Who Participates in Higher Education in India? Rethinking the Role of Affirmative Action

RAKESH BASANT, GITANJALI SEN

This paper explores how an individual's participation in higher education is dependent on her religious affiliations, socio-economic status and demographic characteristics. It argues that an appropriate measure of "deficits" in participation should inform the nature and scope of affirmative action. The study emphasises the relevance, both for analytical examination and in policy formulation, of distinguishing between stock and flow measures of participation and of recognising the differences (or imbalances) in the eligibility for higher education across groups. On isolating the effect of socio-religious affiliation from other factors that may influence participation in higher education, what emerges is a suggestion that the deficits faced by some marginalised groups are not substantial. If reservation policy for these groups is to be justified only on the basis of low participation, it may require a review.

Reservation for different social groups at the central and the state levels has been the typical response to India's long-standing policy objective of promoting access to higher education amongst its "marginalised" people. With the implementation of reservation for Other Backward Classes (OBCs) in the centrally aided higher education institutions since 2006,[1] the debate on reservation has picked up again. Among other things, the policy of reservation in higher education is based on the premise that participation of persons from the reserved category has been uniformly low and reservation would result in a significant rise in participation. The discussion on issues relating to the measurement of higher education participation and the "deficits" in different groups has been inadequate. It is argued here that an appropriate measure of deficits should inform the nature and scope of affirmative action. Such an effort may also make the policy initiative more acceptable across various population segments. An empirical analysis of the National Sample Survey Organisation's (NSSO) 61st round data on India suggests that, if we use more appropriate measures, the results would show that the deficits were not significant enough to argue in favour of affirmative action for some of these groups.

This paper is divided into four sections. Section 1 briefly reviews the recent literature in the area of affirmative action. Issues relating to measuring participation in higher education are discussed in Section 2. This section also defines some socio-religious and economic categories through which participation can be potentially compared. The participation estimates of different socio-religious groups are analysed in Section 3. This section discusses the results of some econometric analyses of the role of different socio-religious affiliations in determining participation in higher education. Section 4 concludes.

1 Recent Literature on Affirmative Action

The studies on affirmative action in India primarily focus on the reservation policy for the scheduled castes/scheduled tribes (SCs/STs), mandated by the Constitution from its inception. Since OBC reservation is comparatively a new issue, few studies have concentrated solely on OBCs.

Defining Socio-economic and Religious Categories: Partly because reservation policy had primarily focused on SC/ST candidates till 1990, separate estimates for these categories were available from government sources. All other castes were put in the "others" category. But inclusion of OBCs for affirmative action since 1999 has resulted in the availability of some data separately

for this category as well. Hence, the category of others now includes all upper castes as well as some lower castes close to scs, and also other lower castes which are not recognised as either scs, sts or obcs. Deshpande (2006) argues that this kind of categorisation is not appropriate for analysing the differences between the upper and lower classes in the pursuit of equitable development and prosperity.

More recently, some studies have tried to combine caste and community categories to analyse its implications for affirmative action. The Sachar Committee Report on the conditions of Muslims in India (GOI 2006) defined socio-religious categories (SRCS) that distinguished between Hindus (upper castes, scs/sts and obcs), Muslims (general and obcs) and other minorities. These srcs were further classified into economic groups (poor and non-poor). The analysis of data for these categories showed that educational and employment conditions varied across these groups.

Role of Socio-religious Background and the Confounding Effects: Deshpande (2001) developed a caste development index (CDI) using the 1992-93 National Family and Health Survey data. While the study recommends the inclusion of caste as an indicator of the stratification of the Indian population, it shows that there are regional variations in the status of scs/sts in terms of CDI. The study finds that, on reconstructing the index after the implementation of reservation system in the early 1990s, the same pattern of differences in castes between scs/sts and others persist even as late as in 1998-99. Some recent analyses of srcs have shown that the differences in participation and achievements narrow down when economic conditions and regional contexts are taken into account (GOI 2006). These results are consistent with the argument that the "creamy layer" in each of the marginalised groups tends to shore up the lion's share of the benefits flowing from reservation policies.

Eligibility for Higher Education: Sundaram (2006), using some basic statistics from the 55th round of NSSO data, shows that if we consider only that section of the population which is eligible for higher education (i e, those who have passed higher secondary or equivalent examination), then the educational achievements do not vary much with their poverty levels among scs/sts/obcs in urban or rural areas. That means once the sc/st/obc groups cross the secondary education level, their decision to go for higher education is not significantly affected by their economic conditions anymore. But poverty does make a significant difference for eligible students in the general category. This implies that reservation may be helping in improving the level of enrolment, irrespective of economic status, once the threshold level of school education is crossed.[2] However, in the absence of any econometric models predicting any causal relationship, the simple statistics presented in his analyses (Sundaram 2006 and 2007) are unable to clarify, if the differences across srcs remain significant once differences in eligibility, economic status, regional background, etc, are also taken into account.

Inability of certain marginalised segments to achieve higher education eligibility may be due to the unequal access to school education. Banerjee and Somanathan (2007) analyse the census data between 1971 and 1991 and find that unequal access to primary schools has been a major factor in creating disparities among different caste groups. They mapped the availability of public goods against the parliamentary constituency areas and found that the areas of sc/st concentration had much less access to primary or secondary schools in 1971 as compared to other areas.

Linkages in Affirmative Action in Education and Employment Spaces: Desai and Kulkarni (2008) compare educational achievements of upper caste Hindus and other upper castes with that of dalits, adivasis and Muslims during 1983 and 2000. Although the primary school enrolment at all income levels are higher for Hindus and other upper castes over this period, the study shows that there is a narrowing trend in the gap between Hindus and other marginalised groups at the higher income levels. It implies that affirmative action in employment may have contributed to higher primary school enrolment over the years (i e, more people participating in school education in anticipation of getting jobs through reservation). At the same time, improvement in economic condition has increased the effectiveness of the programme. Households with better economic conditions benefited more from the job reservation as it resulted in higher school enrolment.

What is the combined impact of affirmative action in education and employment? Xaxa (2002) in his study of the quota system in the admission to the University of Delhi finds that even after implementation of the this system in higher education and in government and semi-government jobs for scs/sts/obcs, the quotas remain largely unfulfilled in several places. Kirpal and Gupta (1999), in a study on reserved seat students entering the BTech programme in the five major and oldest Indian Institutes of Technology (IITS) between 1981 and 1992, found that the average graduation rates among the sc and st students were lower than those of general students getting admission in those institutes. The performance of the reserved students in the IIT examinations was lower too.

Chakravarthy and Somanathan (2008) compare the job market achievements of the scs/sts and general candidates among Indian Institute of Management (IIM) graduates. They find no significant difference between the two categories' wages once the academic performance (grade point average or GPA) is taken into account when fixing the wages. However, when academic performance is not taken into account (or controlled for), the average wages of sc/st candidates tend to be lower than those of the general candidates. On an average, the GPA of sc/st candidates were also found to be less than those of the general candidates. This implies that the weaker background of the sc/st students admitted through the reservation policy adversely affects their job market achievements because of lower GPA. Hence, even if the sc/st candidates are given the opportunity to study at higher education institutions, their weak educational background should be taken care of before they reach the job market. This is consistent with the argument that the preferentially selected students would also need to be given significant human and financial support, if the reservation policy is to fully serve the purpose of eliminating the differences (Weisskopf 2004).[3]

At a more general level, however, post-higher education job market achievements can be affected by other factors. Deshpande and Newman (2007), in their comparisons of the dalit and non-dalit students in turning the educational achievements into job market outcomes found that the latter exploited their social networks well to benefit from such opportunities, whereas the former were not privileged with such a social capital. Apart from this, the dalits neither had the necessary financial strength nor were they able to access inexpensive loans. This also deprives the poor students from utilising reservation-based admission options (ibid: 4135).

While the survey of studies is by no means complete, it brings out some interesting insights. These include: an appropriate definition of socio-economic-religious categories is required for analysis and for affirmative action; while analysing the impact of socio-religious affiliation on participation, one needs to take into consideration a variety of regional and other factors; a sharper focus on eligibility (crossing the threshold of school education) for higher education may be critical for any efficacious policy action; and the linkages between affirmative action for employment and education need to be explored to better understand the impact of such policy instruments.

This paper tries to deal with the first three of these issues to provide some additional insights.

2 Measurement and Classification Issues

We argue in this section that, when analysing participation in higher education across different socio-economic groups, due importance needs to be given to the measures used for participation, as also the ability to empirically distinguish between analytically meaningful socio-economic categories.

Measuring Participation in Higher Education: The first issue that needs to be resolved while defining a measure is whether we should focus on attainment or enrolment. While the former captures the segment that has completed graduate and higher level of education, the latter focuses on the segment that is currently studying for graduation or higher courses. In addition, while attainment is a stock measure and carries the "burden of history", enrolment is a flow measure that captures the current situation and provides indications for the future.[4]

Given this background, three measures can be defined for any population segment:

(1) The share of graduates and higher degree holders in the population group above 20 years of age: This characterises an all generations' stock (henceforth, AGS) measure of participation in higher education, a higher share signifying higher participation. Alternatively, one can compare a group's share in the 20 years and above population with its share in the number of graduates. Broadly, if the population share is higher than the share in graduates, the group suffers from a "deficit" in participation.

(2) Share of graduates and higher educated in the age group of 22-35 years[5] provides the current generation stock (henceforth, CGS) measure. As in the case of the first measure, the difference in population share and graduates' share measures the deficit.

(3) Share of currently studying persons at the level of graduation and above in the age group of 17-29 years[6] provides a current generation flow (henceforth, CGF) measure of participation in higher education. This measure can also be converted into a deficit measure as in the case of the above two measures.

Another method of measuring deficit using any of the above methods is to consider the eligibility aspect. Here, the first requirement for enrolment in an undergraduate course would be to complete higher secondary education. Thus, instead of focusing on the entire population in the relevant age group, measures of participation can also focus on that segment that has crossed the threshold of higher secondary education. Accordingly, the three measures described above can be estimated for only the eligible and not for the entire population in the relevant age group. A sharper focus on the eligible population brings the links between secondary and tertiary education explicitly into the analytical discussion.

For an adequate understanding of "higher education deficits" in different groups, we need to define not only participation appropriately, but also socio-economic categories that make sense in the context of current policy debates.

Defining Socio-economic Groups: Given the history of affirmative action in India and current debates on the issue, it is imperative that we define categories that capture caste, religion and economic status. Based on the availability of data from the NSSO, seven socio-religious and two economic categories have been defined. SRCs are Hindu scheduled castes (H-SCs), Hindu scheduled tribes (H-STs), Hindu Other Backward Classes (H-OBCs), Hindu upper castes (H-UCs), Muslim Other Backward Classes (M-OBCs)[7], Muslim general (M-G), and other minorities from any religion other than Hindu and Muslims (OMs).[8]

The two economic categories defined by monthly per capita expenditure (MPCE) of the households are: "poor" households having MPCE below the poverty line (PL) and non-poor households having MPCE more than or equal to PL. Poverty lines are taken from the calculations of the Planning Commission of India using the same round of NSS data, separately for urban and rural areas.[9] Given the ongoing discussion on the creamy layer issue, it would be interesting to look at higher education participation within combinations of SRCs and economic categories. Unfortunately, the small sizes of the samples in all the subgroups of different economic categories do not permit such detailed comparisons.

3 Participation in Higher Education: Some Estimates[10]

In this section first, we first discuss the estimates of participation by SRCs and then by economic categories followed by combinations of economic categories and SRCs.

The analysis is based on the 61st round of NSSO that collected information on education and employment of individual household members and household consumption expenditures. This is a nationally representative data collected from 79,306 households in rural areas and 45,374 households in urban areas, i e, a total of more than about six lakh individuals. Average age of population is around 26 years. About 74% of population stays in

rural areas. The average monthly per capita consumption of households is Rs 3,660.[11]

Participation in Higher Education by Socio-religious Groups:
Table 1 provides the estimates of participation for each socio-religious group defined above. Overall, participation in higher education is alarmingly low across all socio-religious categories. A clear indication of the substantial number of students who quit studies after the higher secondary education is the wide gap between the population-based and eligibility-based measures of participation in the relevant age groups.

Table 1: Share of Population in the Relevant Age Group Participating in Higher Education for Each SRCs (%)

SRCs	AGS 20+ Years	CGS 22-35 Years	CGF 17-29 Years (18-25 Years)	AGS: Eligible 20+Years	CGS: Eligible 22-35 Years	CGF: Eligible 17-29 Years (18-25 Years)
H-SC	2.44	3.69	3.52 (4.42)	39.73	43.57	32.17 (38.52)
H-ST	1.66	2.36	3.47 (4.48)	37.69	40.58	41.74 (46.92)
H-OBC	4.41	6.43	4.95 (6.43)	42.13	44.99	28.61 (35.39)
H-UC	15.57	19.77	11.48 (15.57)	57.08	59.23	31.91 (41.72)
M-OBC	2.50	3.31	3.84 (4.96)	37.94	41.35	35.18 (40.72)
M-G	4.09	5.04	4.03 (5.16)	49.10	51.40	35.26 (41.62)
OM	9.07	11.91	7.96 (10.42)	46.44	46.57	27.69 (35.47)
Total	6.70	8.76	6.07(7.92)	49.60	51.50	31.16 (39.11)

(1) AGS - Share of graduates and higher degree holders in the population group above 20 years of age. (2) CGS - Share of graduates and higher educated in the age group of 22-35 years. (3) CGF - Share of currently studying persons at the level of graduation and above in the age group of 17-29 years (and 18-25 years in parenthesis).

As expected, the participation rates are lower than the average for the marginalised groups (SCs, STs, OBCs and Muslims) in all measures of full sample. But for the eligible population, a flow measure of some marginalised groups shows higher participation than average – more than Hindu UCs and other minorities. In other words, an eligible candidate, be she/he a marginalised or a non-marginalised student, has today an equal chance of going to college, and in some cases, the chances are even better for marginalised students. This may be indicative of the fact that being qualified probably has a stronger impact on the marginalised groups to go in for higher education. However, there has in the recent years been a visible improvement in participation among all groups when one compares all generation stocks with current generation stock measures, suggesting a trend towards convergence across all groups. The trend in the improvement of participation by marginalised groups is also apparent when one compares stock measures with the flow measures for the 18-25 years age group.[12]

The other striking feature of the estimates reported in Table 1 is that between 31% and 39% of the eligible population (depending on which age group one uses for the flow measure) is currently studying for higher education. And for no SRC the participation, the rate for eligible population is less than 28%. A participation rate of 31%-39% for the eligible population is quite reasonable for a developing country like India, and cross-country comparisons of participation rates in higher education need to take the differences in eligibility rates into account. Else the comparisons are less meaningful.

Table 2 brings out the deficits across SRCs more sharply. There are deficits in all measures for all SRCs, except upper caste Hindus and other minorities. The differences in participation in higher education across SRCs are more when we compare the measures based on total population. As expected, deficits in participation are less for all SRCs in the flow measure of population than that of any stock measures. In fact, for some of the marginalised groups, the share in eligible population is lower than the share in currently studying population. This again substantiates the fact that once the hurdle of eligibility is crossed, the difference among SRCs in further education declines steadily.

Participation in Higher Education by Economic Categories:
The scarcity of samples for all the poor categories frustrates our attempt to present aggregate estimates of the three participation measures for all the SRCs of poor and non-poor categories. Hence, Table 3 combines SCs, STs, OBCs among Hindus and Muslims as a single "marginalised" group and presents the estimates of that group and all others in the poor and non-poor categories. As expected, for all marginalised groups combined together, participation rates are consistently higher among the non-poor, irrespective of the measure one uses. This applies to other castes as well except for the 22-35 years of stock measure, where participation rate of poor is about twice of that of non-poor. But one should note that the number of observation is lowest in this group and

Table 3: Participation in Higher Education by SRCs and Poverty Status

SRC	20+ Age Group % Graduates Observations in SRC		22-35 Age Group % Graduates Observations in SRC		17-29 Age Group % Currently Studying Observations in SRC	
	Poor (1)	Non-poor (2)	Poor (3)	Non-poor (4)	Poor (5)	Non-poor (6)
Marginalised (%)	0.44	3.44	1.31	5.0	3.26	4.3
No of observations	514	1,93,787	92	80,299	118	77,028
Other castes (%)	9.84	12.41	31.28	15.57	1.27	9.3
No of obs	228	1,50,057	71	59,551	101	58,137
Percentage	3.03	6.7	12.6	8.8	2.7	6.1
Total obs[13]	742	3,44,101	163	1,39,944	219	1,35,256

Due to insufficient observations in most marginalised groups, we combine H-SC, H-ST, H-OBC, M-OBC into a single group named marginalised; H-UC, M-GEN and OM have been combined as other castes.

Table 2: Deficits in Participation in Higher Education by SRCs (%)

SRCs	Share in 20+Age			Share in 22-35Age			Share in 17-29 Age			Share in 18-25 Age		
	Total Population	Graduate Population	Eligible Population	Total Population	Graduate Population	Eligible Population	Total Population	Currently Studying	Eligible Population	Total Population	Currently Studying	Eligible Population
H-SC	17.3	06.3	07.9	17.8	07.5	08.9	18.0	10.4	09.9	18.4	10.3	10.4
H-ST	06.9	01.7	02.2	07.2	01.9	02.5	07.1	04.0	02.9	7.1	4.0	3.3
H-OBC	34.9	23.0	27.0	34.8	25.6	29.3	34.5	28.2	30.1	34.4	27.9	30.4
H-UC	23.9	55.4	48.1	22.9	51.7	44.9	22.1	41.8	41.6	21.4	42.1	40.0
M-OBC	04.4	01.7	02.2	04.6	01.7	02.1	05.0	03.2	02.8	5.1	3.2	3.1
M-G	06.8	04.1	04.2	07.2	04.1	04.1	07.8	05.2	04.6	8.1	5.3	5.0
OM	05.8	07.8	08.4	05.5	07.5	08.2	05.5	07.2	08.0	5.4	7.1	7.9
Total	100	100	100	100	100	100	100	100	100	100	100	100

about 22 of the poor have completed graduate or higher education, which can be considered as outlier among other castes. Another interesting fact is that comparing the marginalised with all other castes, participation rates are consistently higher for the latter across all income-based groups, except for the "poor" of current generation flow measure, where participation of marginalised is higher. This might be an indication that the participation among current generation is showing signs of improvement even among the marginalised groups. But this trend needs to be assessed with data from large samples before any significant conclusions are drawn.

Use of Private Institutions of Higher Education: In the context of privatisation of higher education in recent years, the relevant question is: to what extent does the aspirants' choice of private educational institution depend on the socio-economic group to which he belongs? Table 4 provides some estimates. On an average, about 45% of the persons studying for higher education go to private institutions (aided + unaided). Hindu-ST students, followed by Hindu-SCS, Hindu-UCS and Hindu-OBCS (in that order) rely the most on government institutions (including local municipal bodies). Muslims and other minorities rely more on private institutions. While the private/non-private distinction may not be very difficult to recognise, it is not entirely clear if the respondents in the NSS surveys are able to distinguish clearly between aided and unaided private institutions. Given the possibility of reporting problems (with the respondent not able to clearly distinguish between aided and unaided institutions), it needs to be noted that the use of private unaided institutions is very low among Hindu-STS and quite high among Muslim-OBCS.

Table 4: Distribution of Currently Studying Population in Each SRC by Type of Higher Education Institution (%)

SRC	Government	Local Body	Private Aided	Private Unaided	Not Known	Total	Total Observations
H-SC	58.5	1.3	26.0	11.3	2.8	100	823
H-ST	64.8	6.5	24.0	4.7	0.0	100	301
H-OBC	50.4	1.3	28.3	16.9	3.1	100	2,562
H-UC	54.4	1.3	27.6	15.7	1.0	100	3,446
M-OBC	35.7	0.0	31.5	30.5	2.2	100	322
M-G	49.3	1.1	31.8	16.6	1.2	100	584
OM	33.4	1.7	38.4	24.3	2.2	100	1,168
All	51.8	1.5	28.5	16.2	1.9	100	9,215

Role of Socio-religious Affiliation in Participation

A large variety of factors influence participation in higher education. We have so far looked at only the socio-religious background and some economic factors. It is important to ascertain if socio-religious background continues to be an important determinant of participation in higher education after controlling for location (state, rural/urban), household expenditures, gender and so forth. A preliminary analysis undertaken by the Sachar Committee suggests that, once the effects of location and economic factors are taken care of, the role of socio-religious factors declines dramatically.

In order to explore this, further we analyse two separate models to understand how the chances of a person's participation in higher education depend on various socio-religious affiliations after taking into account the effect of two sets of factors – individual (age and gender) and household (per capita expenditure).[14] Locational differences are dealt with by the use of state dummies, along with separate estimations for rural and urban areas.

The two models allow us to compare the stock and flow measurements of participation as discussed earlier. The flow model is for those currently in the 17-29 age group.[15] It shows how the chances of their enrolment in higher education depend on various socio-religious affiliations, when other possible determinants are also taken into account. In the same vein, the stock model is for those in the 22-35 age group and estimates if affiliation with specific SRCs could increase or decrease their chances of completing graduate or higher courses. Keeping in mind their inherent differences, we have estimated the models separately for rural and urban populations. We have also run separate regressions of the stock and flow models in rural and urban areas for the subset of persons who are eligible to enter higher education.

Table 5 provides the estimates of the flow model for all the four specifications of rural-urban sectors with both the full sample and the eligible sample. The results confirm many relationships that make intuitive sense. All else being equal, the probability of current enrolment in higher education increases significantly with per capita expenditure of households, and in general, men have a higher chance of higher education enrolment than women and the difference is greater when we consider only the eligible population.

Marginal effects reported in Table 5 indicate how the chances of higher education participation differ for different socio-religious groups, vis-à-vis the Hindu-SCS. For the full (eligible for higher education as well as others) sample, Hindu ST and Hindu UC in both urban and rural areas have significantly better

Table 5: Probability of Participating in Higher Education – Probit Estimates

Model: Flow	Specification 1: All Marginal Effects (dF/dx)		Specification 2: Eligible Marginal Effects (dF/dx)	
Variables	Urban	Rural	Urban	Rural
Age	–0.02 (0.00)	–0.00 (0.00)	–0.08 (0.00)	–0.07 (0.00)
Hindu-ST (dummy)	0.06 (0.00)	0.01 (0.02)	0.04 (0.45)	0.12 (0.01)
Hindu-OBC (dummy)	0.01 (0.12)	0.00 (0.56)	–0.03 (0.33)	–0.04 (0.06)
Hindu-UC (dummy)	0.05 (0.00)	0.01 (0.00)	–0.01 (0.83)	–0.06 (0.01)
Muslim OBC	–0.02 (0.07)	–0.01 (0.03)	–0.03 (0.46)	0.05 (0.12)
Muslim – general (dummy)	–0.01 (0.25)	–0.00 (0.79)	–0.05 (0.12)	0.06 (0.25)
Other minorities (dummy)	0.03 (0.01)	0.00 (0.39)	–0.02 (0.59)	–0.00 (0.89)
Gender dummy (male =1)	0.01 (0.00)	0.01 (0.00)	0.06 (0.00)	0.06 (0.00)
Log monthly per capita expenditure (MPCE)	0.10 (0.00)	0.04 (0.00)	0.12 (0.00)	0.11 (0.00)
Household size	–0.02 (0.00)	–0.01 (0.00)	–0.03 (0.00)	–0.02 (0.00)
Observed probability	0.12	0.04	0.34	0.28
Predicted probability	0.07	0.02	0.27	0.22
Number of obs	48,419	86,965	15,613	14,361
Wald chi2(39)	1,955.62	1,720.97	1,396.98	1,161.17
Prob > chi2	0	0	0	0
Pseudo R2	0.21	0.15	0.27	0.21
Log pseudo likelihood	–13,773.86	–11,903.1	–7,278.15	–6,739.85

(1) Estimates of state dummies are not reported here.
(2) The base dummy for SRC estimates is Hindu-SC.
(3) P-values in parentheses. P-value < 0.5 implies significant at 5% level.

chances. The enrolment chances of other minorities in the full sample model is 3% higher than those of the Hindu SCs in urban areas. In rural areas, the difference is not statistically significant. Similarly, in rural areas, the full sample shows that the Muslim OBC participation chances are 1% lower than those of Hindu SCs. For the urban population, as compared to Hindu SCs, the participation chances of the Muslim OBCs are somewhat lower and those of Hindu-OBCs somewhat higher, but the differences are statistically insignificant.

More interesting results emerge once we look at the estimates for the eligible population in specification 2 of the same model. There is no significant difference in the participation prospects of the urban persons for any of the SRCs and the Hindu SCs. For rural people too, the story looks the same except for 12% higher chances for Hindu STs and a 6% lower probability for the Hindu UC over Hindu SC. Finally, none of the Muslim groups in any specification seem to have higher chances of enrolment as compared to Hindu SC, which supports the Sachar Committee report on the conditions of Muslim community.

As we explore the full sample of the stock participation model in Table 6, we find that for most of the SRC groups, chances of becoming graduates are significantly different (in statistical terms) from those of Hindu SCs, except for the urban Muslim-general, rural Hindu OBCs and other minorities. Apart from these exceptions, while Hindu-UCs have higher chances of completing graduate courses than the Hindu SCs in both urban and rural areas, Hindu OBCs, Hindu STs, and other minorities have higher chances only in urban areas; the chances for Muslim OBCs are lower in both the areas.

Table 6: Probability of Completing Undergraduate Degree – Probit Estimates

Model 1: Stock	Specification 1: All Marginal Effects (dF/dx)		Specification 2: Eligible Marginal Effects (dF/dx)	
Variables	Urban	Rural	Urban	Rural
Age	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.75)	0.00 (0.05)
Hindu-ST (dummy)	0.05 (0.04)	-0.01 (0.02)	0.02 (0.72)	-0.04 (0.29)
Hindu-OBC (dummy)	0.05 (0.00)	-0.00 (0.86)	0.01 (0.76)	-0.04 (0.08)
Hindu-UC (dummy)	0.16 (0.00)	0.02 (0.00)	0.10 (0.00)	0.03 (0.27)
Muslim OBC	-0.04 (0.03)	-0.02 (0.00)	-0.01 (0.81)	-0.07 (0.17)
Muslim – general (dummy)	0.02 (0.17)	-0.01 (0.00)	0.03 (0.47)	0.01 (0.87)
Other minorities (dummy)	0.13 (0.00)	0.00 (0.92)	0.05 (0.11)	-0.04 (0.21)
Gender dummy (male =1)	0.03 (0.00)	0.03 (0.00)	-0.04 (0.01)	0.04 (0.01)
Log MPCE	0.26 (0.00)	0.06 (0.00)	0.19 (0.00)	0.19 (0.00)
Household size	-0.03 (0.00)	-0.01 (0.00)	-0.02 (0.00)	-0.02 (0.00)
Observed probability	0.20	0.04	0.59	0.41
Predicted probability	0.14	0.02	0.60	0.41
Number of observations	50,102	89,911	15,711	13,703
Wald chi2 (39)	2,374.22	3,100.19	366.07	326.89
Prob > chi2	0	0	0	0
Pseudo R2	0.22	0.18	0.05	0.04
Log pseudo likelihood	-19,253.23	-13,099.22	-10,078.32	-8,908.87

(1) Estimates of state dummies are not reported here.
(2) Sikkim is left out due to fewer observations.
(3) The base dummy for SRC estimates is Hindu-SC.
(4) P-values in parentheses. P-value < 0.5 implies significant at 5% level.

In the stock model when we consider only the eligible population, the probability differences of becoming graduates narrow down for most of the SRCs. Only the Hindu UCs of urban areas have higher chances than the Hindu SCs by 10 percentage point, others remaining insignificant.

Broadly, therefore, the estimates of the marginal effects presented in Tables 5 and 6 show that Hindu UCs have higher prospects of participation and Muslim OBCs have the lowest among all groups consistently in both the stock and flow models, except for the eligible population of flow model, where Hindu UCs seem to be doing worse than the earlier generations. However, whether the relatively lower position of Hindu UCs in present generation is due to the benefits extended to other marginalised sections through the country's long-standing reservation policy, or due to some other reason may call for more detailed analysis.

However, the marginal effects for SRC dummies reported in Tables 5 and 6 essentially tell us whether the impact of affiliation with different socio-religious groups is significantly different from that of Hindu SC status. This prevents us from directly comparing all the SRCs without using the reference point of the Hindu SCs. It would be more useful to know relative situation of each SRC vis-à-vis other SRCs according to their participation probabilities in higher education, in order to ascertain the relative impact of socio-religious backgrounds. We can get an idea of these relative positions by making pairwise comparison of the marginal effects of different SRCs. Appendix Tables 3 and 4 (p 70) produce the p-values from test of equality of coefficients between all possible pairs of SRCs in the same regression of flow and stock models, respectively. In order to explore the age-sensitivity of the models, the same tables also include the p-values for the test of equality of coefficients of SRCs of the 18-25 age group.

An analysis of the tests of significance of marginal effects reported in Tables 5 and 6 indicates that the difference of marginalised groups with others is less in rural areas as the marginal effects are either negligible or not statistically significant for most marginalised groups. Comparing the stock and the flow models of Tables 5 and 6, it is evident that the differences among SRCs seem to decline considerably over generations, except for the fact that Hindu STs show further sign of improvement in urban full sample and Hindu UCs show a sign of deterioration among eligible sample.

The statistical significance of the differences in the Hindu ST-Hindu UC and Muslim OBC- Muslim-general pairs, as seen in the Appendix Tables 3 and 4, wither away in flow models of both rural and urban areas, with the only exception of rural eligible. Moreover, in urban areas, the statistical significance of the pairs, Hindu OBC – other minorities, Hindu OBC – Hindu SC, and Hindu ST – other minorities disappears too, signifying a reduction in inter-group differences in the current enrolment rate of urban marginal groups.

Overall, the tests of significance show that as we move from stock to flow models, the differences between marginalised groups and others in terms of their chances of participating in higher education decline and are often statistically not significant. This is particularly the case when one considers the population set that is eligible for higher education.

Based only on the differences in the value of the marginal effects of SRCs (disregarding statistical significance of the differences), Tables 7a and 7b (p 68) summarise the ranks of SRCs from each model to help us unravel the hierarchy of participation in higher education by different SRCs. Table 7a presents the rankings of

all urban stock and flow models. Table 7b does the same for rural population. Through this summary we get the ranking of each SRC for each model that we have estimated in terms of their chances to participate in higher education. The ranking reported in Tables 7a and 7b is admittedly crude as it is essentially based on the values of marginal effects and does not adequately take into account of significance of differences (see discussion above). However, it brings out the fluidity of rankings as we move from one specification to the other with different measures of participation, and controlling for eligibility and other factors indicating that the hierarchy of participation is not stable over time.

Table 7a: Probability of Participating in Higher Education –
Tentative Rankings of SRCs from Urban Models

Stock Full	Flow Full	Stock Eligible	Flow Eligible
H-UC (1)	H-UC (2)	H-UC (1)	H-UC (3)
OM (2)	OM (3)	OM (2)	OM (4)
H-OBC (3)	H-OBC (4)	H-OBC (5)	H-OBC (5)
H-ST (3)	H-ST (1)	H-ST (4)	H-ST (1)
M-G (4)	M-G (6)	M-G (3)	M-G (6)
H-SC (5)	H-SC (5)	H-SC (6)	H-SC (2)
M-OBC (6)	M-OBC (7)	M-OBC (7)	M-OBC (5)

Table 7b: Probability of Participating in Higher Education –
Tentative Rankings of SRCs from Rural Models

Stock Full	Flow Full	Stock Eligible	Flow Eligible
H-UC (1)	H-UC (1)	H-UC (1)	H-UC (7)
OM (2)	OM (2)	OM (4)	OM (5)
H-SC (3)	H-SC (3)	H-SC (3)	H-SC (4)
H-OBC (4)	H-OBC (2)	H-OBC (4)	H-OBC (6)
H-ST (5)	H-ST (1)	H-ST (4)	H-ST (1)
M-G (5)	M-G (4)	M-G (2)	M-G (2)
M-OBC (6)	M-OBC (5)	M-OBC (5)	M-OBC (3)

The rankings in urban areas in Table 7a find that Hindu UCs rank at the top in stock models and Muslim OBCs rank at the bottom in both the models. Other minorities and Hindu OBCs, ranking always in that order are placed just below Hindu UCs and above Muslim groups in all specification of urban population. In the rural areas (Table 7b), the full sample of stock gives a ranking with Hindu UCs on top and Muslim OBCs at the bottom. None of the marginal effects are significant in the eligible sample indicating the fact that the inter-group difference is negligible in eligible sample of stock model. In flow model of full sample, the Hindu STs and Hindu UCs rank at the top position, and Muslim OBCs rank at the bottom. The most interesting fact in rural areas is that Hindu UCs rank at bottom and Hindu STs at top in the flow model with both marginal effects being statistically significant.

Comparing the stock versus flow models of Tables 7a and 7b, it is evident that differences of upper castes with marginalised sections seem to wither away over generations in both rural and urban areas, especially in the latter. However, controlling for other effects, unlike in urban areas the differences attributable to affiliation with SRCs were not high to begin with in most rural specifications, except for the flow model of eligible population, and therefore, the transition is more dramatic in urban areas (Tables 5 and 6). Hindu STs seem to have picked up in enrolment when we look at more current generation of 17 to 29 years old

students as compared to the stock of 22 to 35 years old graduates. It ranks at the top having higher probability of current enrolment in both rural and urban areas.

Overall, the inter-group differences in probability of becoming graduates seem to be less in the eligible segment, and that trend is more prominent for urban population[16] Hindu STs seem to be better off among marginalised groups in most specifications and sometimes better off than the Hindu UCs. Hindu OBCs seem to have a higher chance than the Hindu SCs, but the differences do not seem to be statistically significant in most of the specifications. In general, the chances of Muslims are lower than those of the Hindu SCs, but not in all specification. These results may partly reflect the impact of the affirmative action available for STs and SCs in higher education and jobs. Finally, the ranking of different SRCs in terms of the probability of participating in higher education is not stable as we move from stock to flow models and focus only on eligible population, apart from controlling for other individual and household characteristics.

4 Concluding Remarks

Broadly, three issues emerge from this analysis of the National Sample Survey (2004-05) data. One relates to the linkage between affirmative action as practised through reservation policies of the nation and the levels of participation in higher education. Should it be linked to deficits of respective groups? If so, what type of deficits should one go by? According to our analysis, the deficits for Hindu OBCs have not been high and for Hindu-STs have been declining significantly in recent years, particularly when one looks at the currently studying or eligible population (Table 2). The share of Hindu OBCs is 25.6% among the total graduates in the age group 22-35 years. Their share is even higher (28.2%) among the currently studying persons. For Hindu STs, the share of current generation stock of graduates is 1.9%, as against their total share of the same age group – 7.2%. However, their share increases to 4% among the currently studying population, whereas their share in the total population of the same age group is 7.1%.

Moreover, the econometric analysis of the data shows that, once other factors are taken into account, the inter-SRC differences in many cases decline, but some kind of reversal also takes place as the chances of Hindu ST participation in higher education improves, as compared to other marginalised groups in most specifications. In other words deficits for different SRCs undergo a change. For example, Hindu STs show higher probability of participating in higher education when we consider current enrolment – significantly higher than all SRCs, including the Hindu UCs. We certainly cannot conclude from the above data that this is the result of the affirmative action in higher education, but we can surely argue that a better understanding of this "hierarchy of deprivation" is necessary for a more nuanced policy of affirmative action, including reservation.

Second, how should one deal with the issue of eligibility for higher education? Deficits for the underprivileged are significantly lower among the eligible population, even after we take a variety of other factors into account. Thus, once persons from underprivileged groups cross the school threshold, the chances of

their going to colleges are quite high. Clearly, the constraints on school education must first be fully understood and dealt with so as to enhance participation in higher education. Therefore, even while dealing with the issue of participation, should the higher education policy also focus on ensuring that the threshold (schooling) is crossed? Arguably, reservation in higher education is an incentive to cross the threshold, just as job reservation is a great incentive to go in for higher education. Is it adequate? To what extent have these worked? Do we have better options for affirmative action? Should we revise the reservation policies more frequently and be more dynamic so as to give a fillip to higher education participation among the eligible underprivileged?

Three, to what extent should socio-religious affiliations be a focus of affirmative action? Since many other factors other than socio-religious affiliation also influence participation in higher education in a significant way, an exclusive focus on such affiliation for affirmative action seems inappropriate. The importance of economic background and location highlights the role supply-side factors play in higher education participation. It may be useful in subsequent analysis to explore the interaction effects between socio-religious affiliation and other explanatory factors. Among these, the exploration of the role of supply-side factors is particularly important. The ability of the marginalised groups to cross the threshold of school education can potentially be affected by the availability of schools in the vicinity. This paper has not been able to explicitly identify the impact of this factor as data on availability and access to schools was not captured in the NSSO data that is analysed here.

The supply of good quality higher education institutions seems to be critical for another reason. Our analysis has shown that if one takes higher education participation as a whole, the deficits for some marginalised groups are not so high. Therefore, the demand for reservation is at least partly driven by the non-availability of a large number of good quality institutions for higher education. In response to the growing demand for higher education, there has been an increase in the supply of higher education institutions but the quality of these institutions leaves much to be desired (Basant and Mukhopadhyay 2010). At the same time, existing good quality institutions are facing a variety of challenges apart from experiencing quality erosion.[17] The quality distribution of higher education institutions is so skewed in favour of poor quality ones that the demand for admissions in somewhat decently endowed institutions far exceeds the supply. This, in turn, leads to an increase in the demand for reservation. The policy and regulatory challenge is to mitigate this supply gap by ensuring the creation and expansion of higher education institutions of decent quality.

Recent discussions on higher education in India have raised a variety of interesting policy-related issues. Unfortunately, the empirical underpinnings of this discussion have been rather weak. This is not to argue that issues of higher education can only be resolved through empirical analysis, but to suggest that a better understanding of empirical reality would facilitate a more informed debate on the relevant issues. We suggest that, in this context, a more detailed analysis on the lines of this work might be useful.

NOTES

1 Refer to the 93rd Amendment Act of 2005, through which the OBC reservation has been extended to the centrally aided higher education institutions as well. Earlier, the OBC reservation in all government jobs and higher education institutions were recommended in the Mandal Commission report submitted in 1980, which became effective in 1990 through the constitutional amendment.

2 Also see Sundaram (2007) for another study on same line using the 61st round of NSS data, which again uses few simple statistics to explain representation of different social groups in higher education. None of the studies use any probability models or any other econometric models.

3 It has been argued elsewhere, such an affirmative action may lead to under-appreciation of the accomplishments of members of beneficiary communities, whose successes may be attributed to policies of positive discrimination rather than to their own individual characteristics. Relatively poor performance of people from the beneficiary groups can also perpetuate the perceptions about the poor quality of these people, an effect just the opposite of what one would like to have of affirmative action. See Weisskopf (2004: chapter 3), for a comprehensive discussion of the arguments for and against policies of positive discrimination.

4 Barro and Lee (1996) also define the stock and flow concepts.

5 Since the average age of study in undergraduate course in India is 18-21 years, we take the lowest age of current generation stock measure as 22 years instead of 20 years. Also, inclusion of people below 22 years would reduce the share of CGS to a large extent as there are comparatively fewer graduates in that age group. But in case of AGS, we want to capture the graduates across all generations and there are some people who complete graduation as early as at 20 years of age that should not be left out.

6 The question on whether currently studying or not is asked to people below 30 years age.

7 It includes Muslim SC/ST population too, as mandated for the purpose of reservation.

8 It should be noted that the assigned socio-religious affiliation is based on the responses in the surveys conducted by the NSSO. No independent assessment of the validity of these responses was undertaken by the agency. If there are reporting errors in these responses, the estimates would, of course, be affected.

9 That is, Rs 538.60 for urban areas and Rs 356.30 for rural areas.

10 See Basant (2006) and Sundaram (2007) for some earlier efforts in this direction.

11 Refer to Appendix Tables 1 and 2 (p 70) for summary of variables used in different regression models.

12 The reason of current generation stock measures for most SRCs being higher than flow measures for the 17-29 age groups might partly be attributed to the age-sensitivity of the definitions. It may also be due to the fact that CGS measures include the stock of educationally backward students needing longer than average time to complete studies, while considering the age group of 22 to 35. But the CGF measure considering only the population of age 17 to 29 might leave out a portion of educationally backwards.

13 As some people do not answer to caste-related questions, number of observations in marginalised and in other castes do not always sum up to total observations.

14 Inclusion of per capita household expenditure as an explanatory variable in both stock and flow model may cause endogeneity problems. For the stock model, being a higher degree holder increases the scope of higher earnings, causing the household expenditure to increase. For flow model, along with the same logic, current enrolment may also increase household expenditures through educational expenses. However, if we see household expenditure as an indicator of household background, then we may not need to worry about endogeneity.

15 We did estimate the same model for 18-25 years age as well, but the probit results are not much different from the 17-29 groups. However, the P-values for the test of equality of coefficients between all possible pairs of SRCs in the probit model of the 18-25 age group is also provided in Appendix 3 for comparison.

16 Also compare p-values in columns for urban full sample and urban eligible sample in Appendix Tables 3 and 4.

17 See Banerjee and Muley (2010) for a detailed analysis of various challenges faced by institutions of engineering education in India including those of quality.

REFERENCES

Banerjee, Abhijit and Rohini Somanathan (2007): "The Political Economy of Public Goods: Some Evidence from India", *Journal of Development Economics,* 82(2): 287-314.

Banerjee, Rangan and Vinayak P Muley (2010): *Engineering Education in India* (New Delhi: Observer Research Foundation).

Barro, Robert J and Jong-Wha Lee (1996): "International Measures of Schooling Years and Schooling Quality", *The American Economic Review,* Papers and Proceedings of the Hundredth and

Eighth Annual Meeting of the American Economic Association San Francisco, CA, 5-7 January, 86(2): 218-23.

Basant, Rakesh (2006): "Reservation in Higher Education", *Seminar*, 565, September.

Basant, Rakesh and Partha Mukhopadhyay (2010): "An Arrested Virtuous Circle? Higher Education and High-Technology Industries in India" in Justin Yifu Lin and Boris Pleskovic (ed.), *Annual World Bank Conference on Development Economics 2009, Global: People, Politics, and Globalization* (Washington DC: World Bank).

Chakravarthy, Sujoy and E Somanathan (2008): "Discrimination in an Elite Labour Market? Job Placements at IIM-Ahmedabad", *Economic & Political Weekly,* 43(44), 1 November.

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

Deshpande, Ashwini (2001): "Caste at Birth? Redefining Disparity in India", *Review of Development Economics*, 5(1): 130-44.

– (2006): "Affirmative Action in India and United States, Equity and Development", *World Development Report*, Background Paper.

Deshpande, Ashwini and Katherine Newman (2007): "Where the Path Leads: The Role of Caste in Post-University Employment Expectations", *Economic & Political Weekly*, 42(41), 13 October.

GoI (2006): "Social, Economic and Educational Status of Muslim Community of India", Sachar Committee Report presented to Prime Minister's High Level Committee, Government of India, November.

Kirpal, Viney and Meenakshi Gupta (1999): *Equality through Reservations* (Jaipur: Rawat Publications).

NSSO (2004-05): 61st Round Data on Employment and Unemployment Survey, National Sample Survey Organisation, Government of India.

Sundaram, Krishnamurthy (2006): "On Backwardness and Fair Access to Higher Education: Results from NSS 55th Round Surveys 1999-2000", *Economic & Political Weekly,* 41(50), 16 December.

– (2007): "Fair Access to Higher Education Revisited: Some Results for Social and Religious Groups from NSS 61st Round Employment and Unemployment Survey 2004-05", Working Paper No 163, Delhi School of Economics, October.

Weisskopf, Thomas E (2004): *Affirmative Action in the United States and India: A Comparative Perspective* (London: Routledge).

Xaxa, Virginius (2002): "Ethnography of Reservation in Delhi University", *Economic & Political Weekly*, 37(28), 13 July.

Appendix Table 1: Summary Statistics of Full Sample and 22-35 Age Group

Variable	Full Sample					22-35 Age Group				
	Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max
Grad+	5,99,316	0.04	0.19	0	1	1,40,107	0.09	0.28	0	1
Current study	3,54,088	0.02	0.15	0	1	78,295	0.03	0.17	0	1
Age	6,02,839	26.38	18.94	0	115	1,41,092	28.4	4.19	22	35
H_ST	6,02,364	0.07	0.26	0	1	1,40,994	0.07	0.26	0	1
H_OBC	6,02,364	0.35	0.48	0	1	1,40,994	0.35	0.48	0	1
H_UC	6,02,364	0.21	0.41	0	1	1,40,994	0.23	0.42	0	1
M_OBC	6,02,364	0.05	0.22	0	1	1,40,994	0.05	0.21	0	1
M_GEN	6,02,364	0.08	0.26	0	1	1,40,994	0.07	0.26	0	1
OM	6,02,364	0.05	0.23	0	1	1,40,994	0.05	0.23	0	1
Male	6,02,838	0.51	0.5	0	1	1,41,092	0.5	0.5	0	1
Log MPCE	6,02,839	8.00	0.61	0	18.4	1,41,092	8	0.61	0	18.4
Hh Size	6,02,839	5.92	2.84	1	36	1,41,092	5.79	2.96	1	36

Appendix Table 2: Summary Statistics of 17-29 and 18-25 Age Group

Variable	17-29 Age Group					18-25 Age Group				
	Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max
Grad+	1,35,816	0.07	0.25	0	1	92,160	0.06	0.24	0	1
Current study	1,35,475	0.06	0.24	0	1	92,120	0.08	0.27	0	1
Age	1,36,863	22.52	3.61	17	29	92,868	21.39	2.42	18	25
H_ST	1,36,767	0.07	0.26	0	1	92,788	0.07	0.26	0	1
H_OBC	1,36,767	0.35	0.48	0	1	92,788	0.34	0.47	0	1
H_UC	1,36,767	0.22	0.41	0	1	92,788	0.21	0.41	0	1
M_OBC	1,36,767	0.05	0.22	0	1	92,788	0.05	0.22	0	1
M_GEN	1,36,767	0.08	0.27	0	1	92,788	0.08	0.27	0	1
OM	1,36,767	0.05	0.23	0	1	92,788	0.05	0.23	0	1
Male	1,36,863	0.51	0.5	0	1	92,868	0.51	0.5	0	1
Log MPCE	1,36,863	8.05	0.61	3.95	18.4	92,868	8.04	0.61	4.33	18.4
Hh Size	1,36,863	5.85	2.96	1	36	92,868	5.83	2.95	1	36

Appendix Table 3: Flow Models: P-Value -Test of Equality of Coefficients between SRC Pairs of SRCs

Flow Models	P-Value of Regression in 17-29 Age Group				P-Value of Regression in 18-25 Age Group			
Hypothesis: SRC₁ = SRC₂	Urban Full	Urban Elig	Rural Full	Rural Elig	Urban Full	Urban Elig	Rural Full	Rural Elig
H-SC=H-ST	0***	0.45	0.02**	0.01**	0***	0.63	0.06*	0.05*
H-SC=H-OBC	0.12	0.33	0.61	0.06*	0.03**	0.35	0.69	0.05*
H-SC=H-UC	0***	0.83	0***	0.01**	0***	0.86	0***	0.01**
H-SC=M-OBC	0.07*	0.46	0.02**	0.17	0.11	0.42	0.02**	0.3
H-SC=M-GEN	0.25	0.12	0.76	0.25	0.29	0.06*	0.86	0.21
H-SC=O-M	0.01**	0.59	0.36	0.94	0***	0.74	0.45	0.91
H-ST=H-OBC	0.01**	0.15	0.01**	0***	0.03**	0.27	0.04**	0***
H-ST=H-UC	0.8	0.33	0.76	0***	0.55	0.66	0.86	0***
H-ST=M-OBC	0***	0.23	0***	0.21	0***	0.3	0***	0.33
H-ST=M-GEN	0***	0.07*	0.05*	0.32	0***	0.07*	0.13	0.67
H-ST=O-M	0.25	0.3	0.23	0.02**	0.45	0.47	0.36	0.07
H-OBC=H-UC	0***	0.26	0***	0.22	0***	0.12	0***	0.42
H-OBC=M-OBC	0***	0.89	0***	0.01**	0***	0.8	0***	0.01**
H-OBC=M-GEN	0***	0.38	0.58	0.03**	0***	0.18	0.71	0.02**
H-OBC=O-M	0.07*	0.71	0.48	0.22	0.06*	0.6	0.55	0.22
H-UC=M-OBC	0***	0.49	0***	0***	0***	0.31	0***	0.01**
H-UC=M-GEN	0***	0.06*	0.02**	0.01**	0***	0.01**	0.02**	0.01**
H-UC=O-M	0.01**	0.62	0.22	0.07*	0.03**	0.54	0.18	0.11
M-GEN=M-OBC	0.3	0.68	0.18	0.95	0.38	0.54	0.15	0.67
M-GEN=O-M	0***	0.29	0.37	0.28	0***	0.11	0.49	0.23
M-OBC=O-M	0***	0.72	0.01**	0.19	0***	0.58	0.02**	0.31

If P-value shows statistical significance, then the difference between coefficients is accepted. Hence, the coefficients do not seem to be equal at the corresponding level of significance.
***significance at 1% level, ** significance at 5%, * significance at 10%.

Appendix Table 4: Stock Models: P-Value -Test of Equality of Coefficients between Pairs of SRCs

Stock Models	P- Value of Regression in 22-35 Age Group			
Hypothesis: SRC₁ = SRC₂	Urban Full	Urban Eligible	Rural Full	Rural Eligible
H-SC=H-ST	0.04**	0.72	0.02**	0.29
H-SC=H-OBC	0.00***	0.76	0.86	0.08
H-SC=H-UC	0.00***	0.00***	0.00***	0.27
H-SC=M-OBC	0.03**	0.81	0.00***	0.17
H-SC=M-GEN	0.17	0.47	0.00***	0.87
H-SC=O-M	0.00***	0.11	0.92	0.21
H-ST=H-OBC	0.83	0.83	0.02**	0.95
H-ST=H-UC	0.00***	0.1	0.00***	0.06*
H-ST=M-OBC	0.00***	0.63	0.00***	0.63
H-ST=M-GEN	0.25	0.88	0.67	0.32
H-ST=O-M	0.00***	0.56	0.09*	0.97
H-OBC=H-UC	0.00***	0.00***	0.00***	0.00***
H-OBC=M-OBC	0.00***	0.65	0.00***	0.53
H-OBC=M-GEN	0.02**	0.57	0.00***	0.22
H-OBC=O-M	0.00***	0.09*	0.85	0.9
H-UC=M-OBC	0.00***	0.02**	0.00***	0.05*
H-UC=M-GEN	0.00***	0.02**	0.00***	0.61
H-UC=O-M	0.00***	0.03**	0.00***	0.03**
M-GEN=M-OBC	0.00***	0.46	0.01**	0.19
M-GEN=O-M	0.00***	0.54	0.04**	0.27
M-OBC=O-M	0.00***	0.2	0.00***	0.62

If P-value shows statistical significance, then the difference between coefficients is accepted. Hence, the coefficients do not seem to be equal at the corresponding level of significance.
***significance at 1% level, ** significance at 5%, * significance at 10%.