# Affirmative Action, Political Representation and Caste Disadvantage: Mapping changes in post-Mandal India

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*This paper focuses on the evolution of key educational and occupational indicators for the Other Backward Classes (OBCs) in relation to two broad groups: the Scheduled Caste and Tribes (SCs and STs) and Others(everyone else). We examine these indicators both before and after the early 1990s, the years that affirmative action was extended to OBCs and when several state assemblies underwent a definitive shift in the caste composition of their legislators. We find that extension of affirmative action to OBCs increased the percentage of OBCs with public sector jobs and secondary education by 2.6 and 4 percentage points, respectively. We then examine whether the silent revolution, viz., increased representation of OBCs in state assemblies post-1991, had an impact on OBC outcomes; specifically, did it change the probability of being a graduate or obtaining white-collar jobs. We examine different regional patterns of representation and find that increased political representation has not yet translated into improved outcomes for OBCs.*

*JEL: J15, J24, I25, O12*

*Keywords: Affirmative Action, Caste, Education, India, Occupational Choice*

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We would like to thank Alessandro Tarozzi, Ana-Rute Cardoso and Irma Clots Figueras for their suggestions and comments. We are also grateful to comments received at the Indian School of Business, Hyderabad, and South Asia University, New Delhi, where these results were first presented. We are responsible for all remaining errors and omissions.

## I. Introduction

In August 2015, members of a caste group called Patidars or Patels, from the western Indian state of Gujarat, took to the streets in a violent agitation (still ongoing at the time of writing), demanding inclusion in the "Other Backward Classes" (OBC) list for the state. Designation as an OBC caste would give the Patels access to 27 percent quotas in government jobs and government-run educational institutions. Given that Patels/Patidars are a wealthy and dominant caste group, this agitation is seen as ironic and a strange inversion of an old history from the mid-1980s, when members of this same caste group took to the streets in protest *against* the Indian governments quota-based affirmative action (AA) policy, which until 1991 was targeted towards two historically marginalized and discriminated groups: Scheduled Castes (SCs) and Scheduled Tribes (STs). Quotas for SCs and STs are constitutionally mandated and a carry-forward from a policy of positive discrimination instituted in the early 20th century in British India.[1]

The fact that the Patels are now echoing a similar demand made by dominant caste groups from other states in the past, such as Jats in Rajasthan, Gounders in Tamil Nadu which include castes such as Vanniyars, Vokkaligas etc, could be viewed as a prima facie validation that AA does improve outcomes for beneficiary groups. However, it also raises the pertinent and thorny issue of which groups should be eligible for AA? We believe the latter can best be answered by reviewing detailed caste (jati)-level data, such as what might be available in the future from the Socio-Economic Caste Census (SECC). However, presently, the only publicly available data pertain to the large omnibus administrative categories created for the purposes of AA, viz., SCs, STs, OBCs. The residual category is called "Others" and it includes all non-SC-ST-OBC individuals. This category includes, but goes beyond the Hindu upper castes. For instance, currently Patels in Gujarat would be included in the Others category.

In a companion paper (Deshpande and Ramachandran, 2014), using a difference-in-differences (DID) methodology, we undertake a detailed investigation of the changes, over time, in several indicators of the relative material wellbeing of these broad caste groups. We present

[1] See (Deshpande, 2013) for details of the affirmative action policy in India.

a comprehensive profile of how the relative position of the OBCs has evolved vis--vis the SC-STs, on the one hand, and Others, on the other. In this paper, we narrow our focus on affirmative action, and first, discuss the comparative evolution of selected indicators that we believe are likely to affected by AA, such as years of education, completing secondary education and access to public sector jobs. Second, through an innovative use of the existing data, we demonstrate positive effects of extension of quotas to OBCs on secondary education and access to public sector jobs. Third, we extend our inquiry to investigate whether significant changes in the caste composition of state-level elected representatives (members of legislative assemblies, MLAs) in the 1990s had any discernible effect on material outcomes, such as probability of being a graduate or access to white-collar jobs. We find that while job and education quotas have a significant positive impact on selected OBC outcomes, the relationship between political representation and improved material conditions for OBCs is not clear and straightforward. While there is a small but growing literature on the impact of SC-ST quotas (Deshpande and Weisskopf, 2014; Bertrand et al., 2010; Cassan, 2013; Frisancho and Krishna, 2012), to the best of our knowledge, this is the first paper to assess the impact of OBC quotas, and thus makes a significant contribution to the literature on AA.

The rest of this paper is organized as follows. Section II outlines the data. Section III presents evidence on years of education. Section IV discusses the intergenerational transmission of education. Section V presents evidence on access to public sector jobs. Section VI presents results on affirmative action and occupational and educational outcomes of OBCs. Section VII discusses the regional differences in outcomes and presents a preliminary analysis of whether political representation affects economic outcomes. Section VIII concludes.

## II. Data and Methodology

We use data from two quinquennial rounds of the employment-unemployment surveys (EUS) of the NSS for 1999-2000 (the 55th Round, or NSS-55) and 2009-10 (the 66th round, or NSS-66), to examine selected indicators of material standard of living indicators, and the

changes therein for the OBCs in India, in comparison to SC-STs and the Others.[2] We construct six cohorts aged between 25 and 84 years in 2010 from the two NSS rounds. Our working sample is around 100,000 individuals in 1999-2000 and 200,000 individuals in 2009-10. We examine changes in key indicators of interest using a difference-in-differences (D-I-D) approach, comparing the three social groups to one another to see how the gaps on the key indicators of interest have evolved over the 60-year period. This allows us to gauge the relative generational shifts between the major caste groups. Our analysis focuses particularly on the OBCs, and compares how the evolution of the different OBC cohorts (in relation to the Others) compares with the evolution of the corresponding SC-ST cohorts to the Others. The details about construction of cohorts can be found in Deshpande and Ramachandran (2014), which have been reproduced in Appendix A for easy reference.

We calculate the D-I-D using both absolute gaps and relative gaps, which are defined below. Absolute gap is defined as

$$(1) \quad D-I-D_{jk} = [(Indicator_{ijn} - Indicator_{ikn}) - (Indicator_{ij(n-t))} - Indicator_{ik(n-t)})]$$

where $j$ and $k$ are the two caste groups being compared, for the $i^{th}$ indicator, first for the $n^{th}$ cohort and then for the $n-t^{th}$ cohort. Relative gaps are defined as:

$$(2) \quad D-I-D_{jk} = [(Indicator_{ijn}/Indicator_{ikn}) - (Indicator_{ij(n-t))}/Indicator_{ik(n-t)})]$$

Through an analysis based on a comparison of different age cohorts, we are able to build a comprehensive trajectory of change for each of the caste groups since independence, since the oldest cohort in our analysis consists of individuals born between 1926 and 1935, and the youngest cohort consists of those born between 1976 and 1985. Thus, we are able to track outcomes for successive generations of individuals who reached adulthood in the 63 years between Indian independence (in 1947) and 2010.

[2]For the purpose of this paper, we have pooled the two groups of SCs and STs, because despite considerable differences in their social situation, their economic outcomes are very similar. In between these two rounds, NSS also conducted another quinquennial survey, the 61st round, in 2004-05. We believe a decade is a good length of time to compare trends, therefore we focus on two rounds which are 10-years apart.

One question that could be raised about the validity of a D-I-D exercise arises due to changes in the composition of these broad groups over the decades. Indeed, the composition of these groups has not remained constant over time. In Deshpande and Ramachandran (2014) we discuss the extent of changes in detail, and demonstrate how changes in categorization for OBCs could not negate our results. We also show that such changes are not confined to the OBC list; both SC and ST lists have undergone several changes, in fact, more extensive than those in the OBC list. Yet, in the absence of detailed jati-level data, it is common practice by researchers (e.g. Hnatkovska et al. (2012)) to use these broad categories and compare changes between castes across time.

## III. Educational attainment

The first indicator we examine is education. Figure 1 plots the evolution of *years of education* for the six constructed cohorts.[3] All three socials groups increase their average years of education over the 50-year period considered. The oldest cohort born during 1926-35 has 0.70 years of education for the SC-STs, 1.14 years for OBCs and 3 years of education for Others. We see that these increase steadily and stand at 4.52, 6.09 and 8.30 respectively for the cohort born during 1976-85. The average years of education for the OBCs over the 50-year period increases by 4.95 years, whereas it increases by 3.92 years for the SC/ST and 5.3 years for the Others over the same period.

Looking at absolute gaps, we find that the gaps between OBCs and Others and SC-ST and Others for the oldest cohort born between 1926-35 are 1.85 and 2.29 years of education, respectively. For the youngest cohort, born between the years 1976-85, the equivalent gaps are 2.21 and 3.68 years, respectively. Comparing the youngest and oldest cohort (C6-C1) shows that over the 50 year period, the Others-OBC gap and the Others-SC-ST gap increased by 0.36 and 1.59 years, respectively, and the D-I-D are significant at the 1% level.

[3]The NSS does not have information on years of education. We use the method followed in Hnatkovska et al. (2012) for converting information on educational attainment to years of education. Thus, those with no formal schooling were assigned 0 years of education; those with schooling below primary were assigned 2 years; those with primary completed 5 years; those with middle school completed 7 years; those with secondary completed 10 years; those with higher secondary 12 years; those with graduate degrees in technology, engineering, medicine and agriculture 16 years and those with graduate degrees in all other subjects were assigned 15 years.

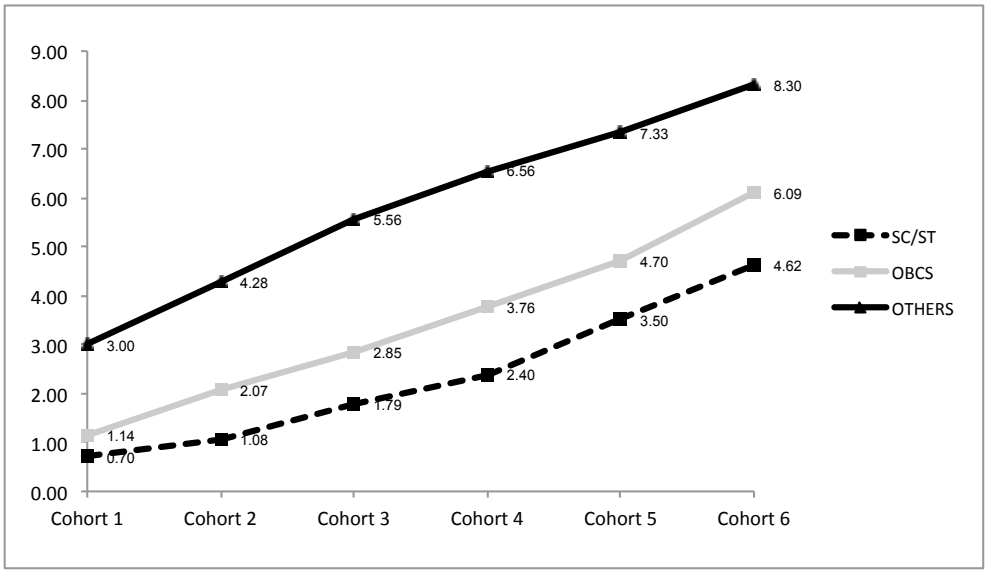


Figure 1. : Evolution of years of education for the three social groups

An alternative way of comparing the evolution of gaps would be to compare the oldest cohort who went to school after independence with the youngest cohort. This would mean comparing the cohort born in 1946-55 to the one born in 1976-85 (C6-C3). This comparison presents a more optimistic picture as the gap between the OBCs and Others for the cohort born in 1946-55 was 2.71 years of education, which reduces to 2.21 years for the cohort born in 1976-85, whereas for the Others and SC-ST comparison, over the same time period, there is neither divergence nor convergence.[4]

Looking at relative gaps in Figure 2, we find an initial convergence between OBCs and Others, which remains constant over the youngest three cohorts. Between SC/STs and Others, the relative gaps fluctuate over the cohorts, such that the gap between the youngest two cohorts is the same as the gap between the oldest two cohorts, thus over the period, there is no significant change in relative years of education across caste groups. Deshpande and Ramachandran (2014) present detailed results for each educational category separately, which show that for categories of education higher than middle school, there is no convergence across

[4]The point estimates show a gain for the SC-STs of 0.08 years of education compared to the Others, however this is statistically not different from zero.

caste groups.

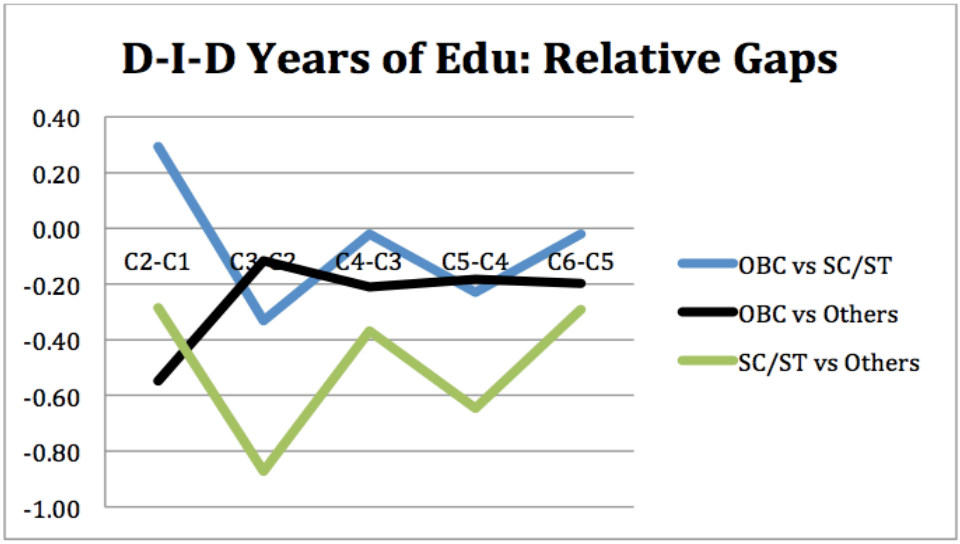


Figure 2. : Evolution of the relative gaps in years of education for the three social groups

## IV. The intergenerational transmission of education

The discussion so far has been concerned with relative gains or losses on educational indicators between the three social groups over time. We can, however, go further and also study the importance of educational transmission across generations, and whether this differs between social groups and over the two survey rounds considered. In particular, we want to examine whether the three social groups exhibit different levels of intergenerational mobility. In order to do this, we match the years of education of every household head to the years of education of the male child, for both the NSS rounds.[5] We then estimate the relative measure of intergenerational persistence in education, for the three social groups and two survey

[5]We identify father-son pairs based on the household identifier and "relationship to head of household" variable. Thus, we can only identify father-son pairs residing in the same household. Since daughters typically marry early and move to the marital home, NSS data does not have a mechanism to match daughters with either fathers or mothers, unless they are resident in the same household. Most resident daughters are minors, and many are still studying, so their ultimate educational category is not known at the point the survey is conducted.

rounds, by estimating the following equation:

$$E_i^s = \alpha + \beta E_i^f + R_i + S_j + A_i + \epsilon_i, \tag{3}$$

where $E_i^s$ and $E_i^f$ refers to the years of education of son labelled $i$ and father of $i$, respectively, $R_i$ are the dummies for the religious group of individual $i$, $S_j$ refer to state fixed effects, $A_i$ the age of son $i$, $\epsilon_i$ is the error term. $\beta$ is the parameter of interest; $\beta$ measures how strongly the son's education depends on his father's education. A value of 0 would imply that there is no independent effect of father's education on the son's education and there is complete intergenerational mobility.

The $\beta$ parameters arising from the estimation exercise are shown in Table 1. For both the survey rounds, the intergenerational persistence of education is the strongest for SC-STs, followed by OBCs, and finally the Others. We see that, as expected, SC-STs have the lowest levels of intergenerational mobility. The fact that for these groups, fathers' education has the

Table 1—: **Estimates of intergenerational persistence in education**

| | SC-ST NSS-55 | SC-ST NSS-66 | OBCs NSS-55 | OBCs NSS-66 | OTHERS NSS-55 | OTHERS NSS-66 |
|---|---|---|---|---|---|---|
| Integen. Coeff. ($\beta$) | 0.543*** | 0.423*** | 0.513*** | 0.422*** | 0.480*** | 0.409*** |
| | (0.010) | (0.008) | (0.008) | (0.007) | (0.005) | (0.006) |
| State Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Religion Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 11,820 | 11,227 | 16,746 | 15,421 | 22,555 | 14,851 |
| R-squared | 0.23 | 0.25 | 0.26 | 0.26 | 0.37 | 0.35 |

*Note:* Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

biggest impact on the sons' educational attainment seems to suggest that "family factors" are more important for the relatively disadvantaged groups. However, over the two survey rounds

we see a decrease in the relative intergenerational persistence of education. The average $\beta$ coefficient decreases from 0.51 to 0.42 over the two NSS rounds indicating an increase in mobility for all three social groups; hinting at an increase in equality of opportunity. Next, in order to analyze whether the pattern of mobility is different across the social groups, we construct a dummy called $Non-Backward$, which takes the value 1 if the individual belongs to the "Others" group. We then estimate the reduced form equation given by:

$$E_i^s = \alpha + \beta_1 NonBackward * E_i^f + NonBackward + +\beta_2 E_i^f + R_i + S_j + A_i + \epsilon_i. (4)$$

The coefficient of interest, $\beta_1$, captures whether the effect of father's education is different for the Others group as compared to the two socially disadvantaged groups. The results are shown in Table 2 for the two rounds. We see that $\beta_1$ is negative and significant at the 1% level across the two rounds indicating, relative to the SC-STs and OBCs, the effect of father's education on son's education is lower for the non-backward group, which implies that intergenerational persistence for the social group "Others" is lower.

Table 2—: **Differnces in intergenerational persistence in education between socially backward and non-backward groups**

| | **NSS -55** | **NSS -66** |
|---|---|---|
| Intergenerational Coeff * Non Backward Dummy ($\beta_1$) | -0.057*** | -0.026*** |
| | (0.006) | (0.008) |
| Non Backward Dummy | 1.40*** | 1.20*** |
| | (0.054) | (0.063) |
| Integenerational Coefficient ($\beta_3$) | 0.543*** | 0.438*** |
| | (0.006) | (0.005) |
| State Dummies | Yes | Yes |
| Religion Dummies | Yes | Yes |
| Age | Yes | Yes |
| Observations | 51,121 | 41,499 |
| R-squared | 0.34 | 0.31 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

### A. The education transition matrix

Another way to examine intergenerational shifts would be to construct a matrix which depicts the transitional probabilities of the son's education belonging to a particular education category given the fathers level of education.

We construct six categories of education as follows: 0 representing illiterate; 1 representing literacy but less than primary schooling; 2 representing more than primary schooling but less than secondary; 3 representing more than secondary but lower than higher secondary; 4 representing more than higher secondary but lower than graduate; and 5 representing graduate education and higher. We then match the male head of households category of education to his son's category of education for the 1999-2000 and 2009-10.

The transition matrix provides an easy visual representation of the underlying intergenerational mobility in education for the three social groups. This helps us understand whether the pattern of increasing educational attainment which we observed above is driven by sons of household heads with high education obtaining even higher education (i.e. intergenerational persistence), or is it due to the upward movement of sons whose fathers had low education moving up the ladder (intergenerational mobility).

The transition matrix shown in Table 3 computes the probability $p_{ij}$ the probability of a father with education category i having a son in educational category j. A high $p_{ij}$ where $i = j$ represents low intergenerational education mobility, while a high $p_{ij}$ where $i < j$, would indicate high intergenerational education mobility. The last column of the table labelled "size" shows the proportion of fathers in that particular educational category.

So, for instance, from Table 3 we see that in 1999-2000, the proportion of SC-ST fathers that were illiterate was 59.66 percent. Given that the father was an illiterate, the probability of a son from a SC-ST family being illiterate was 40.89 percent, being literate was 11.8 percent, having primary but less than secondary was 31.68 percent, having secondary but less than higher secondary education was 8.9 percent, having more than higher secondary but less than graduate was 4.6 percent, and finally holding a graduate degree or higher was 2.1 percent. Similarly the proportion of OBC fathers who were illiterate was 46.44 percent in 1999-2000. The probabilities of the son being in education categories 0 to 5 were 35.75,

11.58, 34, 11.03, 5.52 and 2.1percent respectively. Finally, 26.5 percent fathers in the Others category were illiterate, and probabilities of the son being in categories 0 to 5 were 26.68, 12.14, 38.21, 14.14, 5.6 and 3.2 percent respectively. Comparing the transitional probabilities

Table 3—: **Educational Transition Matrix, All India - 1999-2000**

| **Transition Matrix for the SC/ST** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Edu 0** | **Edu 1** | **Edu 2** | **Edu 3** | **Edu 4** | **Edu 5** | **Size** |
| **Edu 0** | 0.41 | 0.12 | 0.32 | 0.09 | 0.05 | 0.02 | 59.66 |
| **Edu 1** | 0.13 | 0.17 | 0.44 | 0.15 | 0.08 | 0.03 | 14.22 |
| **Edu 2** | 0.07 | 0.06 | 0.49 | 0.20 | 0.11 | 0.06 | 17.45 |
| **Edu 3** | 0.03 | 0.01 | 0.22 | 0.29 | 0.32 | 0.13 | 5.11 |
| **Edu 4** | 0.03 | 0.02 | 0.19 | 0.26 | 0.32 | 0.19 | 1.83 |
| **Edu 5** | 0.01 | 0.00 | 0.17 | 0.22 | 0.33 | 0.26 | 1.73 |
| **Transition Matrix for the OBCs** | | | | | | | |
| | **Edu 0** | **Edu 1** | **Edu 2** | **Edu 3** | **Edu 4** | **Edu 5** | **Size** |
| **Edu 0** | 0.36 | 0.12 | 0.34 | 0.11 | 0.06 | 0.02 | 46.44 |
| **Edu 1** | 0.10 | 0.12 | 0.49 | 0.16 | 0.09 | 0.04 | 17.97 |
| **Edu 2** | 0.06 | 0.04 | 0.46 | 0.23 | 0.14 | 0.07 | 23.98 |
| **Edu 3** | 0.02 | 0.02 | 0.23 | 0.33 | 0.23 | 0.17 | 7.10 |
| **Edu 4** | 0.01 | 0.02 | 0.23 | 0.22 | 0.28 | 0.25 | 2.58 |
| **Edu 5** | 0.00 | 0.02 | 0.09 | 0.18 | 0.35 | 0.36 | 1.94 |
| **Transition Matrix for the Others** | | | | | | | |
| | **Edu 0** | **Edu 1** | **Edu 2** | **Edu 3** | **Edu 4** | **Edu 5** | **Size** |
| **Edu 0** | 0.27 | 0.12 | 0.38 | 0.14 | 0.06 | 0.03 | 26.50 |
| **Edu 1** | 0.07 | 0.14 | 0.42 | 0.20 | 0.10 | 0.08 | 15.24 |
| **Edu 2** | 0.04 | 0.03 | 0.41 | 0.26 | 0.15 | 0.11 | 27.87 |
| **Edu 3** | 0.01 | 0.01 | 0.15 | 0.28 | 0.28 | 0.26 | 14.95 |
| **Edu 4** | 0.02 | 0.00 | 0.10 | 0.21 | 0.34 | 0.33 | 5.90 |
| **Edu 5** | 0.02 | 0.00 | 0.04 | 0.13 | 0.32 | 0.49 | 9.55 |

*Note:* Each cell $ij$ represents the average probability (for a given NSS survey round) of a household male head with education $i$ having a son with education attainment level $j$. Column titled "size" reports the fraction of fathers in education category 0, 1, 2, 3, 4, or 5 in a given survey round.

in 1999-2000 in Table 3 with those in 2009-10 in Table 4, we first observe that for all three social groups there is an increase in the average proportion of fathers in higher educational categories. For instance, the proportion of fathers with more than primary schooling but less than secondary schooling increases from 17.45 to 22.85 percent, 23.98 to 29.87 percent and 27.87 to 29.80 percent for the SC-STs, OBCs and Others respectively. We also observe that for sons whose fathers had education category 3, 4 or 5, the probability of the son achieving an educational category equal to or higher than their father increases for all three groups, i.e. intergenerational persistence is high for families with higher levels of education. For instance, for the probability of the father belonging to the education category 3 (more than secondary

but lower than higher secondary) and his son belonging to the category 3, 4 or 5 increases from 73.8 to 75.9 percent, 72.8 to 85 percent and 82.1 to 87.8 percent for the SC-STs, OBCs and Others respectively. Having said this, it should be noted that conditional on fathers

Table 4—: **Educational Transition Matrix, All India - 2009-10**

| **Transition Matrix for the SC/ST** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Edu 0** | **Edu 1** | **Edu 2** | **Edu 3** | **Edu 4** | **Edu 5** | **Size** |
| **Edu 0** | 0.23 | 0.09 | 0.42 | 0.13 | 0.10 | 0.03 | 50.12 |
| **Edu 1** | 0.04 | 0.10 | 0.55 | 0.16 | 0.10 | 0.05 | 14.08 |
| **Edu 2** | 0.03 | 0.03 | 0.45 | 0.24 | 0.20 | 0.06 | 22.85 |
| **Edu 3** | 0.01 | 0.00 | 0.23 | 0.27 | 0.37 | 0.12 | 6.38 |
| **Edu 4** | 0.00 | 0.01 | 0.12 | 0.27 | 0.32 | 0.27 | 3.33 |
| **Edu 5** | 0.00 | 0.11 | 0.06 | 0.09 | 0.36 | 0.38 | 3.24 |
| **Transition Matrix for the OBCs** | | | | | | | |
| | **Edu 0** | **Edu 1** | **Edu 2** | **Edu 3** | **Edu 4** | **Edu 5** | **Size** |
| **Edu 0** | 0.19 | 0.12 | 0.38 | 0.16 | 0.11 | 0.04 | 35.66 |
| **Edu 1** | 0.04 | 0.11 | 0.43 | 0.21 | 0.17 | 0.04 | 13.53 |
| **Edu 2** | 0.03 | 0.02 | 0.38 | 0.25 | 0.22 | 0.10 | 29.87 |
| **Edu 3** | 0.01 | 0.01 | 0.13 | 0.28 | 0.36 | 0.21 | 10.57 |
| **Edu 4** | 0.02 | 0.00 | 0.13 | 0.15 | 0.42 | 0.28 | 6.16 |
| **Edu 5** | 0.00 | 0.00 | 0.07 | 0.13 | 0.47 | 0.34 | 4.21 |
| **Transition Matrix for the Others** | | | | | | | |
| | **Edu 0** | **Edu 1** | **Edu 2** | **Edu 3** | **Edu 4** | **Edu 5** | **Size** |
| **Edu 0** | 0.15 | 0.10 | 0.40 | 0.19 | 0.12 | 0.05 | 23.20 |
| **Edu 1** | 0.02 | 0.08 | 0.45 | 0.20 | 0.16 | 0.08 | 9.89 |
| **Edu 2** | 0.02 | 0.02 | 0.32 | 0.28 | 0.24 | 0.12 | 29.80 |
| **Edu 3** | 0.01 | 0.00 | 0.11 | 0.26 | 0.35 | 0.27 | 16.26 |
| **Edu 4** | 0.01 | 0.00 | 0.08 | 0.11 | 0.45 | 0.35 | 8.81 |
| **Edu 5** | 0.01 | 0.00 | 0.02 | 0.08 | 0.36 | 0.54 | 12.04 |

*Note:* Each cell $ij$ represents the average probability (for a given NSS survey round) of a household male head with education $i$ having a son with education attainment level $j$. Column titled "size" reports the fraction of fathers in education category 0, 1, 2, 3, 4, or 5 in a given survey round.

education, sons from the social group Others are more likely to achieve an education category equal to or higher than their father as compared to SC-STs and OBCs. So, for instance, in 2009-10, for fathers with education category 5 (graduate education and higher), the probability that the son also achieves educational category 5 is 37.8, 33.56 and 54.01 percent for the SC-ST, OBCs and Others, respectively. The reading of the matrix suggest that the ability of highly educated parents to ensure an equivalent or higher education level for their children is best reaped by the Others. The fact that SC-ST sons have a higher probability to be graduates and above, compared to the OBCs, contingent upon their fathers being graduates suggests that reservations for SC-STs in higher education might be playing a role.

### B. *Ordered probit regressions for education categories*

We ran an ordered probit regression to calculate the marginal effects of being in five educational categories defined as follows: Education category 1: not literate; category 2: literate, below primary; category 3: primary; category 4: middle; category 5: secondary and above. Table 5 shows the probabilities of being in each of these categories for OBCs and SC-STs relative to Others. We see that all cohorts of OBCs and SC-STs are significantly more likely to be illiterate (category 1) than Others. The marginal effects rise from Cohort 1 to 3 and decline thereafter, such that between Cohort 1 and 5, the likelihood of OBCs being illiterate as compared to the Others reduces from 20.6 percent to 7.2 percent. We see a similar trend for SC-STs as well, but first, their likelihood of being illiterate relative to Others is higher than that for OBCs and second, the decline in this probability over successive cohorts is lower than that for OBCs. For higher educational categories, the trend in probabilities changes.

Table 5—: **Marginal Effect of SC/ST and OBC dummy in ordered probit regression for education categories**

| | | ALL COHORTS | COHORT 1 | COHORT 2 | COHORT 3 | COHORT 4 | COHORT 5 | COHORT 6 | Cohort 2 to 1 | Cohort 3 to 2 | Cohort 4 to 3 | Cohort 5 to 4 | Cohort 6 to 5 | Cohort 5 to 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Edu 1 | SC/ST | 0.307*** | 0.324*** | 0.347*** | 0.366*** | 0.314*** | 0.268*** | 0.155*** | 0.023 | 0.019 | -0.052 | -0.046 | -0.113 | -0.056 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| | OBCs | 0.191*** | 0.208*** | 0.231*** | 0.229*** | 0.196*** | 0.147*** | 0.072*** | 0.023 | -0.002 | -0.033 | -0.049 | -0.075 | -0.061 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Edu 2 | SC/ST | -0.001*** | -0.061*** | -0.038*** | -0.020*** | 0.005*** | 0.027*** | 0.030*** | 0.023 | 0.018 | 0.025 | 0.022 | 0.003 | 0.088 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| | OBCs | 0.006*** | -0.030*** | -0.016*** | -0.003*** | 0.011*** | 0.021*** | 0.016*** | 0.014 | 0.013 | 0.014 | 0.01 | -0.005 | 0.051 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Edu 3 | SC/ST | -0.030*** | -0.076*** | -0.065*** | -0.055*** | -0.025*** | 0.004*** | 0.020*** | 0.011 | 0.01 | 0.03 | 0.029 | 0.016 | 0.08 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| | OBCs | -0.011*** | -0.044*** | -0.037*** | -0.027*** | -0.008*** | 0.011*** | 0.013*** | 0.007 | 0.01 | 0.019 | 0.019 | 0.002 | 0.055 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Edu 4 | SC/ST | -0.067*** | -0.062*** | -0.074*** | -0.082*** | -0.071*** | -0.051*** | -0.044*** | -0.012 | -0.008 | 0.011 | 0.02 | 0.007 | 0.011 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| | OBCs | -0.038*** | -0.041*** | -0.048*** | -0.049*** | -0.040*** | -0.023*** | -0.018*** | -0.007 | -0.001 | 0.009 | 0.017 | 0.005 | 0.018 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Edu 5 | SC/ST | -0.209*** | -0.124*** | -0.171*** | -0.209*** | -0.222*** | -0.248*** | -0.162*** | -0.047 | -0.038 | -0.013 | -0.026 | 0.086 | -0.124 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| | OBCs | -0.147*** | -0.093*** | -0.130*** | -0.151*** | -0.159*** | -0.156*** | -0.083*** | -0.037 | -0.021 | -0.008 | 0.003 | 0.073 | -0.063 |
| | | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |

*Note:* Panel (a) reports the mraginal effects of the SC/ST and OBC dummy in an opdered probit regression of education categories 1 to 5 on a constant and an SC/ST and OBC dummy for each cohort. Panel (b) of the table reports the change in the marginal effects over successive cohorts and over the entire sample period. Standard errors are in parenthesis. * p-value0.10, ** p-value0.05, *** p-value0.01.

For category 2, i.e. literate, below primary, we see that the three youngest cohorts of OBCs show positive marginal effects compared to the Others, indicating convergence. For the next higher category, we see that only the two youngest cohorts of OBCs show positive marginal

effects. For the last two educational categories (middle and secondary and above), all cohorts of OBCs are less likely to be in these categories than the Others, confirming the D-I-D result that after the middle school level, we see divergence, rather than convergence in educational attainment.

## V. Public sector jobs

The occupational category we focus on in this paper is the share of public sector jobs, one of the sites for affirmative action, which in India takes the form of caste-based quotas (22.5 percent for SC-ST). Additional 27 percent quotas for OBCs were introduced at the national level (i.e. for central government jobs) in 1990; various state governments introduced state-specific OBC quotas at different points in time after 1950. Public sector jobs, even those at the lowest occupational tier, are considered desirable because most offer security of tenure and several monetary benefits, such as inflation indexation, cost-of-living adjusted pay, provident fund, pensions and so forth. The private sector wage dispersion is larger, so there is a possibility of far greater pay at the higher end, but the private sector is an omnibus category covering very heterogeneous establishments, with large variability in the conditions of work and payment structures.

In Table 6 we see the evolution of public sector jobs across cohorts of the three social groups. We concentrate on the cohorts labelled 2 to 6 from NSS-66. Table 6 shows that the SC-ST percentages with access to public sector jobs are consistently higher than those for OBCs, which is at variance with the access to white collar jobs, discussed above. We believe that the difference in the relative picture between SC-STs and OBCs reflects the longer operation of SC-ST quotas. Others have the highest percentage of public sector jobs across cohorts. The D-I-D reveals that OBCs are catching up, both with SC-STs and Others (the evolution and statistical significance of the calculated D-I-D are shown in the online appendix). This holds most strikingly for Cohort 4 born between the years 1956-1965, individuals who would have been between 34 and 25 years old in 1990, and hence eligible to take advantage of the new quotas. This catch-up continues onwards to Cohort 5. We see a similar convergence between SC-ST and Others, which is in contrast to the picture of divergence between SC-ST

and Others in access to white-collar jobs. [6] Within the public sector, white and blue-

Table 6—: **Evolution on public sector jobs by cohorts**

| Social Group | COHORT 2 | COHORT 3 | COHORT 4 | COHORT 5 | COHORT 6 |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| **Share of public sector jobs** | | | | | |
| SC/ST | 2.91 | 8.02 | 9.56 | 7.66 | 4.76 |
| OBC | 0.63 | 5.69 | 8.77 | 5.67 | 3.85 |
| OTHERS | 0.29 | 10.54 | 15.07 | 9.37 | 5.44 |
| **Share of blue collar public sector jobs** | | | | | |
| SC/ST | 9.01 | 18.05 | 18.65 | 12.86 | 6.98 |
| OBC | 1.11 | 11.89 | 14.8 | 8.06 | 5.76 |
| OTHERS | 0.25 | 18.31 | 23.43 | 12.85 | 6.9 |
| **Share of white collar public sector jobs** | | | | | |
| SC/ST | 2.29 | 39.88 | 35.96 | 26.35 | 16.48 |
| OBC | 1.58 | 17.03 | 21.2 | 15.97 | 9.2 |
| OTHERS | 1.3 | 22.15 | 24.08 | 15.73 | 9.02 |

*Note:* Cohort 2-6 are the five cohorts from NSS-66.

collar jobs present different scenarios. The result of quotas can be clearly seen here. Take a representative example; 6.51 percent SC-ST, 13 percent OBCs and 26.29 percent of Cohort 4 are in white-collar jobs. But of these, 36 percent of (the 6.51) SC-ST, 21.2 percent OBCs and 24.08 percent Others are in the public sector. This reveals that there are gaps between caste groups even within the public sector, but a much higher proportion of SC-STs owes their access to white-collar jobs to the public sector. If there had been no quotas, SC-ST access to white collar jobs would not have been as large as 6.51, which is already less than one-fourth the proportion of the Others. The D-I-D for white collar public sector jobs reveals that OBCs are gaining vis-à -vis both SC-STs and Others, whereas SC-STs are losing vis-à -vis the Others.

Thus, our suspicion that the lagging behind of the SC-STs in white collar jobs is a result of gaps in the private sector is further confirmed by this picture. Of course, our data do not allow us to identify quota beneficiaries explicitly; hence attributing the catch up to quotas

[6]Deshpande and Ramachandran (2014) divide occupations into three categories: White-collar, blue-collar and agricultural jobs, following the methodology used in Hnatkovska et al. (2012).

is conjectural. The OBCs' access to white-collar jobs (both public and private), as well as public sector jobs (both blue and white-collar) shows convergence with Others. A part of this convergence would be due to the operation of quotas but not all of it, since there is convergence between OBCs and Others in both public and private sectors. Section VI explicitly examines the relationship between OBC quotas and their educational and occupational attainment.

## VI. Affirmative action and occupational and educational outcomes of OBCs

In this section we explore whether the extension of reservation since 1993 at the central level, for government jobs and seats in universities, had any effect on the occupational and educational outcomes of the OBCs.[7] In particular we explore the effect of affirmative action on three outcomes - (i) whether the individual holds a public sector job or not (ii) whether the individual has a graduate degree or not and (iii) whether the individual has finished secondary schooling or not.[8] In order to be able to estimate the effect of the reservation policy, we exploit the differential impact the policy had based on the age and the social group of the individual.

The Others did not have access to reservation both before and after 1993. The SC-STs, on the other hand, had access to reservation at the center both before and after 1993. Thus these two social groups did not face any change in terms of affirmative action policies and form our control groups of interest. OBCs did not have any access to reservation for central government jobs or for seats in universities prior to 1993; however post 1993, 27 percent of all seats in government jobs and universities at the central level were reserved for them.

The first two dependent variables of interest were affected directly by the policy change and are natural outcomes to explore. Whether an individual has finished secondary schooling or not is an other key outcome as most public sector jobs in India require the individual to have finished at least 10 years of schooling.[9]

[7] The policy change was announced in 1991, but it was implemented from 1993.

[8] In India finishing secondary schooling amounts to finishing 10 years of schooling, where the $10^{th}$ year involves nationally conducted exams.

[9] In India government jobs are divided into Class I, II, III and IV jobs. Class IV jobs include jobs such as lower division clerks, drivers, technicians/mechanics, electricians, canteen staff etc. and have the requirement of the individual to have finished secondary schooling.

Our basic empirical strategy consists of using a difference-in-differences estimator to calculate the impact of the extension of affirmative action on the younger OBC cohorts who would potentially benefit from the policy change. Given that the reservation involved provision of government jobs and university seats, any individual who was OBC and under the age of 16 in 1993, could possibly alter his educational and occupational choice in response to the policy change. We thus label all individuals who were 16 and younger in 1993 as the younger cohort and those who were older than 16 in 1993 as the older cohort. Given the nature of the policy change, the younger OBC cohorts faced a change in policy whereas the younger cohorts of SC-STs and Others did not.

The finding of a differential trend for the younger OBC cohorts could be interpreted as the effect of a change in the reservation policy only under the assumption that in the absence of the policy change the trends among the groups would have been identical. In order to check for pre-policy trends among the three social groups, we estimate a reduce form placebo regression given by:

$$O_{ijkn} = T_k + OBC_i + SC - ST_i + \delta_1 OBC_i * T_k + \delta_2 SCST_i * T_k + S_n + \epsilon_{ijkn}, \tag{5}$$

where $O_{ijkn}$ refers to the three outcomes of interest of individual $i$ from group $j$ from cohort $k$ and state $n$. $T_k$ is a cohort dummy which takes the value 1 in case the individual is greater than 18 years old and less than 28 years in 1993.[10] The older cohort consists of individuals aged 29 to 53 in 1993. $OBC_i$ and $SCST_i$ are dummies which take the value 1 in case individual $i$ belongs to the OBC or the SC-ST group (the omitted category is the Others) and $S_n$ is a set of state dummies. $\delta_1$ and $\delta_2$ the coefficient on the interaction of the cohort dummy with the OBC and SC-ST dummy, respectively, is capturing whether the younger OBC and SC-ST cohorts have a differential trend with respect to the younger cohorts belonging to the Others. If our identification assumption is correct then $\delta_1 = \delta_2 = 0$ , which would reflect that the three groups exhibit identical trends prior to 1993. The results of the estimation exercise are shown in Table 7, and all standard errors are clustered at the level of the state. In column

[10] Observe these are individuals who did not really benefit from the policy change and is intended as a placebo test.

Table 7—: **Placebo Experiment to check for trends in public sector jobs and educational categories among the three social groups**

| | (1) | (2) | (3) |
|---|---|---|---|
| Cohort Dummy* OBC Dummy | -0.000 | -0.011 | 0.002 |
| | (0.006) | (0.007) | (0.016) |
| Cohort Dummy* SC-ST Dummy | 0.010 | -0.016** | -0.009 |
| | (0.006) | (0.006) | (0.016) |
| Cohort Dummy | 0.004 | 0.035*** | 0.096*** |
| | (0.006) | (0.007) | (0.012) |
| OBC Dummy | -0.015** | -0.084*** | -0.174*** |
| | (0.006) | (0.008) | (0.016) |
| SC-ST Dummy | 0.002 | -0.090*** | -0.216*** |
| | (0.007) | (0.007) | (0.015) |
| Urban | 0.055*** | 0.104*** | 0.191*** |
| | (0.005) | (0.006) | (0.012) |
| State Fixed Effects | Yes | Yes | Yes |
| Observations | 156,373 | 156,373 | 156,373 |
| R-squared | 0.030 | 0.066 | 0.123 |

*Note:* The cohort dummy refers to individuals aged 18 and 28 years in 1993. The older cohort are the ones aged 29 to 53 in 1993. In coulmn (1) the dependent variable is a dummy for having a public sector job; in column (2) it is a dummy for whether the individual is a graduate or not; and in column (3) whether the individual has finished secondary schooling or not. $*p < .05; **p < .01; ***p < .001$. Standard errors are clustered at the stael level.

(1) the dependent variable is a dummy for whether the individual holds a public sector job or not. Inspecting the coefficients on the two interaction terms shows that $\delta_1 = \delta_2 = 0$, implying there were no differential trends between the Others and OBCs and SC-STs. In column (2) the dependent variable is a dummy for whether the individual has a graduate degree or not. We see that the OBCs exhibit no differential trend with respect to the Others, whereas the coefficient on the SC-ST interaction term shows that the SC-ST were falling behind the Others in the number of people who are university graduates. Finally column (3) again shows that the OBCs and SC-ST have identical trends with respect to the Others in terms of the individuals who finish secondary schooling. To sum up, we cannot reject the null hypothesis of identical trends between the OBCs and Others for a period of 35 years before the policy change in 1993 on all three outcomes considered, whereas for the SC-ST the assumption of identical trends is only fulfilled for public sector jobs and secondary education.

Having first verified that the assumption of identical trends is satisfied (for 5 of the 6 cases),

we again estimate Eqaution 5 but now, $T_k$, the cohort dummy takes the value 1 when the individual is aged 16 or less in 1993. We consider the treated cohort to be individuals aged 1 to 16 in 1993 (or 18 to 33 in 2010) and the older cohort to be individuals aged 17 to 43 in 1993 (or 34 to 60 in 2010). The results of the estimation exercise are shown in Table 8, where all errors are clustered at the state level. In column (1) the dependent variable is whether the

Table 8—: **Main Experiment to check for trends in education among the three social groups post 1993**

| | (1) | (2) | (3) |
|---|---|---|---|
| Cohort Dummy* OBC Dummy | 0.026*** | 0.009 | 0.040** |
| | (0.007) | (0.009) | (0.020) |
| Cohort Dummy* SC-ST Dummy | -0.001 | -0.009 | -0.004 |
| | (0.010) | (0.007) | (0.016) |
| Cohort Dummy | -0.073*** | 0.022*** | 0.171*** |
| | (0.006) | (0.007) | (0.017) |
| OBC Dummy | -0.024*** | -0.096*** | -0.183*** |
| | (0.007) | (0.011) | (0.020) |
| SC-ST Dummy | 0.007 | -0.100*** | -0.228*** |
| | (0.008) | (0.009) | (0.019) |
| Urban | 0.038*** | 0.102*** | 0.167*** |
| | (0.004) | (0.006) | (0.011) |
| State Fixed Effects | Yes | Yes | Yes |
| Observations | 267,431 | 267,431 | 267,431 |
| R-squared | 0.042 | 0.056 | 0.131 |

*Note:* The cohort dummy refers to individuals aged 18 and 28 years in 1993. The older cohort are the ones aged 29 to 53 in 1993. In coulmn (1) the dependent variable is a dummy for having a public sector job; in column (2) it is a dummy for whether the individual is a graduate or not; and in column (3) whether the individual has finished secondary schooling or not. $*p < .05; **p < .01; ***p < .001$. Standard errors are clustered at the stael level.

individual hold a public sector job. Inspecting the coefficient on the interaction of the younger cohort dummy with the OBC dummy shows that is positive and statistically significant at the 1% level. The coefficient shows that extension of affirmative action increased the share of OBCs holding a public sector job by 2.6 percentage points. Reassuringly the interaction term on the coefficient of the SC-ST dummy with the younger cohort dummy is close to zero and statistically insignificant, as it should be if our identifying assumption is correct.

In column (2) the dependent variable is whether the individual holds a graduate degree or not. The coefficient on the interaction of the younger cohort dummy with both the OBC and

SC-ST is close to zero and insignificant. This suggests that the policy of reserving seats in higher educational institutions has not had the intended effect.

In column (3) the dependent variable is a dummy for whether the individual has finished secondary schooling or not. The coefficient on the interaction of the younger cohort dummy with the OBC dummy is positive and statistically significant, and indicates that affirmative action increased the number of OBC individuals finishing secondary schooling by 4 percentage points. This is consistent with the channel of individuals having to obtain at least 10 years of schooling to obtain a public sector job. Again the coefficient on the SC-ST dummy with the cohort dummy is statistically insignificant again providing support for our underlying identifying assumption.

The above results show that extension of affirmative action increased the share of OBCs with secure public sector jobs. However, they also show that the OBCs have been unable to make use of the quotas in higher education. One potential explanation could be that the quality of primary and secondary schooling is so low that individuals are unable to reach the stage where they can benefit from reservation in higher educational institutions. The fact that the affirmative action also increased the share of individuals who hold secondary schooling seems to indicate that we are actually capturing the effect of affirmative action at work. As noted before at least 10 years or more of schooling are required to be eligible for even the lowest tier (or Class IV) government jobs, hence the fact that we observe both increase in share of public sector jobs as well as share of secondary schools, and that the increase in the share of secondary school graduates (4 percentage points) is greater than the share of those obtaining government jobs (2.6 percentage points) is consistent with the hypothesized channel.

## VII. Regional differences in outcomes: Does political representation play a role? A preliminary analysis

The results from the previous section show there remain wide disparities between the three social groups on most socio-economic indicators, and the process of convergence has been limited to certain fields (literacy and primary education, blue collar jobs), and especially to

the younger cohorts. In this section, we analyze if there are any regional differences in the trends on the various indicators for the OBCs born over the period 1926-85. Additionally, this exercise also tries to understand if political representation might help explain the observed patterns of regional differences in the socio-economic evolution of the OBCs.

Jaffrelot (2003) groups the various Indian states into *seven* categories or types based on changes in OBC representation in respective state assemblies. The seven types are as follows: Type I comprising Uttar Pradesh, Madhya Pradesh and Bihar, where the share of upper caste MLAs has steadily declined. These states, particularly Bihar, saw a sharp rise in OBC MLAs post-1990; Type II comprising Punjab, Rajasthan and Gujarat, where OBC proportion among MLAs is low, except in Gujarat. These states have the same proportions of upper-caste MLAs as the Type I states, but the dominant castes among OBCs are economically as strong, and on the rise; Type 3 comprising Maharashtra, Karnataka and Andhra Pradesh. In this group, the dominant castes, i.e. the peasant proprietary castes alone are powerful. In Karnataka and Andhra Pradesh, these are classified as OBCs, but not in Maharashtra; Type 4 comprising Jharkhand and Chhattisgarh. These are predominantly tribal states. Here OBCs are 20 percent of the population but 30 percent of the MLAs; Type 5 comprising West Bengal and Kerala. These are two states where upper castes have resisted the rise of the OBCs. West Bengal is the only state in the country where the proportion of upper-caste MLAs has increased over the years; Type 6 comprising Himachal Pradesh and Delhi. These are states where the share of OBC MLAs is low but is proportional to their share in the population; and Type 7 comprising Tamil Nadu. This is also a case of quasi-proportionality, like the Type 6 states, except that the share of OBC MLAs is high.[11] The evolution of the share of the upper caste as members of the legislative assembly (MLA) is shown in Table 9. We are interested in analyzing whether increased political representation has been associated with better outcomes for OBCs, so we exploit the differences in OBC representation across the seven types to examine this question. In order to keep our analysis simple, we concentrate on two important indicators, namely, proportion with graduate degree or higher and the cohort share of white-collar jobs.

[11] We in our analysis ignore the Type 4 states as they were created only in the year 2000.

Table 9—: **Evolution of the OBC MLAs (state-wise %)**

| States | % in State Population | 1952 | 1955-57 | 1960-63 | 1967 | 1969-70 | 1971-74 | 1975-79 | 1980-83 | 1984-85 | 1987-90 | 1991-92 | 1993-95 | 1996-2000 | 2001-05 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type I** | | | | | | | | | | | | | | | | |
| Uttar Pradesh | 41.7 | 9.0 | 12 | 13 | 29.2 | 26.8 | 18.3 | 16.8 | 13.4 | 19.6 | 24.2 | 27.1 | 32.4 | 24.8 | 27.5 | - |
| Madhya Pradesh | 41.5 | - | 4.7 | 9.1 | 9.4 | - | 9.5 | 14.3 | 16.1 | 18.6 | 18.7 | - | 22.7 | 22.0 | 19.5 | - |
| Bihar | 38.5 | 20.6 | 19.4 | 24.4 | 26.6 | 27.9 | 25.7 | 28.3 | 30.4 | - | 34.9 | - | 46.8 | 40.3 | 42 | - |
| **Type II** | | | | | | | | | | | | | | | | |
| Punjab | - | - | - | - | - | - | - | 3.4 | - | - | - | 5.1 | - | 3.4 | 3.4 | - |
| Rajasthan | 40 | 3.7 | 2.5 | 4.4 | 2.2 | 5.5 | 2.5 | 7.4 | 8 | 12 | - | 5.2 | - | 6.6 | 8.9 | - |
| Gujarat | 40 | - | - | 8 | 11 | - | 16 | 15 | 24 | 24 | 26 | - | 21 | 21 | 29 | 34 |
| **Type III** | | | | | | | | | | | | | | | | |
| Maharashtra | 29.8 | - | - | - | 22.3 | - | 21.4 | 23.2 | 19.7 | 24.6 | 26 | - | 23.2 | 23.6 | 23.9 | - |
| Karnataka | 32.5 | 7.3 | 13.1 | 14.1 | 11.2 | - | 12.6 | 13 | 13 | 10 | 13.9 | - | 12.8 | 12.5 | - | - |
| Andhra Pradesh | 36 | - | 8.7 | 13 | 14.3 | - | 19.5 | 19 | 20.7 | 20.1 | 11.9 | - | 12.9 | 11.9 | 18.3 | - |
| **Type IV** | | | | | | | | | | | | | | | | |
| Jharkand | 19.7 | - | - | - | - | - | - | - | - | - | - | - | - | 27.2 | 29.7 | - |
| Chhattisgarh | 50.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | 23.3 | - |
| **Type V** | | | | | | | | | | | | | | | | |
| West Bengal | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | - | - |
| Kerala | - | - | 27 | 26 | 33 | 30 | - | 20 | 26 | 27 | 28 | 25 | - | 29 | 31 | - |
| **Type VI** | | | | | | | | | | | | | | | | |
| Himachal Pradesh | 10.5 | - | - | - | 1.7 | - | 2.9 | 5.9 | 7.4 | 5.9 | 7.4 | - | 10.3 | 7.4 | 7.4 | - |
| Delhi | 14 | - | - | - | - | - | - | - | - | - | - | - | 7 | 7 | 7 | - |
| **Type VII** | | | | | | | | | | | | | | | | |
| Tamil Nadu | 63.6 | - | - | - | 66.2 | - | 61.6 | 59 | 57.7 | 56.9 | 61.5 | 62.4 | - | 62 | - | - |

*Note:* Source (Jaffrelot, 2003).

Looking at the share of OBCs with graduate education or more for the first cohort that went to school after independence (Cohort 3 born between 1946-55) in Table 10 we see that the Types V (West Bengal and Kerala) and VII (Tamil Nadu) do the best with around 3.8% of the cohort having a graduate degree or higher. This proportion is around 1.5 percent for the Types I (Uttar Pradesh, Madhya Pradesh and Bihar), II (Punjab, Rajasthan and Gujarat) and III (Maharashtra, Karnataka and Andhra Pradesh) and as low as 0.4 percent for the Type VI (Himachal Pradesh and Delhi). However, the picture changes dramatically for the youngest cohort born between the years 1976-85. The Types I and II perform the worst with only 5.9 percent and 5.3 percent, respectively, of the cohort holding a graduate degree or higher. On the other hand, the states classified as Types III, V, VI and VII see an increase in the share of OBCs with graduate degree or more, and have a share of greater than 11.5 percent. On the other hand, for the Others, the trend does not seem to be identical. They perform the best in Tamil Nadu with almost 45 percent of the youngest cohort having a graduate degree and then have 21.2, 22.4, 20.7, 11.9 and 28.4 percent as graduates in the

Table 10—: **Evolution on the percentage of graduates for OBCS across the seven regional classifications**

| Social Group | COHORT 1 | COHORT 2 | COHORT 3 | COHORT 4 | COHORT 5 |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5)) |
| **TYPE I STATES** | | | | | |
| SC/ST | 0.3 | 1 | 1.8 | 2 | 2.9 |
| OBCS | 0.4 | 1.4 | 1.7 | 4 | 3.3 |
| OTHERS | 4.4 | 8.4 | 12.3 | 17.1 | 17.2 |
| **TYPE II STATES** | | | | | |
| SC/ST | 0.5 | 1.5 | 0.8 | 1.3 | 3.3 |
| OBCS | 0.1 | 1.2 | 1.4 | 2.8 | 4 |
| OTHERS | 2.5 | 11.2 | 10.5 | 15.7 | 17.2 |
| **TYPE III** | | | | | |
| SC/ST | 1.3 | 0.1 | 0.5 | 1.3 | 3.8 |
| OBCS | 0.1 | 2.8 | 1.9 | 4.2 | 5.3 |
| OTHERS | 3.9 | 8.2 | 11.5 | 14.5 | 14.7 |
| **TYPE V STATES** | | | | | |
| SC/ST | 0.1 | 1.5 | 4.2 | 2.4 | 2.2 |
| OBCS | 0.5 | 1.9 | 4.4 | 4.1 | 6.4 |
| OTHERS | 4.2 | 7.3 | 11.6 | 11.6 | 11.6 |
| **TYPE VI STATES** | | | | | |
| SC/ST | 1.8 | 0.8 | 5.9 | 5.4 | 3 |
| OBCS | 0.2 | 0.8 | 0.4 | 5.4 | 6.7 |
| OTHERS | 14.8 | 17.4 | 19.7 | 24 | 27.3 |
| **TYPE VII STATES** | | | | | |
| SC/ST | 0.8 | 2.1 | 1.3 | 0.3 | 5.4 |
| OBCS | 1.2 | 2.4 | 3.1 | 5.5 | 8.4 |
| OTHERS | 7.3 | 22.1 | 30.7 | 39.6 | 46.6 |

*Note:* Cohort 1 is the cohort born between the years 1926-35 and the data comes from NSS-55. The Cohorts 2 to 5 are born between the years 1936-75 and are from the NSS-66. The total time period covered is cohorts born between 1926-75. Type I comprises Uttar Pradesh, Madhya Pradesh and Bihar; Type II comprises Punjab, Rajasthan and Gujarat; Type 3 comprises Maharashtra, Karnataka and Andhra Pradesh; Type 5 comprises West Bengal and Kerala; Type 6 comprises Himachal Pradesh and Delhi; and Type 7 comprises Tamil Nadu.

Types I, II, III, V and VI, respectively. The D-I-D comparing the OBCs and Others for Cohorts 3 and 6 show that the OBCs gain relative to Others in the Types III, V and VI by 1, 7 and 3 percentage points, respectively, and lose ground by 5, 8 and 3 percentage points in Types I, II and VII. The states in which the OBCs lose ground namely Uttar Pradesh, Bihar, Madhya Pradesh, Punjab, Rajasthan and Gujarat include the key northern states, for which Jaffrelot puts forth the hypothesis of the "silent revolution", mentioned in the beginning of the paper. However, our analysis suggests that at least in the field of higher education

the OBCs in these states do not see a translation of their political ascendancy into better outcomes, and in fact, have tended to trail behind their counterparts in other states. A final point worth mentioning is that states in which the OBCs perform the worst (Types I and II), their relative share of graduates compared to the better performing states (Types III, V and VI) is around half, whereas for the Others a similar comparison reveals a small advantage in terms of share of graduates in the Type I and II states. In the case of the prestigious white

Table 11—: **Evolution on the percentage of white collar jobs for OBCS across the seven regional classifications**

| Social Group | COHORT 1 (1) | COHORT 2 (2) | COHORT 3 (3) | COHORT 4 (4) | COHORT 5 (5)) |
|---|---|---|---|---|---|
| **TYPE I STATES** | | | | | |
| SC/ST | 2.4 | 4.9 | 4.8 | 5.3 | 5.5 |
| OBC | 6.1 | 5.6 | 8.7 | 7.4 | 8.9 |
| OTHERS | 9.9 | 19.1 | 21.4 | 20.8 | 19.1 |
| **TYPE II STATES** | | | | | |
| SC/ST | 9.4 | 7.2 | 7.4 | 7.6 | 6.4 |
| OBC | 7.4 | 8.1 | 13.6 | 14 | 13.7 |
| OTHERS | 21.9 | 32.9 | 35.9 | 32.4 | 32.1 |
| **TYPE III** | | | | | |
| SC/ST | 17.4 | 4.5 | 6.5 | 11.2 | 5.6 |
| OBC | 12.3 | 9.4 | 11.7 | 16.3 | 20.2 |
| OTHERS | 13.6 | 25.2 | 26.5 | 25.9 | 34.4 |
| **TYPE V STATES** | | | | | |
| SC/ST | 2.9 | 7.6 | 4.3 | 6.9 | 7.6 |
| OBC | 17.1 | 16.2 | 17.9 | 14.1 | 15.6 |
| OTHERS | 12.9 | 19.1 | 16.5 | 16.8 | 13.5 |
| **TYPE VI STATES** | | | | | |
| SC/ST | 3.3 | 11 | 19.7 | 13.9 | 14.7 |
| OBC | 10.8 | 32.8 | 35.6 | 39.5 | 36.9 |
| OTHERS | 35.6 | 52.5 | 48.1 | 46.3 | 47.7 |
| **TYPE VII STATES** | | | | | |
| SC/ST | 3.3 | 3.6 | 4 | 10.8 | 6.2 |
| OBC | 9.1 | 14.7 | 18.2 | 14.7 | 18.7 |
| OTHERS | 82.4 | 26.6 | 48.4 | 52.2 | 39.9 |

*Note:* Cohort 1 is the cohort born between the years 1926-35 and the data comes from NSS-55. The Cohorts 2 to 5 are born between the years 1936-75 and are from the NSS-66. The total time period covered is cohorts born between 1926-75. Type I comprises Uttar Pradesh, Madhya Pradesh and Bihar; Type II comprises Punjab, Rajasthan and Gujarat; Type 3 comprises Maharashtra, Karnataka and Andhra Pradesh; Type 5 comprises West Bengal and Kerala; Type 6 comprises Himachal Pradesh and Delhi; and Type 7 comprises Tamil Nadu.

collar jobs (see Table 11) comparing the cohort born in 1946-55 to the cohort born in 1966-75 we see a similar picture as for the case of graduate education with the OBCs in Type I and II states relatively underperforming as compared to the OBCs in state Types III, V, VI and VII. The D-I-D comparing the cohort aged 35-44 to the cohort aged 55-64 for the OBCs and Others, however, shows that the OBCs increase their relative share in white collar jobs in all six types of states with the greatest gains in Tamil Nadu. However, here we observe the relative gains to be largest in the states of Uttar Pradesh, Bihar, Madhya Pradesh (Type I) and Punjab, Rajasthan and Gujarat, as compared to the Type III, V and VI states. It is important to note that although the gains for OBCs on white collar jobs have been larger in the north Indian states in absolute amounts, they still have the lowest share as compared to the other categories or types. In sum, our preliminary analysis seems to indicate that the link between increased political representation and socio-economic outcomes for the OBCs seem tenuous at best, for the indicators of graduate education and white-collar jobs.

## VIII. Conclusion

Summing up, our findings suggest that the gaps between the Others and OBCs and SC-ST remain large for a variety of important indicators. Average MPCE and wages of the OBCs and SC-ST are 57 and 69 per cent and 57 and 42 per cent, respectively, of the average of the Others. Their share of labor force employed in white-collar jobs is about one fourth and half the proportion of the Others. On the other hand, the share of the OBC and SC-ST labor force employed as casual labor is twice and thrice that of the Others, respectively. However, despite significant gaps in the above indicators, we find evidence of catch- up between OBCs and Others for the younger cohorts (especially in literacy, primary education and wages), but we find continued divergence in all education categories after the middle school level, regular wage salaried jobs and in white-collar jobs except for the youngest cohort.

This picture is different from the one that emerges after a similar analysis between SC-STs and Others, where the divergence and dissimilarity in all indicators vis-à-vis the Others is much greater. In the case of intergenerational transmission of education we find the lowest mobility for SC-STs though there is an increase over time. Younger cohorts of OBCs are closer

to the Others than to SC-STs in several indicators, whereas the older cohorts were closer to the SC-STs. Analysis of the affirmative action policies instituted for the OBCs since 1993 are seen to increase both their share of government jobs and the proportion finishing secondary schooling. We also carry out a preliminary exploration of the role of political representation in affecting socio-economic outcomes of the OBCs, and find little evidence in support of it.

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## Appendix

In order to analyze the trends over time in the relative position of the three social groups, we construct six birth cohorts using the age variable in each of the NSS rounds as shown in Table A12. From their age, we can determine their birth year and thus, over the two rounds

Table A12—: **Sample of Cohorts used from NSS-55 and NSS-66 for the Analysis**

| | Age in 2010 | Birth year | Data available in NSS-55 | Data available in NSS-66 |
|---|---|---|---|---|
| Cohort 1 | 75-84 | 1926-1935 | Yes | No |
| Cohort 2 | 65-74 | 1936-1945 | Yes | Yes |
| Cohort 3 | 55-64 | 1946-1955 | Yes | Yes |
| Cohort 4 | 45-54 | 1956-1965 | Yes | Yes |
| Cohort 5 | 35-44 | 1966-1975 | Yes | Yes |
| Cohort 6 | 25-34 | 1976-1985 | No | Yes |

*Note:* Cohort 1 to Cohort 6 cover the birth years 1926-85. The information on the oldest cohort born in 1926-35 comes only from the NSS-55 whereas information for the youngest cohort born 1976-85 comes only from NSS-66. For Cohorts 2 to 5, we use the information from NSS-66 as it is the most recent information available.

we are able to get information for six cohorts, the oldest cohort born during 1926-1935 and the youngest born during 1976-1985.[12]

[12]As can be seen from the table above, matching the birth year implies that Cohort 2 to Cohort 5 are observable in both survey rounds, whereas the Cohort 1 information comes only from the 1999-2000 and data on Cohort 6 only from 2009-10. We use information for Cohorts 2 to 5 based on 2009-10, the latest survey round.