Beyond Quotas: How Affirmative Action Shapes Marriage, Fertility, and Women's Work in India

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Abstract

This paper examines the impact of affirmative action in public sector employment on women's marriage, fertility, and labor market outcomes in India. We leverage the exogenous introduction of job quotas for Other Backward Classes (OBCs) in 1993, to identify causal effects of the policy on women's life-course decisions. The results show that exposure to the quota decreased the overall fertility of women with a greater decline in number of daughters, strengthened educational assortative matching, with affected women more likely to marry higher-educated spouses. In contrast, women's labor force participation declined among those exposed to the policy. Increase in completed years of education and delay in average age at marriage plausibly led to these outcomes. Together, these findings suggest that the expansion of affirmative action reshaped women's educational trajectories, marital choices, and fertility behavior, while also reinforcing patterns of positive educational assortative mating and reducing female labor market participation.

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1 Introduction

Affirmative action policies around the world have been used as a powerful mechanism to address deeply rooted social and economic inequalities. Despite being one of the most debated and contentious policy tools, affirmative actions are supported by numerous theories and assumptions that highlight their role in correcting social and historical injustices and supporting marginalized groups. From racial discrimination against blacks in the United States to discrimination against backward castes in India, governments have implemented reservations, quotas, and targeted support to expand access to education and employment for historically and socially disadvantaged communities. India, as a prominent representative democracy, has instituted one of the largest affirmative action policies aimed at addressing historical and social inequality for backward castes such as SCs, STs and OBCs. Affirmative action policies are more visible and comprehensive in India as compared to other countries (Khanna (2020)), and numerous studies have documented their effects on employment, educational attainment, and intergenerational mobility with respect to men. However, there is limited evidence on how these policies influence outcomes for women specially the fertility outcomes.

In this paper, we study the casual impact of affirmative action policies in employment for Other Backward Classes (OBCs) in India on assortative matching, fertility outcomes, and work force participation for women. In the Indian context, affirmative action has been shown to influence various developmental outcomes, particularly education and employment for targeted groups (Basant and Sen (2020) , Deshpande and Ramachandran (2019)). The introduction of Job quotas for OBCs, our policy of interest has been shown to affect the educational outcomes and employment of men exposed to the policy (Khanna (2020)) with evidence of intergenerational benefits for the next generation of males as well (Jain (2022)). The policy could have a indirect effects on women's outcomes such as education and employment, as parents might choose to invest more in daughters' education in anticipation of better job opportunities (Jensen (2012)). The increase in educational attainment of women has impacts on

their marriage prospects and their decision making power within the household which in turn can affect the fertility decisions taken by them(Low (2024)).

We exploit a plausibly exogenous policy as announced by the government of India in 1993, which provided 27% reservations in public sector jobs to people from Other Backward Classes. This reservation policy applied to people from other backward classes (OBCs) and not to other caste category ie., "General".

Our empirical strategy employs Difference-in-Difference framework that exploits variation in exposure to policy (Reservations in public sector jobs to OBCs) by caste and year of birth of women. The OBC women who are born after 1985 comprises our treatment group after the treatment. OBC women born before 1985 forms the treatment group prior to treatment. General category women born after 1985 comrpises our pure control group.

We find that OBC women who were exposed to the 1993 policy have, on average, 0.1 fewer children and 0.05 fewer daughters compared to the control group. Additionally, these women complete, on average, 0.4 more years of education and marry 0.17 years later than the control group. However, we find a contrasting evidence on the work force participation of women. Despite attaining higher levels of education, these women exhibit declining labor force participation, a pattern that aligns with the well-documented paradox of falling female workforce participation in India (Chatterjee et al. (2018)). To validate these findings, we conduct event study analyses and perform a series of robustness checks to account for potential confounding factors that could bias our estimates.

Turning to potential mechanisms that might be driving our results on fertility and declining work force participation for women can be explained by two factors. First, women who are getting exposed to the policy are completing more years of education as the parents now invest more in their daughter's education in expectation of increased job opportunities. The increase in education for women has direct and negative impacts on fertility outcomes as documented in previous literature (Ali and Gurmu (2018), Kim (2023)). Second, these women are marrying late as a consequence of studying more, and marrying better educated and better employed

spouses. The increase in household income after marrying better spouses crowds out the work force participation of women. We show from our data that the increase in completed years of education of women and education-hypergamy are the main driving mechanisms behind the declining fertility and work-force participation.

2 Data

This srudy employs data from different rounds of National Family Health Survey rounds 2, 3, 4, & 5 – NFHS hereafter. NFHS is a repeated cross-sectional surveys conducted in India, and are part of the Demographic and Health Surveys (DHS). The NFHS surveys, like the other DHS surveys, collect rich demographic and health information for a nationally representative sample of the Indian population. They collect detailed information on marital and fertility histories of ever-married women of reproductive age, detailed information in education and occupation of their spouses and some information on their work force participation.

Our sample consists of women who have experienced at least one birth in their lifetime. The final sample consists of 439929 mothers, who were born after 1975. Women in the sample are completing 6.8 years of education. Our main analysis focuses on the fertility outcomes,assortative matching and work force participation of women. Descriptive statistics for our sample is presented in Table 1. Women in the sample are having 2.4 births in their life time. The number of sons born to a mother are greater in numbers as compared to daughters. 29% of our sample resides in an urban area, and 81% population is Hindu. 66% of population in our sample belongs to Other Backward Castes (OBCs). Our treatment group comprises OBC women born in 1985 or later. By 1993—the year the affirmative action policy was introduced—they would have been 8 years old or younger, and thus still in a position to adjust their human capital decisions in response to the policy. In contrast, older cohorts born before 1985 are less likely to be affected, as they would have largely completed or made key decisions about their education by that time. Women from General caste category forms our pure

control group.

3 Empirical strategy

Our empirical strategy aims to causally estimate the impact of the 1993 reservation policy for OBCs in public sector employment on fertility outcomes, assortative matching, and women's labour force participation. Our empirical strategy exploits the fact that the policy only applied to OBCs and General caste category did not get affected. Hence, women born after 1985 comprises the treatment group after the treatment. Women born before 1985 comprises the treatment group prior to the treatment. Women from General caste make up the pure control group. We did not take SC, STs as our control group as they are already having quota benefits in education and employment since the framing of the constitution [1]. However we do conduct a robustness check using SC,STs as pour control group to check for the validity of our findings. The results are presented in Appendix. It is only the General Caste group that has never benefitted from any kind of reservations excluding the EWS reservations that were recently announced in 2019 [2]

We estimate the following specification: we estimate the following empirical equation for fertility outcomes of mother i residing in Primary Sampling Unit p born in year b:

$$Y_{ipb} = \alpha + \beta_1 Obc_i + \gamma Post_b \times Obc_i + X'_{ipb}\mathbf{\Gamma} + \theta_p + \phi_b + \epsilon_{ipb} \tag{1}$$

We include Year of birth of mother ϕ_b and PSU (Primary sampling Units) fixed effects θ_p in our analysis. We also include the interaction of these fixed effects to have a more stricter

[1] In 1950, Constitution mandated reservations for SC-STs in jobs where 15% seats was reserved for SCs and 7.5% for STs.

[2] 103rd Constitutional Amendment Act, 2019: The persons belonging to EWSs who, are not covered under the scheme of reservation for SCs, STs and OBCs shall get 10% reservation in direct recruitment in civil posts and services in the Government of India as announced by the government of India. The bill states that Persons who are not covered under the scheme of reservation for SCs, STs and OBCs and whose family has gross annual income below Rs 8OO lakh (Rupees eight lakh only) are to be identified as EWSs for benefit of reservation. Income shall also include income from all sources i.e. salary, agriculture, business, profession, etc. for the financial year prior to the year of application.

specification to be estimated. Our identification strategy relies on the fact that the introduction of reservations in Public sector jobs in 1993, were exclusively applied to OBCs only. It did not affect the employment opportunities for general and other historically disadvantaged castes such as SCs and STs.

For Difference-in-differences estimates to be causal in our analysis, the outcomes for women exposed to the policy and for women who were not exposed to the policy should follow a similar trend prior to the treatment also known as Parallel trends assumption. We use event studies framework for women's outcomes of interest to check the validity of our assumptions using the following regression specification:

$$Y_{ipb} = \alpha + \beta_1 Obc_i + \sum_{t \in \{t_0,..,T\} \setminus \{t_p\}} \gamma_t \mathbf{1}_{it} \times Obc_i + X'_{isbmt}\mathbf{\Gamma} + \theta_p + \phi_b + \epsilon_{ipb} \tag{2}$$

Here t_0 refers to the first birth cohort 1974-75, that we have used for our analysis and T refers to final year of birth cohort, 1998-99. For each of the cases, the birth cohort t=1984-85 forms the base category. We create a time period indicator using the birth cohorts and interact each of the time indicators with the OBC indicator so as to conduct the event study analysis. All other variables remain same as the main specification 1.

4 Results

We use data from rounds 2, 3, 4 & 5 of NHFS to estimate the impact of affirmative action in jobs for Other Backward Classes (OBCs hereafter) on women's outcomes like fertility, assortative matching and their work force participation. The sample comprises women born after 1975 who atleast had one children. The policy only applied to people from OBC caste category hence they form our treated group and women from general caste category forms our pure control group.

4.1 Main Results

Table 2 presents results for the impact of the policy on fertility outcomes for OBC women who got exposed to the policy. Column 1 estimates a basic version of equation 1 that controls for Primary sampling unit (PSU) effects, Woman's year of birth fixed effects, Interaction of mother's year of birth fixed effects with PSU fixed effects. The coefficient of interest here is the interaction term, the interaction between OBC and post which is -0.110 statistically significant at 1%. The coefficient can be interpreted as, OBC women exposed to the policy are having fewer children by 0.110 as compared to women from the control group. As the specification includes PSU Fixed Effects and Year of mother's birth fixed effect, the identification of our coefficient of interest in column 1 of Table 2 is based on exposure of mothers to treatment within a PSU and their birth cohorts. The PSU Fixed effects and Year of mother's birth Fixed effects accounts for any unobservables that vary by PSU and birth cohorts of mother. However, a concern remains that unobserved factors not fully captured by the fixed effects may be correlated with the treatment indicator, potentially biasing the estimates. For instance, different PSUs may have followed different time trends that could have influenced outcomes for both General and OBC groups in varying ways. To address this concern we also include the interaction of PSU FEs with Mother's birth year FE. These interactions control for different time trends in each PSU. In column 2 we add relevant socio-demoghraphic controls that might bias our estimates and our results are robust. Further, we also check for the change in number of daughters and sons as born to women who got exposed to the policy. Column 3-4 reports the coefficient for the total number of daughters born to the treated group of women and as the estimates shows the OBC women exposed to the policy are having fewer number of daughters by 0.05, after the treatment as compared to the control group. We find a similar decrease in number of sons in column 5-6. OBC women who got exposed to the treatment are having fewer number of sons as compared to their counterparts by 0.04. We observe that the decline is more pronounced for daughters than for sons, reflecting continued son preference in India. Table 4 presents results for patterns of educational assortative matching among women,

measured by the completed years of education of the husband relative to that of the wife. This allows us to examine whether the policy influenced women's marriage choices along the dimension of spousal education. In columns 1 and 2 we regress wife's completed years of education on the interaction of Husband's completed years of education with post and OBC. This allows us to measure the spousal choices of treated cohorts of women in the post treatment period. Our coefficient of interest is the triple interaction term in column 2 which has a magnitude of 0.428 statistically significant at 1% level. This interprets to : women who got exposed to the policy are marrying spouses with higher completed years of education by 0.4 years. In column 3 and 4 we change the specification with husband's completed years of education as our dependent variable and the interaction of wife's completed years of education with Post and OBC as our independent variable to validate our findings in column 1 and 2. As the coefficient on triple interaction term wife's education * Post*OBC in column 4 shows, the magnitude is almost similar to the coefficient in column 2 significant at 1%. This validate our findings. A positive and significant coefficient indicates that, following the introduction of the quota policy, OBC women were more likely to marry husbands with similar or higher education levels, and similarly, OBC men were more likely to marry women with comparable education.

Table 5 studies impacts on on women's work force participation as a result of the policy. In column 1 the coefficient on the interaction term is negative and statistically significant at 1%. In column 2 we add a set of controls and observe a similar decline in the work force participation for women by 3.1 percentage points. This finding is in line with the broader paradox of falling female labor force participation in India (Afridi et al. (2018), Andres et al. (2017)). The affirmative action policy was designed to give reservations in jobs to people from OBCs. This policy led to an increase in the men's labour force participation as some of the previous literature has shown (Deshpande and Ramachandran (2019), Khanna (2020)) and we also show it from our data in Table A3. However, this policy did not increase the participation of women as Table 3 shows. NFHS data does not have variables defning whether a women was

involved in domestic work or she was working for wages. To further elaborate our findings by work category we use 68th round of NSSO employment- unemployment survey (2011-12) to check the impact of our policy on work force participation of women exposed to the policy for different categories of work. Table A4 reports the estimates. Column 1-2 shows the impact of the policy on working for wages for women, where the negative and signifuicant coefficient interprets that OBC women who got exposed to the policy are working less for wages by 6 percentage points. Column 3-4 shows the impact on domestic works for women exposed to the treatment. Our coefficient of interest is the interaction term which interprets to women who got exposed to the treatment are more involved in domestic works by 4 percentage points.

4.2 Mechanisms

4.2.1 Fertility Outcomes

In the previous section, we established that the affirmative action policy for OBCs in jobs led to a decline in the number of overall births for women who got exposed to the treatment. In this section, we examine the two main channels through which these effects may operate. Our first mechanism is women's educational attainment: greater access to public sector opportunities may have raised the returns to schooling, encouraging families to invest more in daughters' education (Jensen (2012)). We show it from our data that women who got exposed to the policy are completing more years of education. Table A5 present result. As the coefficient on the interaction term in column 2 indicates, women getting exposed to the treatment are completing more years of education by 0.42 years as compared to their counterparts. Higher levels of education, in turn, are closely linked to lower desired fertility and reduced completed family size (Drèze and Murthi (2001), Brand and Davis (2011), Ali and Gurmu (2018)).

A second mechanism operates through delayed marriage. Improved educational and employment prospects can postpone the age at first marriage , thereby shortening women's reproductive window and contributing to a decline in fertility. In what follows, we provide

evidence consistent with these two pathways." This section describes the potential mechanism that might be driving our outcomes of interest. Table A5 presents results. Columns 1-2 report results for the completed year of education for women who got exposed to the treatment. The coefficient interpret as women who were exposed to the policy are completing more years of education by 0.4 years. Our results are robust to more conservative Fixed effects and controls. The increase in labour market opportunities have aspirational effects educational decisions as shown in number of previous texts. These labour market opportunities allow parents and individuals to invest in their children's education in aspiration of better job opportunities in the future. The OBC reservation in jobs provided better opportunities for women also, the aspirational effects led to an increase in education of women who got exposed to the policy as Table A5 shows. This increase in education also delayed the average age at marriage for Indian women by 0.18 years as shown in column 4. These impacts of OBC policy on women combined affected the fertility outcomes, their patterns of assortative matching and work force participation respectively. The increase in completed years of education and delayed age at marriage have consequences for fertility outcomes. Some of the previous literature has shown a direct and negative impact of increase in educational attainment of women on their fertility decisions and number of births in their lifetime.

4.2.2 Assortative Matching

Assortative mating as an important concept in marriage market models are well-documented. Researchers have established that individuals marry spouses who are like themselves over a number of dimensions such as : education (Mare (1991)), ethnic background, and physical characteristics (Epstein and Guttman (1984)). Among these, education has received particular attention in the literature(Pencavel (1999), Gihleb and Lang (2020)), largely due to the substantial expansion in schooling opportunities over recent decades. The increase in educational attainment particularly of women has reshaped their marriage market preferences in developed and developing regions (Rose (2005), Behrman et al. (1994)).

India our context of study, provides a unique setting to study these dynamics, given the persistence of patriarchal norms, low female labor force participation, and the institution of dowry. India has witnessed an increase in educational attainments of women (India (2018)) influencing their well-being and marriage choices (Chari et al. (2017), Agarwal et al. (2023), Vikram (2024)). An important motivation for parents to invest in daughters' education is the expectation that it will enhance their prospects of marrying a well-paid and securely employed husband(Adams and Andrew (2019)). The returns from education for women in Indian context are conditional upon the patriarchal setting where most decisions regarding marriage are taken by parents (Desai and Andrist (2010)). However, education provides them with the agency to have a greater say in their spouse selection (Vikram (2024)). Consistent with the existing literature we find that women who got exposed to our policy of interest completed more years of education which in turn led to a positive increase in patterns of educational assortative matching (Goel and Barua (2023)). Women who got treated are completing more years of education by 0.4 years (Table 3, column 2) and subsequently marrying better educated spouses by an additional of 0.4 years as reported in column 2 of Table 4.

4.2.3 Work force participation

India faces a stagnate and declining women labour force participation since years inspite of an increase in education also commonly referred as "Paradox of rising female education but stagnant or declining female labor force participation".Consistent with this pattern we find a similar contrasting results from our paper. Table 5 reports the estimates for work force participation for OBC women who got exposed to the policy. As the coefficient in column 2 shows the women work force participation declined as a result of the policy. The potential mechanism that might be driving our estimates is the "Income effect channel". The fact that now they are marrying better educated spouses as we have shown (4) from our data and better earning spouses as a result of this policy (A3), rising household income (often due to male earnings) can reduce the economic pressure for women to work (Goldin (1994)), especially

in patriarchal settings where women's withdrawal is seen as a sign of prosperity (Chatterjee et al. (2018)). The social stigma attached to women working outside in high-income families also plays a part in declining labour force participation of women (Deshpande et al. (2019)). The high income status of family constrains women to go outside and work and they get more involved in domestic work as we also show from opur data in Table A4 that might be one of the reason the work force participation declines for women who got exposed to the policy.

4.3 Identifying Assumptions

In Difference-in-Difference framework identification relies on Parallel Trends Assumption. We validate this assumption using our data. In context of our study, the parallel trends assumption would hold if time trends in outcomes for children whose mothers exposed to the treatment are similar for the outcomes for children whose mothers were not exposed to the treatment. In this paper we use an event study framework as described by equation 2. The event study allows us to compare the outcomes of women were exposed to the policy with their counterparts using one year band of mother's birth years. Our coefficient of interest is captured by "γ_t" . Figure A1 plots the event study estimates "γ_t" for total children born with 95% confidence intervals. We see some violations of pre-trends for initial birth cohorts of women in the pre-policy period. The difference in outcomes between the exposed and unexposed cohort becomes significant and larger in magnitude for the children born to later born cohorts of mother in the post treatment period. We see Similar results for total number of boys ever born. Figure A3 plots the event study estimates total boys. We also plot event study graphs for total number of daughters ever born to exposed and unexposed cohorts of women. FigureA4 shows the parallel trends for total number of girls born to treated and control groups. We also conduct event studies for completed education and age at marriage of women who were exposed to the policy. Figures A5 and A6 shows the event studies for these outcomes. As the graph shows these outcomes does not show any violation fo pre-trends in the pre-policy period and the differences in outcomes for ther OBC and general caste category only becomes

statistically significant in the post-policy period. we see some violation of parallel trends in our analysis , to account for this we conduct a sensitivity analyses using new DID literature (Roth et al. (2023)) where we allow for linear and non-linear violations of parallel trends and check for the stability of our coefficients in the post periods. Figure **??** presents the sensitivity analysis for the outcomes on overall fertility rates for the exposed cohort.

5 Robustness Checks

In this section, we describe set of robustness checks to validate our findings.

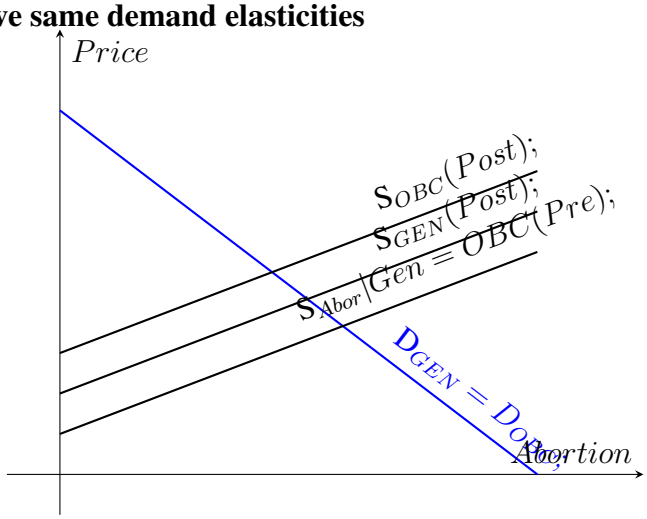
5.1 Potential Confounders

As our first robustness test, we explore possible confounders that might be correlated with our affirmative action policy for OBCs and might bias our estimates.

5.1.1 Sex-selective abortion

One major factor that may confound our estimates is the introduction and diffusion of ultrasound technology in India from the mid-1980s. These sex-selective abortions reduced the birth of unwanted daughters and led to a substantial decline in number of births an individual could have ()Ṗrior to the spread of ultrasound, families often continued childbearing until they reached the desired number of sons; with ultrasound, total fertility could decline while maintaining son preference. To the extent that OBC households were differentially exposed to ultrasound services across states or socio-economic strata, part of the observed fertility decline may be attributable to sex-selective practices rather than the affirmative action policy. Differences in access to sex-selective abortion across caste groups likely reflect an interaction between demand-side preferences and supply-side availability. In what follows, we outline both sets of arguments and discuss how these potential confounding factors are addressed in our analysis.

Argument 1 : OBCs and Generals have different access to sex-selective abortions but have same demand elasticities

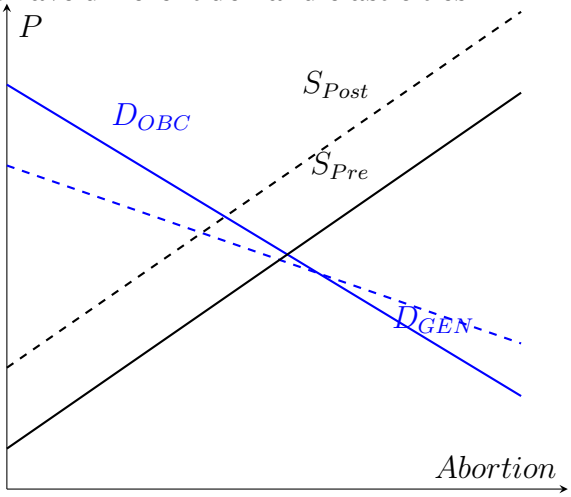


The above graph illustrates the supply-side confounding factors that may bias our estimates. While individuals from both OBC and General caste categories may have had similar demand for sex-selective abortions before and after the policy of interest, they might have faced differential access to the technology across their areas of residence over time. In the graph, this is reflected by a common demand curve and supply curve prior to the policy, but diverging supply curves for OBC and General groups after the policy came. To address this concern, we include PSU fixed effects in our main specification. PSU fixed effects ensures that any changes occurring within a PSU over time are accounted for, and both OBCs and General caste individuals are subject to the same PSU-level supply side interventions.

Another concern is that supply of ultrasound might not just differ across PSUs on average but also change at different rates over time. To account fot this we add the intearction of PSU FE with linera cohort trends in our specification and check for our estimartes. Table 6 present results. As the coefficeints indicate our estimates are robust to the inclusion of time trends. Adding PSU FE × linear cohort trends allows each PSU to have its own trajectory of technology diffusion and take care of any time trending confounders that might bias our estimate. This ensures that our policy effect is not conflated with PSU-specific supply expansions.

Argument 2: OBC and General face same supply curve before and after the policy

but have different demand elasticities



The above graph illustrates the demand-side confounding factors that may bias our estimates. While individuals from both OBC and General caste categories may have had similar supply of sex-selective abortions before and after the policy of interest, they might have different elasticities of demand for the available sex-selective abortion technology. To address this possibility that differential demand for sons across caste groups could confound our results, we conduct a robustness check using NFHS-2 that was conducted in 1998-99 around the policy. We restrict the sample to women who have completed their fertility (45-49 years), thereby ensuring that the observed fertility outcomes reflect completed preferences . Following the strategy of Alfano (Alfano (2017)), we construct a balanced panel for different birth cohorts of women using 13 years of bandwidth and regress the total number of births on an indicator for whether the first-born child was a daughter. Sex of the first born is found to be exogeneous as established in previous works and an indicator of son-preference. If son preference were driving fertility outcomes differentially across caste categories, we would expect a significant increase in the number of births following a first-born daughter. However, our estimates are statistically insignificant as presented in Table 7 , suggesting that differential demand for sons are driving our main fertility outcomes.

5.1.2 Mid-day Meal

Another potential confounder is the introduction of the Mid-Day Meal (MDM) scheme in the 1990s, which improved children's school participation and nutrition (Chakraborty and Jayaraman (2019)). By raising female schooling and affecting the average afge at marriage MDM could also influence fertility decisions. If the expansion of MDM differentially benefited OBC households relative to General households, our estimates might conflate its effects with those of affirmative action. We address this concern by exploiting PSU fixed effects and birth cohort fixed effects, which absorb local differences in program rollout and national schooling trends.

5.2 Placebo

In this section, we conduct a set of placebo checks to validate the robustness of our findings. First, in Table A1, we repeat the regressions reported in Table 2, but with a different control group. Instead of using the "general" category as control group as we do in Table 2, we use SCs, STs and "general" as the control. SCs and STs are also socially disadvantaged groups which are entitled to affirmative actions in jobs, education and politics. However, their quotas did not change in the period of our policy. We re-run the similar specification and and find that results remain statistically insignificant suggesting that the observed fertility outcomes are specific to OBC exposure when compared with pure control group which did not get any reservation rather than reflecting broader trends across other caste groups.

Second, In TableA2 we re-run the same specification using a different set of sample ie., only Muslims. The OBC reservations in jobs were only given to Hindus and Muslims were not a part of it. Considering this we test for this using our analysis. The estimated effects in this placebo sample are statistically insignificant, indicating that the observed impacts in our main sample are not driven by general time trends, measurement artifacts, or other unobserved factors that are not related to the policy.

6 Conclusion

This paper examines the long-term impact of affirmative action in public sector employment for Other Backward Classes (OBCs) on fertility outcomes, assortative matching, and women's labor force participation in India. We provide evidence that exposure to the policy reduced lifetime fertility, with a sharper decline in the number of daughters relative to sons, pointing to persistent son preference. In terms of marriage markets, we find that women who got exposed to the policy were more likely to marry better-educated spouses, suggesting an upward shift in assortative matching. However, a contrasting pattern emerges for labor market outcomes, as exposed women are less likely to participate in the workforce compared to their non-exposed counterparts.

A key mechanism underlying these results appears to be an increase in educational attainment and a delay in the average age at marriage among OBC women exposed to the policy. From a policy perspective, these findings highlight both the direct and unintended consequences of affirmative action in shaping demographic and social outcomes. While the reduction in fertility and improvements in marriage market outcomes reflect positive strides in women's empowerment and human capital accumulation, the decline in women's labor force participation points to rigid social norms in Indian context. Taken together, our findings suggest that affirmative action has the potential to generate long-run changes in demographic behavior and marriage markets, but its effects on women's labor force participation remain muted unless accompanied by broader structural reforms.

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7 Tables

Table 1: Descriptive statistics

Variable (Mother)	Observations	Mean	Std. Dev.	Min	Max
Year Birth	439929	1984.04	6.3	1975	2003
Completed Edu	439929	6.7	5.23	0	20
Work	95620	0.28	0.45	0	1
Total Children	439929	2.4	1.26	1	10
Total Girls	439929	1.14	1.11	0	10
Total Boys	439929	1.27	0.98	0	9
Urban	439929	0.29	0.46	0	1
Hindu	439929	0.81	0.39	0	1
OBC	439929	0.66	0.47	0	1

Table 2: Affirmative actions and impact on actual fertility

	Total Children		Total Girls		Total Boys	
	(1)	(2)	(3)	(4)	(5)	(6)
OBC	0.255***	0.235***	0.129***	0.120***	0.126***	0.115***
	(0.0131)	(0.0114)	(0.00814)	(0.00758)	(0.00748)	(0.00681)
Post*OBC	-0.110***	-0.106***	-0.0576***	-0.0574***	-0.0528***	-0.0489***
	(0.0126)	(0.0120)	(0.00890)	(0.00898)	(0.00805)	(0.00789)
Mother Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
PSU FE	Yes	Yes	Yes	Yes	Yes	Yes
Mother Birth Year FE * PSU FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
N	470751	439929	470751	439929	470751	439929
R^2	0.406	0.435	0.220	0.234	0.280	0.297
$Mean(DependentVariable)$	2.3	2.3	1.1	1.1	1.2	1.2

Note: The Sample includes women who have had at least 1 child. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

Table 3: Mechanism: Impact on women's completed Education and age at marriage

	Completed Education		Age Marriage	
	(1)	(2)	(3)	(4)
OBC	-1.968***	-1.665***	-0.727***	-0.602***
	(0.0583)	(0.0451)	(0.0354)	(0.0311)
Post*OBC	0.486***	0.427***	0.202***	0.172***
	(0.0545)	(0.0442)	(0.0348)	(0.0322)
PSU FE	Yes	Yes	Yes	Yes
Woman Birth Year FE	Yes	Yes	Yes	Yes
PSU FE*Woman Birth Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
N	470743	439921	464015	433516
R^2	0.382	0.458	0.281	0.296
$Mean(DependentVariable)$	6.8	6.8	18.4	18.4

Note: The Sample includes women who have had at least 1 child. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

Table 4: Impact on Assortative Matching

	Wife's Education		Husband's Education	
	(1)	(2)	(3)	(4)
OBC	-1.728***	-1.457***	-1.259***	-1.038***
	(0.171)	(0.120)	(0.159)	(0.111)
Post*OBC	-3.975***	-3.271***	-3.274***	-2.661***
	(0.211)	(0.167)	(0.193)	(0.153)
Husband's Edu*Post*OBC	0.520***	0.428***		
	(0.00896)	(0.00944)		
Wife's Edu*Post*OBC			0.506***	0.413***
			(0.00791)	(0.00847)
PSU FE	Yes	Yes	Yes	Yes
Woman Birth Year FE	Yes	Yes	Yes	Yes
PSU * Woman Birth Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
N	82100	75818	82100	75818
R^2	0.552	0.552	0.371	0.454
$Mean(DependentVariable)$	6.7	6.7	8.1	8.1

Note: The Sample includes women who have had at least 1 child. The education variable indicates the completed years of education of women and their spouses. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

Table 5: Impact on Work force participation of women

	Work force participation	
	(1)	(2)
OBC	0.0871***	0.0649***
	(0.0161)	(0.0151)
Post*OBC	-0.0385**	-0.0313**
	(0.0165)	(0.0159)
PSU FE	Yes	Yes
Woman Birth Year FE	Yes	Yes
PSU FE* Woman Birth Year FE	Yes	Yes
Controls	No	Yes
N	81973	75705
R^2	0.336	0.350
$Mean(DependentVariable)$	0.28	0.28

Note: The Sample includes women who have had at least 1 child. Work force participation is a binary indicator that takes the value 1 if the woman is currently working or she has worked in past 12 months. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.
$^{*}\, p < 0.1$; $^{**}\, p < 0.05$; $^{***}\, p < 0.01$
Source: Authors' calculations from NFHS-2,3,4 & 5

Table 6: Affirmative actions and impact on actual fertility: With PSU Specific Linear Time Trends

	Total Children		Total Girls		Total Boys	
	(1)	(2)	(3)	(4)	(5)	(6)
OBC	0.249***	0.229***	0.125***	0.118***	0.123***	0.111***
	(0.0119)	(0.0103)	(0.00739)	(0.00686)	(0.00683)	(0.00622)
Post*OBC	-0.106***	-0.101***	-0.0541***	-0.0542***	-0.0519***	-0.0467***
	(0.0108)	(0.0104)	(0.00767)	(0.00777)	(0.00706)	(0.00699)
PSU FE	Yes	Yes	Yes	Yes	Yes	Yes
Woman Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
PSU FE * Woman Birth Year	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
N	481770	451488	481770	451488	481770	451488
R^2	0.334	0.363	0.220	0.131	0.280	0.203

Note: The Sample includes women who have had at least 1 child. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

Table 7: Demand-Side Effects of First-Born Daughters on Total Births by Caste Group (OBC VS.GENERAL CATEGORY

	Had Birth	
	(1)	(2)
First Girl	0.00913***	0.00991***
	(0.00296)	(0.00281)
OBC	0.0194***	0.0130***
	(0.00318)	(0.00306)
First Girl*OBC	-0.00211	-0.00161
	(0.00466)	(0.00450)
Current Year FE	Yes	Yes
PSU FE	Yes	Yes
Controls	No	Yes
N	174200	173264
R^2	0.020	0.025
$Mean(DependentVariable)$	0.22	0.22

Note: we use NFHS-2 for the analysis. The Sample includes women age 40 to 49 years born between 1970 to 1982. Had birth is a binary indicator if the women had a birth in that year. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

8 Figures

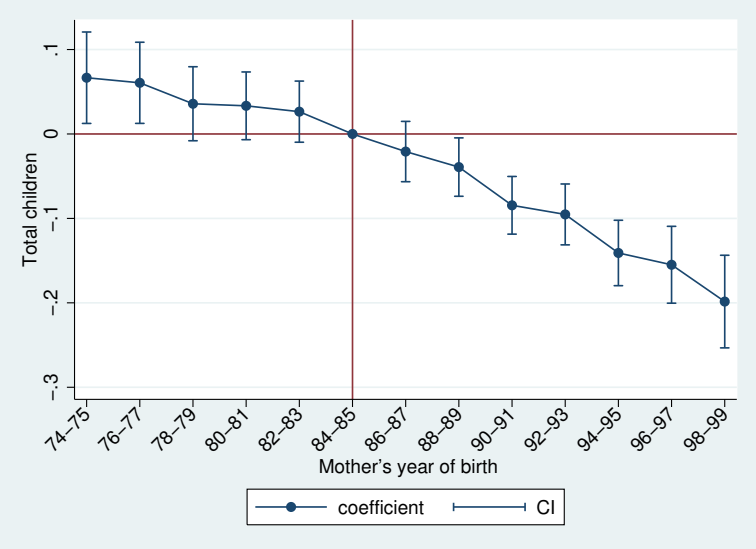

Figure A1: Event Study: Total Children

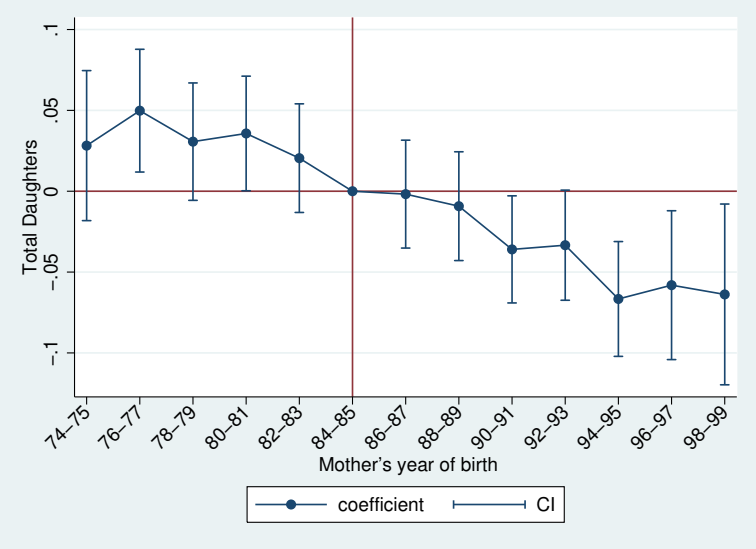

Figure A2: Event Study: Total daughters

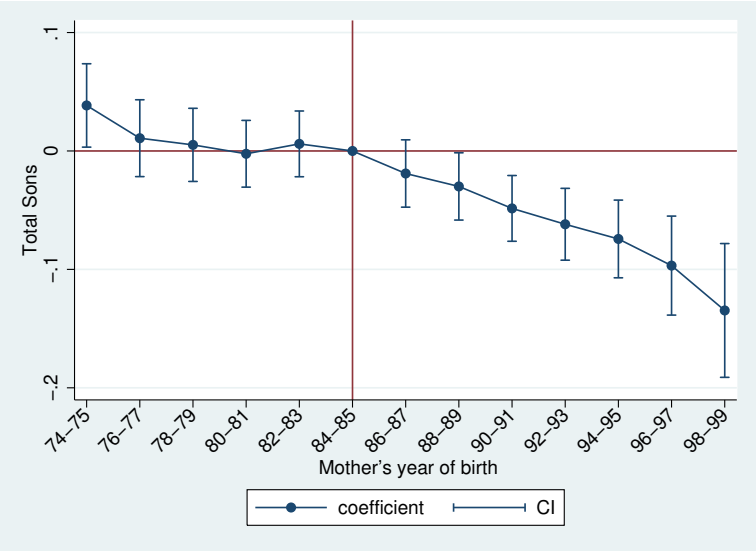

Figure A3: Event Study: Total Sons

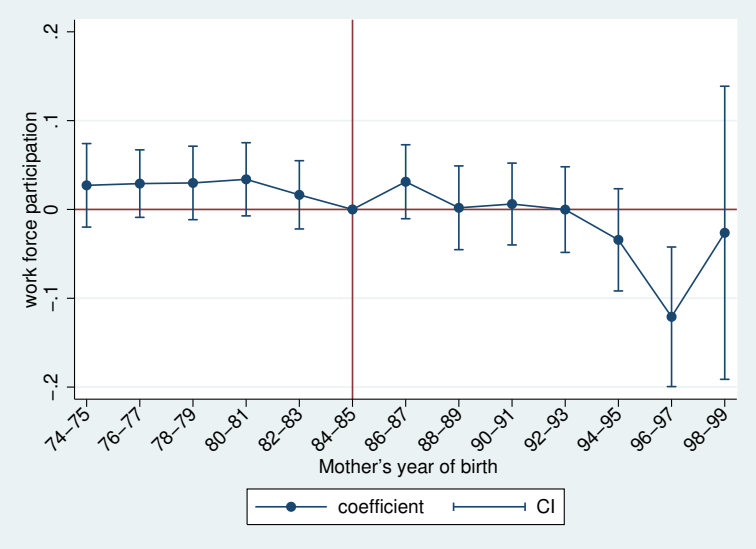

Figure A4: Event Study: Women work force participation

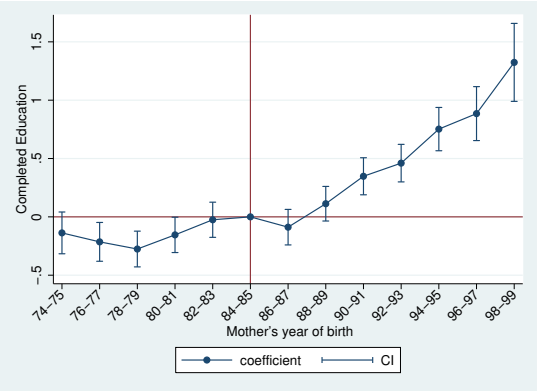

Figure A5: Completed education of women

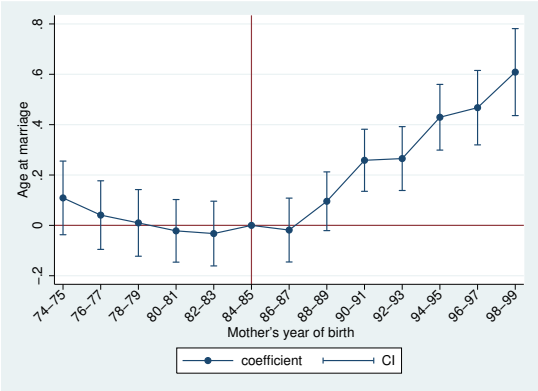

Figure A6: Age at marriage of women

Appendices

A Appendix Tables

Table A1: Placebo: Affirmative actions and impact on actual fertility using different control group (SCs, STs &General)

	Total Children		Total Girls		Total Boys	
	(1)	(2)	(3)	(4)	(5)	(6)
OBC	-0.0237*	-0.0368***	-0.0165**	-0.0214***	-0.00718	-0.0153**
	(0.0123)	(0.0111)	(0.00754)	(0.00715)	(0.00721)	(0.00669)
Post*OBC	-0.0134	-0.0126	-0.0146*	-0.0169*	0.00121	0.00429
	(0.0122)	(0.0118)	(0.00861)	(0.00872)	(0.00801)	(0.00796)
PSU FE	Yes	Yes	Yes	Yes	Yes	Yes
Woman Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
PSU FE * Woman Birth Year	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
N	394884	367602	394884	367602	394884	367602
R^2	0.419	0.447	0.229	0.243	0.280	0.297
$Mean(DependentVariable)$	2.4	2.4	1.15	1.15	1.2	1.2

Note: The Sample includes women who have had at least 1 child. The control group includes women from SCs,STs & General caste category. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

Table A2: Placebo: Affirmative actions and impact on actual fertility (Only Muslims)

	Total Children		Total Girls		Total Boys	
	(1)	(2)	(3)	(4)	(5)	(6)
OBC	0.143***	0.112***	0.0634***	0.0446**	0.0800***	0.0674***
	(0.0315)	(0.0307)	(0.0233)	(0.0227)	(0.0181)	(0.0186)
Post*OBC	-0.0732**	-0.0581*	-0.0300	-0.0225	-0.0432*	-0.0356
	(0.0347)	(0.0351)	(0.0268)	(0.0271)	(0.0228)	(0.0239)
PSU FE	Yes	Yes	Yes	Yes	Yes	Yes
Woman Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
PSU FE * Woman Birth Year	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
N	80811	76525	80811	76525	80811	76525
R^2	0.527	0.533	0.350	0.353	0.385	0.389
$Mean(DependentVariable)$	2.7	2.7	1.3	1.3	1.4	1.4

Note: The Sample includes women who have had at least 1 child. We restrict our sample to only Muslim population. Controls include source of drinking water, type of toilet facility, place of residence, and religion. Standard errors are clustered at the PSU level.
$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$
Source: Authors' calculations from NFHS-2,3,4 & 5

Table A3: Impact of Affirmative action on men's education and work force participation

	Completed Education		Work force participation		Age at marriage	
	(1)	(2)	(3)	(4)	(5)	(6)
OBC	-0.826***	-0.976***	-0.00117	0.00324	-0.735***	-0.786***
	(0.180)	(0.163)	(0.00901)	(0.00704)	(0.105)	(0.107)
Post*OBC	0.524***	0.525***	0.0554***	0.0503***	0.232*	0.280**
	(0.158)	(0.158)	(0.00945)	(0.00837)	(0.136)	(0.139)
PSU FE	Yes	Yes	Yes	Yes	Yes	Yes
Man Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
PSU * Man Birth Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes
N	175792	169386	95597	92209	35490	34261
R^2	0.694	0.701	0.555	0.557	0.519	0.522
$Mean(DependentVariable)$	6.7	6.7	0.7	0.7	23.13	23.13

Note: The Sample includes men. The education variable indicates the completed years of education. For age at marriage (column 5 and 6) we use NFHS-3, 4 & 5 as NFHS-2 does not have age at marriage variable for men. Controls include number of members in house, place of residence, and religion. Standard errors are clustered at the PSU level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NFHS-2,3,4 & 5

Table A4: Impact of affirmative action on work force participation of women : **NSSO (2011-12)**

	Domestic work		Wage work	
	(1)	(2)	(3)	(4)
OBC	-0.00932***	-0.0115***	0.0517***	0.0506***
	(0.00253)	(0.00266)	(0.00802)	(0.00729)
Post*OBC	0.0568***	0.0606***	-0.0391***	-0.0408***
	(0.00429)	(0.00434)	(0.00662)	(0.00611)
Stratum FE	Yes	Yes	Yes	Yes
Woman Birth Year FE	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
N	122764	110287	97325	85321
R^2	0.695	0.693	0.091	0.100

Note: The Sample includes women from NSSO-68th round of survey. Controls include household size, household type, owned land and religion. Standard errors are clustered at the stratum level.

$^{*}\ p < 0.1$; $^{**}\ p < 0.05$; $^{***}\ p < 0.01$

Source: Authors' calculations from NSS0-68th