Powerful Women: Does Exposure Reduce Prejudice?

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Abstract

Female leadership remains strikingly low in most democracies, and voter preferences are often suggested as a likely explanation. In this paper, we present experimental evidence from India which suggests that, on average, villagers, especially men, are prejudiced against female leaders. For example, men rate a hypothetical leadership speech more negatively when the speaker's voice is experimentally manipulated to be female, rather than male. However, randomly assigned exposure to a female leader (due to mandated political representation for women) reduces such prejudice by 50-100% depending on the measure. We also provide suggestive evidence that prejudice influences perceptions of actual performance. Despite outperforming their male counterparts on many dimensions of performance, first time women leaders receive worse evaluations. Consistent with our experimental evidence that exposure reduces prejudice, second time female leaders are rated at par with male leaders.

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1 Introduction

In July 2006, women accounted for just under 17 percent of parliamentarians worldwide. A woman was the head of government in only seven countries (UNICEF, 2007). These gender disparities in leadership do not reflect institutionalized discrimination against women in politics. Women can vote, support candidates and run for office in almost every country.

Low levels of female participation in politics may reflect limited supply: perhaps women dislike entering politics or face a higher entry cost. Alternatively, it may reflect voter attitudes. Voters may believe women make worse leaders (Arrow (1973), Phelps (1972)) or they may have a general "distaste" for female leaders (Becker, 1957). Social or cultural norms which suggest that politics is an inappropriate arena for women, not only because they make worse leaders but also because their entry, by reducing the value of a traditionally male activity threaten the identity of male citizens (Akerlof and Kranton (2000), Eagly and Karau (2002), Goldin (1990)), may cause such a distaste to persist.

While several studies document discrimination against women in politics and other leadership and elite positions (see, e.g. Goldin and Rouse (2000), Eagly and Karau (2002), Duflo and Topalova (2004)), we know little about whether exposure to female leaders alters such bias. This question is made particularly relevant by the fact that many countries have established quotas for women in political offices. Can such affirmative action reduce the barriers women face in entering politics, which would make them a relevant short term policy, or is the continued use of such quotas essential to ensure that women are elected?

The implications of greater exposure for citizen's opinion of female leaders is *a priori* ambiguous. Social psychologists and political scientists have argued that it may lead to a backlash, resulting in even lower approval ratings for women politicians, as the first female politicians are perceived as violating appropriate gender norms (Rudman and Fairchild (2004)). If exposure is imposed by quotas, voters' resentment with the curtailed leadership choice may strengthen this backlash (this argument appears in some of the discussions in affirmative action, e.g. Thernstrom and Thernstrom (1997)).

If voter preferences for male leaders, instead, reflect a belief that women make poor leaders, then the impact of greater exposure to female leaders depends on their performance.

If female leaders perform better than anticipated, then exposure to female leaders should lead voters to update positively and subsequent female candidates would benefit from women's initial entry in politics. Exposure to female leaders may also alter voter beliefs on appropriate roles for women. For example, in the context of racial attitudes Boisjoly et al. (2006) find that students exposed to black roommates are significantly more likely to endorse affirmative action.

Whether exposure to women leader affects attitudes towards female leaders is, thus, an empirical question. In general, providing such evidence is difficult, since voters who select female leaders may be less prejudiced to begin with. As a result, a comparison of the opinions towards female leaders of voters who differ in the gender of their leader will not only reflect the causal effect of exposure to female leaders.

In this paper, we study whether random assignment to a female village leader in the state of West Bengal, India altered voter's attitudes towards female leaders. Random variation in assignment was induced by the institutional features of political reservation for women (Chattapodhyay and Duflo (2004)). Following a constitutional amendment which decentralized significant policy-making powers to village councils or Gram Panchayats (henceforth GP), and required that one third of all seats be set-aside (or "reserved") for women one third of village council leader positions in West Bengal have been reserved for women since 1998. In every election cycle, one third of the GPs are randomly chosen to be reserved; in those GPs, only women can run for the position of GP leader.

The Indian experiment is interesting in several respects. Despite having had a female prime minister, and now a female president, India is a traditional society with strong social norms on appropriate behaviors and occupations for women. Before reservations were mandated, almost no women were elected as GP leaders. This is a setting in which one may expect a strong dislike for female leaders and, potentially, a strong resistance to the quota system. The random assignment of reservations provides an unusual occasion to examine the causal impact of forced exposure to women in a potentially hostile environment.

To measure attitudes towards female leaders, we collected an array of experimental and survey measures. Psychologists tend to distinguish between "explicit" (stated preferences) and "implicit" discrimination (unconscious mental associations) (Betrand et al.

(2005)). We measure both general explicit and implicit attitudes towards female leaders (which may differ in the extent to which they reflect the prevalent social norms) and also how villagers judge the competence of specific leaders (hypothetical or real), and how strongly they associate women with leadership. This allows us to separately identify the impact of political reservation on villagers' conscious and unconscious preference for having female leaders and on their evaluation of women's ability to lead. In principle, these effects could go in different directions.

To capture social norms, or tastes, we first asked villagers their opinion, in general, of female leaders versus male leaders. Then, to measure implicit attitudes, we use computer-based Implicit Association tests (IATs) where a double-categorization task examines the strength of association between a leader's gender and concepts of good and bad. This provides a quantitative measure of respondent's normative attitude towards female leaders. Such tests are widely used in social psychology to measure unconscious biases (Betrand et al. (2005)).

A second IAT measured the strength of association between gender and descriptions of leadership and domestic tasks. This measures whether, relative to men, women are more easily associated with leadership or with domestic tasks.

To asses whether voter opinion of leadership ability varies according to leader's gender, we asked respondents to listen to the same speech, read out by either a male or female voice (respondents were randomly assigned to either the male or female speech). We then asked villagers to rate the leader. A similar experiment was carried out with a vignette, in which either a male or female leader made the same decision.

Both explicit and implicit attitudes show, on average, a significant dislike for female leaders particularly among male villagers. For example, when asked to rank attitudes towards leaders in general on a scale of 1 to 10, the average man ranks "female leaders" one whole point below "male leaders". Similarly, in the IATs we find that men are significantly more likely to associate male leaders (relative to female leaders) with "good" things and with leadership tasks.

Male villagers also have a low opinion of womens' ability to lead: relative to men who heard a man deliver the leader speech, those who heard a woman deliver the same

speech were 11 percentage points less likely to say that the leader had answered the question satisfactorily.

Exposure to a woman leader induced by political reservation does not affect either stated attitudes or the implicit distaste for female leaders in general, as measured by the IAT associating male and female leaders with concepts of good and bad. However, in the IAT associating male and female names with domestic versus leadership tasks, reservation significantly reduces the strength of association between male names and leadership (relative to female names and leadership), which suggest that reservation leads men to recognize that women can be leaders, even if it remains undesirable. Moreover, in both the speech and vignette experiments, exposure to a female leader erases prejudice: in villages where the leader position is either currently reserved, or has been in the past, the rating of hypothetical leaders (in the speech and vignette) does not depend on the leader's gender. Since assignment of political reservation across villages is random, this provides strong evidence that exposure to female leaders reduces prejudice.

Our last step is to investigate whether the evaluation of the actual leaders follows a similar pattern. We ask villagers to judge their leader along an array of dimensions, including general effectiveness. Consistent with the experimental data, we find that male villagers give leaders significantly lower ratings in villages where the leader's position has been reserved for women only since 2003 (relative to villagers where the leader position has never been reserved). Further, and again consistent with the experimental data, this difference in ratings is absent for villages where leader position was reserved for women for the *second time* in 2003. While consistent with our hypothesis that prejudice reduces with exposure, it is also possible that female leaders elected when a village is reserved for the first time are worse than both male leaders and female leaders elected in the second round of reservation. However, we do not find *prima facie* evidence that supports this thesis: First time female leaders deliver more public goods, at a lower price, than their male counterparts.

The rest of this paper is structured as follows. Section 2 describes the field setting of our study. Section 3 describes the data we use and our basic empirical strategy. Section 4 compares voter attitudes towards male and female leaders, and examines how reservation alters these attitudes. Section 4 concludes.

2 Background: Political Reservation

At Independence, India adopted a federal system of democracy and instituted universal franchise. While women such as Indira Gandhi or Sonia Gandhi remain a potent symbol of female political leadership in India, political representation of women at the national level, and in most Indian states, has consistently remained under 10%. However, since the early 1990s, there has been a dramatic rise in female representation in local governments, and the number of village-level female elected representatives is now close to 40%.

This increase was propelled by the 73rd Amendment of the Indian Constitution in 1993 which decentralized significant policy powers to village councils, or Gram Panchayats (GP). A Gram Panchayat typically consists of multiple villages (in West Bengal the average GP has 10-12 villages). The Amendment also required that one-third of village council leader, or Pradhan, positions, be reserved for women. Pradhan positions were also reserved for the two disadvantaged minorities in India, Scheduled castes (SC) and Scheduled tribes (ST), in proportion to their population share in the district.

To conform to this amendment, the Panchayat Constitution Rule of West Bengal was modified in April 1998 (Government of West Bengal, 1998) to introduce reservation of Pradhan positions for women, SC and ST. The amendment provides detailed rules for the implementation of reservation. GPs are first randomly assigned to three groups: Reserved for SC, Reserved for ST, and Unreserved. Within each group, GPs are then ordered by their serial numbers, and every third GP in each list is reserved for a woman. In 1998, GPs starting with number 1 on each list were reserved for a woman, and in 2003 GPs starting with number 2 on each list were reserved. Note that this way of assigning reservation to GPs has two consequences: first, there is an implicit stratification of the reservation by SC/ST and by administrative block (since GP serial numbers are assigned by block). Second, a given GP could be reserved twice in a row – for instance, if it was the first on the list in 1998 and the second on the list in 2003. To confirm that the rules were followed, we obtained GP serial numbers and the tables in the electoral law, and reconstructed the reservation list. When we compared it to the list of reserved GPs, we found that the rule held, with no

exception.[1]

Table 1 provides descriptive statistics on GP reservation. Of the 56 GPs reserved in 1998, 20 were also reserved in the 2003 election. 35 GPs were reserved for the first time in 2003 and 74 GPs have never been reserved. The reservation policy is rigorously implemented. All GPs reserved for women have a female Pradhan.[2] Some women are elected in the non-reserved GPs, and this has increased over time. However, the increase does not *prima facie* appear to be related to the reservation policy. Between 1998 and 2003 the increase in fraction of women Pradhans elected from never reserved GPs from 7% to 16% is very comparable to the fraction of women elected in 2003 from GPs that were only reserved in 1998 (which is 14%). Turning to re-election, only 4 of the 55 women elected on reserved seats in 1998 were re-elected (of these, 3 were re-elected from the 20 GPs which continued to be reserved in 2003. This is higher than the fraction of men re-elected from never reserved seats, which stands at 5 out of 72). None of the five women elected from unreserved GPs in 1998 were re-elected in 2003, even though four were eligible to run for re-election. Overall, the fraction of female Pradhans in Birbhum stands at 43 percent.

In Table 2 we use data from the 1991 Census of India to examine whether there are any systematic differences between the villages in our sample, based on the reservation status of the GP they belong to: Never Reserved, Only Reserved in 1998, First Reserved 2003 and Reserved in 1998 and 2003. We observe no significant differences in either demographic composition or infrastructure across villages in these four categories.

3 Data and Empirical Strategy

3.1 Data

3.1.1 Sample

Our data comes from Birbhum district in West Bengal, a middle-income Indian state. Birbhum is among the poorest districts in this state with close to half its population below the

[1]The same was true in 1998, see Chattapodhyay and Duflo (2004)

[2]The only exception is a reserved GP which, due to political disturbances in the area, did not have a Pradhan at the time of our survey.

poverty line in 1999.[3] Between June and December 2006 and May and November 2007 we surveyed the 165 GPs in this district. We randomly selected three villages in each GP, and collected detailed household and village-level data in the 495 villages.

In each GP we interviewed those elected as Pradhans in 1998 and 2003 and their spouses.[4] We also interviewed a random sample of 15 households per village. The Appendix describes the sampling procedure. We administered a household survey to the most knowledgeable household member (usually male), and an adult module to a prime aged male and female respondent in the household. Overall we conducted 7,425 household surveys, and 6,717 male and 6,780 female adult modules.

We also administered computer based Implicit Association Tests (IATs), described in more detail below, to a random subset of 5 households per GP. In each household we conducted IATs with adults between the ages of 15 and 45 who were present at the time of the enumerator's visit.[5] Overall, we have 4,378 IAT respondents spread across 1,968 households. Finally, we also obtained information on the quantity and quality of public good provision in every sampled village (on this, see Appendix).

3.1.2 Measuring Attitudes

A contribution of our research project is that we have developed or adapted new measures of attitudes towards women leaders. This is also, to the best of our knowledge, the first field project which examines how a randomly assigned intervention – exposure to female leaders – influences these attitudes. The Appendix describes these measures in detail; here, we focus on the main aspects.

• Explicit Attitudes

We asked respondents their general opinion about women leaders in two ways. First, the

[3]Birbhum ranked 14th out of West Bengal's 17 districts on its gender development index in 2004.

[4]We collected data on demographics, household assets, political history, and access to public resources, as well as a set of questions about the activities of the GP since the election of the Pradhan.

[5]We set a threshold target of IATs with two household members (one male and one female), and households were visited multiple times to attain this target. In 171 households we had only 1 participant despite multiple visits. Seventy-seven GPs have a total of 10 respondents since villages within those GPs were used for piloting IATs and therefore excluded from our main sample.

surveyor asked them: "On a ladder which has steps from 1 to 10, how do you feel about [person]", where [person] was (differently) a male leader, a female leader, a male villager and a female villager. This measure is adapted from the "Feeling Thermometer" which is widely used in the psychology literature. Second, the surveyor asked respondents whether they agreed with the statement "It would be a good idea to elect a woman as the President of India."[6]

Respondents were also asked to evaluate their actual Pradhan on multiple dimensions (using the same ladder based scale of 1 to 10). Questions include "Do you think the Pradhan has done a good job looking after the needs of your village?" and "How would you rank the effectiveness of the current Pradhan?"

• Implicit Association Tests

Our first measure of implicit attitudes towards female leaders are Implicit Association Tests (IAT) (Greenwald et al., 1998). These are computerized tests developed by psychologists to measure attitudes and stereotypes of which respondents may not be explicitly cognizant. The principle of IATs is to use a double-categorization task to measure the strength of the association between two concepts. Words from two different series (for example a series of first names and a series of adjectives) appear on the screen, and the respondents sort them in two categories (e.g. female and male names, and adjectives evoking good or bad things). In some tasks, they must put male names and good attributes on the left, and female names and bad adjectives to the right; in other tasks, the categories are switched (with males names and bad attributes on the right, and female names and good attributes on the left).

IATs rely on the assumption that this sorting task should be easier when the two concepts that share a response are strongly associated than when they are weakly associated. An automatic association, and therefore an implicit stereotype, can be detected by comparing response time for different pairs of concepts. Specifically, for each test, there are two test blocks of interest, (a first that associates say, male names and positive attributes and female names and negative attributes; and a second that reverses this and associates say, male names and negative attributes and female names and positive attributes). We use the standard measure for IAT prejudice, the D-measure, which is the difference in the average response

[6]Interestingly, in July 2007 a woman, Pratibha Patel, was elected as India's first female President.

time in the two blocks divided by the standard deviation of response time in those two blocks (Greenwald et al. (2003)).

Since 1998 (when the first IAT results were published) IAT based measures of bias have become a widely used and applied in a diverse array of disciplines, including various subfields in psychology, neuroscience and market research (B.Nosek et al., 2007). There is also a recent economics paper which examines labor market discrimination and shows that the D-measure for racial bias of recruiters correlates positively with the rate at which they call back applicants of different races (Rooth, 2007).

We implemented three IATs. The first is designed for the assessment of association strengths between categories of male and female names and attributes of good (nice, delicious, etc) and bad (nasty, horrible etc). IATs with this structure are widely used in social psychology to measure prejudice against certain groups, such as racism (Banaji, 2001). This IAT provides a useful benchmark for our second IAT, which measures the association between male and female *politicians* and attributes of good and bad. Finally, the third IAT examines the association between male and female names and domestic (e.g. cooking, tending the animals, farming) and leadership activities (such as meeting, panchayat, etc). Such a stereotype based IAT has, for instance, been used by (Rudman and Kilianski, 2000) to show that respondents associate female names much more with family than career.

Since the population of Birbhum is largely illiterate, we adapted these IATs so that they did not assume either literacy or familiarity with computers. Prompts were either audio or represented by pictures on the screen.[7] In the Appendix we show an IAT screen and a picture of a participant playing the game (for more details on the tests, and a full list of actual prompts, see Beaman, Chattopadhyay, Duflo, Pande and Topalova (2008)). Our pilots, however, suggested that even with these adaptations, older respondents struggled with the IAT. They could generally complete the categorization task, but exceedingly slowly, and often lost patience and started responding randomly. We, therefore, only conducted IATs with respondents between the ages of 15 and 45.[8]

[7]IATs have been similarly adapted for children, see Baron and Banaji (2006).

[8]In our analysis, we excluded respondents with an average response time over 6 seconds during the first test block or less than 65% average correct responses. We dropped all responses for which the respondent took more than 10 seconds to categorize the prompt (standard response time are measured in milliseconds).

• Evaluation of Hypothetical Leaders

Our second set of implicit attitude measures are also inspired by the psychology and political science literatures on gender leadership (e.g. Matland (1994); Huddy and Terkildsen (1993)). During the survey respondents heard an hypothetical leader undertake an action (in either a recorded speech or a vignette read out by the surveyor). For both the speech and vignette we constructed two versions which only differed in the gender of the leader. Participants were randomly assigned either the male or the female leader. Unlike the IAT, the speech and vignettes cannot be used to calculate a prejudice measure for each individual, since each respondent only received a speech and vignette for one gender. However, we can examine whether, holding performance constant, female leaders are, on average, ranked lower than males leaders. Similar experiments in the US found that female leaders were systematically ranked lower (Eagly and Karau (2002)).

In our speech experiment, the respondent heard a short tape-recorded leader speech, which was inspired by an actual speech delivered at a village meeting (Gram Sabha). The respondent was told that this was a speech by a Pradhan in a Gram Sabha meeting in another district.

In the speech, the Pradhan responds to a villager complaint by requesting villagers to contribute money and effort for local public goods.[9] The speech was recorded by multiple female and male voices, and respondents were randomly assigned one recording. After hearing the speech, the respondent was asked to assess the Pradhan along multiple dimensions, including overall effectiveness, whether he/she took the right decision in the matter at hand, whether he/she could be trusted to take the villagers' interest, etc.

We conducted a similar exercise with "vignettes": the surveyor described a situation where resources were scarce and the Pradhan had to choose whether to invest in a drinking water or an irrigation project. Vignettes varied along two dimensions: the Pradhan's choice and the Pradhan's gender. Each respondent was read a randomly selected vignette.[10]

[9]The English translation is in the Appendix.

[10]Our randomization was such that a respondent who received the "female" speech also received a "female" vignette.

3.2 Empirical strategy

Given the set up, the empirical strategy is relatively straightforward. Our sample has four types of GPs: First Reserved 2003, Reserved 1998 and 2003, Only Reserved 1998, and Never Reserved. Randomization of reservation status implies that we can study its reduced form effect by comparing the means of the outcomes of interest across GPs with different reservation status. Since all reserved GPs have a female Pradhan but relatively few of the unreserved and previously reserved GPs do (Table 1), this reduced form effect is similar to that obtained by instrumenting for Pradhan's gender by reservation status of GP. Thus, in what follows we focus on this reduced form analysis.

The unit of observation in our villager regressions is respondent i resident in GP g. Throughout we report results separately for male and female villagers. Our regression specifications vary across outcomes. For the IAT D-measure of leader prejudice, villager evaluations of own Pradhan and the Pradhan's action and characteristics, we report two specifications. The first simply compares the outcomes of interest across ever reserved GPs and unreserved GPs,

$$y_{ig} = \beta R_g + X_{ig}\gamma + \alpha_b + \epsilon_{ig} \tag{1}$$

where R_g is an indicator variable for the GP being currently or previously reserved (now on, ever reserved). The second separates different types of reserved GPs and unreserved GPs

$$y_{ig} = \beta_2 R_{g2} + \beta_{2and1} R_{g2and1} + \beta_1 R_{g1} + X_{ig}\gamma + \alpha_b + \epsilon_{ig} \tag{2}$$

R_{g2} is an indicator for the GP being reserved for the first time in 2003 (during the second round of reservation), R_{g2and1} is an indicator for the GP being reserved in 2003 and 1998, and R_{g1} is an indicator for the GP being reserved in 1998, but not in 2003.

All regressions include a set of respondent controls (X_{ig}): age, household size, education, caste, religion and proxies for household wealth constructed using a principal component analysis.[11] α_b is a block fixed effect.[12] Standard errors are clustered by GP in all specifications.

[11] Regressions without controls variables are very similar to the results reported here, and are available from the authors.

[12] For administrative purposes Indian districts are subdivided into blocks. As we mentioned previously, the randomization was implicitly stratified by block.

In the case of vignettes, speech and villagers' general feeling about male and female leaders we are interested in whether male and female leaders are judged differently, and whether this varies with reservation induced exposure to a female leader. Let F_{ig} indicate whether respondent i was exposed to a "female" stimulus (for example, was asked their opinion of a female leader in general, heard the speech in a female voice, or was described the vignette with a female leader). We estimate:

$$y_{ig} = \delta F_{ig} + \lambda(R_g * F_{ig}) + \mu R_g + X_{ig}\gamma + \alpha_b + \epsilon_{ig} \tag{3}$$

and

$$y_{ig} = \delta F_{ig} + \lambda_2(R_{g2} * F_{ig}) + \lambda_{2and1}(R_{g2and1} * F_{ig}) + \lambda_1(R_{g1} * F_{ig}) + \sum_k R_k\lambda_k + X_{ig}\gamma + \alpha_b + \epsilon_{ig}, \tag{4}$$

where $k \in 2, 2and1, 1$ controls for the main effect of different categories of reservation.

In equation (3) the coefficients of interest are δ which captures prejudice towards female leaders in unreserved GPs, and λ which indicates whether current or past exposure to a female leader changes the level of prejudice. In equation (4), we are interested in λ_2, λ_{2and1} and λ_1, and how they differ from each other.

Finally, on many issues of interest we ask respondents multiple questions. Often the expectation is that within some groups (or "families") of outcomes, the coefficients of the variables of interest should go in the same direction. To avoid drawing inferences based on selected outcomes, we also report effects that are averaged across all the outcomes within a family, following Kling et al. (2007). Specifically, for each outcome we construct a normalized transformation where we subtract the mean for the never reserved GPs and divide by the standard deviation. We estimate standardized effects using a seemingly unrelated regression (SUR) system, where we account for correlation across outcomes. Finally, we average across outcomes to obtain an average effect for the "family" of outcomes.

4 Results

4.1 Explicit Attitudes: What do Villagers say about Female Leaders?

We start by directly asking villagers how they feel about female leaders. We ask a simple ladder question. "On a scale of 1 to 10, how do you feel about [a female leader] or [a male leader]".

In Table 3, comparing columns (1) and (3) with columns (2) and (4), we see that both male and female villagers are more favorable towards male Pradhans. On average, a male Pradhan is ranked about 1.5 points higher on a 10 point ladder than a female Pradhan by male villagers. Across female villagers, the difference is smaller but still significant.[13] Indian villagers' stated opinions suggest a strong prejudice in favor of male leaders, and villagers are not shy in admitting their prejudice. Finally, in columns (5) and (6) we see that 37% of male villagers, but only 20% of female villagers, believe that it would not be a good idea for a woman to be the President of India.

In all cases, the distaste for female leaders does not seem to be ameliorated by exposure. The coefficient of the interaction "ever reserved" and the female leader dummy is negative (panel A), and so are all the interactions in panel B. The point estimate is the largest in GPs reserved for the first time in 2003. This result is, at first blush, somewhat discouraging: especially since most of the literature suggests that respondent are *more* prejudiced than what they are willing to explicitly admit [ref]. If this is also the case in Indian villages, then this evidence, if anything, suggests that reservation policy will, at best, do nothing and may even lead to a backlash.

[13]Since each respondent was asked about his or her feelings towards both male and female leaders, we can stack the data (so that there are two observations per individual) and estimate specifications 3 and 4 with individual fixed effects. The difference in ranking of male and female Pradhans also holds up at the individual level.

4.2 Implicit Association Test

Villagers' willingness to express their relative distaste for female leaders suggests the prevalence of social norms, which consider prejudice permissible (many recent papers argue that the decline in stated prejudice towards minorities and women in the US reflects changing social norms [ref]). If, as hypothesized, implicit attitudes capture villager reactions based on their individual experience then we may expect them to be less affected by social norms.

In Table 4 we report results for the three Implicit Association Tests. The outcome y_{ig} is the "IAT effect" (or D-measure): the normalized difference in the mean response time between the "non-stereotypical" and "stereotypical" test blocks. In the first two IATs, the stereotypical block places on one side of the screen names of men (or pictures of male leaders) and adjectives evoking good attributes, and on the other side names of women (or pictures of female leaders) and adjectives evoking negative attributes. In the third IAT, the stereotypical block places on one side of the screen names of men and leadership activities, and on the other side female names and domestic activities. Non-stereotypical blocks reverse this association. While each person is assigned both stereotypical and non-stereotypical blocks the ordering of these blocks is random.

For the first two IATs, a positive value for y_{ig} indicates a implicit prejudice against female villagers or leaders (since it indicates that the respondent is slower in associating female leaders or villagers and good things, than female leaders or villagers and bad things). In the third IAT, a positive value of y_{ig} indicates that the respondent associates women with domestic activities and men with leadership activities.

We estimate equations (1) and (2) for these three measures. The constant indicates the level of prejudice, and the reservation indicators show how this varies with exposure to female leaders. A negative coefficient on the reservation dummies represents a reduction in the underlying implicit prejudice.

As a benchmark, columns (1) and (2) examine implicit prejudice towards men and women in general. Both sexes show strong same gender preference. Men are significantly more likely to associate good with male names. This finding is in contrast with what is typically found in developed countries, where these tests exhibit a "women are wonderful"

effect (Eagly and Mladinic, 1989). In contrast, women associate female names with positive attributes. Not surprisingly, neither is affected by reservation.

In columns (3) and (4) we find very similar results for implicit prejudice towards male and female *leaders* (they are represented by pictures of either men or women giving speeches, leading crowds, etc.). Both genders exhibit same-sex preference, and this is unaffected by reservation. The similarity between these two IATs potentially reflects the fact that gender rather than activity was the salient characteristic of the leader.

The third IAT which associates gender with leadership and domestic activities, however, gives very different results (columns (5) and (6)). Both genders are prejudiced against women in leadership activities. In never reserved GPs, respondents are faster in associating women with domestic activities than with leadership actions. If anything, women show a slightly stronger implicit association. Exposure to a female leader as a result of the reservation policy, however, significantly reduces this association for men. We interpret this as evidence that reservation was effective in altering male beliefs that women can be leaders, even though there is no evidence that it convinced them that this was a good thing.[14]

4.3 Speech and Vignette

Both our explicit attitude questions and the IAT reflect respondents' attitudes towards women leaders *in general*. We now examine villager evaluations of hypothetical *specific* women leaders.

In the speech and the vignette, the respondent is asked to judge a specific action by a Pradhan. In designing the speech and vignette we took care to describe typical Pradhan activities. Our hypothesis is that, in judging the Pradhan depicted in the speech and vignette, a villager will try to assess, based on previous experience, whether similar decisions or actions taken by his or her Pradhans have been good decisions. Depending on respondent's exposure to female Pradhans, his or her judgement will be colored by the gender of the hypothetical

[14]To the best of our knowledge this is one of the only papers which investigates how IAT prejudice changes as a response to external conditions. One exception is the work by Dasgupta and Asgari (2004) which looks at how exposure to female teachers in women's colleges changes implicit beliefs. However, the interpretation of those results is limited by endogenous selection into women's colleges.

Pradhan in the speech and vignette.

Consider the situation where all villagers initially believe that women make worse leaders, but those villagers who are exposed to female Pradhans update their beliefs based on actual Pradhan performance. Then we would expect to see that villagers in never reserved villages are less likely to approve the hypothetical female Pradhan even when she takes the same decision as the hypothetical male Pradhan. However, if actual female Pradhans are relatively good leaders, this bias will be diminished in ever reserved villages.

Table 5, panel A, examine (using equation (3)) the effect of current or past reservation on the assessment of the speech by the hypothetical leader for male and female repsondents respectively. Villagers assessed leader performance on various dimensions and we present the overall average effect across these dimensions in column (1). Columns (2)-(8) provide the results for the questions which enter the overall assessment. Row (1), column (1) in Table 5 shows that, averaging across questions, men in never reserved villages rate a Pradhan 0.066 standard deviation lower if she is a woman (with a standard error of 0.036). This effect shows up in almost all individual measures. For example, in column (3) the evaluation of whether the Pradhan addressed the villager satisfactorily is 0.11 standard deviation lower (with a standard error of 0.041) when the hypothetical leader is female. The only measures in which men do not systematically evaluate female Pradhans as worse is on the questions of whether they would approve the Pradhan's budget and whether the Pradhan will target beneficiaries for the Below the Poverty Line (BPL)cards well.[15] However, the interaction with the reservation variable is positive, and significant in all cases except the budgeting question. The coefficient in column (1), for example, indicates that, relative to never reserved GPs, female Pradhans in ever reserved GPs are evaluated 0.11 standard deviation higher. This coefficient is always at least as large as the main effect of Pradhan gender. That is, in ever reserved GPs the prejudice that led the respondent to negatively evaluate female leaders has completely disappeared.

In panel B, we disaggregate these results by type of reservation (present and past). While the results are slightly imprecise, they suggest that no single category of reservation

[15]The BPL list is a central –and controversial– activity of the Pradhan, since it determines who qualifies for a host of government programs targeted to the poor.

differs significantly in its effect on leader evaluation for male respondents: all coefficients are positive (though insignificant for past reservation, and GP reserved twice), and we cannot reject the hypothesis that they are the same.

In contrast, female villagers do not exhibit significant prejudice against female Pradhans (overall, they rate female an insignificant -0.04 standard deviation lower), and their evaluation is unaffected by reservations.

Table 6 shows the vignette results, using a similar format. The surveyor read out a vignette describing a situation in which a hypothetical Pradhan identified by name (this was the only mention of his or her gender) decided whether to allocate village funds to either irrigation or drinking water improvements. There were two dimensions of randomization: the Pradhan's choice (between irrigation and water) and Pradhan's gender. We restrict attention to the irrigation vignette, because the overwhelming majority of villagers (90% overall, 89.7% for men in never reserved GPs) agreed with the Pradhan's choice when he or she allocated funds to drinking water, which left no margin of variation. This rating is much lower for irrigation (45.6% for men in unreserved GPs for example), leaving room for personal opinions and potentially prejudice to influence the evaluation of the hypothetical leader.

The results for the irrigation vignette mirror those for the speech. In never reserved GPs, men are 15.5 percentage point less likely to agree that, relative to a male Pradhan, a female Pradhan had made the right decision (standard error: 0.058, see column (7)). Averaging across all questions, we find that men exposed to female vignettes rated the Pradhan 0.094 standard deviation lower than if given the male vignette. Once again, reservation undoes this difference. Relative to unreserved GPs, men in reserved GPs are 13.1 percentage point more likely to agree with the the hypothetical female Pradhans. Overall, therefore, in ever reserved GPs men are equally likely to agree with the choice of female and male Pradhans. The same holds for the average across all assessment measures (the coefficient of the interaction is 0.15 standard deviation, with a standard error of 0.073). We observe very similar results for GPs reserved for the first time, reserved in the past, or reserved for the second time (panel B). And once again, unlike men, women are not significantly prejudiced against female leaders, and we observe no impact of reservation on their evaluations.

4.4 Perceptions of Actual Leaders

The experimental evidence strongly suggests that villagers, and, in particular, men, exhibit significant prejudice against female leaders, and this colors their judgment of leader actions. However, prior exposure to a female Pradhan attenuates such prejudice. We now examine whether similar forces are at work in villager evaluations of their actual leader.

4.4.1 Overall Rating

To examine this, we asked each respondent to evaluate different dimensions of their Pradhan's performance on the same 1 to 10 ladder. Many of the questions were purposefully chosen to be similar to the questions asked about the hypothetical leaders in the speech and vignette.

Table 7 shows that villagers are significantly more dissatisfied with their Pradhan in GPs which were reserved for women for the first time in 2003.

Column (1) examines the average across the various measures of satisfaction with the Pradhan for male respondents. The first row shows that Pradhans in GPs that are first reserved for a woman in 2003 score 0.21 standard deviations less that Pradhans in unreserved GPs; this coefficient is strongly significant. Column (2) shows a negative, but smaller, effect for female villagers (-0.10 standard deviation, with a standard error of 0.06). These results echo those in **?** (see also Duflo (2005)), which, using nation-wide data for India, showed that villagers are more dissatisfied with female leaders.

Looking across individual measures (columns (3)-(10)), the coefficients of interest are very similar for all satisfaction measures – female leaders in GPs first reserved in 2003 are ranked lower on general effectiveness (columns (3) and (4)), ability to look after village needs or respondent's own needs, and in preparing BPL lists.

Moreover, consistent with the experimental data, prior exposure to a female leader affects villager opinion of female leaders. The second row in Table 7 shows that the villager's opinion of female Pradhans in (reserved) GPs that were also reserved in 1998 is statistically undistinguishable than that of Pradhans in unreserved locations. This is analogous to the result in the speech and vignette, where (male) respondents exposed to a female stimulus ranked leaders in the speech or vignette lower in unreserved GPs, but not in ever reserved

GPs.

Finally, row 3 shows that (mostly male) leaders in GPs that were reserved in 1998, but are not in 2003 are evaluated similarly to those in other unreserved GPs.

4.4.2 Do Overall Ratings Reflect Performance?

These results are strikingly consistent with the thesis that villagers (especially men) start with negative opinions of female leaders, but that they update these opinions in response to seeing women leaders. Nevertheless, we need to be cautious in interpreting these results, since, unlike the hypothetical leaders in the speech and vignette, male Pradhans may, in reality, be better leaders than female Pradhans. Further, female Pradhans elected in GP reserved for the second time may be better than those elected for the first time.

Tables 8 and 9 present some suggestive evidence that, prima facie, this does not appear to be the case.

In Table 8 we examine whether public good provision and the allocation of BPL cards suggests worse performance by female Pradhans. In column (1) we analyze the quantity of public goods that have been built or repaired in the villages since the last election. Across all goods, the average number of repairs or new constructions in villages in currently reserved GPs is 0.21 standard deviations higher. The Appendix provides good-by-good regressions for the list of goods which enter the summary regression. As in Chattapodhyay and Duflo (2004), investments in drinking water and sanitation, irrigation and roads are higher in currently reserved GPs. Differently from them, we find an insignificant effect on education and a marginally significant positive effect on investment in public health facilities. If anything, Pradhan in GPs reserved for the first time in 2003 seem more effective than Pradhans in never reserved GPs.

Women Pradhans may invest in more, but lower quality, public goods. In column (2) we observe no significant differences in the quality of public good provision for GPs which are currently reserved, previously reserved or twice reserved.

Since these goods are mainly financed by contributions from the State Government, the contrast between the dissatisfaction expressed by villagers (men in particular) and the fact that women seem to have invested more, while not significantly affecting quality, is

unlikely to be explained by men resenting a "big government" approach. There are, however, (at least) two other ways in which villagers may have to pay for these goods: voluntary contributions or bribes. Our household survey asks about two specific examples where bribes and voluntary contributions are well identified. The first is whether the household had to pay a bribe to receive a BPL card. The second is how much they had to pay (in bribes as well as voluntary contributions) for drinking water. In column (3) we see that on average, individuals in currently reserved GPs are much less likely to get have paid a bribe, and this effect is driven by BPL card. There is no difference in the payments made for water maintenance.

In summary, leaders in GPs reserved for the first time appear to provide more public goods, of similar quality, at a lower effective price. These findings echo earlier findings by **?** who using an India-wide data set found that reservation was accompanied on one hand by a significant increase in the quantity of goods provided by women, no change in the quality, and a reduction in bribes, and on the other hand by lower overall satisfaction.

It is worth noting that in columns (5) and (6) villager's average satisfaction across a set of specific public goods (drinking water, irrigation, school, etc...) shows no difference in average satisfaction. Moreover, the good-specific regressions presented in Appendix Table A2 suggest no dissatisfaction with any specific good in the reserved GP. Thus, the negative evaluation of female Pradhans is not driven by strong dissatisfaction with specific public goods, which may have a higher weight in the utility function than provided by our weighting scheme.[16] Of course, it remains possible that we have failed to measure some critical aspect of Pradhan performance. However, the weight of the evidence is consistent with the experimental findings and suggests that villagers rate more negatively female leaders who perform at least as well as the average male Pradhan.

We can also examine whether differences in the general evaluation of leaders across reservation categories are mirrored in the characteristics of those who are elected as Pradhans

[16]The one exception is the BPL list, as we saw in Table 7: men, in particular, resent the way female leaders allocate them. However, since there is a BPL quota there is, in a sense, no way to satisfactorily allocate BPL cards in a way that pleases everyone. This suggests that dissatisfaction with BPL list construction is likely to reflect general disapproval.

(over and above the gender difference).

Table 9 shows some characteristics of leaders by reservation status. As **?** observed, male and female leaders are quite different: women are younger, less educated, more likely to come from landless households, have a lower wealth index.[17]

In terms of observable characteristics, Table 9 does not reveal any systematic differences between women leaders in first and second time reserved GPs. In particular, very few women elected in second time reserved GP have any experience as Pradhan, and they do not have systematically more experience as members of the GP council. While this may seem surprising, recall that the reason why some GPs are reserved twice in a row for a woman is that they have switched category for the reservation for SC and ST.[18] The person who was elected in 1998 is thus either ineligible in 2003 if the seat moved from the general category to the unreserved category, or not likely to be elected if the seat moved from the SC category to the general category (since members of the schedule castes or tribes are rarely elected in general seats). As a results, different women (all first time leaders) were typically elected in GPs reserved in 1998 and 2003.

While the women available to run for election may not be more experienced in GPs reserved a second time, parties may still be fielding different people or voters may be selecting different types of women, among the pool of possible candidates. For example, after they realized in the first election that women's decisions reflect the policy preferences of women, voters may try to elect women whose preferences look closer to that of men. This is not reflected in the observable characteristics of the pradhans, but this difference should be visible in their actions. The third row in table 8, and the appendix table 3, shed some light on this issue. In GPs reserved for the second time, the quantity of public goods provided is still somewhat higher than in GP that were never reserved, but the difference is smaller and is not significant (0.096, with standard error of 0.08). The coefficient is not statistically different from that of GP reserved for the first time. As in GP reserved for the first time, the objective quality and the general satisfaction with the public goods is unaffected, and bribes are lower

[17]The wealth index is constructed from a principal component analysis of the household assets. See Appendix for detailed description.

[18]For example, they were reserved for SC in 1998 and were the second in the list for this group, and they are in the "general category" in 2003, and are the second (or fifth) in the list in that group.

(in particular as reported by men). Pradhans in GPs reserved in both elections show broadly similar attitudes towards women leaders (as captured by our explicit and implicit (speech and vignette) measures of gender attitudes) as Pradhans in GPs reserved only in 2003.

In summary, the evaluation of the actual Pradhans appears to closely mirror the evaluation of hypothetical ones. The first time men are exposed to a female Pradhan (either real or hypothetical), they dislike her general performance. The second time, this dislike disappears. The effects for women go in the same direction, but are attenuated and insignificant. While we can not fully rule out that both men's dislike for Pradhans in GPs reserved for the first time and their good opinion of Pradhans elected in GPs reserved for the second time just reflect different performances on their part, the consistency between these two sets of results does suggest that there is a prejudice against female leaders, but it is reduced by exposure.

4.5 Robustness Checks and Alternative Explanations

Table 10 examines a few alternative explanations for the results, other than gender prejudice.

A first possibility is that women are ranked lower than men, not because of their gender, but because they are new and inexperienced. In the vignette and speech experiments, respondents may correctly assume that the women pradhan are also new and inexperienced, which would explain their judgement. To assess whether this could explain our results, in panel I, we regress the respondent's evaluation of the Pradhan on whether or not the Pradhan was elected to the GP for the first time in 2003 (about 60% of males were previously elected, while, as shown in table 9, the experience of women leaders is significantly lower). There is no correlation between whether the Pradhan is new and their general evaluation. It just appears that it is not the lack of experience of the Pradhan which justifies their lower evaluation.

A second possibility (along the line of Thernstrom and Thernstrom (1997)) is that voters have a low opinion of women because of the fact that they were elected on a reserved seat, not because of their gender. This does not explain while women elected in GP reserved twice in a row would not suffer from this bias, unless voters get used to the idea of reservations. In this case we should see that voters rank other reserved Pradhans lower than unreserved Pradhans, but that their ranking would improve in places which have been

reserved for women previously. In panel II, we show that while voters do rank SC pradhans lower than non SC pradhans (it is quite possible that they are discriminated against too), their opinion is not influenced by past reservations for women.

Another way to look at this is in panel III, which shows that past reservations for SC does not affect the ranking given to the hypothetical women in the speech. It is really exposure to women that makes a difference, not exposure to reservation in general.

5 Conclusion

This paper shows that voters, in particularly male voters, are prejudiced against female leaders. In villages that had no experience with female Pradhans in the past, hypothetical leaders performing the same action are rated lower if they are female.

When a reservation system forces voters to be exposed to a female leader, there is no improvement in people's stated opinion of the value of women leader: if anything, there is some evidence of a backlash, with voters even more opposed to the idea of female leaders in places exposed to women Pradhans. They also judge their own female leaders harshly in places that are reserved for the first time, despite the fact that there is evidence that women do, if anything, a better job. This may explain why very few of the female leaders get re-elected once their seat becomes contested in a general election.

The implicit prejudice about female leaders nevertheless seems to be affected by past experience. In places which have been reserved for a woman in the past, the difference in the judgement of hypothetical males and females leaders entirely disappears. Moreover, this is reflected in the judgement of actual female leaders: women elected in villages that are reserved for the second time are judged to perform at par with men.

This suggests that reservations or quota systems will be unpopular, but may precipitate a reversal in the prejudice against female leaders.

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A Appendix

A.1 Sampling Procedure

Birbhum has 165 GPs. In each GP we selected three villages – two of these were the randomly selected two villages which were studied in Chattapodhyay and Duflo (2004). From the remaining villages in each GP we randomly selected one additional GP.

We obtained household listings for each of our sample villages from one of three census listings: the economic census list (undertaken by the Central Statistical Organization), the Total Sanitation Campaign household list and the tax assessment list prepared by the GP office. A village census was undertaken for constructing each of these two lists in 2005-06. We then used the circular systematic sampling technique - where the first household is identified using a randomly generated number and the rest at equal interval (the interval being N/15) - to draw a total of 15 households from the list for each village.

A.2 Variable description

A. Vignette

Note: There are four versions of the vignette - Male (Tapan Das), Female (Sandhya Das), Invest in Irrigation and Invest in Water.

READOUT: Now we will read you a short description of the Gram Pradhan of village CHANDI in district South 24 Parganas in West Bengal. We will ask you a couple of questions about what you think the Pradhan should have done. There are no right or wrong answers. Please answer each in terms of your own reactions.

Vignette

Pradhan Tapan Das [*Pradhan Sandhya Das*] has been serving his [*her*] Panchayat for ten months. As the end of the year approaches, there is only a limited amount of money remaining in the budget. Yet, villagers have been pressing him [*her*] to make improvements in two major areas: irrigation and drinking water. There was enough money to make investments in only one area.Prior to making a decision, Pradhan Tapan Das [*Pradhan Sandhya Das*] consulted with villagers at the Gram Sabha. Many people expressed frustration that there was still no safe drinking water available in the village.

Many people, especially children, were getting sick. Others were upset about the quality of the irrigation system. Poor irrigation system meant that, in dry years, many people lost their crops. Shri Tapan Das [*Shrimati Sandhya Das*] considered the demands carefully, and wondered what to do. On the one hand, Shri Tapan Das [*Shrimati Sandhya Das*] knew the health cost of bad water quality. Yet, wouldn't everyone be better off with better irrigation. After careful reflection Pradhan Tapan Das [*Pradhan Sandhya Das*] decided to invest in irrigation improvement *[drinking water]*.

B. Speech

Note: There are two versions of the speech - a male voice recording and a female voice recording

READOUT: Now we will play a tape-recorded speech from the Gram Sabha meeting of Gram Panchayat Labhpur in district West Dinajpur in West Bengal. We will ask to rank the effectiveness of this speech on a scale from 1 to 10. There are no right or wrong answers. Please answer each in terms of your own reactions.

Recording

VILLAGER: The tube well of our Kumarpara is not functioning. The repairing job of the tubewell in your locality has been done partially, but the same work at Nutangram has been completed.

PRADHAN: For repairing of tubewells maximum amount of funds of the Panchayat is being drained out. As a result of which, other works can't be done. From the next stage you, the people, should take mental preparations that the minor repairing jobs of the tubewells won't be done by the Panchayat. I mean that if the work involves a large amount of money, e.g. if a pipe is needed then it involves the money above Rs.250, Rs.300, this type of works will be done by the Panchayat. But for the minor repairing jobs the people have to take initiative to collect subscriptions to do this. In the future, the plan of the Panchayat will be "plans with equal sharings" ("Samobhagi Parikalpana"). The Government won't provide all the money. The Government will provide some amount of money and the rest have to be borne by the people either by giving labor or helping financially. In this way the work of the Panchayat have to be done. Suppose a village road has to be constructed, then the people of the village will do the earthen work and the Panchayat will supply the morram. Therefore the people will now share the jobs, which the Panchayat did mostly. Then the total work can be made with a success. So in the next stage that preparation have to be taken. I would now like all villagers to approve the village budget.

B. Public Good Provision

The water and sanitation quantity variable represents the average effect of reservation on a dummy for whether a tubewell was built, a tubewell was repaired, a sanitation pit was built, a sanitation pit repaired. Water and Sanitation quality variables include: handpumps are perennial, provide clean water, no stagnant water, have drainage and sanitation – no stagnant water, drainage facility. The Irrigation variable represents the average effect of reservation on a dummy for whether an irrigation pump was built or repaired. The Roads quantity variable is a dummy for whether a metal road was built or repaired since 2003. The Roads quality variables include: condition of road (1-5) and number of potholes in 100m. The Transport quantity variable is the number of transportation related infrastructure (bus stop, bus service, taxi). The Transport quality variables are: whether there is a bus stand and if bus stand has shelter. The Schools and other education facilities quantity variable represents the average effect of reservation on a dummy for whether any educational facility was built, a dummy for whether such facility was repaired, a dummy for whether there is a creche and an indicator for a CE Center/CE Library. Educational facilities include: SSK, Anganwadi, primary schools, middle schools, libraries and secondary schools. The Schools and other education facilities quality variable represents the average effect of reservation on a dummy for whether all primary schools have drinking water, latrines, blackboards and reading and math test scores. Health: Quantity variable represents the average effect of reservation on a the number of health facilities, a dummy for whether a health facility was built, a dummy for whether a health facility was repaired (0 if no health facility existed), and number of doctors. Quality variable represents the average effect of reservation on an indicator for facility having tap or handpump water and an indicator for having a labor room. Fair Price Shop Quality measures include: whether prices displayed, no bad behavior of shop keeper, and no complaint against shop.

Table 1. Fraction Women Pradhans in Currently and Previously Reserved and Unreserved GP

	Total GP	First Reserved 2003	Reserved 1998 and 2003	Only Reserved 1998	Never Reserved
Fraction Female in 2003 election	0.434	0.982 [1]	1	0.139	0.162
Fraction Female in 1998 election	0.376	0.086	1	1	0.068
N	165	35	20	36	74

Notes:

1 One GP, Ayas, does not currently have an elected Pradhan.

2 "First Reserved 2003," "Reserved 1998 and 2003," "Only Reserved 1998," and "Never Reserved" are indicator variables for GPs reserved for a female pradhan for the first time in 2003, in both 1998 and 2003, only in 1998, and not reserved in either election, respectively.

Table 2. Comparison of Villages in 1991

Dependent Variable	First Reserved 2003	Reserved 1998 and 2003	Only Reserved 1998	Never Reserved	Diff: (1) and (2)	Diff: (3) and (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Total Population	1,323	1,311	1,195	1,369	-136.048	19.418
	(1320)	(1434)	(1324)	(1569)	(196.574)	(194.309)
Household Size	5.424	5.177	5.385	5.479	0.099	-0.012
	(0.621)	(0.429)	(0.575)	(2.390)	(0.115)	(0.142)
Literacy	0.385	0.362	0.401	0.371	-0.019	0.018
	(0.119)	(0.108)	(0.119)	(0.136)	(0.025)	(0.018)
Fraction of Women Literate	0.283	0.274	0.305	0.274	-0.033	0.021
	(0.125)	(0.106)	(0.111)	(0.133)	(0.027)	(0.017)
Share of SC / ST Population	0.419	0.486	0.454	0.471	-0.007	-0.022
	(0.279)	(0.244)	(0.226)	(0.267)	(0.044)	(0.033)
Average Worker Composition	0.006	0.016	-0.036	0.001	0.007	-0.016
	(0.022)	(0.028)	(0.019)	(0.016)	(0.034)	(0.021)
Average Infrastructure Provision	-0.043	0.166	-0.015	-0.005	-0.181	0.020
	(0.045)	(0.075)	(0.059)	(0.044)	(0.060)	(0.061)
Overall Average Effect					-0.115	0.021
					(0.029)	(0.040)

Notes:

1 Standard deviations, below the means, in columns (1)-(4).

2 Tests in columns (5)-(6) are based on regressions with block FE and standard errors clustered by GP.

3 Source of data is 1991 Census of India.

4 Reservation variables are defined in the notes of Table 1.

5 For the averages, coefficients come from a seemingly unrelated regression where the dependent variables are normalized by the mean and standard deviation of the never reserved sample. The data appendix describes the variables included in average worker composition and infrastructure.

Table 3: Explicit Attitudes towards Female Leaders

	Feeling Towards Leader				Female should not be President of India	
	Male Leader		Female Leader			
	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Ever Reserved	-0.080	0.094	-0.282	0.045	0.010	-0.006
	(0.084)	(0.095)	(0.098)	(0.109)	(0.017)	(0.015)
Constant	7.605	7.385	5.974	6.623	0.373	0.202
	(0.472)	(0.498)	(0.517)	(0.462)	(0.073)	(0.056)
Panel B						
First Reserved 2003	-0.137	0.032	-0.352	-0.021	0.019	-0.006
	(0.113)	(0.115)	(0.131)	(0.143)	(0.022)	(0.019)
Reserved 1998 and 2003	-0.164	0.072	-0.236	0.063	-0.013	-0.010
	(0.154)	(0.167)	(0.161)	(0.188)	(0.028)	(0.026)
Only Reserved 1998	0.033	0.169	-0.241	0.101	0.017	-0.002
	(0.117)	(0.135)	(0.140)	(0.136)	(0.021)	(0.019)
Test: 2003 = both 1998 and 2003 = 1998	0.401	0.656	0.735	0.710	0.568	0.946
N	3511	3671	3511	3673	6717	6780

Notes

1 Feeling Towards Leader is a 1-10 ranking of the Pradhan. In Columns (1)-(2) the dependent variable is the ranking for male Pradhan and in columns (3)-(4) Female Pradhan. In columns (5)-(6) dependent variable=1 if respondent agreed with statement.

2 All columns include block fixed effects and individual controls. The individual controls are age, age squared, household size, religion, caste, education and sex of respondent, wealth (pca), landholdings, and an indicator for survey period. Standard errors are clustered by GP.

3 Ever Reserved is an indicator for whether a GP was reserved for a female Pradhan in either 1998, 2003 or in both elections. All other reservation variables are as defined in Table 1.

4 The p-value from a Wald test of the equality of the coefficients on First Reserved in 2003, Reserved 1998 and 2003 and Only Reserved 1998 is reported.

Table 4: Implicit Association Test Measure of Implicit Bias

	Male/Female Names and Good/Bad		Male/Female Politician and Good/Bad		Leadership/Domestic and Male/Female	
	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Ever Reserved	-0.001	0.006	-0.008	-0.015	-0.070	0.022
	(0.032)	(0.042)	(0.034)	(0.037)	(0.030)	(0.041)
Panel B						
First Reserved 2003	-0.039	0.020	-0.005	0.010	-0.089	0.104
	(0.042)	(0.051)	(0.049)	(0.049)	(0.040)	(0.053)
Reserved 1998 and 2003	0.039	0.044	0.004	-0.008	-0.024	-0.079
	(0.041)	(0.068)	(0.052)	(0.052)	(0.045)	(0.067)
Only Reserved 1998	0.011	-0.048	-0.020	-0.043	-0.080	-0.021
	(0.047)	(0.051)	(0.044)	(0.051)	(0.039)	(0.050)
Test: 2003 = both 1998 and 2003 = 1998	0.301	0.299	0.908	0.636	0.390	0.032
Mean of Unreserved Sample	0.134	-0.157	0.093	-0.079	0.110	0.150
	(0.025)	(0.026)	(0.027)	(0.025)	(0.021)	(0.027)
N	510	408	554	510	477	357

Notes:

1 Trials with a latency greater than 10000 ms and any respondent with either an average response time less than 6000ms for the first test block or an average percent correct <65% for either test block are removed.

2 All regressions include individual controls as defined in Table 3, and standard errors are clustered by GP.

3 Dependent variables for each IAT Test are the IAT D measure, defined as the difference in average response latencies between the two test blocks divded by the standard deviation of latencies in the two blocks.

4 See notes to Table1 and Table 3 for reservation variables definition.

5 The p-value from a Wald test of the equality of the coefficients on First Reserved in 2003, Reserved 1998 and 2003 and Only Reserved 1998 is reported.

Table 5. Female Leadership and Prejudice: Speech

	Average Effect	Pradhan is effective	Addressed villager satisfactoril y	Cares about villagers' welfare	Will allocate BPL cards well	Villager approves pradhan's budget	Pradhan will get resources by lobbying	Pradhan will collect villagers' share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Males								
Panel A								
Female Pradhan	-0.066	-0.067	-0.111	-0.082	-0.034	-0.034	-0.065	-0.070
	(0.036)	(0.040)	(0.041)	(0.042)	(0.042)	(0.042)	(0.039)	(0.042)
Female Pradhan * Ever Reserved	0.111	0.096	0.115	0.132	0.106	0.046	0.153	0.125
	(0.048)	(0.054)	(0.055)	(0.055)	(0.057)	(0.057)	(0.053)	(0.053)
Panel B								
Female Pradhan * First Reserved 2003	0.161	0.156	0.143	0.204	0.199	0.049	0.193	0.182
	(0.060)	(0.069)	(0.067)	(0.068)	(0.071)	(0.068)	(0.071)	(0.070)
Female Pradhan * Reserved 1998 & 2003	0.097	0.101	0.072	0.099	0.071	0.062	0.133	0.137
	(0.082)	(0.080)	(0.092)	(0.088)	(0.099)	(0.099)	(0.097)	(0.086)
Female Pradhan * Only Reserved 1998	0.074	0.036	0.114	0.082	0.043	0.038	0.131	0.074
	(0.064)	(0.071)	(0.074)	(0.071)	(0.077)	(0.076)	(0.067)	(0.067)
Test: FP* 2003 = FP* (both 1998 and 2003) = FP* 1998	0.457	0.317	0.763	0.258	0.175	0.974	0.725	0.374
N		6715	6716	6715	6714	6551	6715	6716
II. Females								
Panel A								
Female Pradhan	-0.047	-0.050	-0.027	-0.051	0.022	-0.098	-0.069	-0.053
	(0.041)	(0.045)	(0.047)	(0.046)	(0.044)	(0.046)	(0.045)	(0.043)
Female Pradhan * Ever Reserved	0.017	0.002	0.021	0.010	-0.043	0.073	0.038	0.018
	(0.050)	(0.055)	(0.057)	(0.057)	(0.056)	(0.058)	(0.058)	(0.057)
Panel B								
Female Pradhan * First Reserved 2003	-0.030	-0.043	-0.036	-0.044	-0.111	0.075	-0.019	-0.035
	(0.064)	(0.069)	(0.075)	(0.069)	(0.068)	(0.079)	(0.072)	(0.077)
Female Pradhan * Reserved 1998 & 2003	0.050	0.022	0.078	0.061	-0.007	0.075	0.073	0.048
	(0.074)	(0.077)	(0.081)	(0.088)	(0.096)	(0.078)	(0.099)	(0.081)
Female Pradhan * Only Reserved 1998	0.052	0.042	0.052	0.042	0.008	0.079	0.081	0.060
	(0.058)	(0.067)	(0.066)	(0.069)	(0.067)	(0.070)	(0.067)	(0.067)
Test: FP* 2003 = FP* (both 1998 and 2003) = FP* 1998	0.403	0.483	0.360	0.386	0.242	0.998	0.392	0.473
N		6771	6772	6771	6770	6372	6770	6770

Notes:

1 Average evaluation coefficients are from a seemingly unrelated regression (SUR) which includes dependent variables

2 All regressions include individual controls as defined in Table 3, and standard errors are clustered by GP. The regressions also include: in Panel A, Ever Reserved and in Panel B, First Reserved 2003, Reserved 1998 or 2003, and Only Reserved 1998 (see Table 1 and Table 3 notes for definitions). Female leader is an indicator for when the voice delivering the speech was female.

3 Female Pradhan is a dummy variable indicating that the voice delivering the speech was female.

Table 6. Female Leadership and Prejudice: Vignette

	Average Effect		Pradhan is Effective		Cares about villagers' welfare		Agree with Pradhan		Would vote for Pradhan	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
Female Pradhan	-0.094	-0.059	-0.069	-0.056	-0.064	-0.004	-0.155	-0.095	-0.090	-0.080
	(0.053)	(0.052)	(0.057)	(0.061)	(0.057)	(0.057)	(0.058)	(0.059)	(0.069)	(0.067)
Female Pradhan * Ever Reserved	0.153	-0.026	0.175	0.027	0.191	-0.045	0.131	-0.048	0.114	-0.037
	(0.071)	(0.068)	(0.075)	(0.076)	(0.078)	(0.073)	(0.078)	(0.079)	(0.089)	(0.087)
Panel B										
Female Pradhan * First Reserved 2003	0.115	-0.033	0.156	-0.002	0.187	-0.078	0.077	-0.015	0.041	-0.036
	(0.088)	(0.079)	(0.100)	(0.087)	(0.100)	(0.085)	(0.092)	(0.097)	(0.106)	(0.100)
Female Pradhan * Reserved 1998 and 2003	0.198	0.039	0.195	0.056	0.241	0.007	0.186	-0.020	0.171	0.113
	(0.101)	(0.093)	(0.098)	(0.107)	(0.117)	(0.110)	(0.115)	(0.102)	(0.122)	(0.121)
Female Pradhan * Only Reserved 1998	0.169	-0.081	0.189	0.018	0.174	-0.066	0.159	-0.124	0.154	-0.151
	(0.103)	(0.098)	(0.106)	(0.108)	(0.109)	(0.099)	(0.111)	(0.114)	(0.124)	(0.125)
Test: FP* 2003 = FP* (both 1998 and 2003) = FP* 1998	0.962	0.653	0.937	0.868	0.881	0.743	0.626	0.636	0.517	0.200
N			3173	2869	3173	2869	3172	2869	3116	2740

Notes:

1 Average evaluation coefficients are from a seemingly unrelated regression (SUR) which includes the four dependent variables in columns (3)-(10). Effectiveness of leader and cares about villager welfare are orginally on a scale of 1 to 10, while Agree with Leader and would vote for Leader are indicator variables which equal one if the villager agrees with statement, then normalized by the mean and standard deviation of the never reserved sample.

2 All regressions include individual controls as defined in Table 3, and standard errors are clustered by GP. The regressions also include: in Panel A, Ever Reserved and in Panel B, First Reserved 2003, Reserved 1998 or 2003, and Only Reserved 1998 (see Table 3 and Table 1 for definitions). Female Leader is an indicator for when the voice delivering the speech was female.

3 Female Pradhan is a dummy variable indicating that the voice delivering the speech was female.

4 The p-value from a Wald test of the equality of the coefficients on the interaction of Female Pradhan with First Reserved in 2003, Reserved 1998 and 2003 and Only Reserved 1998 is reported.

Table 7. Female Leadership and Pradhan Evaluation

	Average Effect		Pradhan is effective		Pradhan did a good job: looking after village needs		Pradhan did a good job: looking after your needs		Pradhan did a good job: making BPL lists	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female Pradhan (GP reserved only in 2003)	-0.212	-0.104	-0.208	-0.105	-0.212	-0.126	-0.221	-0.062	-0.206	-0.122
	(0.058)	(0.061)	(0.065)	(0.071)	(0.061)	(0.064)	(0.063)	(0.067)	(0.066)	(0.060)
Female Pradhan (GP reserved 1998 and 2003)	-0.009	0.015	0.012	-0.015	0.005	-0.025	0.003	0.068	-0.056	0.031
	(0.061)	(0.053)	(0.068)	(0.064)	(0.069)	(0.061)	(0.062)	(0.058)	(0.067)	(0.054)
Unreserved (GP previously reserved 1998)	0.020	0.015	-0.022	-0.007	-0.027	-0.019	0.014	0.049	0.115	0.035
	(0.081)	(0.054)	(0.087)	(0.063)	(0.083)	(0.064)	(0.078)	(0.056)	(0.092)	(0.056)
Test: 2003 = both 1998 and 2003 = 1998	0.004	0.115	0.018	0.386	0.014	0.253	0.004	0.157	0.005	0.024
N			6530	6315	6590	6363	6471	6323	6246	5893

Notes:

1 Average evaluation coefficients are the result of a seemingly unrelated regression (SUR) including the four dependent variables listed in columns 3 through 10.

2 All regressions include individual controls as defined in Table 3, and standard errors are clustered by GP.

3 All dependent variables are originally on a scale of 1 to 10, and then normalized by the mean and standard deviation of the never reserved sample.

4 The p-value from a Wald test of the equality of the coefficients on First Reserved in 2003, Reserved 1998 and 2003 and Only Reserved 1998 is reported.

Table 8. Pradhan Performance: Public Goods, Bribes and Satisfaction

	Average Public Good Provision		Average Bribes		Average Satisfaction		Alignment with Female Preferences
	Quantity	Quality	Male	Female	Male	Female	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female Pradhan (GP reserved 2003 only)	0.211	-0.020	-0.131	-0.122	0.068	0.004	0.521
	(0.069)	(0.042)	(0.054)	(0.051)	(0.053)	(0.056)	(0.279)
Female Pradhan (GP reserved 2003 and 1998)	0.096	0.002	-0.182	-0.058	-0.024	0.065	0.659
	(0.080)	(0.044)	(0.056)	(0.054)	(0.069)	(0.068)	(0.358)
Unreserved (GP previously reserved 1998)	0.035	-0.032	-0.068	-0.089	-0.030	0.075	0.563
	(0.060)	(0.040)	(0.060)	(0.055)	(0.067)	(0.057)	(0.243)
Test: 2003 = both 1998 and 2003 = 1998	0.051	0.808	0.228	0.584	0.231	0.387	

Notes

1 Average coefficients are from seemingly unrelated regressions (SUR). Appendix tables A2, A3 and A4 provide results for each variable in the SUR, and data appendix provides variable descriptions. All dependent variables are originally on a 1-10 scale, and then normalized by the mean and standard deviation of the never reserved sample.

2 The sample in Columns (1) and (2) regressions are 495 villages, while columns (3)-(6) regressions use the villager sample. All regressions include block fixed effects, and standard errors are clustered by GP. Villager sample regressions individual controls as defined in Table 3.

3 The p-value from a Wald test of the equality of the coefficients on First Reserved in 2003, Reserved 1998 and 2003 and Only Reserved 1998 is reported.

Table 9. Pradhan Characteristics

	Coefficients on:				
Dependent Variable	First Reserved 2003	Reserved 1998 and 2003	Only Reserved 1998	Mean of Never Reserved	Diff: (1) and (2)
	(1)	(2)	(3)	(4)	(5)
Age	-5.780	-6.692	0.718	41.194	0.721
	(1.890)	(2.305)	(2.112)	(1.146)	
Female	0.844	0.775	-0.025	0.181	0.158
	(0.047)	(0.061)	(0.073)	(0.046)	
Educational Level	-2.329	-1.209	0.550	10.278	0.229
	(0.719)	(0.792)	(0.641)	(0.377)	
Married	-0.184	0.018	-0.026	0.889	0.085
	(0.089)	(0.084)	(0.064)	(0.037)	
Number of Children	-0.367	0.003	-0.383	2.167	0.327
	(0.263)	(0.315)	(0.261)	(0.165)	
SC	0.101	0.025	0.053	0.389	0.615
	(0.105)	(0.131)	(0.105)	(0.058)	
ST	-0.054	-0.048	-0.027	0.125	0.941
	(0.058)	(0.087)	(0.063)	(0.039)	
Landless	0.068	0.023	-0.076	0.236	0.758
	(0.100)	(0.118)	(0.083)	(0.050)	
Wealth Index: Quartile 1	0.170	0.089	-0.073	0.208	0.574
	(0.100)	(0.121)	(0.086)	(0.048)	
Wealth Index: Quartile 2	-0.056	-0.183	0.099	0.319	0.312
	(0.097)	(0.103)	(0.099)	(0.055)	
Wealth Index: Quartile 3	-0.001	0.075	-0.057	0.264	0.569
	(0.099)	(0.114)	(0.093)	(0.052)	
Average Demographic Effect	-0.162	-0.090	-0.025	0.026	0.191
	(0.039)	(0.048)	(0.038)	(0.023)	
GP Experience	-0.431	-0.085	0.110	1.611	0.129
	(0.162)	(0.215)	(0.270)	(0.109)	
Other Political Experience	-0.195	-0.081	-0.104	0.417	0.416
	(0.091)	(0.130)	(0.109)	(0.059)	
Average Experience Effect	-0.419	-0.126	-0.051	0.086	0.146
	(0.136)	(0.183)	(0.190)	(0.094)	
Spouse Ever Elected to Panchayat	0.006	0.047	0.032	0	0.438
	(0.009)	(0.054)	(0.029)	(0)	

Notes:

1 Except Female Stimulus rows, Columns 1 through 3 are the coefficients on indicator variables for each reservation status type. Column 4 is the constant, representing never reserved GPs. Except Female Stimulus rows, all regressions include are block fixed effects. All standard errors are clustered at the GP level.

2 Average characteristics coefficients are the result of a seemingly unrelated regression where the dependent variables are normalized by the mean and standard deviation of the never reserved sample.

3 Reservation types are defined in the notes of Table 1.

4 Wealth Index is based on a principal components analysis using the number of household assets.

6 GP experience is the number of times Pradhan was elected to the GP.

7 Average effect in Panel A excludes female.

8 Average effect for Panel B includes both GP Experience and Has or Holds Political Office.

9 Other Political Experience is Has or Holds Other Political Office.

Table 10. Robustness

	Overall effect	
	Male	Female
	(1)	(2)
I. Evaluation of New Pradhans		
New Pradhan in 2003 or after	0.016	0.028
	(0.082)	(0.072)
II. Evaluation of SC Pradhans		
GP Reserved for SC in 2003	-0.184	-0.085
	(0.066)	(0.057)
GP Reserved for SC in 1998	-0.143	-0.061
	(0.056)	(0.053)
GP Reserved for SC in 2003 * Reserved for Woman in 1998	0.102	-0.037
	(0.137)	(0.112)
III. Evaluation of Female Pradhans and SC Reservation		
GP Reserved for Female in 2003	-0.208	-0.097
	(0.074)	(0.076)
GP Reserved for Female in 1998	-0.012	0.013
	(0.059)	(0.052)
GP Reserved for Female in 2003 * Reserved for SC in 1998	-0.019	-0.026
	(0.105)	(0.102)
IV. SC Reservation on Female Leadership: Speech Results		
Panel A		
Stimulus: Female Leader	-0.043	-0.066
	(0.047)	(0.046)
Female Pradhan * Ever Reserved SC	-0.042	0.038
	(0.052)	(0.051)
Panel B		
Female Pradhan * Reserved for SC in 2003	-0.029	0.056
	(0.057)	(0.054)
Female Pradhan * Reserved for SC in 1998	-0.048	0.030
	(0.060)	(0.066)

Notes

1 All regressions include individual controls as defined in Table 3, and standard errors are clustered by GP.

2 Average evaluation coefficients are the result of a seemingly unrelated regression (SUR) including the four dependent variables listed in columns 3 through 10 of Table 7 in I, II and III, and the seven dependent variables listed in columns 2 through 8 of Table 5 in IV.

3 All regressions include individual controls as defined in Table 3, and standard errors are clustered by GP.

4 Sample in Panel A contains only never reserved GPs.