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The Effects of Political Reservations for Women on Local Governance and Rural Service Provision

Survey Evidence from Karnataka

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ABSTRACT

In 1993, India introduced quota-based political reservations for women in rural areas with the objective to promote gender equality in human development by making rural service provision and local governance inclusive and responsive to the needs of women. Recent evidence shows that reservation policies for women (1) stimulate the political participation of women in rural areas, (2) shift rural service provision to public goods that reflect gender preferences, and (3) improve the access to and the quality of public services. Despite the suggested positive effects of women's reservation policies on service provision and local governance, the gender bias in human development is still pronounced. This casts doubt on the effectiveness of reservation policies as an instrument for making rural service provision and local governance more gender equitable and raises questions about the nature and direction of the major constraints.

This paper aims to qualify and quantify the role of political reservation policies for women as a determinant of rural service provision and local governance and seeks to identify the social, economic, and institutional factors that constrain effective local governance and rural service provision beyond the women's reservation effect. Our empirical sample consists of 80 Gram Panchayats (GP) and 966 households in 12 districts in Karnataka in 2006. In contrast to the main existing literature, the empirical evidence from (non-)linear probability models lends weak support to the existence of gender effects of reservation policies on local governance and rural service provision. The local governance and service delivery outcomes are predominantly determined by social, economic, and institutional factors that are unrelated to women's reservation requirements. For example, (1) individual characteristics such as literacy, household institutional and political linkages, or the household location in the GP and (2) GP-specific factors such as the degree of community involvement in service provision and the fiscal devolution of activities are more likely to have a significant effect on service provision and governance than reservation policies for women.

These results suggest that women's reservation policies per se are insufficient means for making rural service provision and local governance more inclusive and gender equitable. In addition, it appears that gender-integrated policy approaches that are targeted at both women and men are needed.

Keywords: gender, decentralization, local governance, rural service provision, affirmative action

1. INTRODUCTION

One of the key Millennium Development Goals (MDGs) is the elimination of differences in the extent to which women can participate in social, legal, political, institutional, and economic development processes; are integrated into land, labor, product, and financial markets; and access livelihood-improving services (e.g., World Bank 2003, 2006). The achievement of gender equality is not only instrumental to improving the livelihood and human development of women, but is also considered to be critical to attaining all the other MDGs on poverty, education, environment, health, and nutrition (cf. World Bank 2003).

Despite the central role of gender equality for development, gender inequality is pervasive in most parts of the world — although to a different extent. One country with a high and persistent degree of gender inequality is India. Using gender-specific information about the life expectancy at birth; adult literacy; enrollment at primary, secondary, and tertiary schools; and earned income, the Gender Development Index of the United Nations Development Program equals 0.545 in 1998 and 0.591 in 2004, which puts India at positions 108 and 96 in a worldwide comparison of 136 and 143 countries in 1998 and 2004, respectively. Within India, the degree of gender inequality is more pronounced in the northern states than in the southern states (cf. Filmer, King, and Pritchet 1998; Government of India [GoI] 2002). The between-state disparities do not exclusively depend on economic conditions, but are conditioned by a complex set of interacting factors. These include the extent to which the political and institutional system (1) recognizes the need for gender mainstreaming, (2) supports the interests of women in the policy decision-making process, and (3) installs and operates (informal) support and enforcement mechanisms for gender mainstreaming (cf. Filmer, King, and Pritchet 1998).

Gender inequality is a perpetual and vested problem in India. In order to strengthen the position of women, India's Constitution mandates gender equality, and the five-year plans of the planning commission support this mandate by defining actions and programs of positive discrimination in favor of women. The first seven five-year plans (1951–1989) address gender concerns by means of welfare and development programs — with modest success. The eighth five-year plan (1992–1997) advocates a shift from women's welfare and development to women's empowerment. In rural India, this paradigm shift received major support from the 73rd Constitutional Amendment in 1993. One major objective of the constitutional change is the creation of a system of accountable, transparent, and participatory local governance that responds to the preferences and needs of local citizens and improves the quality of and access to basic services, infrastructure, and legal and regulatory structures in rural areas.[1] To this end, the 73rd Constitutional Amendment mandates the decentralization of the political, administrative, and fiscal system from the central government to local governments.

Decentralization and the associated functional, financial, and administrative autonomy of individual government tiers might be an important strategy for increasing the effectiveness and efficiency of service provision and local governance. However, decentralization is not an a priori mechanism for gender-equitable and inclusive service delivery and governance outcomes, especially if local governments are subservient to elites and women are politically underrepresented (cf. Rajaraman 2000; Bardhan and Mookherjee 2006a, 2006b). In order to improve the responsiveness of local governments to the needs of women, the 73rd Constitutional Amendment reserves one-third of all seats and one-third of all leadership positions in Panchayati Raj Institutions for women.[2]

The mandatory reservation of seats for women had substantial repercussions on local governance and rural service provision. Studies for West Bengal, Rajasthan, Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu show that the women's reservation policy (1) shifts rural service provision to public goods

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[1] The 74th Constitutional Amendment pursues similar objectives in urban areas.

[2] The 73rd Constitutional Amendment also mandates the reservation of seats for marginalized groups such as scheduled castes and scheduled tribes according to the population share. The exact dimension of political representation is discretely determined by India's states and manifest in the states' legislatures.

that reflect women's preferences (Chattopadhyay and Duflo 2004; Beaman et al. 2006) and (2) stimulates the attendance and/or participation of women in Gram Sabha (village assembly) meetings (Chattopadhyay and Duflo 2004).[3] However, these findings have remained contested in the policy debate, especially in light of the persistent and pronounced gender bias in human development and human well-being, that is, longevity, education, and the command over resources (GoI 2002; Government of Karnataka [GoK] 2005; Besley, Pande, and Rao 2005a; Jayal 2006; Ban and Rao 2008b).

This paper aims to shed new light on the role of reservation policies for women as a determinant of rural service provision and local governance by identifying the social, economic, and institutional factors that constrain effective local governance and rural service provision beyond the women's reservation effect. The paper is motivated by the view that gender disparities in human development are driven by a multitude of factors and that a portfolio of strategies is needed to promote gender-equitable outcomes in rural service provision. Understanding the channels through which local governance, rural service provision, and ultimately human development can be strengthened and enhanced helps to define policy options that can complement the effects associated with the reservation of seats for women. The analysis will be carried out for the lowest tier of local government — the Gram Panchayat (GP) — using GP and household survey data for Karnataka.

The remainder of this paper is structured as follows. Section 2 reviews the existing literature on the effects of political reservation policies for women on service delivery and local governance. Section 3 summarizes the institutional setup of the Panchayati Raj system and describes the political reservation system in Karnataka. Section 4 describes the survey sampling procedure. Section 5 analyzes the GP and household survey data. Section 6 presents the empirical probability models that will be estimated to identify the determinants of political selection, rural service quality, and local governance. Section 7 documents the respective empirical results. Section 8 concludes.

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[3] Gram Sabha meetings are institutional platforms for the political participation of citizens. Sections 3 and 5.4 provide details on the functioning and responsibilities of the Gram Sabha.

2. LITERATURE REVIEW

This section reviews the existing literature on the effects of political reservation policies for women. The review emphasizes the results on the determinants of political selection and discusses the effects of reservation on local governance and rural service provision. The section concludes by summarizing the limitations of the existing studies.

2.1. Political Selection

Most studies on the effects of reservation policies depart by identifying the variables that affect the selection of politicians. The respective evidence shows that political selection depends on the socioeconomic and political characteristics of individuals and on the political reservation and human development status of villages. In a widely cited study for Gram Panchayats (GPs) in West Bengal and Rajasthan, Chattopadhyay and Duflo
(2004) document significant differences between the social and economic development of female presidents in reserved GPs and presidents in unreserved GPs. Female presidents in reserved GPs are less likely to be literate, less educated, less politically knowledgeable, younger, and poorer than presidents in unreserved GPs. Female reserved GP presidents appear to be socially and economically disadvantaged, and Chattopadhyay and Duflo (2004) hypothesize that they are likely to be subservient to local elites. Furthermore, the evidence suggests that female GP presidents are more likely to be responsible for less populous villages, which raises questions as to the exogeneity and randomization of the reservation process.
Rajasthan and West Bengal are special cases given the pronounced degree of within-state heterogeneity and the large gender differentials and associated gender inequalities in human development. In order to determine whether the evidence in Chattopadhyay and Duflo (2004) also holds for states other than Rajasthan and West Bengal, Besley, Pande, and Rao (2005b) investigate the factors behind the political selection of women (and marginalized groups) in 259 villages in Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu in 2002. The evidence suggests that the level of education, landholdings, and the political past of the politician explain the political selection: Local politicians tend to be better educated, have larger landholdings, and belong to families with a political history. Lending some support to the results of Chattopadhyay and Duflo (2004), these factors are less important determinants of political selection in villages that are reserved for women (or other marginalized groups). The selection of politicians is also influenced by village characteristics such as the presence of a dominant caste or village literacy. Villages with a dominant caste or with a higher literacy rate are characterized by elected politicians who own more land or are better educated.
Using the same data set as Besley, Pande, and Rao (2005b), Ban and Rao (2008b) show that reservation policies for women do not lead to an unbiased election of female GP presidents. Reserved female presidents are significantly less educated, less knowledgeable and politically experienced, and younger than unreserved presidents. However, they tend to be more politically knowledgeable, wealthier, and older than the average woman in the population. No differences exist in terms of the level of education of reserved women and the average village woman. Because these results also prevail in a comparison of the female president and the general population, Ban and Rao (2008b) conclude that female presidents are not mere tokens.

2.2. Local Governance

In addition to political selection, the empirical literature approximates the effect of reservation on local governance by determining the effect of women's reservation policies on the attendance and/or participation rate of local (female) citizens in local government (village) councils.[4] This section reviews

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[4] See Banerjee and Somanathan (2001) for a theoretical model that links participation in organizations to the ability of

the respective existing evidence. Mainly for completeness, the review emphasizes the evidence from women as well as from scheduled castes (SCs) and scheduled tribes (STs).

Regardless of the focal point, the empirical findings are difficult to interpret because most studies make interchangeable use of the terms *attendance* and *participation*. Although both terms are related, *participation* goes beyond *attendance* by referring not only to the appearance of individuals at meetings, but also to their active and direct involvement in debates, discussions, or elections. One study that confounds attendance and participation is that of Ghatak and Ghatak (2002). In their study of West Bengal, they assess the role of village constituency (gram sansad) meetings for improving the attendance of disadvantaged (gender- and caste-specific) groups in local governance for a cross-section of 20 villages in 1999. The descriptive evidence is disappointing. For the sample of 20 village constituency (Gram Sansad) meetings, only 12 percent of all eligible voters attended the village meetings. Consistent with expectations, the attendance rates of women and backward (SCs/STs) groups are below their share of eligible voters in these constituencies. Stated differently, the village constituency meetings are dominated by men and non-SC and non-ST groups and thus fail to be an effective mechanism for inclusive local governance. The caste and gender bias in the attendance rates of village constituency meetings is attributed to the ineffectiveness of voice and the corresponding feeling of not being heard.

Chattopadhyay and Duflo (2004) also explain the Gram Sabha attendance rate, using information on West Bengal and Rajasthan. In contrast to the study of Ghatak and Ghatak (2002), Chattopadhyay and Duflo (2004) do not rely on descriptive statistics, but report the results from cross-section specifications that control for clustering at the GP level. The respective evidence shows that the reservation of presidential seats for women has a positive effect on the attendance rate of female citizens in Gram Sabha meetings in West Bengal, but not in Rajasthan. Inasmuch as Chattopadhyay and Duflo (2004) and Ghatak and Ghatak (2002) employ data from the same election term for West Bengal, the differences in results may reflect the study-specific choice of the estimation approach.

Beaman et al. (2006) extend the sample of Chattopadhyay and Duflo (2004) to 11 Indian states.[5] The respective evidence does not lend support to the hypothesis that women's reservation policies increase the attendance rate of women in village council meetings. However, it appears that villages reserved for female GP presidents document larger participation rates of female constituents, especially during the general assembly meetings. Jayal (2006) provides counterevidence. In a theoretical and empirical study for India, she shows that women face institutional and social constraints that preclude the effective participation of women in Panchayati Raj Institutions. Stated differently, women who attend meetings might be unable to articulate their interests and to translate these into locally relevant policy outcomes.

Besley, Pande, Rao (2005a) refer to community attendance when identifying the determinants of Gram Sabha attendance for a set of four states in South India. The respective study emphasizes the Gram Sabha attendance of households rather than of women. The probability of household respondents to attend Gram Sabha meetings does not depend on the reservation status of the GP president, but on the ratio of landless households and on socioeconomic characteristics like gender, caste, literacy, wealth, and landownership. The evidence suggests that female, illiterate, and wealthy constituents are less likely to attend Gram Sabha meetings, but marginalized groups like SCs, STs, and landless households are more likely to attend these meetings. The attendance rate of the landless is positively influenced by the respective intrinsic policy benefits, such as the access to social benefit programs. In addition, Besley, Pande, Rao (2005a) show that the reservation of seats for women does not influence the occurrence of Gram Sabha meetings. Village differences are attributable to dissimilarities in population and literacy, with more populous villages and villages with a higher literacy rate being more likely to hold Gram Sabha meetings.

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constituents to express their opinion and to raise their voice. Voice is modeled as instrument that allows members of an organization to influence the decision of the organization's leader.

[5] The sampled states are Andhra Pradesh, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

Closely related to Besley, Pande, Rao (2005a), Ban and Rao (2008b) also refer to attendance when determining the effect of reservation for women on the Gram Sabha attendance rate of women. They take the analysis in Besley, Pande, and Rao (2005a) one step further in that they do not compare the Gram Sabha attendance of households in reserved and unreserved GPs, but the attendance of women. The respective evidence suggests that women's reservation policies do not have a significant effect on the Gram Sabha attendance rate of women. The evidence in Besley, Pande, Rao (2005a) and Ban and Rao (2008b) does not confirm the results in Chattopadhyay and Duflo (2004) and Ghatak and Ghatak (2002). Two possible factors may account for the discrepancy. Firstly, the evidence in Besley, Pande, Rao (2005a) and Ban and Rao (2008b) is derived for a cross-section of four states in South India, and the results may unduly give weight to state-specific factors. Secondly, Chattopadhyay and Duflo (2004) do not control for village fixed effects, although Besley, Pande, Rao (2005a) and Ban and Rao (2008b) account for the effect of unobservable village factors and their effect on the observed relationships.

Overall, the existing literature largely abstains from making a distinction between the Gram Sabha attendance rate and the participation rate of households and/or women. Although the attendance of meetings is one instrument for creating awareness, it is an insufficient instrument for improving the access of village constituents to services as participating households and/or women fail to communicate their needs. If women attend but do not actively participate in village meetings, then local governance and service delivery outcomes are more likely to reflect the interests and needs of men. This is particularly important for the allocation of untied funds for which GPs have discretionary spending powers.

2.3. Public Service Provision

Local governance goes beyond the attendance of and the participation in village council meetings. It also involves the targeting of rural development schemes and thus rural service provision to disadvantaged groups. As regards the targeting of programs, the existing work on political reservation suggests that the political reservation for a particular group shifts delivery of public goods toward that group. Duflo, Fischer, and Chattopadhyay (2005) and Besley et al. (2004) provide respective evidence from GPs with a reserved SC or ST president. Considering the evidence from GPs with a reserved female president, Bardhan, Mookherjee, and Torrado (2005) show that women's reservation policies improve the targeting of subsidized loans to poor and SC/ST households, but worsen the targeting of employment grants in West Bengal. The net effect is such that the reservation of seats for women makes it less likely that SC/ST and landless households are welfare beneficiaries.

Besley, Pande, and Rao (2005b) determine the effect of women's reservation for the targeting of below-poverty-line (BPL) cards in Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu. The results are ambiguous. Although reserved and unreserved GPs do not differ in the targeting of BPL cards to SC and ST households, GPs with reserved female presidents are more likely to target BPL cards to ineligible members of the GP. This selection bias suggests that the reservation of seats for female presidents worsens the access to anti-poverty programs. Besley, Pande, and Rao (2005b) also ask voters whether reserved and unreserved GPs differ in terms of rural service provision. Performance is measured in terms of the ability of GP presidents to look after village needs and to keep their election promises. Female and SC/ST GP presidents are perceived to perform worse on both grounds.

In addition to the targeting effect of reservation policies, the existing literature also discusses the effect of reservation policies on service quantity and quality. Chattopadhyay and Duflo (2004) show that female presidents in reserved GPs invest more in drinking-water infrastructure compared with presidents in unreserved GPs in both West Bengal and Rajasthan. The reservation effect on other public goods — including education and roads — is either insignificant or opposite in sign in West Bengal and Rajasthan. Foster and Rosenzweig (2004) note that the interpretation of the gender differences in rural service provision is complicated by the absence of information on the nature of the preferences of female and male GP presidents. The evidence in Chattopadhyay and Duflo (2004) can only be attributed to the increased ability of female presidents to define and pursue politics according to their interests if there are

gender differences in preferences. Otherwise, the effects of women's participation on rural service provision are driven by the increased representation of women in local governments.

Beaman et al. (2006)[6] extend the analysis in Chattopadhyay and Duflo (2004) to 11 Indian states and investigate the impact of female leadership on the availability and quality of and the satisfaction with public goods. They use the all-India Millennial Survey data of the Public Affairs Center to develop a composite index of quality, and employ information on the number of available facilities to construct a measure of service quantity. The degree of satisfaction with services is approximated by using household information on the reliability of service provision and the overall satisfaction with public goods provision. Beaman et al. (2006) show that female-headed reserved GPs have more public goods, especially in the area of drinking water. The quality of these goods is at least as high as in nonreserved villages. The higher quantity and quality of public goods in female-headed GPs does not come at the expense of a higher price as the incidence of bribes is lower in reserved compared with unreserved villages. Although female presidents in reserved GPs provide better services in terms of quality and quantity than their male counterparts, (male and female) villagers are still more dissatisfied with the service provision in female-headed GPs. This finding might be due to the traditionally vested bias against disadvantaged groups like women.

Finally, Ban and Rao (2008b) use information on the GP public good investment activities and compare service delivery in reserved and unreserved female-headed GPs. The results suggest that female- and male-headed GPs provide similar services in the areas of drinking-water supply, health, sanitation, roads, transport, and electricity. Significant differences in the extent of service provision only prevail for education activities: GPs reserved for female presidents pursue significantly more education activities than unreserved constituencies.

2.4. Limitations of the Existing Studies

In our view, care should be exercised when interpreting the existing evidence. As illustrated, Chattopadhyay and Duflo (2004) seek to identify the service delivery effect of reserving GP presidency for women. To this end, they compile information on public goods provision in one district in West Bengal for 2000 (Birbhum) and in one district in Rajasthan for 2002 (Udaipur). Limitations arise from the selection of the two districts and the small number of district observations, being equal to 161 GPs in West Bengal and 100 villages in Rajasthan.[7] This raises questions regarding the sensitivity of the results to outliers, and it also raises concerns regarding the extent to which the results can be (1) compared between Rajasthan and West Bengal and (2) generalized to the rest of India (also see Ban and Rao, 2008b). These concerns are even more imperative because Chattopadhyay and Duflo (2004) do not explicitly motivate the choice of West Bengal and Rajasthan or the selection of the two state-specific districts. In addition to the differences in the experience with the Panchayat electoral system, the comparability of the results for West Bengal and Rajasthan is also jeopardized by cross-state differences in the number of years that have passed since the introduction of women's reservation requirements for the office of the GP president. Rajasthan had introduced the reservation system for female presidents and the associated rotational system in 1994; however, West Bengal only began following in 1998. Since the time period between the enactment of the political reservation system for female presidents and the survey is particularly short for West Bengal, it is questionable to what extent the survey of Chattopadhyay and Duflo (2004) captures the political and budget allocation decisions of female presidents in reserved GPs and not those of their male predecessors.

This paper identifies the service delivery and local governance effects of women's political reservation policies in Karnataka. In contrast to West Bengal and Rajasthan, Karnataka has had reserved seats of GP office-bearers for women as early as 1993 (GoK 1993) and had passed as many as three

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[6] The results in Beaman et al. (2006) are similar to those presented in Duflo and Topalova (2004).

[7] Due to data constraints, Chattopadhyay and Duflo (2004) cannot assign the villages to GPs. They therefore make a distinction only between reserved and unreserved villages.

elections with reservation requirements at the time of the survey in 2006. Karnataka's comparatively long experience with the rotational reservation system increases the probability of observing gender effects of reservation that mirror gender-specific factors, rather than behavioral aspects or gender-specific preferences. The next section provides more details on Karnataka's decentralization process.

3. DECENTRALIZATION IN KARNATAKA

With the objectives to democratize and empower a representative local government, to foster local participation in rural development, and to improve the access to and the quality of services in rural areas, the 73rd Constitutional Amendment contains major provisions for the decentralization of the administrative, fiscal, and political structures in rural India. The decentralization process involves the devolution of powers to Panchayati Raj Institutions at the district (Zilla), block (Taluk), and village (Gram) levels. The creation of the three-tier government structure is compulsory for all states in India, but they have discretionary power to decide on the scope and dimension of the fiscal and administrative reforms. The 73rd Constitutional Amendment only asks states to pass their own "conformity legislation" that outlines the responsibilities, functions, and procedures of the three government tiers and defines the power of each state over Panchayati Raj Institutions.[8]

Among the Indian states, Karnataka is one of the earliest to have brought a conformity legislation that incorporates the provisions of the 73rd Constitutional Amendment Act and strengthens and streamlines decentralized governance structures and service provision by promoting major institutional, administrative, and fiscal change. The commitment to change is attributable to Karnataka's historical experience with decentralizing governance structures. Karnataka's decentralization process effectively started in 1983 with a substantial legislative change that resulted in the devolution of public service delivery responsibilities to a two-tier structure of local government (i.e., the Zilla Parishad at the district level and the Mandal Panchayat for a village cluster at the local level), mandated reservations for women and scheduled castes (SCs) and scheduled tribes (STs), and institutionalized the Gram Sabha as a local participatory institution. The objective of the underlying Karnataka Zilla Parishads, Taluk Panchayat Samitis , Mandal Panchayats, and Nyaya Panchayats Act of 1983 was to create a transparent, accountable, and participatory local governance system. The act of 1983 was subsequently replaced by the Karnataka Panchayat Raj Act in 1993, which brought the Karnataka system of decentralization in line with the three-tier local government system envisaged in the 73rd Constitutional Amendment.

Among the three tiers of local government, the Gram Panchayat (GP) is the principal mechanism for local policymaking and rural service provision. In this function, the GP pursues activities pertaining to the planning, prioritization, implementation, and monitoring of rural service delivery initiatives and development programs. In order to effectively plan and implement programs, GPs can impose and collect taxes and are free to recruit the support staff for the implementation of development activities. Program planning and prioritization are supported by the Gram Sabha (village assembly). The Gram Sabha identifies the local needs and interests, assigns responsibilities to the GP, and evaluates the performance of the GP. The respective Gram Sabha meetings are the institutional platform that allows for the political participation of citizens, decides on the distribution of public goods within the village, and monitors the quality of public goods delivery (cf. Besley et al. 2004).[9] Next to these functions, GPs also assist Taluk Panchayats in the implementation and monitoring of development activities.

The body of the GP (i.e., GP members) is directly elected by the rural village population, with each village ward electing one member to the council. The head of the GP council is the GP president, who is nominated and elected from the pool of elected ward members. In order to promote the political participation of traditionally excluded groups and to safeguard their interests, the 1993 Karnataka Panchayati Raj Act reserves GP member and GP president positions for SCs, STs, other backward classes, and women.[10] The number of seats reserved for women equals one-third of all GP member and

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[8] See Johnson (2003) for an overview of the powers of states over Panchayati Raj Institutions.

[9] Besley, Pande, and Rao (2005b) and Ban and Rao (2008a) provide empirical evidence on the agenda items of Gram Sabha meetings in Karnataka. Besley, Pande, and Rao (2005b) find that beneficiary selection is discussed in only 22 percent of Gram Sabha meetings. In addition, only 9 percent of the sampled politicians stated that the Gram Sabha decided final inclusions or exclusions from the BPL list, while as many as 87 politicians believed that this power lay with a Panchayat official.

[10] The 73rd Constitutional Amendment introduces reservation requirements for the SCs and STs only. In Karnataka, the reservation status also applies to other backward classes (intermediate castes).

one-third of all GP president seats, but the number of reserved seats for SCs and STs depends on the groups' population share. The reservation status of GPs within one block rotates between election terms to avoid local elite capture and to ensure the downward accountability of the GPs (cf. Besley, Pande, and Rao 2005b; Ban and Rao 2008b; GoK 2007).

Fiscal decentralization is at the core of the 11th Schedule of the 73rd Constitutional Amendment, which mandates the decentralization of 29 functions in the fields of livelihoods, infrastructure, education and health, anti-poverty measures, and social welfare from the State to Panchayati Raj Institutions. The objective is to improve the efficient use of resources and the effectiveness of rural service delivery. The extent to which the 11th Schedule has operational significance depends on the State because it authorizes the degree of devolution of functions, functionaries, and funds. Karnataka is generally thought to be more advanced than other Indian states in implementing the principles of fiscal decentralization for two interrelated reasons. Firstly, Karnataka has devolved functions with regard to all 29 subjects listed under the 11th Schedule of the Constitution.[11] Secondly, Karnataka coordinates the different development activities and their administration across the three tiers of local government by means of activity mapping. Activity mapping hereby involves the unbundling of each of the functions devolved into a number of subactivities down to a level of disaggregation that is consistent with the effective, transparent, and accountable devolution of functions to Panchayats. Each of the subactivities is then implemented at the level of local government, where the responsiveness to need-based changes in demand and the degree of efficiency, public transparency, and accountability is likely to be most pronounced.

Activity mapping is seen as an instrument to achieve scale economies and to increase the efficiency of resource utilization. As such, activity mapping influences the services that different government tiers can provide. Services with low spillover or equity effects and services with significant location-specific components should be provided by GPs in order to be more responsive to need-based changes in demand. GPs should also be responsible for providing services that are transaction intensive (e.g., road construction and streetlights) and easily assessable (e.g., public toilets, roads and bridges) in order to guarantee the public transparency of service provision (cf. GoI 2006). Karnataka has formally completed the process of activity mapping for all 29 functional areas in 2003 and devolved the funds in 2004 (GoI 2006).

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[11] Assam, Chhattisgarh, Rajasthan, Tamil Nadu, Tripura, and West Bengal are other states that have transferred subjects through legislation. However, these states by and large have not completed activity mapping for all 29 subject areas (see GoI 2006).

4. SAMPLING STRATEGY AND DATA COLLECTION

Against the background of these policies and developments, the International Food Policy Research Institute and the Institute for Social and Economic Change conducted a survey at the village, GP, and household levels in 2006 to identify the factors that determine the effectiveness of local governance structures and the quality of rural service provision in Karnataka. The respective samples were selected from 12 districts of Karnataka's four administrative divisions. The districts were randomly drawn, with each division being the source of 3 districts. The 12 districts consist of 85 Taluks (blocks). Using the Comprehensive Composite Development Index (CCDI) as defined by the Government of Karnataka's High Power Committee for the Redressal of Regional Imbalances in 2000, the Taluks were categorized to belong to one of five socioeconomic development strata: backward, more backward, most backward, relatively less developed, or relatively more developed.[12] From every development category, we randomly sampled GPs according to the population in the respective development category. The final GP sample consists of 80 units: 3 GPs from backward Taluks, 18 GPs from more backward Taluks, 14 GPs from most backward Taluks, 11 from relatively less developed Taluks, and 14 from relatively more developed Taluks. From every GP, up to 3 villages were randomly chosen, resulting in a total sample of 225 villages. Within every sampled GP and from the sample of the 225 villages, we randomly selected a village and conducted interviews with a random draw of approximately 5 percent of the total number of households in that village. This resulted in a final sample of 966 households, which also contains a random selection of households from each social (caste) group in proportion to the size of the group in the entire village population. Next to the identification of the household members, we draw a sample of GP members. The sample is composed of members from selected villages of every GP. For every chosen village, the GP member sample contains information on one GP president/vice president, one scheduled caste/scheduled tribe (SC/ST) member, and one woman member. The total GP member sample size is 272.

At the village level, one survey module was administered that collects the response of village focus groups on questions about the socioeconomic village characteristics, village facilities, and the availability and the accessibility of rural services. In addition to the village-level data, household interviews were conducted that collect information on the socioeconomic status of households, household structure, political and institutional memberships, the use of and satisfaction with public services, the access to public benefit schemes, and the attendance of and satisfaction with Gram Sabha meetings. The household questionnaire compiles responses of male and female respondents; therefore, it provides insights into gender differences in the satisfaction with rural services. A third survey module compiles information on the socioeconomic characteristics of 272 GP members, their political and institutional history, and their views on the availability and quality of public services. Finally, GP presidents or vice presidents answered questions on GP activities, finances, budget allocation decisions, institutions, and processes. The GP survey data are supplemented with 2001 Census data on GP population, GP caste dominance, or GP literacy, among others.

In order to explore the gender effects of reservation policies on rural service provision and local governance, the present study employs the information from all survey modules except the village-level survey. We do not employ the information on village facilities because missing values for the years of the present GP election term preclude assessments regarding the service delivery and local governance effect of reserving seats for women in village councils.

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[12] The Comprehensive Composite Development Index (CCDI) is a composite of 35 indicators, which qualify Taluks in Karnataka as being backward, more backward, most backward, or relatively developed in 1998–1999. The indicator variables encompass agriculture, industry, social and economic infrastructure, and population characteristics (cf. GoK 2005). In the present sample, the Taluks are further classified as relatively less developed and relatively more developed. The respective threshold level beyond which Taluks are relatively less or more developed is the median developed Taluk.

5. GRAM PANCHAYATS AND HOUSEHOLDS: AN OVERVIEW

This section analyzes the Gram Panchayat (GP) and household data in terms of (1) the individual characteristics of female and male GP presidents (Section 5.1) and female and male household respondents (Section 5.2); (2) the extent of fiscal, administrative, and political decentralization in female- and male-headed GPs (Sections 5.3 and 5.4); and (3) the quality of rural service provision and local governance as perceived by GP members and household respondents in female- and male-headed GPs (Section 5.5). In order to gain first insights into the service delivery and local governance effects of reserving village council seats for women, the subsequent descriptive statistics are mainly prepared for the sample of (1) reserved female-headed GPs and (2) GPs with male presidents who are elected either in free competition (unreserved) or on the basis of caste reservation policies (reserved). The latter sample is subsequently abbreviated as "(un-)reserved".[13]

The analysis of the GP data is subject to one caveat. Throughout this paper, we assume that the de jure power of governing GPs rests with the GP president. In reality, this assumption is likely to be violated. Especially in GPs with weak or inexperienced GP presidents, the de facto power may rest with the GP vice president. Unfortunately, the survey data do not allow for conclusions regarding differences between the de jure and de facto role of GP presidents and GP vice presidents. The descriptive statistics are therefore computed for the extreme case that the de facto power rests with all GP presidents. Although this assumption is likely to be violated in reality, Karnataka's long tradition with local governments and decentralized governance structures causes it to be more plausible than the alternative assumption that the effective power of all GPs rests with the GP vice presidents. The remainder of this paper therefore presents descriptive statistics for the sample of GP presidents.[14]

5.1. Gram Panchayats

Table 1 presents the distribution of male and female presidents in reserved as well as unreserved GPs. The evidence shows that the reservation system is a critical factor for the allocation of GP seats to women and to the members of scheduled castes (SCs)/scheduled tribes (STs) and other backward classes. Evidently, the election of female GP presidents in reserved GPs is due to the reservation of seats for women, but not due to the reservation of seats for other backward classes, SCs, or STs. Stated differently, female GP presidents in reserved GPs are not elected in direct competition with men. Consistent with general perceptions, the gender distribution of unreserved seats is heavily skewed toward men, with men holding 76 percent of the unreserved GP president seats. The underrepresentation of women in unreserved GPs may be due to two factors: (1) women do not stand for election or (2) women do not succeed in direct competition with men. Future research is required to test this hypothesis.

The discussion in Section 3 suggests that the election of female presidents in reserved GPs is guided by a rotational system of seat reservation (also see GoK 2007). If consistently applied, the selection of reserved GPs should thus be exogenous to political, socioeconomic, and sociocultural factors. In order to test the exogeneity of the GP selection, we follow Ban and Rao (2008b) and regress a dummy for GPs with reservations for women separately on variables of GP infrastructure facilities. The respective data are constructed from the 2001 Census Village Directory. As this data set also informs the election commission about the population composition of GP constituencies (cf. Ban and Rao 2008b), violations of the exogeneity assumption will result in significant correlations between the reservation status of GPs and GP characteristics.

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[13] Throughout this paper, we try to condense by only printing the most important descriptive statistics and empirical results. All statistics and results — also those for the sample of unreserved female GP presidents, unreserved male GP presidents, and reserved male GP presidents — are available on request.

[14] The descriptive statistics for the sample of GP vice presidents are available on request.

Table 1. Gender distribution of presidents in Gram Panchayats

		Total Number	Share of Total
Female-headed GP president	Reserved woman	2	0.03
	Reserved woman OBC	16	0.21
	Reserved woman SC, ST	5	0.06
	Unreserved woman	6	0.08
Male-headed GP president	Reserved man OBC	17	0.22
	Reserved man SC, ST	13	0.17
	Unreserved man	18	0.23
Total	Reserved	53	0.69
	Unreserved	24	0.31

Note: The share for men and women does not add up to 1 due to rounding. OBC = other backward classes; SC = scheduled castes; ST = scheduled tribes.

Table 2 presents the evidence from logit estimations with district fixed effects. In line with the evidence in Ban and Rao (2008b), the statistical insignificance of most variables indicates that the female reservation status of GPs is exogenously determined and not driven by observable GP characteristics. Doubts on the exogeneity of the reservation status particularly arise in estimations with information on the SC population. The endogeneity of SCs is an inherent property of the reservation system, which allocates seats to SCs according to their population share on a priority basis. The significant relationship between GP reservation and the population share of SCs could thus echo the concentration of the SC population in specific GPs.

Table 2. Exogeneity tests

GP Characteristic	z-Statistic in Logit Model	
Share of women	1.46	
Share of literate women	1.05	
Share of literate population	1.06	
Share of SC population	-2.11	**
Share of ST population	0.63	
Share of villages w/ educational facilities	-0.61	
Share of villages w/ medical facilities in GP	-0.38	
Share of villages w/ postal facilities	-1.87	*
Share of villages w/ communication facilities	-0.62	
Share of villages w/ bus services	-0.54	
Share of villages w/ railways services	0.28	
Share of villages w/ banking facilities	-1.06	
Share of villages w/ power supply	-1.85	*
Share of villages w/ recreational, cultural facilities	-1.70	*
Average road length per GP village	1.10	
Average income per GP village	-0.39	
Average irrigated land area per GP village	-0.49	

Note: The models are estimated with district fixed effects to control for the effect of unobservables. The number of observations always equals 63 and is lower than 80 due to collinearity problems for three districts. Standard errors (not reported) are clustered at the GP level. ** and * denote the statistical significance at the 5 and 10 percent levels, respectively.

In summary, the survey data suggest that women's reservation policies are important instruments for promoting the political participation of women in GPs. The following sections will review the socioeconomic profile of female and male GP presidents and compare the rural service delivery activities and budgeting in reserved female-headed and (un-)reserved male-headed GPs. Whereas the sampled variables tend to be nonnormally distributed, tests for the statistical significance of possible gender heterogeneities rely on Kruskal-Wallis tests.

5.1.1. The socioeconomic profile of GP presidents

Reservation policies determine the gender (and caste) composition of GPs. There is a common belief that male and female GP representatives differ in terms of leadership and governance capacity and that gender differences may arise from differences in age, education, asset ownership, and income (cf. Chattopadhyay and Duflo 2004). This section presents a number of socioeconomic factors that may explain heterogeneities in rural service provision between female- and male-headed GPs. We compare (un-)reserved male and reserved female GP presidents in terms of caste, education, landownership, and the political and institutional history. Unless stated differently, the remainder of this text will refer to reserved female-headed GP presidents as female-headed GP presidents and to (un-)reserved male-headed GP presidents as male-headed GP presidents.

Considering caste, the evidence in Table 3 suggests that the majority of the female and male GP presidents belong to the group of other backward castes. The political presence and strength of the other backward class group is attributable to the high proportion of other backward classes in Karnataka's population. In fact, the information from our village survey module shows that an average of 65.3 percent of the sampled village population belong to the other backward class group. In comparison, only 22.1 percent and 9.9 percent of the village constituents have an SC or ST background, respectively.

Table 3. Caste distribution of GP presidents (share of total)

	Reserved Female GP President	(Un-)Reserved Male GP President
Scheduled caste	0.17	0.23
Scheduled tribe	0.04	0.06
Other backward class	0.70	0.63
Other	0.09	0.08

Note: The share of total equals the number of reserved female or (un-)reserved male GP presidents of caste i relative to the total number of reserved female or (un-)reserved male GP presidents.

Figure 1 displays the age distribution of the reserved female and (un-)reserved male GP presidents. The age distribution of reserved female and (un-)reserved male GP presidents does not statistically differ, with the majority of GP presidents belonging to the age category of 30 to 50 years.[15] Age may positively correlate with personal characteristics such as experience in, for example, institutional and organizational politics. To illustrate, younger politicians might be less aware of local power relationships and have less information on the historical origin and development of ongoing conflicts than their older counterparts. Younger politicians are not constrained by vested interest structures and past (bad) practices (Vyasulu and Vyasulu 1999) and are therefore likely to be more dynamic and independent in their decision making, more dedicated to change and reforms, and more willing to experiment with new approaches for reforming existing service delivery structures. On the other hand, younger politicians might be more likely to consult more senior village constituents and politicians. This may increase the risk that younger politicians do not act according to their own mandate and value system, but become the spokespeople of their seniors.

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[15] The Kruskal-Wallis test statistics are available on request.

Figure 1. Age distribution of GP presidents
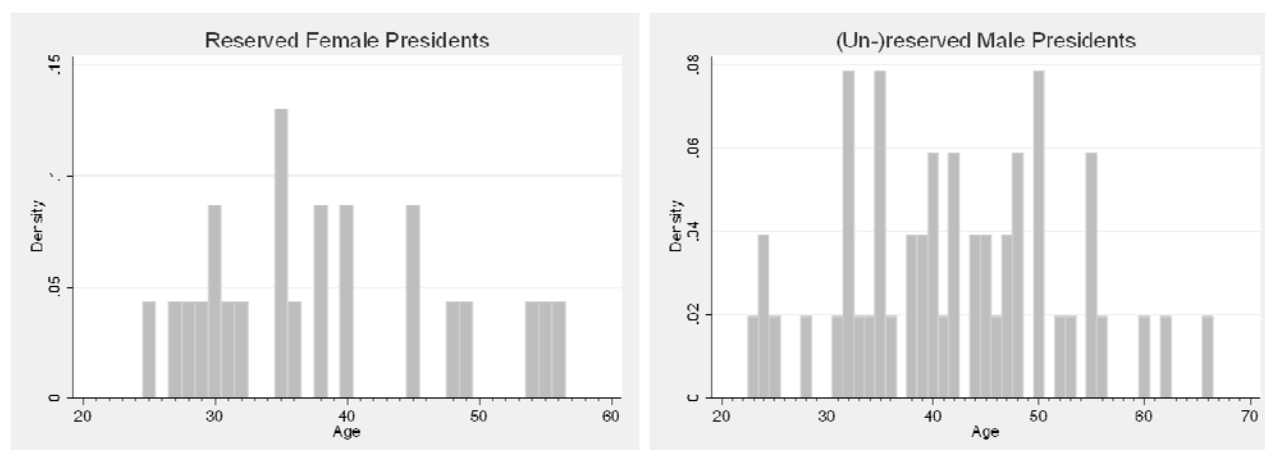
Note: The number of observations in the sample of reserved female GP presidents amounts to 23. The number of observations in the sample of (un-)reserved male GP presidents amounts to 47.

The extent to which both male and female GP presidents are the spokespeople of others is likely to be influenced by their degree of education. Drèze and Sen (1995), for example, argue that literacy determines the scope for political activism as it influences the ability to obtain and understand information about laws, policies, and entitlement rights. Table 4 summarizes the level of education of male and female GP presidents. The dominant share of the sampled GP presidents (1) received no schooling and are illiterate or (2) completed primary or high school.[16] In line with the existing evidence (e.g., Chattopadhya and Duflo 2004; Srivastava 2006), female GP presidents are significantly less likely to be literate or to have completed high school, pre-degree, or higher degree studies than male GP presidents.[17] If Drèze and Sen (1996) are right, then the gender differences in educational attainment are a potential source of gender differences in rural service delivery.

Table 4. Level of education of GP presidents

Level of Education	Reserved Female GP President		(Un-)Reserved Male GP President	
	Total Number	Share of Total	Total Number	Share of Total
Illiterate	2	0.09	2	0.04
Literate, no school	4	0.17	3	0.06
Primary school	8	0.35	3	0.06
Middle school	3	0.13	5	0.10
High school	5	0.22	16	0.34
Diploma	0	0.00	2	0.04
Pre-degree	1	0.04	8	0.17
Degree or above	0	0.00	9	0.19
Total	23	1.00	48	1.00

Note: The share of total equals the number of female (male) GP presidents with education level i relative to the total number of female (male) GP presidents.

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[16] We assume that primary school attendance results in literacy. Banerjee et al. (2006) show, however, that more often than not primary school attendance results in insignificant learning outcomes. Schooling outcomes are reported to be lower for females than for males.

[17] As a side remark, female GP presidents appear more likely to be literate compared with female household respondents. In particular, 91 percent of the sampled female GP presidents are literate, compared with 44 percent of the female household respondents.

Besides education, the ability of female GP presidents to pursue activities without the interference from others is also influenced by the extent to which they are respected and accepted by the village community. While we do not have measures of respect, we can use proxy variables like asset holdings. Assets can be an important source of economic and political empowerment (e.g., Panda and Agarwal 2005; Vijayalakshmi 2006), and women belonging to households with larger asset holdings might be more respected, autonomous, and influential in communities. The present survey does not contain information on household durable assets or formal property rights. An alternative proxy variable of assets is land. Of course, land is only one of many asset components and cannot properly describe the net asset position of rural citizens. However, land is an easily measurable, tangible, and visible asset, and may therefore capture the effect of economic power on the allocation of GP positions. Because women usually do not possess land, political and economic power may already result from being a member in a family with substantial landholdings.

The present survey provides information on dry and irrigated total and cultivated landholdings. Assuming that income streams and thus economic power are invariably linked to the cultivation of land, we subsequently emphasize cultivated landholdings rather than landholdings per se. Because total land and cultivated landholdings are significantly and positively correlated, the restricted focus on cultivated landholdings is not expected to affect the main conclusions.[18] Table 5 summarizes the distribution of cultivated landholdings among reserved female and (un-)reserved male GP presidents. Two main observations prevail. Firstly, the distribution of irrigated and dry land is highly uneven, with the median female and male GP president having less-than-average landholdings. The asymmetries in landholdings originate with the upper 5 percent of the distribution. Secondly, independence test statistics document significant differences in cultivated landholdings between female and male GP presidents, with male GP presidents holding more land.[19] Because women usually do not assume ownership of land, the differences in landholdings also suggest that families of male GP presidents have larger landholdings than families of female GP presidents.

Table 5. Distribution of cultivated landholdings across GP presidents (in acres)

	p1	p5	p25	p50	p75	p95	p99	Mean
Dry Cultivated								
Reserved female GP president	0.00	0.00	0.00	1.00	4.00	15.50	16.00	3.03
(Un-)Reserved male GP president	0.00	0.00	0.25	2.10	5.50	35.00	45.00	6.02
Irrigated Cultivated								
Reserved female GP president	0.00	0.00	0.00	0.00	0.25	9.50	15.00	1.05
(Un-)Reserved male GP president	0.00	0.00	0.00	2.00	3.75	18.00	32.00	3.72
Total Cultivated								
Reserved female GP president	0.00	0.00	0.75	1.50	4.00	23.00	30.00	4.08
(Un-)Reserved male GP president	0.00	0.25	3.00	4.85	9.00	53.00	77.00	9.75

Notes: The parameter *p* abbreviates the percentile. For all categories of landholdings, the number of observations in the sample of female and male presidents is 20 and 25, respectively.

The discussion of landholdings is subject to one caveat. In order to infer the existence of a relationship between landholdings and political participation, we would ideally like to (1) normalize the

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[18] The respective correlation coefficients are available on request.

[19] The Kruskal-Wallis test statistic for (1) dry cultivated, (2) irrigated cultivated, and (3) total cultivated landholdings equals (1) 3.35, (2) 3.22, and (3) 4.12, respectively. The test statistics are computed for a sample of 20 (25) observations for female (male) GP presidents and for 1 degree of freedom. The statistical significance prevails at the 10 and 5 percent levels.

landholdings of GP presidents with respect to the aggregate landholdings of the GP population and (2) assess the land distribution among the local citizens without GP membership. Information on aggregate cultivated landholdings of GPs is available from the 2001 Census Village Directory. The respective information is used to repeat the analysis for the ratio of landholdings of GP presidents to aggregate GP landholdings. Independence test statistics confirm the existence of gender asymmetries in the distribution of irrigated cultivated and total cultivated land.[20]

5.1.2. Political history and institutional membership of GP presidents

In addition to economic properties, differences in rural service provision between female- and male-headed GPs can also reflect differences in the political or institutional history of GP presidents and thus varying levels of experience with community affairs and with organizational, institutional, and conflict resolution mechanisms. Table 6 summarizes the political history of reserved female and (un-)reserved male GP presidents. We report the number of times that GP presidents have served as GP president, GP vice president, or general GP member; the number of times they have stood for elections in any of these functions; and the number of times that they were elected unopposed.

Considering the number of times that present GP presidents have assumed GP positions, we observe a short political history for both reserved female and (un-)reserved male presidents. In particular, none of the sampled female presidents and only 28 percent (3 percent) of the sampled male presidents have a multiterm experience as member (president) of the GP. Because only a few male GP presidents have served more than once, gender differences in the experience with the formal operation of GPs are unlikely to explain gender differences in rural service provision or local governance.

Table 6. Political history of GP presidents (share of total)

Served/Stood/ Elected Unopposed as	No. of Election Terms Served		No. of Times Stood for Election		No. of Times Elected Unopposed	
	Reserved Female GP President	(Un-)Reserved Male GP President	Reserved Female GP President	(Un-)Reserved Male GP President	Reserved Female GP President	(Un-)Reserved Male GP President
GP president						
0	0.00	0.00	0.00	0.00	0.40	0.45
1	1.00	0.98	1.00	1.00	0.60	0.55
2	0.00	0.03	0.00	0.00	0.00	0.00
GP vice president						
0	1.00	1.00	1.00	1.00	-	-
1	0.00	0.00	0.00	0.00	-	-
2	0.00	0.00	0.00	0.00	-	-
GP member						
0					0.75	0.85
1	1.00	0.73	0.90	0.65	0.25	0.13
2	0.00	0.15	0.10	0.23	0.00	0.03
3	0.00	0.10	0.00	0.08	0.00	0.00
4	0.00	0.03	0.00	0.05	0.00	0.00
Observations	20	40	20	40	20	40

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[20] The Kruskal-Wallis test statistic for (1) dry cultivated, (2) irrigated cultivated, and (3) total cultivated landholdings equals (1) 2.55, (2) 2.88, and (3) 2.94, respectively. For 1 degree of freedom, the statistical significance prevails at the 10 percent level for (2) and (3).

Regarding the number of times that GP presidents have stood for election, the evidence suggests that only few of the sampled presidents have stood for GP elections more than once. Comparing the data in columns 2 and 3 with that in columns 4 and 5 in Table 6 suggests that individuals who stood for elections as GP president or general GP member were usually elected into the desired GP position. However, the election was opposed in most instances (columns 6 and 7). The degree of opposition seems to be strongest in the election of GP council members. This could reflect the attempt of individual voters to have the GP composed of people who best serve their (economic) interests. Both female and male GP presidents are equally likely to face opposition in the election process.

The political position of GP presidents and the degree of opposition faced may also depend on the political history of the GP presidents' family members. The existing evidence suggests that GP representatives are elected because they belong to prominent and influential political families with a corresponding strong political base (Vijayalakshmi 2006). This relationship is more pronounced for women, with the election of women being driven by the status of the husband (cf. Behar and Kumar 2002, for Madhya Pradesh). In the present sample, 9 percent of the reserved female GP presidents and 21 percent of the (un-)reserved male GP presidents report family members in elected positions or offices and thus family members with a political history. The relative unimportance of the political status of family members as determinant of male and female GP president election could be due to the maturity of the reservation system in Karnataka. To explain, the rotational reservation system may imply that citizens from politically influential families or citizens with stronger personal and organizational networks are more likely to stand for election and to be elected president during the first (second) election term than during the second (third) election term. If these relationships hold, the relative unimportance of the political status of the GP presidents' family members could be attributable to the fact that the survey was carried out during the third election term.

Vijayalakshmi (2006) argues that GP council members assume not only political but also social responsibilities. The corresponding (local) institutions (e.g., self-help groups and cooperatives) offer scope for social actions and are an excellent platform for creating networks and power relationships. In the present sample, 70 percent and 63 percent of reserved female and (un-)reserved male GP presidents, respectively, are members in local organizations. Female GP presidents are predominantly members in local self-help groups (60 percent), and male GP presidents are more likely to be active in school development committees (33 percent) and in caste associations (15 percent).
We cannot preclude that GP presidents provide services that are congruent with the purposes and objectives of the institution of which they are members. If this is true, gender differences in the nature of the institutional memberships may cause female and male GP presidents to promote the delivery of different (institution-focused) services. Finally, female GP presidents are mostly members in only one local organization, whereas a proportionately larger share of male GP presidents display multiple memberships.

5.2. Gram Panchayat Households

The Karnataka survey also reports information on the households' socioeconomic status, structure, political and institutional memberships, the use of and satisfaction with public services, the access to public benefit schemes, and the participation in and satisfaction with Gram Sabhas. Among the sampled 966 households, 25 percent are female household respondents and 65 percent are the household head. The share of female household heads equals 22 percent. The dominant share of the female and male household respondents belongs to other backward classes (63 percent) or to SCs (25 percent).[21] Male household respondents are slightly older than female respondents, with the average age being 42 years and 39 years, respectively.

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[21] The share of women (men) in other backward classes is 63 (62) percent and in scheduled castes is 25 (23) percent.

Similar to the GP presidents, male and female household respondents significantly differ in terms of the level of completed education.[22] Of the sampled female and male household respondents, 55 percent and 31 percent, respectively, are illiterate. Literate household respondents have mainly completed primary, middle, or high school. The respective share for literate female (73.6 percent) and male (71.4 percent) household respondents is approximately the same. Disaggregation by school type shows that male household respondents are equally likely to have a primary or high school degree, while female household respondents are more likely to have a high school degree. Considering university education, the share of male (19 percent) and female (21 percent) household respondents with a pre-degree or degree is approximately the same. Not surprisingly, the dominant share of female and male household respondents holds a pre-degree (14 percent).

Education correlates with occupation. In fact, Spearman rank correlation coefficients suggest that less educated household respondents are significantly more likely to work in the agricultural sector than household respondents with higher levels of education.[23] The evidence also suggests that differences in the educational attainment of female and male household respondents are a significant source of gender differences in occupation. Male respondents predominantly work in agriculture, while female respondents mainly pursue household work. Of course, the gender polarization in employment patterns also reflects social norms, which require women to take care of household work and prevent them from accessing the higher education system. Both women and men are likely to engage in casual agricultural work. Education also correlates with household income. For both female and male household respondents, Spearman rank correlation coefficients indicate that the level of education significantly and positively correlates with household income. The level of household income moves not only with education but also with landownership and land cultivation.[24] Approximately three-fourths of the total land owned by households is not irrigated. As households cultivate the total area of land that they own, the large share of unirrigated land points to the significant exposure of farm income to weather conditions and to the potential importance of rural service provision in the area of water supply, tank management, and irrigation.

5.2.1. Household entitlements to cards and benefit schemes

In order to promote the inclusive access to rural services, eligibility criteria are in place that govern the preferential access of rural households to public benefit schemes and programs. This section studies the survey information on the entitlement of households to ration cards and benefit schemes and asks whether female- and male-headed GPs differ in the extent to which they grant preferential access to services. The survey categorizes the entitlement of households to ration cards and/or benefit schemes by asking the household respondents whether they (1) are not eligible for a particular benefit, (2) received a particular benefit, (3) applied for a particular benefit but did not receive it, (4) are eligible for a particular benefit but did not apply for it, (5) are unaware of a particular benefit scheme, or (6) are unaware of the eligibility criteria. Here, the benefit schemes covered include access to housing under the group housing scheme, employment in the food-for-work program, installation of toilets or drainage systems, access to government loans, and school-related benefits, among others (see Table 7).

Almost all households know their eligibility status. For most of the sampled benefit schemes, one-tenth of the households are not eligible for program participation. The share of noneligibility is higher for the school tuition and book support scheme (30 percent), but below 5 percent for ration cards and toilet facilities. Considering households that are eligible for program participation, we observe cross-

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[22] The chi-squared value of Kruskal-Wallis test statistics equals 30.30, which is significant at the 1 percent level for 1 degree of freedom.

[23] The Spearman rank correlation coefficient equals 0.08 and 0.30 for the sample of male and female respondents, respectively. The coefficients are statistically significant at the 5 and 1 percent levels, respectively.

[24] The Spearman rank correlation coefficient for the sample of income and (1) total owned (cultivated) land, (2) irrigated owned (cultivated) land, (3) unirrigated owned (cultivated) land equals (1) 0.36 (0.34), (2) 0.38 (0.37), and (3) 0.19 (0.18), respectively.

program differences in the share of households that receive benefits from development programs. The dominant share of households (60 to 90 percent) receive benefits through ration cards, hand pump, and school-related support schemes. In comparison, less than 10 percent of the sampled households receive benefits under the umbrella of the food-for-work program (6 percent), the government loan initiative (9 percent), or the toilet facilities scheme (10 percent). For the food-for-work program and the government loan scheme, the low participation rate corresponds well with the general unawareness of the scheme and/or with the reluctance of eligible households to apply for program participation.[25] The low participation rate in the toilet facilities scheme is due to the reluctance of households to apply for program participation despite eligibility and to the comparatively large rejection rate of those who applied. Of course, the observed high rejection rate may explain the reluctance of households to apply for program participation in the first place. It needs to be left for future research to determine the extent to which these relationships are driven by bureaucratic hurdles and illiteracy.

Table 7. Access to benefit schemes (share of total)

	Not Eligible	Benefits Received	Benefits Applied For but Not Received	Eligible but Did Not Apply For Benefits	Unaware of Scheme	Unaware of Eligibility Criteria
Housing schemes	0.12	0.27	0.29	0.31	0.00	0.003
Ration card scheme	0.02	0.90	0.07	0.02	0.00	0.00
Employment in food-for-work program	0.09	0.05	0.02	0.20	0.62	0.01
Toilet facilities	0.03	0.10	0.25	0.48	0.13	0.01
Drainage in front of house	0.06	0.32	0.27	0.34	0.00	0.01
Piped water for domestic use	0.05	0.40	0.26	0.28	0.00	0.007
Hand pump near to house	0.05	0.69	0.07	0.17	0.00	0.02
Loan from government scheme	0.07	0.09	0.05	0.48	0.28	0.04
School tuition, books	0.32	0.61	0.01	0.05	0.01	0.01

Benefit schemes and programs are predominantly designed to improve the livelihood of the rural poor by granting access to basic services. Given this objective, the eligibility for program services and benefits should be associated with household income. In order to determine whether income indeed correlates with the access of households to benefit programs, we compare the annual per capita income of households with and without access to benefit programs. Summarized in Figure 2, the evidence does not lend support to the existence of a relationship between eligibility to benefit programs and the annual income per household member. In contrast to expectations, households that receive benefit payments report per capita income levels that compare well with those of households that do not receive benefits. This finding suggests that program beneficiaries are not exclusively identified on the basis of transparent (eligibility) criteria. Instead, seniority, institutional and political processes, and power relationships may also play a role.

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[25] Unawareness rates of 62 percent, 28 percent, and 13 percent are documented for the food-for-work program, the government loan scheme, and the toilet facilities scheme, respectively. The remaining programs are known by all household respondents.

Figure 2. Eligibility for benefit schemes and per capita household income (in Rs)

Housing
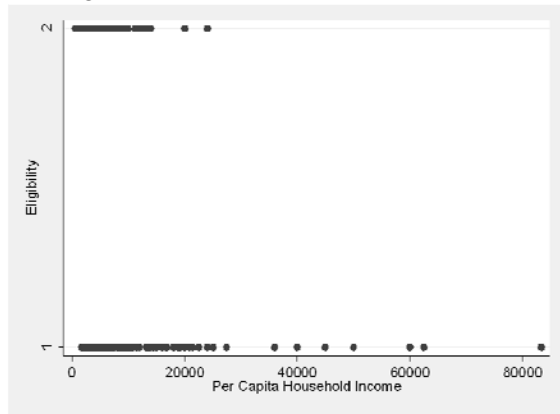
School-Related Schemes
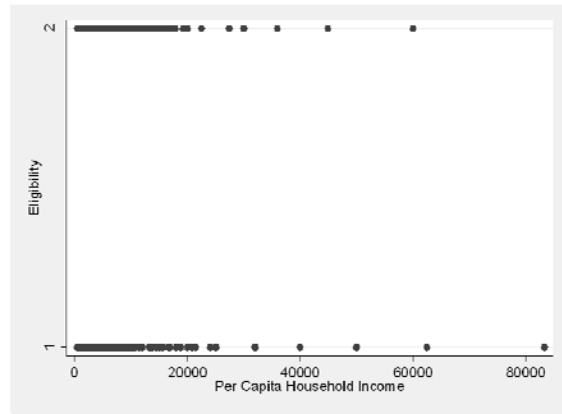
Food-for-Work Program
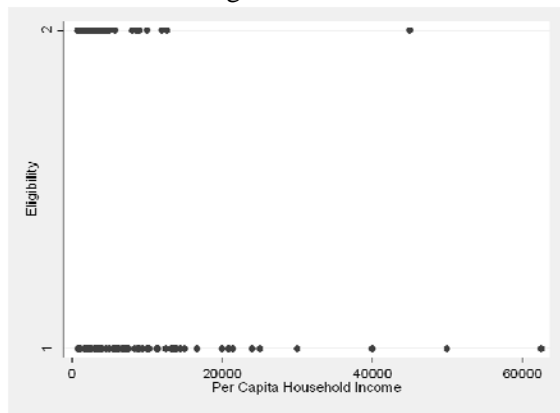
Toilet Facilities
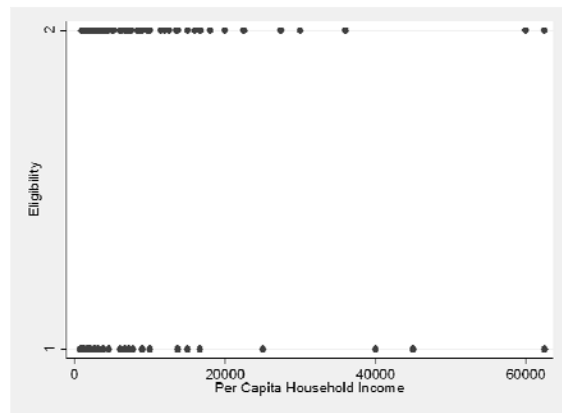
Drainage Facilities
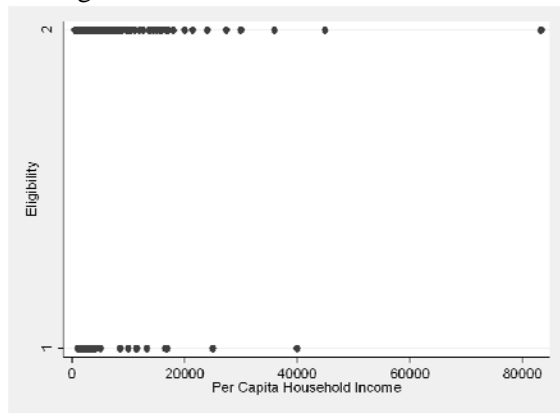
Piped Water for Domestic Use
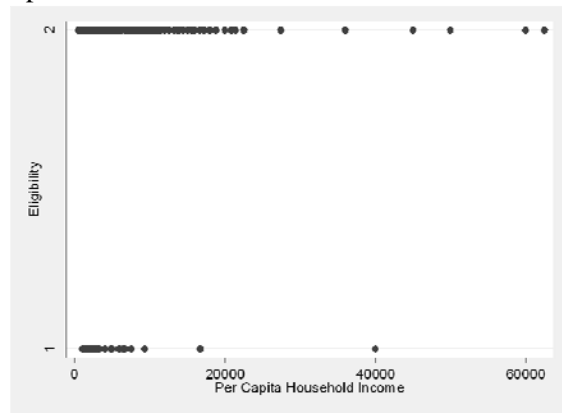
Note: Selected schemes are plotted. School-related schemes include support for school tuition, books, and uniforms. Eligibility: 1 = not eligible; 2 = received benefit. Per household income is denoted in Indian rupees.

5.2.2. Household institutional membership patterns and political participation

In addition to institutional and political processes, the access to support schemes could also be conditioned by the degree of political or institutional activism of households. Households that are more active in the political or institutional sphere could gain preferential access to support schemes and hence economic resources because they can use a broader network to communicate and emphasize their needs.

Network relationships and interactions could improve the access to services on a quid-pro-quo basis, that is, the reciprocal exchange of favors.

Table 8 documents the membership patterns of female and male household respondents in local organizations. In line with the evidence from GP presidents, the organizational membership of GP households is fairly low and generally confined to, at most, two organizations. We find that women assume membership in mainly self-help groups and women's groups. Men do not have a significant stake in either of these two organizations. They predominantly assume membership in religious and forest groups, cooperative societies, and caste associations.

Table 8. Organizational membership patterns of households (share of total)

Participation in	Category	Share of Total	Observations
Self-help group	yes, male	0.01	7
	yes, female	0.39	346
	yes, both	0.00	1
	no one	0.61	544
Cooperative milk society, other society	yes, male	0.12	46
	yes, female	0.04	15
	yes, both	0.00	1
	no one	0.84	335
Women's group	yes, male	0.00	0
	yes, female	0.15	44
	yes, both	0.00	0
	no one	0.85	247
Forest group	yes, male	0.15	9
	yes, female	0.00	0
	yes, both	0.00	0
	no one	0.85	50
Tank management committee	yes, male	0.02	1
	yes, female	0.00	0
	yes, both	0.00	0
	no one	0.98	41
Biogas user group	yes, male	0.00	0
	yes, female	0.00	0
	yes, both	0.00	0
	no one	1.00	61
Water user association	yes, male	0.02	1
	yes, female	0.00	0
	yes, both	0.00	0
	no one	0.98	58
Religious group	yes, male	0.29	5
	yes, female	0.00	0
	yes, both	0.00	0
	no one	0.71	12
Caste association	yes, male	0.12	22
	yes, female	0.02	3
	yes, both	0.00	0
	no one	0.86	154

Note: The share of total is computed as the ratio of the responses in each category over the total number of members in each type of group. Because of the lack of responses, we do not report the evidence for participation in finance and credit groups.

Besides the membership in local organizations, the access to benefit schemes could also depend on the political history of the household respondents and their family members and relatives. For the present sample, neither household respondents nor their family members have a political past in GPs or in other political institutions. Only 3 percent (6 percent) report household memberships in the current (previous) GP and only 7 percent indicate that household members are members in a political party. For the households with links to political parties, only 0.4 percent of the respective household members hold a position of responsibility.

Next to memberships in political parties, political participation can also be enforced through the attendance of and the participation in Gram Sabha meetings. Consistent with earlier evidence, we find female household respondents in reserved female-led and (un-)reserved male-led GPs to be less likely to attend Gram Sabha meetings than male household respondents. Indeed, 48 percent and 56 percent of the male household respondents attended Gram Sabha meetings in (un-)reserved male-led and reserved female-led GPs, respectively. The corresponding share of female attendance is significantly lower, being equal to 23 percent in (un-)reserved male-led and 23 percent in reserved female-led GPs.[26] The underrepresentation of women in village assembly meetings becomes evident also from the Gram Sabha attendance rate of the family members of the household respondents. Female household respondents report significantly higher attendance rates of family members than male household respondents. When asked about the gender of the Gram Sabha–attending family members, most female household respondents emphasized male household members.

Household respondents who were present at Gram Sabha meetings predominantly attended only one[27]; however, most GPs organize at least two Gram Sabha meetings per annum. The low political participation of local citizens may depend on factors like the location and timing of Gram Sabha meetings. However, location and timing are unlikely to be the most binding constraints, given that 63 percent and 46 percent of women in reserved female-headed and (un-)reserved male-headed GPs, respectively, and 74 percent and 69 percent of men in reserved female-headed and (un-)reserved male-headed GPs, respectively, are satisfied with the time and location of Gram Sabha meetings. Among those who attend Gram Sabha meetings, the dominant share are also satisfied with the dissemination of information on agenda points and Gram Sabha decisions and with the selection of program beneficiaries. It thus appears that unobserved factors like lack of interest in local development activities or sociocultural factors affect the attendance of Gram Sabha meetings. Surely, the reluctance of village constituents to attend meetings casts doubt on the ability of village councils to be an effective platform for the discussion and approval of village plans.

5.3. Financial Review of Gram Panchayats

The access to (high-quality) public goods and the quality of rural service provision depends not only on the socioeconomic characteristics of the GP presidents but also on the extent of administrative, fiscal, and political decentralization. As emphasized in Section 3, Karnataka is generally thought to be more advanced than other Indian states in implementing the principles of fiscal decentralization because it has devolved the functions with respect to all 29 subjects listed under the 11th Schedule of the Constitution. Nevertheless, fiscal decentralization is still considered to be incomplete because Karnataka operates an intergovernmental fiscal transfer system that precludes priority-driven and need-based budget allocation decisions of local governments.[28]

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[26] The results of Kruskal-Wallis independence tests are available on request.

[27] The respective rates are equal to (1) 93 percent (86 percent) for female (male) household respondents in reserved female-led GPs and (2) 77 percent (72 percent) for female (male) household respondents in (un-)reserved male-led GPs.

[28] See Sekher et al. (2007) for an overview of the deficiencies and Karnik, Pethe, and Karmarkar (2006) for a conceptual framework of efficient and need-based fiscal devolution. Refer to Rajaraman and Sinha (2007) for a study that leaves no doubt that fiscal decentralization is imperfect and that the devolution and allocation of funds frequently fails to be need-based in at least Madhya Pradesh, Chhattisgarh, Rajasthan, and Orissa. The respective evidence shows that devolution is highest for programs that

This section describes Karnataka's fiscal transfer system in greater detail, using gender-disaggregated information on the sampled 80 GPs. In order to determine whether rural service provision in female- and male-led GPs is influenced by different financial situations, we assess the devolution of statutory activities and programs to female- and male-headed GPs; compare the relative importance of programs and schemes as income and expenditure sources in female- and male-headed GPs; and explore the budget allocation decisions of female- and male-headed GPs for the most important sources of finance. Using information for the fiscal years 2003/04, 2004/05, and 2005/06, it will become evident that both female- and male-headed GPs pursue a large number of devolved infrastructure and development activities under the umbrella of the 12th Finance Commission grant, the statutory development grant, and other rural development programs, and that the extent of activism is largely the same for female- and male-headed GPs.

5.3.1. he dimension of fiscal devolution

The questionnaire compiles information on the degree of devolution along two lines. Firstly, it presents statutory activities and programs that are formally devolved from the State to Panchayati Raj Institutions. We ask whether funds and functionaries are available to facilitate the effective implementation of the devolved activities. Secondly, the interviewed GP presidents identify the activities that have been pursued under the heading of a particular devolution scheme.

Table 9 documents some of the activities (functions) that are officially devolved to GPs. The entries indicate that the degree of fiscal devolution differs between activities and that deficiencies in devolution arise in terms of functions, functionaries, and/or funds. For instance, the majority of female- and male-led GPs emphasize the devolution of activities and funds in the areas of health care, education, rural electrification, and social forestry. However, fiscal devolution in these areas is perceived to be incomplete since the process is not associated with the adequate transfer of functionaries. The lack of functionaries is particularly pronounced for activities in the area of rural electrification. Irrigation and nonconventional energy services are least devolved in terms of functions, funds, and functionaries.

Table 9. Fiscal devolution in female- and male-headed Gram Panchayats

	Reserved Female GP President			(Un-)Reserved Male GP President		
	Activities are undertaken	Funds are available	Functionaries for activities are available	Activities are undertaken	Funds are available	Functionaries for activities are available
Library	0.83	0.83	0.83	0.75	0.75	0.75
Social forestry	0.53	0.53	0.04	0.60	0.60	0.06
Nonconventional energy	0.00	0.00	0.00	0.08	0.08	0.00
Minor irrigation projects	0.26	0.26	0.00	0.25	0.25	0.00
Health care and education	1.00	1.00	0.70	1.00	1.00	0.71
Rural electrification	1.00	1.00	0.35	1.00	1.00	0.56
Activities undertaken under the 12th Finance Commission Grant/Statutory development grant	1.00	1.00	-	1.00	1.00	-
Other rural development programs	0.74	0.74	-	0.90	0.90	-
Observations	23	23	23	48	48	48

Note: The interview questions allow for binary (yes/no) answers. We report the share of reserved female or (un-)reserved male GP presidents that answered yes.

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are driven by central directives on the devolution of funds to local governments (e.g., rural employment and rural housing) and lowest for programs for which states have the discretion to decide on the speed of and the approach to decentralization (e.g., forestry, education and health, minor irrigation and water supply). Mathur (2000) and the World Bank (2004) provide general discussions of the weaknesses of the constitutional amendment regarding the devolution of financial funds.

Table 10 compares the activities that female- and male-headed GPs pursue under the different decentralized development schemes and programs. Activities in the area of (drinking) water supply and sanitation, housing, and rural employment are undertaken in almost all GPs, while activities in the area of soil conservation and water protection, planned rural development, and irrigation are implemented in only some. Although some activities are only implemented by a few GPs, most of them are equally likely to be observed in female- and male-headed GPs.[29] The similarity of activities pursued in female- and male-headed GPs can be attributed to the conditionality of the respective devolved funds. Because devolved funds are conditional and tied to particular programs, female and male GP presidents are deprived of the opportunity to use them for anything other than their designated purpose. Gender differences prevail for the Pancha Sootra (sanitation), Swarna Jayanthi Gram Swarozgar Yojana (SGSY, rural development), and Ganga Kalyana Yojana (irrigation) schemes. Considering these schemes offer some scope for discretionary spending, we cannot preclude on the basis of our results that the gender differential is not driven by gender differences in preferences.

Table 10. Activities undertaken under the devolved schemes

	Name of Activity/Program/Scheme	Reserved Female GP President	(Un-)Reserved Male GP President
State-level transferred functions	GP libraries	0.74	0.83
	Rural sanitation	0.91	0.92
	Pancha Sootra: Swachcha Grama	0.04	0.31
	Sub planning	0.35	0.42
Rural water supply (planned activities)	Maintenance and repair of water supply schemes	1.00	1.00
	National rural water supply (NRWS)	0.65	0.77
	Plan of rural water supply (NRWS)	1.00	0.98
	Maintenance of bore wells	1.00	0.98
Soil conservation and water protection (planned)	Central-sponsored plans for salty and chemical water area for agricultural uses	0.00	0.00
	Department of Watershed Development–sponsored watershed and soil erosion protection, river basin	0.39	0.29
	National watershed development program sponsored by watershed development department	0.22	0.15
	Karnataka watershed development programs (Danida)	0.04	0.06
	ODA-sponsored watershed development program: KAWAD plan	0.00	0.00
	Integrated watershed development program (World Bank program)	0.04	0.08
	NABARD-sponsored watershed development program	0.04	0.04
	RIDF-sponsored watershed development	0.00	0.04
Forest programs (incl. protection of soil erosion)	Vana Samvardana Yojana	0.22	0.23
Rural development programs (planned)	Swarna Jayanthi Gram Swarozgar Yojana	0.91	0.60
	Desert Development Program	0.13	0.15
	Drought Prone Areas Program	0.30	0.23
	Western Ghats Integrated development program	0.04	0.02
	Integrated barren land development program	0.09	0.04

[29] The chi-squared statistics of Kruskal-Wallis independence tests are available on request.

Table 10. (Continued)

	Name of Activity/Program/Scheme	Reserved Female GP President	(Un-)Reserved Male GP President
Energy program (planned)	Integrated rural energy program	0.04	0.04
Employment schemes	Sampoorna Grameen Rozgar Yojana	1.00	0.92
Housing	Indira Avaas Yojana	0.96	1.00
	Aashraya Yojana	0.91	0.96
	Kachcha Pakka house	0.91	0.96
Rural development programs	12th Finance scheme	1.00	1.00
	Statutory or development grants	0.91	1.00
Irrigation	Provision of new tanks	0.30	0.15
	Renovation and desilting of old tanks	0.61	0.58
	Increase the depth of wells	0.43	0.44
	Ganga Kalyana Yojana	0.00	0.17
	Karnataka tank development plan	0.13	0.15
	Annual maintenance and repair	0.26	0.60
Special economic programs	Rehabilitation of bonded labor	0.04	0.02
Observations		23	48

Note: The interview questions allow for binary (yes/no) answers. We report the share of female or male GP presidents that answered yes.

The entries in Table 10 show that multiple programs and schemes are designed to pursue the same activity. Duplication is most pronounced for rural water supply programs, with at least 65 percent and 77 percent of the sampled reserved female- and (un-)reserved male-led GPs implementing at least four water supply development schemes. The underlying projects are supported by the State or the World Bank and seek to improve the access to drinking water and sanitation. Closely related, we find strong support for the simultaneous implementation of multiple housing schemes in female- and male-led GPs. In fact, 91 percent and 96 percent of the reserved female- and (un-)reserved male-headed GPs implement at least three housing schemes. Summarizing, both female and male GP presidents implement a large number of diverse programs, all being targeted at promoting rural development. Although activity mapping per se may allow for the effective use of resources, the simultaneous implementation of a multitude of programs with comparable focus and objective more likely than not (1) reduces the gains from successful activity mapping as it burdens the functionaries with superfluous administrative work and (2) diverts financial resources from their most effective use to administrative work.

5.3.2. Sources of finance and resource utilization

The previous section has reported weak evidence that GPs with female and male presidents pursue different activities under devolved schemes. One possible source for the homogenous set of activities is tied (purpose-specific) funds that preclude discretionary spending decisions of GP presidents. This section discusses both the income and the expenditure flows of the major rural development schemes in female- and male-led GPs. The distinction between income and expenditure patterns is deemed useful whereas it allows for conclusions regarding the utilization of funds.

Throughout this section, we normalize all variables by the number of households in every GP to compare the distribution of income and expenditures across the different GPs. The choice of households as a normalization variable is deliberate and made to avoid biases due to very large or very small GPs. One caveat applies. The normalization approach assumes that all village households receive an equal share of financial support under each scheme. Of course, this condition is simplifying at best and not

likely to hold in reality as the programs are targeted.[30] A more reliable approach would construct weighted means that consider the relative importance of targeted households with particular socioeconomic characteristics and/or the number of beneficiaries. Unfortunately, respective indicator variables are unavailable, let alone because of the common goods nature of most of the sampled GP activities.

Table 11 provides details on the relative importance of the different sources of funds in female- and male-headed GPs. Due to the substantial number of nonresponses, we only emphasize the GPs' most important sources of funds, that is, own resources (e.g., taxes, penalties, fines, and cess), statutory development grants, the 12th Finance Commission grant, the SGRY scheme, water supply schemes, and the Indira Avaas Yojana housing scheme for the three fiscal years from 2003/04 to 2005/06.

Table 11. Average income and expenditures per GP household (in Rs)

	Reserved Female GP President			(Un-)Reserved Male GP President		
	2003/04	**2004/05**	**2005/06**	**2003/04**	**2004/05**	**2005/06**
Sources of Income						
Own resources	198.04	195.92	179.36	81.86	144.69	156.85
Statutory development grant	223.13	168.13	624.58	187.71	177.18	499.08
12th Finance Commission grant	89.83	129.40	70.85	111.08	89.21	75.80
SGRY income	223.50	203.01	237.21	206.92	230.08	258.43
Water supply schemes	24.04	40.55	61.06	29.21	39.07	69.71
Indira Avaas Yojana scheme	52.30	137.84	185.19	36.16	153.82	210.44
Aggregate income	814.98	919.56	1371.85	639.94	823.39	1287.60
Sources of Expenditure						
Own resources	183.16	164.12	191.17	76.26	139.53	150.44
Statutory development grant	196.29	152.74	531.20	156.93	167.21	416.98
12th Finance Commission grant	79.01	104.27	38.65	76.09	82.58	40.52
SGRY income	208.34	203.63	220.76	237.67	236.80	315.99
Water supply schemes	24.04	57.48	53.32	29.30	40.10	57.08
Indira Avaas Yojana scheme	90.03	115.05	153.51	34.61	138.38	181.50
Aggregate expenditure	782.06	834.51	1054.85	607.51	776.38	1217.81

Note: Aggregate income and expenditure flows are computed as the sum of finance flows from own resources, Statutory Development grants, the 12th Finance Commission grant, and finance flows under the SGRY scheme, water supply schemes, and the Indira Avaas Yojana housing scheme.

Among these schemes, the most important sources of income and expenditures are the SGRY scheme, statutory development grants, and own resources. Especially statutory development grants and own resources are of interest since GPs have discretion in the respective budget allocations.

For the fiscal years 2003/04, 2004/05, and 2005/06, the statutory development grant accounts for between 19.30 percent and 38.70 percent of the total amount that GPs can spend per household, and for between 19.10 percent and 37.70 percent of all expenditures per household. The income and expenditure flows from own resources are smaller compared with those associated with the statutory development grant, accounting for less than 20 percent aggregate income and expenditure during the sampled fiscal years. We do not find significant gender effects in the relative contribution of own resources or statutory development grants to aggregate income or aggregate expenditures in the budgets of female- and male-led

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[30] See, for example, Besley et al. (2004); Duflo, Fischer, and Chattopadhyay (2005); and Bardhan, Mookherjee, and Torrado (2005) for evidence that GP presidents allocate more resources to disadvantaged groups or to their own village.

GPs. Stated differently, reserved female-headed and (un-)reserved male-headed GPs face the same binding constraint in terms of financial resource availability and spending.[31]

The financial contributions of the different schemes are time variant. We document a pronounced decline in the income and expenditure levels under the 12th Finance Commission grant from 2004/05 to 2005/06 and a substantial increase in the income and expenditure levels associated with the statutory development grant from 2004/05 to 2005/06 and with the Indira Avaas Yojana housing scheme from 2003/04 to 2004/05. Apart from this, financial income and expenditure flows associated with water supply schemes are comparatively low during the whole sample period, but increasing. In order to determine the significance of the time effects, we compute Kruskal-Wallis test statistics for the sample of female- and male-led GPs. For almost all financial schemes, the Kruskal-Wallis test statistics suggest that the observed time effects in the income and expenditure flows are statistically significant. The only exception arises for the SGRY expenditures and for the 12th Finance Commission income flows, which seem to be time invariant.

The evidence in Table 11 points to the importance of own resources as major income and expenditure source. As the level of own resources depends on the ability of local governments to collect taxes, penalties, fines, and cess, this section concludes by assessing the discrepancy between the demand for and the collection of one of these components, namely, taxes.[32] We find a pronounced imbalance between tax collections and tax demand, with tax collections falling short of tax demand in all sampled years. Due to functional deficiencies in the GP tax collection process, the ratio of tax demand over tax collection is as high as 3.95 and 3.06 for female- and male-headed GPs, respectively, in 2005/06. Although the imbalances tend to be more pronounced in female-headed GPs, the effect is statistically insignificant for all sampled years.

Do female- and male-headed GPs differ in the utilization of their income levels? To answer this question, we compute the ratio of expenditures to income under the different schemes. For this specification, GPs with utilization ratios below 1 spend less than they receive, while GPs with utilization ratios larger than 1 overspend their resources. Table 12 summarizes the respective evidence from the sample of female and male GP presidents. Considering the evidence, the aggregate net income position of the average female-headed and male-headed GP is negative for the three sampled years. For female-headed GPs, the negative net income position reflects deficits in the average (1) Indira Avaas Yojana budget in 2003/04, (2) SGRY budget in 2004/05, and (3) water supply budget in 2004/05. Overspending in these areas appears to be substantial, but particular only to very few GPs. For male-headed GPs, the aggregate income deficit in 2004/05 and 2005/06 is attributable to overspending of the water supply and SGRY budget, respectively. Across the sampled fiscal years, both female- and male-headed GPs did not fully use their own resources or the resources from the 12th Finance Commission grant. Eapen and Thomas (2005) argue that the underutilization of funds could reflect procedural problems.

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[31] The respective Kruskal-Wallis test statistics for the share of own resources, statutory development grants, and the other sources of funds in aggregate income or aggregate expenditures are available on request.

[32] A more systematic analysis for all components of own resources (i.e., taxes, penalties, fines, and cess) is infeasible because of a substantial number of nonresponses.

Table 12. Utilization of financial resources

	Reserved Female GP President				(Un-)Reserved Male GP President			
	Mean Ratio	Total No. of GPs	No. of GPs with Utilization >1 (<1)		Mean Ratio	Total No. of GPs	No. of GPs with Utilization >1 (<1)	
Resource Utilization 2003/04								
Own resources	0.95	22	1	(11)	0.95	47	0	(22)
Statutory development grant	0.89	22	0	(11)	0.86	48	1	(21)
12th Finance Commission Grant	0.90	19	0	(10)	0.89	36	0	(16)
SGRY income	0.93	23	2	(12)	1.11	48	3	(25)
Water supply schemes	1.00	16	0	(1)	0.98	36	5	(8)
Indira Avaas Yojana	1.46	13	1	(5)	1.29	18	1	(7)
Aggregate balance	1.10	20	15	(2)	1.14	40	26	(6)
Resource Utilization 2004/05								
Own resources	0.95	22	0	(11)	0.95	47	0	(22)
Statutory development grant	0.92	20	1	(7)	0.95	47	2	(17)
12th Finance Commission Grant	0.91	22	0	(9)	0.93	42	0	(22)
SGRY income	1.36	22	2	(11)	1.07	48	5	(24)
Water supply schemes	1.84	18	2	(4)	1.14	36	4	(10)
Indira Avaas Yojana	0.81	19	0	(7)	0.88	41	1	(18)
Aggregate balance	1.12	20	15	(2)	1.07	39	27	(2)
Resource Utilization 2005/06								
Own resources	0.99	22	2	(10)	0.96	46	1	(22)
Statutory development grant	0.88	21	1	(13)	0.88	45	0	(24)
12th Finance Commission Grant	0.51	18	0	(11)	0.49	34	0	(20)
SGRY income	0.94	22	0	(15)	1.11	47	1	(25)
Water supply schemes	0.90	15	0	(4)	0.90	35	2	(13)
Indira Avaas Yojana	0.84	14	0	(7)	0.89	34	0	(14)
Aggregate balance	1.15	19	17	(0)	1.18	37	26	(2)

Note: The values indicate the ratio of expenditure over income. Values below (above) 1 document the underutilization (overutilization) of resources. The mean ratio represents the extent of under- or overutilization of the average female- or male-headed GP.

5.3.3. Spending activities and finances

The previous two sections discussed the dimension of fiscal devolution and identified the most important sources of GP finance. This section takes the analysis one step further and asks: Which activities are financed with funds from the SGRY scheme, housing schemes, and rural water supply schemes? Table 13 summarizes the amount that female- and male-headed GPs on average spend per household under each of these rural development schemes.

As regards the SGRY activities, GPs with both female and male presidents allocate funds to common works and to works undertaken in the SC and ST colony. In line with the SGRY program guidelines, our results in Table 13 suggest that on average a minimum of 50 percent of the allocations to the village Panchayat is spent on need-based village infrastructure in the SC and ST colonies.[33]

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[33] Note that the required minimum allocation of 50 percent includes food grain allocations. Because of this, the SC and ST values in Table 13 do not have to total 0.5 to conclude that a sufficient amount of SGRY funds is earmarked for the SC and ST colony.

Considering the portfolio allocation of SGRY funds, they are primarily reserved for works on schools, roads and drainage systems in the common area, and the construction of roads and bridges in the SC/ST colonies. The focus on roads and drainage works is driven by the importance of infrastructure development in rural areas per se and by the mandate of the SGRY program to create durable community-based and economic assets for rural infrastructure development in addition to rural employment. Because the local governments have some leeway in determining the budget allocations to the different sub-activities of the SGRY program, it needs to be left for future research to discuss the extent to which the focus on roads and drainage works is also driven by the attempt of local representatives to earn political mileage. Another avenue of future research concerns the factors that explain the time variability in the financial contributions to particular SGRY activities across the sampled fiscal years. The fluctuations are statistically significant for the amount spent on social forestry and on watershed works and water supply in the SC/ST colony.[34] We cannot tell to what extent the existing time variability reflects inflation-driven expenditure adjustments and/or changes in financial contributions to program implementation.

Table 13. Average expenditure on GP activities (per household in Rs)

	Reserved Female GP President			(Un-)Reserved Male GP President		
	2003/04	2004/05	2005/06	2003/04	2004/05	2005/06
SGRY Activities						
Roads and drainage	39.99	33.08	43.39	59.21	44.20	44.63
Repairing works at school	24.13	28.08	10.56	18.28	34.57	18.06
Drinking water	8.52	5.22	6.52	12.65	14.93	14.19
Pickups	1.56	4.44	3.41	1.09	1.32	0.67
Watershed works	9.30	10.51	17.26	11.66	13.57	20.75
Social forestry	2.43	5.22	3.65	0.50	3.60	5.80
Public toilets	5.26	5.27	10.46	2.37	5.66	3.90
Administrative expenditures	1.99	2.08	3.98	2.54	3.76	3.40
Construction of GP building	24.66	14.33	13.04	10.42	7.82	6.51
Roads, bridges in SC/ST colony	55.65	59.30	61.81	66.86	67.01	80.30
Anganwadi repair in SC/ST colony	9.28	16.72	5.23	7.09	13.53	13.24
Watershed works in SC/ST colony	6.26	7.62	12.22	3.90	9.59	11.12
Public toilets in SC/ST colony	3.50	5.50	9.80	4.44	4.73	6.22
Water supply in SC/ST colony	6.25	16.04	12.25	5.71	8.41	10.37
Housing Schemes						
Indira Avaas Yojana	41.92	136.96	192.74	32.87	129.75	197.78
(expenditure per beneficiary)	(20,263)	(19,182)	(17,217)	(17,404)	(19,413)	(18,171)
Ashraya Yojana	170.20	17.04	61.38	43.15	0.00	66.99
(expenditure per beneficiary)	(19,496)	(20,000)	(11,250)	(20,000)	(0.00)	(13,296)
Kachha-Pakka	8.90	29.73	5.95	12.05	27.04	4.09
(expenditure per beneficiary)	(10,450)	(12,108)	(9,208)	(9,632)	(10,995)	(9,748)
Rural Water Supply						
Repairs and maintenance	88.21	72.83	79.88	57.85	58.86	87.46

Note: The numbers in brackets denote the expenditures per scheme beneficiary.

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[34] The respective test statistics of Kruskal-Wallis independence tests are available on request for the aggregate sample.

Next to SGRY activities, GPs also reported significant financial outlays per household under the Indira Avaas Yojana, Ashraya Yojana, and Kachha-Pakka housing schemes, with the largest financial contributions stemming from the Indira Avaas Yojana and Ashraya Yojana scheme. The outlays under the Avaas Yojana, Ashraya Yojana, and Kachha-Pakka housing schemes are characterized by pronounced time fluctuations across the sampled fiscal years. High budgetary outlays one year are followed by lower budgetary allocations the next year. For the Indira Avaas Yojana scheme, the descriptive statistics point to a continuous increase in the budget allocations during the sampled time period. Considering the allotment of housing funds per beneficiary, the largest financial contributions are reported for the Indira Avaas Yojana and Ashraya Yojana scheme. The entries in Table 13 suggest that lower budgetary allocations to schemes may leave the contribution per beneficiary constant. For example, we find that GPs with male (female) presidents have on average Rs 43 (Rs 170) per GP household at their disposal under the Ashraya Yojana scheme in 2003/04. However, the contribution is close to Rs 20,000 when expressed in terms of the number of beneficiaries. Maybe due to rising budgetary pressures, the financial contributions per beneficiary under each scheme tend to decline.

Do GPs with female and male presidents differ in their budget allocations to households? In general, gender-driven differences can only prevail in areas for which funds are not tied to a specific purpose and for which female and male GP presidents could in principal engage in preference-driven budget allocations. For the present set of GP activities, gender differences could predominantly prevail for activities under the SGRY rural development scheme. Although SGRY funds are tied to infrastructure, development, and employment generating work, GPs possess some discretionary power in the allocation of resources for the activities that come under each of these headings. The evidence from Kruskal-Wallis tests suggests that the fiscal expenditures on structural development programs per household are largely insensitive to the gender of the GP president.[35] Few exceptions exist. Significant gender differences in spending prevail for SGRY works on roads and drainage in 2003/04; for SGRY works on drinking water and on pickups in 2004/05; for SGRY works on public toilets and on roads and bridges in the SC/ST colony in 2005/06. Compared with male-headed GPs, female-headed GPs spend less on roads and bridges and on drainage and drinking water, but comparatively more on public toilets. We are left with comparing the activities on which female- and male-led GPs spend own resources. Unfortunately, we record a very low response rate on survey questions regarding the amount of own resources that is spent on areas like tree plantation, construction works, sanitation, and market facilities. A larger number of responses is obtained for questions that ask GPs to specify the purpose for which own resources were used. We categorize the respective answers as activities in the area of (1) health and education, (2) water supply (inclusive drinking water) and/or sanitation, (3) construction, (4) official expenditures, (5) electricity, and (6) national festivals. The classification of activities is admittedly crude, let alone for its failure to differentiate GPs according to the number of activities carried out under each set of activities. However, the classification is required in order to optimally use the existing observations.

Although the categories of activities are highly aggregated and the relative number of activities does not provide information on the actual level of expenditures, GPs appear to have expenditure priorities that are comparable with those of the 12th Finance Commission grant and the statutory development grants. The evidence suggests that 50 percent, 42 percent, and 40 percent of all GPs with activities in at least one of the sampled categories employ own resources in the area of health and education, GP official expenditures, and water supply, respectively. Twenty-seven percent, 19 percent, and 13 percent of the GPs use own resources to finance construction, national festivals, and electricity work, respectively.

Do reserved female-led and (un-)reserved male-led GPs use their own resources differently? Table 14 summarizes the share of reserved female-led and (un-)reserved male-led GPs with activities in one of the sampled categories. The evidence shows that male-led GPs spread their own funds over more activities than female-led GPs. We cannot tell whether the pursuit of a larger number of activities comes at the expense of quality or whether female-headed GPs use their own resources less efficiently or spend

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[35] The test statistics are available on request.

comparatively more on selected activities. Disregarding the differences in the number of activities, the entries in Table 14 show that both female- and male-headed GPs are more likely to invest in health and education, and water supply and sanitation than in construction or electricity. Unfortunately, a more detailed assessment of gender differences in the use of own resources is infeasible given the lack of observations. In addition, these findings should not be overemphasized as the categories of activities are highly aggregated and the relative number of activities is not an appropriate indicator for expenditures.

Table 14. Relative importance of GP activities (share of total)

	Reserved Female GP President	(Un-)Reserved Male GP President
Construction	0.18	0.32
Water supply and sanitation	0.35	0.42
Health and education	0.41	0.55
GP official expenditure	0.29	0.48
Electricity	0.06	0.16
National festivals	0.18	0.13

Note: Thirteen female-led reserved and 17 male-led (un-)reserved GPs implement at least one of the sampled activities. In order to avoid the conclusions becoming confounded by differences in the number of observations for either female- or male-led GPs, the number of female-led (male-led) GPs with activity i is scaled by the number of female-led (male-led) GPs that spend own resources on at least one of the sampled six activities. For example, the share of female-led reserved GPs with activities in education equals the ratio of the number of female-led reserved GPs with activities in education to the number of all female-led GPs with activities in any of the sampled activities.

The evidence in this section needs to be evaluated against at least two caveats. Firstly, we cannot determine the extent to which Karnataka's fiscal system is a transfer system (cf. World Bank 2004; Vijayalakshmi 2006). In order to determine the extent of devolution, benchmark values are required that serve as thresholds above (below) which the decentralization of financial funds, functions, and functionaries is considered to be (in-)effective. For this purpose, nonbinary-ranking variables have to be created that provide information on the adequacy of financial funds, functions, and functionaries. Alternatively, one could express the devolved funds as share of devolvable funds (cf. Rajaraman and Sinha 2007) to gain insights into the degree of devolution. Undoubtedly, the discussion of this issue would be of interest especially in view of the fact that functional transfers from the state to local governments need to be supported by adequate budgetary provisions. Secondly, we cannot tell to what extent the budget allocation decisions of present GPs reflect the budget allocation decisions of the past and the underlying preferences of past GP leaders. If past budget allocations matter, then female GP presidents are most likely to implement the budget allocation decisions of their male predecessors. This relationship is likely to hold, because female-led GPs predominantly exist due to reservation policies and the underlying rotating principle and the consequent dominance of male-led GPs.

5.4. Administrative and Political Decentralization: Institutions and Processes

Although sound evidence is missing, the limited number of devolved activities and the lack of functionaries suggest that Karnataka's fiscal system consists of transfer payments from the State to the local governments. Because fiscal decentralization is incomplete, there is only limited scope for priority- and demand-driven budget allocation decisions of local governments. In order to avoid this constraint being further amplified by the inefficient use of resources, a transparent and ultimately accountable administrative and political system is needed. To this end, the 73rd Constitutional Amendment and the 1993 Karnataka Panchayati Raj Act devised legal, regulatory, and participatory mechanisms that provide for participatory actions of local citizens and for performance assessments of local governments. Participatory mechanisms include mandatory meetings of the Gram Sabhas and Jamabandhis and public meetings of the GPs, and performance assessments include bookkeeping processes and auditing practices.

To assess the dimension of the accounting system of GPs in Karnataka, the survey compiles information on the maintenance of numerous bookkeeping registers, including tax records and income and expenditure registers. It appears that GPs keep a large set of books, including collection records, revenue records, cash books, wage registers, and scheme registers. In most instances, female- and male-headed GPs do not significantly differ in terms of bookkeeping practices. The exception is the bill book for mean pasi (fish) rent, which GPs with female presidents are less likely to keep. This gender differential cannot be attributed to fundamentals (e.g., environment and location) provided that the reservation system is indeed randomly assigned.

GPs seem to be well governed when looking at the sheer number of books. However, the mere existence of books provides little information about the transparency of GP transactions considering it does not reveal (1) the processes by which the books are governed, (2) the quality of the book entries, or (3) the accessibility of the books. It might be that books are closed to the public or that data entries are incomplete or simply wrong, thus resulting in an accounting system that is neither transparent nor accountable. The present survey does not distinguish the quality of books and registers, and future research should control for this drawback to provide better insights into the quality of Karnataka's local accounting systems and local administration.

In addition to bookkeeping, the participation of local constituents in local governance is another important source of political and administrative accountability and transparency. Effective political participation of local citizens depends on the existence of institutional mechanisms that monitor GP policy activism (i.e., the construction and maintenance of village public goods), evaluate the effectiveness and desirability of the GP activities and financial spending decisions, assess the performance of GP representatives so as to reduce corruption and agency problems in politics, and offer an effective platform for local citizens to express their preferences and needs for development activities. Respective local institutional mechanisms are the Gram Sabha (village assembly), the Jamabandhi, and the general body meeting of GPs. The Gram Sabha is the institutional platform that stimulates the political participation of citizens and decides on the distribution of public goods within villages at least four times a year (cf. Besley et al. 2004).[36] The Jamabandhi program is the annual public audit of the financial records and registers of the GP. Introduced in 2001, the audit is implemented by officials at the Taluk level, who are requested to disseminate the results to the village constituents. The village constituents then use the results to evaluate the functioning of the GP in terms of the effectiveness and desirability of fund utilization.[37] In addition to the Gram Sabha and Jamabandhi meetings, political participation also includes the general body meeting of GPs. Initiated to discuss resource planning at the village level, the meeting is mandated to take place at least once a month.

To characterize the local institutional processes, the survey compiles information on the annual number of meetings, male and female attendance rates, and agenda points. Table 15 documents the number of meetings that have been organized in female- and male-headed GPs in the year preceding the survey. The dominant share of GPs implements two Gram Sabha meetings per year, thus falling short of the mandate to meet four times a year. This finding is in line with the existing evidence that points to the irregularity of Gram Sabha meetings and thus to the potential ineffectiveness of Gram Sabhas as institutional mechanism for promoting participation in the planning and implementation of development programs (e.g., Srivastava 2006, for Uttar Pradesh). As regards the GP general body meetings, the annual number of meetings varies between 6 and 9 times per GP. Inasmuch as the mandated number of annual meetings is 12, the general body meetings appear to be summoned when need arises. Finally, almost all sampled female- and male-led GPs implement the obligatory annual Jamabandhi meeting. Irrespective of the type of meeting, the number of meetings in GPs with female presidents and those with male presidents does not significantly differ.

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[36] Until 2001, Gram Sabhas faced the mandate to meet at least twice a year.

[37] Sivanna and Babu (2002) in a study for Karnataka show that the Jamabandhi program does not ensure transparency and accountability in local governance given the failure of the audit-implementing parties to disseminate the results and the poor quality of the accounting books.

Table 15. Distribution of participatory meetings (share of total)

Type of Meeting	Number of Meetings	Res. Female GP President	(Un-)Res. Male GP President
Gram sabha	0	0.00	0.02
	1	0.05	0.21
	2	0.71	0.53
	3	0.14	0.17
	4	0.10	0.02
	6	0.00	0.02
GP general body	2	0.05	0.00
	3	0.00	0.02
	4	0.05	0.02
	5	0.00	0.06
	6	0.24	0.21
	7	0.05	0.19
	8	0.24	0.17
	9	0.14	0.09
	10	0.10	0.09
	11	0.05	0.09
	12	0.05	0.06
	16	0.05	0.00
Jamabandhi	0	0.11	0.06
	1	0.89	0.94

Note: The values in the GP President columns document the number of GPs with the corresponding number of meetings of type i relative to the total number of GPs.

The existing literature emphasizes pronounced differences in the rate at which men and women attend and participate in local governance processes. Attributed to the lack of voice and decision-making power, the number of female attendance is usually low, especially in male-headed GPs (e.g., Alsop, Krishna, and Sjoblom 2000; Besley, Pande, and Rao 2004). Vijayalakshmi (2006) expresses the concern that the low political involvement of women reduces or even nullifies the importance of local institutions as mechanisms of transparency and accountability. The present survey results also cast doubt on the extent to which women are integrated in local governance processes. The evidence in Table 16 shows that women are significantly less likely to attend Gram Sabha and Jamabhandi meetings compared with men.[38] We do not find significant gender differences in the propensity of women and men to attend GP general body meetings. The absence of gender differences is attributable to the fact that these meetings are only open to elected GP members, who in turn are required to attend.

Regardless of the type of meeting, the attendance rate of women does not significantly differ between female- and male-headed GPs. This finding is closely related to the evidence in Alsop, Krishna, and Sjoblom (2000), according to which women are not more likely to attend local decision-making processes in female-headed reserved GPs. The absence of significant differences between the women's attendance rates in female- and male-headed GPs does not mean that the reservation of seats is an ineffective means for promoting the political participation of women. Instead, the reservation of seats may encourage the political participation of women up to levels that are commonly observed for men.

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[38] The present paper does not seek to explain the participation of women in village meetings. See Alsop, Krishna, and Sjoblom (2000) for a study in Rajasthan and Madhya Pradesh that identifies the political and socioeconomic factors behind the participation of local citizens in GP activities.

Table 16. Attendance rates of local citizens by gender

Type of Meeting	Mean Participation Rate	Res. Female GP President	(Un-)Res. Male GP President
Gram sabha	Men	0.80 (21)	0.69 (46)
	Women	0.20 (21)	0.31 (46)
GP general body	Men	0.50 (21)	0.58 (47)
	Women	0.50 (21)	0.42 (47)
Jamabandhi	Men	0.75 (17)	0.71 (44)
	Women	0.25 (17)	0.29 (44)

Note: The present results also need to be carefully interpreted considering the female and male attendance rate is imperfectly measured. The imperfection results because we normalize the number of female (male) attendees with respect to the aggregate number of attendees. A more appropriate normalizing variable would be the aggregate number of all eligible voters.

Are GPs with low female (high male) attendance rates in Gram Sabha meetings also characterized by low female (high male) attendance rates in Jamabandhi meetings? The evidence from Spearman rank correlation exercises is ambiguous. We do not find evidence for a systematic relationship between the attendance rates of women (men) in estimations for the sample of reserved female GP presidents. In contrast, the female (male) attendance rate in Jamabandhi meetings positively and significantly correlates with the respective attendance rate in Gram Sabha meetings in estimations for (un-)reserved male GP presidents.[39] Although we cannot conclude to what extent these observations reflect systematic relationships, it appears that gender effects in political participation/attendance are more likely to originate in male-headed rather than female-headed GPs.

This hypothesis receives additional support when comparing the share of female- and male-headed GPs with female Gram Sabha attendance rates in excess of 30 percent. The 30 percent rule was introduced by the 2002 Karnataka Panchayati Raj Act to strengthen the presence of women in Gram Sabha meetings by making a quorum dependent on a female attendance rate of at least 30 percent. This target is not met in most of the Gram Sabha meetings in our sample of 80 GPs. Only 34.3 percent of the selected GPs report female attendance rates in excess of 30 percent. Interestingly, the failure to mobilize women is particularly pronounced for reserved female-headed GPs, with female attendance rates above 30 percent being reported in only 14.3 percent of the female-headed GPs. In comparison, female attendance rates above 30 percent are documented in 43.5 percent of the (un-)reserved male-headed GPs. This result is surprising because it suggests that male-headed GPs are more effective in mobilizing women. Systematic research is needed to identify possible explanatory factors, and Section 7.4 will provide first insights.

5.5. The Quality of Rural Service Delivery and Local Governance

This section uses perception data to identify the quality of rural service provision and local governance processes. Unfortunately, perception data create an imperfect mirror image of reality for two main reasons. Firstly, discrepancies between the actual and perceived quality of services and local governance could result from imperfect and/or incorrect knowledge of service delivery mechanisms and local governance institutional processes.[40] Secondly, actual and perceived values could differ because of psychological and individual characteristics (cf. Norton, Lindroth, and Ennett 2003; van der Cruijsen and Eiffinger 2008). In terms of individual characteristics, the initial access to services and local governance structures has a potential effect on quality perceptions and on the consequent value that is

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[39] The respective Spearman rank correlation coefficient of 53 percent is statistically significant at the 1 percent level. The number of observations equals 43.

[40] Banerjee et al. (2006) provide respective evidence from primary schooling in Uttar Pradesh. Van der Cruijsen and Eiffinger (2008) document the importance of incomplete or incorrect knowledge as determinant of perceptions regarding the degree of transparency of the European Central Bank.

assigned to improvements in the accessibility of services. More likely than not, the access to services is associated with diminishing marginal utilities. Individuals are accordingly likely to benefit more from and to attach a larger value to improvements in the availability of services when they depart from a situation of no or poor service availability.

Because perception data have their shortcomings, the survey also collected quantifiable information on access to services, such as the distance and/or walking time to the drinking water source or bus stop, fair price shop, or school, among others. Future work will match these variables with the perception data. In this paper, we note that the use of perception data does not seriously constrain the analysis if (1) the female- and male-headed GPs are characterized by the same extent of discrepancy between perceived and actual values and/or (2) the perceived and actual values are significantly and positively correlated. The remainder of this section discusses the quality of public service delivery from the point of view of service providers (local governments) and service users (households).

5.5.1. Evidence from GP members

This section first analyzes the assessments of GP members regarding the quantitative and qualitative adequacy of rural service delivery to determine the nature of rural service delivery problems in male- and female-headed GPs. Summarized in Table 17, the survey responses of GP members show that service delivery problems are multidimensional, with insufficiencies arising in terms of service quantity and service quality. The multidimensionality of service delivery problems becomes particularly evident from education, which suffers from a lack of teachers and from the nonexistence of middle and high schools and anganwadi facilities. In addition to education, GP members in both female- and male-headed GPs predominantly complain about the availability and quality of water supply, health-care and sanitation facilities, roads, and housing.

Comparing the degree of service satisfaction across service sectors, inconsistencies arise. For example, access to health-care services is considered to be restricted due to distance and poor transportation, but the majority of GPs do not perceive the transportation system per se to be an area of prime concern. Do GP members in male- and female-headed GPs significantly differ in their problem perceptions? Significant differences exist in the perceptions regarding the adequacy of health care and drainage and the inadequate number and maintenance of streetlights. GP representatives in female-headed GPs are more critical of service provision in these sectors.[41]

Given the nature of rural service delivery problems, the GP members in male- and female-headed GPs also assess the severity of the problems on a scale from *most serious* to *next most serious* to *least serious*. In order to identify possible time variation in the severity of the problems, the survey reports the perceptions of GP members at the beginning of the election term and at the time of the survey. Table 18 summarizes the results. Both at the beginning of the election term and at the time of the survey, the dominant share of GP members in both female- and male-headed GPs consider problems in the provision of water services to be most serious. For the remaining service sectors, assessments regarding the severity of service delivery problems differ between GP members. For example, GP members in female-headed GPs are equally likely to perceive problems in education or health to be most, next most, or least serious, at least at the beginning of the election term. The evidence also points to bipolar cases, where GP members are equally likely to perceive problems in service delivery to be most and least serious. Cases in point are sanitation, electricity, and housing at the time of the survey in the sample of GP members in male-headed GPs. Assuming that perceptions regarding service delivery problems adequately reflect reality, the differences in perceptions are interesting inasmuch as they suggest that the quality of service provision might be influenced by exogenous (location-specific) factors. It needs to be subject to further research to identify the respective factors that account for the differences in problem perceptions between the same group of GP members.

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[41] The respective Kruskal-Wallis test statistics are available on request.

Table 17. Problem perceptions in Gram Panchayats (share of total)

	GP Members in Reserved Female-led GP	GP Members in (Un-) Reserved Male-led GP
Water		
Insufficient supply of drinking water	0.59	0.57
Inadequate quality of drinking water	0.24	0.28
Health		
Inadequate quality of in-village health facility	0.57	0.49
Difficulties in accessing health facilities due to distance and poor transportation	0.77	0.66
Irregular village visits of the ANM worker	0.46	0.30
Electricity		
Insufficient supply of electricity for agriculture	0.61	0.57
Education		
Insufficient number of teachers	0.34	0.25
Irregular attendance of teachers	0.10	0.10
Absence of middle school	0.35	0.28
Absence of high school	0.76	0.77
Anganwadi is closed	0.09	0.15
Insufficient number of anganwadi workers	0.03	0.06
Anganwadi workers do not come to work regularly	0.05	0.04
Sanitation		
Insufficient quantity of public toilets	0.89	0.85
Poor drainage	0.95	0.87
Poor maintenance	0.62	0.60
Roads		
Inadequate quality of village roads	0.86	0.67
Inadequate quality of village approach road	0.59	0.86
Absence of connectivity to main road	0.16	0.14
Streetlights		
Insufficient quantity of streetlights	0.59	0.44
Inadequate maintenance of streetlights	0.53	0.35
Housing		
Shortage of housing benefit	0.96	0.96
Transport		
Absence of bus service to village	0.42	0.43
Infrequent bus service	0.49	0.41
Observations	79	162

Note: The share of total is the number of GP members who identify a problem relative to the total number of GP members in either female-headed reserved GPs or male-headed (un-)reserved GPs. The survey also compiles information on problems in the area of irrigation, collective activities, illicit liquor problems, and livelihood opportunities. Due to a lack of responses, the respective values are not reported. GP members include members of the executive committee (president, vice president, secretary) and regular members. ANM = rural health care worker.

Table 18. Problem ranking in Gram Panchayats (share of total)

	Begin of Election Term		Time of Survey	
	GP Members in Res. Female-Led GP	GP Members in (Un-) Res. Male-Led GP	GP Members in Res. Female-Led GP	GP Members in (Un-) Res. Male-Led GP
Water				
Most serious	0.82	0.73	0.59	0.47
Next most serious	0.16	0.16	0.14	0.24
Least serious	0.02	0.11	0.28	0.29
Health				
Most serious	0.29	0.53	0.19	0.50
Next most serious	0.33	0.29	0.48	0.27
Least serious	0.38	0.18	0.33	0.23
Electricity				
Most serious	0.30	0.21	0.56	0.28
Next most serious	0.30	0.41	0.22	0.38
Least serious	0.39	0.38	0.22	0.34
Education				
Most serious	0.33	0.22	0.50	0.17
Next most serious	0.33	0.33	0.50	0.52
Least serious	0.33	0.44	0.00	0.31
Sanitation				
Most serious	0.21	0.26	0.22	0.17
Next most serious	0.53	0.45	0.58	0.52
Least serious	0.26	0.28	0.20	0.31
Roads				
Most serious	0.17	0.17	0.19	0.33
Next most serious	0.48	0.43	0.48	0.38
Least serious	0.34	0.39	0.32	0.29
Streetlights				
Most serious	0.14	0.06	0.07	0.16
Next most serious	0.36	0.31	0.07	0.42
Least serious	0.50	0.63	0.86	0.42
Transport				
Most serious	0.18	0.15	0.54	0.17
Next most serious	0.45	0.40	0.15	0.49
Least serious	0.36	0.45	0.31	0.34
Housing				
Most serious	0.25	0.23	0.35	0.44
Next most serious	0.19	0.27	0.22	0.19
Least serious	0.56	0.51	0.43	0.37

Note: The survey also compiles information on problems in the area of irrigation, collective activities, illicit liquor problems, and livelihood opportunities. Due to a lack of responses, the respective values are not reported. For the remaining service areas, the number of observations is as large (small) as 45 (3) and 99 (9) for female- and male-headed GPs in the area of sanitation (education).

At least for water, service delivery has improved over the course of time as an increasing share of GP members reports water supply problems to be next most or least serious. According to Kruskal-Wallis test statistics, the time effects in problem ranking are statistically significant in the sample of female- and male-headed GPs. Significant time-variations in problem ranking also prevail in the area of streetlights in female-headed GPs, in the area of roads in male-headed GPs, and in the area of housing in male-headed GPs.[42] An increasing share of GP members consider problems in the delivery of housing and roads (streetlights) services to be most (least) serious. Unfortunately, we cannot determine whether the changes in ranking reflect absolute or relative changes in the quality of rural service provision. True improvements in service delivery would involve absolute changes.

To identify possible gender effects of rural service provision, we also ask whether GP members in male- and female-headed GPs rank problems differently. According to Kruskal-Wallis test statistics, gender effects do not prevail in almost all sampled service sectors. One exception prevails for streetlights. At the time of the interview, GP members in female-headed GPs consider streetlights to be significantly more problematic compared with GP members in male-headed GPs.[43] Another exception prevails for health at the beginning of the election term and at the time of the survey, with GP members in female-led (male-led) GPs considering health service provision to be less (more) problematic than GP members in male-led (female-led) GPs.[44]

Although GP members in reserved female-headed and (un-)reserved male-headed GPs by and large do not differ in their assessment of the severity of service delivery problems, there might be heterogeneities in terms of the actions taken and the officials and politicians involved to solve or alleviate the constraints in rural service provision. This section concludes by discussing the officials and politicians that GPs approach to address the three primary community problems at the time of the GP election. The evidence in Table 19 shows that the largest share of GP members in female- and male-headed GPs approaches multiple parties. Although it needs to be left for future research to identify the individual institutions and their relative importance, the evidence suggests that representatives at the village level (GPs) and/or block level (Taluk Panchayats) are of prime importance in solving service delivery problems. Verbatim survey information shows that cooperation with officials and politicians facilitates the implementation of service delivery improving activities such as (1) the installation of bore wells, (2) the repair of roads, or (3) the provision of streetlights. However, only 25 percent to 38 percent of the GP members in both the reserved female- and (un-)reserved male-headed GPs consider the outcomes of these activities to be satisfactory. The main sources of dissatisfaction are the untimely or insufficient release of grants or the inadequate or insufficient number of new capital and infrastructure installments (e.g., drainage systems, bore wells, and streetlights). Another source of complaint is the absence of any action taken (despite assurance).

The failure to improve rural service provision may arise not only because of improper and inadequate implementation of service delivery–improving activities, but also because of inadequate planning of development work in terms of scope and dimension. This section uses verbatim records and reviews the institutions and people that GP members contacted when preparing development works in the areas of agricultural production, soil and water conservation, social welfare, health, irrigation, cooperative societies, and infrastructure, among others. The survey distinguishes officials at the state level; local government representatives at the district, block, and village levels; and sector-specific professionals (e.g., veterinarians and agricultural extension workers) as possible sources of information and advice.

The verbatim records suggest that development project plans are prepared in cooperation with only a small group of consultants.[45] The consultants tend to be experts in the area of interest. For example,

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[42] The respective chi-squared test statistics of the Kruskal-Wallis tests are available on request.

[43] The chi-squared test statistic of the Kruskal-Wallis test equals 5.41, which is statistically significant at the 5 percent level.

[44] The chi-squared test statistic of the Kruskal-Wallis test equals 3.87 and 4.93 for the data referring to the beginning of the election term and to the time of the interview. The statistical significance prevails at the 5 percent significance level. The test statistics for the remaining service sectors are available on request.

[45] The survey does not capture informal exchanges at the personal level with, for instance, the (dis-)advantaged community

male and female GP presidents consult banks and central bank officials when deciding on plans for the development of cooperative societies. Their comparative advantage prevails with respect to recommendations on cooperative savings, credit models, and supervision. In addition to the specialists, GP members also consult the members of the legislative assembly and/or politicians at the district, block, and village GP levels. These groups appear to be particularly important consultants in rural development projects that are associated with significant and visible financial costs (e.g., minor irrigation or housing).

Table 19. Parties Involved in improving rural service delivery (share of total)

	Problem of Rank 1		Problem of Rank 2		Problem of Rank 3	
	GP Members in Res. Female-Led GP	GP Members in (Un-)Res. Male-Led GP	GP Members in Res. Female-Led GP	GP Members in (Un-)Res. Male-Led GP	GP Members in Res. Female-Led GP	GP Members in (Un-)Res. Male-Led GP
GP president	0.00	0.01	0.00	0.01	0.00	0.01
GP secretary	0.03	0.01	0.03	0.01	0.00	0.02
TP executive officer	0.00	0.00	0.00	0.01	0.01	0.00
Other	0.00	0.00	0.00	0.00	0.01	0.01
MLA	0.00	0.01	0.03	0.01	0.00	0.01
MP	0.00	0.00	0.00	0.00	0.00	0.00
Multiple	0.58	0.57	0.56	0.49	0.47	0.49
GP and TP official	0.19	0.17	0.18	0.15	0.22	0.21
ZP and district official	0.00	0.00	0.00	0.00	0.01	0.00
GP only	0.16	0.20	0.19	0.25	0.19	0.20
No one met	0.01	0.02	0.03	0.07	0.09	0.06
Observations	79	162	79	162	79	162

Notes: The header refers to the three most important problem areas. The questionnaire asks GP members to identify the three primary problem areas in their GP. In line with the results in Table 18, the predominant share of GP members in female- and male-headed GPs consider water supply to be the most problematic area. Less consensus exists with respect to the second and third most important problem areas. GP members in both female- and male-headed GPs emphasize problems in the delivery of sanitation, roads, housing, and electricity services. GP = Gram Panchayat, TP = Taluk Panchayat, ZP = zZilla Panchayat, MLA = Member of the Legislative Assembly, MP = Member of Parliament.

5.5.2. Evidence from households

The previous section has identified a number of service sectors that GP members consider to be problematic. Ideally, GPs seek to solve the problems to improve the access of local constituents to basic services. The effectiveness of the problem/solution approaches depends on the extent to which they match the problem perceptions of households. This section does not directly review the problem perceptions of households, but analyzes the extent to which village households are (dis-)satisfied with rural service provision. We cannot preclude that assessments regarding the degree of satisfaction depend on the need for services, especially if the marginal utility of service consumption decreases with service availability. If this is true, those in greater need for a particular service are likely to be more satisfied with small improvements in service delivery than those with safe and reliable access to services.

In order to gain insights into the extent to which services are needed, households are asked to rank individual services as being *most important*, *less important*, and *least important*. Figure 3 summarizes the results for households in female- and male-headed GPs. The evidence suggests that male and female household respondents consider service delivery in the area of drinking water supply and drainage to be of primary importance, while access to health-care facilities is perceived to be less

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groups and their influence on the scope and dimension of development projects.

important . Intervillage road connectivity, bus transportation, and electricity supply are equally likely to be most, less, and least important.[46]

Figure 3. Household ranking of rural services (share of total)
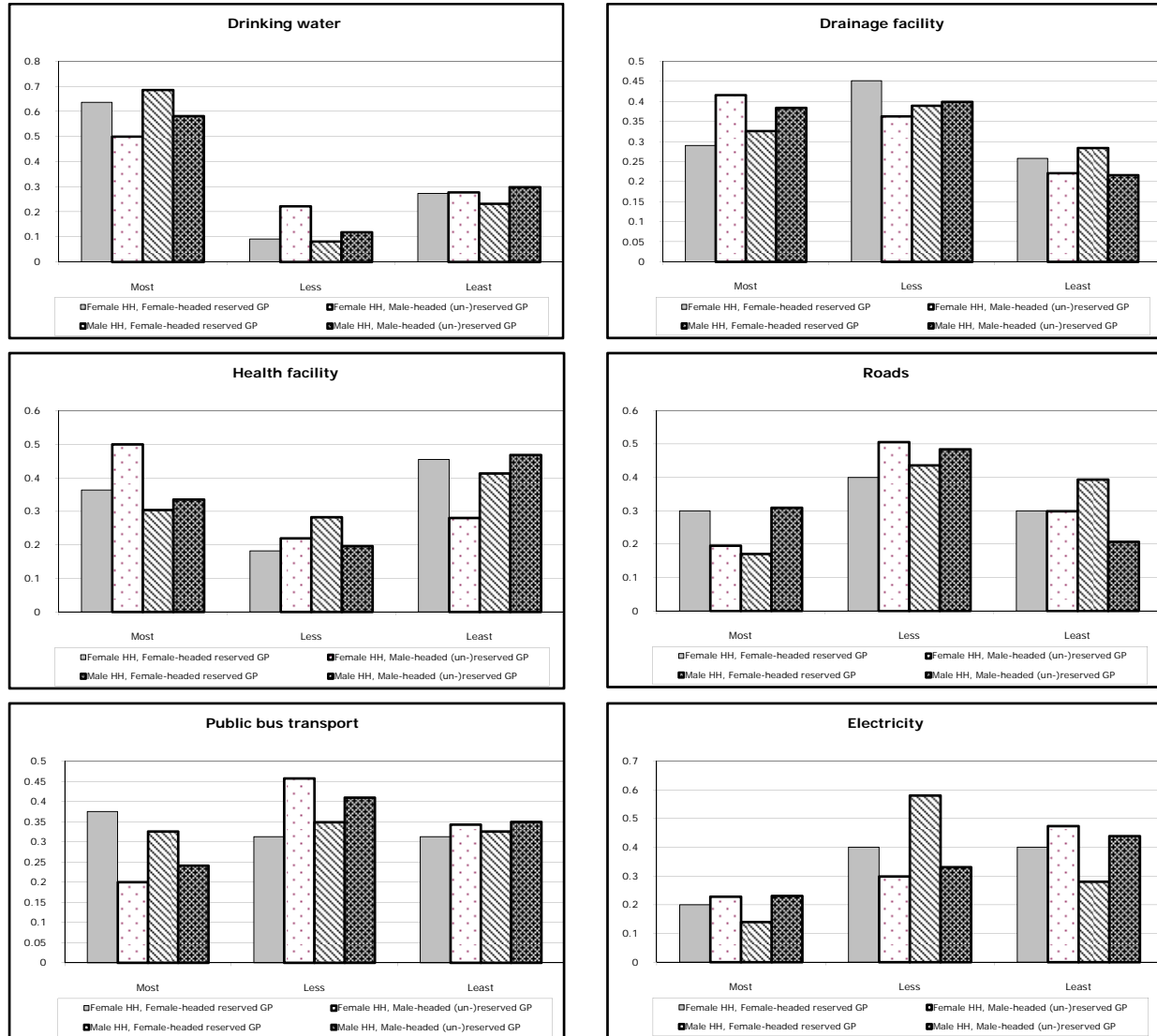
Notes: The figure denotes the share of male or female respondents in female-headed reserved or male-headed (unreserved) GPs that consider the provision of service i to be *most important*, *less important*, and *least important*. The share of total is gender-specific. For instance, the share of total for male household respondents (Male HH) in the category *most important* is the number of male household respondents with answers in that category relative to the aggregate number of male household respondents in all categories.

The visual inspection of the data suggests and independence test statistics confirm that the importance assigned to services does not differ between households in reserved female- and (un-)reserved male-headed GPs. The only exception prevails for service provision in road infrastructure, where (male)

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[46] For a number of services (PDS, schooling, anganwadi, agricultural extension, the management of village tanks, and veterinary services), the number of responses is very low (i.e., below 50 for the aggregate sample of responses). This gives too much weight to individual observations; therefore, we do not discuss these services. Summary statistics for all service sectors are available on request.

household respondents in male-headed GPs consider road infrastructure investment to be significantly more important than (male) household respondents in female-headed GPs. Male and female household respondents do not significantly differ in the importance assigned to almost all sampled services. The exception concerns health facilities, and independence test statistics suggest that male household respondents consider health service delivery to be less important than female household respondents. This result originates with the sample of households in (un-)reserved male-headed GPs.[47]

We next assess the extent to which households are satisfied with rural service provision. Gender effects are explored by asking whether (1) male and female household respondents or (2) household respondents in female- and male-headed GPs differ in their assessments regarding the quality of rural service provision. Table 20 summarizes the share of households that are *satisfied*, *somewhat satisfied*, or *not satisfied* with the delivery of a specific service i. Contrary to expectations, the dominant share of households consider average service delivery to be satisfactory. Households are particularly satisfied with the quality of services in areas that are usually considered to perform poorly, that is, water supply in terms of quality, public transportation (at the Hobli and Taluk level), government schools and government school teachers, and anganwadi workers. At the same time, households are dissatisfied with the access to drainage facilities; with agricultural extension; and with the public management of village tanks, forestry, and irrigation facilities. Inasmuch as most rural citizens derive their primary income from agriculture, the degree of dissatisfaction is probably influenced by the importance of these services for income and livelihood.

The degree of satisfaction with service delivery is likely to depend on the extent to which service i addresses needs and preferences. Gender differences in the degree of satisfaction with service delivery could thus arise from gender differences in the importance assigned to services and the frequency of service use. For the present set of household data, male and female household respondents are differently satisfied with veterinary services and with services in the areas of water supply, drainage and irrigation facilities, the public education system, the public health system, and intervillage bus transport facilities (cf. Table 20, column 6). The gender differences are such that women are more satisfied with service delivery in each of these sectors. Because women are the main users of many of these services, the comparatively benevolent quality assessments could reflect their value judgments regarding changes in the quality of service delivery in the course of time.

Chattopadhyay and Duflo (2004) and Beaman et al. (2006) show that the degree of satisfaction with rural service delivery differs between female- and male-headed GPs. As becomes evident from Table 21, similar relationships prevail in the present data set for service delivery in the area of (1) drinking water supply, (2) drainage facilities, (3) intervillage and Hobli/Taluk bus transportation, (4) public distribution of food and civil supplies (PDS), (5) electricity, (6) veterinary services, and (7) the public management of village tanks, forest, and irrigation facilities. In line with the existing evidence, male-headed GPs are perceived to be more successful in providing rural services in these areas than female-led GPs. However, households tend to be significantly more satisfied with the quality of water supply and government schooling provided in female-led GPs. These results are interesting in view of the fact that the delivery of most services depends on the availability of tied funds, which should be exogenous to the gender of the GP president. Assuming that this is true, the differences in service satisfaction could then arise from dissimilarities in the efficient use of resources.

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[47] The Kruskal-Wallis test statistics are not reported but are available on request.

Table 20. Satisfaction with rural service delivery (share of total) — Household perspective

Service Area	Gender of HH Respondent	Satisfied	Somewhat Satisfied	Not at All Satisfied	Kruskal-Wallis (chi-squared)
Public drinking water supply	Male	0.41	0.48	0.11	5.66**
	Female	0.50	0.42	0.08	
Quality of water supply	Male	0.70	0.24	0.05	1.82
	Female	0.75	0.20	0.04	
Roads between village	Male	0.12	0.63	0.26	18.99***
	Female	0.21	0.63	0.16	
Drainage facilities	Male	0.07	0.41	0.52	5.82**
	Female	0.10	0.46	0.44	
Bus transport facility between village	Male	0.48	0.33	0.19	5.22**
	Female	0.55	0.32	0.13	
Bus transport facility to Hobli/Taluk	Male	0.75	0.19	0.07	0.01
	Female	0.75	0.19	0.07	
PDS	Male	0.57	0.34	0.09	0.09
	Female	0.59	0.33	0.08	
PDS, quantity of supply	Male	0.71	0.23	0.06	2.90*
	Female	0.76	0.21	0.03	
PDS, quality of supply	Male	0.69	0.26	0.06	1.43
	Female	0.72	0.25	0.03	
PDS, fairness of shopkeeper	Male	0.72	0.21	0.06	5.57**
	Female	0.79	0.18	0.03	
Government school	Male	0.89	0.09	0.03	2.56
	Female	0.92	0.06	0.02	
Government school teacher	Male	0.92	0.05	0.02	10.53***
	Female	0.98	0.01	0.01	
Anganwadi	Male	0.83	0.08	0.09	0.23
	Female	0.81	0.11	0.07	
Anganwadi worker	Male	0.91	0.05	0.04	0.06
	Female	0.92	0.05	0.03	
Government health-care doctor	Male	0.49	0.37	0.14	8.08***
	Female	0.61	0.29	0.10	
Electricity	Male	0.30	0.63	0.07	1.29
	Female	0.27	0.63	0.09	
Veterinary service	Male	0.30	0.29	0.41	4.44**
	Female	0.34	0.35	0.32	
Agricultural extension worker	Male	0.31	0.29	0.40	1.20
	Female	0.22	0.35	0.43	
Public management	Male	0.27	0.18	0.55	2.53
	Female	0.08	0.24	0.68	

Notes: The share of total equals the ratio of satisfied (somewhat satisfied, dissatisfied) male or female respondents to the aggregate number of male or female respondents. The difference between 1 and the sum of the share of households that are satisfied, somewhat satisfied, or unsatisfied with the delivery of service i equals the share of household respondents that cannot provide information on the quality of service i. Public management refers to the management of village tanks, forest, and irrigation facilities. The table does not include services for which only few responses are given (e.g., private health-care doctor). Excluding the *do not know* responses, the number of observations for the sample of male (female) household respondents for the given services varies between 102 and 718 (25 and 242). The Kruskal-Wallis test statistic is computed for the null hypothesis that there are no differences in the degree of satisfaction between female and male household respondents. PDS = public distribution of food and civil supplies. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 21. Satisfaction with rural service delivery (share of total) — GP perspective

Service Area	Gender of GP President	Satisfied	Somewhat Satisfied	Not at All Satisfied	Kruskal-Wallis (chi-squared)
Public drinking water supply	(Un-)Res. Male	0.47	0.46	0.08	3.57**
	Res. Female	0.44	0.40	0.17	
Quality of water supply	(Un-)Res. Male	0.72	0.22	0.06	5.51**
	Res. Female	0.79	0.20	0.004	
Roads between village	(Un-)Res. Male	0.15	0.62	0.24	1.37
	Res. Female	0.10	0.65	0.25	
Drainage facilities	(Un-)Res. Male	0.09	0.41	0.50	4.75**
	Res. Female	0.06	0.36	0.58	
Bus transport facility between village	(Un-)Res. Male	0.55	0.29	0.16	9.87***
	Res. Female	0.43	0.36	0.22	
Bus transport facility to Hobli/Taluk	(Un-)Res. Male	0.79	0.16	0.05	2.75*
	Res. Female	0.75	0.12	0.13	
PDS	(Un-)Res. Male	0.62	0.32	0.06	17.19***
	Res. Female	0.49	0.34	0.17	
PDS, quantity of supply	(Un-)Res. Male	0.74	0.21	0.06	0.30
	Res. Female	0.71	0.24	0.05	
PDS, quality of supply	(Un-)Res. Male	0.71	0.23	0.05	0.45
	Res. Female	0.68	0.29	0.03	
PDS, fairness of shopkeeper	(Un-)Res. Male	0.76	0.19	0.05	1.38
	Res. Female	0.71	0.23	0.06	
Government school	(Un-)Res. Male	0.90	0.07	0.03	2.90*
	Res. Female	0.94	0.06	0.004	
Government school teacher	(Un-)Res. Male	0.94	0.03	0.02	2.40
	Res. Female	0.97	0.03	0.004	
Anganwadi	(Un-)Res. Male	0.82	0.10	0.08	0.01
	Res. Female	0.83	0.04	0.13	
Anganwadi worker	(Un-)Res. Male	0.91	0.05	0.03	0.08
	Res. Female	0.91	0.04	0.05	
Government health-care doctor	(Un-)Res. Male	0.54	0.35	0.11	1.05
	Res. Female	0.52	0.30	0.18	
Electricity	(Un-)Res. Male	0.31	0.61	0.08	4.57***
	Res. Female	0.24	0.65	0.11	
Veterinary service	(Un-)Res. Male	0.42	0.29	0.30	58.58***
	Res. Female	0.14	0.33	0.53	
Agricultural extension worker	(Un-)Res. Male	0.25	0.32	0.43	0.29
	Res. Female	0.26	0.25	0.49	
Public management	(Un-)Res. Male	0.15	0.16	0.68	9.24***
	Res. Female	0.31	0.31	0.37	

Note: See notes in Table 20. Excluding the *do not know* responses, the number of household observations for the sample of female-headed (male-headed) GPs varies between 35 and 230 (79 and 639). The Kruskal-Wallis test statistic is computed for the null hypothesis that there are no differences in the degree of household satisfaction in female- and male-headed GPs.

The remainder of this section analyzes the mechanisms that households use to communicate their service delivery problems and service needs. Attention is paid to the direct interaction with local public service providers and to institutional processes such as village council meetings. As regards local public service providers, most (male and female) households contact officials at the lowest government tier to

address service delivery problems (see Figure 4). The importance of local politicians as a problem resolution mechanism could be an indicator for the importance of local network relationships. Interestingly, male and female household respondents are more likely to contact male rather than female GP members. This result could be driven by the smaller share of female GP members or by behavioral and institutional factors that cause female GP members to be less effective in addressing service delivery problems.

Figure 4. Household interaction with Panchayat officials (share of total)
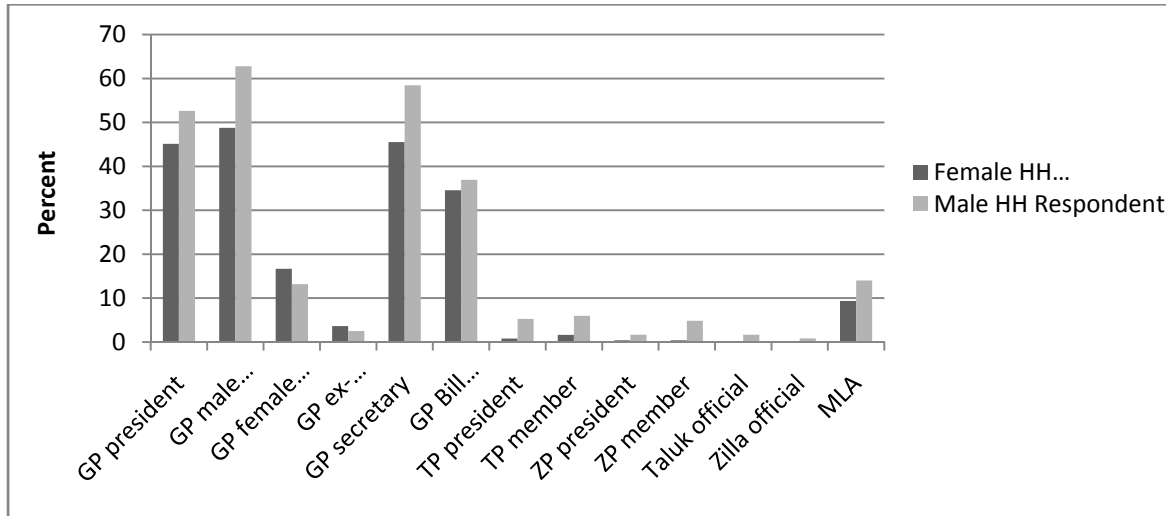
Notes: G-Pres = GP president, G-Male = GP male member, G-Female = GP female member, G-Ex = GP ex-member, G-Secrt = GP secretary, G-Bill = GP bill collector, MLA = member of the legislative assembly. The share of households with contacts to the Taluk or Zilla Panchayat president, Taluk or Zilla Panchayat members, or Taluk or Zilla Panchayat officials is not plotted due to the low number of responses. The share of total describes the share of male (female) household respondents with interaction with Panchayat official i relative to the total number of male (female) household respondents.

Going beyond the existing studies, we also ask whether female and male household respondents approach different Panchayat officials to deal with problems in rural service delivery? In order to allow for the possibility that the stakeholder intervention approach is influenced by the gender of the GP president, we compute separate test statistics for female- and male-headed GPs.[48] Considering the sample of households in reserved female-headed GPs, female household respondents are significantly less likely to approach male GP members, GP secretaries, or Zilla Panchayat members compared with male household respondents. Considering the sample of households in (un-)reserved male-headed GPs, female and male household respondents differ in their propensity to interact with GP and Taluk Panchayat presidents, GP secretaries, male GP members, Taluk and Zilla Panchayat members, and Taluk Panchayat officials. Again, the gender bias is such that female household respondents are less likely to interact with each of these parties.

Considering the average number of times at which female- and male-headed households interact with public officials, Kruskal-Wallis test statistics do not lend strong support to the existence of significant differences. The exception arises for households in male-headed GPs, where female household respondents indicate that they interact significantly fewer times with the GP president, male GP members, and the GP bill collector compared with the average male household respondent. At the core of these relationships could be a lack of self-confidence on the part of female household respondents and—closely related—social stigma, belief and behavioral structures, and weak network relationships.

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[48] The Kruskal-Wallis test statistics are available on request.

Interactions with GP officials are especially likely to be guided by established relationships and to follow informal and accordingly nontransparent processes. A more formal mechanism for the communication of service needs and service delivery problems are Gram Sabha meetings. We conclude this section by presenting the perceptions of households regarding the quality of Gram Sabha processes and activities. Attention is paid to the degree of household satisfaction with (1) the dissemination of information about Gram Sabha meetings, (2) the agenda, location, and timing of Gram Sabha meetings, and (3) the identification of the beneficiaries of schemes and programs. We do not separately report the results for households in female- and male-headed GPs because Kruskal-Wallis test statistics point to the statistical insignificance of the differences. Stated differently, the degree of satisfaction with Gram Sabha meetings does not depend on the gender of the GP president.

Considering the results, the evidence suggests that female household respondents are less able to evaluate the quality of Gram Sabha meetings compared with male household respondents. This finding is consistent with the low Gram Sabha attendance rate of women, which is documented in Section 5.4. In order to avoid biases due to *do not know* responses, the sample is restricted to household respondents who can classify the quality of Gram Sabha meetings as being *satisfactory*, *somewhat satisfactory*, or *unsatisfactory*. For this sample, female and male household respondents do not significantly differ in their perceptions regarding the quality of the Gram Sabha processes and activities in almost all dimensions. The exception concerns the degree of satisfaction with the time and location of the meetings. We find male household respondents in male-headed GPs to be more likely to be satisfied with the time and location of Gram Sabha meetings than female household respondents.

The share of female and male households that are satisfied with Gram Sabha meetings is high: 90 percent to 95 percent for the dissemination of information about Gram Sabha meetings and the location and timing of them, and 68 percent to 73 percent for the agenda of Gram Sabha meetings and the identification of beneficiaries. As regards the agenda of Gram Sabha meetings and the identification of beneficiaries, the large share of satisfied household respondents need to be compared against a share of up to 20 percent dissatisfied household respondents. The degree of dissatisfaction is more pronounced for female household respondents, which could reflect the inability of women to raise their voice during Gram Sabha meetings and/or echo the unwillingness of the Gram Sabha attendees to listen to and take notice of gender-specific concerns.

5.6. Synthesis

The descriptive statistics have provided information on (1) basic characteristics of GP leaders and household respondents, (2) service delivery in terms of satisfaction, funding, problems, and problem/solution approaches, and (3) political participation in Gram Sabha meetings. Each of these points has been addressed from a gender perspective, either in terms of GP leaders or in terms of the household survey respondents. We found that our sample is characterized by pronounced differences between the socioeconomic, political, and institutional properties of (1) (un-)reserved male and reserved female GP presidents and (2) male and female household respondents. We cannot tell to what extent the gender differences in characteristics coincide with gender differences in preferences; differences in the perceived quality of service provision and local governance may reflect not only gender effects associated with reservation policies, but also gender effects associated with individual characteristics.

Closely related, the descriptive statistics indicate that the gender effects of reservation policies are confined to very few service categories. When significant, the test statistics suggest that local citizens are less satisfied with the quality of rural service delivery in GPs reserved for female presidents. The evidence also emphasizes differences in the satisfaction of female and male household respondents with the delivery of particular services. We expect that the nature of the responses is substantially influenced by the gender-specific relevance of some public services (e.g., rural water supply) and thus by gender-specific preferences.

So far, we have found weak evidence that the reservation of seats for women (1) gives rise to a gender effect in service provision and local governance and (2) accounts for differences in service

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provision and local governance between female- and male-headed GPs. The question then is, Which factors influence rural service provision and local governance? In addition, the descriptive analysis has emphasized single variables and thus failed to discover possible interdependencies and relationships between variables. The second part of this paper adopts a multidimensional focus to identify the determinants of rural service provision and local governance. The following sections describe the empirical specifications (Section 6) and the empirical results (Section 7). It will become evident that the reservation of village council seats for women is a desirable strategy in itself, but not an a priori mechanism for promoting gender-sensitive rural service provision and local governance.

6. EMPIRICAL MODEL

As stated, this paper is not exclusively concerned with identifying the effects of women's reservation policies on rural service provision and local governance, but also seeks to identify the institutional, social, and political factors that influence local governance and local rural service provision. To this end, we explore (1) the determinants of the political selection of women and men into Gram Panchayats (GPs), (2) the factors that affect the perceptions of local service providers and service users about the quality of service provision and local governance processes, and (3) the social and political factors behind the budget allocation decisions of local GP policymakers. This section presents the empirical model specifications and the empirical estimation approaches.

6.1. Political Selection

In a first step, we follow Chattopadhyay and Duflo (2004), Besley, Pande, and Rao (2005b), and Ban and Rao (2008b) and seek to identify the socioeconomic factors that explain the political selection of local citizens and the election in reserved positions. The empirical model is defined as

$$P_{ij} = \alpha + \beta X_{ij} + \delta C_{ij} + \gamma (G_j X_{ij}) + \nu_j + \varepsilon_{ij}, \tag{1}$$

where P_{ij} is a binary dummy variable that equals unity if the respondent i in GP j is a GP member and zero otherwise. Throughout this paper, the parameter ν_j denotes a set of GP dummies such as (district) fixed effects[49] and ε_{ij} is the error term. C_{ij} is a set of respondent control variables (i.e., age and age squared),[50] and vector X_{ij} includes indicator variables of the economic and social strength and of the institutional and political history of the individual respondent i in GP j.

In addition to individual characteristics, we also include GP institutional characteristics to control for the possibility that GP characteristics affect the probability of being elected and that the results are thus not exclusively due to differences in the general population. The existence of such effects is documented by Besley, Pande, and Rao (2005b), who show that the presence of a dominant caste and higher village literacy raise the importance of landholdings, family political history, and education as sources of political selection. In the present set of estimations, the effect of GP property G_j on the political selection of local citizens with a particular characteristic X_{ij} is captured with the interaction term $G_j X_{ij}$. To provide a detailed overview of the determinants of political selection, model (1) is estimated with and without the interaction term for different sample specifications, which distinguish the reservation status, the gender, and the position of GP politicians. A detailed overview of the sample specifications is given in Table 22 and Table 23 in Section 7.1.

6.2. Satisfaction with Rural Service Delivery

The descriptive statistics suggest that GPs provide a large number of rural services. In most instances, service delivery is tied to purpose-specific funds, and GP differences in service quality can mainly result from GP differences in the efficient use of the financial resources. To test for gender effects of reservation policies, the interest ought to be with service areas for which GP presidents have (some) discretionary power in terms of spending and in terms of the mode of service delivery. Two respective service areas are (drinking) water supply and sanitation. To explain, both drinking water and sanitation/drainage are part of many development programs, which give GPs some leeway in deciding the amount and the way (e.g., hand pumps, wells, pipelines, public or individual toilets) of spending. The access to and the quality of drinking water and sanitation/drainage services depend on the mode of service delivery; therefore, GP differences in the mode of service delivery result in GP differences in the availability and quality of

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[49] Ideally, we would like to include village fixed effects in household-level estimations. However, the comparatively small number of observations precludes this approach.

[50] Because we merge the information of two thematically different data sets, other household control variables cannot be defined.

drinking water and sanitation/drainage services. The question then would be whether these differences are attributable to the gender effects of reserving village council seats for women or due to something else. Given these considerations, the remainder of this paper seeks to answer this question for drinking water supply and sanitation. In a first step, we identify the factors that determine the degree of household satisfaction with rural service provision. To this end, we estimate the nonlinear probability model

$$Q_{ij,k} = \alpha + \beta X_{ij} + \gamma G_j + \phi(G_j X_{ij}) + \nu_j + \varepsilon_{ij}. \tag{2}$$

Here, $Q_{ij,k}$ is a polytomous categorical response variable that captures the perceptions of household respondents regarding the quality of rural service provision in service domain k, that is, drinking water supply and sanitation. The perceptions are coded as *very satisfied*, *somewhat satisfied*, and *unsatisfied*.[51] To identify the gender effect of reserving local council seats for women, a binary dummy variable G_j is included. Dependent on the specification, G_j equals one for reserved female-headed or (un-) reserved male-headed GPs and zero otherwise.

We cannot preclude that the degree of satisfaction with rural service provision depends on the stage of economic, infrastructure, and human development and the consequent effect on the access to services. One can argue that development positively correlates with the access to services, and vice versa. In order to control for the possible effect of economic, infrastructure, and human development and of intervillage communication on service quality, G_j also includes the Comprehensive Composite Development Index (CCDI) of the Government of Karnataka and information on the number of Gram Sabha meetings. ν_j and ε_{ij} are defined as in equation (1).

Similar to specification (1), X_{ij} includes indicator variables of the economic and social position and of the institutional and political history of the household respondent i in GP j. In addition to these factors, X_{ij} also contains information on the household attendance of Gram Sabha meetings. If Gram Sabha meetings are an effective platform for the communication of service delivery constraints and problems, then Gram Sabha attendance should have a noticeable effect on service quality. X_{ij} also includes information on the residential location of household i in GP j. The assumption is that the quality of and the access to drinking water and sanitation vary with the geographical distance to the village center: Households within the main village are more likely to have easier and more frequent access to drinking water than those in scheduled caste/scheduled tribe (SC/ST) colonies and in hamlets outside the main village. Finally, the vector X_{ij} also includes information on the household membership patterns in GPs or in political parties. We hypothesize that memberships may enable households to gain preferential access to services, with consequent effects on the degree of service satisfaction.[52] The interaction term $G_j X_{ij}$ is included in order to identify the channels through which reservation policies affect the satisfaction of households with public service delivery. The respective coefficient estimate ϕ in model (2) will show whether household respondents with a particular characteristic differ in their assessments regarding the quality of service provision and whether these differences are related to the gender of the GP president. According to the descriptive statistics in Table 17, service delivery problems in the area of drinking water and sanitation prevail in terms of quantity and quality in reserved female- as well as (un-)reserved male-headed GPs. In order to gain insights into the factors that emphasize or alleviate problems in service delivery, we estimate a model that compares well with the specification in equation (2). The main difference pertains to the interpretation of the variables. The dependent variable represents the binary *yes/no* response to the question whether service delivery in the area of drinking water and sanitation is subject to quantity or quality deficiencies. The vector G_j includes information on the institutional, fiscal, and economic characteristics of GPs such as the gender and reservation status of the GP president, the

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[51] The response category *cannot say/do not know* is not further considered because the responses do not provide information on the perceived service quality.

[52] The model was also defined with household control variables like age, the squared value of age, household respondent occupation, or household income. Because none of these variables explains the satisfaction with rural service delivery, the control variables are not further considered. The overall specification of the model is robust to the inclusion or exclusion of the control variables. Furthermore, we do not consider the religion of the household because this variable correlates with the caste eligibility criterion.

number of Gram Sabha meetings, or the degree of fiscal resource utilization. X_{ij} represents information on the socioeconomic background of GP members.[53] The interaction term G_jX_{ij} is included to determine whether institutional, fiscal, and economic GP characteristics influence rural service provision in reserved female- or male-headed GPs.

6.3. Satisfaction with Local Governance

Gram Sabha meetings are a critical institutional mechanism for the successful operation of local governments and as such an indicator for the quality of local governance. We identify the effect of women's reservation policies on local governance for two proxy variables of local governance: (1) the number of annual Gram Sabha meetings and (2) the attendance of Gram Sabha meetings.[54]

6.3.1. Gram Sabha Occurrence

To identify the determinants of the annual number of Gram Sabha meetings and the factors that could strengthen and improve local governance, we estimate model (3).

$$GS_j = \alpha + \beta G_j + \delta GP_j + \nu d + \varepsilon_j. \tag{3}$$

The regressant GS_j is a binary dummy variable that equals one if more than two Gram Sabha meetings have been implemented in the year preceding the survey in GP j and zero otherwise.[55] The threshold value of two is determined by the observation that the dominant share of GPs still implement two rather than the mandated four annual meetings. GP_j conveys information on the gender, educational background, and political history of the GP presidents.[56] The respective variables are included to approximate the knowledge and political experience of GP presidents with local governance processes. When emphasizing GP presidents, we assume that they bear the main responsibility for scheduling and organizing Gram Sabha meetings. In addition to the characteristics of the GP president, GP_j also consists of variables that link Gram Sabha meetings to the economic development stance of the GP, the size of the GP community, the extent of fiscal devolution, and the community presence of higher-level (Panchayat) officials. The assumption is that community pressure, formal fiscal responsibilities, and on-the-spot supervision and monitoring through higher-level officials positively affect the frequency of Gram Sabha meetings. In addition, the stage of economic development is expected to increase the number of Gram Sabha meetings if development is associated with greater political awareness. Finally, ν_d is a vector of district dummies, and ε_j is the residual term.

6.3.2. Gram Sabha Attendance

The existing literature lends ambiguous support to the hypothesis that the reservation of local government seats for women mobilizes female citizens to participate in local governance. For example, Beaman et al. (2006) show that female GP presidents have an insignificant effect on the Gram Sabha attendance rate of female constituents. Chattopadhyay and Duflo (2004) report similar results for Rajasthan but document a positive and significant effect of female reservation on the political participation of women in West

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[53] The gender and reservation status of the GP president could also be part of X_{ij}. However, we interpret it as GP characteristic inasmuch as we do not separately control for the reservation and gender status of the remaining GP members.

[54] We also sought to classify local governance in terms of the degree of household satisfaction with Gram Sabha meetings. The empirical specifications perform poorly along standard model performance measures; therefore, we do not emphasize the model and the respective results.

[55] Ideally, we would like to identify the factors that account for the implementation of the mandated 4 Gram Sabha meetings per year. However, the number of GPs with four or more Gram Sabha meetings is too low to allow a meaningful assessment.

[56] The political experience of GP presidents is measured as the number of terms that the present GP president has served as a GP member. Ideally, we would also like to include information on the organizational and institutional history of GP members and/or the respective family members. These variables are relevant because the experience in institutions increases the confidence in organizing and implementing Gram Sabha meetings. Unfortunately, the respective information is available for only a few GP members.

Bengal. Given the ambiguous evidence, we ask: Which factors cause local constituents to attend Gram Sabha meetings, and do reservation policies for women mobilize female constituents? We do not have data on the actual participation in Gram Sabha meetings; therefore, Gram Sabha attendance is a proxy variable of political participation. To identify the determinants of Gram Sabha attendance in female- and male-led reserved GPs, we estimate the probability model

$$GA_{ij} = \alpha + \beta X_{ij} + \phi(G_j X_{ij}) + \nu_j + \varepsilon_{ij}. \tag{4}$$

Here, GA_{ij} is a binary dummy variable that equals one if household respondent i has attended Gram Sabha meetings in GP j and zero otherwise. The attendance of Gram Sabha meetings is linked to household-specific factors X_{ij}. For example, we consider the effect of locational factors on Gram Sabha attendance as well as institutional membership and voting patterns of households and their family members, and the gender of the household respondent. To identify the effect of reservation policies on Gram Sabha attendance, we interact the household characteristics with a binary variable that equals one if the household respondent lives in reserved female-headed or (un-)reserved male-headed GPs and zero otherwise.

6.4. Financial Resources and Rural Service Provision

Section 5.3 has shown that female- and male-headed GPs differ neither in the availability of state-level and own funds nor in the utilization of financial resources. On this ground, service delivery in female- and male-headed GPs should be the same. However, differences between GPs exist, and the question is, Which factors influence the utilization of resources in GPs? We consider socioeconomic and institutional factors associated with GP presidents, GPs, or villages. To assess the empirical significance of the factors as source of GP discrepancies in resource utilization, we estimate the following model:

$$F_{js} = \alpha + \beta G_j + \nu_d + \varepsilon_j. \tag{5}$$

The dependent variable F_{js} denotes the utilization of funds from source s in GP j. *Utilization* is defined as the ratio of fiscal expenditure to fiscal income. Consistent with the earlier specifications, G_j represents a set of GP characteristics related to the reservation status. In addition, G_j includes information on the number of households per village GP j as measure of GP size; information on the number of Gram Sabha meetings as a measure of GP activism and community involvement in budget allocation decisions; and information on the economic, infrastructure, and human development of GP j (CCDI). The relationship between fiscal resource utilization and many of these variables is likely to be bidirectional, and additional research is needed to identify the underlying relationships.

6.5. Empirical Methodology

The existing literature mainly discusses the effects of reservation policies by estimating ordinary least squares (OLS) specifications for dichotomous or polytomous categorical response variables (e.g., Chattopadhyay and Duflo 2004; Beaman et al. 2006; Besley, Pande, and Rao 2005b, Ban and Rao 2008b). The OLS approach is preferable to the maximum likelihood approach of log-linear methodologies if the underlying variables are normally distributed or if the number of observations is small. In the present paper, the choice of estimation approach involves a trade-off. On the one hand side, the comparatively small number of observations in our sample causes OLS to be preferred to the maximum likelihood approach because it is less data-intensive. On the other hand, however, most sampled variables are not normally distributed, and OLS thus provides inefficient estimates.

Throughout this paper, we consider the nonnormal distribution of most of the sampled variables and the categorical nature of the response variables to be the more binding constraint. To adequately address the different data properties, the categorical dependent variables of the models in Section 6 are explained using log-linear choice probability models. Among the possible log-linear modeling techniques,

logit response models will be estimated, as many observations of the dependent variable are in one tail of the distribution (see Train 2003; Garson 2008).[57]

Standard logit models are used to explain the binary response of the categorical dependent variable, and generalized ordered logit (GOL) models are employed to explain the ordered responses. The GOL model is the preferred approach for explaining ordered responses for two reasons. First, the model accounts for the correlation of the error terms between the different alternatives in general and between closely related alternatives in particular (cf. Train 2003). As such, GOL specifications allow for possible dissimilarities in the relationship between each pair of responses and thus fit the structure of the data better.[58] Second, the GOL approach accounts for the possible heteroscedasticity of the residual variance between the different alternatives. GOL thus produces coefficient estimates that are not biased by differences in the degree of residual variance across groups (cf. Williams 2007).

Regardless of the chosen estimation approach, the standard errors of the household-level or GP specifications are adjusted for the possible nonindependence of the observations within villages and GPs, respectively. Throughout this paper, we report the model coefficients, but not the marginal effects to conserve on space. The marginal effects at the mean of all explanatory variables or the average marginal effects of explanatory variables are available on request. One caveat applies as to the computation of the marginal effect as associated with interaction terms. Norton, Wang, and Ai (2004) show that the marginal effect of a change in interacted variables differs from the marginal effect of changing the interaction term. In addition, the statistical significance of the interaction terms cannot be determined from the z-statistics and the odds-ratio interpretation of the logit coefficients. In addition, the model specifications include district fixed effects to capture the effect of unobservables. The choice of district fixed effects is driven by the limited number of survey households in each GP, which cause specifications with GP fixed effects to perform poorly.

Finally, we capture the effects of reserving seats for women by running separate estimations with dummy variables for reserved female- and (un-)reserved male-headed GPs. The statistical significance of the gender differences is determined by means of seemingly unrelated estimations. In addition, the statistical performance of the logit specifications is mainly assessed in terms of Hosmer-Lemeshow goodness-of-fit statistics. Following the recommendation of Hosmer and Lemeshow (2001), the predicted probabilities are used to partition the observations into 10 groups of equal size.

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[57] Probit specifications are the more appropriate choice when the response categories of the dependent variable reflect an underlying normal distribution of the dependent variable (see Train 2003; and Garson 2008).

[58] Similar to the GOL specification, the ordered logit model also accounts for the correlation of the error terms between different and closely related alternatives.

7. EMPIRICAL RESULTS

The following sections summarize the evidence on the determinants of rural service provision and local governance, paying particular attention to the effects associated with the reservation of seats for women. Section 7.1 documents the factors that influence the selection of local politicians, and Sections 7.2 and 7.3 present the variables that explain the perception of households and Gram Panchayat (GP) members regarding the quality of rural service provision. Section 7.4 identifies the factors that influence the number and attendance of Gram Sabha meetings — our proxy variables of local governance. We conclude by presenting the factors that explain the utilization of funds.

7.1. Political Selection

Table 22 presents the results of estimations that link the political selection in GP j to individual characteristics of village constituents such as caste eligibility for reservation, literacy, landownership, and organizational memberships. The underlying model (1) is estimated without household control variables because these undermine the goodness of fit and the performance of the empirical specifications. We report the results for several sample specifications and thus for several definitions of the dependent variable. In the two "All" columns, the sample includes all elected GP members or GP presidents, respectively. In order to get a general idea regarding the determinants of political selection, we do not distinguish the gender or reservation status of the respective GP representatives. In the two "Male" columns, the sample is confined to reserved or unreserved male GP members or presidents. It will become evident that the respective results correspond well with those for the aggregate sample of male and female GP members and presidents. To determine whether the political selection of women is driven by the same factors as that of men, the sample in the two "Reserved Female" columns is further restricted to reserved female GPs members and presidents, respectively.

Table 22. Political selection and individual characteristics (logit regression)

	GP Members						GP Presidents					
	All		Male		Res. Female		All		Male		Res. Female	
SC/ST	0.867	***	0.396	**	1.038	***	-0.201		0.021		-0.320	
	(0.182)		(0.191)		(0.235)		(0.302)		(0.380)		(0.535)	
Literate	1.111	***	1.712	***	0.205		1.790	***	2.721	***	0.723	
	(0.212)		(0.253)		(0.263)		(0.523)		(1.007)		(0.679)	
Land owned	0.593	***	1.173	***	-0.142		0.957	**	1.633	**	0.004	
	(0.224)		(0.322)		(0.293)		(0.454)		(0.757)		(0.600)	
F-hist local org'n	2.195	***	1.841	***	1.761	***	1.750	***	1.647	***	1.956	***
	(0.207)		(0.245)		(0.236)		(0.282)		(0.343)		(0.527)	
Constant	-3.969	***	-5.754	***	-3.331	***	-5.775	***	-8.298	***	-4.692	***
	(0.525)		(0.523)		(0.590)		(0.753)		(1.276)		(1.004)	
District fixed effects	yes		yes		yes		yes		yes		yes	
# Observations	1213		1213		1213		1180		1150		912	
LR statistic	306.09	***	184.34	***	119.53	***	82.43	***	63.25	***	24.85	**
Hosmer-Lemeshow chi-square	11.32		10.71		6.12		3.84		10.86		5.84	

Notes: See the main text for the definition of the dependent variable. Standard errors are clustered at the GP level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels. SC/ST abbreviates the eligibility for reservation benefits due to an SC or ST background. F-hist local org'n = family history in local organizations. LR statistic = likelihood ratio test statistic.

For the sample of all, male, and female GP members (GP Members columns), we observe a positive selection on the scheduled caste (SC) and scheduled tribe (ST) background of GP representatives and thus on the SC and ST eligibility for reservation. Reservation policies thus appear to be important for the political participation of both women and men. Consistent with expectations, the selection effect is stronger for women, with most female GP members assuming office because of reservation policies.[59] Considering the sample of GP presidents, the selection of male and female GP presidents is not influenced by the SC and ST background of the politicians. As we define the sample for SC, ST, and other backward class female and male GP presidents, the selection as GP president seems to be driven by the other backward class background of GP representatives.

The empirical results emphasize the positive selection of male GP members and presidents on literacy. This election pattern is rational if local citizens anticipate a positive relationship between (higher) education and the ability of GP politicians to deal with local fiscal and administrative tasks. In contrast to male GP politicians, the election of female GP politicians is not guided by literacy. Landownership significantly increases the probability of election of male GP members, while the election of female GP members is unrelated. The finding for the female GP members compares well with the evidence in Besley, Pande, and Rao (2005b), and possibly reflects the relative landlessness of female politicians in reserved GP positions. Finally, a family history of political and institutional participation increases the chance of political selection in the sample of both male and female GP members and presidents. Although reservation quota are important instruments for promoting the political participation of women, this result suggests that existing (political) networks are equally important drivers of political selection.[60]

Table 23 presents the results of estimations that link the political selection in GP j to GP characteristics. We consider GP characteristics such as village caste dominance, village per capita income, the GP reservation status, the village literacy rate, and the length of the village road system.[61] The latter two variables are included as proxy variables of the extent to which GP members can effectively communicate their village plans and receive feedback. We assume that information travels faster in GPs with a more extensive road network and with a higher literacy rate. As regards the GP reservation status for women, we would require the list of GPs reserved for women in order to clearly assess the effect of reservation on political selection. Because this list is not available, we use data on the observed reservation status of our surveyed politicians. We emphasize the results of estimations without district fixed effects as these are statistically insignificant and associated with poor Hosmer-Lemeshow goodness-of-fit statistics. For the same reason, Table 23 does not contain the empirical results for subsamples of male and female GP members or presidents, but documents the results for the sample of (1) all GP members and (2) all GP presidents.[62]

Considering the evidence, we find weak support that the sampled GP characteristics influence the political selection and thus political participation of village constituents. If at all, the presence of a dominant caste influences the selection of GP presidents. In line with Besley, Pande, and Rao (2005b), village caste dominance appears to induce elite behavior among GP members inasmuch as it is associated with elected GP presidents owning land (column 7). In comparison to the GP characteristics, more important determinants of the political selection of village constituents are household characteristics related to landownership, literacy, and a family history in local organizations. In particular, literate village constituents and those with land and a family history in local organizations are more likely to be elected GP members or presidents. Finally, the statistical significance of the constant regression term in Table 23 suggests that the present specifications are influenced by omitted variables. Unfortunately, the respective variables could not be identified on the basis of the survey information.

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[59] The marginal effects of the logit estimates are available on request.

[60] Please note that for the sample of reserved female GP presidents, estimations without the variable of SC/ST eligibility do not affect the significance and sign properties of the other variables. That is, the results remain the same.

[61] The village values are the average values for the villages that constitute a particular GP.

[62] The results of probit estimations confirm the evidence from the logit specifications.

Table 23. Political selection and Gram Panchayat characteristics (logit regression)

	All Gram Panchayat Members				All Gram Panchayat Presidents			
	Per capita income	SC/ST caste dominance	Road length	Female president reservation	Per capita income	SC/ST caste dominance	Road length	Female president reservation
SC/ST	0.644 ***	0.799 ***	0.967 ***	0.837 ***	-0.221	-0.172	-0.267	-0.196
	(0.215)	(0.189)	(0.224)	(0.205)	(0.356)	(0.313)	(0.386)	(0.349)
Literate	1.022 ***	1.101 ***	1.221 ***	0.970 ***	1.658 ***	1.721 ***	2.072 ***	1.658 ***
	(0.272)	(0.217)	(0.289)	(0.240)	(0.545)	(0.537)	(0.699)	(0.457)
Land owned	0.827 ***	0.540 **	0.538 *	0.608 **	0.942 *	0.826 *	0.872	1.069 **
	(0.298)	(0.231)	(0.279)	(0.248)	(0.495)	(0.464)	(0.561)	(0.456)
F-hist local org'n	2.038 ***	2.151 ***	2.196 ***	2.182 ***	1.789 ***	1.712 ***	1.409 ***	1.512 ***
	(0.248)	(0.194)	(0.253)	(0.233)	(0.380)	(0.283)	(0.343)	(0.297)
IT SC/ST and GP char	0.0007	-0.365	-0.017	-0.144	0.0001	-1.310	0.008	-0.110
	(0.0005)	(0.732)	(0.016)	(0.457)	(0.001)	(0.850)	(0.026)	(0.601)
IT literate and GP char	0.0004	-0.104	-0.012	0.370	0.0004	0.238	-0.029	0.195
	(0.0008)	(0.996)	(0.015)	(0.385)	(0.001)	(0.637)	(0.030)	(0.918)
IT land owned and GP char	-0.001	1.227	-0.001	-0.069	-0.0003	1.272 **	0.002	-0.598
	(0.001)	(1.178)	(0.016)	(0.426)	(0.001)	(0.616)	(0.029)	(0.962)
IT f-hist local org'n and GP char	0.0004	-0.570	-0.007	-0.094	-0.0004	-0.125	0.028	0.701
	(0.0005)	(0.399)	(0.015)	(0.374)	(0.001)	(0.710)	(0.020)	(0.711)
Constant	-3.661 ***	-3.628 ***	-3.598 ***	-3.639 ***	-5.768 ***	-5.758 ***	-5.835 ***	-5.791 ***
	(0.303)	(0.302)	(0.300)	(0.305)	(0.634)	(0.636)	(0.654)	(0.641)
District fixed effects	no	no	no	no	no	no	no	no
# Observations	1213	1213	1213	1202	1180	1180	1180	1180
LR statistic	291.76 ***	291.47 ***	297.15 ***	291.13 ***	78.44 ***	80.25 ***	79.69 ***	79.48 ***
Hosmer-Lemeshow chi-square	9.50	6.96	15.34 *	8.09	6.39	2.42	2.87	2.70

Note: The dependent variable equals one if the respondent is a GP member (columns 2–5) or a GP president (columns 6–9). The header summarizes the GP characteristics (GP char) such as per capita income and SC/ST caste dominance. A village has a dominant SC/ST if over 40 percent of the village constituents belong to the SC/ST. Standard errors are clustered at the GP level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels. SC/ST abbreviates the eligibility for reservation benefits due to an SC or ST background. The first four variables in column 1 refer to the individual characteristic X_{ij} in equation (1) and variables 5–8 represent the interaction of variable X_{ij} and G_j. Row 2 of the table reports the variable G_j. IT = Interaction between the GP characteristic in row 2 and the household characteristic (e.g., landownership or literacy). F-hist local org'n = family history in local organizations. LR statistic = likelihood ratio test statistic.

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7.2. Satisfaction with Rural Service Delivery: Explaining the Perceptions of Households

This section analyzes the empirical results regarding the factors that affect the satisfaction of households with service provision in the area of drinking water and drainage/sanitation. We report numerous empirical specifications, which mainly differ in terms of the variables that are used to describe the degree of GP activism and the institutional properties of the GPs. For each set of estimations, we separately document the service delivery effects associated with the presence of a reserved female or (un-)reserved male GP president.

7.2.1. Drinking Water Supply and Quality

Given the present set of survey data, we estimate several functions to identify the factors that influence the degree of household satisfaction with the quantity as well as quality of drinking water supply. The models differ mainly in terms of the variables that approximate the relationship between service quality assessments and the political participation of households (e.g., Gram Sabha attendance, household linkages with GPs). Table 24 and Table 25 summarize the respective evidence from estimating model 2. The empirical results show that the degree of satisfaction with both rural drinking water supply and drinking water quality does not significantly differ between literate and illiterate and between female and male household respondents. Moreover, satisfaction is independent of household landownership. Consistent with expectations, we observe that SC and ST households are less likely to be satisfied with drinking water supply and drinking water quality. The degree of dissatisfaction depends on the residential location of the SC and ST households. Households residing in the SC/ST village colony and SC/ST hamlet are more likely to be satisfied with the quality of water supply. Similar relationships prevail for drinking water supply, although the statistical significance of the result is particular to households in the SC/ST village colony.

The evidence also suggests that the satisfaction with service delivery critically depends on the source of drinking water and on the maintenance of the respective source. Households with access to water through pipelines or the Mini Water Supply System are more likely to be satisfied with the quantity of and the quality of drinking water. In addition, the results indicate that the satisfaction with the quantity and quality of water supply is inversely related to the maintenance of the water supply sources. Not surprisingly, households that have to complain before actions are taken or households that are confronted with an indifferent waterman are more likely to criticize drinking water services.

We find no support for the hypothesis that the degree of satisfaction with the quantity and quality of drinking water supply depends on the participation of households in Gram Sabha meetings (columns 2–5 in Table 24 and 25). Considering that activities and actions decided upon in Gram Sabha meetings are likely to become effective only with a lag, the absence of a systematic relationship between the degree of service satisfaction and the attendance of Gram Sabha meetings does not necessarily mean that Gram Sabha meetings do not (1) offer an effective platform for the communication of service delivery constraints and related problems and (2) help to effectively address service delivery constraints. More data points are required to test this claim.

The evidence lends weak support to the hypothesis that the degree of service satisfaction is influenced by the GP membership patterns of households. Significant effects only prevail in estimations that seek to link the degree of satisfaction with the quantity and quality of drinking water supply to the current GP membership of household members. In estimations for male- and female-headed GPs, households with family ties to GP members are less likely to be satisfied with drinking water supply. Finally, do the conclusions regarding the degree of satisfaction with the quantity and quality of water supply depend on the gender of the GP president? Stated differently, is there support for a gender effect of reservation policies in service provision? The results of the present analysis do not point to the existence of differences in the degree of satisfaction between households in female- and male-headed GPs. That is, reservation effects do not appear to exist.

Table 24. Household satisfaction with the quantity of drinking water (heteroskedastic ordered logistic regression)

	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
SC/ST	-0.484 **	-0.486 **	-0.473 **	-0.471 **	-0.525 **	-0.522 **	-0.441 *	-0.440 *
	(0.228)	(0.226)	(0.226)	(0.225)	(0.235)	(0.233)	(0.229)	(0.228)
Female HH respondent	-0.060	-0.067	-0.088	-0.095	-0.033	-0.043	-0.023	-0.031
	(0.252)	(0.254)	(0.253)	(0.254)	(0.254)	(0.256)	(0.245)	(0.247)
Literate HH respondent	0.159	0.153	0.163	0.159	0.083	0.081	0.131	0.127
	(0.21)	(0.211)	(0.205)	(0.206)	(0.216)	(0.217)	(0.213)	(0.214)
Land owned	0.027	0.044	0.029	0.042	0.000	0.012	0.043	0.056
	(0.194)	(0.193)	(0.196)	(0.197)	(0.204)	(0.205)	(0.196)	(0.196)
GP president (see header)	-0.584	0.455	-0.362	0.388	-0.444	0.438	-0.381	0.382
	(0.504)	(0.481)	(0.42)	(0.364)	(0.384)	(0.338)	(0.368)	(0.327)
Drinking water source - Piped	0.614 *	0.622 *	0.648 **	0.651 **	0.648 *	0.644 *	0.675 **	0.672 **
	(0.324)	(0.326)	(0.322)	(0.325)	(0.337)	(0.339)	(0.319)	(0.322)
Drinking water source - MWSS	0.917***	0.908***	0.923***	0.908***	0.871***	0.847 **	0.959***	0.939 ***
	(0.336)	(0.338)	(0.337)	(0.342)	(0.333)	(0.336)	(0.335)	(0.338)
Maintenance WS – Repaired/cleaned	-1.474***	-1.456***	-1.493***	-1.475***	-1.593***	-1.573***	-1.504***	-1.486***
	(0.302)	(0.297)	-0.300	(0.295)	(0.32)	(0.314)	(0.3)	(0.296)
Maintenance WS – Indifferent waterman	-2.341***	-2.377***	-2.375***	-2.408***	-2.496***	-2.531***	-2.427***	-2.456***
	(0.528)	(0.530)	(0.527)	(0.524)	(0.505)	(0.498)	(0.527)	(0.524)
HH location: SC/ST hamlet	1.643	1.646	1.593	1.591	1.640	1.660	1.755	1.755
	(1.135)	(1.143)	(1.152)	(1.161)	(1.261)	(1.269)	(1.158)	(1.164)
HH location: SC/ST colony in main village	0.732 **	0.719 **	0.728 **	0.711 **	0.696 **	0.668 **	0.722 **	0.706 **
	(0.346)	(0.350)	(0.345)	(0.351)	(0.323)	(0.328)	(0.351)	(0.358)
HH Location: Hamlet away from main village	-1.108	-1.110	-1.103	-1.116	-1.146	-1.167	-1.060	-1.079
	(0.765)	(0.763)	(0.752)	(0.755)	(0.784)	(0.788)	(0.761)	(0.764)
HH Gram Sabha attendance in last year > 1	0.271	0.454						
	(0.234)	(0.415)						
IT w/ GS attendance in last year > 1	0.349	-0.129						
	(0.550)	(0.486)						
HH attendance of GS meeting			-0.329 *	-0.323				
			(0.197)	(0.316)				
IT w/ HH attendance of GS meeting			-0.055	-0.021				
			(0.449)	(0.390)				
HH relative is GP member					1.504 *	2.128		
					(0.783)	(1.314)		
IT w/ HH relative is GP member					1.655	-0.471		
					(1.902)	(1.427)		
HH member is currently GP member							-0.934***	-1.687 **
							(0.335)	(0.795)
IT w/ HH member is currently GP member							-0.752	0.728
							(0.816)	(0.802)
District fixed effects	yes	yes	yes	yes	yes	yes	yes	yes

Table 24. Household satisfaction with the quantity of drinking water (heteroskedastic ordered logistic regression) (Continued)

	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
Variance								
HH location: SC/ST hamlet	0.719 **	0.726 **	0.723 **	0.732 **	0.708 **	0.724 **	0.749 **	0.757 **
	(0.318)	(0.319)	(0.322)	(0.322)	(0.344)	(0.342)	(0.313)	(0.311)
HH location: SC/ST colony in main village	0.306 *	0.311 *	0.304 *	0.314 *	0.284 *	0.288 *	0.307 *	0.319 *
	(0.168)	(0.166)	(0.166)	(0.164)	(0.167)	(0.163)	(0.165)	(0.163)
HH relative is GP member					0.603 ***	0.612 ***		
					(0.212)	(0.207		-
# Observations	869	869	869	869	869	869	869	869
Pseudo R2	0.16	0.16	0.16	0.16	0.17	0.17	0.16	0.16

Note: The dependent variable is coded as follows: 3=satisfied, 2=somewhat satisfied, 1=not at all satisfied with the quantity of water supply. Standard errors are clustered at the village level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels, respectively. IT = Interaction between the dummy for reserved female or (un-)reserved male GP presidents and a specific GP or household characteristic; GP president = reserved female-headed or (un-)reserved male-headed GP; Maintenance WS = Maintenance of public drinking water source; Maintenance WS - Repaired/cleaned = Repaired/cleaned immediately after complaint is made; GS = Gram Sabha; MWSS = Mini Water Supply System.

Table 25. Household satisfaction with the quality of drinking water (heteroskedastic ordered logistic regression)

	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
SC/ST	-0.786 **	-0.822 **	-0.799 **	-0.831 **	-0.869 **	-0.898 **	-0.811 **	-0.843 **
	(0.348)	(0.35)	(0.348)	(0.348)	(0.362)	(0.36)	(0.352)	(0.348)
Female HH respondent	0.127	0.116	0.070	0.067	0.073	0.072	0.108	0.104
	(0.268)	(0.265)	(0.275)	(0.274)	(0.275)	(0.276)	(0.272)	(0.272)
Literate HH respondent	-0.032	-0.079	-0.001	-0.034	-0.063	-0.076	-0.065	-0.077
	(0.211)	(0.217)	(0.213)	(0.218)	(0.216)	(0.216)	(0.213)	(0.214)
Land owned	-0.166	-0.112	-0.139	-0.091	-0.112	-0.069	-0.174	-0.126
	(0.195)	(0.192)	(0.197)	(0.197)	(0.199)	(0.201)	(0.197)	(0.195)
GP president (see header)	-0.088	0.129	0.611	0.165	0.298	0.131	0.331	0.148
	(0.517)	(0.505)	(0.457)	(0.448)	(0.398)	(0.376)	(0.386)	(0.374)
Drinking water source - Piped	1.156 ***	1.125 ***	1.146 ***	1.105 ***	1.129 ***	1.081 ***	1.158 ***	1.105 ***
	(0.305)	(0.315)	(0.309)	(0.318)	(0.319)	(0.328)	(0.305)	(0.311)
Drinking water source - MWSS	1.215 ***	1.206 ***	1.215 ***	1.202 ***	1.253 ***	1.231 ***	1.213 ***	1.185 ***
	(0.366)	(0.362)	(0.367)	(0.364)	(0.38)	(0.376)	(0.367)	(0.364)
Maintenance WS – Repaired/cleaned	-1.418 ***	-1.426 ***	-1.394 ***	-1.402 ***	-1.505 ***	-1.502 ***	-1.424 ***	-1.423 ***
	(0.356)	(0.345)	(0.347)	(0.339)	(0.366)	(0.358)	(0.353)	(0.344)
Maintenance WS – Indifferent waterman	-2.023 ***	-1.907 ***	-2.021 ***	-1.882 ***	-2.114 ***	-1.999 ***	-2.016 ***	-1.887 ***
	(0.509)	(0.508)	(0.508)	(0.498)	(0.548)	(0.526)	(0.518)	(0.496)
HH location: SC/ST hamlet	2.292 **	2.372 **	2.268 **	2.341 **	3.004 ***	3.060 ***	2.292 **	2.339 **
	(1.096)	(1.04)	(1.092)	(1.038)	(1.122)	(1.098)	(1.087)	(1.043)
HH location: SC/ST colony in main village	0.795 **	0.870 **	0.808 **	0.864 **	0.894 **	0.916 **	0.853 **	0.880 **
	(0.349)	(0.364)	(0.356)	(0.363)	(0.384)	(0.387)	(0.356)	(0.36)
HH location: Hamlet away from main village	2.375	2.178	2.217	2.124	2.314	2.214	2.163	2.050
	(2.204)	(2.254)	(2.207)	(2.267)	(2.242)	(2.27)	(2.137)	(2.175)

Table 25. Household satisfaction with the quantity of drinking water (heteroskedastic ordered logistic regression) (continued)

	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
HH Gram Sabha attendance in last year > 1	-0.233 (0.311)	-0.127 (0.386)						
IT w/ Gram Sabha attendance in last year > 1	0.812 (0.552)	0.038 (0.542)						
HH attendance of Gram Sabha meeting			-0.170 (0.217)	-0.159 (0.303)				
IT w/ HH attendance of Gram Sabha meeting			-0.430 (0.505)	-0.083 (0.439)				
HH relative is GP member					3.611 (3.072)	3.019 (3.341)		
IT w/ HH relative is GP member					52.223 ** (23.615)	1.557 (3.606)		
HH member is currently GP member							0.572 (0.635)	43.097 (28.681)
IT w/ HH member is currently GP member							38.479 (25.797)	-42.620 (28.737)
District fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Variance								
HH location: Hamlet away from main village	1.291 * (0.686)	1.255 * (0.721)	1.245 * (0.726)	1.247 * (0.737)	1.293 * (0.729)	1.296 * (0.732)	1.235 * (0.719)	1.241 *** (0.723)
HH relative is GP member					1.357 ** * (0.479)	1.296 *** (0.469)		
# Observations	870	870	870	870	870	870	870	870
Pseudo R2	0.15	0.15	0.15	0.15	0.16	0.16	0.15	0.15

Notes: The dependent variable is an ordered response variable, which is coded as follows: 3=satisfied, 2=somewhat satisfied, 1=not at all satisfied with the quality of water supply. See the notes in Table 24.

7.2.2. Drainage Facilities

Table 26 summarizes the results regarding the factors that determine the degree of satisfaction with the provision of drainage facilities.[63] Similar to the evidence from drinking water supply, only few household characteristics explain the degree of satisfaction with drainage facilities. One factor is the residential location of the household respondents. We find that households in the SC/ST colony in the main village are more likely to be satisfied with drainage facilities. In all likelihood, the greater satisfaction reflects the connection of the respective households to the village drainage system (if any).

Another factor is the household attendance of Gram Sabha meetings (columns 4 and 5 in Table 26). The nature of the relationship differs between the estimation for reserved female-headed GPs (Table 26, column 4) and (un-)reserved male-headed GPs (Table 26, column 5). In particular, the evidence from the estimation for reserved female-headed GPs suggests that households that attend Gram Sabha meetings are more likely to be satisfied with drainage facilities in comparison to households that do not attend

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[63] We do not present the results of estimations that consider the maintenance of drainage facilities because of poor model performance.

Gram Sabha meetings. The likelihood of being satisfied is, however, lower for households that attend Gram Sabha meetings in reserved female-headed GPs. In contrast to these results, the evidence from the estimation for male-headed GPs suggests that households that attend Gram Sabha meetings are less likely to be satisfied with drainage facilities in comparison to households that do not attend Gram Sabha meetings. Here, the likelihood of being satisfied is, however, higher for households that attend Gram Sabha meetings in male-headed GPs. Overall, we find support that Gram Sabha participation influences the degree of satisfaction with drainage services, but the nature of the effect differs between male- and female-headed GP.

Table 26. Household satisfaction with drainage facilities (heteroskedastic ordered logistic regression)

	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
SC/ST	-0.222	-0.219	-0.254	-0.275	-0.200	-0.194	-0.192	-0.188
	(0.348)	(0.35)	(0.362)	(0.371)	(0.348)	(0.347)	(0.343)	(0.344)
Female HH respondent	0.082	0.106	0.187	0.254	0.158	0.168	0.143	0.151
	(0.327)	(0.325)	(0.338)	(0.339)	(0.339)	(0.337)	(0.342)	(0.341)
Literate HH respondent	0.044	0.045	-0.014	0.007	0.019	0.018	0.030	0.031
	(0.273)	(0.273)	(0.262)	(0.262)	(0.274)	(0.272)	(0.271)	(0.271)
Land owned	-0.328	-0.315	-0.364	-0.364	-0.352	-0.347	-0.351	-0.348
	(0.304)	(0.304)	(0.314)	(0.316)	(0.309)	(0.306)	(0.306)	(0.307)
GP president (see header)	-0.902 **	0.791 **	0.088	-0.235	-0.465	0.375	-0.521 *	0.437
	(0.415)	(0.39)	(0.368)	(0.364)	(0.339)	(0.316)	(0.312)	(0.295)
Community involvement in service provision[1]	0.617 *	0.617 *	0.648 *	0.676 **	0.603 *	0.593 *	0.613 *	0.602 **
	(0.352)	(0.351)	(0.331)	(0.327)	(0.349)	(0.349)	(0.351)	(0.351)
No community involvement in service provision[1]	-0.083	-0.101	-0.097	-0.181	-0.058	-0.089	-0.133	-0.143
	(0.385)	(0.385)	(0.388)	(0.377)	(0.402)	(0.402)	(0.409)	(0.410)
HH location: SC/ST hamlet	-0.039	-0.075	0.003	-0.021	-0.070	-0.107	-0.109	-0.141
	(0.441)	(0.447)	(0.428)	(0.434)	(0.435)	(0.439)	(0.452)	(0.459)
HH location: SC/ST colony in main village	0.557 *	0.525 *	0.607 *	0.570 *	0.512 *	0.492	0.532 *	0.510
	(0.316)	(0.314)	(0.309)	(0.306)	(0.308)	(0.305)	(0.307)	(0.305)
HH location: Hamlet away from main village	0.223	0.234	0.273	0.281	0.271	0.290	0.251	0.262
	(0.636)	(0.64)	(0.639)	(0.646)	(0.631)	(0.635)	(0.636)	(0.639)
HH Gram Sabha attendance in last year > 1	0.133	0.631 **						
	(0.388)	(0.281)						
IT w/ Gram Sabha attendance in last year > 1	0.552	-0.516						
	(0.506)	(0.485)						
HH attendance of Gram Sabha meeting			0.686 **	-0.669 ***				
			(0.276)	(0.251)				
IT w/ HH attendance of Gram Sabha meeting		**	-1.447 *	1.521 ***				
			(0.441)	(0.42)				
HH relative is GP member					0.395	-0.097		
					(0.468)	(0.428)		
IT w/ HH relative is GP member					-0.441	0.599		
					(0.717)	(0.649)		

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Table 26. Household satisfaction with drainage facilities (heteroskedastic ordered logistic regression) (continued)

	Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male	
HH member is currently GP member													0.153 (0.513)		1.377 (0.930)	
IT w/ HH member is currently GP member													1.262 (1.040)		-1.210 (1.047)	
District fixed effects	Yes		yes		yes		yes		yes		yes		yes		yes	
Variance																
HH location: hamlet away from main village	0.622 (0.339)	*	0.621 (0.338)	*	0.618 (0.337)	*	0.622 (0.333)	*	0.583 (0.331)	*	0.584 (0.328)	*	0.587 (0.332)	*	0.588 (0.33)	*
# Observations	434		434		434		434		434		434		434		434	
Pseudo R2	0.21		0.20		0.21		0.22		0.20		0.20		0.20		0.20	

Note: The dependent variable is an ordered response variable, which is coded as follows: 3=satisfied, 2=somewhat satisfied, 1=not at all satisfied with the delivery of drainage facilities. See the notes in Table 24.
[1] The survey question on the degree of community involvement allows for three possible responses: (1) community involvement, (2) no involvement of own household, and (3) no community effort.

The results also indicate that household differences in the perceived quality of drainage facilities are attributable to differences in the extent to which local communities are involved in the delivery of drainage services. Community involvement is found to have a positive effect on the degree of satisfaction with service provision. Future studies may want to test whether community involvement (1) is an accountability mechanism that improves service delivery through stricter monitoring and (2) results in need-based rural service provision, with consequent positive effects on service quality.

7.3. Satisfaction with Rural Service Delivery: Explaining the Perceptions of Gram Panchayat Members

This section identifies the factors that determine whether GP members perceive rural service provision in the areas of drinking water and sanitation to be problematic in terms of quantity, quality, and maintenance. Tables 27 and 28 report the results for specifications that initially also control for the stage of the economic, infrastructure, and human development of Taluks (Comprehensive Composite Development Index, CCDI) and for the stakeholder that GP members contact to remove service delivery constraints. The respective coefficients are either insignificant or sensitive to the variable specification of the models; therefore, we report the evidence from more parsimonious specifications that do not control for the CCDI status of Taluks or the interaction with stakeholders. As will become evident, the satisfaction of GP members with drinking water or sanitation services is influenced by different factors. However, the results are tentative at best, because the empirical specifications do not perform particularly well.

7.3.1. Drinking Water Supply

Table 27 presents the evidence on the factors that explain why GP members consider service delivery in the area of drinking water to be problematic in terms of supply, quality, or along multiple dimensions. Irrespective of the problem dimension, the empirical results suggest that problem perceptions do not depend on the characteristics of the GP members (e.g., the SC and ST background, gender, literacy, and landownership), but on the properties of the GPs. Significant variables are the devolution of activities, the utilization of financial resources, and the gender of the GP president.

Considering the results, GP members in female-headed, reserved GPs are more likely to be dissatisfied with the quantity and/or quality of drinking water supply. This finding supports the hypothesis that the quality of service provision is influenced by a gender effect. The results also suggest that the degree of service satisfaction is influenced by the degree of fiscal resource utilization. We observe that a higher degree of fiscal resource utilization increases the chance that GP members consider drinking water supply to be insufficient in terms of quantity and/or quality. The interaction term with gender dummies suggests that this relationship is less pronounced in GPs reserved for female GP presidents. Unfortunately, we cannot draw inferences regarding the direction of the causal relationship between service satisfaction and fiscal expenditures because we do not have time-series observations. It needs to be subject to future research to determine whether a higher degree of fiscal resource utilization is the response of GPs to inadequacies in the quantity and/or quality of drinking water supply, and vice versa.

Table 27. Gram Panchayat satisfaction with drinking water supply (logit regression)

	Insufficient Drinking Water		Insufficient Drinking Water Quality		Multiple Water Problems	
	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
SC/ST	-0.329	-0.325	0.002	0.003	-0.115	-0.113
	(0.334)	(0.330)	(0.370)	(0.374)	(0.343)	(0.340)
Female GP representative	0.421	0.391	-0.044	0.052	0.012	0.079
	(0.324)	(0.328)	(0.409)	(0.402)	(0.383)	(0.387)
Literate GP representative	0.179	0.153	0.289	0.322	0.354	0.362
	(0.411)	(0.410)	(0.522)	(0.525)	(0.472)	(0.468)
Land owned	0.350	0.377	0.092	0.092	0.231	0.231
	(0.435)	(0.419)	(0.488)	(0.477)	(0.424)	(0.411)
GP president (see header)	6.372 **	-0.634	10.358 *	-1.092	8.710	-2.382
	(3.181)	(1.271)	(5.404)	(2.731)	(5.719)	(2.307)
Number of annual Gram Sabha meetings >2	-0.410	-0.808	0. 655	1.971 *	0.354	0.403
	(0.362)	(0.679)	(0.478)	(1.035)	(0.421)	(0.971)
Number of activities to which devolution has been undertaken	-0.048	-0.029	-0.261 ***	-0.355 ***	-0.091	-0.228 **
	(0.049)	(0.066)	(0.085)	(0.099)	(0.062)	(0.090)
Ratio of own expenditure over own income 2005/06	1.799 ***	0.651	2.205 ***	1.311	1.888 **	0.942
	(0.633)	(1.259)	(0.716)	(1.846)	(0.821)	(1.626)
IT w/ number of annual Gram Sabha meetings >2	0.446	0.559	1.237	-1.401	0.124	-0.046
	(0.661)	(0.648)	(1.418)	(1.159)	(1.006)	(1.003)
IT w/ number of activities to which devolution has been undertaken	0.018	-0.027	0.036	0.079	-0.088	0.121
	(0.064)	(0.070)	(0.115)	(0.114)	(0.094)	(0.093)
IT w/ ratio of own expenditure over own income 2005/06	-7.008 **	0.961	-11.963 **	0.871	-7.739	0.889
	(3.047)	(1.507)	(5.254)	(2.082)	(5.666)	(1.929)
Constant	-0.554	0.010	-0.644	0.474	-3.342 *	-0.768
	(1.309)	(1.811)	(2.016)	(2.562)	(1.705)	(2.249)
District fixed effects	yes	yes	yes	yes	yes	yes
# Observations	241	241	230	230	241	241
LR statistic	31.38 *	30.25	56.90 ***	58.17 ***	44.43 ***	45.29 ***
Hosmer-Lemeshow chi-square	4.79	4.44	11.06	4.60	8.65	6.60

Note: The header row denotes the dependent variable that equals one if GP members consider drinking water supply to be problematic in terms of quantity or quality or along multiple dimensions, and zero otherwise. Standard errors are clustered at the GP level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels, respectively. LR statistic = Likelihood-ratio test statistic.

As regards the devolution of activities, we include the number of activities to which devolution has been undertaken as a proxy variable of the workload of GP representatives. The assumption is that the workload affects the quality of service provision, with the nature of the effect being ambivalent. Considering the results, the decentralization of functions to local governments has a significant effect on the degree of satisfaction with the quality of drinking water supply. In fact, the evidence suggests that GP members are more likely to be satisfied with the quality of drinking water supply in GPs with a larger number of activities to which devolution has been undertaken. The size of the respective service delivery effect does not differ between male- and female-headed GPs. Again, this result is subject to a caveat. We cannot preclude that the survey respondents have overstated the number of activities to which devolution has been undertaken. We still include this variable because excluding it either does not affect the empirical results or worsens the performance of the empirical model specifications.

7.3.2. Sanitation

Table 28 reports the evidence on the factors that determine the satisfaction with sanitation services in terms of public toilets and drainage. Again, the results are tentative at best, considering the models do not perform well. Furthermore, the results are not robust to the type of sanitation service, which in turn precludes consistent conclusions regarding the determinants of satisfactory rural sanitation service delivery. For example, the number of devolved activities explains the share of GP members that perceive problems in the availability of public toilets only. The evidence suggests that GP members are more (less) likely to be satisfied with the availability of public toilets if the number of devolved activities is large in estimations for female-headed (male-headed) GP presidents. As regards the degree of net resource utilization, the evidence suggests that a large degree of resource utilization is more likely to be associated with a negative view on the quality and maintenance of the drainage system, but with a positive view on the availability of public toilets.

Similar to the determinants of drinking water satisfaction, the satisfaction with sanitation services does not systematically depend on the gender of the GP president. We observe that GP members in (1) female-headed GPs and (2) female-headed GPs with smaller fiscal resource utilization are more likely to perceive problems in the maintenance of drainage services. Similarly, GP members in male-headed GPs with smaller fiscal resource utilization are more likely to perceive problems in the availability of public toilets. Considering the relationship between the number of Gram Sabha meetings and problem perceptions, we find that GP members in female-headed GPs with more than two annual Gram Sabha meetings are less likely to question the adequacy of the drainage system. In comparison, GP members in male-headed GPs with more than two annual Gram Sabha meetings are more likely to be concerned about the number of public toilets and the adequacy and maintenance of the drainage system. It needs to be left for future research to determine whether Gram Sabha meetings are held because of problems in the respective service areas or whether Gram Sabha meetings are effective in raising awareness regarding the existence of service delivery problems.

Finally, the evidence suggests that GP members in female-headed GPs with a large number of activities to which devolution has been undertaken are more likely to perceive problems in the adequacy of public toilets and the drainage system. Opposite relationships prevail for male-headed GPs. The differences in the problem perceptions between female- and male-headed GPs are statistically significant. Future research may want to determine whether the perceived differences between the quality of sanitation services in female- and male-headed GPs reflect observable differences in infrastructure development and physical capital endowment. In addition, more data points need to be collected to establish the direction of the causal relationships between the degree of satisfaction with service delivery and the explanatory variables.

Table 28. Gram Panchayat satisfaction with sanitation services (logit regression)

	No/Insufficient Public Toilets		No/Insufficient Drainage		Poor Maintenance Drainage		Multiple Sanitation Problems	
	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
SC/ST	-0.457 (0.454)	-0.336 (0.468)	0.400 (0.549)	0.357 (0.568)	0.072 (0.312)	0.107 (0.315)	-0.936 * (0.549)	-0.867 (0.535)
Female GP representative	-0.100 (0.509)	-0.192 (0.540)	0.583 (0.406)	0.569 (0.405)	0.024 (0.296)	-0.071 (0.306)	0.094 (0.349)	-0.017 (0.347)
Literate GP representative	-0.220 (0.612)	-0.075 (0.596)	0.758 (0.622)	0.706 (0.627)	0.119 (0.399)	0.104 (0.405)	-1.760 (1.117)	-1.782 (1.114)
Land owned	0.832 (0.600)	0.931 (0.617)	0.182 (0.791)	0.191 (0.789)	-0.315 (0.394)	-0.328 (0.391)	0.300 (0.665)	0.401 (0.625)
GP president (see header)	-0.626 (4.834)	-2.377 (2.097)	0.446 (7.924)	8.432 * (4.882)	9.024 *** (3.168)	-0.870 (1.771)	5.935 (5.926)	-0.273 (3.166)
Number of annual Gram Sabha meetings >2	-0.403 (0.446)	-1.422 * (0.760)	1.009 (0.832)	-1.560 (1.202)	0.412 (0.417)	-0.481 (0.579)	0.033 (0.688)	-2.344 ** (1.143)
Number of activities to which devolution has been undertaken	-0.141 * (0.086)	0.087 ** (0.071)	0.026 (0.138)	0.621 (0.225)	-0.039 (0.075)	-0.015 (0.054)	-0.097 (0.105)	0.061 (0.120)
Ratio of own expenditure over own income 2005/06	0.794 (1.071)	-1.478 *** (0.552)	2.162 ** (0.841)	2.739 ** (1.063)	0.825 ** (0.415)	0.079 (0.784)	1.188 * (0.645)	0.929 (0.816)
IT w/ number of annual Gram Sabha meetings >2	-0.561 (0.740)	1.313 * (0.788)	-2.360 ** (1.038)	2.456 ** (1.055)	0.117 (0.746)	1.031 (0.709)	-0.879 (1.188)	2.401 ** (1.102)
IT w/ number of activities to which devolution has been undertaken	0.204 ** (0.102)	-0.218 ** (0.101)	0.548 ** (0.274)	-0.616 ** (0.269)	0.039 (0.076)	-0.019 (0.078)	0.129 (0.150)	-0.136 (0.146)
IT w/ ratio of own expenditure over own income 2005/06	-1.996 (4.552)	5.037 *** (1.020)	-7.146 (8.941)	-0.889 (1.368)	-9.662 *** (2.986)	0.490 (1.054)	-6.640 (5.579)	0.226 (1.213)
Constant	2.608 (1.861)	1.858 (2.112)	-3.082 (2.491)	-10.855 *** (3.919)	0.747 (1.446)	1.250 (1.270)	3.454 (2.191)	2.880 (2.417)
District fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
# Observations	241	241	175	175	241	241	230	230
LR statistic	28.18	35.05 **	23.07	23.29	28.89	28.08	32.02 *	33.25 **
Hosmer-Lemeshow chi-square	4.97	4.97	5.52	4.78	5.01	6.64	6.95	18.10 **

Note: The header row denotes the dependent variable that equals one if GP members consider sanitation facilities to be problematic in terms of the number of toilets, drainage, or along multiple dimensions, and zero otherwise. Standard errors are clustered at the GP level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels, respectively. LR statistic = likelihood-ratio test statistic.

7.4. Satisfaction with Local Governance

The empirical results on the determinants of rural service delivery suggest that the quantity and the quality of rural services are largely independent of the gender and reservation status of GP presidents. This section reports comparable results for the determinants of local governance, with local governance being approximated in terms of the number of Gram Sabha meetings and Gram Sabha attendance.

7.4.1. Gram Sabha Occurrence

Table 29 summarizes the evidence on the determinants of the number of Gram Sabha meetings for specifications that account for the residence of higher-level officials or the stage of economic, infrastructure, and human development of Taluks (CCDI). Due to poor model performance, the results are at most tentative. Regardless of the specification, the evidence shows that the probability of organizing more than two Gram Sabha meetings per year is unrelated to the literacy of GP presidents. In addition, the likelihood of Gram Sabha meetings is robust to the gender and reservation status of the GP president as neither (1) female reserved GPs nor (2) male (un-)reserved GPs are more likely to implement more than two annual Gram Sabha meetings.

Although the occurrence of Gram Sabha meetings is unaffected by literacy, gender or reservation effects, it is dependent on the stage of development of Taluks. The probability of observing a larger number of Gram Sabha meetings increases with the stage of (CCDI) development.[64] Finally, the residence of a higher-level official in the GP reduces the probability of having a larger number of Gram Sabha meetings. A possible explanation could be that households consider it to be more effective to bring service delivery problems to the direct attention of higher-level officials rather than going through Gram Sabha meetings.

Table 29. Occurrence of Gram Sabha meetings (logit regression)

	Female Reserved GP President		Male (Un-)Reserved GP President	
Literate GP president	-1.536		-1.232	
	(1.322)		(1.234)	
MLA/MP/ZP/TP member resides in the GP	-1.835	**	-1.676	**
	(0.792)		(0.792)	
GP president (see header)	-0.606		0.046	
	(0.883)		(0.766)	
Backward GP	0.216		0.238	
	(0.853)		(0.824)	
Relatively more developed GP	3.179	**	3.139	**
	(1.293)		(1.311)	
Constant	1.334		0.501	
	(2.018)		(1.915)	
District fixed effects	yes		yes	
# Observations	70		70	
LR statistic	22.70	*	22.31	*
Hosmer-Lemeshow chi-square	8.81		4.68	

Notes: The dependent variable equals one if the number of Gram Sabha meetings exceeds two per year, and zero otherwise. Standard errors are clustered at the GP level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels. LR statistic = likelihood-ratio test statistic.

7.4.2. Gram Sabha household attendance

Tables 30 and 31 summarize the evidence on the factors that determine the household attendance of Gram Sabha meetings (model 4). Table 30 documents the evidence from a set of linear probability specifications, which differ in terms of the institutional membership patterns of households and the

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[64] Note, the results are robust to estimations that exclude the data on backward GPs or that include the experience of GP presidents with political processes and procedures and the size of villages.

assumed GP residence of higher-level officials. Table 31 reports the evidence from estimations with interaction terms between the gender of the reserved GP president and household/GP characteristics. A comparison of the evidence in both tables indicates that the interaction terms bring to the fore the statistical significance of the effects associated with the SC/ST eligibility for reservation, with landownership, and with the gender of the GP presidents.

Unfortunately, the Hosmer-Lemeshow test statistics suggest that some of the model specifications with interaction terms perform worse than those without, and care needs to be exercised when interpreting the evidence associated with the interaction terms. We first summarize the results for household characteristics and then for GP characteristics. In order to test whether the reservation of seats for women is associated with gender effects, we run seemingly unrelated estimations for the model specifications with reserved female- and (un-)reserved male-headed GPs. As will become evident, there are only few cases when the effects associated with any particular variable significantly differ between the specification for female- and male-headed GPs.

Consistent with the evidence in Besley, Pande, and Rao (2005a), household respondents with different socioeconomic backgrounds are not equally likely to attend Gram Sabha meetings. Estimations for both female- and male-led GPs show that female and illiterate household respondents and households in the SC and ST hamlet are significantly less likely to attend Gram Sabha meetings. The unequal attendance of Gram Sabha meetings also prevails in terms of landownership and SC/ST eligibility: Households without landholdings and households with SC or ST background are significantly less likely to attend Gram Sabha meetings according to the estimations for female- and male-headed GPs, respectively (see Table 31). The strength of the effect significantly differs between reserved female-headed and (un-)reserved male-headed GPs: SC/ST households and households without landholdings are less (more) likely to attend Gram Sabha meetings in female-led (male-led) GPs.[65]

The egalitarian influence of Gram Sabha meetings also becomes questionable when looking at the relationship between Gram Sabha attendance and the households' institutional and political membership patterns. Households with direct or indirect involvement in local politics or GP activities are more likely to attend Gram Sabha meetings. Although the strength of the effect does not depend on the gender and reservation status of the GP president, this finding is relevant because it suggests that interest group behavior influences the operation of Gram Sabhas and thus of GPs.

In addition to these household-specific factors, Gram Sabha attendance also depends on factors that are specific to GPs. Considering the evidence on the average size of GP villages, the probability of Gram Sabha attendance decreases with the number of households in the village GP. This finding points to the existence of a collective action problem in local governance: Households in large GP villages may not attend Gram Sabha meetings because the success of being heard and the gains of Gram Sabha attendance are perceived to be low. The evidence also suggests that the propensity of Gram Sabha attendance positively depends on the residence of higher-level officials in the GP. The probability of attendance is not influenced by the gender or reservation status of the GP president.

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[65] The respective test statistics of seemingly unrelated estimations are available on request.

Table 30. Household attendance of Gram Sabha meetings (logit regression) — Without interaction terms

	Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male	
Female HH respondent	-0.827	***	-0.829	***	-0.801	***	-0.800	***	-0.831	***	-0.831	***	-0.782	***	-0.783	***
	(0.192)		(0.192)		(0.192)		(0.192)		(0.193)		(0.192)		(0.189)		(0.188)	
SC/ST	-0.111		-0.108		-0.113		-0.112		-0.127		-0.127		-0.146		-0.144	
	(0.179)		(0.180)		(0.169)		(0.169)		(0.173)		(0.173)		(0.175)		(0.175)	
Literate HH respondent	0.827	***	0.827	***	0.891	***	0.892	***	0.891	***	0.892	***	0.914	***	0.912	***
	(0.181)		(0.180)		(0.180)		(0.180)		(0.185)		(0.185)		(0.183)		(0.182)	
Land owned	0.150		0.149		0.189		0.188		0.169		0.168		0.159		0.158	
	(0.175)		(0.175)		(0.176)		(0.176)		(0.176)		(0.176)		(0.171)		(0.172)	
GP president (see header)	0.104		-0.091		0.009		-0.015		0.030		-0.044		0.146		-0.112	
	(0.264)		(0.242)		(0.254)		(0.227)		(0.256)		(0.227)		(0.242)		(0.215)	
HH location: SC/ST hamlet	-0.595	*	-0.593	*	-0.558	*	-0.560	*	-0.596	**	-0.600	**	-0.662	**	-0.648	**
	(0.341)		(0.341)		(0.298)		(0.296)		(0.300)		(0.300)		(0.308)		(0.306)	
Mean number of HHs per village GP	-0.0004	**	-0.0003	**	-0.0004	**	-0.0004	**	-0.0004	**	-0.0003	**	-0.0004	***	-0.0004	***
	(0.0002)		(0.0002)		(0.0002)		(0.0002)		(0.0002)		(0.0002)		(0.0001)		(0.0001)	
HH membership in local institutions	0.467	**	0.467	**												
	(0.185)		(0.184)													
HH respondent belongs to HH w/ political party membership					0.687	**	0.686	**								
					(0.272)		(0.275)									
HH respondent belongs to HH w/ a current GP member									2.183	***	2.184	***				
									(0.607)		(0.606)					
MLA/MP/ZP/TP member resides in the GP													0.441	**	0.432	**
Constant	-0.940	*	-0.843	*	-0.765		-0.753		-0.612		-0.575		-0.955	**	-0.821	**
	(0.517)		(0.438)		(0.525)		(0.470)		(0.524)		(0.475)		(0.458)		(0.394)	
District fixed effect	yes		yes		yes		yes		yes		yes		yes		yes	
# Observations	903		903		942		942		942		942		942		942	
LR-statistic	167.23	***	167.20	***	169.91	***	169.91	***	181.19	***	181.23	***	171.15	***	171.00	***
Hosmer-Lemeshow chi-square	7.85		5.41		8.12		8.00		13.51	*	14.78	*	12.50		10.65	

Note: The dependent variable equals one if the household respondent attended a Gram Sabha meeting, and zero otherwise. Standard errors are clustered at the GP village level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels. The coefficient estimates on the location of households in the SC/ST hamlet are robust to the inclusion of other locational factors. Other locational factors are excluded from the present set of estimations as the respective coefficient estimates are insignificant. MLA = Member of the Legislative Assembly, MP = Member of Parliament, ZP = Zilla Panchayat, TP = Taluk Panchayat, LR statistic = likelihood-ratio test statistic.

Table 31. Household attendance of Gram Sabha meetings (logit regression) — With interaction terms

	Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male		Res. Female		(Un-)Res. Male	
Female HH respondent	-0.651	***	-0.454		-0.639	***	-0.450		-0.664	***	-0.459		-0.624	***	-0.439	
	(0.202)		(0.323)		(0.204)		(0.316)		(0.203)		(0.329)		(0.203)		(0.313)	
SC/ST	0.049		-0.565	**	0.015		-0.501	**	0.016		-0.540	**	0.015		-0.647	**
	(0.193)		(0.230)		(0.186)		(0.211)		(0.191)		(0.212)		(0.183)		(0.255)	
Literate HH respondent	0.880	***	1.097	***	0.935	***	1.218	***	0.941	***	1.247	***	0.960	***	1.242	***
	(0.227)		(0.278)		(0.226)		(0.268)		(0.234)		(0.264)		(0.228)		(0.271)	
Land owned	0.348	**	-0.392		0.379	**	-0.356		0.368	**	-0.371		0.352	**	-0.386	
	(0.161)		(0.401)		(0.164)		(0.412)		(0.161)		(0.426)		(0.150)		(0.406)	
GP president (see header)	1.295	**	-0.619		1.110	**	-0.322		1.141		-0.314		1.270	**	-0.401	
	(0.558)		(0.510)		(0.513)		(0.478)		(0.499)		(0.464)		(0.604)		(0.569)	
HH location: SC/ST hamlet	-0.678	*	-0.538		-0.595	*	-0.564	*	-0.637	*	-0.611	**	-0.676	**	-0.667	**
	(0.349)		(0.344)		(0.316)		(0.304)		(0.328)		(0.308)		(0.317)		(0.312)	
Mean number of households per village GP	-0.0003	**	-0.0003	*	-0.0003	**	-0.0003	**	-0.0003	**	-0.0003	**	-0.0001	**	-0.0003	**
	(0.0002)		(0.0002)		(0.0001)		(0.0001)		(0.0001)		(0.0002)		(0.0001)		(0.0001)	
HH membership in local institutions	0.508	**	0.249													
	(0.225)		(0.300)													
HH respondent belongs to HH w/ political party membership					0.722	*	0.592									
					(0.356)		(0.416)									
HH respondent belongs to HH w/ a current GP member									2.175	***	2.362	*				
									(0.684)		(1.291)					
MLA/MP/ZP/TP member resides in the GP													0.451	*	0.565	
													(0.266)		(0.354)	
IT w/ female HH respondent	-0.993	***	-0.576		-0.961	***	-0.558		-0.968	***	-0.595		-0.915	***	-0.545	
	(0.363)		(0.361)		(0.335)		(0.356)		(0.352)		(0.371)		(0.329)		(0.350)	
IT w/ SC/ST eligibility for reservation	-0.685	**	0.645	**	-0.583	*	0.554	**	-0.635	**	0.590	**	-0.711	**	0.709	**
	(0.317)		(0.292)		(0.310)		(0.271)		(0.315)		(0.277)		(0.359)		(0.303)	
IT w/ literate HH respondent	-0.232		-0.431		-0.230		-0.546		-0.228		-0.578		-0.223		-0.540	
	(0.410)		(0.368)		(0.404)		(0.356)		(0.408)		(0.359)		(0.413)		(0.361)	
IT w/ land owned	-0.780	*	0.743	*	-0.765	*	0.759	*	-0.780		0.757	*	-0.764		0.762	*
	(0.452)		(0.435)		(0.483)		(0.533)		(0.495)		(0.460)		(0.470)		(0.435)	
IT w/ HH membership in local institutions	-0.092		0.359													
	(0.396)		(0.378)													

Table 31. Household attendance of Gram Sabha meetings (logit regression) — With interaction terms (Continued)

	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
IT w/ HH respondent who belongs to HH w/ political party membership			-0.149 (0.499)	-0.906 (0.630)				
IT w/ HH respondent who belongs to HH w/ a current GP member					0.078 (1.484)	-0.076 (1.457)		
IT w/ MLA/MP/ZP/TP member who resides in the GP							-0.012 (0.508)	-0.104 (0.457)
Constant	-1.445 *** (0.546)	-0.905 (0.580)	-1.199 ** (0.537)	-0.058 (0.569)	-1.076 (0.551)	-0.780 (0.642)	-1.423 *** (0.506)	-0.999 * (0.599)
District fixed effect	yes	yes	yes	yes	yes	yes	yes	yes
# Observations	903	903	942	942	942	942	942	942
LR statistic	179.21 ***	179.00 ***	180.99 ***	181.76 ***	192.61 ***	193.74 ***	182.43 ***	183.58 ***
Hosmer-Lemeshow chi-square	11.23	8.61	24.70 ***	8.04	23.64 ***	12.32	12.75	19.14 **

See note in Table 30.

7.5. Financial Resources and Rural Service Provision

We conclude this section by reporting the results for estimations that identify the determinants of net resource utilization. The results need to be interpreted with caution as time lags in the disbursement of program-specific funds preclude the unambiguous assignment of expenditures to any particular fiscal year. Additional complications arise from the lack of time-series data on fiscal spending. This causes the results to be overly sensitive to exceptional (one-time) expenditures. We emphasize the evidence from model specifications that employ the information for the fiscal year 2005/06. The restricted focus is motivated by the observation that the most recent GP election term started in February 2005. Because the fiscal year lasts from April to March, the GP spending and expenditure patterns for earlier fiscal years do not reflect the spending decisions of the present local government. Accordingly, spending decisions in earlier years are unlikely to represent the gender effects of reservation policies.

Table 32 summarizes the evidence from estimations for the utilization of own funds, the 12th Finance Commission grant, and statutory development grants.[66] Regardless of the source of funds, we discuss the results for model specifications that disregard (1) the extent to which GP activities are decentralized or (2) the political experience of GP representatives. In addition, the specifications are estimated without interaction terms between the characteristics of GP members and the gender and reservation status of GP presidents. The variables are excluded because of statistical insignificance, poor model performance, and/or they dwarf the effects associated with other explanatory variables.

The evidence lends weak support to the existence of factors that systematically and consistently explain the utilization of the different funds. In addition, the observed relationships turn out to conflict with general expectations. For example, we observe a significant, but surprisingly negative, effect of literacy on the utilization of own funds and development grant funds. Furthermore, the relationship between literacy and the utilization of the 12th Finance Commission grant is insignificant. The absence of a statistically negative or insignificant relationship should be interpreted with caution since these results might be driven by the absence of sufficient and adequate spending opportunities. For example, funds might be allocated on the basis of development plans that fail to meet local needs as they are defined by higher-level planning authorities. The empirical results lend no support to the existence of a relationship between resource utilization and (1) the number of households in village GPs (i.e., GP size) or (2) the number of Gram Sabha meetings. Inasmuch as 65 percent of the GP representatives emphasize the importance of Gram Sabha meetings as an institutional mechanism for the approval of GP budgets, the absence of a significant effect suggests that Gram Sabha meetings are not used as a platform to contest GP budget allocation decisions.

We find weak support that the utilization of resources is influenced by the stage of economic development of the Taluk in which the GP is located. In particular, the most backward GPs utilize the statutory development grant to a larger extent than more developed GPs. This finding could be driven by the relative lack of infrastructure in backward GPs and the associated need to finance the installation of new, rather than the maintenance of existing, capital. Furthermore, relatively less developed GPs use fewer of the resources that come under the 12th Finance Commission grant, which could be due to the unavailability of the respective funds at the time when spending needs arise. Finally, female- and male-headed GPs do not differ in the degree of resource utilization. It needs to be left for future research to determine whether the absence of gender differences in the magnitude of resource utilization also implies the absence of gender differences in the efficiency of resource utilization.

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[66] The evidence from alternative sources of funds is not reported due to poor model performance.

Table 32. Determinants of net fiscal resource utilization (OLS regression)

	Own Fiscal Resources		12th Finance Commission Grant		Statutory Development Grant	
	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male	Res. Female	(Un-)Res. Male
Literate GP representative	-0.129 *	-0.151 *	0.494	0.451	-0.284 **	-0.279 **
	(0.077)	(0.081)	(0.378)	(0.349)	(0.109)	(0.109)
Households per GP village	0.00006	0.00005	0.00011	0.0001 *	0.00005	0.00005
	(0.00005)	(0.00005)	(0.00008)	(0.0001)	(0.00004)	(0.00004)
Number of annual Gram Sabha meetings >2	-0.094	-0.094	-0.065	-0.070	0.006	0.009
	(0.078)	(0.080)	(0.143)	(0.142)	(0.049)	(0.050)
GP president (see header)	0.036	0.001	0.089	-0.047 *	-0.047	0.042
	(0.049)	(0.046)	(0.169)	(0.132)	(0.041)	(0.040)
Backward GP	-0.055	-0.052	-0.292	-0.295	0.025	0.024
	(0.058)	(0.057)	(0.226)	(0.230)	(0.065)	(0.065)
More backward GP	-0.057	-0.059	-0.183	-0.186	0.057	0.059
	(0.044)	(0.044)	(0.231)	(0.234)	(0.068)	(0.067)
Most backward GP	0.217 *	0.231 *	-0.333	-0.300	0.206 **	0.191 *
	(0.126)	(0.125)	(0.312)	(0.293)	(0.100)	(0.101)
Relatively less developed GP	-0.086	-0.096	-0.569 *	-0.569 *	-0.077	-0.083
	(0.085)	(0.087)	(0.291)	(0.295)	(0.112)	(0.116)
Constant	1.161 ***	1.204 ***	0.441	0.553	1.166 ***	1.121 ***
	(0.098)	(0.110)	(0.519)	(0.466)	(0.156)	(0.139)
District fixed effects	yes	yes	yes	yes	Yes	yes
# Observations	72	72	55	55	70	70
LR statistic	39.52 ***	38.80 ***	41.10 ***	40.80 ***	64.67 ***	64.57 ***
Adjusted R2	0.21	0.20	0.29	0.29	0.45	0.45

Note: The dependent variable is defined as the ratio of expenditures over income of (1) own resources (columns 2–3), (2) the 12th Finance Commission grant (columns 4–5), and (3) the statutory development grant (columns 6–7) for the fiscal year 2005/06. Standard errors are clustered at the GP level and reported in parentheses. ***, **, and * denote the statistical significance at the 1, 5, and 10 percent levels. GPs are defined to be either most backward, more backward, backward, relatively less developed, or relatively more developed. LR statistic = likelihood-ratio test statistic.

8. CONCLUSION

The present paper has discussed the role of political reservation policies for women as a determinant of rural service provision and local governance. There can be no doubt that the reservation of seats for women in local councils is a goal in its own right and an important strategy for increasing the participation of women in local policymaking. However, the evidence from (non-)linear probability models suggest that this strategy does not guarantee more gender-equitable outcomes in rural service provision, but that social, economic, and institutional factors also constrain effective local governance and rural service provision beyond the women's reservation effect. To effectively meet the service demands of rural women and to achieve gender-equitable outcomes in rural service provision, it is important to pursue other demand- and supply-side strategies such as gender-targeting, gender-budgeting, and gender-monitoring of programs; and strategies that promote gender-equitable outcomes as a common concern of both men and women.

Different contextual factors will favor different portfolios of strategies, and future research has to determine which strategies will be most effective in strengthening the position of women in local governance and in improving the ability of women to receive the services they need under different binding constraints. Common to all strategies should be the creation of democratic and participatory structures at the local level considering these are instrumental for assessing local service needs and priorities of households within and between Gram Panchayat (GP) villages. In addition, decentralized local strategies could better control for asymmetries in the socioeconomic, sociocultural, and political background of local politicians and thus facilitate priority setting via consensus by aligning views on the severity of local service delivery problems and the choice of possible problem/solution approaches. The participatory strategies are likely to be effective only in promoting gender-equitable outcomes in rural service provision and local governance if they are accompanied by strategies to increase the capacity of service providers to finance and deliver the respective services, to apply the rules of law and regulation, and to control corruption. The respective ability depends not only on the level of education and training of the service providers and the level of funds, but also on the degree and mode of interaction between the different parties and the effect of interaction on the flow of information, the coordination of activities, and supervision. Future research should explore the importance of these factors for rural service provision and local governance. The respective results will be critical for the identification of gender-sensitive governance reform strategies that promote better and inclusive service provision in rural areas.

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