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Can Political Reservation Improve Female Empowerment? Evidence from Local Panchayat Elections in Rural India

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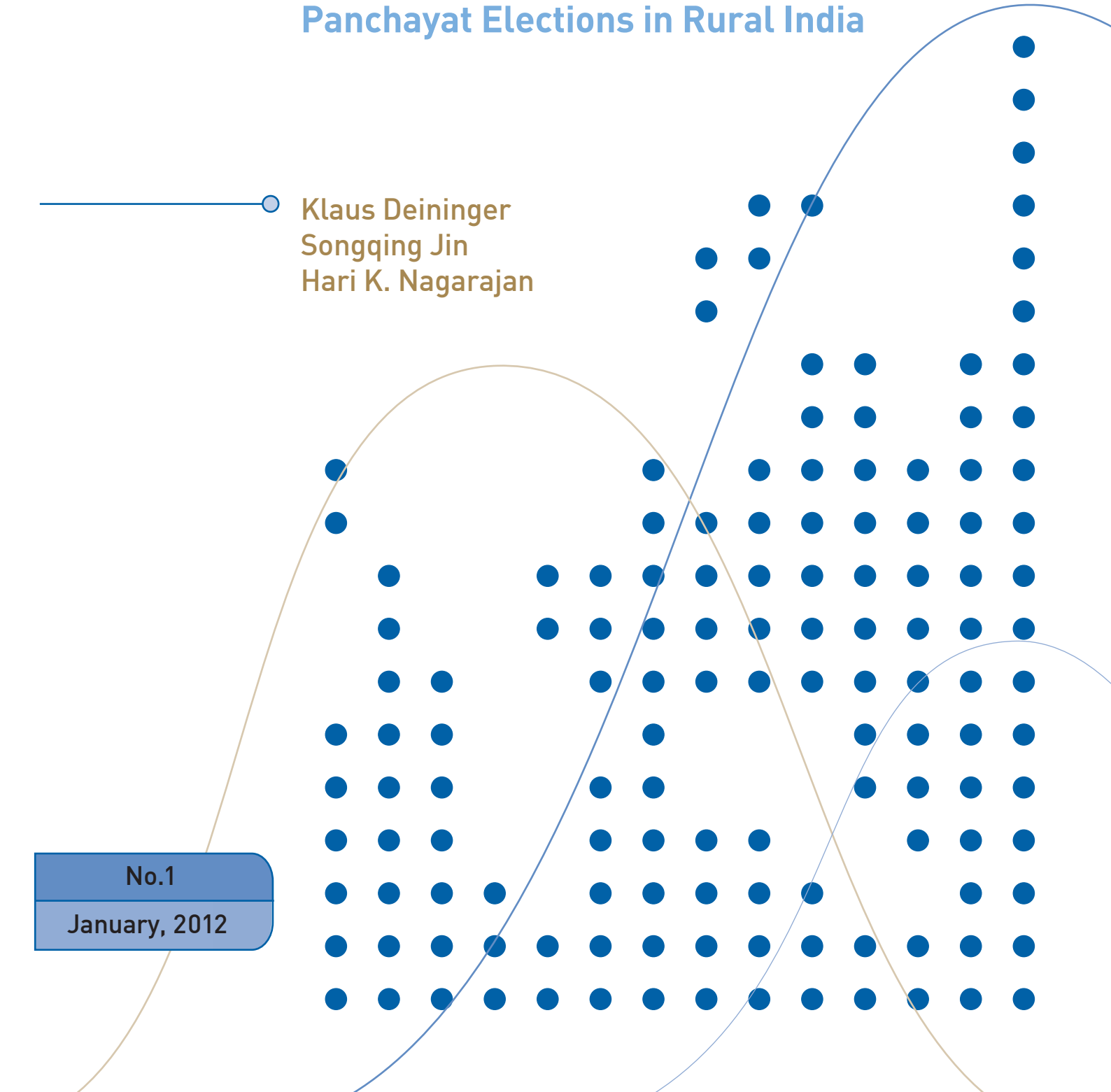

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Can Political Reservation Improve Female Empowerment? Evidence from Local Panchayat Elections in Rural India[#]

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Abstract

Reservations enjoy great popularity to overcome deep-rooted inequality. However, in part due to a short horizon of analyses, evidence on the impact of reservations and the mechanisms through which they may work remains ambiguous. Nationally representative village- and household level data from India for the last 3 Panchayat periods allow us to explore dynamic effects of female reservation on subjective and objective quality of public service delivery, political participation, and willingness to contribute to public goods. We find little impact on perceived quality of service provision but a clear link to higher and more effective political participation that then results in greater willingness to contribute to public goods. Contrary to the temporary nature of the first, the latter effects persist even once reservation has lapsed suggesting that conceptualising the policy in such a framework offers a promising avenue for analysis.

Keywords: Political Reservation, Women's Empowerment, Service Delivery

JEL Classification: J16, H4, H5

[#] The findings, interpretations and conclusions expressed here are those of the authors and do not necessarily reflect the views of NCAER or its Governing Body.

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Foreword

I am delighted to introduce this *NCAER Working Paper Series on Decentralisation and Rural Governance in India*. This series of working papers represents one of the outcomes of a multi-year research programmeme by a team led by NCAER Senior Fellow Dr Hari K. Nagarajan on "Building Policy Research Capacity for Rural Governance and Growth in India." The work, funded by generous support from the Canadian International Development Research Center (IDRC), is aimed at enabling and building the capacity for sound policy research on decentralisation, work that is based on a mix of good theory and state-of-the-art empirical methods to analyse microeconomic, household-level data. NCAER has a long tradition of such independent, empirical economic research and is unique in India in its capacity to collect large-scale, household survey data. I am very grateful to IDRC for its support.

At NCAER, this research is being guided by an international advisory committee comprising Pranab Bardhan (Berkeley), Hans Binswanger-Mkhize (IERI, Tshwane University), Alain de Janvry (Berkeley), Klaus Deininger (World Bank), Andrew Foster (Brown), Renana Jhabvala (SEWA), and S. S. Meenakshisundaram (NIAS). The Australia-South Asia Research Centre (ASARC) in the Crawford School of Economics and Government at the Australian National University is an active partner in this work. Raghbendra Jha, ASARC's Executive Director, is a significant contributor and guide for this research programme.

These papers address a range of policy issues using the ARIS/REDS panel data sets at NCAER. These are unique data sets that cover a variety of agro-climatic conditions in rural India and allow for an exploration of a number of important policy questions. The topics addressed in the *NCAER Decentralisation Series* include programme capture, gender impacts of decentralisation and political reservations, service delivery and access to health, water supply, and education services, the quality of governance and its implications for household welfare, and the impact of devolution and improved local governance on reducing household vulnerability.

These working papers provide significant, fresh, evidence-based insights for understanding what is working and what is not in the devolution process in India. I am certain that the papers in the *NCAER Decentralisation Series* will promote deeper discussion of the design, implementation, and monitoring and evaluation of decentralisation and its role in poverty reduction and improving service delivery in India.

Shekhar Shah
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Klaus Deininger is a Lead Economist in the rural development group of the Development Economics Group at the World Bank. His areas of research focus on income and asset inequality and its relationship to poverty reduction and growth; access to land, land markets and land reform and their impact on household welfare and agricultural productivity; land tenure and its impact on investment, including environmental sustainability: and capacity building (including the use of quantitative and qualitative methods) for policy analysis and evaluation, mainly in the Africa, Central America, and East Asia Regions. He has authored a number of scholarly articles in leading international journals, has contributed chapters in numerous books and presented his research at seminars at various leading universities and research institutes across the world.

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Can Political Reservation Improve Female Empowerment? Evidence from Local Panchayat Elections in Rural India

I. Introduction

A significant literature suggests that, in many countries, gender inequality and discrimination remain widespread and economic development was often not enough to eliminating them. Many have interpreted this as an indication that specific measures to bring about greater equality of opportunity would be warranted not only for ethical reasons but also to allow broad-based access to public goods that would in turn allow society to fully utilise its human potential. To the extent that the level of public good provision (e.g. for education) is determined through a political process, exclusion of some groups can set in motion a downward spiral whereby the limited payoff from doing so reduces incentives for participation which then permeates exclusion and the associated access to public goods or investment opportunities (e.g. in human capital acquisition). While decentralisation of political decision-making can increase incentives for participation it may, in the presence of discrimination, end up reinforcing rather than reducing the power wielded by traditional elites. This can not only undermine potential benefits from this measure but may result in a situation where decentralisation could reduce overall welfare.

Quotas for disadvantaged groups have been a popular measure to forestall such tendencies and provide a basis for more equal representation: for example in 2008 quotas were reported to have been practiced in 110 countries (Rajaraman and Gupta 2008a). Supporters argue that empowering members of groups who had historically been disadvantaged will have three types of effects, namely (i) it will put in place a more inclusive process of policy-making that, by drawing in groups who had previously been excluded, will change the preferences of the median voter and thus outcomes from political decision-making; (ii) it can ensure that provision of public goods (e.g. education or roads) does not leave out members of specific group and thus contributes to their continued marginalisation; and (iii) it can ensure that all of a society's human resources are drawn upon in making decisions. If this overcomes marginalisation in the longer term, outcomes can be much superior to what would have been achieved without quotas. On the other hand, reservations will truncate the time horizon of elected leaders and run a danger of bringing to office individuals who lack necessary qualifications. To the extent that this results in selection of leaders who are unable to effectively provide public goods, manipulated by traditional elites or who end up behaving opportunistically themselves, net outcomes may well be negative. Indeed, evidence in the literature is decidedly mixed, showing that - depending on conditions - a wide range of outcomes can materialise. What the literature does suggest, however, is that in order to properly analyse the impact of this intervention it will be necessary to look for effects beyond those in the period when reservation was imposed.

The case of India is of particular interest. In 1992, the 73rd amendment to the Constitution not only decentralised power to local governments (*gram Panchayats*) but also mandated a certain share of elected positions to be 'reserved' for women and members of disadvantaged castes. Analytically, the fact that the locations where reservation applies are chosen randomly allows us to interpret any differences between reserved and non-reserved seats locations as causal effects. From a substantive point of view, the fact that the policy has been in place for over a decade allows to examine whether, and if yes how, the measure affected longer-term outcomes. Although many studies focus on contemporaneous impacts of reservation, this issue, which is of great policy relevance, has not been comprehensively addressed in the literature.

Our analysis draws on a large national sample to assess impacts of female reservation both in the short and the medium term. We find two effects that can possibly offset each other. First, a *leader quality effect* whereby reserved leaders' lower observable characteristics - together with limited discretion over budgets in the short term - imply that there is little impact on the quality with which public goods are provided during the period when reservation is in effect (though some objective measures tend to increase slightly). At the same time, there is a *participation effect* whereby reservation improves quality of local political processes and the opportunities for political articulation by previously disadvantaged groups provided. This increases political participation, and possibly as a result of greater voice by those who had previously been excluded from the decision-making process, their willingness to contribute to public goods. Interestingly, this effect persists over time and could underlie some of the improvements in objective public good provision observed in the data.

If they change participation or behaviour by previously excluded groups, even measures that impose short-term costs may yield positive social benefits overall. Presence of two possibly countervailing effects the relative magnitude of which heavily depends on local conditions can help explain the wide variation of results in the literature and suggests that measures to enhance effective participation may help to more fully realise the potential impact of a policy of gender-based reservations for political office.

The paper is structured as follows: Section two provides context by discussing the rationale for quotas, the Indian context, and hypotheses. Section three describes the data and compares key outcome variables -in terms of leader quality, total spending, and perceived change in quality of public services, political participation, and willingness to contribute to public goods, between reserved and unreserved panchayats. Section four builds on this by econometrically exploring persistence and potential heterogeneity of effects. Section five concludes with policy implications and suggestions for future research.

II. Gender Quotas: Rationale, Evidence, and Approach

In India, high levels of social stratification and gender disparity, some of which seem to widen rather than narrow over time, provide the basis for policies mandating reservation of a certain share of political positions to females or members of disadvantaged castes. The random allocation of these provided the basis for many studies into the effect of such measures. However, partly due to wide variation of settings and the fact that studies were in many cases localised and focused on the short term, results differ from each other significantly and no clear pattern appears to emerge. We use a nation-wide survey that covers the last 3 Panchayats periods and includes unique information at individual level to test our hypotheses.

II.1 The rationale for gender quotas and its applicability in the Indian context

Political under-representation of females can contribute to persistence of long-standing gender inequality in two main ways. First, legislative bodies decide about allocation of resources for public goods and to the extent that certain groups are not represented in these, they may lose out on getting access to these, thus reinforcing existing inequalities. Indeed, a number of studies find that female participation in legislative processes can help overcome gender-bias as female legislators may be more likely to support policies in favour of family issues and women's rights (Paxton and Hughes, 2007, Reingold 1992, Saint-Germain 1989, Thomas 1989), e.g. by re-allocating funds to areas important to women so as to enhance their opportunities (Chattopadhyay and Duflo 2004a, Edlund and Pande, 2002, Lott and Kenny 1999). Across countries, women's political representation is shown to positively affect girls' education in terms of secondary enrolment, spending per student, and proportion of female teachers as well as women's access to health services in terms of higher public spending, more doctors, and more women receiving

pre-natal cares (Knack and Sanyal, 2000). A second channel, through which participation in decision-making can affect outcomes, especially if political participation was limited, is by allowing greater participation so that results of political processes will reflect the median of all eligible voters rather than only those who had traditionally participated. Such participation can also improve outcomes by increasing the pool of talent which the system can draw upon (Franceschet *et al.* 2009) or fostering diversity and opportunities for deliberation and innovation to eliminate mistakes (Page 2007).

Concerns about gender imbalances are particularly relevant for India in light of the country's gender gaps in human development indicators such as sex ratios and female child mortality as well as women's under- and malnutrition in many cases worse than in countries with much lower per capita income. [1] Taking measures to overcome gender inequality is also important in light of recent developments whereby, since the 1980s, gender inequality increased markedly in high-income Southern states (AP, KA, TN), suggesting that income growth alone will not automatically lead to higher levels of gender equality.

At the same time, India instituted a number of policies that provide an outstanding opportunity to explore this issue empirically. The 1992 73rd Constitutional Amendment includes far-reaching provisions for decentralisation of public services togeher wtih affirmative action in favour of women. It established what was expected to become a vibrant system of self-government in a three-tier system comprising district-, block- and village-level councils and allowed states to devolve authority for virtually all local public services to local government. The *gram Panchayat* (GP) is the lowest tier of local government at village level. It comprises a president (*Pradhan* or *Sarpanch*) and council members, typically elected from each of the panchayat's wards. The GP, led by the pradhan, makes decisions on implementation of development plans, applications for and administration of centrally sponsored schemes (including beneficiary selection), provision of key services such as health, education, drinking water, and local roads, setting of rates for various taxes and their administration. Regular assemblies of all voters at village level (*gram sabhas*) were establsihed to monitor performance. To counter a legacy of disenfanchisement and under-representation, a certain share of seats on ward councils as well as pradhans have to be either women or scheduled castes and tribes. [2] The seats to be reserved are selected randomly in each election round, a feature that has been utilised by a number of studies to provide rigorous econometric estimates of the impact of such reservations.

II.2 Evidence on the impact of reservations in the Indian context

Although a large number of studies aimed to explore the impact of these policies, conclusions on the direction or magnitude of their impacts are often ambiguous or contradictory. One reason is that studies consider a wide range of outcome variables and focus on regions or states with very different history or culture. One strand of literature finds reservations to be largely ineffective as the women that they bring to power are poorly educated and thus ineffective or easily manipulated by traditional elites that dominated politics traditionally and who are unlikely to give up their power. This can mean that the elected female may just be a front for a powerful husband or family member who pulls the strings behind

[1] The UNDP Gender Development Index (GDI), a measure that compares human development between males and females ranks India 96 out 136 countries.

[2] In most states one third of the seats are reserved for women (tough Kerala increased the proportion to 0.5) while the share of seats for SC/ST is equal to their share in the local or state population (Rajaraman and Gupta 2008b). Gendered quotas to increase women's share of elected positions, generally at higher levels of government, have over the last 15 years been established by more than 100 countries (Franceschet *et al.* 2009). India is, however, unique in requiring reservation at all levels of government. At village level, one- third of village council members and one-third of the Pradhan's positions be reserved for women (Chattopadhyay and Duflo 2004b). The number of positions reserved to ST/SC is at the proportionate share of the ST/SC population in the village (Bardhan *et al.* 2010).

the scenes (Rajaraman and Gupta, 2008). Once other relevant characteristics such as education or political experience are accounted for, reservations are often found to not have any significant impact.

Women will give preference to groups different from those that would be preferred by men but that, holding other characteristics constant, they perform neither better nor worse than their male counterparts, Local governments seem able to determine people's preferences over public goods and not characterised by widespread abuse of power by the Pradhan, despite the present of group based targeting (Duflo 2005) At district level, it appears that reservation of positions in the legislature for scheduled castes but not tribes improves access to education facilities, mainly primary schools, for relevant constituencies (Krishnan 2007). Also, cross-state differences in reserved female Pradhan's performance in line with the overall political maturity of the reservation system as well as the fact that women perform worse when most of the land in a village is owned by upper castes suggest that the caste structure may be correlated with patriarchy and traditional domination, making woman leaders' task particularly difficult (Ban and Rao, 2008). A recent study finds that reservation of Pradhan posts for SC/ST members was associated with a significant increase in benefits received by the village as a whole, improvement in intra-village targeting to female-headed households, and to the group (SC or ST) of the Pradhan. At the same time, female reservation worsened within-village targeting to lower caste groups and failed to improve any other targeting dimensions. This is interpreted as evidence of the fact that female reservation is not consistent with traditional models of electoral competition and that instead a more complex approach of capture-cum-clientelism that can be weakened by election of inexperienced women to reserved positions, may be more appropriate (Bardhan *et al.* 2010).

In contrast to the above, a number of studies actually ascertain shifts in rural service provision to public goods that reflect preferences of the groups targeted by the reservation (Chattopadhyay and Duflo, 2004a). If decision-makers brought into power by reservations are less qualified than those they replace, such benefits would have to be weighed against potential reductions in the efficiency with which services are provided due to reservations. Moreover, even if reservation to women improves targeting of developmental policies or programmes towards them in the short term, any positive impacts of such a policy could be outweighed by allocating of a correspondingly lower level of resources to them in the next (unreserved) term. Also, reservations, especially by caste, can exacerbate commitment problem by forcing turnover that can truncate elected decision-makers' time horizons and reduce the likelihood of emergence of numerically dominant castes or decision-making structures (Munshi and Rosenzweig, 2008).

At the same time, reservation policies, especially for women, have found to increase women's political participation in Gram Sabha meetings (Besley *et al.* 2005). At the state level, reservation for women causes a significant increase in reported crimes against them, i.e. gives them more voice in terms of resisting violence, a result that is strengthened by the fact that it does not appear for crimes where underreporting is not a serious concern (Iyer *et al.* 2010).

All of this suggests that, to properly understand impacts of political reservations, it will be important to focus on longer-term impacts and in particular the dynamics of political participation. We are aware of only one study, for urban Maharashtra that considers reservations in such a dynamic framework (Bhavnani 2009). On the other hand, in Karnataka, individual characteristics (e.g., literacy, household institutions, political linkage) are more important determinants for accessing to local governance and public good services (Raabe *et al.* 2009). While its findings are suggestive of positive impacts on electoral participation and the probability of previously reserved groups running for elected office in

subsequent periods, it will be of interest to explore not only whether the result is robust beyond the relatively limited geographical scope and simple techniques used but also to aim to identify some of the channels that may underlie such an effect.

II.3 Data and approach

Our data is from a nationally-representative panel survey of some 240 villages in rural India conducted in 2007 by the National Council of Applied Economics (NCAER) which has two features of interest. First, both household and village questionnaires inquire about the current *Panchayat*, which in most states was elected in or after 2005, and two previous ones, for which elections were held around 2000 and 1995. For each of the three past Panchayats, we have information on Pradhan characteristics, whether a reservation was in place, overall budgets, and the election process.

Second, the household questionnaire includes member-level information from males and females, on voting, participation in local political decision-making through *gram sabha* meetings, an assessment of Pradhan attributes, leadership qualities, and accountability, and whether the household is better or worse off with respect to different types of government services[3] as well as the quality of such services[4] for each of the last three Panchayat periods. Individuals are asked about their awareness of key government programme, how transparent these are administered, and whether they would be willing to contribute to different types of public goods.[5]

This allows testing of hypotheses regarding the impact of reservation on (i) quality of public good provision; (ii) political participation; and (iii) willingness to contribute to public goods.

As reservations do not change the overall size of budgets and as leaders may be less qualified in terms of observable (education) or unobservable (networks) attributes, the quality with which public goods are provided may well go down. This is tested using regressions that control for state-specific effects to reflect historical context and institutional structures affecting the relative power of the pradhan. Both subjective and objective indicators of the quality of service provision are used as dependent variable.[6] To avoid drawing far-reaching conclusions from a narrow set of services,[7] subjective indicators are grouped into three broad categories, namely (i) social infrastructure including sanitation and sewage, drinking water, education, and health; (ii) productive infrastructure such as roads, irrigation and electricity; and (iii) semi-private goods such as credit, government schemes, street lights, and ceremonies, that provide appropriable benefits. Objective indicators for the quality of service delivery include indicators of school quality such as teacher absenteeism, effort, and availability of rooms obtained directly from school kids who are likely to be in a better position to observe quality, as well as households' awareness of different government schemes and (conditional on awareness) perceptions of these being administered fairly.

[3] We distinguish provision of public goods with respect to social services (sanitation, drinking water, education, and health), productive infrastructure (roads, irrigation, and electricity), and administration of efforts producing benefits that can largely be appropriated by individuals (credit and input subsidies, administration of various government schemes, street lighting, and ceremonies or social functions).

[4] As will be discussed in more detail below, this includes an assessment of the number of village assemblies held, the number attended by individuals, the extent to which they participated actively and to which procedural details such as the announcement of an agenda in advance of the meeting and the preparation of minutes were adhered to.

[5] To obtain an indication of individuals' willingness to contribute at the margin, he question was phrased as follows. "Imagine the government decides to contribute an additional Rs. 1 Lakh to solve a local problem but only if the majority of village households contribute Rs. 100 each. Imagine that almost enough people are willing to contribute and your decision to contribute or not will decide the outcome. Would you be willing to contribute Rs. 100 if the issue was ….?"

[6] This allows us to explore differences between these categories of relevance for assessing the reliability of subjective indicators in general.

[7] While the range of public goods is broader than what was considered in some of the literature (Bardhan *et al.* 2010, Duflo 2005). Results for individual public goods are available upon request.

For all of these and subsequent regressions, the fact that reservations are random implies that OLS regressions of the outcome variables against a reservation dummy and controls will yield unbiased and consistent estimates of the impact of reservations. Formally, with subscripts *i,v,t* denoting individuals, villages, and time periods and the superscript *j* standing for specific issue of relevance, we estimate

$$Y_{ivt}^{j} = \beta_{v}^{j} + \beta_{1}^{j} R_{vt} + \beta_{2}^{j} X_{ivt} + \beta_{3}^{j} D_{t} + \varepsilon_{ivt}^{j} \quad (1)$$

Where Y^{j}_{ivt} is the outcome variable of interest, β_v denotes a village or state fixed effect,[8] R_{vt} is a dummy for reservation of the Pradhan position that takes the value of one if the Pradhan position in village *v* at *t* was reserved to women and zero otherwise, X_{ivt} is a vector of household and individual characteristics, D_t is a vector of dummies for GP terms, and $\beta_1, \beta_2, \beta_3$ are parameters to be estimated with main interest in β_1.

A second hypothesis is that reservation will increase the quality of political processes something that, by increasing returns to participation, can increase participation by the favored group or the population at large. While such effects have been explored, with mixed results, in other studies, our data allows testing of longer term impacts, i.e. whether participation is affected even after reservation of the pradhan position has lapsed. This could be interpreted as a one-off reservation facilitating participation of hitherto marginal groups in a way that could, by broadening the set of participants, change the nature of the median voter and thus change the nature of the political equilibrium possibly in a permanent way. Formally, this is estimated by including of lagged reservation dummies (i.e., R_{it-1}) to estimate

$$Y_{ivt}^{j} = \beta_{v}^{j} + \beta_{1}^{j} R_{vt} + \alpha_{2}^{j} R_{vt-1} + \beta_{2}^{j} X_{ivt} + \beta_{3}^{j} D_{t} + \varepsilon_{ivt}^{j} \quad (2)$$

Finally, past literature has treated the political process as a zero-sum game, neglecting the possibility that, by giving them a greater stake in outcomes from the political process, reservation may also prompt groups who had previously been excluded to contribute to local public good provision. To explore this possibility, we use individuals' willingness to contribute a small amount (Rs.100) to different types of public goods. Doing so is motivated by the fact that, although a large literature explores the nexus between social capital and households' or individuals' willingness to contribute to public goods, empirical discussion of this issue in the context of reservations has been limited and few studies have looked at general willingness to contribute to public goods in the Indian context (Chandrashekhar 2008). This is surprising as many decentralised programmes require local contributions to access matching funds for key public goods (e.g. local roads or schools). Moreover, in light of widespread non-performance, monitoring by ultimate beneficiaries will be needed to prevent service providers (e.g. teachers) from shirking. At the same time, such monitoring will be credible (and worth the effort) only if and participation in the political process is critical to push for action and thus make it worthwhile in the first place.

It is straightforward to estimate (1) or (2) at individual level to obtain estimates for the impact of reservations on different groups in the population as defined by gender, caste, or land ownership, and to combine this with testing for dynamic effects.

III. Data and Descriptive Evidence

A first test of our hypotheses can be provided by comparing leader characteristics, villagers' perceptions of service quality, political participation, and willingness to contribute to local public goods between areas with and without female reservations, controlling for state-level effects. Pradhan qualifications and

[8] For the regressions where data from multiple Panchayat periods are available, we use village fixed effect. In the case of villagers' willingness to contribute to improve local issues, we can only use the state dummies because the data are only available for the current Panchayat period.

political experience on reserved seats are indeed lower than on unreserved ones but this does not translate into lower participation or service quality. At the same time, reservation of the Pradhan position for females seems to increase the quality of political processes, participation in these, and villagers' willingness to contribute to public goods.

III.1 Leader qualification and subjective quality of public good provision

A key precondition for the analysis to provide an estimate of the impacts of reservation is that, in line with relevant regulations, allocation of reserved seats across communities is indeed random. Descriptive statistics on a wide range of village and household characteristics before reservations applied as reported in table 1 point to no significant difference between reserved and unreserved Panchayats. Also, the fact that about 28% of sample villages in any election cycle are reserved for women implies that the reservation policy was adhered to.

Table 1: Initial village and household characteristics by reservation status of the village

Variables	Total	Village reserved?		Test for equality
	Mean	Yes	No	|t|-statistics
Initial Village Characteristics				
Population in 1999	5787	5813	5776	0.06
Share of population Hindu (%)	86.23	86.98	85.96	0.24
Share of population Muslin (%)	9.4	8.61	9.68	0.36
Net area sown (acres)	1489	1466	1496	0.09
Net Area irrigated under Canal/Stream (acres)	611	784	549	0.97
Access to Bank	0.77	0.78	0.77	0.13
Distance to Mandi(km)	13.42	12.69	13.69	0.45
Distance to retail market (km)	9.2	8.2	9.56	0.86
Distance to nearest Town (km)	14.16	12.63	14.7	1.18
Distance to nearest Pucca Road (km)	2.80	3.00	2.72	0.28
Share of village with st. lights	0.54	0.61	0.52	1.13
Share of villages with PCO	0.44	0.47	0.43	0.46
Share of villages with trained dai	0.59	0.59	0.59	0.007
Share of villages with male health worker	0.56	0.51	0.58	0.8
Share of villages with female health workers	0.68	0.65	0.69	0.3
Share of villages with Anganwadi	0.83	0.82	0.83	0.25
Share of scheme building drinking water	0.37	0.35	0.38	0.43
Share of scheme building road	0.3	0.31	0.29	0.18
Share of villages with food for work programmes	0.45	0.37	0.47	1.29
Daily male agricultural casual wage (Rs./day)	61.49	60.7	61.77	0.36
Daily female agricultural casual wage (Rs./day)	50.15	49.06	50.54	0.62
No. of observations	186	49	137	
Initial Household Characteristics				
Members < 14	1.93	1.92	1.93	0.24
members 14-60	3.97	4.04	3.95	1.15
Members > 60	0.42	0.40	0.43	1.35
Head's years of education	4.92	5.00	4.89	0.65
Head completed primary	0.51	0.51	0.51	0.17
Head completed middle school	0.31	0.31	0.31	0.16
Head's age	49.50	48.97	49.70	1.53
Female head	0.05	0.06	0.05	1.3
Area of cropland(acres)	2.75	2.78	2.74	0.21
Value of physical assets (Rs.)	43127	41358	43810	0.9
Value of total assets (Rs.)	52564	51829	52848	0.34
Household total income (Rs.)	15549	15380	15615	0.21
Share of crop income	0.52	0.53	0.52	0.44
Share of agriculture	0.67	0.68	0.66	1.22
Share of off-farm income (Rs.)	0.32	0.31	0.33	1.18
Household total expenditure (Rs.)	37769	37807	37755	0.04
Household consumption (Rs.)	9274	9367	9239	0.45
No. of observations	4,275	1,191	3,084	

Note: Distance to railway station, bus stand, post office, telephone office, weekly market, and all the other schemes between the reserved and unreserved groups are not statistically significant.

Data from village level questionnaires in table 2 point to significantly lower educational qualifications of Pradhans occupying reserved seats; 25% compared to less than 5% on unreserved seats are illiterate, and only 29% and 6% of them (vs. 70% and 27% respectively) completed at least secondary or high school. The flip side of such low levels of educational attainment is that very few 'unreserved' Pradhan's had been involved in politics before; the share of Pradhans who held GP positions or run for Pradhan or ward member before is significantly higher in unreserved compared to reserved villages (24% versus 12% and 22% versus 7% for previous positions or candidacies, respectively). The fact that female reservation has no statistically significant impact on probability of other marginalised groups, in particular scheduled castes and tribes to be elected also increase confidence in the data. Although we do not have information on the extent to which reservation increases the probability of female candidacies, the fact that in unreserved villages women account only for some 7% of Pradhans might be interpreted as a justification for this policy. Similarly, it seems that reservation brings in new officials; compared to about a quarter who had held office before in unreserved seats, only some 12% do so in reserved ones and only 7%, as compared to some 21% in unreserved seats had been running for office before without being elected.

Table 2 also suggests that reserved seats are not less competitive than unreserved ones and that, with 76% as compared to 72% for unreserved ones, voter turnout is slightly higher. As one would expect, total budgets are not significantly different between reserved and unreserved seats; in both cases, some 90% of local budget is based on central transfers and the amount of funds spent under centrally sponsored schemes is larger than the Panchayats own budget.

Table 2: Pradhan, election characteristics, and public spending for reserved and non-reserved villages

	Reserved		Test for equality
	Yes	**No**	
Pradhan characteristics			
Illiterate	24.72	5.74	***
At least primary education	75.28	94.26	***
At least secondary education	28.65	62.69	***
At least high school education	6.18	22.08	***
SC/ST	30.02	27.51	
Female	98.36	6.65	***
Held political office before	11.67	24.24	***
Was candidate before	6.67	20.92	***
Characteristics of the election			
Number of candidates contested	3.51	3.38	
Share of population voted	76.2	72.1	***
Share of votes received	47.35	49.01	
Revenue & expenditure (Rs. per capita/year)			
Local revenue per capita	174.42	169.07	
of which from govt. sources	156.58	151.79	
of which from own sources	17.84	17.47	
Centrally sponsored schemes	268.73	201.67	
No. of observation	180	459	

Source: Own calculation based on REDS/NCAER 2007 Survey. * Significant at 10%; ** significant at 5%; *** significant at 1%
Note: Number of candidates contested is only for the 15 states where the Pradhan is directly elected by popular vote (e.g., Kerala and Maharashtra are not included in the calculation).

In light of lower educational qualification of Pradhans elected on a reserved ticket, it is of interest to assess whether villagers perceive such leaders to be less effective in performing their functions in a number of dimensions. Results from doing so, disaggregated by respondents' gender in the top panel of table 3 highlight three areas. First, there is little evidence of lack of technical knowledge; in fact for the large majority of attributes, in particular technical qualifications, knowledge of national problems, ability

to effectively provide local public goods, or to solve local disputes, respondents do not appear to perceive significant differences between Pradhans in reserved and non-reserved seats. The exceptions are 'honesty and fairness' where males and females rank Pradhans who came to power as a result of gender reservation lower (marginally significant for females) and - for female respondents only - the ability to bring the village's problems to the attention of higher levels of government and (of marginal significance) the selection of beneficiaries for centrally sponsored schemes.

Table 3: Perceived Pradhan attributes and quality of public good provision by gender and reservation status

	Male respondents			Females		
	Reserved			Reserved		
	Yes	No	Test	Yes	No	Test
Perceived leader qualities						
Honesty & fairness	0.533	0.543	***	0.508	0.513	*
Technical qualification	0.461	0.466		0.437	0.436	
National knowledge	0.477	0.483		0.462	0.459	
Provide local public good	0.582	0.579		0.561	0.557	
Solve local disputes	0.449	0.452		0.426	0.43	
Beneficiary selection	0.244	0.248		0.229	0.235	*
Represent village upwards	0.499	0.499		0.463	0.475	***
No of observations	30,708	72,254		28,418	67,874	
Effectiveness in providing						
Sanitation & sewage	0.643	0.654	*	0.633	0.639	
Roads & transport	0.659	0.651		0.669	0.668	
Irrigation	0.198	0.199		0.217	0.221	
Drinking water	0.538	0.552	**	0.494	0.498	
Electrification	0.523	0.503	***	0.486	0.468	***
Street lights	0.516	0.511		0.495	0.501	
Credit	0.342	0.329	***	0.302	0.295	
Education	0.717	0.71		0.637	0.642	
Health	0.443	0.427	***	0.489	0.477	***
NR management	0.327	0.326		0.295	0.302	
Government schemes	0.472	0.314	***	0.292	0.282	*
Social issues & ceremonies	0.516	0.509		0.469	0.475	
No. of observations	9,826	23,568		9,204	22,394	

Note: Numbers in the top panel refer to the share of respondents who ranked the Pradhan 'high' or 'medium' for each category. In the bottom panel, numbers refer to the share of respondents indicating that their household's situation regarding a specific public good is 'somewhat' or 'much' better under the current than under the previous Panchayat [we might want to split these by period to account for recall bias]. In both cases, results are obtained from a regression including state dummies.
Test 1 and 2 in the rightmost columns are for male vs. female respondents in reserved vs. unreserved *Panchayats*.
* Significant at 10%; ** significant at 5%; *** significant at 1%

Assessment of the extent to which delivery of services is better than in the previous Panchayat under reserved than unreserved seats suggests that Pradhans elected under female reservation score better than those who were not for health services and electrification (by both male and female respondents), credit and input as well as government schemes (for males only and in the latter case marginally for women) and significantly or marginally worse for drinking water and sanitation (by males only). [9] This suggests that, in terms of villagers' perceptions of the quality of outcomes, the cost of reserving Pradhan positions for females is low, despite their much lower educational qualifications.

III.2 Participation and willingness to contribute to public goods

Descriptive results, as reported in the top panel of table 4, are consistent with the notion that having a female leader increases political participation by females (Beaman *et al.* 2009 and Bhavnani 2009) and

[9] Two weaknesses with this variable are that it may be affected by perception bias (Beaman *et al.* 2009) and that drawing a link between the gender of the Pradhan (or whether the office was reserved) implicitly assumes that the Pradhan dominates local decisions (Rajaraman and Gupta 2008a). The use of alternative more objective outcomes avoids some of these problems.

local processes. Both male and females state that 'reserved' female Pradhans convene more *gram sabha* meetings (7.2 vs. 6.6 and 6.2 vs. 5.7 for male and female respondents, respectively) with significantly higher levels of attendance (4.4 vs. 3.5 by males and 4.6 vs. 3.3 by females). Consistent with the larger increment in female participation, females are also more likely to have voiced concerns in reserved as compared to non-reserved Panchayats (38% vs. 34%), similarly to males (67% vs. 65%). Males indicate that they have significantly less advance knowledge of when a meeting is being arranged, the variable is only marginally significant for females. Also, significantly more males, but not females, indicate that in a reserved panchayat minutes are always prepared (59% vs. 55%), accessible (60% vs. 57%) and that they actually did access the minutes at least once (14% vs. 9%).

Table 4: Participation in meetings and willingness to contribute to public goods by gender and reservation status

	Male respondents			Female respondents		
	Reserved			Reserved		
	Yes	No	Test	Yes	No	Test
Gram Sabha meetings						
No. of meetings held	7.247	6.59	***	6.188	5.734	***
No. attended	4.381	3.54	***	4.616	3.266	***
Active participation	0.651	0.674	**	0.377	0.339	*
Advance knowledge	0.285	0.384	***	0.413	0.446	*
Minutes always prepared	0.587	0.554	***	0.819	0.806	
Minutes always accessible	0.599	0.572	***	0.425	0.433	
Minutes ever accessed	0.137	0.093	***	0.074	0.081	
No. of observations						
Willingness to contribute						
Sanitation & sewage	0.416	0.392	**	0.510	0.510	
Roads & transport	0.540	0.519	*	0.465	0.447	
Irrigation	0.174	0.099	***	0.144	0.109	***
Drinking water	0.674	0.726	***	0.575	0.585	
Electrification	0.141	0.148		0.147	0.137	
Street lights	0.601	0.609		0.523	0.538	
Credit	0.125	0.061	***	0.104	0.088	*
Education	0.364	0.335	**	0.408	0.370	***
Health	0.479	0.455	**	0.515	0.480	***
NR management	0.129	0.068	***	0.175	0.105	***
Government schemes	0.200	0.147	***	0.224	0.191	***
Social issues & ceremonies	0.192	0.135	***	0.152	0.127	**
No. of observations	2,586	5,657		2,538	5,580	

Note: Test 1 and 2 in the rightmost columns are for male vs. female respondents in reserved vs. unreserved *panchayats*. *, **, and *** denotes significant at 10%, 5% and 1%, respectively.

If, as these figures suggest, female reservations increase participation in local meetings, one might expect them to affect the willingness to contribute to public goods. Results from testing this hypothesis in the bottom panel of table 4 provide strong support for this hypothesis although they suggest that mens' contributions increase as often or even more than those by women.[10] Both men and women are more likely to contribute to irrigation, education, health, natural resource management, government schemes, and social issues or ceremonies if the Pradhan's position is reserved for a female. Men increase hypothetical contributions to sanitation, credit and (marginally) roads as well but are less willing to contribute to drinking water with no significant impact on electrification and street lights. Comparing levels between men and women suggests that the latter are more likely to contribute to sanitation, education, health, natural resource management, and government schemes compared to higher male contributions to roads, drinking water, and social issues.

[10] One possibility is that women's responses are affected by their more limited access to resources.

IV. Econometric Results

Although descriptive statistics are suggestive, econometric analysis is needed to explore the persistence of effects as well as potential heterogeneity of impacts. We first focus on subjective and objective measures of the quality with which public goods are provided, followed by participation in elections and meetings, and finally willingness to contribute to providing local public goods.

IV.1 Quality of Public Service Delivery

Table 5 and 6 explore whether, possibly as a result of lower capacity of Pradhans elected on reserved seats, the quality with which key public goods are provided is lower for reserved as compared to unreserved Panchayats. To keep things manageable, we distinguish three types of public goods, i.e. those related to social and productive services as well as those where a significant share of benefits accrues to individuals. In each case, the dependent variable is a zero-one indicator of whether the performance of local government in providing certain types of services improved compared to the previous Panchayat and types of services are stacked in the regression. Results from subjective assessments, in table 5, suggest that, if anything, female reservation has weak or inconsistent impacts. There is no impact on the share of cases where perceived service delivery quality has improved relative to the earlier Panchayats. Inclusion of pradhan characteristics or adding a lagged reservation dummy (not reported) does not add this picture, suggesting that past female reservation have little contemporaneous or permanent effect on perceived service delivery quality.

Table 5: Female reservation and perceived improvements in quality of public good provision

	Total	Social	Productive	Individual
	(1)	(2)	(3)	(4)
Model 1:				
Reserved (γ_1)	0.012 (1.04)	0.006 (0.38)	0.018 (1.39)	0.011 (0.83)
Reserved × Female(φ_1)	-0.007* (1.83)	-0.003 (0.57)	-0.008 (1.52)	-0.008* (1.91)
Test for $\gamma_1 + \varphi_1 = 0$	(0.02)	(0.04)	(0.72)	(0.05)
No of observations	64,924	65,001	64,733	64,979
Model 2:				
Reserved (γ_1)	0.008 (0.58)	-0.003 (0.14)	0.019 (1.18)	0.006 (0.36)
Reserved earlier (γ_2)	0.020 (1.30)	0.007 (0.37)	0.028* (1.66)	0.029 (1.64)
Reserved × female (φ_1)	-0.005 (1.14)	-0.001 (0.09)	-0.002 (0.34)	-0.008 (1.57)
Reserved earlier × female (φ_2)	-0.004 (0.79)	0.000 (0.08)	-0.008 (1.36)	-0.004 (0.65)
Test for:$\gamma_1 + \varphi_1 = 0$	(0.05)	(0.03)	(1.28)	(0.02)
$\gamma_2 + \varphi_2 = 0$	(1.34)	(0.19)	(1.72)	(2.44)
No of observations	45,282	45,351	45,108	45,334

Note: The dependent variable is 1 if quality of public service provision is 'much' or 'somewhat' better than in the previous panchayat period.

Categories are defined as follows: Social includes sanitation and sewage, drinking water, education, and health. Productive includes roads, irrigation and electricity. Individual includes credit, government schemes, street lights, and ceremonies.

Table 6: Female reservation and objective changes in quality of public good provision

	(1)	(2)	(3)
	Days absent by teachers	Inpatient answering questions	Separate rooms
Reserved (γ_1)	0.221* (1.95)	-0.007 (0.49)	0.023** (2.28)
Female * rwpd (φ_1)	-0.401*** (2.91)	-0.019 (1.07)	-0.020 (1.37)
STC*rwpd (φ_2)	-0.632*** (4.12)	-0.058** (2.49)	0.013 (0.59)
Landless * rwpd (φ_3)	-0.215** (2.05)	0.018 (1.01)	0.013 (0.93)
Test for: $\gamma_1 + \varphi_1 = 0$	(2.73)*	(3.07)*	(0.07)
$\gamma_2 + \varphi_2 = 0$	(7.04)***	(7.50)***	(2.83)*
$\gamma_3 + \varphi_3 = 0$	(0.00)	(0.31)	(5.40)**
Observations	6501	7641	7645
R-squared	0.03	0.11	0.14

Note: Robust t statistics in parentheses
* Significant at 10%; ** significant at 5%; *** significant at 1%

As perceptions may be affected by deep-rooted socio-cultural norms with a bias against acknowledging any positive outcomes from females leadership (Beaman *et al.* 2009 and Duflo 2005), it is important to compare them to more objective indicators. One way of doing so is to use objective indicators for key dimensions of schooling quality (teacher absenteeism and behaviour) that can change quickly based on more effective monitoring. The variables of interest are obtained by asking individual school children about the school they actually attended. Results, in table 6, suggest that, with female reservations, overall teacher absenteeism increased by some 0.23 days per month, it decreased for females and in particular for scheduled castes and tribes. In the latter, kids also noted that teachers exerted somewhat more effort, i.e. were more patient in explaining and responding to questions raised by students. This is consistent with the general picture of reservation having little overall effect but somewhat better monitoring of teacher effort at specific schools serving marginal groups that could be a result of these groups being able to voice their concerns politically.

IV.2 Political Participation

Individuals' opinions will affect policymakers' calculations only if they participate in the political process. While participation in India's local elections has traditionally been high, studies note that women and other disadvantaged groups had difficulty making themselves heard due to a paucity and non-deliberative character of village meetings that made it difficult to raise concerns on service quality or voice opinions that would reduce the returns from attending such meetings by constituents (Besley *et al.* 2005).

Regression results as reported in table 7 suggest that female reservation had some impact on political participation. The top panel, which looks at contemporaneous effects, suggests that reservations led to a significant increase in the number of village meetings held, the share of cases where respondents are aware that minutes from such meetings are kept, and a reduction in the number of cases where they are not aware of the agenda for *gram sabha* meetings in advance. While procedural knowledge was not specific to women (cols. 2 and 3), meeting attendance (col. 1) was strongly biased in favour of females who overall attended almost 2 *** more meetings under reserved as compared to unreserved Panchayats. While the share of those who voiced concerns in any given meeting is marginally negative (col. 4), this,

together with the increased attendance still point towards much increased political participation overall, and in particular by women, in reserved Panchayats.

Table 7: Female reservation and characteristics of village meetings

	No. of meetings attended	Minutes kept	Never know content	Voiced concerns	Participated in elections[a]
	(1)	(2)	(3)	(4)	(5)
Model 1:					
Reserved(γ_1)	1.186*	0.051**	-0.061**	-0.025*	
	(1.69)	(2.47)	(2.23)	(1.83)	
Reserved × Female(φ_1)	0.609**	-0.045	0.045	0.067	
	(2.07)	(0.82)	(1.25)	(1.63)	
Test for: $\gamma_1 + \varphi_1 = 0$					
No of observations	12907	12969	13099	13061	
Model 2:					
Reserved (γ_1)	0.635	0.031	-0.044	-0.039**	
	(1.35)	(1.05)	(1.23)	(2.05)	
Reserved × female (φ_1)	1.080***	0.017	0.042	0.072	
	(3.01)	(0.22)	(0.84)	(1.35)	
Reserved earlier (γ_2)	-0.837	-0.007	-0.010	-0.027*	0.030***
	(1.54)	(0.18)	(0.21)	(1.73)	(4.29)
Reserved earlier × female (φ_2)	0.059	-0.007	0.008	0.122**	-0.003
	(0.20)	(0.08)	(0.15)	(2.41)	(0.36)
Test for: $\gamma_1 + \varphi_1 = 0$	(6.20)***	(0.57)	(0.02)	(0.58)	
$\gamma_2 + \varphi_2 = 0$	(1.56)	(0.03)	(0.29)	(5.27)**	(13.49)***
No of observations	6761	6709	6830	6838	25429
Model 3					
Reserved (γ_1)	0.813*	0.038*	-0.078**	-0.024	0.036***
	(1.67)	(1.79)	(2.42)	(1.44)	(4.65)
Reserved × STC (φ_1)	-0.321	0.024	0.068*	0.007	-0.013
	(1.34)	(0.91)	(1.75)	(0.30)	(1.16)
Reserved × landless (φ_2)	1.433*	0.029	0.016	-0.009	-0.011
	(1.94)	(1.24)	(0.50)	(0.40)	(1.09)
Reserved × female (φ_3)	0.522**	-0.047	0.043	0.067	-0.003
	(2.01)	(0.85)	(1.23)	(1.64)	(0.34)
Tests for: $\gamma_1 + \varphi_1 = 0$	(0.95)	(5.75)**	(0.07)	(0.41)	(4.35)**
$\gamma_1 + \varphi_2 = 0$	(3.53)**	(4.80)**	(3.32)*	(2.47)	(5.07)**
$\gamma_1 + \varphi_3 = 0$	(5.02)***	0.03	(1.21)	(1.63)	(16.36)***
	11099	11123	11257	11223	25429

Note: Village-level fixed effects, household and individual characteristics (age, education, marital status, sex, caste, and landlessness) and dummies for different Panchayat periods are included in all regressions. Robust t statistics in parentheses.

[a] reservation for the current period is irrelevant for villagers' participation in local election, so the reservation variable refers to reservation earlier for the last column.

The middle panel explores whether such effects are persistent over time. Frequency of meetings and adherence to procedural issues reverted to the original state (col. 1 - 3), not too surprisingly in view of the fact that these are controlled by the Pradhan. At the same time, there is strong indication of persistence over time for females, with a quantitatively large increase of 12% of women who expressed concern in cases that had been reserved in the past. Also, in Panchayats where the president's position had been reserved in the past, participation in elections is about 3 percentage points higher than in those without such reservations although there is no gender difference. This is important because it is only if people participate effectively can they push their representatives to provide services to them and/or complain in case these services are not provided in an effective way so as to increase quality.*** Interaction with state to increase credibility and plausibility of the results.

IV.3 Willingness to contribute to public goods

A first finding of interest from the regressions, as highlighted in panel 1 of table 8, is that female reservation has a very positive effect on overall willingness to make contributions to public goods (***

we should tweak the definition of social to get at least 10% there), with somewhat stronger effects among females regarding social and males with respect to individual goods. Although the magnitude of estimated coefficients is, with some of 3- 4 percentage points, modest, all of them are highly significant. Voters' willingness to contribute or monitor could to some extent outweigh lower quality of service provision due to lack of leaders' qualifications.

Table 8: Female reservation and willingness to contribute to public goods

	Total	Social	Productive	Individual
	(1)	(2)	(3)	(4)
Model 1:				
Reserved (γ_1)	0.027*** (7.95)	0.005 (0.76)	0.038*** (5.47)	0.034*** (6.68)
Reserved × Female(φ_1)	-0.007 (1.49)	0.007 (0.69)	-0.014 (1.43)	-0.023*** (3.30)
Test for: $\gamma_1 + \varphi_1 = 0$ (F-stat)	(34.44)*	(2.83)*	(12.23)***	(5.12)**
No of observations	161751	44742	40782	61670
Model 2:				
Reserved (γ_1)	0.033*** (9.61)	0.007 (0.99)	0.046*** (6.54)	0.043*** (8.12)
Reserved earlier (γ_2)	0.031*** (8.52)	0.007 (0.92)	0.043*** (5.75)	0.041*** (7.43)
Reserved × female (φ_1)	-0.010** (2.09)	0.010 (1.01)	-0.021** (2.17)	-0.028*** (3.96)
Reserved earlier × female (φ_2)	-0.016*** (3.12)	0.019* (1.88)	-0.042*** (4.03)	-0.027*** (3.67)
Test for: $\gamma_1 + \varphi_1 = 0$	(45.25)***	(5.45)**	(12.54)***	(8.11)***
$\gamma_2 + \varphi_2 = 0$	(17.91)***	(11.99)***	(0.04)	(6.59)**
No of observations	161751	44742	40782	61670
Model 2:				
Reserved (γ_1)	0.018*** (4.57)	0.008 (1.00)	0.022*** (2.76)	0.019*** (3.36)
Reserved × STC (φ_1)	0.003 (0.55)	-0.017 (1.34)	0.014 (1.12)	0.016* (1.78)
Reserved × landless (φ_2)	0.007 (1.29)	-0.010 (0.98)	-0.004 (0.39)	0.032*** (3.98)
Reserved × female (φ_3)	-0.006 (1.38)	0.007 (0.71)	-0.013 (1.32)	-0.023*** (3.30)
Test for: $\gamma_1 + \varphi_1 = 0$	(10.59)***	(0.47)	(7.39)***	(13.75)***
$\gamma_1 + \varphi_2 = 0$	(20.60)***	(0.06)	(2.52)	(39.19)***
$\gamma_1 + \varphi_3 = 0$	(8.29)***	(3.38)*	(0.33)	(0.43)
No of observations	161746	44741	40780	61668

Note: Village-level fixed effects, household and individual characteristics (age, education, marital status, sex, caste, and landlessness) and dummies for different Panchayat periods are included in all regressions. Robust t statistics in parentheses.

Figures in panel three highlight that, although interactions between current reservations and dummies for specific disadvantaged groups (e.g. women, landless, and STs/SCs) are insignificant throughout, willingness to contribute increases significantly for all these groups. Moreover, the second panel suggests that, in all cases, higher willingness to contribute to public goods persists after the reservation has expired. In fact, comparing the magnitude of coefficients between the two periods highlights that, although there is some decline over time for females, there is no statistical difference between the contemporaneous and the lagged effect overall implying that, at least in the period immediately following the reservation, households' willingness to contribute to public goods remains at the (higher) levels observed during the reserved period.

V. Conclusion and Policy Implications

By using a nation-wide survey to explore the impact of political reservations beyond the period in which they had been effective and including a set of outcome variables that have not been considered before, this paper contributes to the literature in a number of respects. First, we demonstrate that there is indeed a high level of cross-state heterogeneity that needs to be controlled for when making inferences on the impact of political reservations. Second, we find that, even though there is no clear-cut impact of female reservation on perceived quality of public service delivery, this measure does affect the political process, in particular the frequency of gram sabha meetings and participation in processes of political decision-making, including women voicing concerns and participation in subsequent elections. Finally, there is clear evidence of female reservations increasing individuals' willingness to contribute to provision of local public goods not only during the 'reserved' period but also thereafter. Although data allow us to test for one lag only, we can reject the hypothesis of a decline in this willingness over time. While differences across states could provide an interesting further angle for research, our results suggest that longer-term impacts of reservations, possibly by affecting the dynamics of local political processes, would be an important area for future research.

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