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**Does Having a Female Sarpanch Promote Service Delivery for Women and Democratic Participation of Women? Evidence from Maharashtra, India**

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## **Does Having a Female Sarpanch Promote Service Delivery for Women and Democratic Participation of Women? Evidence from Maharashtra, India.**

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### *Abstract:*

*In this paper we examine the impact of mandated reservations for female sarpanchs in the gram panchayats on perceptions of service delivery and women's democratic participation. Using survey data from the Sangli district, Maharashtra, we find that the availability of basic, public services is significantly higher in female sarpanch villages as compared to the male sarpanch villages, when the elections have been held three to 3 ½ years before the survey; while service delivery in villages with more recently elected female sarpanchs is worse. Further, the reservations have a significant, positive impact on the democratic participation of the women in the female sarpanch villages, again driven by the impact of female sarpanchs elected 3 ½ years before the survey. The democratic participation of women, in turn, affects the availability of services very robustly. The findings suggest that the positive effects in terms of service delivery and democratic participation will take some time to materialize.*

*Key words: Mandated reservations, Service delivery, political participation*

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## **Does Having a Female Sarpanch Promote Service Delivery for Women and Democratic Participation of Women? Evidence from Maharashtra, India.**

### **I Introduction**

India took an important step towards deepening democracy when it passed the 73<sup>rd</sup> Amendment in 1993 which put in place the elected gram panchayat (local elected body) at the village level. One of the important features of this Amendment was to give reservations to the Scheduled Castes, Scheduled Tribes and Women. With respect to women, the Amendment states that 33 % of the gram panchayat seats should be reserved for women and 33% of the sarpanch (the elected head of the gram panchayat) seats should be reserved for a woman. Every gram sabha gets a female sarpanch by rotation and the gram sabha gets reserved for a female sarpanch after every ten years. This was indeed a crucial step considering the low status of women in India and their consequent low participation in the public life.<sup>1</sup>

The purpose of this paper is to examine if the reservation of women for the post of the sarpanch has had any significant impact on the availability of basic public services to the women, especially with respect to the services that the women are supposed to value the most. It is the responsibility of the gram panchayat to provide the basic, public services like drinking water, toilets, gutters etc. to the villagers. Thus the well being of the villagers depends, to a great extent, on the efficacy of the gram panchayat. Further, it is expected that the sarpanch would play a crucial role in provision of these services, by her/his initiative and interest. This paper tries to look at the relationship between the gender of the sarpanch and the availability of services.

Usually the work done in this area focuses on the budgetary allocations made by the panchayats for various services like roads, sanitation etc. (e.g. Chattopadhyaya and Dulfo, 2004, Besley T, Pande, R. and Rao, V 2007, and Rajaraman and Gupta 2011, Ban and Rao (2008) use the Participatory Rapid Appraisal techniques on selected men and women). The use of allocations raises two questions. One, it may well be that a substantial amount of money that is allocated for various public services gets leaked via corruption. Thus the fact that a certain amount of money has been spent on a road does not ensure in any way that that particular road will be there in the physical sense. Secondly, even if the road exists, the methodology does not capture the quality of that road. Instead of examining the budgetary allocations, we have conducted a survey of the intended beneficiaries and asked them what kind of services they perceive they have access to. The advantage of our methodology is that we try to find out if the intended beneficiary feels that that particular service is available to her and also, what according to her is the quality of that service.

It needs to be noted at this point that decentralization itself is expected to be beneficial from the governance point of view. The closeness between the provider of the services and the user of the services is expected to improve the quality and quantity of the services. Further, it is expected that the presence of women in the gram panchayat would better reflect the requirements and preferences of the women-voters. The policy of reservation for women comes out of the 'idea of politics of presence' (Phillips A., 1995) and the idea that 'the critical mass in political participation changes the politics itself' (Dahlerup D., 2006).

A second aim of the paper is therefore to analyze whether having a female sarpanch increases the political participation of people in these villages. Such enhanced political participation is desirable in itself, but also may lead to better outcomes in terms of service delivery and thus be one of the mechanism linking the reservations to service delivery outcomes.

While one may hypothesize that these positive effects of reservations might exist, one needs to view the policy of reservations for women within the overall constraints/peculiarities obtained in India. These would consist of, first of all, the broad framework of and limitations of 'democracy' in India. For example, the Economist Intelligence Unit's Democratic Index (2007) gives a score of 7.68 out of 10 and a rank of 35 out of 167 countries to India. This in itself may not seem bad, but it is a well known fact that India has a democracy with some flaws. It has many of the features of procedural democracy but democratic institutions are compromised by problems related to widespread illiteracy of the population and corruption in the political system. The second issue is that of the 'status of women' in India. The Global Gender Gap Report 2010 (Hausmann et al, 2010) shows that India ranks 112 out of 134 countries, by using a composite index of economic participation, educational attainment, political empowerment, and health and survival. Similarly, UNDP's Gender-related development index (GDI) and various approaches to improve upon it, India is in the bottom third of all countries; in a measure that captures gender gaps in education, health, and labor force participation, it ranks 137 out of 150 countries (Klasen and Schüler, 2011) The low rank attained by India shows the low status of women in India. This legitimately raises the issue that if women have such a low status then whether it is possible for women sarpanchs to achieve anything substantial in nature. There is also the fear that a women sarpanch may become just a front for the 'real' sarpanch who would be somebody from her family, usually her husband. Thus it is unclear whether female sarpanchs can make a difference and it essentially becomes an empirical issue.

## **II. Sampling Strategy**

We conducted a survey in 32 villages in the Sangli district of Maharashtra, in Oct.-Nov. 2008, including only women in the sample. The district was chosen randomly although it is generally believed that it is one of the more progressive districts in Maharashtra. Sangli, a district in western Maharashtra is basically an agricultural district. As per the 2011 Census, the current population of the district is around 3 million and 75 per cent of the population lives in rural areas. There are 705 gram panchayats in this district. The Sangli district has 10

*talukas* (i.e. tehsils or subdivisions) namely 1. Shirala(1), 2. Walwa (3), 3. Palus (1) 4. Khanapur (1) 5. Atpadi (1) 6. Tasgaon (1) 7. Miraj (4) 8. Kavathemahankal (1) 9. Jat (2) 10. Kadegaon (1).

A multistage sampling technique has been used for this study. In the first stage, 16 villages with a female sarpanch had to be selected. The 16 villages from the 10 *talukas* were selected on the basis of probability proportional to the size. After rounding off, the number of villages thus arrived at from each of the *taluka*, have been given above in brackets for each of the *talukas*. After we knew the number of villages to be selected from each of the *talukas*, a list of female sarpanch villages was procured from the zilla parishad office and from it the female sarpanch villages were randomly selected. Then we selected one male sarpanch village for every female sarpanch village. While selecting the male sarpanch villages, the criteria were i. geographical closeness of the male sarpanch village to the selected woman sarpanch village; ii. the sarpanch should belong to the open category. The ‘closeness’ of the two villages, in some sense ensures similarity in many respects between the two villages in terms of the terrain, background, distance from Sangli and/or other nearest town; and hence better comparability.

The selected villages also had to fulfill another important criteria viz. of having the population greater than 600. If the population of a village is less than 600, the sarpanch is “shared” with other villages. In such a situation, the sarpanch could be staying in another village. This could have implications for his/her involvement in the village. By selecting a village with population greater than 600, we ensure that the said village has one ‘unshared’ sarpanch who is staying in that village itself.

We were interested in selecting a village having a female sarpanch for at least 3 to three and a half years, so that there is enough time for her to have an impact on the workings of the panchayat. However, for various reasons the elections to the village panchayat and to the post of a sarpanch are a continuous process in a district. In Maharashtra, it is not the case that all local government seats are contested at one time. The elections to the village panchayat and the sarpanch’s post are held serially in the district. Thus a district can and does have sarpanchs of different vintages. In view of the other conditions which had to be met (given above), we could not select all women sarpanchs who had been elected in 2005. We got a list of villages with woman sarpanch elected in 2005 and also in 2007 in a *taluka* (from the zilla parishad office) and then the selection was done in a random manner, keeping in mind other conditions given above. Ultimately we have 22 villages which have had elections in 2005 and 10 villages where the elections were held in 2007 elections. In this way we arrived at 32 villages. This will allow us to also investigate whether it takes some time for female sarpanchs to affect service delivery and democratic participation.

At the second stage, the households in the village were stratified according to Below Poverty Line (BPL) and Above Poverty Line (APL) criteria. In the third stage, 10 households were selected randomly from the BPL category and 10 from APL category. It is well known that distribution of BPL cards is not completely fool-proof and misclassifications do occur, we thought that both categories should have equal representation despite these problems.

In this manner we arrive at the sample size is of 640 women respondents (32 villages \* 20 women).

### **III. Methodology**

We have asked more than 90 questions focusing on a range of issues facing the respondent. Further, we have developed two indices viz. Index of Services Availability (IOSA) and the Index of Democratic Participation (IODP) which have been explained below.

*i .Index of Services Availability (IOSA) :* IOSA, in the main, captures the availability, quality and quantity of the public services that are available to the respondent women living in the 32 villages. Besides the basic services, the Index also focuses on some other issues that are important to women. Thus the Index asks answers to eight questions regarding 1. drinking water 2. toilets 3. gutters 4. schools 5. ration shops 6. Self help Groups 7. Implementation of welfare schemes with special reference to Nirmal Gram Yojana (i.e. cleanliness schemes), Janani Suraksha (i.e. maternal health scheme) 8. Male Alcoholism (See Appendix A for questions and Appendix C for method of coding). We have selected such services and issues which are of particular relevance and interest to women. Thus though roads and electricity help women too, we have not included them in this Index. <sup>2</sup>

The questionnaire has been canvassed on the 640 respondents from 32 villages. For each of the respondent for each of the question, there are multiple answers that are possible and we have given a score to each of the answer, starting from zero onwards. Zero is logged in when the service available to that respondent is of the worst kind/quality. For example, we ask a question ‘What is the source of drinking water for your household?’ The worst possible answer would be ‘getting water from the river/well/pond’ (i.e. there is, in fact, no public service that is available) and so this would get the score of zero. The best possible answer would be ‘have a tap at home’ which would be then given the highest score viz. 1. The other options like ‘get water from a protected well’, or ‘get water from a hand-pump’ etc would lie in between and get the scores accordingly. In this manner, for every respondent for every question, a score will be obtained. When we add up all these scores, we get the individual score for the respondent. We then find the maximum score that is possible for a respondent to get. This is, in other words, the best/highest (i.e. maximum possible) score for each question added up. We then find the percentage of the respondent’s individual score to the maximum possible score. This gives us the individual IOSAs for 640 respondents. All questions have been given equal weights.

We then find the average IOSA for villages with women sarpanchs (i.e. for 16 villages with 320 respondents) and the average for villages with male sarpanchs. We apply the Z- test on the two sample averages and we are able to find if significant difference exists in availability of services over the two samples.

*ii. Index of Democratic Participation (IODP)* : Are the women respondents in female sarpanch villages more politically active and participative than the respondents in the male sarpanch villages? That is, are there some ‘externalities’ associated with a female being a sarpanch? This is the issue that we wanted to explore. To that end, we have asked questions with respect to their voting patterns, knowledge about the responsibilities and workings of the gram panchayat, attendance and vociferousness in the gram sabhas, whether they think the availability of public services has improved for them, their political awareness and political participation (See Appendix B for questions and Appendix C for method of coding). Based on it, we find the ‘Index of Democratic Participation’ (IODP) for each of the respondent using the same methodology that we have used for IOSA. We find the average IODP for the female and male sarpanch villages separately and apply the Z-test on the two sample averages to find if significant difference between the two exists. This will reveal to us if political involvement is different over two samples.

*iii. A questionnaire for the sarpanchs*, for both female and male, has been canvassed, to get their profile. This makes a comparison between, say, the education, assets, political background etc. of the sarpanchs.

#### **IV. Findings**

##### *i. Profile of the Villages, the sarpanchs and the Respondents –*

Table 1 (see Appendix D) gives the profile of the 32 villages - 16 female and 16 male sarpanch villages - which turns out to be quite similar to each other. Table 2 gives the profile of the sarpanchs.

The profile of a sarpanch would have an important bearing on the way s/he is able to perform. It is from this perspective that we examine the features of the sarpanchs. From Table 2 we find that, all female sarpanchs are married and, on an average, a female sarpanch is slightly younger in age, with less education, with a higher percentage belonging to the SC and ST category, with lower percentage having any ownership of land and when they own land, their average holdings are lower, as compared to the male sarpanchs. The mean asset ownership (including type of house) is also much lower for female sarpanchs. Further, all of them have been in the position of the sarpanch for the first time, while 94 per cent of the male sarpanchs are in the said post for the first time. Interestingly, fewer women sarpanchs belong to a political family, fewer have family members who have been part of panchayat and much fewer have held a political position before becoming a sarpanch, as compared to the male sarpanchs.<sup>3</sup> On the whole, it thus appears that, compared to male sarpanchs, women sarpanchs are economically more disadvantaged and relative political outsiders.

Further we find that the mean score of the self-rated performance of the female and male sarpanchs is the same.

With the status of women being so low in India, there is always a possibility of bias against/non-cooperation against the women sarpanchs (like the gender bias in any other field). Our data show a mixed picture. As many as 50 percent said that they did face a bias from the

other panchayat members but only 30 percent of the female sarpanchs said that they face a bias from the gram sevak i.e. the government functionary; further, though 69 percent said that they get a high level of support from family members, only 31 percent of the respondents said that they get high support from the villagers. Thus while the family support is high and the gram sevak has accepted the female sarpanch as a fact of life, the villagers and the panchayat members seem to be having some hostility towards them.

Participation in the gram sabha and the filing of complaints by both men and women is higher in the female sarpanch villages as compared to male sarpanch villages. From the long answers we see that the improvements brought about in the schools were similar for both types of sarpanchs - with the sarpanch taking a lead in building a toilet, building a repair wall, changing the roof. But some interesting differences did show up whereby a female sarpanch said that she started to improve nutrition in the school and a male sarpanch said that he gave a scholarship out of his own money. While the increase in public taps and public toilets brought about by the sarpanchs (both female and male) were almost nil, the increase in private taps and private toilets was quite high. This is an interesting finding and supports the hunch that is generally held that Indians prefer individual solutions rather than communal solutions (in this case even when resources are scarce).

In every panchayat, 10 per cent of the self-generated revenue is earmarked for women. We found that most of the sarpanchs (male and female) had used this amount (which is admittedly very small) for improvement in the 'Anganwadis' (giving a nutritional diet, buying utensils, repairs etc). While this is good for the children, it does reflect that women's issues often get combined with children's issues, which can be seen as unfair and not the proper use of the funds earmarked for females. Only one female sarpanch said that she had made available small loans for women out of this amount.

The future challenges perceived were also almost the same in both kinds of villages (i.e. roads, drinking water, toilets, building a temple etc), except that one female sarpanch said that she needs to deal with alcoholism and one male sarpanch said that he would want to implement 'Save the Girl Child Scheme' properly.<sup>4</sup>

In Table 3 we put forth the profile of the 640 female respondents from 32 villages. Here too we find that most of the means of the various parameters are quite close.

#### ii. Reported differences in male versus female sarpanch villages –

Is the availability of services better in the female sarpanch villages as compared to the male sarpanch villages? Further is the democratic participation of respondents higher in the female sarpanch villages as compared to the male sarpanch villages? These are the questions that we shall try to unravel now, using the Z- test, comparing male and female sarpanch villages.

As shown in Tables 4 and 5, the average index of service delivery (IOSA) and political participation by women (IODP) is quite low. Given that these indices are relative to the best performing villages, this is suggesting dramatic differences between the highest performing village (which gets a score of 100%) and the others.



**IOSA:** The null hypothesis is that there is no significant difference in the availability of services by the gender of the sarpanch. In Table 4 (row titled '1') we have given the mean IOSA for the female and male sarpanch villages separately. The mean IOSA for male sarpanch villages is 46.78 and for female sarpanch village is 46.70 which is not significantly different. Thus for the total sample, we do not find a difference between male and female sarpanch villages.

However, an important difference arises when we consider the results by the election year. We compare the IOSAs for male-female sarpanch villages when the elections were held in 2005 (see Table 4, row '2'). We find that the difference between the two is statistically significant and the mean for female sarpanch villages is higher at 49.6, implying that the service availability to the respondents in the female sarpanch villages was better than the male sarpanch villages, when the elections were held in 2005. However, when we compare the means for the election year 2007 ('3' row) the results are opposite. That is, we find that the difference is statistically significant and the mean for male sarpanch villages is higher. This implies that female sarpanchs have a positive impact with a lag of 3 to three and a half years, but not within one year. Thus the somewhat disadvantaged female sarpanchs seem to have gained in confidence and experience, have been on a steep learning curve and start to deliver better than the male sarpanchs after a longer period, while after one year, a more experienced and confident male sarpanch might be responsible for better service delivery.

Next we examined if the different election years have a differential impact on the availability of the services. We find ('4' row) that there is significant difference in the availability of services over the election year and the services are better provided for 2005 as compared to 2007, whatever the gender of the sarpanch. Thus this suggests that with more experienced sarpanchs, the services availability improves.

But this improvement in service availability with tenure of the sarpanch only works if they are female. If we compare IOSAs for the same gender but different election years, we find that in case of male sarpanchs there is no significant difference between the two means. But in case of female sarpanchs we find that the services availability has improved significantly when the election year is 2005 as compared to the year 2007. This again shows that female sarpanchs are effective after a certain time i.e. 3 to three and a half years and not in one year even when compared to each other ('5' and '6' row); this is consistent with the idea that female sarpanchs, who are more likely to be disadvantaged and political outsiders, need time to gain confidence and experience before they can deliver results.

**IOPD:** When we compare the means of the IODP, we find that the *female democratic participation is significantly higher in the female sarpanch villages as compared to the male sarpanch villages (Table 5 '1' row)*. For the same election year but different gender of the sarpanch, the results are interesting. We find that when the sarpanchs have been elected in the year 2005 ('2' row), the IODP is significantly higher for the female sarpanch villages; but if the year of election is 2007 then it is the male sarpanch villages that have a significantly higher IODP ('3' row). Thus again we find that in the one year period the male sarpanch

villages do better but in the relatively longer run i.e. 3 to three and a half years females do better.

Democratic participation seems to be improving as time passes ('4' row). When we look at the male sarpanch villages over the two election years, we find that the IODP is higher when the election is held in 2005 as compared to 2007 and the same is true of female sarpanch villages ('5' and '6' row). Generally speaking democratic participation improves over time for both male and female sarpanchs, but more so for female sarpanchs.

As these are just univariate comparisons, we need to examine whether these results hold up in a multivariate context where we control for additional drivers of service delivery and democratic participation. To this we now turn.

#### *iv. Determinants of IOSA*

In this section, we examine whether the gender of sarpanch has a significant effect even after controlling for other likely drivers of service availability such as education, age, assets, and caste. This analysis is done at the level of the individual respondent so that we can control for individual characteristics as well. To do this, we estimate the following regression model:

$$\begin{aligned} & \text{IOSA}_i \\ &= \beta_0 + \beta_1 \text{IODP} + \beta_2 \text{Gen} + \beta_3 \text{Cast} + \beta_4 \text{Edu} + \beta_5 \text{Land} + \beta_6 \text{Asset} + \beta_7 \text{Age} + \beta_8 \text{Popul} \\ & \quad + \beta_9 \text{Elecyr} + \beta_{10} \text{BPL} + u_i \end{aligned}$$

Where

$i = 1$  to 640.

IOSA: Index of the Index of Availability of Services .

IODP: Index of Democratic Participation .

Gen: Gender of the sarpanch for that respondent; it is a dummy variable and it can be either female 1 or male 0.

Cast: Caste of the respondent, SC+ST respondents is 1 and the rest are 0.

Edu: Education Level of the Respondent.

Land: Ownership of land, if it is yes then 1, otherwise 0.

Asset: The ownership of assets by the respondent.

Age: The age of the respondent.

Popul: The population of the village to which the respondent belongs

Elecyr: Election year in the village, if it is 2005 then 1; if it is 2007 then 0

BPL: whether the household has a BPL (below poverty line) card.

In order to test whether the impact of a female sarpanch differs by election cycle and by the level of democratic participation, we also interact the election year dummy and the index of democratic participation with the gender dummy in some specifications.

Since an important element of the impact of a female sarpanch is changed levels of democratic participation, we also specify a regression model studying the determinants of our index of democratic participation (IODP)<sup>5</sup>.

$$\text{IODP} = \beta_0 + \beta_1 \text{Gen} + \beta_2 \text{Cast} + \beta_3 \text{Edu} + \beta_4 \text{Land} + \beta_5 \text{Asset} + \beta_6 \text{Age} + \beta_7 \text{Popul} + \beta_8 \text{Elecyr} \\ + \beta_9 \text{BPL} + u_t$$

Also here we interact the gender of the sarpanch with the election-year dummy to see whether the effects change over time.

The regression results are shown in Table 6. Before commenting on the effects of interest, a brief word on the effects of the control variables. The three variables that have a robust significant effect are population, caste and poverty status. *Ceteris paribus*, people living in larger communities report better service availability. Also, people from SC or ST as well as people below the poverty line also report better service availability. Whether this is due to some form of perception bias or relates to the fact that they are often the prime beneficiaries of these public services is difficult to tell. Respondents reporting higher democratic participation find service availability to be significantly better. This could be due to the effects of their democratic participation on actual service delivery outcomes; it might also be related to the fact that participation generates greater ‘ownership’ of services which leads to a more positive view towards them. All the other control variables do not have a significant effect. Turning to our main variables of interest, the first regression finds that the gender of the sarpanch has no significant impact on service availability. Given the descriptive statistics above, this is not too surprising. At the same time, when we interact gender with the election cycle in regression 2, we find that a female sarpanch elected in 2005 has a significant positive impact of service availability, while those being elected in 2007 reduced service availability (see negative coefficient on Gen). This is consistent with our view that women need to build up experience to ensure greater service availability for women but then are able to improve it significantly. Regression 3 shows, interestingly, that a female sarpanch has a larger and more significant impact on service availability when democratic participation is high. Thus women are particularly seen as effective when respondents are politically active which is a very positive signal.

This leads us then to also study the drivers of democratic participation by women in the last two regressions. The covariates confirm much we would expect. Better educated and wealthier people participate more, members of SC and ST less, and, somewhat more surprisingly, those below the poverty line also participate more. When examining the gender of the sarpanch, a female sarpanch has a sizable positive impact on democratic participation.

As shown in the last regression, this is particularly the case if they were elected in 2005. Then the effect is much larger and more positive.

Summarizing these regression results, we find that the gender of the sarpanch matters greatly for service delivery and democratic participation. But these effects only materialize after some time as shown in our election-year interactions. Particularly interesting is the linkage between the gender of the sarpanch, democratic participation and service availability. Female leaders ensure that, over time, democratic participation by women improves. This increases service delivery directly and, in addition, increases the impact of democratic participation on service delivery in those villages headed by a female.

## **V. Conclusions**

Banerjee and Dulfo (2011) sum it well when they state that ‘..... studies elsewhere in India have made it clear that women leaders almost always make a difference’ (pg 250, also see Dulfo and Topalova (2004), Bardhan, Mookherjee and Torrado (2005) ). The need now is to examine the channels through which reservation policy operates and the strengths and the weaknesses of the ‘difference’ that occurs. Lindberg, Athreya, Vidyasagar, Djurfelt, Rajgopal, (2011) using sociological methodology find that “...the reservation for women in local politics has not only changed the conditions for local collective actions but has led to several potentially positive advances for women as well as for the local political system and administration’ (pg. 119).

For our sample, we found that the male sarpanchs had somewhat better economic, social and educational status and better political connections as compared to the female sarpanchs. In spite of this, female sarpanchs seem to have had interesting and important impacts.

This paper uses the methodology of asking the intended women beneficiaries from the villages about the availability of basic, public services to them and tries to see if the availability is affected by the gender of the sarpanch. Collecting data from 32 villages from Sangli, Maharashtra, India, and applying a univariate and multivariate framework, we find that gender of the sarpanch is not a significant causal factor in explaining the availability of public services on average. But we find that the availability of basic services is significantly higher in female sarpanch villages as compared to the male sarpanch villages, if the election has been held 3 to three and a half years before the survey. This result is not obtained when the elections have been held one year back. This implies that over time, female sarpanchs become effective than the male sarpanchs.

Equally importantly, we find that the political participation of the women is a significant causal factor in explaining the services availability. Additionally, political participation of women is higher in female sarpanch villages as compared to male sarpanch villages, for elections held one year back and 3 and a half years back both; and such higher participation, combined with a female leader, further increases service availability. Thus, having a female sarpanch affects the political participation of women in a village positively; and it is likely to

be through this channel that the availability of services improves over a period of 3 to three and a half years. The policy implication that comes out of this is that mandated reservation for female sarpanchs would work better if the time period is increased from 5 years to (say) 10 years. Thus instead of increasing the reservation for women to 50 per cent as has been done, or in addition to it, it may be a good step if the time period of reservation is increased.

## **Appendix A**

### **Questions asked for IOSA**

1. What is the source of your drinking water ?
2. Level of satisfaction with the quality and quantity of water ?
3. What kind of toilets do you use ?
4. What was the source of funding for the toilets? (Zero in case of open air toilet)
5. What kind of gutters do you have in the vicinity of your house?
6. Level of satisfaction with respect to the teaching of the school teachers (asked separately for Primary school and High school )
7. Is there a ration shop in your village?
8. Is your ration card in your possession?
9. How often do you use the card?
10. What is the frequency in availability of commodities which you need?
11. What is the level of satisfaction with the quality of commodities?
12. What is the level of satisfaction with the quantity of commodities?
13. Do you have Self Help Groups (Mahila Bachat Gat) in your village
14. Has male alcoholism decreased in your village in last three years?
15. How satisfied are you with the 'Nirmal Gram Yojana' (i.e. the program for 'drinking water and sanitation' in your village?
16. Has the implementation of ' Nirmal Gram Yojana' improved in last 3 years?
17. How satisfied are you with the 'Janani Suraksha Yojana' (program for 'maternal health') in your village?
18. Has the implementation of ' Janani Suraksha Yojana ' improved in last 3 years ?

19. What is your level of satisfaction with respect to Child care schemes?
20. What is your level of satisfaction with respect to Credit schemes?

## **Appendix B**

### **Questions asked for IOSA**

1. Did you vote in the last GP elections?
2. Does Gram sabha meet once in two months regularly
3. Do you attend the gram sabha meetings?
4. Do you know that 10 percent out of the gram panchayat's own funds are earmarked for women?
5. In your estimation how well is the panchayat working?
6. Do you know the name of your gram sevak?
7. How many times have you met him?
8. How confident do you feel about raising complaints and bringing new ideas in front of your Sarpanch?
9. How actively are you engaged in political or social village activities?
10. About 3 years ago: Were you less politically/socially active at the time compared to today?
11. How many of the democratic rights are fulfilled in your village?
12. Do you think you are aware of your rights in a democracy?
13. How satisfied are you with your personal situation?
14. Do you think your personal situation has improved over the last 3 years?
15. Do you know there are specific schemes for women?
16. Can you name them ?
17. How satisfied are you with the degree of unity amongst women in your village?
18. Has the degree of unity amongst women improved in the last three years?

### Appendix C

We have coded all the answers in the range of 0 to 1. The worst scenario gets the code '0' and the best gets '1'. All intermediate answers fall in between 0 and 1 on the basis on their 'best-ness'.

For example for the following question –

What kind of gutters do you have in the vicinity of your house?

Answer	Closed	Open	No gutters
Code	1	0.5	0

### Appendix D

**Table 1: Descriptive Statistics (mean) on characteristics of the villages**

Variable	Female Sarpanch Village	Male Sarpanch Village
Village Population	4723 (3186)	3660 (2682)
Literacy Rate	59.9 (17.37)	61.3 (21.66)
Share of agriculture land under Irrigation system	60.3 (25.13)	56.3 (33.85)
Distance from nearest town (km)	14 (12.3)	17.5 (11.3)
Distance from Sangli (km)	51 (34.3)	57 (34.4)
Sample size	30	30

*Note : Figures in brackets indicate SD*

**Table 2: Descriptive Statistics (mean) on sarpanch characteristics**

	Variable	Female sarpanch	Male sarpanch
1	Age (in years)	36.06 (7.57)	40.38 (7.72)
2	Marital status(1=married;0=no)	1.00 (0.00)	0.94 (0.24)
3	Years of education	8.0 (4.1)	11.3 (3.0)
4	Caste ((1=SC & ST; 0=others)	0.38 (0.48)	0.00 (0.00)
5	Ownership of land by the respondent's family(1=yes;0=no)	0.75 (0.43)	0.94 (0.24)
6	For yes, average land holding (acres)	2.68 (1.89)	4.5 (0.70)
7	Asset holdings inclusive of type of house (Max. score 12)	6.75(2.86)	8.62(2.24)
8	Average years of being sarpanch	2 (1)	2 (1.3)
9	First time position of sarpanch(1=yes;0=no)	1.00 (0.00)	0.94 (0.24)
10	Member of Political Family (1=yes;0=no)	0.19 (0.39)	0.31 (0.46)
11	Family members have been part of panchayat(1=yes;0=no)	0.31 (0.58)	0.44 (0.50)
12	Have held political position before being sarpanch(1=yes;0=no)	0.19 (0.40)	0.56 (0.512)
13	Self ranking of performance (1=high; 0=others)	0.625(0.25)	0.625(0.25)
14	Experience bias against oneself from other panchayat members(1=yes;0=no)	0.50(0.516)	NA
15	Experience bias against oneself from the gram sevak(1=yes;0=no)	0.31(0.478)	NA
16	Get high support from the villagers(1=yes;0=no)	0.31(0.478)	NA
17	Get support from family members (1=high; others=0)	0.687(0.47)	NA
18	Participation of men in gram sabha (1=high;0=others)	0.25(0.44)	0.187(0.40)
19	Participation of women in gram sabha (1=moderately high;0=others)	0.25(0.44)	0.125(0.34)
20	Filing of complaint by men in last six months(1=yes;0=no)	0.75 (0.44)	0.38 (0.51)
21	Filing of complaint by women in last six months(1=yes;0=no)	0.62(0.5)	0.44(0.51)
22	Women sarpanchs are as good as male sarpanchs (1=yes; 0=others)	N.A.	0.375(0.5)



23	Gender of preceding sarpanch was female(1=yes;0=no)	0.25 (0.43)	0.19 (0.39)
24	Sample size	30	30

*Note : Figures in brackets indicate SD*

**Table 3: Descriptive Statistics (mean) on women respondents characteristics**

Variable	Female sarpanch village	Male sarpanch village
Age (in years)	39.68 (12.63)	40.74 (12.95)
Marital status(1=married;0=no)	0.84 (0.36)	0.82 (0.39)
Years of education	5.0 (4.1)	4.7 (4.1)
Caste (1=SC & ST; 0=others)	0.48 (0.50)	0.46 (0.50)
Household size ( no of members)	4.96 (2.20)	4.68 (2.11)
Ownership of land by the respondent's family(1=yes;0=no)	0.60 (0.49)	0.54 (0.50)
For yes, average land holding (acres)	2.31 (2.28)	2.79 (3.15)
Respondent's relationship with the head of the family	Wife-82% Mother-8%	Wife-80% Mother-12%
Sample size	30	30

*Note : Figures in brackets indicate SD*

**TABLE 4: Comparison of IOSA**

Sr No	IOSA	Mean		Significance
		S D	N	
	<b>By Gender</b>	<b>F</b>	<b>M</b>	
1.	Male-Female Sarpanch Villages (all 32 villages, 640 respondents)	46.70 13.05 320	46.78 11.46 320	Not significant
2.	Male-Female Sarpanch Villages for election year 2005(for 22 villages,440 respondents)	49.46 12.86 220	46.73 12.0 220	Significant
3.	4.c.2 Male-Female Sarpanch Villages for election year 2007(for 10 villages,200 respondents)	40.64 11.36 100	46.89 10.24 100	Significant
	<b>By Election Year</b>	<b>2005</b>	<b>2007</b>	
4.	Election year (all 32 villages,640 respondents)	48.09 12.49 440	43.76 11.23 200	Significant
5	Male sarpanch villages (No. of villages and	46.73 12.0	46.89 10.24	Not significant

	respondents different)	220	100	
6	Female sarpanch Villages(No. of villages and respondents different)	49.46 12.86 220	40.64 11.36 100	Significant

*Note: At 5% level of significance.*

**TABLE 5: Comparison of IODP**

Sr. No	IODP	Mean		Significance
		SD	N	
	<b>By Gender</b>	<b>F</b>	<b>M</b>	
1.	Male-Female Sarpanch Villages (all 32 villages, 640 respondents)	39.81 17.12 220	36.78 15.90 320	Significant
2.	Male-Female Sarpanch Villages for election year 2005(for 22 villages,440 respondents)	45.64 16.23 220	39.54 16.57 220	Significant
3.	Male-Female Sarpanch Villages for election year 2007(for 10 villages,200 respondents)	26.99 10.97 100	30.72 12.37 100	Significant
	<b>By Election Year</b>	<b>2005</b>	<b>2007</b>	
4.	Election year (all 32 villages,640 respondents)	42.64 16.65	28.86 11.81	Significant

		440	200	
5.	Male sarpanch villages (No. of villages and respondents different)	39.54 16.57 220	30.7 12.3 100	Significant
6.	Female sarpanch Villages(No. of villages and respondents different)	45.64 16.23 220	26.99 10.97 100	Significant

Note: At 5% level of significance.

**Table 6: Determinants of IOSA and IODP**

	IOSA	IOSA	IOSA	IODP	IODP
IODP	0.202***	0.180***	0.092**		
Gen	-0.478	-4.525***	-9.389***	2.601***	-5.330***
SCST	2.315**	2.303**	2.109**	-1.975**	-1.912**
Edu	0.323	0.320	0.370	1.258***	1.197***
Land	0.529	1.067	1.282	3.152***	4.056***
Assets	0.247	0.314*	0.298*	1.113***	1.196***
Age	0.032	0.040	0.039	-0.003	0.013
Population	0.001***	0.001***	0.001***	0.0004***	0.0003***
Elect05	0.441	-2.275**	-1.642	10.885***	5.169***
BPL	2.783***	2.991***	3.287***	1.678*	2.008**
Gen*Elect05		5.903***	3.314*		11.406***
Gen*IODP			0.190***		
Constant	31.127***	33.014***	35.229***	15.797***	18.762***
Adj. R2	0.192	0.202	0.212	0.305	0.334

Note: \* refers to 90%, \*\* 95% and \*\*\*99% significance (one-tailed test).

Notes : 1. On 14 April 2011 the Maharashtra State Assembly increased the reservation for women in the gram panchayats to 50 per cent.

2. One important service that we have not included is that of 'Health Services'. We did not include the health services in the index because the sarpanch does not have much impact on provisioning these. As per the norms of the Health Dept., one Primary Health Centre is expected to service 30,000

population and a sub-centre is expected to service 5,000 population. It is generally believed that the sarpanch cannot influence location and quality of these services, so we have not included them.

3. This is somewhat surprising as it is alleged that many female sarpanchs are mere tokens for their husbands/family members. But there is evidence against tokenism, too (Ban and Rao,2008).

4. This is particularly important for Maharashtra as the sex ratio is one of the worst in India in this state.

5. We also tried other interactions and limited the analysis to those elected in 2005. The results confirm the results shown here; other interactions were not significant. Results are available on request.

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