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Action in Higher Education: A Preliminary Analysis*

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Parental Education as a Criterion for Affirmative Action in Higher Education***A Preliminary Analysis¹***

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Affirmative action, especially in the form of reservation policies, to address the issues of inclusion and equity has been in place in India for a long time. Through these policies higher participation of the marginalized groups is sought in the political, educational and work related domains. Over the years the scope and coverage of these reservation policies has been enlarged through the inclusion of new social groups and by incorporating new 'spaces' hitherto not available to certain social groups. The available evidence suggests that that the policies of reservation have not been an unqualified success. Besides, policies that were perceived as temporary have not only persisted but grown. Apart from uneven participation of marginalized groups in the three domains, recent studies have highlighted three developments that suggest a rethink on affirmative action (read reservation) policies in India: (1) The social hierarchy and conditions which formed the basis of affirmative action are undergoing a change in India; (2) Several issues have come up in the implementation of the reservation policies; and (3) Recent empirical studies have identified more robust measures of participation in higher education by different social groups and have provided some new insights on the determinants of differentials in such participation. Given this broad context, the paper explores if criteria other than caste and community can be used to form the basis for affirmative action. More specifically, we explore if parental education is an appropriate criterion for this purpose.

¹ This is an extensively revised version of the paper presented at a conference on Higher Education at the Center for Policy Research, New Delhi during July 28-29, 2011. The paper is a result of the research undertaken as part of the long term programme on higher education at the Observer Research Foundation, New Delhi.

1. Introduction

Affirmative action, especially in the form of reservation policies, to address the issues of inclusion and equity has been in place in India for a long time. Through these policies higher participation of the marginalized groups is sought in the political, educational and work related domains. Over the years the scope and coverage of these reservation policies has been enlarged through the inclusion of new social groups and by incorporating new 'spaces' hitherto not available to certain social groups. For example, while reservation in both educational and work related domains was available for scheduled caste (SC) and scheduled tribe (ST) persons, the higher education space has been incorporated for the other backward classes (OBCs) only recently. Similarly, while reservation in the employment domain was introduced for SCs and STs fairly early, OBCs were included at a much later stage. Over the years, several castes and communities have been added to the reserved lists of each category at the Central and state levels. The issue of reservation remains politically very alive even today.

It is important to analyze the role of affirmative action in different domains *together* so that the linkages across key domains of affirmative policies can be explored. As an underlying process, higher participation of specific segments of population in one domain (e.g., politics) may influence participation in other domains. However, capturing the dynamics of these linkages empirically is difficult as participation in different domains may interact in myriad ways over a period of time. A recent study that pooled together data on the impact of reservation in different spheres threw up some interesting patterns (Sahoo, 2009). Participation of marginalized social groups (especially SC, ST) in public employment is good only in select departments of civil services, while the overall participation leaves much to be desired. In the domain of education also, the participation of reserved groups is not very encouraging. However, in the political domain, participation of the reserved categories is much better; in a few cases the extent of participation of SCs and STs is more than their stipulated quota. Moreover, the rates of participation are significantly higher at lower levels of governance.

One can argue that reservation in the political domain is likely to be more effective as there is no formal pre-requisite or a threshold qualification to participate in the political processes. This is not the case for job reservation or reservation in higher education where eligibility criteria can be stringent which not many persons from the reserved category may be able to satisfy. The facilities, effort and resources required to finish school or become a graduate are beyond the reach of most marginalized groups in the country. What is intriguing is that higher participation in the political domain does not seem to translate *automatically* into higher participation in work and education domains. The links seem to be more complex and need to be unraveled. To some extent, job reservation and quotas in higher education for the OBCs are a reflection of their increasing political participation and clout. Some years down the line one might find their participation in higher education and regular jobs to be significantly higher than what it is today; a tendency that can be observed in some of the southern states, especially Tamil Nadu. But will this happen automatically? Will it require significant public investments in school education to make the marginalized groups “eligible” to benefit from reservation policies?

At the same time, demands for preferential treatment can be a reflection of the ‘rise of newly educated and upwardly mobile’ groups (Sowell, 2004: 19). Such a hypothesis seems consistent with the demand for preferential treatment by OBCs along with the fact that while quotas for state sector jobs and admissions in higher education have often remained unfilled for SCs, this has rarely been the case for OBCs (Galanter, 1985: 64). Similarly, a significant expansion in college and school enrollment was observed for Maharashtrians prior to the demand for preferences in government jobs and higher education.² Consequently, in one instance, lack of eligibility may reduce the efficacy of affirmative action, while in the other, the demand for higher preference may reflect the increasing trends in eligibility for the relevant population segment.

The available evidence suggests that that the policies of reservation have not been an unqualified success. Besides, policies that were perceived as temporary have not only persisted but grown. One can, of course argue that the conditions would have been worse without reservation but in the absence of a clear counter factual it is difficult to

² See Weiner and Katzansenstein (1981) quoted in Sowell (2004: 19). Sowell refers to similar patterns for Sinhalese in Sri Lanka and for the Malays in Malaysia.

ascertain the validity of this argument. Do we need to rethink the scope and nature affirmative action policies? At the core of the affirmative action policies was the attempt to ameliorate the social conditions of the marginalized groups who have lived with social stigmas for centuries. Higher participation in the three domains – employment/economic, education and politics – can potentially ameliorate social inequalities over time. Apart from uneven participation of marginalized groups in the three domains, recent studies have highlighted three developments that suggest a rethink on affirmative action (read reservation) policies in India:

- The social hierarchy and conditions which formed the basis of affirmative action are undergoing a change in India;
- Several issues have come up in the implementation of the reservation policies; and
- Recent empirical studies have identified more robust measures of participation in higher education by different social groups and have provided some new insights on the determinants of differentials in such participation.

Given this broad context, the paper explores if criteria other than caste and community can be used to form the basis for affirmative action. More specifically, we explore if parental education is an appropriate criterion for this purpose. The rest of the paper is divided into six sections. Section 2 provides a brief discussion of the debates on the emerging role of the stratification of Indian society. Issues relating to the implementation of existing reservation policies in higher education are summarized in section 3. Section 4 undertakes a brief review of the recent studies on the participation in higher education in India. Section 5 forms the core of the paper wherein the role of different factors in determining participation in higher education is analyzed. It discusses the analytical framework to explore the role of various factors, the data sets used and the results of the econometric analysis. The main focus of this exercise is to ascertain empirically the impact of parental education on the participation in higher education. The final section discusses the policy implications of our findings.

2. Caste and Social Stratification

Desai and Dubey (2011) provide an insightful summary of the different narratives on the role of caste in the 21st century India. They suggest that while there remain differences across castes in a variety of 'behavioural markers', it is far from clear if this 'differentiation translates into social hierarchies in modern India'. Besides, the salience of some of these behavioral markers is also on the decline (Desai and Dubey, 2011: 41).

Moreover, the link between caste and occupation has weakened considerably in the post-independence period. The decline of traditional crafts, changes in land ownership (with the lower castes getting some access to land), decline of the jajmani system, migration and reservation in government jobs have resulted in the under-privileged castes to move towards the non-traditional occupations and some improvement in the relative position of dalits in recent years (Desai and Dubey, 2011, Kapur et al, 2010). The issue of other backward classes (OBCs) is even more complicated as it is a very heterogeneous category and one can argue that most of the groups included in this broad category did not suffer the same kind of social restriction, stigmatization and systematic discrimination that the dalits did. Detailed data on consumption, employment etc. for OBCs vis-à-vis other groups also suggest they are economically much better off than the dalits (See, Shukla, Jain, Kakkar, 2010).

In the case of dalits (as well as adivasis), the political participation has been on the rise. In fact, according some measures they may be more actively engaged than the forward castes (Desai and Dubey, 2011, Kapur et al, 2010, Sahoo, 2009). There is also some evidence of decline in the social inequality as reflected in a variety of situations of social intercourse (Kapur et al, 2011). For OBCs, rise in political participation has been observed for some time. Despite all these developments, as Desai and Dubey (2011) argue, the inequalities in opportunities and in outcomes remain important from public policy perspective. However, the relationship is not as simple as 'inequality in outcome in one generation may lead to inequality in opportunity in the next' (Desai and Dubey, 2011: 41).

There is recognition that inequalities across social groups are multi-dimensional and difficult to capture empirically. Recent empirical evidence on different dimensions seems to suggest that while there is a decline in the caste based hierarchies with significant increase in the participation of marginalized groups in social and political spheres, economic and educational disparities continue to persist among caste groups. Even after controlling for various socio-economic variables, SC/ST children have lower levels of skill development. (Desai and Dubey, 2011; Shukla, Jain, Kakkar, 2010).

3. Issues in Implementation of Reservation Policies

Sowell (2004) provides an excellent review of affirmative policies in different parts of the world, including India. He identifies a variety of implementation issues that are common across nations. Building on his insights and of Galanter (1984), we list below a few salient ones which seem to be particularly relevant for India.

- Identification and the designation of preferred groups require very detailed knowledge of various population groups. In the case of India, one would require detailed information on the degree of stigmatization, discrimination and social, economic and educational backwardness. Information requirements for deciding sub-quotas within quotas for the most marginalized groups are probably even greater. Such information is very difficult to get and analyze.
- In the case of India, there is an added problem. The same caste may be scheduled in one state and may not be in another, causing a challenge to the implementation of constitutional rights.³ There lies a problem of ‘in-migration’ and ‘out-migration.’ The former refers to a person who is not scheduled in his original state of residence, but moves to a state, where his caste is scheduled; and the latter referring to a member of a scheduled community who moves to a city where he is

³ “A postal clerk residing and working in Orissa was a member of the Konda Kapus, a group listed as a Scheduled Tribe in neighboring Andhra Pradesh but not in Orissa. After being appointed to a higher post against a reservation for Scheduled Tribes, he was reverted on the ground that Konda Kapu was not a Scheduled Tribe in Orissa where he was a permanent resident. He argued that he should be accounted a Scheduled tribe anywhere for purposes of central government employment, since central legislation clearly outlawed state residence requirements for central government jobs.” Galanter (1993: 139).

not scheduled anymore. The same or even more complexities arise in the case of OBCs, as they are the 'class' to be decided by the local authority.

- Once categories of the preferred groups for affirmative action are spelt out, there is demand by different groups to be *designated* as a part of the preferred categories.⁴ There are also efforts to be *re-designated* as a member of the preferred category.⁵
- The efficacy of reservation policies is lowered by the fact that the preferred groups, especially the least advantaged among them do not have access to complementary resources, like money, good educational background or even an environment at home to effectively use the preferences and quotas.
- Given the need of complementary resources, the more prosperous of the preferred groups often get the lion's share of the benefits. This has been referred to as the 'creamy layer' issue in the Indian debates.
- Legal interpretation of the affirmative action provisions have also brought out interesting issues for implementation. Galanter's (1984: 455-463) insightful discussion of the court cases suggests that the issue whether reservation should be seen as '*guaranteed minimums*' or '*over and above*' those obtained by merit is still to be resolved legally. While the former interpretation makes the reservation policy self-liquidating, the latter not only perpetuates it but also enhances the effective levels of reservation.⁶ Consequently, the way in which the provision of reservation is interpreted in law can have significant impact on the availability of seats in the general quota, especially when upwardly mobile preferred group participants are able to compete effectively with other groups.
- The possibility of differentiated treatment of groups *within* the larger preferred group has also seen some legal ambiguity. Can the State make separate reservations for component parts of the preferred group? Is it possible to designate a layer or the compartment of the preferred group to receive more preferences or to have a first call on limited preferences (Galanter, 1984: 463)? There does not seem to be a definitive pronouncement on the constitutional validity of compartments

⁴ The inclusion of OBCs for reservation in employment and subsequently education is part of such a process. Attempts by several groups in different parts of India are under way to get designated as OBCs.

⁵ Sowell (2004) quotes several cases in India where people who were not born untouchables but got re-designated as untouchables through adoption! For example, at one time in Rajasthan, 16 of the 28 legislators holding seats reserved for untouchables had acquired certificate of untouchability by being adopted. This method of adoption is also used to get admission in medical and engineering colleges. (Sowell 2004: 34).

⁶ Galanter (1984: 455-463) provides a very useful discussion of the pros and cons of the two methods of interpreting the law.

and layers.⁷ An undifferentiated treatment of the preferred group would result in the more resourceful among them garnering bulk of the benefits. But the information needs for creating layers or compartments are extremely high and in such a situation, as Galanter (1984: 472) argues, the main danger would be that designated layers/compartments would not reflect the relative needs of the various groups but their political power to get an arrangement favourable to their interests.

- Finally, a fall out of reservation policies has been that it is increasingly seen as a competition between preferred and non-preferred groups. In most situations in India, these policies have only resulted in a marginal impact if one looks at it in the economy wide perspective. For example, reservation policies are effective only in the state sector. Jobs and higher education institutions in the State sector increasingly form a small share of the overall availability in the economy as a whole. However, even ‘minor transfers’ of benefits to the preferred group results in ‘major resentment’ among the non-preferred group. And this resentment not only results in political or legal action but more violent protests.⁸

Overall, apart from the legal problems of interpretation and political ramifications, implementation of the reservation policies in India requires information that encompasses sociological, anthropological and economic dimensions. Such information is not only problematic to collect but also difficult to interpret even for a social scientist ‘skilled in the art’. Even when, reservation is seen as the most appropriate policy instrument for affirmative action, can one find a simpler way of dealing with such a policy instrument? We shall revert to this question later.

4. Participation of Marginalized Groups in Higher Education: Insights from Some Recent Empirical Explorations

In a recent paper we (Basant and Sen, 2010) have argued that measures of participation in higher education need to be more nuanced than what have been used in recent years. The first distinction that needs to be made is between *attainment* and *enrollment*. 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*

⁷ See, the detailed discussion various cases in Galanter (1984: 463-472)

⁸ Admittedly, such resentment is partly due to the fact that some of these jobs and higher education institutions are most coveted among the available options.

for graduation or higher courses. In addition, while attainment is a *stock* measure and carries the 'burden of history', enrollment is a *flow* measure that captures the current situation and provides indications for the future. We, therefore, recommended three measures for any population segment:⁹

1. Share of graduates and higher degree holders in the population group above 20 years of age, which characterizes an *All Generations' Stock (henceforth, AGS) measure* of participation in higher education; a higher share signifying higher participation.
2. Share of graduates and higher educated in the age group of 22 – 35 years provides the *Current Generation Stock (henceforth, CGS) measure*.
3. Share of currently studying persons at the level of graduation and above in the age group of 17 – 29 years provides a *Current Generation Flow (henceforth, CGF) measure* of participation in higher education.

It was also argued that while measuring deficits, using any of the above definitions it is useful to consider the *eligibility* for participating in higher education. Eligibility requirement for enrollment in an under-graduate course is 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 defined for eligible population. A sharper focus on the eligible population brings the links between secondary and tertiary education explicitly into the analytical discussion.

Analysis of the National Sample Survey (2004-05) data, using these measures brought out the following useful insights (For details, see Basant and Sen, 2010):

- The deficits for Hindu OBC and to some extent Hindu ST are not very high, particularly when one looks at the currently studying or eligible population. In fact, the share of Hindu OBC was 25.6 percent among the total graduates in the age

⁹ For all these measures, if one compares a group's share in the population of the relevant age group with its share in the number of graduates (or studying population), one can compute 'deficits'. Broadly, if the population share is higher than the share in graduates, the group suffers from a 'deficit' in terms of participation.

group 22-35 years; their share is even higher (28.2 percent) among the currently studying persons.

- The econometric analysis of the data showed that once other factors are controlled for, inter-group differences decline in many cases and some kind of reversal of hierarchy takes place. For example, the probability of Hindu ST and Hindu-OBC participation in higher education becomes higher than other marginalized groups in most specifications.
- Eligibility turned out to be a critical factor for participation in higher education. Deficits for the under-privileged groups are significantly lower among the eligible population, even after we control for a variety of other factors. Thus, once persons from under-privileged groups cross the school threshold, the chances of their going to college are quite high. This suggested that a better understanding of the constraints on school education is critical if participation in higher education is to be enhanced.
- Subsequent analysis highlighted the role of the supply side factors in affecting the participation of various groups in higher education presumably through the process of enhancing eligibility.

In the empirical exercises undertaken by us, we have not so far been able to explore the role of parental education in the participation in higher education. There is evidence to suggest that educated parents invest more in their children's human capital. Also the children of educated parents perform better. These relationships remain robust even after controlling for various household, school and community/location characteristics. There is also some evidence to show that perceived returns to education are higher for children of educated parents.¹⁰ Given such evidence, one would expect the participation in higher education of children of educated parents to be higher than those whose parents are uneducated. Since exposure to education seems to affect future investments and insofar as lower participation in education by some social groups is seen as a result of the perceived low returns to education, parental education can potentially be a focus of social policy. In this paper we explore the empirical foundations of such a policy option.

¹⁰ See Brown (2006) for a recent review. For example, Behrman et al (1999) find that in India literate mothers spend more time with their children than illiterate mothers even after controlling for work force participation.

4. Exploring the Role of Parental Education on Participation in Higher Education

Exploration of this kind requires an appropriate data set with information on parental and children's education profiles along with data on other variables that can potentially affect participation in higher education. These variables can relate to the individual, household and location characteristics.

The Data and Variables

The main challenge for exploring this relationship is the availability of data. The National Sample Surveys conducted by the National Sample Survey Organisation (NSSO) of the Government of India typically collect some individual and household level information, such as age, sex, education level of each member in the family, household expenditure, state of residence and so on. These surveys do not provide any direct information on one's parent's education. Instead, the information that the data has is about *education level of household heads, and relation of each member of household to the heads*. Hence, we try to generate the parents' education variable from the above information for all the children of household head. Since the parents' education variable will have missing values for members other than children of household heads, we leave 'other' people of the household out of the sample, as they are neither sons nor daughters of household head. Since, education levels of their parents are not available for those 'others'; we construct a new, pruned data set with only the children of household heads.

This exercise is done with the data-sets of the three most recent rounds of the National Sample Survey Organization's of Unemployment and Employment Surveys: 55th Round (1999-2000), 61st round (2004-05) and 66th Round (2009-10). As the name of the rounds suggests, these surveys collect detailed information on employment and unemployment and the sample design is the same. The 55th round of data surveyed a combination of 71,417 rural and 49,161 urban households, adding to a total of 1,20,578 households, enumerating 5,95,529 persons in total. The 61st round of data surveyed 79,306 rural and 45,374 urban households, summing up to 1,24,680 households across the country, enumerating 6,02,833 people in total. The 66th round

of data surveyed a sample of 59,129 rural and 41,828 urban households with a total of 1,00,957 across the country, enumerating 4,59,784 persons in total. After 'pruning' these data-sets by limiting among children of household heads, the three rounds have a sample sizes of 2,56,525, 2,56,155, and 1,91,161 persons respectively.

Issues Relating to Sample Bias

As the data created this way loses the randomness and includes only the observations who are children of household heads, one should take certain precautions while interpreting this data. The hypothesis of this study being the effect of socio-religious affiliation on HE participation and the robustness of the role of parents' education on HE participation, the primary factor of skepticism arises from the distribution of SRCs in the truncated data where we are considering only those persons who stay with their parents. However, as we look at the summary statistics provided in the Appendix Table 1, we can see that the sample of the truncated data set does not have a very high divergence from the full sample. The distribution of SRCs in the truncated data matches closely to the distribution of individual years' data.

Most of the other variables of interests also behave in the same manner, except for the age and sex composition of the sample population. The average age of persons in the truncated data for different years, for example is in the range of 13-14 years as against 25 to 28 years in individual years in the full sample. This is due to the data construction methodology, which includes children of household heads only, reducing the average age. Similarly, the truncated data has more males than females. Each of the individual years' data set has about 51-52 per cent share of males, whereas, the truncated data has their share to be in the range of 59-61 per cent. This implies that heads of households have more male children living with them as compared to female children. This is true in any typical Indian households, where girls are married off after certain age and the average age of population is below 30 years. Hence, instead of looking at the total population, if one looks at the selected sample of children of household heads, one can expect higher share of males in that sample. The fact to be noted here is that we are not counting the daughters in laws staying in the same households, which could have compensated the 'loss' in female's share in the data set.

Since the NSS data provides information on parents and their adult children only if the two generations are co-resident in the same household, it raises selection issues as co-resident households maybe special and have characteristics that differ systematically from other households. However, co-resident households are the norm in India and a majority of households tend to co-reside.¹¹ Also co-residence patterns have not changed too dramatically during the period under study. Hence the representativeness of the sample under this identification should have remained comparable across rounds.

Defining Socio-religious Categories

As in the earlier exercise (Basant and Sen, 2010), we combine caste and religious status of individuals to derive seven broad Socio-Religious Categories (SRCs). These are: Hindu Scheduled Caste (SC), Hindu Scheduled Tribe (ST), Hindu Other backward Classes (OBC), Hindu Upper Caste (UC), Muslim OBC, Muslim General and Other Minorities. Due to paucity of representation from religious backgrounds other than Hindu and Muslim, we combine observations from all other religions to one group, that is, other minorities. We estimate the effect of one's socio-religious affiliation on the HE participation; with the hypothesis to test if parental background acts as a robust determinant as well, reducing the effect of one's socio-religious affiliation.

Other Determinants of Participation in Higher Education

Following Basant and Sen (2010), through our econometric exercise, we control for the impact of the following variables on participation in higher education (the probability

¹¹ A recent paper has shown that in the NSS sample, across the rounds, on average, about 62 percent of all sampled households were characterized by multiple adult generations co-residing, i.e., parents/parents-in-laws living with their adult children. Importantly, this fraction of co-resident households has also remained quite stable across the rounds. This stable trend is in contrast to the conventional view that the nuclear family is becoming more and more the norm in India as the economy is growing and modernizing. Joint households are even more prevalent in rural areas where the majority of India still resides. Hence, in the Indian context, drawing inferences from samples that are predominantly from nuclear households is arguably more problematic due to its unrepresentative nature. (Hnatkovska, et al , 2011)

of participating in higher education), while we focus on the relative impact of parental education and the SRC affiliation:

Household size – number of household members

Age of the individual – number of completed years

Gender – Dummy (male vs. female)

Location – Dummies for each state (Estimations done separately for rural and urban areas)

Per capita household expenditure - logarithm of Monthly per capita household expenditure (hence forth, log mpce)¹²

Apart from these variables and SRC status, the key variable of interest in this paper is parents' education which has been generated from the education level of the household head and his wife, and has been tracked to their children through the variable explaining each individual's relation to the household head. There are four categories representing parents' education:

Parental education – implemented as three dummy variables using four categories namely all parents who never attended any school (Non-literate parents), parents who attended school but completed education up to secondary or anything below that level (Secondary or below), parents, who completed higher secondary education (HS) and parents who completed graduate level of education or anything above that (Completed Graduate).

As in the case of Basant and Sen (2010), we test both the stock and flow definitions of participation in higher education. The *stock* definition of participation includes all people between 22 to 35 years of age. This binary variable for measure of HE participation, takes a value of one if the person has already completed graduate or above level of study, else, it assumes a value of zero. The *flow* definition includes all people between 17 and 29 years of age. It is also generated as a binary variable,

¹²Household expenditure is found to be a good proxy for income in developing countries. The conversion to natural logarithm smoothes out the skewness of its distribution at both ends.

assuming a value of one for being currently enrolled in graduate and above level of education, and zero otherwise.

The probit model estimates are done for both the stock and flow models, estimated separately in urban and rural areas, divided into full sample population and eligible sample population. We also use other individual level variables, such as age, sex; household level variables, such as household expenditure, household size; and location variable such as state of residence as tools to control for their effects on HE participation.

Empirical Results and Discussion

Table 1 presents, for the three NSS rounds, the percentage of persons participating in higher education for each SRC, separately for the three measures AGS, CGS and CGF and for full and eligible samples. The estimates show some interesting patterns:

Table 1: Share of Population in the Relevant Age Group Participating in Higher Education for Each Socio Religious Category

SRC	AGS(20+ years)			CGS(22-35)			CGF(17-29)(18-25)		
	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10
H-SC	2.46	2.47	3.94	3.61	3.74	5.57	2.48 (3.28)	3.59 (4.52)	6.43 (8.73)
H-ST	1.71	1.65	2.67	2.11	2.34	3.53	2.97 (4.06)	3.42 (4.41)	4.23 (5.83)
H-OBC	3.65	4.39	6.37	5.22	6.39	9.62	3.49 (4.53)	5.00 (6.49)	10.38 (13.98)
H-UC	14.16	15.25	18.49	17.69	19.29	24.42	9.58 (13.0)	11.24 (15.28)	18.15 (24.75)
M-OBC	2.30	2.48	4.04	2.97	3.26	5.42	2.12 (2.70)	3.92 (5.03)	6.15 (8.02)
M-G	3.79	4.14	4.25	4.80	5.09	4.97	3.05 (3.93)	4.09 (5.28)	6.26 (8.49)
OM	9.46	9.03	11.78	12.40	11.89	16.12	8.04 (10.76)	8.00 (10.48)	13.64 (18.04)
Total	6.46	6.60	8.53	8.25	8.62	11.42	5.03 (6.65)	6.07 (7.88)	10.44 (14.06)
	AGS: Eligible (20+ yrs)			CGS: Eligible(22-35 yrs)			CGF: Eligible(17-29 years)(18-25 years)		
H-SC	50.61	39.85	45.24	52.81	43.67	49.1	32.29 (40.03)	32.25 (38.64)	42.81 (50.89)
H-ST	41.27	37.67	34.96	39.17	40.56	35.95	40.42 (47.88)	41.71 (46.41)	33.56 (42.81)
H-OBC	50.19	42.18	44.47	50.62	44.88	48.41	29.91 (37.25)	28.86 (35.67)	40.11 (48.34)
H-UC	63.90	56.68	57.01	64.65	58.50	59.40	33.80 (43.66)	31.55 (41.34)	41.05 (50.76)
M-OBC	47.96	37.70	45.59	48.89	40.94	48.36	29.20 (33.77)	36.09 (41.43)	40.55 (45.70)
M-G	53.15	49.07	42.05	54.66	51.17	44.58	32.88 (40.31)	35.40 (41.99)	43.46 (51.35)
OM	62.24	46.42	50.19	61.53	46.62	52.06	35.12 (42.95)	27.89 (35.70)	36.81 (44.70)
Total	58.54	49.33	50.13	58.68	51.04	52.71	32.97 (41.56)	31.13 (39.07)	40.42 (49.07)

- In the full sample (both stock and flow estimates), the participation in HE has gone up for *all SRCs* during the 1999-2010. However, Hindu UC continues to have the highest participation rate, and Hindu ST and Muslim OBC seem to have the lowest participation according to most estimates across years;
- One expected that the current generation flow estimates (CGF) of participation in HE would be consistently higher than the stock estimates but that is not the case. However, as expected, the current generation stock estimates (CGS) are higher than the all generation stock measure (AGS). One of the possibility is the age sensitivity of the CGF estimates; these estimates for the 18-25 age group show the expected trend more often than the estimates for the age group 17-29 years¹³;
- Among eligible sample the trend is not so uniform and it is difficult to ascertain the reasons for the same. The flow estimates suggest that participation in HE has gone up for most of the groups in the eligible samples;
- As was observed in Basant and Sen (2010), in all years the differentials across SRCs decline dramatically when we move from total to the eligible sample. For example, in the 2009-10 the highest estimate of CGF is 24.8 per cent for Hindu-UC and the lowest is 5.8 per cent for Hindu-ST; the highest rate of participation being about 4 times that of the lowest. But the participation estimates among the eligible population do not differ that much; the highest 50.9 per cent (Hindu-UC) is not even double of the lowest 42.8 per cent (Hindu-ST)

Table 2 presents the estimates of percentage of children who are either graduates or are currently enrolled for HE by the educational attainment of their parents. The participation of children in HE increases with the education of children; in 2009-10, the less than 2 per cent children of parents who are non-literate were currently enrolled in HE while this percentage was about 15 per cent for parents with a graduate degree. Obviously, if one computes these percentages for the relevant age cohorts of children who can participate in higher education, these estimates would be higher. The other trend worth noting is that participation in HE of children has risen

¹³ In our estimation we have used the 17-29 age group for the simple reason that the NSS collects data for the currently studying population for this age group. Given the possibility of misreporting of age data, we did not wish to miss out on the people who are currently studying. However, by doing so the estimates reported in Table 1 are likely to be underestimates as there is less likelihood of people being in college at 17 years and beyond 25 years.

for all categories of parental education during 1999-2010; for illiterate parents, the estimates of children who are currently studying for HE has gone up from 0.4 in 1999-2000 to 1.9 in 2009-10.

Table 2: Participation in HE by Parents' Education

Parents' Education	Percentage who have completed Graduate education or above			Currently Enrolled in Graduate education or above		
	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10
Not Literate	0.6	0.7	1.2	0.4	0.7	1.9
Sec & Below	3.1	3.0	3.7	2.2	2.6	4.6
Higher Secondary	7.3	7.8	9.6	6.5	7.3	12.1
Grad & Above	12.5	12.8	14.0	10.6	11.7	15.1
All	2.7	2.9	4.0	2.1	2.6	4.9

The distribution of parents by their education for each SRC (Table 3) shows that in 2009-10, Hindu ST children had highest percentage of illiterate parents, followed by Muslim-OBC and Hindu SC children, at 49, 46 and 45 per cent respectively; this percentage was only about 17 per cent for Hindu UC parents. While the percentage of illiterate parents has declined during 1999-2010 period, the relative position of different SRCs has remained more or less the same over the years with Hindu-SC having the worst situation and Hindu-UC the best. With regard to the higher education of parents, as expected, Hindu upper caste parents have highest percentage completing higher education, with the lowest being among Hindu ST and Muslim-OBC being worse than Hindu-SC for the most recent estimate of 2009-10.

Table 3: Percentage Distribution of Parents by Education for Each Socio-religious Category (SRC)

Parents' Education	HSC	HST	HOBC	HUC	MOBC	MGEN	OM
1999-00:							
Not Literate	56.31	63.16	43.81	21.50	50.57	46.68	35.03
Secondary & Below	38.9	33.43	49.55	57.77	45.57	47.59	54.73
Higher Secondary	2.32	1.68	3.52	8.1	2.13	2.92	3.58
Graduate & Above	2.47	1.73	3.13	12.63	1.73	2.81	6.65
All	100	100	100	100	100	100	100
2004-05:							
Not Literate	50.65	59.31	38.89	18.58	47.15	30.79	39.54
Secondary & Below	43.84	36.91	51.95	57.12	47.1	54.9	49.70
Higher Secondary	3.02	2.53	5.25	10.59	2.94	7.40	5.43
Graduate & Above	2.49	1.25	3.91	13.71	2.80	6.92	5.33
All	100	100	100	100	100	100	100
2009-10:							
Not Literate	45.01	49.20	32.65	16.37	46.23	41.49	26.23
Secondary & Below	47.43	44.54	56.21	54.21	47.87	50.73	57.16
Higher Secondary	4.16	4.22	12.45	6.17	2.77	4.18	7.56
Graduate & Above	3.41	2.04	16.96	4.97	3.12	3.61	9.05
All	100	100	100	100	100	100	100

The Probit Estimates

The probit estimates of the stock model run separately for rural and urban areas are presented in Appendix Table 2a. The results show that in general, the difference in probability of participation of all SRCs against Hindu SC is much less in rural areas as compared to urban areas, and marginal effects lose statistical significance when one considers the *eligible* sample (vis-à-vis the full sample). The other key result of our earlier exploration that participation increases with household per capita expenditure also gets replicated. Besides, household size seems to reduce participation in most specifications.

However, one interesting result to be noted here is that after controlling for other factors, the chances of women participating in higher education are higher than that of men. Female children of household heads seem to have better chance of HE participation than male children. In this respect one should remember the sampling distribution of males and females in the truncated sample as against the full sample for each NSS round. We had noticed that on average the sex ratio is in favour of males in the truncated sample as compared to the full sample. In a separate calculation of summary statistics (not presented with this text) for both the age groups of our interest, that are, between 17-29 years and 22-35 years, we found that the share of male children is much higher as compared to the females in the truncated sample, for reasons explained earlier. The female children of the household heads of the above two age groups, who got to stay back in the households are likely to have reasons for not being married off at that typical Indian 'marriageable' age. Their participation in higher education for acquiring skills to provide them with better career options might have driven them to stay-off from the marriage market. Hence, if one compares the male children and female children of the same 'marriageable' age, the female stayed back in the household must be having a higher chance of participation in HE as compared to their male counterparts.

The results of all stock models show that parents' education is a significant factor in children's educational participation. The marginal effects of parents' education are highly positive and significant. More interestingly, the impact of parental education increases dramatically as parental education category changes from illiteracy to

secondary, higher secondary to graduate education, with graduate education having the largest impact. Thus even after controlling for other factors the level of parental education turns out to be a very important factor for explaining the participation in higher education. This pattern remains even when one estimates the model only for the eligible population.

The results of the Flow model (Appendix Table 2b) when compared to the stock model bring out a few interesting differences. In most cases, the inter-SRC differences decline when we consider the flow model (full sample) estimates as compared to the stock model, but for the eligible population. For the latter, no clear pattern emerges and as discussed in our earlier work, the hierarchy of participation in HE undergoes a change while Hindu-UC status does not have the highest impact on HE participation any more. But the education of parents continues to be an important factor in determining children's HE participation even in the flow model. All marginal effects are positive, statistically significant, and increasing with the parent's education level. However, the differences between different levels of education of the parents seem to decline. For example, *ceteris paribus*, in the stock model, in 2009-10 for the full urban sample, the chances of a person having a parent with a graduate degree and above participating in higher education was 40 per cent higher than the one who had an illiterate parent. In the flow model it is only 24 per cent higher. This implies that in more recent years, the role of parental education in impacting participation in higher education seems to have declined. Moreover, the impact of parental education declines dramatically when we consider only the eligible population which implies that once eligibility is reached the impact of both SRC status and parental education tends to decline.

Finally, the role of economic status seems to be more important when we consider attainment (stock model) than for enrollment (flow model), which once again reflects the fact that while economic status continues to be important for HE participation, its role has declined in recent years. Also, as compared to the full sample, the coefficients of per capita household expenditure are smaller for the eligible sample. This implies that economic status plays a smaller role once the person has crossed the threshold and has become eligible for participating in HE, that is, has completed higher secondary education.

Predicted probabilities

Since one of the key objectives of this paper is to compare the relative impact of SRC status and parental education on participation in HE, we compute predicted probabilities from our regression models. These are reported in Tables 4a and 4b for stock (probability of HE attainment) and flow (HE enrollment) models respectively. The probabilities are calculated for attainment and current enrolment for persons belonging to each SRC and each type of parental education, after controlling for other factors including economic status (logarithm of the monthly per capita household expenditures), region (state dummy), age and household size. For this purpose we set all the dummy and continuous variables at their mean values.

All predicted probabilities are significant which implies that even after controlling for other factors, SRC status and parental education play an important role in HE participation. Among SRCs, the highest probability of HE attainment is for Hindu-UC and the lowest for Muslim-OBCs; the only exception being in 2009-10 where the category of Muslim-General has the lowest probability (Table 4a). The impact of SRC status is higher in urban as compared to rural areas. For the eligible sample, the probabilities increase dramatically and this increase is higher for the marginalized groups of Hindus-SC and ST and Muslim groups.

It is difficult to interpret changes in predicted probabilities over time. But there is some evidence to suggest that in the full sample, Hindu-OBC, Muslim-General and Muslim-OBC seem to have increased their chances of attaining higher education more than the other groups. However, no trend can be clearly discerned for the eligible population.

What comes out very clearly from the comparison of predicted probabilities is that parental education of higher secondary or graduation has a much higher and positive impact on HE participation than any of the SRC categories. This is true for the full sample for all the years considered, for HE attainment in rural as well as and urban areas. Even among the eligible population, parental education makes a significant difference. However, its impact declines in the eligible sample and the differences in

the impact of parental education (higher secondary and above) vis-à-vis SRC status also declines. However, still in almost all the cases, the impact of graduate parental education remains higher than the impact of SRC status.

Table 4a: Predicted Probabilities of HE Attainment (Stock model)

Probit: Stock Dependent Var: Grad & Above =1	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10
	Urban Full Sample			Rural Full Sample		
SRC: HSC	0.20	0.18	0.27	0.07	0.07	0.07
SRC: HST	0.20	0.23	0.22	0.04	0.06	0.06
SRC: HOBC	0.22	0.22	0.28	0.05	0.06	0.08
SRC: HUC	0.29	0.29	0.34	0.10	0.09	0.12
SRC: MOBC	0.11	0.15	0.17	0.02	0.03	0.08
SRC: MGEN	0.17	0.22	0.24	0.06	0.05	0.05
SRC: OM	0.26	0.24	0.37	0.05	0.05	0.06
Parents' edu:						
Not Literate	0.09	0.10	0.13	0.03	0.03	0.04
Secn or Below	0.22	0.22	0.27	0.10	0.09	0.10
Completed HS	0.46	0.40	0.46	0.24	0.22	0.25
Completed Grad	0.58	0.47	0.58	0.35	0.31	0.41
	Urban Eligible Sample			Rural Eligible Sample		
SRC: HSC	0.71	0.54	0.65	0.51	0.47	0.48
SRC: HST	0.65	0.65	0.46	0.36	0.46	0.30
SRC: HOBC	0.70	0.55	0.63	0.46	0.41	0.40
SRC: HUC	0.74	0.63	0.67	0.54	0.48	0.49
SRC: MOBC	0.58	0.57	0.62	0.45	0.35	0.62
SRC: MGEN	0.66	0.70	0.64	0.55	0.48	0.41
SRC: OM	0.68	0.59	0.70	0.43	0.39	0.37
Parents' edu:						
Not Literate	0.64	0.51	0.54	0.42	0.39	0.37
Secn or Below	0.64	0.56	0.60	0.50	0.44	0.43
Completed HS	0.76	0.61	0.66	0.57	0.46	0.47
Completed Grad	0.83	0.69	0.78	0.63	0.56	0.60

Note: All predicted probabilities are statistically significant at 1% level as all have p-values close to zero.

However, as compared to attainment, enrollment (Table 4b) is affected less by parental education. In fact, the role of SRC status also seems to decline when we compare the predicted probabilities for attainment (Table 4a) with those for enrollment (Table 4b). However, the broad results on the relative impact of parental education and SRC status remains the same with the former having a higher impact even on the enrollment in HE.

Table 4b: Predicted Probabilities of HE Enrolment (Flow model)

Probit: Flow Dependent Var: Studying Graduation & above =1	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10
	Urban Full Sample			Rural Full Sample		
SRC: HSC	0.11	0.10	0.19	0.03	0.04	0.08
SRC: HST	0.12	0.13	0.22	0.06	0.06	0.06
SRC: HOBC	0.12	0.11	0.21	0.02	0.04	0.09
SRC: HUC	0.15	0.14	0.22	0.04	0.05	0.12
SRC: MOBC	0.06	0.06	0.14	0.01	0.03	0.05
SRC: MGEN	0.09	0.08	0.18	0.02	0.03	0.05
SRC: OM	0.12	0.12	0.22	0.04	0.04	0.10
Parents' edu: Not Literate	0.04	0.04	0.09	0.02	0.02	0.05
Secn or Below Completed HS	0.12	0.12	0.20	0.05	0.05	0.10
Completed Grad	0.23	0.18	0.34	0.10	0.14	0.23
	0.25	0.22	0.34	0.15	0.15	0.27
	Urban Eligible Sample			Rural Eligible Sample		
SRC: HSC	0.55	0.39	0.50	0.34	0.34	0.50
SRC: HST	0.43	0.39	0.47	0.47	0.43	0.34
SRC: HOBC	0.46	0.38	0.51	0.26	0.29	0.45
SRC: HUC	0.45	0.39	0.50	0.30	0.25	0.45
SRC: MOBC	0.41	0.32	0.40	0.20	0.39	0.52
SRC: MGEN	0.42	0.35	0.49	0.30	0.34	0.30
SRC: OM	0.41	0.41	0.50	0.37	0.30	0.48
Parents' edu: Not Literate	0.38	0.30	0.44	0.26	0.26	0.38
Secn or Below Completed HS	0.43	0.37	0.46	0.32	0.29	0.45
Completed Grad	0.47	0.40	0.55	0.31	0.35	0.51
	0.51	0.42	0.54	0.39	0.35	0.54

Note: All predicted probabilities are statistically significant at 1% level as all have p-values close to zero.

6. Some Concluding Observations

This paper pooled together cross section data sets collected at three different points of time by the NSSO to analyze the effect of socio-religious affiliation and parental education on participation in higher education even after controlling for various other individual, household and location factors. The empirical results show that the chances of participation in HE increases significantly with parental education and is the highest with parents having graduate education. And this effect persists even after controlling for household expenditures (a proxy for income or the economic status) and socio-religious affiliation (caste and religion, which forms the basis for reservation or discussions around reservation). In fact, the impact of parental education seems to

be higher than that of the SRC status. Moreover, from our overall analysis, it is clear that for any model (and any year) the difference between the lowest predicted probability and highest (that is the range) is always very high for the parents education categories, as compared to the SRC categories. The difference between highest and second lowest predicted probabilities is also higher for parents' education categories than SRC categories in most models. So, if resources have to be diverted towards affirmative action, one can make a case of targeting it to wipe out the maximum difference. Hence targeting population based on parents' education may be a better idea.

Given the problems of information failures and asymmetries and a variety of other factors mentioned in section 3, parental education can potentially be a good criterion for affirmative action as it is easy to measure and does not have any problems associated with designation and re-designation. Such a criterion also makes sense given the changing role of caste in social stratification as discussed in section 1. If Aadhar becomes a reality and everybody has a unique identity with requisite information, implementing a programme on this basis will not suffer from information failures.

Issues relating to quality of education still remain unaddressed as parents with better quality education may affect their children's choices more effectively. The available data is not able to distinguish these effects. Nor are we able to resolve the issue of 'guaranteed minimum' vs. 'over and above' dilemma. However, given the differential impact of different levels of parental education, one can think of well defined compartments: children with illiterate parents can potentially form the most backward category followed by those having parents with secondary or less education and those with higher secondary education. Children with parents having graduate education may be outside the purview of affirmative action.

One can argue that affirmative action based on parental education has no constitutional validity and therefore the exercise undertaken in this paper while providing some useful insights is only of academic interest. So be it!

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Appendix Table 1: Summary Statistics of Full Sample and Sample of Household Head's Children

Data/ Year	Variable	Full Sample					Sample of Household Head's Children				
		Obs	Mean	SD	Min	Max	Obs	Mean	SD	Min	Max
1999- 00	Grad+	594801	0.04	0.19	0	1	256172	0.03	0.16	0	1
	Enrolled	374894	0.02	0.13	0	1	240987	0.02	0.14	0	1
	Age	595047	25.54	18.85	0	99	256277	12.82	8.74	0	90
	H_ST	595458	0.07	0.27	0	1	256494	0.08	0.27	0	1
	H_OBC	595458	0.31	0.46	0	1	256494	0.31	0.46	0	1
	H_UC	595458	0.25	0.43	0	1	256494	0.23	0.42	0	1
	M_OBC	595458	0.04	0.19	0	1	256494	0.04	0.21	0	1
	M_GEN	595458	0.08	0.28	0	1	256494	0.10	0.30	0	1
	OM	595458	0.06	0.23	0	1	256494	0.05	0.23	0	1
	Male	595529	0.51	0.49	0	10.5	256525	0.59	0.49	0	1
	Log mpce	595529	6.09	0.53	1	37	256525	6.05	0.51	0	10.48
	Hh Size	595529	6.15	2.97	0	1	256525	6.16	2.41	2	37
	Rural	595529	0.75	0.44	0	1	256525	0.75	0.44	0	1
	High Sec	594801	0.07	0.25	0	1	256172	0.06	0.24	0	1
2004- 05	Grad+	599310	0.04	0.19	0	1	254440	0.03	0.17	0	1
	Enrolled	354084	0.02	0.15	0	1	235031	0.03	0.16	0	1
	Age	602833	26.40	18.96	0	115	256155	13.50	8.93	0	111
	H_ST	602358	0.07	0.26	0	1	255937	0.07	0.26	0	1
	H_OBC	602358	0.35	0.48	0	1	255937	0.34	0.48	0	1
	H_UC	602358	0.21	0.41	0	1	255937	0.19	0.39	0	1
	M_OBC	602358	0.05	0.22	0	1	255937	0.06	0.24	0	1
	M_GEN	602358	0.08	0.26	0	1	255937	0.09	0.28	0	1
	OM	602358	0.05	0.23	0	1	255937	0.05	0.22	0	1
	Male	602832	0.51	0.50	0	1	256154	0.60	0.49	0	1
	Log mpce	602833	8.00	0.61	0	18.4	256155	7.99	0.54	0	13.28
	Hh Size	602833	5.92	2.84	1	36	256155	5.97	2.32	2	36
	Rural	602833	0.75	0.44	0	1	256155	0.75	0.43	0	1
	High Sec	602420	0.08	0.28	0	1	255945	0.08	0.27	0	1
2009- 10	Grad+	458708	0.05	0.22	0	1	190549	0.04	0.20	0	1
	Enrolled	255285	0.04	0.20	0	1	172057	0.05	0.22	0	1
	Age	459784	27.66	19.00	0	120	191161	14.24	9.11	0	85
	H_ST	459443	0.08	0.26	0	1	190990	0.08	0.27	0	1
	H_OBC	459443	0.35	0.48	0	1	190990	0.35	0.48	0	1
	H_UC	459443	0.21	0.41	0	1	190990	0.19	0.39	0	1
	M_OBC	459443	0.06	0.23	0	1	190990	0.06	0.25	0	1
	M_GEN	459443	0.07	0.25	0	1	190990	0.08	0.27	0	1
	OM	459443	0.05	0.22	0	1	190990	0.05	0.22	0	1
	Male	459784	0.52	0.50	0	1	191161	0.61	0.49	0	1
	Log mpce	459784	6.82	0.58	3.64	11.1	191161	6.75	0.55	3.82	10.86
	Hh Size	459784	5.53	2.56	1	37	191161	5.65	2.10	2	37
	Rural	459784	0.73	0.45	0	1	191161	0.74	0.44	0	1
	High Sec	459034	0.12	0.32	0	1	190692	0.11	0.32	0	1

Appendix 2a: Marginal Effects (p-values in parentheses) in Stock Model- Probability of Completing Graduate Degree/Diploma: Age Group 22-35

Variables	Stock Urban Full Sample			Stock Urban Eligible Sample			Stock Rural Full Sample			Stock Rural Eligible Sample		
	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10
Hh Size	0.00 (0.95)	-0.03 (0.00)	0.00 (0.08)	0.00 (0.68)	-0.02 (0.00)	0.01 (0.06)	0.00 (0.57)	-0.01 (0.00)	0.00 (0.02)	0.00 (0.47)	-0.02 (0.00)	0.01 (0.15)
Age	0.01 (0.00)	0.01 (0.00)	0.00 (0.01)	0.02 (0.00)	0.01 (0.00)	0.01 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.62)	0.02 (0.00)	0.01 (0.00)	0.00 (0.12)
logMPCE	0.20 (0.00)	0.18 (0.00)	0.21 (0.00)	0.14 (0.00)	0.12 (0.00)	0.17 (0.00)	0.08 (0.00)	0.10 (0.00)	0.12 (0.00)	0.08 (0.00)	0.12 (0.00)	0.15 (0.00)
SRC: HST	0.00 (0.89)	0.05 (0.21)	-0.04 (0.29)	-0.05 (0.47)	0.10 (0.17)	-0.17 (0.02)	-0.03 (0.00)	-0.01 (0.30)	-0.01 (0.52)	-0.14 (0.05)	-0.01 (0.86)	-0.17 (0.01)
SRC: HOBS	0.02 (0.33)	0.04 (0.07)	0.01 (0.81)	-0.01 (0.80)	0.01 (0.76)	-0.02 (0.63)	-0.02 (0.04)	-0.02 (0.02)	0.00 (0.66)	-0.04 (0.19)	-0.06 (0.07)	-0.08 (0.03)
SRC: HUC	0.07 (0.00)	0.10 (0.00)	0.05 (0.01)	0.03 (0.41)	0.09 (0.02)	0.02 (0.52)	0.03 (0.00)	0.01 (0.15)	0.05 (0.00)	0.03 (0.44)	0.01 (0.71)	0.00 (0.91)
SRC: MOBC	-0.08 (0.00)	-0.02 (0.37)	-0.09 (0.00)	-0.12 (0.05)	0.03 (0.66)	-0.02 (0.62)	-0.05 (0.00)	-0.05 (0.00)	0.00 (0.88)	-0.06 (0.50)	-0.11 (0.09)	0.13 (0.09)
SRC: MGEN	-0.03 (0.12)	0.04 (0.09)	-0.03 (0.32)	-0.04 (0.31)	0.15 (0.00)	-0.01 (0.88)	-0.01 (0.54)	-0.03 (0.01)	-0.02 (.11)	0.04 (0.48)	0.01 (0.83)	-0.07 (0.28)
SRC: OM	0.04 (0.03)	0.06 (0.02)	0.08 (0.01)	-0.02 (0.60)	0.05 (0.25)	0.05 (0.22)	-0.02 (0.17)	-0.03 (0.02)	-0.01 (0.58)	-0.07 (0.14)	-0.07 (0.14)	-0.11 (0.05)
Parents edu: Completed Secn	0.13 (0.00)	0.12 (0.00)	0.13 (0.00)	0.00 (0.97)	0.05 (0.18)	0.06 (0.12)	0.07 (0.00)	0.07 (0.00)	0.07 (0.00)	0.08 (0.00)	0.05 (0.04)	0.06 (0.09)
Completed HS	0.34 (0.00)	0.28 (0.00)	0.30 (0.00)	0.11 (0.00)	0.10 (0.03)	0.11 (0.01)	0.21 (0.00)	0.19 (0.00)	0.21 (0.00)	0.14 (0.00)	0.07 (0.06)	0.10 (0.03)
Completed Grad	0.44 (0.00)	0.34 (0.00)	0.40 (0.00)	0.18 (0.00)	0.18 (0.00)	0.22 (0.00)	0.32 (0.00)	0.28 (0.00)	0.35 (0.00)	0.20 (0.00)	0.17 (0.00)	0.22 (0.00)
Sex: Female	0.05 (0.00)	0.09 (0.00)	0.14 (0.00)	0.08 (0.00)	0.13 (0.00)	0.15 (0.00)	-0.01 (0.33)	0.02 (0.00)	0.04 (0.00)	0.04 (0.18)	0.09 (0.00)	0.11 (0.00)
No. of Obs	16243	15837	14221	7202	7120	7499	22913	27402	20261	4979	7294	7064

Note: 1. HSC, non-literate parents, and male are reference groups.

2. The marginal effects of log(mpce) are the impact of a one standard deviation reduction in log(mpce).

3. The marginal effects of 32 state dummies are not reported here due to space constraints, but are available with authors upon request. In some of the models the state of Lakshadweep has been left out due to lack of enough observations. However highest number of observations left out due to Lakshadweep has never crossed 55.

Appendix 2b: Marginal Effects (p-values in parentheses) in *Flow Model- Probability of Studying Grad & Above Level: Age Group 17-29*

Variables	Flow Urban Full Sample			Flow Urban Eligible Sample			Flow Rural Full Sample			Flow Rural Eligible Sample		
	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10	1999-00	2004-05	2009-10
Hh Size	0.00 (0.01)	-0.02 (0.00)	0.00 (0.25)	-0.01 (0.05)	-0.02 (0.00)	0.00 (0.92)	0.00 (0.11)	-0.01 (0.00)	0.00 (0.02)	0.00 (0.41)	-0.01 (0.00)	0.01 (0.00)
Age	-0.01 (0.00)	-0.02 (0.00)	-0.03 (0.00)	-0.07 (0.00)	-0.07 (0.00)	-0.08 (0.00)	0.00 (0.00)	-0.01 (0.00)	-0.01 (0.00)	-0.06 (0.00)	-0.06 (0.00)	-0.08 (0.00)
logMPCE	0.13 (0.00)	0.14 (0.00)	0.12 (0.00)	0.12 (0.00)	0.13 (0.00)	0.08 (0.00)	0.06 (0.00)	0.07 (0.00)	0.11 (0.00)	0.11 (0.00)	0.12 (0.00)	0.12 (0.00)
SRC: HST	0.02 (0.44)	0.04 (0.17)	0.03 (0.28)	-0.09 (0.12)	0.00 (0.94)	-0.03 (0.55)	0.03 (0.10)	0.02 (0.08)	-0.03 (0.01)	0.10 (0.20)	0.07 (0.12)	-0.13 (0.00)
SRC: HOBS	0.01 (0.38)	0.02 (0.17)	0.03 (0.10)	-0.07 (0.02)	-0.01 (0.84)	0.00 (0.91)	-0.01 (0.02)	0.00 (0.50)	0.01 (0.19)	-0.07 (0.01)	-0.04 (0.07)	-0.04 (0.17)
SRC: HUC	0.04 (0.00)	0.05 (0.00)	0.03 (0.05)	-0.07 (0.00)	0.01 (0.85)	0.00 (0.89)	0.01 (0.19)	0.00 (0.44)	0.04 (0.00)	-0.04 (0.14)	-0.08 (0.00)	-0.04 (0.15)
SRC: MOBC	-0.05 (0.00)	-0.04 (0.03)	-0.05 (0.01)	-0.11 (0.02)	-0.05 (0.29)	-0.08 (0.04)	-0.03 (0.00)	-0.02 (0.01)	-0.04 (0.01)	-0.13 (0.01)	0.04 (0.33)	0.01 (0.83)
SRC: MGEN	-0.02 (0.06)	-0.02 (0.24)	-0.01 (0.64)	-0.10 (0.00)	-0.03 (0.38)	-0.01 (0.74)	-0.01 (0.04)	-0.01 (0.07)	-0.04 (0.00)	-0.04 (0.38)	0.00 (0.94)	-0.16 (0.00)
SRC: OM	0.01 (0.47)	0.02 (0.25)	0.03 (0.17)	-0.11 (0.00)	0.01 (0.68)	0.00 (0.90)	0.01 (0.10)	-0.01 (0.39)	0.01 (0.37)	0.02 (0.60)	-0.04 (0.23)	-0.02 (0.63)
Parents edu: Completed Secn	0.08 (0.00)	0.09 (0.00)	0.11 (0.00)	0.04 (0.14)	0.06 (0.12)	0.02 (0.52)	0.04 (0.00)	0.03 (0.00)	0.06 (0.00)	0.05 (0.01)	0.03 (0.15)	0.05 (0.02)
Completed HS	0.19 (0.00)	0.15 (0.00)	0.25 (0.00)	0.07 (0.02)	0.08 (0.04)	0.09 (0.01)	0.09 (0.00)	0.12 (0.00)	0.18 (0.00)	0.05 (0.15)	0.08 (0.01)	0.10 (0.00)
Completed Grad	0.21 (0.00)	0.18 (0.00)	0.24 (0.00)	0.10 (0.00)	0.10 (0.02)	0.08 (0.01)	0.14 (0.00)	0.14 (0.00)	0.22 (0.00)	0.11 (0.00)	0.07 (0.01)	0.12 (0.00)
Sex: Female	0.06 (0.00)	0.04 (0.00)	0.06 (0.00)	0.01 (0.27)	0.00 (0.82)	0.01 (0.34)	0.01 (0.07)	0.01 (0.10)	0.00 (0.66)	-0.01 (0.70)	-0.01 (0.55)	0.00 (0.79)
No. of Obs	28376	26432	23523	10792	10024	11174	37603	45246	33961	6482	9796	10404

Note: 1. HSC, non-literate parents, and male are reference groups.

2. The marginal effects of log(mpce) are the impact of a one standard deviation reduction in log(mpce).

3. The marginal effects of 32 state dummies are not reported here due to space constraints, but are available with authors upon request. In some of the models the state of Lakshadweep has been left out due to lack of enough observations. However highest number of observations left out due to Lakshadweep has never crossed 55.