

# Political Reservation and Female Labor Force Participation in Rural India

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## Abstract

Despite income growth, fertility decline, and educational expansion, women's labor force participation in rural India dropped precipitously over the last decade. This paper uses nationwide, individual-level data allow to explore whether random reservation of village leadership for women affected their access to suitable job opportunities, demand

for participation in the labor force, and income as well as intrahousehold bargaining in the short and medium term. Political empowerment through reservation affected women's but not men's participation in public works, but also women's participation in labor markets, income, and participation in key household decisions, with a lag.

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# Political Reservation and Female Labor Force Participation in Rural India

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## 1. Introduction

Since the 1990s, India has experienced robust economic growth, declines in fertility, expansion of education, and improved access to infrastructure, all factors that are generally associated with sustained increases in female labor force participation (Klasen 2019). Yet, female labor force participation remained low by global standards and in rural areas declined from 48 percent in 1984 to 33 percent in 2012 (Andres *et al.* 2017). Many rural women reduced their labor force participation and dropped out at high rates that may be difficult to reverse (Sarkar *et al.* 2019). As the associated loss of income may affect outcomes including women's income and autonomy as well as household decisions on children's education and health (Afridi *et al.* 2016), this is of relevance for human and physical capital accumulation and India's ability to take advantage of its 'demographic dividend' in the longer term. Identifying ways to reverse or at least arrest this decline is thus a priority for policy (Fletcher *et al.* 2017) and especially so in light of current crises affecting the country.

The literature suggests that, on the supply side, higher real wages in rural areas triggered a negative income effect, the size of which outweighed associated potential increases in labor supply (Mehrotra and Parida 2017), a tendency possibly reinforced by changes in educated women's returns to home production vs. market participation (Afridi *et al.* 2018). At the same time, agricultural mechanization and manufacturing's rising capital intensity reduced female labor demand as many women lack the education and skills that would allow them to move to higher-paying sectors. This interpretation and the importance of demand side rationing is supported by women's strong response to workfare programs (Desai 2018; Sarkar *et al.* 2019).

Beyond economic factors, social norms likely contributed to declining female labor force participation. In rural areas, having married women work outside the home reflects badly on their family and is deemed an indication of low status (Eswaran *et al.* 2013). Men's opposition to work by their spouses indeed reduced women's take-up of employment (Bernhardt *et al.* 2018). Such norms change only slowly (Kandpal and Baylis 2019) and show high persistence across generations (Dhar *et al.* 2019), implying that changes in gender stereotypes may be needed to trigger sustained change in female labor force participation with attendant benefits.

Reservation of village leadership positions for women is an intervention with the potential to affect female labor force participation directly, by providing public goods desired by women (Chattopadhyay and Duflo 2004) and by expanding their ability to access workfare job opportunities (Deininger *et al.* 2019). It may also influence labor market outcomes indirectly, by giving women voice (Iyer *et al.* 2012) and affecting stereotypes and attitudes regarding women's ability to perform leadership functions (Beaman *et al.* 2012), the status of girls vs. boys (Kalsi 2017), and the value of adolescent girls' school enrollment (O'Connell 2018). Yet, the literature on effects of reservation on female labor force participation is largely limited to

looking at labor supply for public works and remains scant and inconclusive: For the manufacturing sector, Ghani *et al.* (2014) find that female reservation triggered an expansion of the number of informal woman-owned establishments without leading to higher female employment. In Uttar Pradesh, Bose and Das (2018) find that having a female leader increased female interest in public works as measured by the number of job cards issued and demand for work under the National Rural Employment Guarantee Scheme (NREGS) but failed to affect actual employment. In Andhra Pradesh, Afridi *et al.* (2017) find that in village councils where leadership was reserved for women, NREGS implementation was less efficient and leakage higher than in those where this was not the case, a finding attributed to women leaders' limited formal education and experience.

In this paper, we use individual data to assess the short- and medium-term impact of female reservation on female labor supply, identify mechanisms that might underpin such changes and, for a subsample for which such data were collected, explore impacts on female empowerment. Identification relies on the fact that, in each period, villages to be reserved were randomly chosen. We analyze individuals' outcomes by matching data on some 66,362 individuals in 23,350 households over India's 12 main states from the Rural Economics and Demographic Survey (REDS) to villages' reservation history. As our data were collected when NREGS was active, we assess if exogenous exposure to female leadership improved women's ability to take advantage of this program, potentially catalyzing broader changes. By providing estimates of the impact of female reservation in current and the previous election periods, we can assess longer-term effects on labor force participation, agency, demand for work, and involvement in household decision-making.

Three findings stand out: First, contemporaneous reservation affected local governance as measured by the quality of NREGS implementation but had no measurable impact on female labor supply. Second, beyond the reserved period, female leadership reservation had sustained effects on female labor supply to public workfare and to private sector labor markets. Effects were quantitatively large (half a standard deviation) and most pronounced for married women. Third, past reservation also increased women's income, their demand for work, and their participation in household decisions relating to spending on food items, health, and education, pointing towards potential to affect norms in the longer term.

Our paper contributes to the literature in at least two respects: First, we add to the evidence regarding the impact of gender quotas by showing that, even if women leaders may lack experience or have to contend with male backlash (Gangadharan *et al.* 2016) so that pre-existing gaps cannot be fully closed (Iyer and Mani 2019), politically empowering women can have positive effects in the medium term, consistent with the notion that agency problems may hinder female political participation (Casas-Arce and Saiz 2015). Second, we show that one of the avenues for political reservation to affect behavioral norms is by improving women's economic participation, control over resources, and bargaining power. Although workfare can

catalyze such participation in labor markets (Deininger *et al.* 2019), we also find significant reservation-induced impacts on participation in regular labor markets. This supports the notion that female labor force participation, bargaining power, and control over income interact with changes in gender norms (Field *et al.* 2019), which can also be brought about by specific measures to change attitudes (Dhar *et al.* 2018) and (Jensen 2012) via long-term training and provision of information.

The rest of the paper is organized as follows. Section 2 describes the institutional background and context by documenting the paradox of India's secular decline of female labor force participation and discusses the origin, nature, and evidence of impact of the country's reservation policy as well as its Employment Guarantee Scheme. Section 3 describes the data and estimation strategy, including balance tests to ascertain that random assignment of reservation status as mandated by legislation that was indeed implemented. Section 4 presents results regarding impacts of reservation on (i) female labor force participation (separately for NREGS-related and other employment) and the heterogeneity of these impacts by marital status and age; (ii) individual income, desire to work, and participation in household decision-making; and (iii) voice in terms of affecting the way NREGS is implemented and tests for their robustness. Section 5 concludes by discussing policy implications and suggestions for further research.

## **2. Background and institutional context**

We show that, despite favorable external conditions such as increased levels of income and education and declining fertility over the last decades, India's level of female labor force participation declined from an already low level. This is likely due to a combination of supply- and demand-side factors including strong social norms. We discuss how reservation of local political leadership for women could possibly reverse this trend by altering social norms and, in interaction with other government policies such as NREGS, generate mutually reinforcing feedback loops between economic and political empowerment.

### **2.1 India's declining female labor force participation: Evidence and policy implications**

Determinants and effects of female labor market participation within and across countries have been studied by a large literature. Early studies often assumed that, due to changes in countries' economic structure, education, and fertility that are associated with growth, labor force participation would display a U-shaped relationship with income. While evidence in support of this hypothesis is weak (Gaddis and Klasen 2014), there is a strong link between female empowerment and labor force participation. Gender-friendly legal reforms have, since the 1970s, consistently triggered higher levels of female labor force participation (Hyland *et al.* 2019). Similarly, greater voice, in terms of women's participation in legislative bodies, is associated with higher female labor force participation (Lv and Yang 2018).

The fact that India is characterized by some of the most glaring stark levels of gender inequality globally implies women's involvement in wage work was traditionally low.<sup>1</sup> Yet, although sustained growth in GDP, education, and access to key infrastructure (electricity, cooking gas and piped water) vastly improved Indian women's lives since the early 1990s, women's labor force participation stagnated in urban areas (Klasen and Pieters 2015) and declined in rural ones, especially after 2005, for the married, and those in the 15 - 24 year age bracket (Andres *et al.* 2017). Changes in returns to home vs. market production may have adversely affected educated women's labor force participation, especially before 1999 (Afridi *et al.* 2018). Yet, higher wealth and income by other household members also reduce women's probability of entry to the labor force and increases the likelihood of their exit (Sarkar *et al.* 2019).

Could policies help reverse or at least arrest this trend? Access to job opportunities has been identified as an important factor (Das *et al.* 2019); in fact agricultural mechanization and increased capital intensity in manufacturing limit opportunities for low-skilled females who mainly worked as casual agricultural labor while increased real wages resulted in a negative income effect that outweighed potential increases in labor supply (Mehrotra and Parida 2017). The fact that provision of low-skilled employment opportunities for women via workfare is associated with reduced female labor force exit (Sarkar *et al.* 2019) and significantly increased women's participation in the work force (Desai and Joshi 2019) is often taken as support for the notion that job creation holds the key to increased female labor force participation (Chatterjee *et al.* 2015). Access to roads or transport is also associated with increased access to nonagricultural employment that affects women more than men, especially in communities with more egalitarian gender norms (Lei *et al.* 2019). Other measures to empower women can reinforce this (Fletcher *et al.* 2017).

Social norms also have an important role in mitigating female autonomy (Debnath 2015). Evidence on spouses' preferences and community attitudes towards work by married women in central India suggests that women's labor force participation may negatively affect their spouses' social standing, leading to many husbands being opposed to their wives' taking up of employment (Bernhardt *et al.* 2018). Interventions to change social norms may thus hold promise to increase female labor force participation in the medium term.

Indeed, while short-term interventions involving testimonies by working women or discussions within the household had no effect (Dean and Jayachandran 2019), young rural women who, over a 3-year period, were offered training to acquire skills needed to join the business process outsourcing industry were significantly less likely to get married or have children during this period, choosing instead to enter the labor market or obtain more schooling or postschool training (Jensen 2012). Similarly, financial literacy

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<sup>1</sup> India ranks 149 of 153 in the Economic Participation and Opportunity sub-index of the 2020 World Economic Forum's Global Gender Gap Index, before only Pakistan, the Republic of Yemen and Iraq. Although levels of gender inequality across Indian regions vary with agricultural endowments that affect demand for and value of female labor (Carranza 2014), such intra-country variation cannot explain low overall levels of female participation.

training and transfer of NREGS wage payments to women's own accounts increased women's labor supply and reduced social stigma associated with female work. Effects were concentrated in households with stronger norms against female work and consistent with increased bargaining power (Field *et al.* 2019).

## 2.2 Can political reservation affect females' labor market outcomes?

Reservation of village council leadership positions for women and scheduled castes (SCs) or tribes (STs) was introduced in India in 1993 to among others overcome long-standing inequalities and discrimination. The share of seats reserved for women is fixed at the state level and, unlike reservation for SCs,<sup>2</sup> seats to be reserved for women are selected randomly in every election. Female leadership has been shown to change the nature and quality of public goods supplied locally, e.g. by women leaders providing goods such as water and roads preferred by women (Chattopadhyay and Duflo 2004) and establishing role models (Beaman *et al.* 2009). Female leadership reservation is associated with higher rates of breastfeeding and immunization as well as higher child survival (Bhalotra and Clots-Figueras 2014). Children's exposure to reservation in utero or early in life is associated with improved learning outcomes in primary school (Pathak and Macours 2017).<sup>3</sup>

While reservation may trigger male backlash in the short term (Gangadharan *et al.* 2016), it can alter social norms and attitudes in the longer term. Female leadership increases women's level and quality of political participation, their ability to contribute to public goods, and leaders' accountability (Deininger *et al.* 2015).<sup>4</sup> Exposure to female leaders acting as role models triggered higher school enrollment by adolescent girls, especially those from poorer and less educated households (O'Connell 2018). It narrowed gender gaps (Beaman *et al.* 2012), improved female labor force participation (Duflo 2005; Iyer *et al.* 2012), and raised educational attainment and aspirations by girls. Changes in beliefs regarding gender roles and greater voice by women are argued to be central reasons for increased survival of higher-birth-order girls where local seats were reserved for women (Kalsi 2017). Enhanced female participation in program oversight, civic engagement, and electoral participation in 'reserved' villages all point towards potential complementarities between political and economic empowerment (Deininger *et al.* 2019).

The National Rural Employment Guarantee Scheme (NREGS) has been designed to expand demand for unskilled work, especially by women. Building on the country's long tradition of food-for-work schemes (Dutta *et al.* 2012; Subbarao 1997), this program guarantees up to 100 days of employment per year to

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<sup>2</sup> Beyond gender, *pradhan* (village council's headship) seats can also be reserved for scheduled castes and tribes. As seats are not allocated randomly and evidence suggests that politicians' incentives to allocate benefits along party lines may blunt such quotas' effects (Dunning and Nilekani 2013), we focus on female reservation only. For discussion of caste reservation, see (Kaletski and Prakash 2016) and (Chin and Prakash 2011).

<sup>3</sup> In Spain, quotas resulted in slightly better electoral results for parties most affected, suggesting that without the quota, party leaders were not maximizing electoral results due to agency problems hindering female representation in political institutions (Casas-Arce and Saiz 2015).

<sup>4</sup> Similar outcomes are observed in West Bengal (Beaman *et al.* 2010), South India (Besley *et al.* 2005) and urban Mumbai (Bhavnani 2009). Length of exposure to women politicians is also linked to more formal sector entrepreneurship (Ghani *et al.* 2014).

households that have registered locally and established eligibility by obtaining a job card.<sup>5</sup> Unskilled labor supplied by locals is expected to build productive assets (access roads, water harvesting structures, etc.) to increase agricultural productivity. NREGS explicitly encourage female participation by paying equal wages to men and women and requiring that a minimum share of work be performed by women.

While there is considerable heterogeneity in program implementation and use of IT, e.g. electronic payment of wages directly into beneficiaries' accounts (Muralidharan et al. 2016), major program-induced effects have been confirmed in three areas. First, NREGS increased wages, especially for women (Azam 2012), in the dry season (Imbert and Papp 2015a), and for the unskilled (Berg et al. 2014). Second, by providing a predictable source of income, it helped reduce seasonal short-term migration (Imbert and Papp 2015b), encouraged diversification of cropping patterns (Gehrke 2017), and improved agricultural productivity (Deininger et al. 2016). Finally, as the program is self-targeting, distributional effects have been largely positive: NREGS enhanced consumption (Bose 2017) and asset accumulation by the poor (Deininger and Liu 2013), affecting health (Ravi and Engler 2015), primary school participation (Islam and Sivasankaran 2015), learning outcomes in primary (Mani et al. 2014), though not secondary schools (Shah and Steinberg 2015), gender-based violence (Amaral et al. 2015), and female empowerment (Afridi *et al.* 2016).

Yet, despite the far-reaching positive impacts on social outcomes and economic empowerment (Duflo 2005; Iyer *et al.* 2012), the literature finds links between political reservation and labor force participation to be ambiguous. Using state-level data, Ghani *et al.* (2014) find that female reservation did not increase female employment in the manufacturing sector although it triggered an expansion of the number of woman-owned establishments in the unorganized sector. In Uttar Pradesh, Bose and Das (2018) show that having a female leader increased the number of job cards issued and demand for work under NREGS but not actual program-induced employment. In Andhra Pradesh, NREGS implementation was less efficient and leakage higher in 'reserved' compared to unreserved village councils, a finding attributed to women leaders' more limited education and experience (Afridi *et al.* 2017).

### **3. Data and econometric approach**

We use descriptive data to check for balance in pre-program characteristics between ever and never reserved villages and differences in program-affected variables that, if allocation was random, can be interpreted as causal interpretation. Data are consistent with random allocation of reservation, suggest it brought to power leaders with less formal education, and point towards gender differences in the impact of reservation on labor market participation at the extensive and intensive margins.

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<sup>5</sup> Applicants are eligible to receive a job card containing photos of all adult household members free within 15 days of application. The indicative work demands by job-card holders lead to elaboration of an annual plan that, once ratified by the village assembly, is transmitted for consolidation at the district level, although in practice a more top-down process is often followed, based on central budget allocations.

### 3.1. Data and descriptive statistics

To explore possible links between political and economic empowerment, we use individual data from a complete enumeration of all adult residents in 190 villages in 13 states implemented in 2014/15 as part of the long-running ARIS-REDS panel.<sup>6</sup> Information was collected on 275,677 individuals in 91,984 households. Of these 23,350, generally the most disadvantaged ones, had a job card allowing household members to apply for work under NREGS. To obtain a conservative estimate of reservation-induced effects, we limit our analysis to these households.

In addition to standard demographic and socio-economic characteristics at individual and household level, the survey obtained detailed information on actual and desired labor market participation at individual level. For individuals who participated in NREGS, data were gathered on key features of program implementation including whether dated work receipts were issued, payment was deposited directly in beneficiaries' own account, if they were paid less than the statutory wage and, if yes, whether a complaint was lodged. For a subsample of states with traditionally high levels of discrimination against women, an extra module was administered asking about individuals' involvement in key household-level decisions. In addition, a village questionnaire was also administered to, among others, elicit characteristics of all village leaders elected from 2005 together with election details, including if the election was 'reserved'.

Table 1 illustrates the timing of panchayat elections in sample states. Most states held elections in 2005/06 so that the local government had been recently elected when NREGS was launched in 2006-2008. Another round of elections was held in 2010 or 2011 and the village council leaders elected then had just completed their terms when our data were collected. Random assignment of female leadership reservation to villages provides an opportunity to assess if exposure to female leadership in the current or immediately preceding election period improved women's ability to take advantage of labor market opportunities in NREGS or the private sector although we are unable to analyze impacts of reservation and NREGS separately.

Household, individual, and village characteristics are reported in tables 2-4 separately for the entire sample (col. 1) and for villages that had or had not been reserved in the two previous election periods (cols. 2 and 3) with p-values from testing for equality of means between ever and never reserved groups reported in col. 4.<sup>7</sup> If, as stipulated by law, villages to be reserved were chosen randomly, covariates unaffected by the

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<sup>6</sup> The original survey, in 1971, was based on a representative sample of about 4,500 households in 252 villages in 16 states. Subsequent rounds took place in 1982, 1999, and 2006. While resource limitations precluded expansion of this exercise to all states, villages in the states of Andhra Pradesh, Bihar, Chhattisgarh, Haryana, Jharkhand, Madhya Pradesh, Rajasthan, Tamil Nadu, Uttar Pradesh, Maharashtra, Orissa and West Bengal were revisited in 2014/15 by IRMA with funding support from Brown University, German Development Institute, and the World Bank.

<sup>7</sup> Tables providing a more detailed distinction between villages that have been reserved now and in the previous period are included in appendix tables A1 to A3. For those villages that are reserved in current period, previous period and reserved in either current or previous period, respectively, while column 4 reports the means of these characteristics of village councils that are never reserved. Relevant p-values in cols. 6-9 do not allow us to reject the hypothesis that relevant variables were balanced between the different types of villages.

program should be balanced between reserved and non-reserved villages while differences in any program-related outcomes can be interpreted as causal effects.

Table 2 panel A presents data on the 23,350 households with job-cards and their 66,362 working-age members in sample villages. The average household includes 4.5 individuals, has a head who is aged 49 years, spent 3.8 years in school, is married in 85%, widowed in 13.6%, and female in 11.6% of cases. The data further show that 88% of sample households are Hindus, 42% belong to scheduled castes or tribes, 58% own agricultural land and 48% had a proper (pucca) house. Panel B presents means at individual level, highlighting that 29% had education at primary, 21% between primary and high school, and 11% above high school level. Neither individual nor household characteristics differ significantly between ever and never reserved villages, allaying fears about random assignment of villages to female leadership not having been adhered to.

Data at village level in table 3 (panel A) suggest that sample villages are typical of rural India with population of 450 to 520 households (2,500 to 2,800 individuals), mostly Hindu ( $\approx 90\%$ ) and about one-third belonging to scheduled castes ( $\approx 21\%$ ) or tribes ( $\approx 11\%$ ). Agriculture remains the main income source for 56% of households. Some 50% of villages can access a good road or primary health care within one kilometer and 92 percent have access to a primary or secondary school within 3 km.

*Pradhan* characteristics in panel B suggest that, in ever reserved villages, the share of *pradhans* who either held or contested the position of village leader before is slightly but not significantly lower in villages that had been reserved compared to those that had not. At the same time we find significant differences in leaders' attributes between the two types of villages, consistent with the notion that female reservation opened the way for less educated non-Hindu leaders: while only 26% and 14% of leaders in ever reserved villages had secondary or higher education and 48% were Hindus, corresponding figures for never reserved villages are 42%, 19%, and 64%, respectively.<sup>8</sup>

Table 4 presents information on individuals' actual and desired labor market participation, involvement in household decision-making and, if they participated in NREGS, program implementation and governance with data for males in cols. 1-4 and for females in cols. 5-8. In line with the literature, data show that labor force participation rates and number of days worked by men (86% participation with 185 days worked annually) exceed those for women (62% and 64 days). Significant gender differences are visible in the way labor days are allocated across sectors. Men spend close to 50% of working time in non-agricultural casual employment followed by agricultural self-employment in (39%), casual labor in agriculture (33%), and

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<sup>8</sup> Beyond gender, *pradhan* seats can also be reserved for scheduled castes and tribes. As seats are not allocated randomly and evidence suggests that politicians' incentives to allocate benefits along party lines may blunt such quotas' distributive effects (Dunning and Nilekani 2013), we do not deal with this in detail and instead refer readers to (Kaletski and Prakash 2016) and (Chin and Prakash 2011) for further discussion.

salaried work (7%) and rather limited use of NREGS which accounts for less than 5% of their time. Women, by contrast, rely much more on employment in agriculture and workfare as they spend more than 60% of their time in agriculture (32% self-employed and 29% in casual labor), followed by NREGS (27%) and non-agricultural casual labor (10%). Such disproportional reliance on unskilled agricultural work makes women more susceptible to being displaced by agricultural mechanization (Mehrotra and Parida 2017) with access to workfare possibly providing a safety net uptake of which could be affected by women's voice.

As these variables may be affected by female leadership reservation, testes for significance of differences in cols. 4 and 8 are of interest. We find time use, reservation-induced effects are more pronounced for females than for males: while there is no difference in labor force participation for males between ever (87%) and never (86%) reserved villages and males even work and earn significantly more in never (188 days and Rs. 66,000) vs. ever (182 days and Rs. 63,724) reserved villages, the opposite is true for women for whom labor force participation (67% vs. 58%), number of days worked per year (67 vs. 61), and total earnings (Rs. 22,490 vs. Rs. 19,804) are all significantly higher in ever vs. never reserved villages. At the same time, willingness to work more is significantly higher for males and females in ever vs. never reserved villages. The difference is larger for women than men (9.1 vs. 4.5 percentage points), possibly pointing towards greater rationing for female labor market participation (Desai 2018).

Reservation also appears to affect adherence to program rules and, for indicators in which women were particularly disadvantaged, allowed them to achieve gender parity. In ever reserved villages, the share of women who got a dated work receipt and were paid directly into their bank account increased from 62% to 68% and from 80% to 91%, respectively. Reservation does not seem to have affected the share of females who were under-paid (about 45% for ever and never reserved villages) and increased it for males (35% in never vs. 41% in ever reserved villages), though close to two-thirds of those who did not get paid the set amount did launch a complaint, much higher than those who did so in never reserved villages (39% of men, and 46% of women). For the smaller sample where such data were collected, evidence on involvement in decisions on food, non-food, health, and education suggests reservation led to significant, though quantitatively modest, increases in involvement in all these decisions by males as well as females; with 76% in ever vs 70% in never reserved villages, potential reservation-induced effects are largest for females' participation in education decisions.

### **3.2. Econometric approach**

To assess impacts of political preference on women's economic empowerment, we use the fact that, in each period, a predetermined share of villages is randomly chosen to have the leadership position reserved for a

woman.<sup>9</sup> Data on current and previous reservation status allows us to test for persistence of such effects, i.e., if -in line with the notion that gender attitudes change slowly with individuals altering their attitude only after having been exposed to female leadership for some time (Beaman et al. 2012)- past reservation of a village for female leadership affects current outcomes. Synergies between political and economic empowerment (Deininger *et al.* 2019) would yield the same result. Letting  $v$  denote villages,  $i$  individuals, and  $t$  time, we assess the impacts of female reservation on outcome variables relating to individual  $i$ 's labor force participation as well as other outcome variables by estimating the following equation.

$$Y_{iv} = \beta_0 + \beta_1 R_v^1 + \beta_2 R_v^2 + \beta_3 X_{iv} + \beta_4 V_v + u_d + \varepsilon_{iv} \quad (1)$$

where  $Y_{iv}$  is the outcome variable of interest for individual  $i$  in village  $v$ ,  $R_v^1$  is an indicator variable that equals one if council leadership in village  $v$  was reserved for women in the most recent election (i.e., the *pradhan* at the time of the survey was a woman who assumed her position as a result of reservation) and zero otherwise;  $R_v^2$  is an indicator variable that equals one if council leadership in village  $v$  had been reserved for a woman in the previous election and zero otherwise;<sup>10</sup>  $X$  is a vector of household and individual controls;  $V$  is a vector of village and *pradhan* characteristics;  $u_d$  a district fixed effect; and  $\varepsilon_{iv}$  an error term. Our main interest is in  $\beta_1$  and  $\beta_2$ , the parameter estimates of current or past reservation on individual outcomes relative to the base category of a village never having been reserved.

To explore the gender dimension of reservation, we let  $f_{iv}$  be an indicator variable taking a value of one if the respondent is female and zero otherwise. With interactions between respondent's gender and current or past reservation, our estimating equation becomes:

$$Y_{iv} = \beta_0 + \beta_1 R_v^1 + \beta_3 (R_v^1 \times f_{ivt}) + \beta_2 R_v^2 + \beta_4 (R_v^2 \times f_{iv}) + \beta_5 X_{iv} + \beta_6 V_v + u_d + \varepsilon_{iv} \quad (2)$$

where parameters are as above and the main difference from other studies is that the parameters estimated are gender-specific. In other words,  $\beta_1$  and  $\beta_2$  are the estimated impact of current or past reservation on men and  $\beta_1 + \beta_3$ , as well as  $\beta_2 + \beta_4$  are estimated impacts of current and past reservation on women so that the household-level impact of current reservation is given by  $\beta_2 + \beta_4$ . The significance of linear combinations of estimated parameters can be tested via F-tests which are reported in the results tables throughout.

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<sup>9</sup> In 2009/10 all states in our sample except Bihar and Madhya Pradesh (where the share was 50 percent) required a third of villages to reserve the *pradhan* position for a woman. By 2015 all except Haryana and Uttar Pradesh had increased the share of *panchayats* required to reserve seats for women to 50 percent. Whatever the overall share, because a village's reservation status is exogenously given it does not affect our analysis. For a detailed discussion of how randomization is implemented, see Dunning and Nilekani (2013) and Chattopadhyay and Duflo (2004).

<sup>10</sup> To illustrate:  $R_v^1$  for villages in Andhra Pradesh equals one if, in this village, the 2011 election was reserved for a woman and  $R_v^2$  equals one if in this village the 2006 election had been reserved. Similarly, for villages in Orissa  $R_v^1$  and  $R_v^2$ , equal 1 if the 2012 or 2007 elections were reserved.

## 4. Results and discussion

Regressions at household- and individual-level suggest that reservation had no concurrent impact on female labor force participation but affected modalities of NREGS implementation, e.g. if work receipts were issued and those receiving less than the stipulated wage complained. Past reservation is estimated to have led to gains in female labor force participation at the extensive and the intensive margin. Significant part of these impacts materialized via higher NREGS participation and married individuals, especially women, benefited most. Greater labor force participation in turn seems to have triggered improvements in women's income, demand for work, and intra-household bargaining power.

### 4.1 Impacts of reservation on female labor market participation

Table 5 reports results from regressions of labor force participation without and with gender-differentiated effects that correspond to equations (1) and (2) in panels A and B, respectively. Beyond results for overall participation along the intensive (col. 1) and extensive (col. 4) margin, estimated coefficients are reported separately for NREGS-related activities (cols. 3 and 6) and all activities except NREGS (cols. 2 and 5).

Concurrent reservation is estimated to have had no impact on participation at the extensive margin. At the intensive margin, there is some evidence that introduction of NREGS crowded out non-NREGS activities with a marginally significant increase in NREGS days (coefficient of 0.128 in col. 6 of panel A) substituting for a reduction in non-NREGS related labor supply (coefficient of -0.092 in col. 5). Differentiating by gender in panel B suggests that this is driven by male labor supply. We thus cannot reject the hypothesis that, during the reserved period, there is no impact of reservation on either the extent or the intensity of overall female labor market participation.

By contrast, we find highly significant gender effects of reservation in the previous period: the likelihood of labor market participation overall is estimated to have increased by 2.7 percentage points (col. 1), an effect comprised of estimated increases by 6.3 and 2.2 points for NREGS and non-NREGS work (cols. 2 and 3), respectively. A similarly highly significant overall effect -with an elasticity of 0.257 for NREGS- and 0.124 for non-NREGS-related work, respectively (cols. 6 and 5) emerges at the intensive margin.

Disaggregating these effects by gender in panel B highlights that virtually all long-term impacts can be attributed to changes in women's rather than men's labor market participation. F-tests in the bottom rows of table 5 indicate that estimated impacts of reservation on women's labor supply ( $\alpha_2 + \beta_2$ ) are significant at the 1% level throughout. Past reservation is estimated to have led to an 8.2 percentage point increase in the likelihood of female labor force participation, comprised of estimated increases of 15 and 6.5 percentage points in women's likelihood of participating in NREGS and non-NREGS work, respectively. With 44%

overall (col. 4) -33% for non-NREGS (col. 5) and 49% for NREGS work (col. 6)- estimated elasticities at the intensive margin are even larger.

Thus, even though reservation seems not to have affected women's labor market participation in the short term, it brought a significant number of women to the labor force and increased existing participants' labor supply in the medium term. Given the requirement for NREGS to offer conditions favorable for females, it is not too surprising to find estimated coefficients for work performed under this program to be consistently larger than for non NREGS-related work. At the same time, coefficients for non NREGS work are significant throughout and suggest that, beyond potentially affecting the modalities under which workfare was provided, reservation increased women's demand for paid work. This is consistent with the notion of the program having performed a catalytic role, affecting social norms by having female leaders act as role models and changing level and quality of women's political participation (Deininger *et al.* 2015). Regressions at household level suggest that access to job cards was not affected by a village's current or past reservation status.

#### **4.2 Heterogeneity of effects**

If, as the literature suggests, the scope for labor market participation is particularly limited for married women (Eswaran *et al.* 2013), reservation-induced effects may be more pronounced for this group, either by providing them with economic resources and social connections that they would not otherwise have access to or by helping to change their husbands' attitude to general gender roles and particularly female labor force participation (Bernhardt *et al.* 2018). To test this, we run the above regressions separately for the sub-samples of married and unmarried individuals.

Results from doing so in Table 6 indeed support this notion, suggesting estimated effects are consistently more significant and larger for married than for unmarried individuals: First, in contrast to insignificant aggregate effects of concurrent reservation on labor supply in the total sample, current reservation is estimated to increase married women's likelihood of labor force participation by 1.7 percentage points with marginal significance. The main channel for concurrent effects to materialize is via NREGS-related work, participation in which is estimated to increase by 4.1 percentage points as a result of reservation irrespectively of gender (panel A, col. 6), largely by substituting for self-employment by males and, with a slightly smaller point estimate, females.

Aggregate effects of current reservation on unmarried individuals' participation are insignificant (panel B col. 1): while the negative effect on self-employment (col. 2 and 3) is consistent with findings for married individuals, reservation has no significant effect on NREGS participation by unmarried ones, consistent

with the notion that they have access to different opportunities in the labor market or different returns to work at home (Afridi *et al.* 2018).<sup>11</sup>

Second, past reservation is estimated to have had a gender-differentiated impact whereby a reduction in the likelihood of married males' participation -by 3.7 percentage points- is more than compensated for by an increase in married females' propensity to participate to yield a net increase of 9.1 percentage points overall due to female reservation. Disaggregating by type of labor suggests that most of this effect can be attributed to increased participation in NREGS activities, estimated to increase by 17 percentage points, versus 6.2 percentage point gain in non-NREGS activities. The comparison of estimated elasticities at the intensive margin between NREGS and non-NREGS demonstrates even large difference between the two types of job activities (0.62 for NREGS vs. 0.30 for non-NREGS activities).

By comparison, for unmarried individuals, we find evidence of smaller effects of past reservation that do not differ by gender and are less dominated by NREGS. For example, past reservation would increase female's probability to participate in non-NREGS and NREGS by 4.7 percentage points and 6.7%, respectively. The gain in intensive margins between non-NREGS and NREGS are even more similar as the estimated elasticities for NREGS and non-NREGS activities are 0.27 and 0.24, respectively.

### **4.3 Impact pathways**

To explore if reservation affected supply- or demand-side factors, we report effects on modalities of NREGS implementation that are likely to have affected the supply of jobs and women's bargaining power within the household separately. Results from regressions (1) and (2) with the key indicators of program implementation in table 7 suggest that current as well as past reservation helped improve quality of program implementation in several dimensions: The share of those who received a dated receipt for work performed under NREGS (col. 1) increased significantly during the reserved period and beyond (with elasticities of 27% and 50%, respectively). The likelihood of lodging complaints in case of under-payment also increased in the reserved period (with an elasticity of about 27%), though no longer thereafter (col. 4). Significant lagged effects are observed for an increased likelihood of wages being paid directly into beneficiaries' account (col. 2) with an estimated elasticity of 17%; the likelihood of complaints for underpayment being addressed (col. 6 with an elasticity of 24%) and possibly as a result, a reduction in the likelihood of underpayment (col. 4). While reservation has undeniably improved program governance and thus enhanced females' ability to access jobs under NREGS, none of these effects are gender-specific; to the contrary, for some, mainly lodging and response to complaints, women are estimated to lag men.

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<sup>11</sup> Regressions distinguishing non-NREGS related work for married and unmarried individuals along the extensive (table A5) and intensive (table A6) margins are included in the appendix.

Results from regressions in table 8 allow us to explore if reservation increased women's demand for work as well as their income and bargaining power. As one would expect if reservation relaxes constraints to female labor supply, it triggers significant lagged increases of women's individual income, estimated to have increased by some 78% and females' (but not males') demand for work by some 16 percentage points. Although not available for the entire sample, data on intra-household bargaining power support the notion of a role-model effect of reservation having, with a lag, led to higher levels of female autonomy: The share of women who participate in decision-making on food, health, and education is estimated to have increased by 16, 14, and 7 percentage points, respectively.

We conclude that, beyond improving supply of jobs that are suitable and attractive for females, reservation enhanced female decision-making autonomy and their potential and actual participation in the labor force. A possible interpretation of the above evidence is that the role model effect provided by past female leaders enhanced women's ability to take advantage of changes in the availability of jobs, including those made available via NREGs, available to everybody.

## **5. Conclusion and policy implications**

Motivated by the recent decline of female labor force participation in India, this paper explores if random reservation of political leadership positions for women affects women's labor force participation as well as supply- and demand-related factors. While there is no contemporaneous effect, past leadership reservation for women significantly increased females labor supply by allowing individuals to join the labor force and increasing the amount of time spent working by those already in work.

While large part of the observed effects is attributable to females' improved ability to take advantage of public workfare under NREGs, female participation in non-NREGs labor markets (especially non-agricultural casual and self-employment) expands as well. Estimated effects are stronger for married than for unmarried women. Labor force participation allows women to obtain higher levels of individual income, increases their demand for work, and affects bargaining power by enhancing their participation in intra-household decision making on spending for consumption, health, and education. Avenues to enhance these effects by combining them with targeted provision of information and training to change not only norms regarding women's labor force participation but also equip them with the skills to adapt to changing labor market conditions are a priority area for further research.

**Table 1: Timing for panchayat elections, NREGS roll-out and data collection**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Andhra Pradesh		√					√				
Bihar		√					√				
Chhattisgarh	√					√					
Haryana	√					√					√
Maharashtra	√					√					√
Madhya Pradesh	√					√					√
Orissa			√					√			√
Rajasthan	√					√					
Tamil Nadu		√					√				√
Uttar Pradesh	√					√					
West Bengal				√					√		√

*Note:* Lightly shaded areas indicate the period of roll-out of NREGS. Phase 1 of the program was rolled out in Feb 2006 in 200 districts, phase 2 of the program was rolled out in April 2007 in next 130 districts and Phase 3 of the program was rolled out in April 2008 in remaining districts of India. The darker shading in 2014 indicates the time of data collection for the survey used in the analysis. √ indicates the timing of panchayat election in states of India.

**Table 2: Household and individual level summary statistics**

	Total	Reservation Status		Difference
		Ever	Never	
<b>Panel A: Household characteristics</b>				
Female head	0.116	0.115	0.117	-0.002
Head's age	49.2	49.3	48.9	0.400
Head's education	3.800	3.830	3.750	0.080
Head married	0.848	0.842	0.855	-0.013
Head widowed /separated	0.136	0.143	0.128	0.015
Household size	4.480	4.480	4.470	0.010
Males 15-65 years	1.650	1.660	1.630	0.030
Males 15-65 years	1.560	1.570	1.550	0.020
Children <15 years	1.080	1.070	1.110	-0.040
Female children <15 years	0.530	0.520	0.540	-0.020
Max. educ. in hh (years)	14.260	14.420	14.070	0.350
Hindu	0.888	0.882	0.894	-0.012
SC/ST	0.419	0.404	0.438	-0.034
Owns agricultural land	0.579	0.599	0.555	0.044*
Has pucca house	0.476	0.483	0.467	0.016
# observations	23,350	12,678	10,672	
<b>Panel B: Individual characteristics</b>				
Female	0.490	0.491	0.489	0.002
Age	39.8	39.9	39.7	0.200
Educ. primary.	0.213	0.208	0.218	-0.010
Educ. up to high school	0.291	0.291	0.292	-0.001
...up to graduate	0.110	0.116	0.102	0.014
Others	0.015	0.015	0.014	0.001
Married	0.748	0.742	0.754	-0.012
Unmarried	0.174	0.176	0.172	0.004
No. of obs.	66,362	34,707	31,655	

*Note:* Author's own calculation from 2014/15 REDS follow-up survey. To test difference in means, p values from regressions with district fixed effects and standard errors clustered by village panchayat are reported in the last column.

**Table 3: Village level summary statistics**

	Total	Reservation Status		T-test of difference
		Ever	Never	
<b>Panel A: Village characteristics</b>				
Population	2,619	2,472	2,766	-294
Households	483	448	519	-710
SCs	0.208	0.204	0.212	-0.008
STs	0.115	0.120	0.110	0.010
Share of Hindu	0.898	0.901	0.894	0.007
Share in agric.	0.563	0.582	0.543	0.039
Has prim. school	0.921	0.905	0.937	-0.032
Has sec. school	0.926	0.926	0.926	0.000
Has prim health center	0.537	0.558	0.516	0.042
Has pucca road	0.505	0.516	0.495	0.021
Dist. to district HQ (km)	51.170	50.440	51.900	-1.460
Dist. to town (km)	14.940	13.970	15.910	-1.940
Dist. to bus station (km)	4.240	4.980	3.490	1.490
Dist. railway station (km)	25.130	25.590	24.660	0.930
Dist. to post office (km)	1.940	1.990	1.880	0.110
<b>Panel B: Pradhan's Characteristics</b>				
Earlier contested	0.158	0.137	0.179	-0.042
Held position before	0.474	0.442	0.505	-0.063
Up to high school	0.263	0.263	0.263	0.000
High sec. & above	0.342	0.263	0.421	-0.158
Higher education	0.163	0.137	0.189	-0.052
SC	0.537	0.579	0.495	0.084
ST	0.116	0.116	0.116	0.000
OBC	0.126	0.105	0.147	-0.042
OC	0.216	0.200	0.232	-0.032
Hindu	0.563	0.484	0.642	-0.158
Muslim	0.089	0.084	0.095	-0.011
No. of obs.	190	95	95	

*Note:* Author's own calculation from 2014/15 REDS follow-up survey. To test difference in means, p values from regressions with district fixed effects and standard errors clustered by village panchayat are reported in the last column.

**Table 4: Summary statistics of labor days and labor force participation rate by reservation status**

	Total	Reservation status		Test	Total	Reservation status		Test
		Ever	Never			Ever	Never	
		Males				Females		
<b>Panel A: Labor supply</b>								
Participated in labor market	0.86	0.87	0.86	0.01	0.62	0.67	0.58	0.09***
... self-empl. in agric.	0.39	0.41	0.37	0.04***	0.32	0.35	0.29	0.06***
... self-empl. in non-agric.	0.06	0.05	0.06	-0.01***	0.01	0.01	0.01	0.00*
... casual labor in agric.	0.33	0.35	0.32	0.03**	0.29	0.31	0.28	0.03***
... casual labor in non-agri.	0.49	0.49	0.49	0.00	0.1	0.1	0.09	0.01***
... in NREGA	0.23	0.25	0.21	0.04***	0.27	0.31	0.22	0.09***
... regular salaried work	0.07	0.07	0.07	0.00	0.01	0.01	0.01	0.00
No of days worked	184.8	182.3	187.6	-5.30***	64.1	67.2	60.8	6.40***
... self-empl. in agric.	19.9	21.8	17.8	4.00***	12.2	14.2	10.0	4.20***
... self-empl. in non-agric.	13.8	12.5	15.2	-2.70***	2.3	2.3	2.4	-0.10
... casual labor in agric.	33.2	32.1	34.3	-2.20***	23.3	21.9	24.7	-2.80***
... casual labor in non-agri.	90.6	88.5	92.8	-4.30***	12.1	12.1	12.2	-0.10
... in NREGA	6.6	7.5	5.7	1.80***	10.7	13.2	8.0	5.20***
... regular salaried work	20.8	19.9	21.8	-1.90**	3.5	3.6	3.4	0.20
Individual income (Rs.)	65,000	63,724	66,000	-2276*	20,986	22,490	19,804	2686**
Would like to work more	0.274	0.296	0.251	0.05	0.316	0.359	0.268	0.09
If participated in NREGS work								
Got dated receipt	0.734	0.744	0.721	0.02*	0.660	0.684	0.615	0.07***
Paid directly to bank account	0.889	0.905	0.865	0.04***	0.866	0.905	0.795	0.11***
Was paid less than was due	0.388	0.412	0.350	0.06***	0.454	0.453	0.463	-0.01
If less, did complain	0.557	0.649	0.390	0.26***	0.590	0.658	0.464	0.19
No. of obs.	34,427	17,990	16,437		31,935	16,717	15,218	
<b>Panel B: Intra-household decision making</b>								
Participates in decisions on ....								
... food	0.655	0.669	0.638	0.03***	0.839	0.851	0.824	0.03***
... nonfood	0.828	0.835	0.819	0.02**	0.761	0.769	0.751	0.02**
... health	0.798	0.807	0.786	0.02***	0.866	0.875	0.855	0.02***
... education	0.854	0.862	0.844	0.02***	0.737	0.763	0.704	0.06***
No. of obs.	12,284	5,390	6,894		11,395	4,978	6,417	

*Note:* Author's own calculation from 2014/15 REDS follow-up survey. As discussed in the text, funding constraints required to limit collection of information on intra-household decision to 5 states (Gujarat, Uttar Pradesh, Maharashtra, Orissa, and West Bengal). To test difference in means, p values from regressions with district fixed effects and standard errors clustered by village panchayat are reported in the last column.

**Table 5: Effects of political reservation on labor supply at extensive and intensive margin**

	Participation			No. of days worked		
	Total	No NREGS	NREGS only	Total	No NREGS	NREGS only
<b>Panel A</b>						
Res. now ( $\alpha_1$ )	0.000 (0.008)	-0.016 (0.010)	0.034 (0.022)	-0.038 (0.038)	-0.092** (0.045)	0.128* (0.067)
Res. before ( $\alpha_2$ )	0.027*** (0.010)	0.022** (0.010)	0.063*** (0.019)	0.166*** (0.049)	0.124*** (0.045)	0.257*** (0.064)
Observations	66,362	66,362	66,362	66,362	66,362	66,362
R-squared	0.28	0.317	0.242	0.377	0.405	0.230
<b>Test:</b>						
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.004	0.590	3.57e-05	0.013	0.546	5.54e-06
<b>Panel B</b>						
Res. now ( $\alpha_1$ )	-0.022 (0.027)	-0.033 (0.022)	0.027 (0.041)	-0.139 (0.117)	-0.167* (0.094)	0.039 (0.145)
Res. before ( $\alpha_2$ )	-0.035 (0.024)	-0.011 (0.021)	-0.018 (0.041)	-0.131 (0.121)	-0.039 (0.097)	-0.158 (0.158)
Res now $\times$ fem ( $\beta_1$ )	0.035 (0.050)	0.033 (0.045)	0.015 (0.062)	0.167 (0.229)	0.169 (0.191)	0.072 (0.224)
Res. before $\times$ fem ( $\beta_2$ )	0.117** (0.046)	0.076* (0.042)	0.168** (0.072)	0.571** (0.230)	0.372* (0.191)	0.645** (0.275)
Observations	66,362	66,362	66,362	66,362	66,362	66,362
R-squared	0.285	0.318	0.249	0.381	0.406	0.236
Dep. Var Mean	0.76	0.693	0.252	3.65	3.324	1.466
... males	0.87	0.84	0.23	4.51	4.34	0.71
... females	0.63	0.51	0.27	2.69	2.11	0.92
<b>Test:</b>						
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.062	0.090	0.707	0.088	0.083	0.548
F test ( $\beta_1+\beta_2=0$ ; p val)	0.007	0.030	0.0434	0.013	0.016	0.0424
F test ( $\alpha_1+ \beta_1=0$ ; p val)	0.609	0.998	0.393	0.822	0.988	0.310
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.002	0.008	0.00198	0.001	0.003	0.00250
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0.002	0.021	0.00171	0.003	0.007	0.00238

Note: 'Reserved now' and 'reserved before' are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods and the sample is limited to those who worked under NREGS. Control variables included throughout but coefficients on which are not reported include household size, composition, land ownership, and the head's marital status, gender, age, and education; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office) and for individual-level regressions individuals' gender, marital status, age, education and their squared terms. Standard errors are clustered at panchayat level. Robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table 6: Effect of reservation status on labor force participation by marital status and types of employment**

	Participation			No. of days worked		
	Total	No NREGS	NREGS only	Total	No NREGS	NREGS only
<b>Panel A: Married</b>						
Res. now ( $\alpha_1$ )	-0.012 (0.022)	-0.022 (0.023)	0.035 (0.035)	-0.089 (0.103)	-0.110 (0.100)	0.144 (0.126)
Res. before ( $\alpha_2$ )	-0.037* (0.022)	-0.012 (0.023)	-0.033 (0.041)	-0.143 (0.112)	-0.035 (0.107)	-0.166 (0.152)
Res now $\times$ fem ( $\beta_1$ )	0.038 (0.042)	0.036 (0.042)	0.008 (0.049)	0.152 (0.200)	0.154 (0.186)	0.050 (0.183)
Res. before $\times$ fem ( $\beta_2$ )	0.128*** (0.042)	0.074* (0.041)	0.204*** (0.067)	0.621*** (0.219)	0.340* (0.174)	0.779*** (0.265)
Observations	50,872	37,258	50,872	50,872	37,258	50,872
R-squared	0.284	0.335	0.247	0.417	0.461	0.249
Dep. Var Mean	0.804	0.738	0.285	3.866	3.544	0.913
<b>Test:</b>						
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.0539	0.217	0.968	0.0979	0.255	0.911
F test ( $\beta_1+\beta_2=0$ ; p val)	0.000632	0.0302	0.0195	0.00339	0.0337	0.0204
F test ( $\alpha_1+ \beta_1 =0$ ; p val)	0.272	0.536	0.156	0.576	0.665	0.0714
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.000195	0.0223	1.10e-05	0.000151	0.0165	2.89e-05
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	1.70e-05	0.00742	3.16e-05	0.000126	0.00606	3.55e-05
<b>Panel B: Unmarried</b>						
Res. now ( $\alpha_1$ )	-0.028* (0.016)	-0.031* (0.017)	0.005 (0.019)	-0.184** (0.093)	-0.191** (0.095)	0.018 (0.066)
Res. before ( $\alpha_2$ )	-0.003 (0.019)	0.007 (0.017)	0.015 (0.020)	0.013 (0.109)	0.047 (0.099)	0.032 (0.072)
Res now $\times$ fem ( $\beta_1$ )	0.024 (0.026)	0.017 (0.023)	0.030 (0.026)	0.195 (0.133)	0.159 (0.109)	0.130 (0.102)
Res. before $\times$ fem ( $\beta_2$ )	0.070*** (0.033)	0.040 (0.026)	0.052 (0.035)	0.317* (0.168)	0.221* (0.132)	0.210 (0.140)
Observations	15,490	14,197	15,490	15,490	14,197	15,490
R-squared	0.272	0.282	0.269	0.300	0.305	0.295
Dep. Var Mean	0.603	0.545	0.146	2.864	2.593	0.494
<b>Test:</b>						
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.194	0.260	0.403	0.193	0.196	0.588
F test ( $\beta_1+\beta_2=0$ ; p val)	0.0322	0.0657	0.0676	0.0237	0.0158	0.0648
F test ( $\alpha_1+ \beta_1 =0$ ; p val)	0.839	0.475	0.0955	0.921	0.743	0.0503
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.00349	0.0179	0.00921	0.00829	0.0129	0.0119
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0.0296	0.181	0.00113	0.0227	0.0629	0.00143

Note: 'Reserved now' and 'reserved before' are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods and the sample is limited to those who worked under NREGS. Control variables included throughout but coefficients on which are not reported include household size, composition, land ownership, and the head's marital status, gender, age, and education; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office) and for individual-level regressions individuals' gender, marital status, age, education and their squared terms. Standard errors are clustered at panchayat level. Robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table 7: Effects of reservation on NREGS governance**

	Get dated receipt	Payment to account	Payment less than assessed	If less, did complain	Complaint addressed
<b>Panel A</b>					
Res. now ( $\alpha_1$ )	0.268*** (0.039)	0.024 (0.030)	-0.014 (0.043)	0.271*** (0.015)	-0.014 (0.008)
Res. before ( $\alpha_2$ )	0.496*** (0.037)	0.174*** (0.032)	-0.444*** (0.034)	-0.048 (0.093)	0.241*** (0.057)
R-squared	0.604	0.698	0.390	0.558	0.687
Test:					
F test ( $\alpha_1+\alpha_2=0$ ; p val)	5.80e-11	0.00355	3.79e-07	0.0123	0.00124
<b>Panel B</b>					
Res. now ( $\alpha_1$ )	0.264*** (0.038)	0.029 (0.030)	-0.004 (0.039)	0.294*** (0.023)	-0.007 (0.014)
Res. before ( $\alpha_2$ )	0.488*** (0.041)	0.175*** (0.034)	-0.456*** (0.035)	-0.036 (0.100)	0.254*** (0.058)
Res now $\times$ fem ( $\beta_1$ )	0.013 (0.018)	-0.017 (0.021)	-0.046 (0.035)	-0.052 (0.040)	-0.009 (0.038)
Res. before $\times$ fem ( $\beta_2$ )	0.040* (0.022)	-0.008 (0.010)	0.034 (0.040)	-0.067** (0.026)	-0.058*** (0.019)
Obs.	6,736	6,736	6,736	2,747	2,747
R-squared	0.605	0.698	0.390	0.560	0.688
Dep. var mean	0.712	0.883	0.408	0.568	0.420
Test:					
F test ( $\alpha_1+\alpha_2=0$ ; p val)	1.57e-10	0.00323	1.27e-07	0.00559	0.000463
F test ( $\beta_1+\beta_2=0$ ; p val)	0.0931	0.346	0.848	0.000621	0.0684
F test ( $\alpha_1+ \beta_1 =0$ ; p val)	9.74e-07	0.745	0.440	3.04e-08	0.554
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0	6.27e-06	3.14e-09	0.253	0.00126
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0	0.0108	6.78e-05	0.127	0.0126

Note: 'Reserved now' and 'reserved before' are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods and the sample is limited to those who worked under NREGS. Control variables included throughout but coefficients on which are not reported include household size, composition, land ownership, and the head's marital status, gender, age, and education; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office) and for individual-level regressions individuals' gender, marital status, age, education and their squared terms. Standard errors are clustered at panchayat level. Robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table 8: Impact of reservation and women's participation in households' day to day decision making**

	Individual	Wants to	Participation in household decisions on....			
	Income	work more	Food	Nonfood	Health	Education
Res. now ( $\alpha_1$ )	-0.071 (0.217)	0.013 (0.044)	0.022 (0.040)	-0.002 (0.039)	0.009 (0.035)	0.050* (0.026)
Res. before ( $\alpha_2$ )	-0.195 (0.221)	0.006 (0.047)	-0.044 (0.047)	0.145** (0.056)	0.081 (0.050)	0.006 (0.035)
Res now $\times$ fem ( $\beta_1$ )	0.076 (0.427)	0.025 (0.060)	-0.104 (0.067)	-0.012 (0.042)	-0.028 (0.024)	-0.078*** (0.027)
Res. before $\times$ fem ( $\beta_2$ )	0.982** (0.390)	0.163** (0.071)	0.213*** (0.049)	-0.001 (0.039)	0.064*** (0.020)	0.066** (0.032)
Observations	66,362	66,362	22,571	22,571	22,571	22,571
R-squared	0.286	0.252	0.260	0.206	0.216	0.188
Dep. Var Mean	9.118	0.296	0.754	0.801	0.838	0.802
<b>Test:</b>						
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.299	0.741	0.590	0.000212	0.00177	0.0414
F test ( $\beta_1+\beta_2=0$ ; p val)	0.00859	0.0460	0.105	0.781	0.175	0.648
F test ( $\alpha_1+ \beta_1 =0$ ; p val)	0.984	0.318	0.0746	0.749	0.614	0.308
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.00264	0.000463	0.000425	0.0133	0.00464	0.0923
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0.00404	0.000176	0.0458	0.00165	0.000766	0.283

*Note:* 'Reserved now' and 'reserved before' are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods. Regressions for desire to work and individual income include the entire sample whereas those for intra-household bargaining is limited to the states of Gujarat, Uttar Pradesh, Maharashtra, Orissa, and West Bengal where a supplemental questionnaire on intra-household bargaining was administered. Control variables the coefficients of which are not reported include household size, composition, land ownership, and the head's marital status, gender, age, and education; individuals' gender, marital status, age, education and their squared terms; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office). Standard errors are clustered at village panchayat and robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

## Appendix Tables

**Table A1: Village Level Summary Statistics**

	Total	Now	Reservation status			Difference test			
			Before	Ever	Never	2 vs 5	3 vs 5	4 vs 5	2 vs 3
<b>Panel A: Village characteristics</b>									
Population	2619	2565	2554	2472	2766	0.641	0.662	0.446	0.977
Households	483	471	441	448	519	0.574	0.417	0.350	0.679
SCs	0.208	0.209	0.214	0.204	0.212	0.914	0.951	0.737	0.864
STs	0.115	0.117	0.077	0.120	0.110	0.851	0.376	0.784	0.337
Share of Hindu	0.898	0.897	0.883	0.901	0.894	0.911	0.761	0.811	0.699
Share in agric.	0.563	0.550	0.565	0.582	0.543	0.874	0.654	0.320	0.777
Has prim. school	0.921	0.878	0.904	0.905	0.937	0.187	0.471	0.422	0.657
Has sec. school	0.926	0.905	0.981	0.926	0.926	0.627	0.166	1.000	0.089
Has prim health center	0.537	0.541	0.577	0.558	0.516	0.751	0.481	0.563	0.689
Has pucca road	0.505	0.514	0.462	0.516	0.495	0.810	0.703	0.773	0.569
Dist. to district HQ (km)	51.17	52.08	45.66	50.44	51.90	0.975	0.355	0.788	0.282
Dist. to town (km)	14.94	14.54	12.04	13.97	15.91	0.512	0.083	0.325	0.290
Dist. to bus station (km)	4.24	4.59	4.06	4.98	3.49	0.272	0.548	0.290	0.206
Dist. railway station (km)	25.13	23.75	24.84	25.59	24.66	0.828	0.970	0.821	0.830
Dist. to post office (km)	1.94	2.06	1.81	1.99	1.88	0.668	0.858	0.768	0.618
<b>Panel B: Pradhan's Characteristics</b>									
Earlier contested	0.158	0.176	0.212	0.137	0.179	0.956	0.633	0.429	0.617
Held position before	0.474	0.419	0.500	0.442	0.505	0.267	0.952	0.386	0.372
Up to high school	0.263	0.270	0.231	0.263	0.263	0.918	0.668	1.000	0.619
High sec. & above	0.342	0.216	0.308	0.263	0.421	0.005	0.178	0.022	0.249
Higher education	0.163	0.122	0.212	0.137	0.189	0.235	0.750	0.329	0.177
SC	0.537	0.608	0.481	0.579	0.495	0.144	0.872	0.247	0.159
ST	0.116	0.108	0.115	0.116	0.116	0.876	0.994	1.000	0.899
OBC	0.126	0.122	0.115	0.105	0.147	0.631	0.592	0.385	0.916
OC	0.216	0.162	0.288	0.200	0.232	0.267	0.451	0.599	0.090
Hindu	0.563	0.459	0.596	0.484	0.642	0.017	0.585	0.028	0.133
Muslim	0.089	0.081	0.058	0.084	0.095	0.759	0.436	0.801	0.619
# observations	190	74	52	95	95				

Note: Author's own calculation from survey. For test of difference in mean, p values reported in the last column are based on regressions with district fixed effects and standard errors are clustered by village panchayat.

**Table A2: Household and Individual Level Summary Statistics**

	Total	Now	Reservation status			Difference test			
			Before	Ever	Never	2 vs 5	3 vs 5	4 vs 5	2 vs 3
<b>Panel A: Household characteristics</b>									
Have a job card <sup>12</sup>	25.36	33.26	31.63	30.78	21.30	0.072	0.567	0.142	0.393
Female head	0.116	0.119	0.126	0.115	0.117	0.571	0.076	0.617	0.201
Head's age	49.15	49.25	49.72	49.34	48.92	0.683	0.721	0.722	0.785
Head's education	3.80	3.83	4.14	3.83	3.75	0.252	0.181	0.271	0.164
Head married	0.848	0.838	0.828	0.842	0.855	0.88	0.224	0.895	0.136
Head widowed /sep.	0.136	0.146	0.153	0.143	0.128	0.57	0.189	0.598	0.832
Household size	4.48	4.37	4.37	4.48	4.47	0.617	0.022	0.809	0.562
Males 15-65 yrs	1.65	1.62	1.61	1.66	1.63	0.752	0.002	0.718	0.503
Males 15-65 yrs	1.56	1.54	1.54	1.57	1.55	0.574	0.016	0.713	0.114
Children <15 yrs	1.08	1.02	1.03	1.07	1.11	0.472	0.027	0.64	0.391
Female children <15 yrs	0.53	0.49	0.50	0.52	0.54	0.038	0.942	0.505	0.134
Max. educ. in hh (yrs)	14.26	14.31	13.94	14.42	14.07	0.095	0.601	0.119	0.292
Hindu	0.888	0.869	0.914	0.882	0.894	0.969	0.524	0.98	0.686
SC/ST	0.419	0.402	0.362	0.404	0.438	0.478	0.605	0.589	0.021
Owens agricultural land	0.579	0.563	0.618	0.599	0.555	0.04	0.144	0.062	0.231
Has pucca house	0.476	0.469	0.543	0.483	0.467	0.274	0.124	0.253	0.447
# observations	23,350	10,926	6,889	12,678	10,672				
<b>Panel B: Individual characteristics</b>									
Female	0.49	0.492	0.493	0.491	0.489	0.935	0.386	0.924	0.106
Age	39.84	40.01	40.23	39.94	39.72	0.805	0.431	0.785	0.405
Educ. primary.	0.213	0.215	0.205	0.208	0.218	0.611	0.541	0.696	0.069
Educ. up to HS	0.291	0.294	0.3	0.291	0.292	0.853	0.301	0.939	0.080
up to graduate	0.110	0.113	0.131	0.116	0.102	0.8	0.224	0.848	0.153
Others	0.015	0.014	0.017	0.015	0.014	0.967	0.323	0.894	0.341
Married	0.748	0.742	0.735	0.742	0.754	0.542	0.695	0.513	0.481
Unmarried	0.174	0.174	0.18	0.176	0.172	0.894	0.597	0.997	0.505
# observations	66,362	29,042	17,705	34,707	31,655				

Note: Author's own calculation from survey. For test of difference in mean, p values reported in the last column are based on regressions with district fixed effects and standard errors are clustered by village panchayat.

<sup>12</sup> Total households in the survey was 91,984.

**Table A3: Summary statistics on labor supply, decision making and NREGS assessment**

	Total	Reserved				Total	Reserved			
		Now	Before Males	Ever	Never		Now	Before Females	Ever	Never
<b>Panel A: Labor Supply</b>										
Labor force participation rate	0.86	0.86	0.85	0.87	0.86	0.62	0.66	0.71	0.67	0.58
... self-employed in agriculture	0.39	0.37	0.39	0.41	0.37	0.32	0.31	0.33	0.35	0.29
... self-employed in non-ag.	0.06	0.05	0.05	0.05	0.06	0.01	0.01	0.01	0.01	0.01
... casual labor in agriculture	0.33	0.36	0.33	0.35	0.32	0.29	0.30	0.29	0.31	0.28
... casual labor in non-agriculture	0.49	0.48	0.42	0.49	0.49	0.10	0.09	0.08	0.10	0.09
... in NREGA	0.23	0.25	0.22	0.25	0.21	0.27	0.32	0.38	0.31	0.22
... regular salaried work	0.07	0.07	0.07	0.07	0.07	0.01	0.01	0.01	0.01	0.01
No of days worked	184.84	180.28	177.61	182.29	187.62	64.13	66.79	73.88	67.19	60.76
... self-employed in agriculture	19.86	19.69	22.28	21.75	17.80	12.17	12.49	14.69	14.17	9.97
... self-employed in non-ag.	13.78	11.67	13.47	12.49	15.19	2.34	2.40	1.78	2.26	2.43
... casual labor in agriculture	33.16	34.99	37.11	32.13	34.28	23.27	22.21	25.15	21.93	24.74
... casual labor in non-agriculture	90.58	86.89	77.75	88.52	92.83	12.12	11.46	9.78	12.07	12.19
... in NREGA	6.64	7.48	7.21	7.52	5.68	10.72	14.43	19.10	13.20	7.99
... regular salaried work	20.82	19.55	19.79	19.89	21.84	3.50	3.82	3.38	3.57	3.43
Individual income (Rs.)	65,000	58,000	62,500	63,724	66,000	20,986	17,900	20,350	22,490	19,804
<b>Panel B: Decision making and NREGS assessment</b>										
Participates in household decisions on ....										
... food	0.839	0.808	0.874	0.824	0.851	0.655	0.591	0.826	0.638	0.669
... nonfood	0.828	0.797	0.902	0.819	0.835	0.761	0.719	0.830	0.751	0.769
... health	0.866	0.836	0.916	0.855	0.875	0.798	0.758	0.891	0.786	0.807
... education	0.854	0.827	0.886	0.844	0.862	0.737	0.667	0.792	0.704	0.763
Would like to work more	0.274	0.297	0.269	0.296	0.251	0.316	0.375	0.437	0.359	0.268
If participated in any NREGS work										
Got dated receipt	0.734	0.798	0.400	0.744	0.721	0.660	0.738	0.642	0.684	0.615
Was paid directly to bank account	0.889	0.903	0.888	0.905	0.865	0.866	0.903	0.836	0.905	0.795
Experienced delay in payment delayed	0.993	0.998	0.982	0.992	0.995	0.991	0.998	0.986	0.993	0.988
Was paid less than was due	0.388	0.446	0.451	0.412	0.350	0.454	0.486	0.619	0.453	0.463
If less, did complain	0.557	0.650	0.428	0.649	0.390	0.590	0.659	0.489	0.658	0.464
Complaint addressed	0.435	0.467	0.336	0.466	0.379	0.396	0.378	0.357	0.378	0.429
No. of obs.	34,427	15,018	9,135	17,990	16,437	31,935	14,024	8,570	16,717	15,218

Note: Author's own calculation from survey.

**Table A4: Impact of reservation on wages received**

	Agricultural wage		Non-agricultural wage		NREGS wage	
Res. now ( $\alpha_1$ )	-0.038 (0.031)	-0.033 (0.026)	0.028 (0.047)	0.022 (0.050)	0.011 (0.025)	-0.001 (0.017)
Res. before ( $\alpha_2$ )	-0.019 (0.041)	-0.009 (0.040)	-0.023 (0.064)	-0.037 (0.064)	-0.016 (0.021)	-0.015 (0.020)
Res now $\times$ fem ( $\beta_1$ )		0.001 (0.006)		0.001 (0.011)		0.008 (0.009)
Res. before $\times$ fem ( $\beta_2$ )		-0.009 (0.007)		-0.001 (0.011)		-0.003 (0.010)
Observations	37,250	37,250	24,803	24,803	15,721	15,721
R-squared	0.338	0.336	0.088	0.084	0.495	0.495
Dep. Var Mean	5.080	5.080	5.542	5.542	4.839	4.839
<b>Test:</b>						
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.126	0.278	0.926	0.775	0.843	0.492
F test ( $\beta_1+\beta_2=0$ ; p val)		0.350		0.981		0.767
F test ( $\alpha_1+ \beta_1 =0$ ; p val)		0.220		0.660		0.706
F test ( $\alpha_2+ \beta_2=0$ ; p val)		0.670		0.540		0.361
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)		0.189		0.766		0.619

*Note:* ‘Reserved now’ and ‘reserved before’ are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods and the sample is limited to those who worked under NREGS. Control variables included throughout but coefficients on which are not reported include household size, composition, land ownership, and the head’s marital status, gender, age, and education; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office) and for individual-level regressions individuals’ gender, marital status, age, education and their squared terms. Robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table A5: Effect of reservation status on labor force participation by marital status and types of employment**

	Total	Self-employed		Casual labor in		NREGS	Salaried Work
		Ag	Non-Ag	Ag	Non-Ag		
<b>Panel A: Married</b>							
Res. now ( $\alpha_1$ )	-0.012 (0.022)	-0.057*** (0.016)	-0.027*** (0.008)	-0.007 (0.030)	0.016 (0.022)	0.035 (0.035)	-0.002 (0.009)
Res. before ( $\alpha_2$ )	-0.037* (0.022)	-0.002 (0.017)	0.005 (0.007)	0.020 (0.030)	-0.049** (0.024)	-0.033 (0.041)	0.003 (0.008)
Res now $\times$ fem ( $\beta_1$ )	0.038 (0.042)	0.022 (0.014)	0.018** (0.008)	-0.039 (0.044)	-0.002 (0.032)	0.008 (0.049)	0.005 (0.009)
Res. before $\times$ fem ( $\beta_2$ )	0.128*** (0.042)	0.020 (0.013)	-0.007 (0.009)	0.010 (0.043)	0.076* (0.040)	0.204*** (0.067)	0.000 (0.010)
Observations	50,872	50,872	50,872	50,872	50,872	50,872	50,872
R-squared	0.284	0.479	0.051	0.194	0.346	0.247	0.075
Dep. Var Mean	0.804	0.401	0.0398	0.356	0.318	0.285	0.0365
<b>Test:</b>							
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.0539	0.00548	0.0373	0.666	0.303	0.968	0.897
F test ( $\beta_1+\beta_2=0$ ; p val)	0.000632	0.0135	0.370	0.573	0.172	0.0195	0.686
F test ( $\alpha_1+ \beta_1 =0$ ; p val)	0.272	0.0326	0.176	0.0910	0.489	0.156	0.615
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.000195	0.359	0.724	0.291	0.232	1.10e-05	0.610
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	1.70e-05	0.398	0.137	0.621	0.175	3.16e-05	0.476
<b>Panel B: Unmarried</b>							
Res. now ( $\alpha_1$ )	-0.028* (0.016)	-0.068*** (0.020)	-0.010* (0.005)	-0.040** (0.018)	-0.021 (0.024)	0.005 (0.019)	-0.000 (0.010)
Res. before ( $\alpha_2$ )	-0.003 (0.019)	0.019 (0.020)	-0.001 (0.007)	-0.021 (0.019)	-0.021 (0.023)	0.015 (0.020)	0.011 (0.009)
Res now $\times$ fem ( $\beta_1$ )	0.024 (0.026)	-0.007 (0.020)	0.020** (0.008)	-0.009 (0.024)	0.015 (0.024)	0.030 (0.026)	0.012 (0.010)
Res. before $\times$ fem ( $\beta_2$ )	0.070** (0.033)	0.014 (0.023)	-0.009 (0.008)	0.010 (0.023)	0.036 (0.023)	0.052 (0.035)	0.001 (0.011)
Observations	15,490	15,490	15,490	15,490	15,490	15,490	15,490
R-squared	0.272	0.328	0.032	0.190	0.227	0.269	0.082
Dep. Var Mean	0.603	0.247	0.0227	0.206	0.249	0.146	0.0611
<b>Test:</b>							
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.194	0.0740	0.141	0.0175	0.124	0.403	0.340
F test ( $\beta_1+\beta_2=0$ ; p val)	0.0322	0.761	0.182	0.953	0.0697	0.0676	0.341
F test ( $\alpha_1+ \beta_1 =0$ ; p val)	0.839	0.000416	0.161	0.0200	0.792	0.0955	0.163
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.00349	0.129	0.107	0.643	0.535	0.00921	0.174
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0.0296	0.147	0.972	0.0120	0.725	0.00113	0.0403

Note: 'Reserved now' and 'reserved before' are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods and the sample is limited to those who worked under NREGS. Control variables included throughout but coefficients on which are not reported include household size, composition, land ownership, and the head's marital status, gender, age, and education; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office) and for individual-level regressions individuals' gender, marital status, age, education and their squared terms. Robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table A6: Effect of reservation status on labor force participation days by marital status and types of employment**

	Total	Self-employed		Casual labor in		NREGS	Salaried Work
		Ag	Non-Ag	Ag	Non-Ag		
<b>Panel A: Married</b>							
Res. now ( $\alpha_1$ )	-0.089 (0.103)	-0.219*** (0.062)	-0.138*** (0.042)	-0.070 (0.135)	0.087 (0.115)	0.144 (0.126)	-0.006 (0.051)
Res. before ( $\alpha_2$ )	-0.143 (0.112)	0.089 (0.076)	0.028 (0.041)	0.114 (0.137)	-0.275** (0.127)	-0.166 (0.152)	0.013 (0.044)
Res now $\times$ fem ( $\beta_1$ )	0.152 (0.200)	0.100** (0.049)	0.096** (0.045)	-0.191 (0.201)	0.008 (0.173)	0.050 (0.183)	0.028 (0.053)
Res. before $\times$ fem ( $\beta_2$ )	0.621*** (0.219)	0.049 (0.049)	-0.041 (0.048)	0.018 (0.203)	0.397* (0.212)	0.779*** (0.265)	0.001 (0.060)
Observations	50,872	50,872	50,872	50,872	50,872	50,872	50,872
R-squared	0.417	0.466	0.050	0.205	0.363	0.249	0.077
Dep. Var Mean	3.866	1.436	0.210	1.496	1.598	0.913	0.203
<b>Test:</b>							
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.0979	0.126	0.0442	0.762	0.266	0.911	0.897
F test ( $\beta_1+\beta_2=0$ ; p val)	0.00339	0.0315	0.399	0.493	0.159	0.0204	0.671
F test ( $\alpha_1+ \beta_1=0$ ; p val)	0.576	0.0404	0.195	0.0356	0.387	0.0714	0.516
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.000151	0.0773	0.692	0.326	0.308	2.89e-05	0.682
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0.000126	0.819	0.151	0.395	0.176	3.55e-05	0.455
<b>Panel A: Unmarried</b>							
Res. now ( $\alpha_1$ )	-0.184** (0.093)	-0.221*** (0.070)	-0.048* (0.027)	-0.201** (0.079)	-0.100 (0.124)	0.018 (0.066)	0.003 (0.061)
Res. before ( $\alpha_2$ )	0.013 (0.109)	0.115 (0.077)	-0.006 (0.035)	-0.043 (0.081)	-0.100 (0.120)	0.032 (0.072)	0.057 (0.051)
Res now $\times$ fem ( $\beta_1$ )	0.195 (0.133)	-0.009 (0.071)	0.105** (0.042)	-0.051 (0.102)	0.106 (0.121)	0.130 (0.102)	0.064 (0.057)
Res. before $\times$ fem ( $\beta_2$ )	0.317* (0.168)	0.051 (0.085)	-0.047 (0.043)	0.027 (0.100)	0.160 (0.118)	0.210 (0.140)	0.003 (0.065)
Observations	15,490	15,490	15,490	15,490	15,490	15,490	15,490
R-squared	0.300	0.322	0.031	0.196	0.229	0.295	0.083
Dep. Var Mean	2.864	0.846	0.118	0.867	1.238	0.494	0.340
<b>Test:</b>							
F test ( $\alpha_1+\alpha_2=0$ ; p val)	0.193	0.258	0.161	0.0229	0.153	0.588	0.347
F test ( $\beta_1+\beta_2=0$ ; p val)	0.0237	0.605	0.191	0.854	0.0695	0.0648	0.371
F test ( $\alpha_1+ \beta_1=0$ ; p val)	0.921	0.00107	0.132	0.00527	0.960	0.0503	0.151
F test ( $\alpha_2+ \beta_2=0$ ; p val)	0.00829	0.0280	0.112	0.868	0.622	0.0119	0.232
F test ( $\alpha_1+ \beta_1+\alpha_2+ \beta_2=0$ ; p val)	0.0227	0.496	0.898	0.0118	0.622	0.00143	0.0511

Note: 'Reserved now' and 'reserved before' are indicator variables of whether village panchayats are reserved in the current or the previous panchayat periods and the sample is limited to those who worked under NREGS. Control variables included throughout but coefficients on which are not reported include household size, composition, land ownership, and the head's marital status, gender, age, and education; village-level access to road, distance to town and district HQ, population, share of SCs, STs, and key religions; years since the last village election; *pradhan* characteristics (education, caste, religion, previous tenure and candidacy for office) and for individual-level regressions individuals' gender, marital status, age, education and their squared terms. Robust standard errors reported in parentheses and multiple hypotheses tests are adjusted using the Bonferroni method. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

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