

Women's Reservation and India's National Rural Employment Guarantee Scheme

Nayana Bose* Shreyasee Das†

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Abstract

This paper examines the efficiency of public works implementation when a government has a seat reserved for female candidates versus those that are not. Since 1993, one third of the local governments in India (Panchayats) have been randomly restricted to fielding only woman candidates. We use detailed information on employment and public works expenditure under the Indian National Rural Employment Guarantee Act (NREGA) from 2010 to 2013 for 5987 Panchayats in 9 districts in the state of Uttar Pradesh and combine this with information on local level electoral information. Exploiting the randomized assignment of female candidate reservations, we find that demand for work and women's labor force participation significantly increase in Panchayats with women leaders. However, we find no significant effects on the type of work. Thus, although we find some evidence of a role-model effect, we find no evidence of better public works distribution under female leaders.

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*Department of Economics, Washington & Lee University, TN 37240, Email: bosen@wlu.edu

†University of Wisconsin-Whitewater, Department of Economics, 4401 Hyland Hall, 800 W. Main Street, Whitewater, WI - 53190, Email: dass@uww.edu

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1 Introduction

Policymakers in the developing world, quite often, argue for the need to increase quotas (reservations) for historically disadvantaged and underrepresented groups in the local government. The notion behind this is that filling up these seats will help in a targeted distribution of welfare programs and motivates the intended groups to increase their participation in the political process. Furthermore, World Bank (2001) finds evidence that when women partake in government activities, there is an augmentation of performance of the government, especially in the context of public works distribution. The 73rd Amendment to the Indian Constitution allows for decentralized government at the local level by instituting Gram Panchayats (village councils) to better serve the needs of the voters. More importantly, it allows for a randomized assignment of quotas for women in these councils to increase their political participation.¹ We use this constitutionally mandated feature to examine the performance of the Indian National Rural Employment Guarantee Act of 2005 (NREGA) under female leadership. NREGA is a rights based, demand driven, works program that allows every adult member of a rural household a minimum of 100 days of labor in one of the many prescribed works listed under the Act. We further examine at whether having a female leader in a given Panchayat has any bearing on the types of work taken up, especially those that are thought to be of direct benefit to women (such as rural drinking water, sanitation and water bodies).

Having a female leader in the government can impact public works distribution through two mechanisms. One channel is through a role-model effect that a woman leader could provide to the rest of the female population in the villages. Women can be inspired by the female leader and hence take up more work or increase attendance to schools (Beaman et al. 2012). Quotas at the level of the local government, may help reduce statistical discrimination against women regarding their ability to lead (Beaman et al. 2009). This discrimination arises because the electorate has more information about men and their abilities, and therefore the preference is for male leaders. By having a woman in a leadership position, she can have a role

¹Details of the methodology of this reservation is provided in the Background Section.

model effect and encourage women in her Panchayat to participate in the labor force (Duflo, 2005, Iyer et al. 2012). Women leaders may also empathize with issues that directly affect women and public spending on projects may reflect these concerns (Beaman et al. 2012). On the other hand, these quotas could have the opposite effect. They may be counterproductive because the forced presence of women in a position of power challenges social norms and can create a backlash against women. Women in villages, usually inexperienced at politics, could just be figureheads to fill up these seats and a certain amount of capture-cum-clientelism takes place (Bardhan et al. 2010). They find that having women leaders, surprisingly, reduces welfare of Scheduled Caste households in villages and has no significant impact on targeted distribution of public works. This is also evidenced in Ban & Rao (2008) who find no evidence of political decentralization, reservations and distribution of public works program in four states of India. Thus, it is theoretically ambiguous as to how reservations for women in the government can affect public works programs.

Since the advent of NREGA in 2005-06, Uttar Pradesh has had unfavorable reviews with respect to the implementation of NREGA. A quick ranking of the success of the program in 25 states in India puts Uttar Pradesh in the bottom (Farooquee, 2013).² Agarwal (2012) blames the lack of audits and misallocation of funds to the problems the state is facing in terms of NREGA performance. Since these studies look at the overall performance of the state³, we try to examine the workings of NREGA at the local level. We attempt to do this by examining the effectiveness of the program (at the Panchayat level) by looking at Panchayats that was reserved for women versus those that weren't. The Program website provides Panchayat level employment information from 2010 to 2013 with details on number of days worked by sex and caste, expenditures on the different categories of public works undertaken for a particular year, and the number of completed and ongoing works in various categories. Data on the Panchayats that are reserved for women in the state of Uttar Pradesh

²The author uses five different parameters to order the states with respect to their performance under NREGA, and Uttar Pradesh consistently ranks last.

³A few articles have looked at the Panchayat level, but not to the extent that this paper provides. To our knowledge, we are the first paper that tries to teach the Panchayat organization and NREGA performance

is obtained from Thad Dunning's website. The website contains data for 24,666 panchayats collected from the State Election Commission website for the 2010 Panchayat Elections and contains vital statistics from the 2001 Census. Since Panchayat elections are conducted every five years, the Program website information for until the 2013 can be used to study the impact of female leadership on women's participation under NREGA.

Before we conduct our main analysis, we establish the exogeneity of the randomness of Panchayat selection to provide reservations for women during election cycles. Then, in order to analyze whether women leaders are as effective as their male counterparts, who are more likely to have greater experience and have more concern about reelection, we study the number of public works that are either ongoing or completed in reserved Panchayats. We do this by estimating a simple OLS regression where the dependent variable is NREGA works and the independent variable is whether a Panchayat was reserved in 2010 or not. We try to get at the role model effect in terms of increased women's participation and if women do indeed target public works to help their own groups. In rural India 36 % of women who are mainly engaged in domestic activity bring water from outside the house. So, public works that reduce the time and effort of bringing water from outside is especially beneficial for women. By focusing on expenditures under NREGA on water works, we analyze the impact of reservation of Panchayat seats for women on women's utility in the village by improving the welfare of the median female voter. We find evidence of increased demand for work, job cards issued and number of work days that women take up. However, our analysis finds no evidence of improvements in water works, irrigation works, rural connectivity or drought proofing works.

The rest of the paper is organized in the following manner. Section 2 provides the background information about NREGA and also a literature review of what has been done so far. Section 3 elaborates the empirical strategy we employ, Section 4 talks about the data. We elaborate on the results in Section 5 and finally conclude in Section 6.

2 Related Literature and Background

2.1 Political Representation for Women in India

In 1993, India introduced an affirmative action program for women by using a quota system that mandated political representation of women in rural areas. The 73rd Amendment to the Indian constitution officially recognized the existence of local governments.⁴ These local government bodies are known as Gram Panchayats(GP). However, to uphold the democratic process of selecting the Panchayat leader, the Amendment requires an election to be held every five years where everyone in the Panchayat is to participate in the voting process of selecting the council. The council consists of members who were either fielded by political parties or independents. The leader of the Panchayat, or the Pradhan, is then chosen from this council. The only caveat is that the members officially belong to the local area. Overall, there are 3 tiers of local government. The village level or the Gram Panchayat, consists is formed of a group of villages (between 5 to 15 villages) to ensure that each GP has around 10,000 people. The other two levels of local government are at the Block and District level. Figure 1 provides a visual of the different levels of government in India.

Since council members of the Panchayat are in close proximity to the village population, they are constantly aware of the needs of villagers and the development works that are necessary to address the problems of the village. Therefore, the onus of executing development programs was put on Gram Panchayats. Most importantly, they are responsible for local infrastructure, welfare programs, water provision, sanitation, and rural connectivity. Although development works are mainly funded by the State Government, the Panchayats are responsible for allocating the funds in a manner that they deem optimal. This decentralized form of government was intended to ensure that relevant public works are undertaken and that expenditure on irrelevant works is reduced. With respect to NREGA, a public

⁴Decentralized government at the local government was prevalent even before the Amendment was in place. For example, West Bengal has had local governments since the 1970s. The 73rd Amendment made it a law for the entire country of India.

works program, the same pattern in terms of the execution of works prescribed. The Central government provides nearly 90 % of the funds for works under NREGA and the State government makes recommendations on how the fund should be used. The Panchayats are responsible for proposing the actual works that are to be implemented under NREGA.

Another important goal of the 73rd Amendment is also to promote gender equality at the local level. The Amendment recommends reservations for women at the level of the local government, thus providing women in rural areas a voice in policy making processes and more importantly, to be responsive to the needs of women in these villages. This further promotes women from underrepresented areas to enter local politics without having to fight for a seat in the councils. To achieve this goal, it was mandated that one-third of all the seats in all Panchayat councils be reserved for women. Additionally, one-third of all Panchayat leader positions are reserved for women and this is done by randomly assigning one third of Panchayat seats for women candidates. To carry out the affirmative action program, in Panchayats that are reserved for women candidates, political parties can only field women candidates, however, the entire population in the Panchayat can vote for their preferred candidate. In Uttar Pradesh this rule came into effect only in 2000.⁵

Women Panchayat leaders are supposed to constitute at least 33 percent of all seats. The process of reserving Panchayats for women leaders is based on a systematic process in order to ensure that Panchayats are randomly allocated to women. All village Panchayats in a district are ordered according to their serial legislative number that was assigned to villages before the 73rd Amendment was introduced. The Panchayats are then ranked in three lists (those reserved for Scheduled Caste candidates, Scheduled Tribe candidates, and those that are not reserved for any minority group) and every third candidate in the list is then selected to be reserved for a woman Panchayat leader. This implies that although Panchayats are chosen in an arbitrary fashion, they are aware of the time period during which they are going

⁵A point to note here: even though the Amendment was passed in 1993/94, Uttar Pradesh did not implement it until 2000. Another state that has implemented it only recently is the state of Bihar, which borders Uttar Pradesh on its east.

to have a woman leader.

2.2 National Rural Employment Guarantee Act

The National Rural Employment Guarantee Act (NREGA)⁶, a flagship program of the UPA government, was enacted in 2005.⁷ The policy guarantees all adults in a rural household⁸, a minimum of 100 days of unskilled labour work in a given financial year. The objective of the program is multifaceted; the most important ones being improvements to local public infrastructure and providing employment during lean agricultural seasons.⁹ NREGA is also one of the very few guarantee programs that provides for equal wages for women and also reserves 33% workforce for women.

NREGA was rolled out in three different phases. Phase I was first implemented in 2006 in the 200 poorest districts in India. These districts were specifically targeted by the Planning Commission of India based on their backward status ranking of Indian districts.¹⁰ These districts were also chosen based on the Scheduled Caste/Scheduled Tribe female population to give them more opportunities to take up work. Phase 2 was implemented in 2007 in 130 districts and by the end of 2008, Phase III that covered the rest of the country, was rolled out. Thus, NREGA covers the entire country with the sole exception of 100% urban population districts.

As of 2012, Rs.90,000 crore (approximately 1.5 billion US dollars) had been spent by the then ruling UPA government over the program's implementation. More than 45 million households have been provided with work since 2006 when Phase I was implemented. Just in the 2012-2013 financial year alone, NREGA has provided employment to over 45

⁶The program was renamed as Mahatma Gandhi National Rural Employment Guarantee Scheme in 2009. For the purposes of the paper, we will refer to the program as NREGA.

⁷UPA stands for the United Progressive Alliance, a coalition government that was formed after the 2004 elections with the Indian National Congress as the biggest party.

⁸An adult is anyone who is 18 years or older

⁹India, even today, is an agriculturally dependent economy. Any shocks to rainfall and hence agriculture, proves very detrimental especially to rural households. NREGA tries to mitigate this as well.

¹⁰The official ranking of backwardness of the districts in each state was based on the Scheduled Caste and Tribe population in 1991, agricultural wages in 1996-97 and output per agricultural worker in 1990-93.

million people and the number continues to improve (Farooquee, 2013). However, there is state-level heterogeneity when it comes to the program's performances. Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh continue to fair poorly, with Uttar Pradesh ranking low consistently.¹¹

To participate in NREGA, adult members first apply for a job card at the local Gram Panchayat (GP); the location of the Panchayat is determined by their residency. Once a job card application has been submitted, it is the GP's responsibility to issue the Job Card within 15 days after verification. Any adult who has applied for work under NREGA must be assigned to a public works within 15 days; failure to do so results in the state compensating the workers with unemployment benefits. The Act also mandates that worksites shouldn't be more than 5 km (3.11 miles) in radius from the workers' residences. To promote women's participation in the program, NREGA has made it mandatory for worksites to provide for crèches for children under the ages of 0-5. However, this has been grossly violated. Narayan (2008) has reported that

Projects approved under NREGA mainly emphasize on asset creations, improving local infrastructure; these include road constructions, improving irrigation works, drought proofing and most importantly water conservation works.¹² Wage to material ratio is set at 60:40. While there are specific provisions that there will no sign of contractors or machinery in NREGA works, this has been grossly violated. The Central Government bears the costs towards wage payments, 75% of material costs and some administrative costs. State Governments on the other hand meet the cost of unemployment benefit, the remainder of the cost of materials and administrative costs.

¹¹Rajasthan, however, has shown positive outcomes with respect to NREGA implementation.

¹²A recent 2012 amendment to NREGA allows for improvements in sanitation works, increasing access to rural drinking water and also working on improving own farms especially for the SC/ST communities.

2.2.1 NREGA In Uttar Pradesh

Uttar Pradesh is the fourth largest state (in terms of area) and the largest state (in terms of population) in India. Figure 2 provides a political district map of Uttar Pradesh. As of the 2011 Census¹³, the state spans over 243,286 km^2 (approximately 95000 sq.miles), and has a population of about 200 million people (47% of which is female population). While the state as whole ranks below the national average with respect to female to male sex ratio (Uttar Pradesh is at 908 while India's average is 940), there is considerable amount of heterogeneity within the state, with certain districts well above the national average (Figure 3).¹⁴ Uttar Pradesh also has a high percentage of Scheduled Caste population (approximately 30%) while the Scheduled Tribe population is considerably low (1%).¹⁵

In Uttar Pradesh, 23 districts received the program in Phase I, 18 districts in Phase II, and 32 districts in Phase III.¹⁶ As of 2012, the NREGA wage rate in the state is at Rs. 120 per day, compared to Rs 58 in 2006. All projects under NREGA follow a bottom to top approach instead of the usual top down approach in implementing public works programs. Every year, the Gram Panchayat prepares its annual plans with respect to budget and works' status. These plans go to the Block level, then to the District level which then goes to the State for budget approval. It is then presented to the Government of India. Since the main proposal comes from the Panchayats, it is important to evaluate the types of works that are taking place at the Panchayat level, more so in the context of female representation.

¹³Series-10, Uttar Pradesh, 2011 Census.

¹⁴Our paper thus bears a greater importance to see whether higher sex ratio results in more female candidates (with or without reservation) and thus better distribution and efficiency of public works, particularly those that are targeted towards women.

¹⁵We find similar statistics in our data set as well.

¹⁶**Phase I:** Lakimpur Kheri, Sitapur, Hardoi, Unnao, Rae Bareli, Jalaun, Lalitpur, Hamirpur, Banda, Fatehpur, Pratapgarh, Barabanki, Gorakhpur, Azamgarh, Jaunpur, Mirzapur, Sonbhadra, Kaushambi, Chandauli, Kushinagar, Chitrakoot, Mahoba. **Phase II:** Etah, Budaun, Farrukhabad, Ramabai Nagar (Kanpur Dehat), Jhansi, Bahraich, Gonda, Sultanpur, Siddharth Nagar, Maharajganj, Basti, Mau, Ballia, Sant Kabir Nagar, Balrampur, Shravasti, Ambedkar Nagar. **Phase III:** Bijnor, Moradabad, Rampur, Saharanpur, Muzaffarnagar, Meerut, Ghaziabad, Bulandshahar, Aligarh, Mathura, Agra, Firozabad, Mainpuri, Bareilly, Pilibhit, Shahjahanpur, Lucknow, Kanpur Nagar, Allahabad, Faizabad, Deoria, Etawah, Ghazipur, Varanasi, Gautam Buddha Nagar, Baghpat, Hathras, Kannauj, Jyotiba Phule Nagar, Auraiya, Sant Ravidas Nagar, Kanshiram Nagar

However, NREGA performance in Uttar Pradesh has been dismal. A 2013 report by the Comptroller and Auditor General (CAG) of India conducted an audit of NREGA operations in Uttar Pradesh and has found that Rs 22714 crore spent on the program's implementation. Additionally, the report also found that none of the Panchayats have filled the 33% reserved for female; most places in the state have only about 18-20% female participation. Furthermore, the CAG report indicates a decline of 14.50% in rural households' employment in the 2011-2012. Thus evaluating Uttar Pradesh's NREGA performance through the channels of female leaders bears significant importance for policy makers in the near future.

2.3 Related Literature

A large number of papers have looked at the impact of women's reservation on the provision of public goods, particularly in India. Chattopadhyay & Duflo (2004) find that women's reservation in West Bengal and Rajasthan in India, lead to more investment in public goods that directly benefit women. Using a panel data they find that the presence of a woman leader increases spending on works that increase supply of drinking water to villages. Beaman et al. (2009) find that women's reservation reduces statistical discrimination about women in leadership positions. The electorate's opinion about the effectiveness of a female leader increases with exposure to women Panchayat leaders as a result of reservation, although, they continue to view women as less effective than men. Beaman et al. (2012) survey 495 villages in West Bengal and find that in villages with female leaders, adolescent educational attainment no longer showed signs of any gender gap. Iyer et al.(2012) find that women's reservation leads to greater reporting of crime against women. They also find increased public goods, especially when it came to drinking water.

However, Bardhan et al. (2010) find no impact of female reservation on targeting of public goods provision. They look at West Bengal over a span of 6 years and find that women leaders are in fact associated with a significant worsening of SC/ST households within the villages. This means that there is a certain amount of capturing of inexperienced women

candidates to fill up the reserved posts. Ban & Rao (2008) look at 106 Gram Panchayats (encompassing 310 villages) in the four states of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu and find no difference in the execution of public works (especially drinking water, and sanitation) between men and women leaders. Rajaraman and Gupta (2008) find that women's reservation did not have a differential effect on public expenditure for water and sanitation for the state of Uttar Pradesh.

We use the above papers on reservation and public goods to motivate our analysis to check the success rate of NREGA works in Panchayats that have a female reservation versus those that don't. Although NREGA has been highlighted by United Nations Development Program to achieve the Millennium Development goals, problems regarding transparency, under-utilization of funds, inadequate awareness, discrimination, and challenges in creating useful assets still exist (Dréze et al. 2008, Aiyar and Samji 2009, Business Standard 2012, Times of India 2012). Afridi et al.(2011) examine female reservation and efficiency of NREGA works in Andhra Pradesh between 2006-2010. They find that villages with women leaders are prone to more inefficiencies and program leakages. However, they do find a persistence effect of these women leaders. They gain some political experience over the years and hence are better at delivering public goods. Except for Afridi et al.(2011), we are not aware of any other paper that looks at political reservations and the delivery of NREGA in India. Our paper adds to the literature of public goods distribution in the context of Uttar Pradesh. Since Uttar Pradesh has been having an unfavorable NREGA performance, it is interesting to evaluate whether any sort of reservation in the local governments could improve the implementation.

3 Methodology

3.1 Conceptual Framework

One of the positive externalities of political reservation for female candidates is the role model effect they generate. Even though jobs under NREGA are open to all household members who are of working age, they may be reluctant to join the labor market due to social unacceptability of entering the work force. However, when they see a demonstration of other women filling positions of power they are able to verify that there is low social stigma attached to joining the labor force. Women often face a barrier to entry from the lack of female role models. Having a female Panchayat leader may help change attitudes of the women in the village. Iyer et al. (2012) find that female representation leads to greater confidence among women and they report more crimes against them. Ghani et al. (2014) find that political reservation for women leads to greater female entrepreneurship in the unorganized sector of the economy while Beaman et al (2012) find that reservation increases aspirations for adolescent girls and their overall educational attainment, and reduces time spent on household chores. In this paper we focus on the role model effect of women leaders by studying women's participation rate in NREGA.

There is growing literature that looks at the impact of women's reservation on the provision of public goods, especially, in India. Pande (2003) provides a model to explain the mechanism behind why a certain reservation, in this case, female reservation would play significant role in the public goods distribution. The model assumes a two party system where each party selects a candidate to represent their constituency for election. Citizens, in this case, voters are aware if the candidates will implement the party policy. With this information at hand, the rational voter will cast their vote. The argument behind the model is that if parties can garner commitment from their candidates to implement their policies, then the gender of the candidate should not play a role on the outcome measures. Thus, gender based reservations will not have any differential effects on the policies that directly

impact the targeted gender.

On the other hand, if parties cannot commit their candidates to implement party policy, then gender based political reservations will increase the likelihood of the elected leader implementing policies that benefit the targeted group. In the absence of reservation, it is unlikely that there will be proportional(optimal) representation of women in policy making positions. This is primarily because men historically have occupied positions of power and therefore established their ability to undertake these jobs. For women, entry is costly since they have to put in more effort to prove their ability to lead and implement policies. This would lead to an underrepresentation of women in political parties. Under the assumption that parties cannot commit their candidates to implement party policies, political reservation may have a differential impact on women in reserved districts in the context of NREGA. Also, as Chin & Prakash (2011) point out, post election in a reserved constituency, the minority leader may favor the minority group but that is not "synonymous with reducing poverty." The benefits may accrue to individuals in the minority group who are above the poverty line or resources may be diverted from the poor to the non-poor.

3.2 Empirical Strategy

Political reservations for female candidates are randomly assigned at the Panchayat level following the 73rd Amendment to the Indian Constitution. We analyze the effectiveness of having a woman leader at the local government level with respect to public works distribution and completion of certain targeted rural works. Thus, it is important to empirically test whether the assignment is in fact unbiased. Since we have information on Panchayat reservations in 2005 and 2010, we can test the randomness of the assignment between two consecutive election cycles. To analyze whether the assignment is in fact exogenous controlling for various factors, we regress if a Panchayat is reserved in 2010 for women on whether the Panchayat is reserved in 2005 or not and control for Panchayat level factors. The equation is as follows:

$$reserved_{2010,p} = \alpha + \beta(reserved_{2005,p}) + \Pi X_{pt} + \epsilon_{pt} \quad (1)$$

where $reserved_{2010,p}$ is a dummy variable that takes on the value 1 if a Panchayat has been assigned a female candidate reservation in 2010 and 0 if not, $reserved_{2005,p}$ if the Panchayat had a female reservation in 2005 or not. We also control for Panchayat level variables including the population and caste related variables (more details are provided in the paragraphs below).

We, then, analyze the effectiveness of having a woman leader at the local government level with respect to public works distribution and completion of certain targeted rural works. If in fact having a woman leader in the government provides for a role-model effect, then we should see positive and significant outcomes when it comes to adult women taking up more work. We also hypothesize that Panchayats with female candidates should see an increase in the number of water related works in the Panchayats compared to those without a female candidate. We conduct a simple OLS regression where we analyze the performance of public works in Panchayats with respect to having a female candidate in the local government. Our estimation model is thus,

$$y_{pt} = \alpha + \beta(reserved_{2010,p}) + \Pi X_{pt} + \epsilon_{pt} \quad (2)$$

where y_{pt} is the outcome variable in a panchayat p in a year t . $reserved_{2010,p}$ is a dummy variable that takes on the value 1 if a panchayat had a seat reserved for women in 2010 and 0 if there was no reservation. X_{pt} is a matrix of panchayat level controls. We include the following 2001 Census statistics at the Panchayat level: total population, total female population, Scheduled Caste population and Scheduled Caste female population. Finally, ϵ_{pt} is the error term. The coefficient of interest is β which gives us the effect of having a female candidate in the Panchayat on the variable of interest. Decisions about the execution of NREGA works is also taken at the mandal (or block level) as well. Any secular changes

taking place at the block levels, thus, needs to be controlled for. Thus, we edit equation 1 to include for block fixed effects:

$$y_{pt} = \alpha + \beta(\text{reserved}_{2010,p}) + \gamma_b + \Pi X_{pt} + \epsilon_{pt} \quad (3)$$

where γ_b are block fixed effects.¹⁷ In our results section, we focus on estimating the analysis from Equation 2 since this controls for any within-block variation.

4 Data

We first collected electoral information from 31 districts in the North Indian state of Uttar Pradesh. The dataset comes directly from Thad Dunning’s work on political Gram Panchayats in four states in India, one of them being Uttar Pradesh.¹⁸ The dataset contains information on Panchayat level candidate reservations for the 2005 and 2010 election cycles. Information on caste-based reservations and female reservations have been identified in this dataset. Seats are reserved for Scheduled Caste, Scheduled Tribes and Other Backward Castes. There is 33% reservation for females at the Panchayat level.¹⁹ Furthermore, there is detailed statistics on each Panchayats’ population, the gender divide of the population, population of various castes based on the 2001 Census of India. This allows us to include an exhaustive list of Panchayat level controls in our analyses.

The employment and works data under NREGA is collected from the official NREGA website hosted by the Indian Government.²⁰ We collected data for all the 31 districts that are in the Dunning’s political data. Employment information consists of number of job cards that were issued at the Panchayat level, the demand for work, whether the 100 days has

¹⁷We do not add district fixed effects here because the number of districts is too small to control for and also because the within variation in these districts should be taken care of by the block fixed effects in this equation.

¹⁸Data can be directly downloaded at Dr. Thad Dunning’s website: <http://www.thaddunning.com/>

¹⁹Since there is negligible Scheduled Tribes and OBCs in UP, our analysis primarily focuses on the population of Scheduled Castes.

²⁰NREGA data can be collected from <http://nrega.nic.in/netnrega/home.aspx>

been fulfilled or not. Additionally, we have information on person days of work (for both female and male). The works data has information on all the works that has been started and completed, started and suspended, approved and proposed at the Panchayat level. We specifically look at drought protection works, irrigation works, sanitation works, and all the outcomes from the employment data.

We then merge the two datasets to conduct our analyses and are able to successfully match all districts and Panchayats. However, our final dataset only looks at 9 districts and 5987 Panchayats.²¹ The 9 districts in our dataset are Barabanki, Chitrakoot, Fatehpur, Hardoi, Kheri (NREGA Phase I districts) and Ambedkar Nagar, Basti, Etah, Jhansi (NREGA Phase II districts). Our analyses looks at data from 2010-2013. This allows us to remove any biases that could have happened during the phase wise roll out since all eligible districts were brought under the program by the end of 2009.

Our outcome variables are the following: we look at demand for work under NREGA, the number of job cards issued at the Panchayat level, and the number of days worked by both men and women. We further look at the types of works taken up, namely, drought proofing works, sanitation works, irrigation works and water works that are undertaken under the Panchayat level. Table 1 presents summary statistics of the data set. 43% of the Panchayats had female reservation in 2005 in Phase I districts, where in Phase 2 50% was reserved for women. However, we notice that in 2010 only 31% of the Panchayats in Phase I districts were reserved for women, versus the 33% in Phase 2. Phase I and Phase 2 are similar in terms of gender distribution (about 47% of the population is female). Approximately, 13% of the total population is female and Scheduled Caste. At the Panchayat level, we see approximately 150 people have demanded for work under NREGA inspite of the average job cards issued being around 340 (average of Phase I and Phase 2). On average, we see that

²¹Not all Panchayats in the Dunning data have information with respect to the Census statistics, and so to make our analysis consistent across all controls, we restrict it just to the 9 districts that have this information. We intend to later on, augment this by including information in the Panchayats excluded in this version of the paper to provide a better understandings of the workings of NREGA in UP based on these political reservations.

works geared towards rural connectivity have been given more preference than works that deal with irrigation and water conservation. This is in accordance to the CAG(2013) which reports that low priority works (rural connectivity) have been higher emphasis than higher priority works (water works) which have not been well funded.

5 Results

5.1 Randomization of Panchayat Reservations

First, in Table 2, we present results from our analysis of whether the reservation is in fact exogenous. The results indicate that reservation in a particular Panchayat in 2005 has no significant bearing on it being more likely to be reserved in the future, i.e., in 2010. As described in Section 2, Panchayats are ordered the reservation list in terms of their serial legislative number, and every third Panchayat on the list is reserved for female leaders. If this rule is strictly followed, then reservation in one period should reduce the likelihood of being reserved in the next administrative period. In fact, the coefficient on *reserved*₂₀₀₅ is positive and not significant for Phase I and negative and not significant for Phase II districts suggesting that the direction of the results is ambiguous. We find that reservation is not correlated with past reservation, or the number of female population or the Scheduled Caste population in the Panchayat. The results presented in Table 2, thus suggest that reservation is based on an arbitrary method and lends credibility to the simple OLS strategy we present in the rest of this section.

5.2 Demand for Work under NREGA

In Table 3A we focus on the Phase 1 districts which had received the NREGA in the first year of the program rollout (from February 2006) and were regarded as the most backward districts by the Planning Commission of India. In Table 3B we focus on Phase 2 districts which received the program in the second year of the rollout (from April 2007). The Phase 2

districts were typically less backward than the Phase 1 districts. In these tables, we focus on the delivery of services to households who demand work under NREGA. This provision of service is captured by the number of households whose demand for work under NREGA was officially recorded by the Panchayat leader and through the issue of job cards which are used to get work under the program. Our data shows that under female leadership, there is a 2.2 % increase in registered cases of households demanding work under the program. Also, in terms of job card provision, female leaders issue more job cards than their male counterparts. 3.5 percent more job cards were issued in Panchayats that were reserved versus Panchayats that were not reserved for women candidates. This holds true even in our full sample of Panchayats as well as Panchayats that were reserved only since 2010.

However, for Panchayats that had reservation in 2005, the effect is positive but not statistically significant. For Panchayats in Phase 2 districts, the effect of reservation is positive but not significant in terms of job cards issued. These results are in line with the findings of Duflo & Topalova (2004) for women's reservation in West Bengal, where they find that women leaders are not significantly different from their male counterparts in terms of the quality of public goods provision. There have been newspaper reports (Indian Express, February 23, 2009; Live Mint and the Wall Street Journal, January 15, 2010) that suggest that not all households that seek work under the program are registered officially as households demanding work under NREGA. One of the main concerns in states like Uttar Pradesh is the capture of job cards by elites and denying job card application forms. In this case, we find that women leaders provide better reporting of demand for NREGA and that under female leadership there are significantly more job cards being issued. This suggests that the concern about denying job cards under NREGA might be lower under female Panchayat leaders. Thus our findings are consistent with Duflo and Topalova (2004) where they find that in Panchayats with women leaders, there is lower level of corruption.

In Tables 4A and 4B, we focus on the impact of female reservation on the average number of person days of work by women under NREGA. To tease out any gender differences with

respect to the labor force participation, we also evaluate the impact of reservation on person days of work taken up by the men in the villages. The average person days is obtained by dividing total person days (for men and women) by the number of households that were employed under NREGA in a particular Panchayat. Here, we find that female leadership increases the number of person days worked by women by approximately 6% in Panchayats in Phase I districts while for Panchayats in Phase 2, there is no effect. In terms of male person days, there is a positive but not significant effect in Phase 1, and a small and insignificant effect for Phase 2. These results suggest that female leadership provides a role model effect for women in reserved districts (Ghani et al. (2014), Iyer et al. (2012), and Beaman et al. (2012)). Having a woman leader in their village may have a positive externalities in terms of overcoming public taste discrimination and may increase entry into the NREGA jobs through improving aspirations of the disadvantaged groups (Pande and Ford (2011)).

5.3 Types of NREGA Work Undertaken

One oft-repeated argument towards increasing reservations through a quota system is that it will help targeted groups be better served through development works that will improve their quality of living. To examine the types of work that are taken up under a female leader, we concentrate on the major works under NREGA - rural connectivity, land development, works related to drought, and irrigation and present the results in Tables 5A & 5B. For Phase 1 Panchayats, women leadership increases the total number of completed works for irrigation projects by around 14%. This only holds true for those Panchayats also that had reservation in 2005-2009. For Phase 2 Panchayats, women leadership increases the total number of completed works for land development projects by around 12 %. This again only holds true for those Panchayats also that had reservation in 2005-2009. For the other categories of public works, we find no significant differences in outcomes between male and female leadership. These results would suggest that only with experience and learning over time are women leaders able to outperform their male counterparts. Women leaders at the

time of their first appointment are less educated less likely to be literate, shy in responding to question, and less ambitious than male leaders (Duflo and Chattopadhyay (2004)). Only by learning on the job, do they gain the experience to complete more projects than male leaders; our evidence shows women maturing as leaders over time. Beaman et al. (2010) use village survey data from West Bengal to demonstrate the women leading in twice-reserved districts provides a greater level of public goods indicating that experience may strengthen political performance. Apart from irrigation and land development, we find no impact of female reservation on public good provision (similar to Bardhan, et al. (2010) and Kumar and Prakash (2012)).

In Tables 6A and 6B we focus on works under NREGA that are more relevant for the female population. Policy preferences of women have been documented to be different in various studies (Duflo and Chattopadhyay (2004), Topalova and Duflo (2004)). Employing the model developed by Pande (2003), we work under the assumption that parties cannot commit their candidates to implement party policies and as a result political reservation may have a differential impact on women in reserved districts in the context of NREGA. Therefore, we look at the number of works related to sanitation, water consumption, and water bodies that have been completed under women Panchayat leaders during the period of 2010 to 2013. In terms of sanitation and water bodies we find no effect of reservation. This is in line with the finding of Bardhan et al.(2010) and Ban & Rao (2008) fails to find evidence of women leaders favoring female-preferred public goods provision.

6 Conclusion

This paper analyzes the effectiveness of having a female candidate in the government on type of public works taken up under NREGA and the number of works that are completed in 9 districts of Uttar Pradesh. We exploit the mandate set by the 73rd Amendment to randomly assign Panchayats(village councils), the lowest level of government under decentralized India, with a seat for female candidates to increase their political participation at

the local level. Although the amendment was passed in 1993, Uttar Pradesh did not implement the program until 2000. The amendment also mandates elections to be held every five years, thus Uttar Pradesh has had 2 Panchayat elections so far (2005 and 2010). The National Rural Employment Guarantee Act of India was enacted in 2005 and implemented in a phase wise fashion starting in 2006. First, we find that the Panchayat reservations between consecutive election cycles are in fact exogenous, we find no significant impact of being reserved in the previous election cycle on the current reservations. This allows us to use a simple OLS regression since the dependent variable does not suffer from any bias that could skew our results.

We find that having a female candidate in the Panchayat positively impacts demand for work and the number of person days worked by women in Phase I districts, especially in those that did not have a woman leader in 2005. However, we find no significant effect for these outcomes in Phase II districts. In both Phase I & II districts we no effect of a reservation on the number of person-days worked by men. Thus, we find evidence of a role-model effect when it comes to women taking up more work in a Panchayat with a woman leader and no evidence of persistence effect of having a woman leader in 2005 and 2010. An important artifact of having a woman leader is also that the type of NREGA work undertaken might be significantly different from those without. Our results find no significant impact of having a woman leader on works that might be of importance to their targeted audience, i.e., improving sanitation and water works.

Our work contributes to the growing literature on NREGA and its implementation based on reservations at the Panchayat level. The lack of any significant results in the type of works undertaken in Uttar Pradesh is in line with the reports that have shown evidence that the implementation has suffered a lot in spite of the huge budget spent on NREGA in the state. The state needs more social audit at every level of decision making stage of the NREGA. The lack of cohesion between the different levels of government in the planning stages of NREGA needs to be addressed. Further, the state government of Uttar Pradesh

should analyze why there has been a decline in households participating in the program. Misappropriation of NREGA funds is also an issue in the state; the state Government is going through an intensive audit to see where approximately 1200 crores have been used. The types of work needs to be prioritized as well; rural connectivity is not of high priority anymore, water works need a lot more attention. These are some of the areas that the Uttar Pradesh state government needs to address for a better implementation of NREGA.

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Figure 1:
Decentralization of Government in India

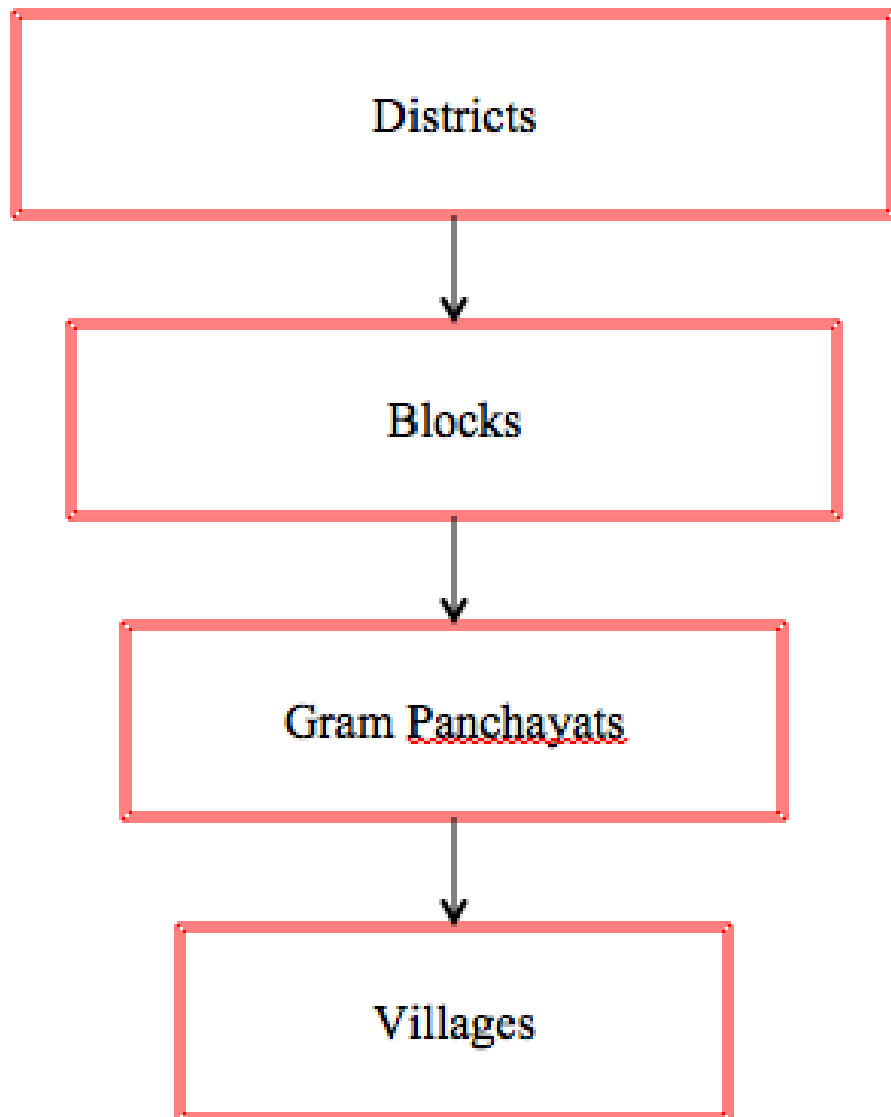
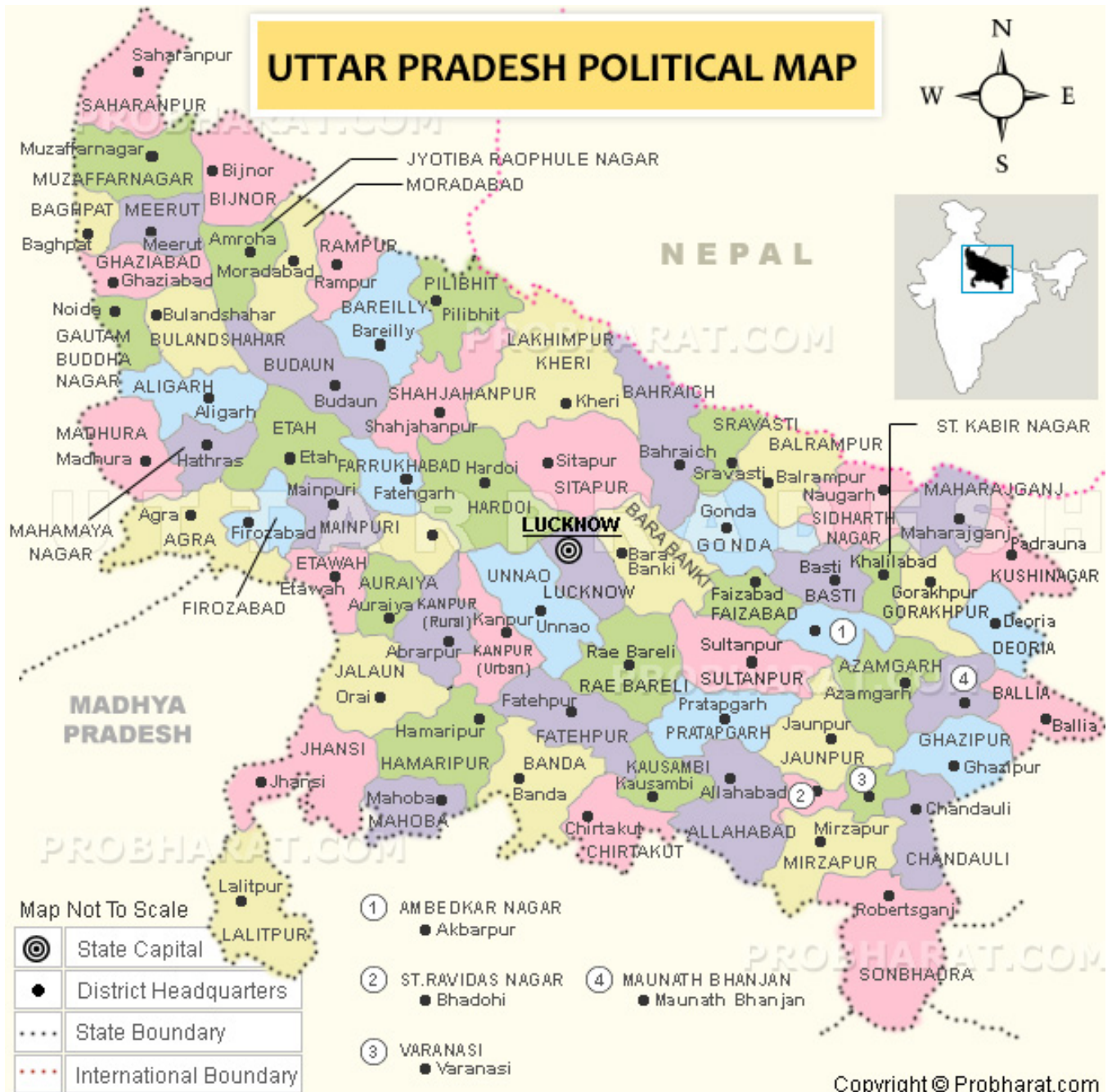
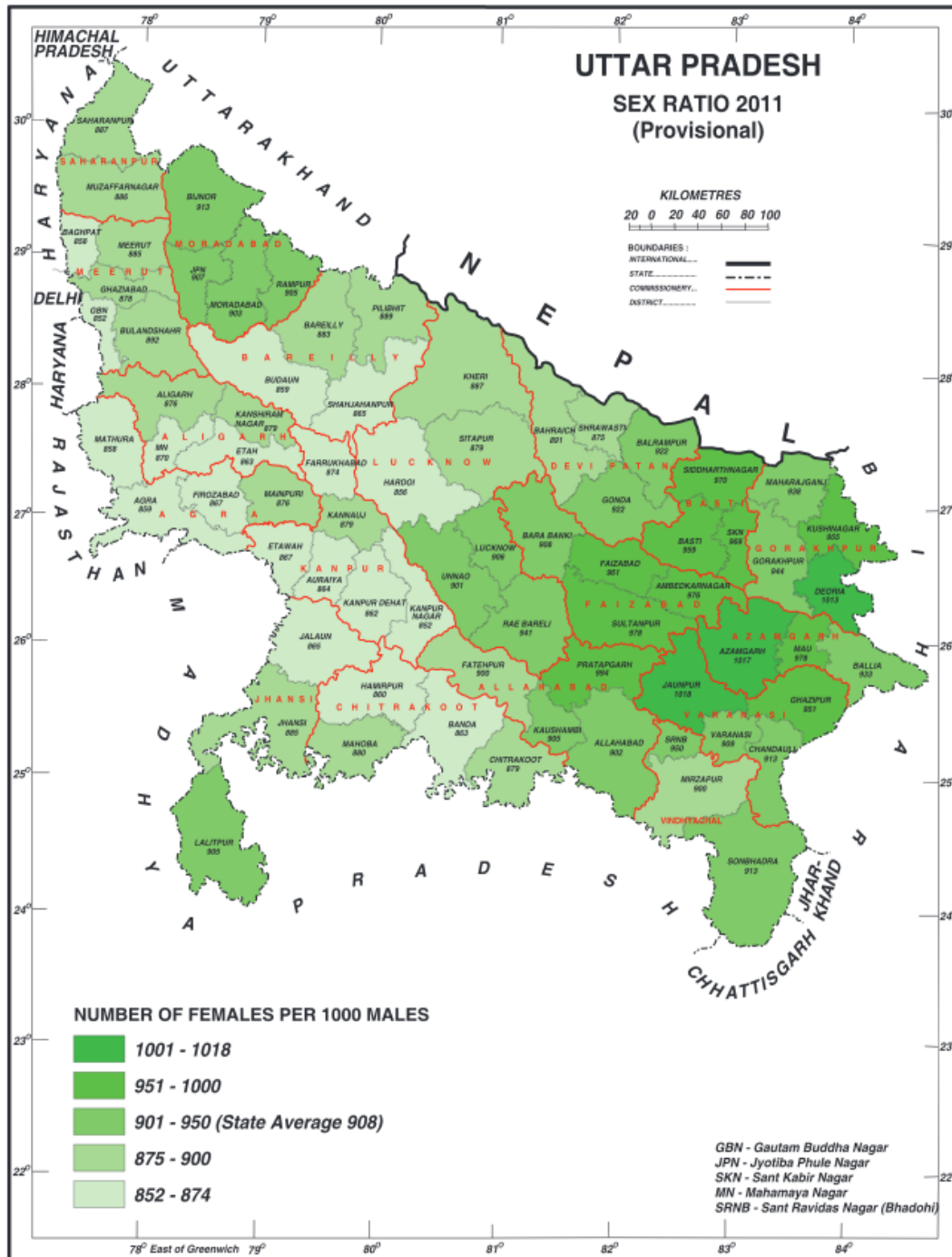


Figure 2:
District Map of Uttar Pradesh



Source: National Disaster Management Authority, Government of India
(<http://www.ndma.gov.in/en/uttar-pradesh-sdma-office>).

Figure 3:
2011 Provisional Sex Ratio Figures in UP



Source: Series-10, Uttar Pradesh, Paper-I of 2011

Table 1:
Descriptive Statistics

	Phase I (1)	Phase II (2)
Reserved for Female in 2005	0.43 (0.50)	0.50 (0.50)
Reserved for Female in 2010	0.31 (0.46)	0.33 (0.47)
Proportion of Female Population	0.47 (0.04)	0.48 (0.05)
Proportion of Female Scheduled Caste Population	0.14 (0.09)	0.12 (0.09)
Total Job Cards	400.92 (206.61)	279.37 (127.68)
Demand for NREGA Work	163.59 (95.53)	126.53 (76.25)
Person Days of Work by Women	3.58 (4.25)	8.04 (6.1)
Person Days of Work by Men	28.9 (14.09)	25.93 (11.36)
Rural Connectivity Works	3.27 (5.78)	4.86 (6.91)
Drought Works	0.29 (1.14)	0.37 (1.34)
Irrigation Works	0.19 0.93	0.35 1.04
Water Conservation Works	0.66 (2.01)	1.12 (3.09)
Water Bodies Works	0.12 (0.53)	0.24 (0.89)
No. of Observations	13283	8866

Notes: Observations are at the Panchayat level.

Table 2:
Exogeneity of Panchayat Reservation in 2010

	Phase I (1)	Phase II (2)
Panchayat Reserved in 2005	0.015 (.016)	-0.012 (0.021)
Scheduled Caste Population	0.000 (0.000)	0.000 (0.001)
Scheduled Caste Female Population	-0.000 (0.000)	0.000 (0.001)
Total Population	-0.000 (0.000)	0.000 (0.000)
Total Female Population	-0.000 (0.000)	0.000 (0.000)
No. of Observations	16074	10834

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses.

Table 3A:
Effect of Female Reservation on Take-Up of NREGA in Phase I Districts

	Log of Job Cards Issues			Log of NREGA Demand		
	(1)	(2)	(3)	(4)	(5)	(6)
Full Sample	Not Reserved in 2005	Reserved in 2005	Full Sample	Not Reserved in 2005	Reserved in 2005	Reserved in 2005
	(1)	(2)	(3)	(4)	(5)	(6)
Panchayat reserved in 2010	0.035*** (0.011)	0.036*** (0.015)	0.027 (0.018)	0.022* (0.012)	0.030* (0.017)	0.012 (0.019)
SC Population	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	-<0.001 (<0.001)	<0.001 (<0.001)	-<0.001 (<0.001)
SC Female Population	-0.000 (0.000)	-0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)
Total Population	<0.000*** (<0.000)	<0.000* (<0.000)	<0.000 (<0.000)	<0.000*** (<0.000)	<0.000 (<0.000)	0.000***
Total Female Population	-<0.000* (0.000)	-<0.000 (0.000)	-<0.000 (0.000)	-0.001** (0.000)	-<0.000 (0.000)	-0.001* (0.000)
No. of observations	13223	7534	5689	13223	7534	5689

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (6) for when there was reservation for women in 2005. All regressions include block fixed effects to control for any within

Table 3B:
Effect of Female Reservation on Take-Up of NREGA in Phase II Districts

	Log of Job Cards Issued			Log of NREGA Demand		
	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample	Not Reserved in 2005	Reserved in 2005	Full Sample	Not Reserved in 2005	Reserved in 2005
Panchayat reserved in 2010	0.011 (0.014)	0.026 (0.020)	0.002 (0.020)	-0.006 (0.015)	-0.011 (0.020)	0.012 (0.021)
SC Population	-0.001 (<0.000)	-<0.000 (0.001)	-0.001* (0.001)	-0.001* (<0.000)	-<0.000 (<0.001)	-<0.001** (<0.001)
SC Female Population	0.002** (0.001)	0.001 (0.001)	0.003** (0.001)	0.002** (0.001)	0.001 (0.001)	0.003** (0.001)
Total Population	<0.000* (<0.000)	<0.000* (<0.000)	<0.000 (<0.000)	<0.000*** (<0.000)	<0.001*** (<0.000)	0.000
Total Female Population	-<0.000 (0.000)	-<0.001 (0.000)	-<0.000 (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000 (0.000)
No. of observations	8802	4424	4378	8802	4424	4378

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (6) for when there was reservation for women in 2005. All regressions include block fixed effects to control for any within

Table 4A:
Effect of Female Reservation on NREGA Employment in Phase I Districts

	Log Person Days Female			Log Person Days Male		
	Full Sample (1)	Reserved in 2005 (2)	Not Reserved in 2005 (3)	Full Sample (4)	Not Reserved in 2005 (5)	Reserved in 2005 (6)
Panchayat reserved in 2005	0.061* (0.032)	0.073* (0.044)	0.042 (0.047)	0.020 (0.016)	0.034 (0.022)	0.007 (0.025)
SC Population	<0.000 (0.001)	<0.000 (0.001)	-<0.000 (0.001)	-0.001** (<0.000)	-0.001 (<0.000)	-0.001 (0.001)
SC Female Population	<0.000 (0.001)	-<0.000 (0.002)	0.001 (0.002)	0.002** (0.001)	0.001* (0.001)	0.002 (0.001)
Total Population	-<0.000 (<0.000)	-<0.000 (0.000)	<0.000 (0.000)	<0.000*** (0.000)	<0.000** (0.000)	< 0.001** (0.000)
Total Female Population	0.000 (0.001)	0.000 (0.001)	-0.000 (0.001)	-0.001*** (<0.000)	-0.001* (<0.000)	-0.001** (0.001)
No. of observations	13223	7534	5689	13223	7534	5689

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (6) for when there was reservation for women in 2005. All columns include block fixed effects to control for within block level secular trends.

Table 4B:
Effect of Female Reservation on NREGA Employment in Phase II Districts

	Log Person Days Female			Log Person Days Male		
	Full Sample (1)	Reserved in 2005 (2)	Not Reserved in 2005 (3)	Full Sample (4)	Not Reserved in 2005 (5)	Reserved in 2005 (6)
Panchayat reserved in 2005	-0.013 (0.030)	-0.000 (0.041)	-0.011 (0.044)	-0.008 (0.020)	0.006 (0.028)	-0.005 (0.028)
SC Population	-0.001** (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.000)	0.000 (0.001)	-0.000 (0.001)
SC Female Population	0.003** (0.001)	0.002 (0.002)	0.004 (0.002)	0.001 (0.001)	-0.000 (0.001)	0.001 (0.002)
Total Population	0.001** (0.000)	0.001*** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.001*** (0.000)	0.000 (0.000)
Total Female Population	-0.001** (0.000)	-0.002*** (0.001)	-0.000 (0.001)	-0.001** (0.000)	-0.001*** (0.000)	-0.000 (0.001)
No. of observations	8802	4424	4378	8802	4424	4378

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (6) for when there was reservation for women in 2005. All columns include block fixed effects to control for within block level secular trends.

Table 5A:
Effect of Women's Reservation on NREGA works in Phase I Districts

	Rural Connectivity		Drought Works		Land Development		Irrigation Works					
	Full Sample (1)	Not Reserved in 2005 (2)	Reserved in 2005 (3)	Full Sample (4)	Not Reserved in 2005 (5)	Reserved in 2005 (6)	Full Sample (7)	Not Reserved in 2005 (8)	Reserved in 2005 (9)	Full Sample (10)	Not Reserved in 2005 (11)	Reserved in 2005 (12)
Panchayat Reserved in 2005	0.004 (0.018)	-0.009 (0.025)	0.025 (0.028)	-0.006 (0.029)	0.023 (0.040)	-0.051 (0.043)	-0.057* (0.030)	0.062 (0.044)	-0.036 (0.045)	0.009 (0.064)	0.140** (0.070)	
SC Population	-0.000 (0.000)	-0.000 (0.000)	-0.001 (0.001)	0.000 (0.001)	-0.001 (0.001)	0.002 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
SC Female Population	0.001 (0.001)	0.000 (0.001)	0.002 (0.001)	-0.000 (0.001)	0.002 (0.002)	-0.004 (0.003)	0.001 (0.001)	0.002 (0.002)	0.002 (0.002)	0.003 (0.003)	0.001 (0.003)	
Total Population	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.001* (0.000)	-0.000 (0.001)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.001)	-0.000 (0.001)	
Total Female Population	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)	-0.001 (0.001)	-0.001* (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)
No. of Observations	6906	3942	2964	1963	1028	935	3313	1830	1483	1110	595	515

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (6) for when there was reservation for women in 2005. All columns include block fixed effects to control for within block level secular trends.

Table 5B:
Effect of Women's Reservation on NREGA works in Phase II Districts

	Rural Connectivity			Drought Works			Land Development			Irrigation Works		
	Full Sample (1)	Not Reserved in 2005 (2)	Reserved in 2005 (3)	Full Sample (4)	Not Reserved in 2005 (5)	Reserved in 2005 (6)	Full Sample (7)	Not Reserved in 2005 (8)	Reserved in 2005 (9)	Full Sample (10)	Not Reserved in 2005 (11)	Reserved in 2005 (12)
Panchayat Reserved in 2005	-0.025 (0.022)	-0.026 (0.031)	-0.029 (0.033)	0.029 (0.037)	0.007 (0.054)	0.041 (0.054)	0.017 (0.042)	-0.083 (0.059)	0.127** (0.062)	0.005 (0.032)	0.043 (0.043)	-0.038 (0.047)
SC Population	0.000 (0.001)	0.000 (0.001)	0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.002)	-0.000 (0.001)	0.001 (0.001)	-0.002 (0.002)	-0.000 (0.001)	-0.001 (0.001)	0.000 (0.001)
SC Female Population	-0.001 (0.001)	-0.001 (0.002)	-0.000 (0.002)	0.002 (0.002)	0.001 (0.002)	0.002 (0.003)	0.001 (0.002)	-0.002 (0.003)	0.005 (0.003)	0.001 (0.002)	0.002 (0.002)	0.000 (0.003)
Total Population	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001* (0.001)	0.001** (0.000)	0.001 (0.000)	0.001** (0.001)	0.000 (0.000)	0.001* (0.000)	-0.000 (0.000)
Total Female Population	0.000 (0.000)	-0.000 (0.001)	0.001 (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002 (0.001)	-0.002** (0.001)	-0.001 (0.001)	-0.002** (0.001)	-0.000 (0.001)	-0.001 (0.001)	0.000 (0.001)
No. of Observations	5215	2665	2550	1487	769	718	1902	962	940	1547	758	789

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (6) for when there was reservation for women in 2005. All columns include block fixed effects to control for within block level secular trends.

Table 6A:
Effect of Women's Reservation on NREGA Water Works in Phase 1 Districts

	Sanitation Works			Water Works		
	Full Sample (1)	Reserved in 2005 (2)	Not Reserved in 2005 (3)	Full Sample (4)	Not Reserved in 2005 (5)	Reserved in 2005 (6)
Panchayat reserved in 2005	0.067 (0.179)	-0.142 (0.258)	0.137 (0.282)	-0.010 (0.019)	0.003 (0.026)	-0.016 (0.029)
SC Population	-0.002 (0.003)	0.004 (0.003)	-0.009* (0.005)	-0.000 (0.000)	-0.000 (0.001)	0.000 (0.001)
SC Female Population	0.003 (0.007)	-0.007 (0.007)	0.018 (0.011)	0.001 (0.001)	0.001 (0.001)	-0.000 (0.001)
Total Population	0.001 (0.001)	0.001 (0.001)	0.003 (0.003))	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Total Female Population	-0.002 (0.002)	-0.002 (0.003)	-0.005 (0.006)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.001))
No. of observations	272	148	124	12234	6967	5267

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (5) for when there was reservation for women in 2005. All columns include block fixed effects to control for within block level secular trends.

Table 6B:
Effect of Women's Reservation on NREGA Water Works in Phase II Districts

	Sanitation Works			Water Works		
	Full Sample (1)	Reserved in 2005 (2)	Not Reserved in 2005 (3)	Full Sample (4)	Not Reserved in 2005 (5)	Reserved in 2005 (6)
Panchayat reserved in 2005	0.057 (0.239)	-0.137 (0.332)	-0.473 (0.579)	0.018 (0.024)	0.019 (0.033)	0.023 (0.034)
SC Population	0.002 (0.006)	-0.002 (0.004)	-0.004 (0.015)	-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)
SC Female Population	-0.005 (0.013)	0.001 (0.008)	0.004 (0.033)	0.001 (0.001)	0.001 (0.002)	0.001 (0.002)
Total Population	-0.005** (0.002)	0.002 (0.004)	-0.001 (0.006)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Total Female Population	0.010** (0.005)	-0.003 (0.007)	0.002 (0.014)	0.000 (0.000)	-0.000 (0.001)	0.001 (0.001)
No. of observations	128	67	61	7803	3913	3890

Notes: ***, **, * denote significance at 1%, 5% and 10% respectively. Standard errors are clustered at the Panchayat level and reported in parentheses. Columns (1) & (4) report results from the full sample of Panchayats in the two districts. Columns (2) & (5) report results when the Panchayats did not reservation for women in 2005, and Columns (3) & (5) for when there was reservation for women in 2005. All columns include block fixed effects to control for within block level secular trends.