants of participation in HE and suggests that deficits in participation of HE among some of the marginalised groups are not significant enough to suggest affirmative action in HE for those groups. The present paper further probes the role of socio-religious affiliations as determinants of the HE completion rate to analyse changes over a period of time, and the robustness of that argument. This is done initially by analysing three rounds of NSS data from 1999-2000 to 2009-10. Since being eligible for HE is found to be the key criteria throughout this analysis, this paper also tries to control for access by using the limited data from a different round with information on access to secondary schools.

The rest of the paper is organised in five sections. Section 2 provides a very brief historical account of affirmative action policies in India. Section 3 discusses the relevant literature to provide a context to the empirical exploration in this paper. Section 4 focuses on the research question, along with the econometric model, research methodology, and the data used. The empirical results and the key findings are presented in Section 5. Finally, Section 6 concludes with a discussion of the policy implications of the empirical results.

2 History of Affirmative Action in India

India has extended privileges to socially backward castes from the time its states were formed. In pre-Independence years, some concessions were extended to dalits for bringing them

into the mainstream through the so-called Poona Pact, which came into operation through the Government of India Act, 1935 and later became a part of the Indian Constitution. Along with the effort of the Indian government through its constitutional powers, the southern states started making their own lists of backward classes for further uplifting socially, educationally, and economically backward classes. The composite Madras state had a list of its own, which was followed by Andhra Pradesh after its formation. The same tradition was followed in Karnataka, and later extended to Bihar, Gujarat, and other northern states.

Educational support through scholarship schemes to socially disadvantaged students has also been in place from the beginning of the five-year plans. Apart from assistance at the central level, several state governments have specific scholarship schemes for the scheduled castes (SCs), scheduled tribes (STs), and OBCs. More recently, scholarships have been introduced for minorities by the central government.

3 Brief Review of Available Studies

Participation in HE being strongly linked to the completion of elementary, secondary, and post-secondary education, a host of studies (Chanana 1993; NCERT 1998; Pridmore 2007; PROBE 1999) explore the educational gap at different levels and try to identify the primary reasons behind educational deficits among socially disadvantaged groups at the college level. Sedwal and Kamat (2008) discuss the heterogeneous nature of SCs and STs across the states; the difference in intrinsic value of education among them, leading to lower participation at the elementary level; and issues of growing demand in some parts; and issues of access to education in others. However, in the context of HE, lower participation emerges both from lack of demand arising from the factors discussed above, and supply-side constraints at the school level and in HE (Agarwal 2006; GoI 2006, 2007; Kaul 2006).

Basant and Sen (2010) show that different measures of deficits do change the hierarchy of participation among different socio-religious groups. Using the 61st round of unemployment and employment survey data, probit estimates of participation of both stock and flow measures indicate that an appropriate measure of deficit may change the debate around affirmative action towards the issue of supply-side constraints.

Due to the paucity of countrywide panel data from the NSS, there are very few studies trying to compare the educational participation of socially disadvantaged groups over time. One such study by Azam and Blom (2008) compares the NSS data of rounds between 1993 and 2005 through statistical estimates of educational attainment, access, and transition to HE across socially and economically disadvantaged groups. An interesting conclusion is that the variation across states in enrolment is largely due to variations in completion of higher secondary education. Moreover, deficits in transition rates between genders, between social groups, or between religious groups are much smaller than deficits in enrolment. The probit estimate of participation also supports the same results. However, the hierarchy of participation in HE through the lenses of HE completion rate, and the dynamics of that over time across different socio-religious communities (SRCs) are barely discussed in the existing literature. This paper tries to fill that gap.

4 Research Questions, Methodology and Data

Two interrelated questions are explored here – (a) what is the role of SRC affiliation as a determinant of participation in HE? and (b) how does the importance of these affiliations change over time; and is there any change in the hierarchy of participation? To explore the robustness of the hierarchy of participation in HE among different SRCs, this paper does a maximum likelihood estimate of a binary model of participation using the stock measure, where the dependent variable assumes a value of one if someone completed HE, or else takes a value of zero. This variable is again explained in Section 5.1 as the Current Generation Stock (CGS) measure. The focus of the paper being the dynamics of HE participation among different SRCs through a decade, the analysis has been conducted with only the stock model for the sake of simplicity. The stock model has the advantage of estimating the rate of "actual" completion of HE compared to the flow model, where only enrolment gets estimated and the dropouts are not accounted for. Although stock measures come with a "historical burden", focusing on a younger age cohort minimises this problem.

To explore the socio-religious status of individuals participating in HE, the paper combines caste and religious statuses to form seven SRCs – Hindu SC, Hindu ST, Hindu OBC, Hindu upper caste (UC), Muslim OBC, Muslim general, and other minorities. To take care of the individual, household, and location-specific factors that could also influence participation in HE, the probit regression includes a few more explanatory variables. At the individual level, age and sex of the person are included; and at the household level, household size and logarithm of monthly household expenditure per capita are included. The state of residence is also controlled to take care of location-specific factors.[1] Though the states of Jharkhand, Chhattisgarh, and Uttarakhand were created from the states of Bihar, Madhya Pradesh, and Uttar Pradesh, respectively, in 2000, they are kept with the parent state for comparison across years.

Assuming determinants of participation to be different between urban and rural areas, and between the full sample and the eligible people sample, the model is estimated separately for all these four sub-samples. Eligibility is determined by whether the person has crossed the "threshold" of higher secondary education and is eligible to participate in HE. Thus, the paper estimates a total of four specifications.

The study uses data from three rounds of the NSS employment-unemployment survey – the 55th round collected in 1999-2000; the 61st round collected in 2004-05, and the 66th round collected in 2009-10. All the data sets are household-level survey data with detailed information on

Figure 1a: Participation in HE
(Percentage of 15-29 Age Group Studying in HE, 1999-2000)

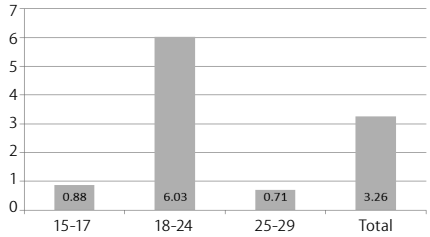


Figure 1b: Participation in HE
(Percetage of 15-29 Age Group Studying in HE, 2004-05)

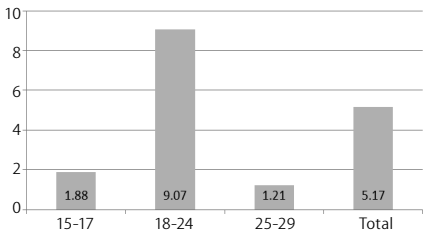
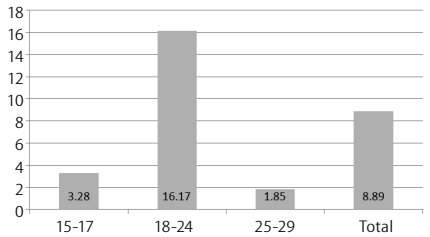


Figure 1c: Participation in HE
(Percentage of 15-29 Age Group Studying in HE, 2009-10)



each member's age, sex, education, household size, and household-level monthly expenditures.

5 Empirical Findings

Using data from the three rounds of the NSS, estimates of participation have been generated for three years.

5.1 Participation in HE: Broad Trends

The percentage of persons participating in HE among each of the seven SRCs, following both stock and flow measures, are presented in Table 1. The CGS measure includes all people between the ages of 22 and 35 who have completed education to the graduate level and above. The Current Generation Flow (CGF) model includes all persons in the age group 17-29 who are currently attending degree, diploma, or higher-level courses.

Table 1: Share of Each Socio-Religious Community in the Relevant Age Group Participating in Higher Education

	1999-2000	2004-05	2009-10	1999-2000	2004-05	2009-10
	CGS: Full Sample (Age: 22-35 Years)			CGF: Full Sample (Age: 17-29 Years)		
Hindu SC	3.61	3.74	5.57	2.48	3.59	6.43
Hindu ST	2.11	2.34	3.53	2.97	3.42	4.23
Hindu OBC	5.22	6.39	9.62	3.49	5.00	10.38
Hindu UC	17.69	19.29	24.42	9.58	11.24	18.15
Muslim OBC	2.97	3.26	5.42	2.12	3.92	6.15
Muslim general	4.80	5.09	4.97	3.05	4.09	6.26
Other minorities	12.40	11.89	16.12	8.04	8.00	13.64
Total	8.25	8.62	11.42	5.03	6.07	10.44
	CGS: Eligible (Age: 22-35 Years)			CGF: Eligible (Age: 17-29 Years)		
Hindu SC	52.81	43.67	49.1	32.29	32.25	42.81
Hindu ST	39.17	40.56	35.95	40.42	41.71	33.56
Hindu OBC	50.62	44.88	48.41	29.91	28.86	40.11
Hindu UC	64.65	58.50	59.4	33.80	31.55	41.05
Muslim OBC	48.89	40.94	48.36	29.20	36.09	40.55
Muslim general	54.66	51.17	44.58	32.88	35.40	43.46
Other minorities	61.53	46.62	52.06	35.12	27.89	36.81
Total	58.68	51.04	52.71	32.97	31.13	40.42

All different definitions of participation in the full sample indicate that participation increased for all SRCs in 2010 compared to 1999. A more interesting result emerges from the eligible sample, where participation goes down for all SRCs in stock definitions, but goes up for all SRCs by CGF definitions, except for Hindu ST. So the flow definition of participation indicates that completion of higher secondary education is an important policy tool to encourage higher enrolment in HE, but it does not guarantee higher completion. However, the decline in participation among SRCs following the stock definitions may also be due to the base effect of the increase in overall eligible population over the years compared to the expansion of access to HE.

Figures 1a, 1b and 1c indicate that participation in HE has increased consistently among all age groups over the last decade. The highest incremental supply in graduate courses has originated from the 18-24 age group, followed by the 25-29 age group.

5.2 Participation in Education at Different Levels and Transition to Eligibility for HE

Tables 2a, 2b, and Table 2c (p 41) provide a comparative analysis of participation in education at different age groups and changes in them over time. They also provide estimates of the percentage of the population progressing to HE during 1999-2010. Here, while one can notice overall increase in participation in education for all age groups over the years, the highest increase can be seen in age group 7-14, probably an effect of the countrywide

Table 2a: Share of Population Studying at Different Levels by Age Groups
(1999-2000)

Age: Below 30 Years →	0–6	7–14	15–17	18–24	25–29	Total
EGS/NFEC/AEC/TLC	0.38	0.18	0.07	0.07	0.05	0.11
Pre-primary (nursery, kindergarten)	10.47	9.15	0.39	0.07	0.03	0.15
Primary (Classes 1 to 4/5)	12.15	39.77	1.88	0.2	0.08	0.4
Middle	0.18	23.14	10.87	0.76	0.14	0.43
Secondary and higher secondary	0.01	4.85	36.11	6.72	0.29	0.74
Graduate and above	0	0	0.98	6.21	0.76	0.64
Diploma/certificate: below/above graduate	0	0	0.47	2.17	0.39	0.27
Total in school	23.19	77.09	50.77	16.21	1.75	2.74
Total out of school	76.8	22.91	49.23	83.79	98.25	97.26
Total	100	100	100	100	100	100

Table 2b: Share of Population Studying at Different Levels by Age Groups
(2004-05)

Age: Below 30 Years →	0-6	7-14	15-17	18-24	25-29	Total
EGS/NFEC/AEC/TLC	0.45	0.16	0.04	0.01	0	0.17
Pre-primary (nursery, kindergarten)	9.09	0.94	0.01	0.01	0.01	2.58
Primary (Classes 1 to 4/5)	19.38	50.16	1.67	0.1	0.12	20.51
Middle	0.14	26.53	9.51	0.54	0.06	9.24
Secondary and higher secondary	0	8.15	41.63	6.3	0.21	7.93
Graduate and above	0	0	1.73	7.94	0.80	1.96
Diploma/certificate: below graduate	0	0	0.68	1.59	0.23	0.44
Diploma/certificate: graduate and above	0	0	0.15	1.13	0.42	0.31
Total in school	29.06	85.94	55.42	17.62	1.85	43.14
Total out of school	70.94	14.06	44.58	82.38	98.15	56.86
Total	100	100	100	100	100	100

Table 2c: Share of Population Studying at Different Levels by Age Groups (2009-10)

Age: Between 7 and 29 Years →	7-14	15-17	18-24	25-29	Total
EGS/NFEC/AEC/TLC	0.11	0.04	0.02	0.00	0.04
Pre-primary (nursery, kindergarten)	1.05	0.02	0.00	0.03	042
Primary (Classes 1 to 4/5)	48.6	1.08	0.14	0.08	19.11
Middle	30.39	6.72	0.40	0.24	12.91
Secondary	11.43	30.15	1.60	0.15	9.08
Higher secondary	0.37	26.58	5.75	0.19	5.49
Graduate and above	0	3.04	13.93	1.30	4.65
Diploma/certificate: below graduate	0	0.24	2.25	0.54	0.79
Diploma/certificate: graduate and above	0	0.47	1.95	0.16	0.65
Total in school	91.95	68.34	26.04	2.69	53.14
Total out of school	8.05	31.66	73.96	97.31	46.86
Total	100	100	100	100	100

Current education question was asked to people between 5 and 29 years of age. Hence, we removed the first age group to maintain consistency across the years.

Sarva Shiksha Abhiyan (Education For All) programme.[2] There was some increase in the out of school population of age 25-29 between 2004 and 2010, primarily due to a drop in participation in secondary, higher secondary, or HE among the 15-17 and 18-24 age groups between 2004 and 2010. However, the HE participation of the 25-29 age group increased consistently during this period, along with the total participation of all age groups.

5.3 Participation in Education by SRCs

Table 3 provides a comparative picture of participation at different levels of education by different SRCs. Overall, the share of out of schoolchildren consistently declined between 1999 and 2010 for all. This share reached its peak among Muslim OBC in 1999, but declined thereafter. The participation of Hindu OBC in HE (combining degree and diploma courses) increased sharply between 1999 and 2010, along with almost all other SRCs, except for Muslim general, which has had a much slower rate of increase in participation in HE.

5.4 Correlates of HE

Apart from the SRC status, a variety of factors can affect participation in HE. Table 4 provides a few statistics on the eligible population for HE in terms of different individual and household characteristics. Each row represents the percentage who completed higher secondary education among groups of population above 17 years of age. The estimates indicate that the supply of the eligible population for HE has increased over the years for both genders, all SRCs, and among both rural and urban people. While the increase in participation seems to be different across SRCs over the years, we are not able to say anything concrete about these differential trends because we are not very sure about the growth of population share among these SRCs during the period under consideration.

5.5 Results of the Econometric Analysis

Marginal effects, calculated at the mean of all the variables from four specifications of probit model, run separately for all three years are presented in Table 5 (p 42). Throughout this analysis, we use the terms "participation in HE" and "completion of HE" interchangeably, as the stock measure of HE participation

Table 3: Percentage of Currently Studying Population at Different Levels by Socio-Religious Community

Year	Currently Studying or Not Age 18-24	Hindu SC	Hindu ST	Hindu OBC	Hindu UC	Muslim OBC	Muslim General	Other MInorities
1999-2000	Not attending	88.79	89.66	87.52	73.23	92	87.78	76.08
	EGS/NFEC/AEC/TLC	1	0.09	0.07	0.02	0.02	0.1	0.03
	Pre-primary (nursery, kindergarten)	0.06	0.07	0.09	0.02	0.01	0.18	0.05
	Primary (Classes 1 to 4/5)	0.17	0.04	0.19	0.33	0.04	0.19	0.11
	Middle	0.88	0.55	0.68	0.69	0.8	1.05	1.01
	Secondary and higher secondary	5.68	4.38	5.62	9.81	3.4	5.69	8.87
	Graduate and above	3.16	4.23	4.31	11.95	2.51	3.45	9.67
	Diploma/certificate: below and above graduate	1.17	0.99	1.51	3.93	1.2	1.57	4.17
2004-05	Not attending	87.35	88.5	84.49	71.63	88.51	85.6	76
	EGS/NFEC/AEC/TLC	0.01	0	0	0.03	0.08	0.01	0
	Pre-primary (nursery, kindergarten)	0.03	0	0.01	0	0.02	0	0
	Primary (Classes 1 to 4/5)	0.16	0.12	0.06	0.06	0.26	0.2	0.08
	Middle	0.66	0.59	0.45	0.48	0.47	0.67	0.66
	Secondary and higher secondary	5.43	4.88	5.97	7.9	3.91	6.61	8.53
	Graduate and above	4.36	4.75	6.63	15.21	5.16	5.44	10.1
	Diploma/certificate: below graduate	1.19	0.74	1.53	2.44	0.99	0.76	2.95
	Diploma/certificate: graduate and above	0.81	0.42	0.86	2.25	0.6	0.68	1.69
2009-10	Not attending							
	EGS/NFEC/AEC/TLC	81.35	84.03	73.71	61.34	82.79	81.42	64.94
	Pre-primary (nursery, kindergarten)	0.00		0.01	0.00	0.00	0.11	0
	Primary (Classes 1 to 4/5)	0.00		0.01	0.00	0.01	0.00	0.01
	Middle	0.19	0.02	0.09	0.17	0.27	0.26	0.01
	Secondary	0.47	0.54	0.45	0.07	0.36	0.76	0.43
	Higher secondary	2.00	1.5	1.64	1.23	1.64	1.52	1.61
	Graduate and above	4.70	5.54	5.89	6.38	4.76	5.17	8.23
	Diploma/certificate: below graduate	9.10	6.42	14.49	23.24	7.56	8.39	16.33
	Diploma/certificate: graduate and above	1.06 1.13	0.49 1.46	1.8 1.91	4.82 2.75	1.11 1.50	1.42 0.95	3.71 4.73

Table 4: Share of Higher Secondary Completed among Those Above 17

Among the Following Sample of Above 17 Years	Percentage Completed Higher Secondary		
Characteristics	1999-2000	2004-05	2009-10
Male	14.63	17.37	21.75
Female	7.46	9.63	13.39
Hindu SC	4.93	6.49	9.44
Hindu ST	4.35	4.64	7.98
Hindu OBC	7.47	10.69	15.27
Hindu UC	21.99	26.99	32.83
Muslim OBC	4.92	6.89	9.41
Muslim general	7.12	8.5	10.63
Other minorities	15.50	19.56	24.08
Rural	6.03	7.86	10.71
Urban	24.69	28.49	34.36

used in this analysis includes people between the ages of 22 and 35 who have completed some kind of graduate degree or diploma, or more than that.

The lack of statistical significance of Hindu ST in urban areas as presented in the first six columns of the upper panel may stem from the fact that most of the Hindu ST population stay in rural areas, leading to relatively less variation in that

Table 5: Marginal Effects in Stock Model on Completing Higher Education
(Age 22-35)

	Stock Urban Full Sample			Stock Urban Eligible Sample		
Variables	1999-2000	2004-05	2009-10	1999-2000	2004-05	2009-10
Age	0.00***	-0.00***	0.00***	0.01***	-0.00	0.00**
Hindu ST	0.02	0.03	0.00	-0.02	0.02	-0.04
Hindu OBC	0.03***	0.04***	0.02*	-0.02	0.01	-0.03
Hindu UC	0.15***	0.14***	0.13***	0.06***	0.09***	0.04*
Mus OBC	-0.06***	-0.05***	-0.09***	-0.11**	-0.01	-0.08
Mus Gen	0.00	0.01	-0.08***	-0.03	0.02	-0.11***
OM	0.14***	0.11***	0.13***	0.04	0.05	0.04
Male	0.05***	0.03***	0.02**	0.02	-0.04***	-0.02*
Log MPCE	0.27***	0.26***	0.33***	0.24***	0.21***	0.25***
Hh Size	0.01***	-0.03***	0.02***	0.01***	-0.03***	0.02***
Observed P	0.19	0.20	0.25	0.67	0.59	0.62
Predicted P	0.13	0.14	0.19	0.68	0.60	0.63
No of Obs	55,601	50,102	43,967	17,347	15,711	17,282
Waldchi2(36)	4,613.9	2,366.7	2,291	620.2	409.1	581.0
Prob > chi2	0	0	0	0	0	0
Log Pseudo L	-20,833	-19,171	-18,803	-10,329	-10,059	-10,573
Pseudo R2	0.24	0.23	0.24	0.06	0.05	0.08
	Stock Rural Full Sample			Stock Rural Eligible Sample		
Age	0.00***	-0.00***	0.00***	0.01***	0.00*	0.00
Hindu ST	-0.01***	-0.01**	0.00	-0.16***	-0.04	-0.13
Hindu OBC	0.00*	-0.00	0.00***	-0.10***	-0.04*	-0.03
Hindu UC	0.02***	0.02***	0.01***	0.00	0.03	0.02
Muslim OBC	-0.01***	-0.01***	0.01**	-0.07	-0.07	0.02
Muslim general	-0.01**	-0.01***	0.00	-0.02	0.00	-0.03
Other minorities	0.00	0.00	0.01	-0.09**	-0.04	-0.05
Male	0.03***	0.03***	0.00***	0.06***	0.04***	0.01
Log MPCE	0.05***	0.06***	0.00***	0.16***	0.19***	0.14***
Hh Size	0.00***	-0.01***	0.00***	0.00**	-0.02***	0.01***
Observed P	0.04	0.04	0.06	0.48	0.41	0.41
Predicted P	0.02	0.02	0.03	0.48	0.41	0.41
No of Obs	84,428	89,911	64,785	9,254	13,703	13,483
Waldchi2(36)	2,634.4	3,089.3	1,717.2	356.8	327.2	221.4
Prob > chi2	0	0	0	0	0	0
Log Pseudo L	-11,805	-13,060	-11,676	-6,044	-8,908	-8,750
Pseudo R2	0.18	0.18	0.17	0.06	0.04	0.04

*** 1% level of significance, ** 5% level of significance, * 10% level of significance; the results for state dummies are not reported here due to limited space.

variable in urban areas. In rural areas, Hindu ST seemed to have lower chances of participation compared to Hindu SC, other things being equal. That chance was as low as 16 percentage points among the rural eligible population in 1999-2000. However, in the next two years, Hindu SC may not have had higher chances of participation than Hindu ST as the marginal effects are not statistically significant.

Hindu OBC was more likely to complete HE compared to Hindu SC in the full sample, with stronger effects in urban areas. But among the eligible population, Hindu OBCs seem to have lower chances of participation, particularly in rural areas. However, the lack of statistical significance among eligibles in recent years indicates that Hindu SCs seem to have lost that advantage to Hindu OBCs in recent years after both cross the threshold of higher secondary education. Being eligible seems to be the key criteria in difference in HE participation between these two groups, and there seem to be less variation among these eligible groups in recent years.

Hindu UC were more likely to complete HE in urban areas compared to Hindu SCs in all the years under study. However, that advantage fell to as low as 4 percentage points in 2009-10 for the urban eligible, compared to 13 percentage points for the urban full sample in the same year. So, here too, crossing the threshold of eligibility was the key criteria for the difference between these two groups in HE participation. The picture looks quite similar in rural areas, where the marginal effects are statistically significant in the full sample, but lose the statistical significance in the eligible sample. Again, it may stem from that once rural Hindu UC cross the threshold of higher secondary education, not much variation is left with the variable. However, overall, the marginal effects in rural areas have always been less than the ones in urban areas for the otherwise same model specification. This may indicate a lack of access to institutes of HE in rural areas, which may have prevented all from participation in HE in general.

Muslim OBC had lower chances of HE participation compared to Hindu SC in urban areas in all years of the study. However, the advantage of Hindu SCs over Muslim OBCs seems to have declined in recent years among both urban and rural eligible, which again indicates the eligibility for entering HE is the key factor in completion of HE. Another interesting fact to be noticed in the rural full sample is that the 1 percentage point of lower chance of HE participation of Muslim OBCs over Hindu SCs has turned into a 1 percentage point of higher chance among the former in the most recent year. This was never the case in any specification of urban area, and is typical of only Muslims in rural areas, where they seem to be in a better condition.

The above story of the rural-urban divide among Muslims also prevails among the Muslim general population. Muslim general had 8 percentage point lower chances of participation among the urban full sample and 11 percentage point lower chances in the urban eligible sample compared to Hindu SC in the most recent year. The fact to be noticed here is that after crossing the threshold of higher secondary education, the chances of participation become even lower among urban Muslims compared to Hindu SCs. It may again stem from the general conditions of urban Muslims, which may have been different from those of Hindu SCs when it came to taking advantage of crossing the threshold of HE. However, this is not the case in rural areas, where being eligible for HE actually

Figure 2a: Marginal Effects of Participation: Stock Urban Full Sample

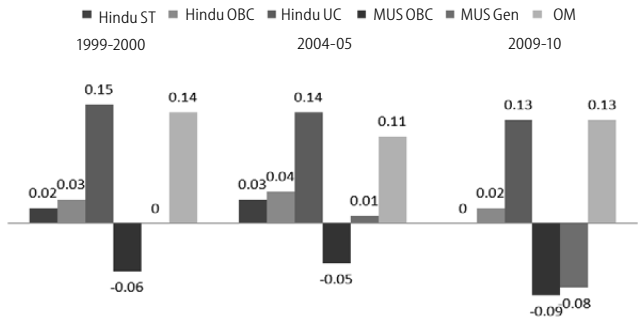


Figure 2b: Marginal Effects of Participation: Stock Urban Eligible Sample

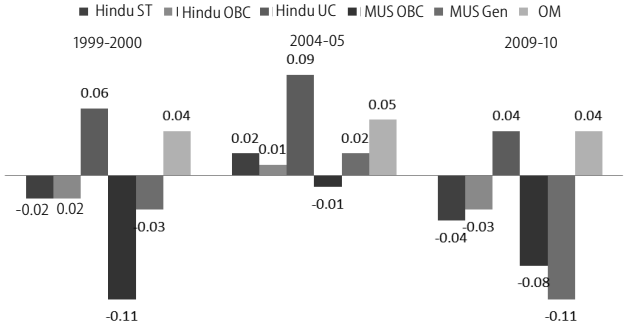


Figure 2c: Marginal Effects of Participation: Stock Rural Full Sample

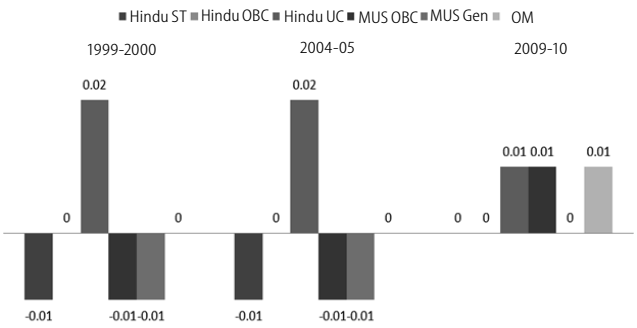
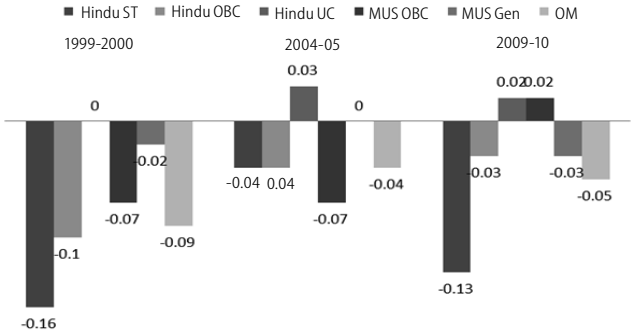


Figure 2d: Marginal Effects of Participation: Stock Rural Eligible Sample



reduces the statistical significance of the marginal effects in all three years of the study.

Among other minorities, there are 11 to 14 percentage points of higher chances of HE participation compared to Hindu SCs in urban areas in all the three years. But this gets obliterated once people cross the threshold of higher secondary education – all the marginal effects lose statistical significance. In the full sample of rural areas, neither of the groups seem to have had higher chances of participation over the other; but among the eligible population, Hindu SC may have had slightly higher chances, which again seems to have disappeared in recent years.

Among other correlates of HE in Table 5, negative signs of marginal effects for men in the urban eligible area indicate two interesting facts. First, once the threshold of higher secondary education is crossed, urban women had higher chances of completing HE than their male counterparts. This may indicate the effect of better access to educational institutions in urban areas and a process of self-selection. Second, the absence of the same sign in rural areas may indicate that the importance of educational access in rural areas is a strong determinant of completion of HE. One more reason for lower prospects of men's participation among urban eligibles may be the nature of the urban job market, where availability of low-skilled jobs can accommodate higher secondary-educated males. Otherwise, the difference in probability of participation between males and females fell over the years.

An increase in age by one year for an average person does not affect the chances of participation in any specification of the model. Higher income, as proxied by per capita expenditures, always indicates higher participation in HE, but that effect is significantly less in the rural full sample. This may again strengthen the accessibility issue of secondary and higher secondary institutions in rural areas. The comparatively higher effects of expenditure variables among the rural eligibles indicate that once someone crosses the threshold of higher secondary education, higher per capita income may influence higher participation; but till then, per capita income has very small effect. This may be due to the unavailability of enough secondary or higher secondary institutions in rural areas. Having one additional member in the family actually increased the chances of HE participation in 1999-2000 and 2009-10, but decreased them in 2004-05. Whether that is only due to the scale effect, or due to some other unobserved factors is difficult to tell with the available data.

To capture the dynamics of the hierarchy of participation among SRCs over the decade under study, we rank them according to their marginal effects, and irrespective of their statistical significance in Figures 2a, 2b, 2c, and 2d.

The hierarchies do not seem to change much over years in the full sample of the urban population (but seem to change among the eligible samples) or in rural areas. This may again indicate that access to educational institutions in rural areas and crossing the threshold of higher secondary education are the two important factors contributing to higher participation in HE.

The above sets of analyses indicate two more points about participation in HE. One, there is a vast rural-urban divide in the importance of SRC affiliation as a predictor of HE participation. Two, crossing the threshold of eligibility remains a key determinant for participation in HE. Since crossing the threshold of HE is highly linked to having access to schools, the

Table 6: Stock Model of 64.25th Round, Probability of Current Participation After Controlling for Access

Completed Graduate or Not	Marginal Effects (dF/dx): Urban				Marginal Effects (dF/dx): Rural			
	Full Sample		Eligible Sample		Full Sample		Eligible Sample	
Variables	Spec1	Spec 2	Spec1	Spec 2	Spec1	Spec 2	Spec1	Spec 2
Age	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	-0.07***	0.00***
Hindu ST	0.02	0.02	0.04	0.04	0.00	0.00	0.05	0.01
Hindu OBC	0.03***	0.03***	0.01	0.01	0.00**	0.00**	-0.01	0.00
Hindu UC	0.14***	0.14***	0.10***	0.10***	0.04***	0.04***	-0.04*	0.05**
Mus OBC	-0.07***	-0.07***	-0.04	-0.04	-0.02***	-0.02***	-0.05	-0.03
Mus Gen	-0.03***	-0.03***	0.00	0.00	-0.01**	-0.01**	0.00	0.04
OM	0.08****	0.08***	0.02	0.02	0.00	0.00	0.02	-0.04
Male	0.02***	0.02***	-0.05***	-0.05***	0.02**	0.02***	0.05***	0.00
Log MPCE	0.29***	0.29***	0.24***	0.24***	0.06***	0.06***	0.15***	0.18***
Hh Size	0.01***	0.01***	0.01***	0.01***	0.00***	0.00***	0.00	0.01**
Distance School		-0.02**		-0.02		-0.01***		-0.04***
Observed P	0.21	0.21	0.61	0.61	0.05	0.05	0.31	0.42
Predicted P	0.16	0.16	0.62	0.62	0.03	0.03	0.26	0.41
No of Obs	42,215	42,141	14,460	14,436	70,773	70,382	8,018	8,060
Waldchi2(36)	3,275	3,277.73	593.6	597.44	1,904.9	2,069.53	807.6	292.01
Prob > chi2	0	0	0	0	0	0	0	0
Log Pseudo L	-16,866	-16,831.5	-8,986	-8969.88	-11,014	-10,909.1	-4,012	-5,249.99
Pseudo R2	0.22	0.22	0.07	0.07	0.16	0.16	0.19	0.04

*** 1% level of significance, ** 5% level of significance, * 10% level of significance; the results for state dummies are not reported here due to limited space.

next section tries to control for access within the same structural framework of analysis.

5.6 Exploring the Role of Supply-side Variables

To check the access to schools issue that might affect eligibility, we used the 64.25th round of NSS data collected in 2007-08, which provides detailed household-level information on educational expenditures and related issues. Along with the household and individual-level details used in this study, the 64.25th round of data also includes details on distance to secondary schools, which could be the closest proxy for access to schools. The specifications of all models remaining the same, we include the dummy variable equals to zero if distance to secondary school is less than 2 kilometres and equal to one if it is more than 2 km in the new specification. One expects a negative sign for the marginal effects of this variable if distance to secondary school has any effect on completion of HE. The results presented in Table 6 provide us the same sign, indicating yet again the importance of access to secondary schools in encouraging higher participation in HE.[3] That the marginal effects of all other variables remain the same indicates that distance to secondary school is not related to one's socio-religious affiliation in this specific model.

6 Conclusions

A few issues emerged from an earlier analysis of the NSS data (Basant and Sen 2010). One related to the linkage between affirmative action as practised by policies of reservation in India and levels of participation in HE. The policy question raised was if such action was linked to the deficits of certain groups. If yes, what type of deficits should one go by? For example, the analysis showed that the deficits for Hindu OBC were not very high, particularly if one looks at the eligible population. This has been substantiated by this paper by exploring the role of SRC affiliations as a determinant of HE participation, using additional data from two more NSS rounds. Moreover, econometric analysis of the data shows that once other factors are controlled for, while difference in probability of participation with Hindu SC declines dramatically for most groups, the "hierarchy of deprivation" is not entirely clear. This adds to the argument that a better understanding of the hierarchy of deprivation may be critical for a more nuanced policy of affirmative action, including reservation.

Second, the earlier results raised questions about how one should deal with the issue of eligibility for HE. Deficits for the underprivileged were found to be significantly lower among the eligible population, even after controlling for a variety of other factors. Thus, once persons from underprivileged groups crossed the school threshold, the chances of them going to college were quite high. Once again, the results of data from other rounds in the present work corroborate these empirical conclusions, and crossing the threshold of higher secondary education remains the key factor in expanding HE participation. The inclusion of an additional control for access to secondary school also supports this argument. Clearly, a better understanding of the constraints on school education is critical if participation in HE is to be enhanced. Therefore, should the higher education policy also focus on ensuring that the threshold is crossed? Arguably, reservation in HE is an incentive to cross the threshold. Similarly, one can argue that job reservation can enhance incentives to participate in HE. Are these adequate? To what extent have these worked? Do we have better options for affirmative action? Do the reservation policies need to be revised frequently, along with being more dynamic to reflect the change in participation among the eligible underprivileged? A recent study (Varma and Kapur 2010) on Indian Institutes of Technology (IITs) showed that even after lowering the standards for admission to the undergraduate programme to fill up the quota, only about 75% of the seats for

SCs and 33% of the seats for STs were actually filled, leaving the rest vacant.

Third, the results reported here once again raise questions about the efficacy of socio-religious affiliation as the sole focus of affirmative action. Since many factors other than socio-religious affiliation also influence participation in a significant manner, an exclusive focus on it for affirmative action seems inappropriate. The importance of the rural-urban divide, the economic background, and the location of residence highlights the role of supply-side factors in the participation of various groups. Unfortunately, we were not able to fully explore the role of supply-side factors here. Data limitations constrained our analysis, but it may be useful to explore the interaction effects between socio-religious affiliation and other explanatory factors, including the availability of higher secondary schools and HE institutions in the vicinity, in later analyses.

NOTES

1 For interstate differences in pattern of participation, see Sahni and Shankar (2012).

2 This flagship programme of the Government of India towards achievement of universal elementary education is being implemented in partnership with state governments throughout the country.

3 Ideally, we would like to control for access to secondary and higher secondary schools together, as having access to a secondary school does not necessarily indicate having access to a higher secondary school as well. However, the survey did not collect such information.

REFERENCES

Agarwal, P (2006): "Higher Education in India: The Need for Change", Working Paper 180, Indian Council for Research on International Economic Relations, New Delhi.

Azam, Mehtabul and Andreas Blom (2008): "Progress in Participation in Tertiary Education in India from 1983 to 2004", Policy Research Working Paper 4793, Human Development Department, World Bank, South Asia Region, December.

Basant, Rakesh and Gitanjali Sen (2010): "Who Participates in Higher Education in India? Rethinking the Role of Affirmative Action", *Economic & Political Weekly*, 45(39).

Chanana, Karuna (1993): "Accessing Higher Education: The Dilemma of Schooling Women, Minorities, Scheduled Castes and Scheduled Tribes in Contemporary India", *Higher Education*, 26(1), July.

Desai, Sonalde and Veena Kulkarni (2008): "Changing Educational Inequalities in India in the Context of Affirmative Action", *Demography*, 45 (2).

Government of India (2002-07): "Tenth, Eleventh and Twelfth Five-Year Plan Document", Planning Commission, Vol 2, Chap 4.1, pp 5-8.

– (2006): "Recommendations of the National Knowledge Commission", High-level advisory body to the Prime Minister of India, Chaired by Sam Pitroda.

– (2007): "Draft Report of Working Group on Higher Education for the XI Plan", Planning Commission, New Delhi.

Kaul, Sanat (2006): "Higher Education in India: Seizing the Opportunity", ICRIER Working Paper No 179, May.

NCERT (1998): Sixth All India Educational Survey, National Council of Educational Research and Training, New Delhi.

Pridmore, P (2007): "The Impact of Health on Education Access and Attainment: A Cross-national Review of the Research Evidence", CREATE Pathways to Access Research Monograph, No 2, CREATE and Institute of Education, University of London.

PROBE (1999): *Public Report on Basic Education in India* (New Delhi: Oxford University Press).

Sahni, Rohini and Kalyan V Shankar (2012): "Girls' Higher Education in India on the Road to Inclusiveness: On Track But Heading Where?", *Higher Education*, 63, pp 237-56.

Sedwal, Mona and Sangeeta Kamat (2008): "Education and Social Equity with a Special Focus on Scheduled Castes and Scheduled Tribes in Elementary Education", Create Pathways to Access, Research Monograph No 19, NUEPA, May.

Varma, Roli and Deepak Kapur (2010): "Access, Satisfaction, and Future: Undergraduate Education at the Indian Institutes of Technology", *Higher Education*, 59, pp 703-17.