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Identities and public policies: Unexpected effects of political reservations for women in India

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ABSTRACT

Identity is an important determinant of economic behavior. While the existing literature focuses on one identity dimension at a time, we show that the multiplicity of identity dimensions matters for economic behavior and that neglecting it may lead policymakers to overlook important, unexpected effects of economic policies. We exploit the randomized nature of political reservations for women in India to show that a policy designed along one identity dimension (gender) alters the distribution of the benefits of this policy along another one (caste). We propose differences in gender norms across caste groups as a mechanism.

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1. Introduction

A person's identity or sense of self is associated with various social categories, such as gender and ethnicity. A large literature has underlined the role of identity for public goods provision (Alesina, Baqir, & Easterly, 1999; Miguel & Gugerty, 2005; Banerjee & Somanathan, 2007), conflicts (Esteban & Ray, 2008; Esteban, Mayoral, & Ray, 2012), and other economic outcomes at the individual (Akerlof & Kranton, 2000; Fernández, 2011) and geographically aggregated (Easterly & Levine, 1997; Alesina & La Ferrara, 2005) levels. The political economy literature has also recognized the importance of identity for policy making. The citizen candidate models (Osborne & Slivinski, 1996; Besley & Coate, 1997) and their empirical applications (Levitt, 1996; Besley & Case, 2000; Pande, 2003; Chattopadhyay & Duflo, 2004) emphasize how the identity of the elected representative may affect policy implementation. With the exception of Shayo (2009) and Mayoral and Ray (2016), this literature tends to study one identity

dimension at a time (say ethnicity or gender), while in reality, individuals are associated with several ones at the same time (say ethnicity and gender).¹

This paper demonstrates the importance of the multiplicity of identity dimensions for the design of public policies. To do so we revisit a well studied policy – political reservations for women in local elections in India² (Chattopadhyay & Duflo, 2004; Besley, Pande, Rahman, & Rao, 2004; Banerjee & Pande, 2009; Bardhan, Mookherjee, & Parra Torrado, 2010; Munshi & Rosenzweig, 2018) – and show that it impacts political representation not only along the gender dimension but also along the caste one. Following the literature (Pitkin, 1967), we decompose representation into *descriptive representation* (does the identity of the elected person change?) and *substantive representation* (do the policies change?). We show that gender quotas affect both descriptive and substantive representation along the gender and caste dimensions. Indeed, gender quotas do not

¹ Other social sciences embraced the multiplicity of identity dimensions earlier. Crenshaw (1989) and Crenshaw (1991) introduced the concept of “intersectionality” and Lipset and Rokkan (1967) discusses “cross-cuttingness”.

² In rural India, the lowest official authority is the Gram Panchayat. Since 1992, one-third of the Gram Panchayat president positions have been randomly reserved for women, so that only women could be elected to the position of president.

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only result in women being elected; importantly, they also reduce the probability the representative is a High Caste (HC).³ In terms of substantive representation, we find that gender quotas change policies towards the preferences of women (as in Chattopadhyay & Duflo, 2004) and also towards the preferences of Low Castes (LCs).⁴

Why do reservations for women alter policies along the caste identity dimension? It is well documented that women's mobility varies across castes. Indeed, HCs tend to impose stricter restrictions on the mobility of women outside the house (Mencher, 1988; Chakravarti, 1993; Kapadia, 1997; Drèze & Sen, 2002; Joshi, Kochhar, & Rao, 2017), which may affect economic behavior (Field, Jayachandran, & Pande, 2010; Luke & Munshi, 2011). Since being a candidate in an election implies physical mobility, this caste difference with respect to women's mobility may also transpire in political participation. We indeed find that political participation of HC women is lower than that of LC women.

To study the impact of gender quotas on HC representation and policies, we use the 2005–2006 edition of the “Rural Economic and Demographic Survey” (REDS). The village questionnaire provides details on each candidate for consecutive elections. Based on this information, we show that reservations for women lead to a marked decline in the number of HCs running for election, the likelihood that any HC will run, and eventually in the likelihood an HC wins the election. As a matter of fact, the implementation of gender quotas leads to a shift of representation, from HC men to LC women. This change in descriptive representation leads to a change in substantive representation. The REDS village survey provides details on the public goods that have been constructed or maintained during different electoral terms. As the household questionnaire asks individuals about their preferences for the same set of public goods, we can map preferences and implemented policies in a straightforward manner. This allows us to show that women elected under the reservation policy do not only align policies with the preferences of women, but also with the preferences of LCs. We include village fixed effects in our regressions so our results do not rely on cross sectional variation across villages, but on changes in reservations within the village. Our identification strategy, therefore, ensures that characteristics are balanced across treatment and control election-terms, since villages are basically compared to themselves. The findings are robust to the use of different measures of preferences, the inclusion of additional identity dimensions, such as education and wealth, and controlling for the main characteristics of the leader.

The paper makes four contributions. First, in the identity literature, it adds to a recent stream of papers that underline its complexity (Cassan, 2015; Qian & Nix, 2015; Jia & Persson, 2017; Desmet, Ortuno-Ortiz, & Wacziarg, 2017; Atkin, Colson-Sihra, & Shayo, 2019) by showing how the multiplicity of identity dimensions can affect the impact of public policies. Second, we suggest a mechanism for the findings: differences in women's mobility across castes. This contributes to the recent strand of literature on the importance of the cultural context for economic behavior

³ We define a high caste as any Hindu who is not considered a low caste according to the Government's classification, i.e. a Hindu who is not a Scheduled Caste, a Scheduled Tribe or an Other Backward Class.

⁴ Note that this finding is not obvious: as women represent 50% of both HC and LC, gender quotas do not mechanically affect caste representation. This is in contrast to cases in which policies may disproportionately affect certain groups, because these groups are over-represented among the beneficiaries of such policies. For example, pro-poor policies disproportionately benefit LC in the Indian context, or African-Americans in the US context because those groups are over-represented among the poor.

⁵ Our findings are of relevance in other settings and to other policies as well. For example, an audit study in the USA found that the price discrimination faced by black women was different to that of either black men or white women (Ayres & Siegelman, 1995; Bertrand, Hanna, & Mullainathan, 2010; and Bertrand et al., 2010 & Cassan, 2019 find that caste based affirmative action policies do not benefit women in India.

(Fernández & Fogli, 2009) and public policies (Ashraf, Bau, Nunn, & Voena, 2019), and suggests that policy design needs to consider the different salient identity dimensions and the potential heterogeneity in behavior they entail.⁵ Third, in the “intersectionality” and “cross-cuttingness” literatures (Selway, 2010; Hughes, 2011; Selway, 2011; Hughes, 2014; Celis, Erzeel, Mügge, & Damstra, 2014; Tan, 2014; Folke, Freidenvall, & Rickne, 2015; Jensenius, 2016), this paper is, apart from the case study of Karekurve-Ramachandra & Lee (2020)⁶, the first to go beyond correlations and show the causal impact of gender quotas on representation along other identity dimensions. Finally, the paper offers a contribution to the literature on the impact of political representations. In the debate about descriptive versus substantive representation (Pitkin, 1967; Labonne, Parsa, & Querubin, 2017), our results are in line with Chattopadhyay & Duflo (2004), Clots Figueras (2011), Clots Figueras (2012) and Iyer, Mani, Mishra, & Topalova (2012) who show that the election of women brings about substantive representation.

The structure of the paper is as follows. We first discuss the context in Section 2. Section 3 presents evidence on HC political representation in the presence of quotas, and Section 4 shows that political reservations for women lead to the implementation of policies that are closer to the preferences of both women and LCs. Finally, we present robustness checks in Section 5, and conclude in Section 6.

2. Context and data

We discuss political reservations for women and low castes in Section 2.1 and women's mobility across castes in Section 2.2.

2.1. Quotas in local government

In rural India, the lowest official authority is the Gram Panchayat (GP). It is composed of 5 to 15 contiguous villages, and is led by a president.⁷ The 73rd Amendment Act (1992) of the Constitution of India introduced an ambitious decentralization program. Two main responsibilities were passed onto the GP: managing public infrastructures and identifying villagers who are entitled to welfare schemes (Casini, Vandewalle, & Zaki, 2017). It also introduced unique quota policies, providing that one-third of the seats in all GPs, as well as one-third of the president positions, must be reserved for women. As gender quotas rotate randomly, it is straightforward to estimate the causal impact of mandated representation of women on political participation and implemented policies. Furthermore, seats and president positions are reserved for low castes, as well as for women. Indeed, reservations for Scheduled Tribes, Scheduled Castes and Other Backward Classes are implemented in proportion to their population share in each district.⁸ For more details about these well studied policies, we refer the reader to the literature (among others, Chattopadhyay & Duflo, 2004; Besley et al., 2004; Bardhan et al., 2010).

⁶ Karekurve-Ramachandra & Lee, 2020 study the effect of gender quotas on caste representation in Delhi. Using the elections of 2012 and 2017, they show that reservations for women led to an increase in the descriptive representation of high castes in India's capital. They do not investigate whether this also affects substantive representation. Their results are different from our findings regarding descriptive representation. This may be due to the focus on Delhi, which is a very specific setting.

⁷ The population per GP varies across Indian states, but typically numbers several thousands. The GP president has a different name in different states, e.g. Pradhan, Mukhya and Sarpanch. Therefore, we opted for the English translation.

⁸ Although these are quite different populations, we group them together as low castes. First, because they are all ranked below high castes, and second because we lack the power to treat them as separate entities.

2.2. Caste and women's mobility

The caste system divides the Indian society into groups, which are ranked by order of purity: the High Castes (henceforth HCs) are considered pure, while contact with the Low Castes (henceforth LCs) is considered polluting. Individuals are born and marry within their caste, and it is traditionally associated with an occupation.⁹

Physical mobility of women also tends to differ across castes. Indeed, several qualitative and quantitative studies establish that HC women are restricted in their mobility for ritual reasons, i.e. for the fear of pollution by LCs (Mencher, 1988; Chakravarti, 1993; Kapadia, 1997; Field et al., 2010; Luke & Munshi, 2011).¹⁰ In Appendix A, we use data from the 2011–2012 edition of the *Indian Human Development Survey* and the 2004 round of the *National Election Survey* to provide evidence on HC women being more restricted in their mobility outside the house than LC women: they more often need to ask for permission to leave the house and it is less likely they ever worked for pay.¹¹

A difference in physical mobility is likely to affect participation in the political life since the latter implies physical mobility. While we cannot rule out that other mechanisms may be at play as well, we do observe that HC women tend to participate less in political life, and that the participation of women in politics in general is frowned upon by both HC men and HC women.

HC women being more restricted in their mobility outside the house most likely reflects gender norm differences across castes, but we acknowledge that economic needs may play a role as well. Indeed, as HCs are generally better off, they face different economic constraints due to which HC women may act differently than LC women. We refer the reader to Sanyal, Rao, & Majumdar (2015) for some evidence to this interpretation.¹² For the purpose of our paper, it does not matter if the differences in mobility are due to gender norms only or due to a combination of norms and economic differences.

Given the observed differences in mobility and economic status, it is likely that gender quotas may have a different impact on the likelihood that HC women run for elections as compared to LC women. We test this hypothesis in the next section.

3. Gender quotas and descriptive representation

We use the 2005–2006 edition of the *Rural Economic and Demographic Survey* (REDS). The data was collected by the National Council of Applied Economic Research in Delhi. It provides a nationally representative sample of rural households. The data consist in a survey at the village and household levels. The village survey collects details on reservations, characteristics of the presi-

⁹ Of course, the caste system is much more complex than this brief description. We refer the reader to the large historical, anthropological and sociological literature on the topic (Srinivas, 1962; Dumont, 1967; Bayly, 1999; Dirks, 2001), as well as to the growing economics literature (Munshi & Rosenzweig, 2006; Munshi & Rosenzweig, 2009; Cassan, Keniston, & Kleineberg, 2019).

¹⁰ Chakravarti, 1993: "The lower caste male whose sexuality is a threat to upper caste purity has to be institutionally prevented from having sexual access to women of the higher castes, so women must be carefully guarded." Field et al. (2010): "UCs [upper castes] maintain purity by avoiding sexual relations, marriage and, in extreme cases, contact with lower castes. Men are regarded as a source of pollution, so restrictions are placed on women to limit contact with men other than their husbands. Requirements include that a married woman remain veiled, not remarry if widowed, not interact with older men, and have restricted mobility outside of her house. These norms – particularly the latter two – significantly restrict female labor force participation. Maintaining purity by minimizing contact with lower castes is less relevant for SCs, who rank low in the hierarchy."

¹¹ Note that within household decision making appears to be similar for HC and LC (see Table 10 in Appendix A).

¹² They write "Women's need to be physically mobile was seen by women and men as symptomatic of male deficiency and a husband's failure to be a provider."

Table 1
Reservations and President Characteristics.

	No reservation	Reserved for women	Reserved for LC
HC men	50.9%	0.0%	3.1%
LC men	42.6%	4.6%	87.6%
HC women	3.7%	30.8%	0.0%
LC women	2.8%	64.6%	9.3%
Number of elections	108	65	97

Source: The REDS 2006 data.

dent, and public works that took place during the current and previous two election terms. Since we are interested in policy implementation, we removed the current, unfinished term for all the villages in our sample. Indeed, in about 70% of the villages, the last election took place during the year of the survey or the year preceding it, so that the implementation of policies was not complete, or may not even have started. The household level survey includes details on voting behavior and household members' preferences for public goods.

Our data provides information about 270 GP elections in 168 villages, of which 65 were reserved for women, and 97 for LCs.¹³ Table 1 presents the characteristics of the President against the reservation status of the elections. In the absence of quotas, HC men take a majority of the seats: there are virtually no women Presidents, and while LC men take a substantial share of the seats, they are still largely under-represented (in our sample, 76.1% of the households are LCs). When there is a reservation for women, a remarkable shift takes place: as expected, almost all Presidents are women, but – more surprisingly – most of them are LCs.¹⁴

We now explore in more detail how the shift in descriptive representation emerges. Since political reservations are allocated randomly, we can estimate the causal impact of reservations on HC candidacy and representation by running the following OLS regression:

$$P_{jdt} = \beta_0 + \beta_1 \text{Reserved_women}_{jdt} + \beta_2 \text{Reserved_lc}_{jdt} + V_d + W_t + \epsilon_{jdt}$$

P_{jdt} are measures of HC candidacy and presidency in village j , which is located in district d , for the electoral term t . $\text{Reserved_women}_{jdt}$ and Reserved_lc_{jdt} indicate the seat of president is reserved for women and LCs respectively. In addition to district fixed effects V_d , we include an electoral term fixed effect W_t .

The results in Table 2 show that reservations for women have a large impact on HC candidacy: the total number of candidates goes down by 0.8, which is entirely explained by a decrease in HC candidates. The probability that at least one HC runs for election falls by 31 percentage points, which eventually results in a 20 percent-

¹³ For the purpose of our analysis, we need information on the reservation status of elections, the candidates and the winner. This is available for 420 elections in 233 villages. We have information on preferences for public goods for the full sample, but public good provision in the village is recorded for 426 elections in 226 villages only. After merging all this information, we have a sample of 400 elections in 223 villages. As we are interested in differences between HCs and LCs, we have to drop elections that took place in districts with information for HCs or LCs only (14 districts, 28 villages and 45 elections) and in villages without HCs (21 villages, 39 elections). We also drop elections prior to the introduction of the quota policies (27 elections). Finally, we also drop the small number of elections that were jointly reserved for women and LCs (19 elections). We cannot consider these elections as reserved for women only, as they would distort the caste representation by construction and spuriously bias the results. The results do not change though when we include these elections.

¹⁴ There is a man President in 4.6% of the positions reserved for women and a HC president in 3.1% of the positions reserved for LCs. We believe this is due to some minimal measurement error in the data, either in the gender or caste of the president or in the reservation status of the election-term.

Table 2
Characteristics of Candidates and the President by Reservations for Women and LC.

	Number of candidates (1)	Number of HC candidates (2)	Any HC candidate (3)	President is an HC (4)
Reserved for LC	-0.28 (0.30)	-1.38*** (0.22)	-0.64*** (0.08)	-0.50*** (0.10)
Reserved for women	-0.78** (0.33)	-0.84*** (0.24)	-0.31*** (0.07)	-0.20** (0.09)
Mean dependent	3.10	0.90	0.39	0.30
Observations	270	270	270	270
Villages (#)	168	168	168	168

In column (1) the dependent variable is the total number of candidates who ran for election; in column (2) the total number of HC candidates; in column (3) a dummy indicating at least one HC ran for election, and in column (4) a dummy that takes value one if the president is an HC. All columns include district and electoral term fixed effects. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Source: Local governance module of the REDS 2006 village data.

age points lower probability of having an HC president. As expected, reservations for LCs also decrease HC candidacy and presidency.

The results confirm our hypothesis: reservations for women differently impact the likelihood that HC women run for election than LC women. As a result, it reduces the probability of having an HC president.

4. Gender quotas and substantive representation

Political reservations for women lead to a sharp decrease in HC presidency. In this section, we study whether this impacts the political agenda, and in particular the alignment of policies with preferences of women, LCs, or both women and LCs, that is, if the descriptive change in the identity of the president is linked to a substantive change in its policies. We introduce our measure of preferences in Section 4.1, and study the alignment of preferences and policy implementation in Section 4.2.

4.1. Measuring preferences and public goods provision

The REDS household survey asks individuals about their preferences for a given list of public goods, and the village questionnaire provides details on public goods that have been constructed or maintained during each electoral term. As the enlisted public goods almost perfectly match, we can map preferences and implemented policies in a straightforward manner. Following Munshi & Rosenzweig (2018), we focus on six public goods: water, sanitation, public lighting, communication, roads and electricity.¹⁵

Our measure of public goods provision is based on the local governance module of the village questionnaire. For each street in the village, it indicates whether a public good has been constructed or maintained during each of the election terms. We use this information to construct two measures of public goods provision. First, we calculate the share of streets in which the public good was constructed or maintained during the electoral term. Second, we create a dummy indicating the public good was constructed or maintained during that term in at least one street in the village.

The household level survey provides details on public goods preferences for five different household members.¹⁶ It is not clear

¹⁵ We do not include health and education, because these are largely administered by the state government. Indeed, GPs only play a marginal role in the delivery of these services (Munshi & Rosenzweig, 2018). We also had to exclude irrigation because we cannot match the information on preferences with that on implemented policies.

¹⁶ The question is: "If Govt. wishes to spend Rs. 1 lakh on local development and it is undecided regarding the nature of allocation and expects that panchayat has to arrive at a formula to allocate it then how would you advise the panchayat to allocate this amount on these issues?"

how the members were selected, but the head of the household and his spouse are systematically selected. To have comparable information across households, we only keep information on these two members. As in Chattopadhyay & Duflo (2004), we calculate preferences at the district level, which is two administrative levels above the GP. The preference $Pref_{gd}$ of a group g for a public good p in district d is calculated as the share of group members in a district who want the GP to allocate part of the budget to that particular good:

$$Pref_{gd} = \frac{\sum_i I(\text{allocation}_{igdp} > 0)}{N_{gd}}, i = 1, \dots, N_{gd} \quad (1)$$

where N_{gd} is the total number of members of the group in the district.¹⁷ We compute preferences for four different groups: men, women, LCs and HCs. Our variable of interest is the difference in preferences across groups within a district:

$$PrefDif_Caste_{dp} = Pref_{HCdp} - Pref_{LCdp}$$

$$PrefDif_Gender_{dp} = Pref_{MENdp} - Pref_{WOMENdp}$$

There is a large variation in preferences differences by gender and by caste across districts in India. Figs. 1 and 2 graphically represent this for the public goods *water* and *roads* respectively.¹⁸ The darker a district on the map, the more men want a good compared to women (on the left), and HC compared to LC (on the right). The graphs suggest that preference differences for a particular public good are not systematically the same across India. This can also be seen from the scatter plots, where each point indicates a district. In the left plot, a point on the 45° line reflects a district where men and women have the same preference for the public good. A point above (below) the 45° line implies men want it more (less). The figures reveal certain tendencies. Men have a more pronounced preference for water and roads than women, but while LC prefer water more than HC, on average, HC and LC seem to have a similar preference for roads. Note that, while we have information about public goods provision for each electoral term, we obtained information about preferences at one point in time only. We discuss this limitation in detail in Section 5.1.

4.2. Gender quotas and policy implementation

As explained earlier, we have information on preferences and implemented policies for the same set of public goods. This allows us to test whether presidents elected under a gender or caste quota

¹⁷ On average, we have 142 observations per district (with a standard deviation of 63). The number of villages per district varies from two to six.

¹⁸ Online Appendix A provides the same information for the other four public goods.

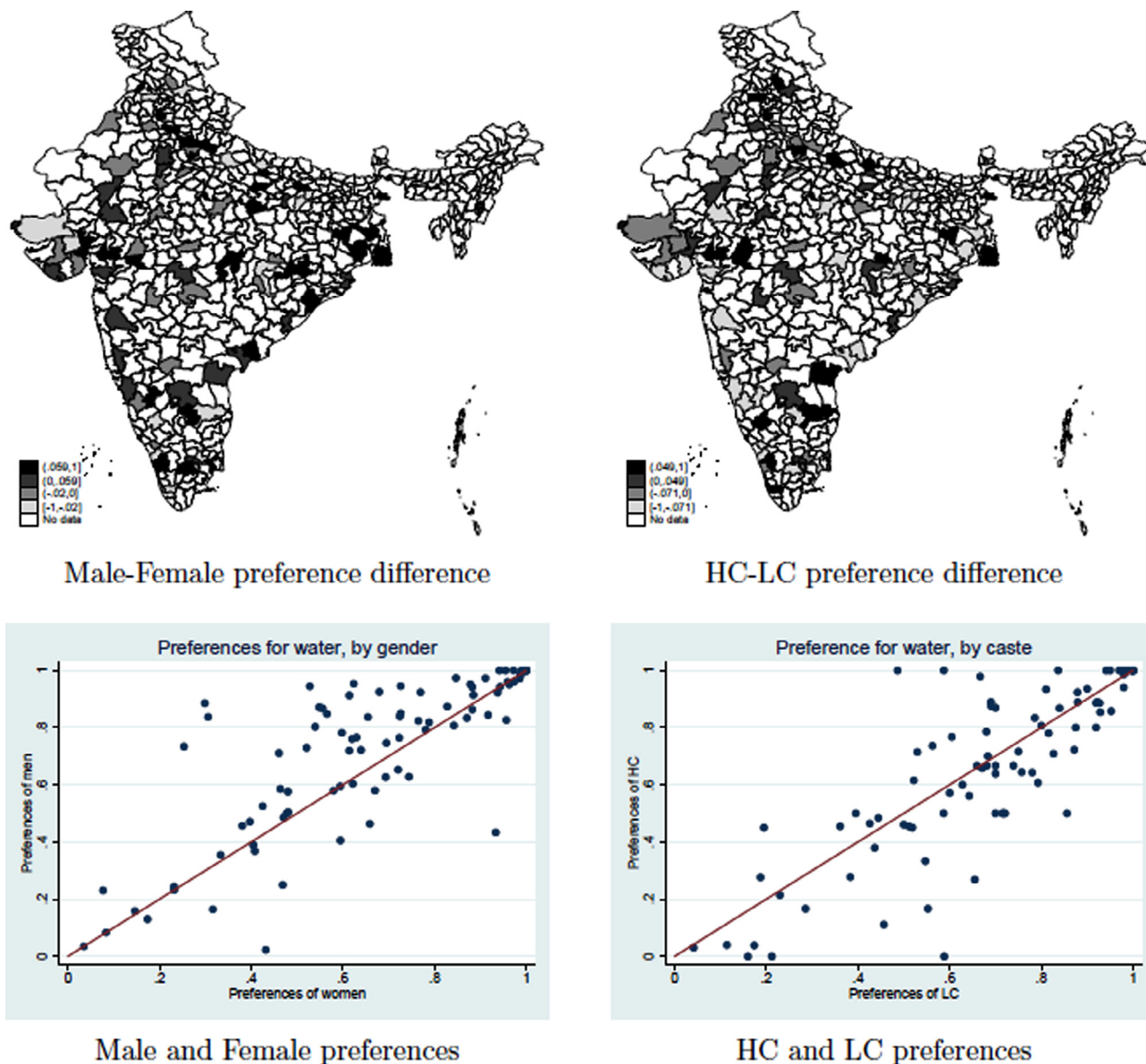


Fig. 1. Differences in preferences for water by gender and caste.

are more likely to implement policies that are preferred by women (Section 4.2.1), LC (Section 4.2.2), or both women and LC (Section 4.2.3).

Table 3 provides descriptive statistics of the variables that will be used in our empirical analysis. The sample consists of 1,620 observations (270 election terms × 6 public goods). On average, for each public good, maintenance or construction took place in about 30% of the streets in a village, and in at least one street in half the villages. In our sample, 24% of the seats of president are reserved for women. This is lower than the expected one-third positions because we excluded GP elections that were reserved for women and LC simultaneously (see Section 3). Finally, while the average difference in preferences is close to zero, the range is remarkable. This is in line with the graphical representation of the preference differences in Section 4.1 and Online Appendix A.

4.2.1. Gender quotas and the provision of goods preferred by women
 Chattopadhyay & Duflo, 2004 show that political reservations for women do not only impact women's descriptive representa-

tion, but also policies themselves and thus their substantive representation. Indeed, they find that presidents invest more in infrastructure that is requested by their own gender. We now investigate whether these results hold in a nationally representative sample. First, we have already shown in Table 1 that reservations for women strongly impact women's representation: the share of elected presidents who are women increases from 6.5% during unreserved elections to 95.4% under the gender quotas. Second, we run the following regression to test whether these presidents are more likely to implement policies preferred by women:

$$\begin{aligned}
 F_{jdt} = & \beta_0 + \beta_1 Reserved_LC_{jdt} + \beta_2 Reserved_Women_{jdt} \\
 & + \beta_3 PrefDif_Gender_{dp} \\
 & + \beta_4 PrefDif_Gender_{dp} * Reserved_LC_{jdt} \\
 & + \beta_5 PrefDif_Gender_{dp} * Reserved_Women_{jdt} \\
 & + V_j + W_t + Z_p + \epsilon_{jdt}
 \end{aligned}
 \tag{2}$$

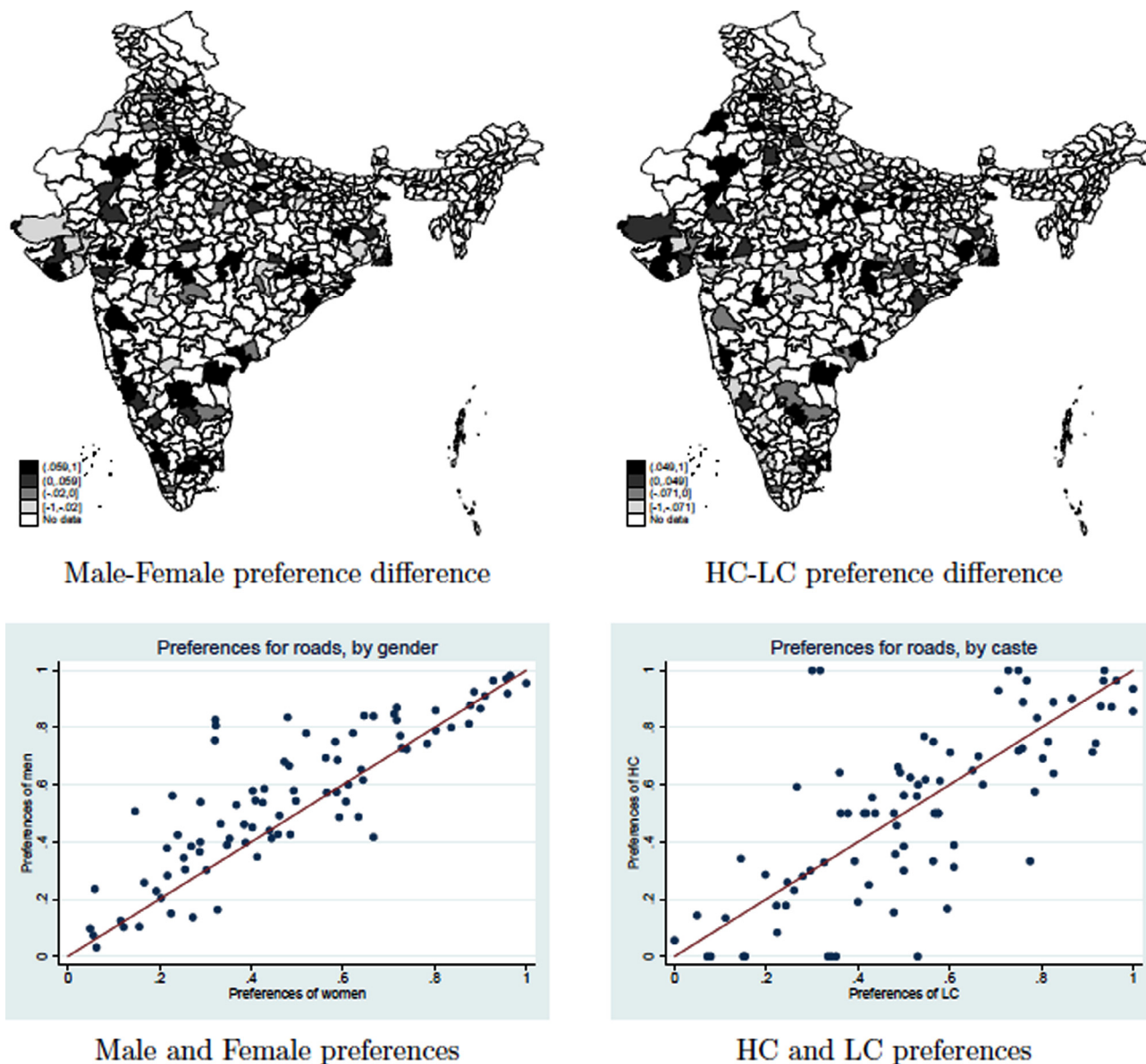


Fig. 2. Differences in preferences for roads by gender and caste.

Table 3
Descriptive statistics.

	Mean	Standard Deviation	Minimum	Maximum
Dependent variables				
Share constructed	0.27	0.35	0	1
Share maintained	0.31	0.37	0	1
Any construction	0.48	0.50	0	1
Any maintenance	0.52	0.50	0	1
Independent variables				
Reserved for women	0.24	0.43	0	1
Reserved for LC	0.36	0.48	0	1
Pref dif: men – women	0.02	0.10	-0.56	0.59
Pref dif: HC – LC	-0.01	0.16	-0.82	0.89
Number of observations	1,620			

Source: The REDS 2006 data.

F_{jdt} is a measure of the provision of public good p during electoral term t in a village j , which is located in district d . The variables $Reserved_{LC}_{jdt}$ and $Reserved_{Women}_{jdt}$ are dummies indicating the election is reserved for LC and for women respectively.

$PrefDif_Gender_{dp}$ is the difference in preferences between men and women, V_j are village fixed effects, W_t electoral term fixed effects, and Z_p public good fixed effects. Finally, ϵ_{jdt} is the error term. The inclusion of village fixed effects implies our results do

not rely on cross sectional variation across villages, but on changes within the village.¹⁹ Presidents elected under general seats align policies more with the preferences of men if β_3 is positive, and gender quotas shift policies towards the preferences of women if β_5 is negative. Table 4 shows this is indeed the case: Policies are more aligned with the preferences of men, but this tendency is reversed when the seat of president is reserved for women. Indeed, a one standard deviation difference between the preferences of men and women increases the share of streets in which goods preferred by men are constructed by 2.3 percentage points per term per village. On the contrary, gender quotas alter this result, and lead to an increase of 2.4 percentage points in favor of goods preferred by women. The average village constructs public goods in 27% of its streets. This implies the impact is substantial, as it concerns almost 10% of the streets where construction works take place.

Finally, we would also like to point out that reservations for LCs do not significantly alter the advantage of men.

4.2.2. Gender quotas and the provision of goods preferred by LCs

Political reservations for women lead to a sharp decrease in HC presidency. We now study whether this changes policy implementation in favor of LCs. To do so, we replace the preference difference between men and women ($PrefDif_Gender_{dp}$) by the preference difference between HC and LC ($PrefDif_Caste_{dp}$) in Eq. (2). The results in Table 5 show the change in public goods provision. During unreserved electoral terms, the construction of new public goods is more aligned with the preferences of HCs. However, the bias in favor of HCs is canceled out when there is a reservation for women. Indeed, a standard deviation difference between the preferences of HC and LC leads to an increase in the share of streets in which goods preferred by HC are constructed by 2.2 percentage points (or 8% of all streets under construction). This advantage is canceled out when there is a reservation for women.

There are two other noteworthy patterns. First, the maintenance of public goods is not affected, which suggests that the caste of the president does not influence maintenance once public goods are constructed. This may be a strategy to reduce the risk of antagonizing other caste groups. Second, the interaction between reservations for LCs and the preference difference between HCs and LCs is not significant (and not significantly different from that of the interaction between reservations for women and the preference difference between HCs and LCs), but the coefficient is substantial and has the expected sign. As a result, the policy bias in favor of HCs is canceled out when there is a reservation for LCs (this can be seen from the row that provides the total effect).

4.2.3. Gender quotas and the provision of goods preferred by women or LCs?

Is it indeed the case that a female president implements the preferences of LCs, or does she implement the preferences of women and are those close to the preferences of LCs? To test this, we include the preference differences between men and women and HC and LCs simultaneously in the regressions. As can be seen in Table 6, this exercise does not affect the results.

The interaction between reservations for LCs and the preference difference between men and women is not significant. As a result, policy implementation is still closer to the preferences of men when there is a reservation for LCs. The interaction between reservations for LCs and the preference difference between HCs and LCs is not significant, but the coefficient is substantial and has the expected sign. As a result, the policy bias in favor of HCs is canceled out when there is a reservation for LCs.

¹⁹ We obtain similar results when we include district fixed effects instead of village fixed effects.

In conclusion, while reservations for LCs cancel out the usual advantage of HCs only, reservations for women alter both the advantage of men and LCs.

5. Robustness checks

In Section 5.1, we show that our results are robust to removing the village of interest in the calculation of district level preferences, and in Section 5.2 that our conclusions do not change when we include additional class identities, such as education and wealth.

In addition, Appendix B shows the results do not change if we (i) keep electoral terms that were simultaneously reserved for gender and caste, (ii) use the intensity of preferences for a public good, and (iii) control for characteristics of the president.

5.1. Alternative measure of preferences

As mentioned in Section 4.1, our measure of preferences does not vary over time. While we have information on public goods provision for each electoral term, preferences are elicited only once, at the time of the survey. As a result, we link preferences during electoral term t to policies implemented during the electoral terms $t - 1$ and $t - 2$. This could bias the results upwards if individuals of a given group want to validate the policies implemented by their president in the past. While we do not think this is a credible scenario, we test the robustness of our results to removing the village of interest in the calculation of district level preferences. Table 7 shows that the results remain qualitatively and quantitatively similar, but that the estimation is slightly less precise due to the reduced sample size.

5.2. Caste or class identity?

Thus far, we have showed that gender quotas change the gender and the caste of the GP president, and that this shifts policy implementation towards the preferences of both women and LCs. However, as HCs tend to be richer and better educated than LCs, and men are on average more educated than women, it is not yet clear whether the identity dimension at play is caste, or if caste is just a proxy for class identity. If this is the case, the effects we have been attributing to gender and caste may be driven by preference differences along class identity (which we proxy by wealth and education).²⁰ We test this alternative view by including preference differences between the rich and the poor and between villagers with a high and low level of education, along with the usual interactions. A villager is “rich” if he owns more land than the median villager in the district, and “highly educated” if his educational attainment is higher than the median person in the district. The results are presented in Table 8. The additional dimensions do not significantly impact public goods provision, and do not alter our main results. Therefore, we feel comfortable in concluding that our results are linked to gender and caste, and not to class identity.

6. Conclusion

This paper revisited a well-studied policy – reservations for women in local elections in India – to document the importance of taking into account the multiplicity of identity dimensions in the design of public policies. In India, high castes tend to impose stricter restrictions on the mobility of women outside the house. This may explain the marked decline in the likelihood that high

²⁰ Another dimension we wanted to study is religion. However, as 92% of the presidents in our sample are Hindu, there is not sufficient variation to exploit this dimension.

Table 4
Impact of Reservations and Gender Preferences on Public Goods Provision.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: men – women * Reserved for women	–0.48** (0.19)	–0.33* (0.18)	–0.46** (0.22)	–0.46** (0.20)
Pref diff: men – women * Reserved for LCs	–0.13 (0.15)	–0.00 (0.17)	0.04 (0.21)	–0.12 (0.20)
Pref diff: men – women	0.23** (0.11)	0.32** (0.13)	0.17 (0.16)	0.43*** (0.16)
Reserved for women	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.04 (0.03)
Reserved for LCs	0.03 (0.03)	0.01 (0.01)	–0.01 (0.03)	0.01 (0.02)
Total effect of <i>Pref diff: men – women</i> when there is a reservation for women	–0.24* (0.14)	–0.02 (0.13)	–0.29* (0.16)	–0.03 (0.17)
Total effect of <i>Pref diff: men – women</i> when there is a reservation for LCs	0.10 (0.12)	0.31** (0.13)	0.21 (0.15)	0.31* (0.16)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1620	1620	1620	1620
Election-terms (#)	270	270	270	270
Villages (#)	168	168	168	168

In column (1) and (2) the dependent variable is the share of streets in the village where construction or maintenance of a given public good took place, and in columns (3) and (4) a dummy indicating construction or maintenance of that good took place in at least one of the streets. All the columns include village, electoral term, and public good fixed effects. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Data source: Local governance module of the REDS 2006 village data.

Table 5
Impact of Reservations and Caste Preferences on Public Goods Provision.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: HC – LCs * Reserved for women	–0.20** (0.09)	0.01 (0.11)	–0.24** (0.12)	–0.06 (0.16)
Pref diff: HC – LCs * Reserved for LCs	–0.12 (0.10)	0.01 (0.10)	–0.13 (0.12)	0.08 (0.14)
Pref diff: HC – LCs	0.14** (0.06)	0.06 (0.06)	0.20*** (0.07)	0.12 (0.09)
Reserved for women	0.00 (0.02)	0.01 (0.02)	0.01 (0.02)	0.03 (0.03)
Reserved for LCs	0.02 (0.03)	0.01 (0.01)	–0.01 (0.03)	0.01 (0.02)
Total effect of <i>Pref diff: HC – LC</i> when there is a reservation for women	–0.06 (0.07)	0.07 (0.11)	–0.04 (0.10)	0.06 (0.17)
Total effect of <i>Pref diff: HC – LC</i> when there is a reservation for LCs	0.02 (0.09)	0.07 (0.09)	0.08 (0.11)	0.21* (0.12)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1620	1620	1620	1620
Election-terms (#)	270	270	270	270
Villages (#)	168	168	168	168

See Table 4 for a description of the dependent variables, control variables and data source. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

castes run for elections and are elected, when there is a political reservation for women. As a result, gender quotas do not only change policies towards the preferences of women, but also towards the preferences of low castes. Therefore, a policy designed along one identity dimension (gender) alters the distribution of benefits along another one as well (caste). This is an unexpected, but highly important result that paves the way for more research on potential unanticipated effects of public policies due to the multiplicity of identity dimensions.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Table 6
Impact of Reservations, Gender and Caste Preferences on Public Goods Provision.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: men – women * Reserved for women	–0.48** (0.19)	–0.34* (0.18)	–0.47** (0.22)	–0.47** (0.20)
Pref diff: men – women * Reserved for LCs	–0.14 (0.15)	–0.01 (0.17)	0.02 (0.21)	–0.16 (0.20)
Pref diff: men – women	0.24** (0.11)	0.32** (0.13)	0.17 (0.16)	0.44*** (0.16)
Pref diff: HC – LCs * Reserved for women	–0.20** (0.09)	0.01 (0.12)	–0.24** (0.11)	–0.07 (0.16)
Pref diff: HC – LCs * Reserved for LCs	–0.13 (0.10)	–0.02 (0.10)	–0.15 (0.12)	0.05 (0.14)
Pref diff: HC – LCs	0.15** (0.06)	0.06 (0.06)	0.21*** (0.08)	0.13 (0.09)
Reserved for women	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.04 (0.03)
Reserved for LCs	0.03 (0.03)	0.01 (0.01)	–0.01 (0.03)	0.01 (0.02)
Total effect of <i>Pref diff: men – women</i> when there is a reservation for women	–0.24* (0.14)	–0.02 (0.13)	–0.29* (0.16)	–0.03 (0.17)
Total effect of <i>Pref diff: men – women</i> when there is a reservation for LCs	0.10 (0.13)	0.31** (0.14)	0.20 (0.15)	0.28* (0.16)
Total effect of <i>Pref diff: HC – LC</i> when there is a reservation for women	–0.06 (0.07)	0.07 (0.11)	–0.04 (0.10)	0.06 (0.17)
Total effect of <i>Pref diff: HC – LC</i> when there is a reservation for LCs	0.02 (0.09)	0.04 (0.09)	0.06 (0.11)	0.18 (0.12)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1620	1620	1620	1620
Election-terms (#)	270	270	270	270
Villages (#)	168	168	168	168

See Table 4 for a description of the dependent variables, control variables and data source. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 7
Impact of Reservations, Gender and Caste Preferences on Public Goods Provision – Alternative Measure of Preferences.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: men – women * Reserved for women	–0.27 (0.22)	–0.33* (0.17)	–0.35 (0.25)	–0.44* (0.23)
Pref diff: men – women * Reserved for LCs	–0.09 (0.13)	0.02 (0.14)	–0.06 (0.20)	–0.14 (0.20)
Pref diff: men – women	0.10 (0.10)	0.23* (0.12)	0.13 (0.15)	0.41** (0.17)
Pref diff: HC – LCs * Reserved for women	–0.26*** (0.07)	–0.00 (0.08)	–0.27*** (0.08)	–0.05 (0.14)
Pref diff: HC – LCs * Reserved for LCs	–0.05 (0.09)	0.09 (0.09)	–0.02 (0.11)	0.16 (0.12)
Pref diff: HC – LCs	0.11* (0.06)	0.01 (0.06)	0.14** (0.07)	0.01 (0.09)
Reserved for women	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	0.04 (0.03)
Reserved for LCs	0.03 (0.03)	0.00 (0.02)	0.00 (0.03)	0.02 (0.02)
Total effect of <i>Pref diff: men – women</i> when there is a reservation for women	–0.17 (0.17)	–0.09 (0.12)	–0.23 (0.22)	–0.02 (0.16)
Total effect of <i>Pref diff: men – women</i> when there is a reservation for LCs	0.01 (0.10)	0.26** (0.10)	0.06 (0.13)	0.27** (0.13)
Total effect of <i>Pref diff: HC – LC</i> when there is a reservation for women	–0.15*** (0.05)	0.01 (0.06)	–0.13* (0.07)	–0.03 (0.10)
Total effect of <i>Pref diff: HC – LC</i> when there is a reservation for LCs	0.06 (0.08)	0.10 (0.07)	0.12 (0.10)	0.17** (0.08)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1386	1386	1386	1386
Election-terms (#)	231	231	231	231
Villages (#)	141	141	141	141

In village j , the preferences for a public good p are now measured by the share of members in the same district, but outside village j , who want to invest a positive amount in good p . See Table 4 for a description of the dependent variables, control variables and data source. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 8
Impact of Reservations, Gender and Caste Preferences on Public Goods Provision – Including Other Identity Dimensions.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: rich – poor *	0.12	–0.00	0.02	–0.04
Reserved for women	(0.15)	(0.15)	(0.22)	(0.23)
Pref diff: rich – poor *	0.17	0.03	0.33*	0.13
Reserved for LCs	(0.17)	(0.14)	(0.19)	(0.21)
Pref diff: rich – poor	–0.08	–0.03	–0.05	0.04
	(0.11)	(0.12)	(0.15)	(0.17)
Pref diff: high – low educated *	0.06	–0.15	–0.15	–0.35
Reserved for women	(0.22)	(0.19)	(0.28)	(0.28)
Pref diff: high – low educated *	–0.09	–0.08	–0.08	–0.12
Reserved for LCs	(0.23)	(0.25)	(0.29)	(0.33)
Pref diff: high – low educated	0.09	0.08	0.15	0.04
	(0.18)	(0.19)	(0.26)	(0.27)
Pref diff: men – women *	–0.50**	–0.30	–0.44*	–0.38*
Reserved for women	(0.20)	(0.19)	(0.25)	(0.22)
Pref diff: men – women *	–0.12	0.01	0.05	–0.14
Reserved for LCs	(0.16)	(0.18)	(0.21)	(0.21)
Pref diff: men – women	0.21*	0.30**	0.14	0.43**
	(0.11)	(0.14)	(0.15)	(0.16)
Pref diff: HC – LCs *	–0.21**	0.02	–0.23*	–0.04
Reserved for women	(0.09)	(0.11)	(0.12)	(0.16)
Pref diff: HC – LCs *	–0.13	–0.02	–0.15	0.07
Reserved for LCs	(0.10)	(0.11)	(0.12)	(0.14)
Pref diff: HC – LCs	0.15**	0.05	0.20**	0.12
	(0.06)	(0.06)	(0.08)	(0.09)
Reserved for women	0.01	0.01	0.02	0.04
	(0.02)	(0.02)	(0.02)	(0.03)
Reserved for LCs	0.03	0.01	–0.01	0.01
	(0.03)	(0.01)	(0.03)	(0.02)
Total effect of Pref diff: men – women when there is a reservation for women	–0.29*	–0.00	–0.30	0.05
	(0.15)	(0.14)	(0.19)	(0.17)
Total effect of Pref diff: men – women when there is a reservation for LCs	0.10	0.31**	0.19	0.29*
	(0.13)	(0.15)	(0.16)	(0.17)
Total effect of Pref diff: HC – LC when there is a reservation for women	–0.07	0.07	–0.03	0.08
	(0.07)	(0.11)	(0.10)	(0.16)
Total effect of Pref diff: HC – LC when there is a reservation for LCs	0.02	0.04	0.05	0.19
	(0.09)	(0.09)	(0.12)	(0.13)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1620	1620	1620	1620
Election-terms (#)	270	270	270	270
Villages (#)	168	168	168	168

See Table 4 for a description of the dependent variables, controls and data source. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Appendix A. Women’s mobility and castes

We investigate whether the qualitative evidence on restricted mobility for HC women as compared to LC women (Section 2.2) can be confirmed in a quantitative analysis. To do so, we use data from the 2011–2012 edition of the *Indian Human Development Survey* (IHDS)²¹, and the 2004 round of the *National Election Survey* (NES).²² To the best of our knowledge, the latter is the only survey asking for opinions about women’s participation in politics. For both datasets, we restrict the sample to our population of interest, which is rural households.

We selected all the questions on gender relations from the women module of the IHDS 2011–12 and ran the following OLS regression:

$$F_{id} = \beta_0 + \beta_1 HC_i + \beta_2 X_i + V_d + \epsilon_{id}$$

where F_{id} is a measure of independence of woman i in district d , HC_i a dummy that indicates the respondent is an HC, and X_i a vector of characteristics which includes the woman’s age, age squared, years

²¹ Note that we could use the 2004 round of IHDS, which would be closer to the time period of our other sources of information. However, the 2011–2012 round has more questions on gender relations than the 2004 one. For the questions present in both surveys, the results are similar.

²² The survey was conducted shortly after the 2004 general elections.

of education, marital status, religion and the household’s wealth as measured by the quantity of land owned and the square of quantity of land owned.²³ Finally, V_d are district fixed effects and ϵ_{id} is the error term.

Table 9 provides the results for the most relevant variables. Panel A focuses on women’s freedom to move and Panel B on their presence in the public sphere. The freedom to move differs significantly between HC and LC women: It is 16 percentage points less likely that HC women ever worked for pay; they have less say in decisions about their work; have to ask permission to visit places more often, and are less likely to be in charge of food shopping. HC women are also less likely to be present in the public sphere. Indeed, Panel B documents the lesser public presence of HC women in a broader sense: Compared to LC women, HC women are two percentage points less likely to participate in a Self-Help Group or other savings group, and two percentage point less likely to have attended a Gram Sabha meeting in the past year (compared to the mean, this implies a decrease of 10% in both cases). However, HC women are as likely as LC women to be a member of a political organization, though it is important to note that overall, only one percent of women are members.

²³ The results are robust to omitting the wealth controls.

Table 9
Gender Behavior by Caste.

<i>Panel A: Freedom to move</i>					
	Ever worked for pay (1)	Say on work (2)	No permission needed for visits (3)	Can visit alone (4)	Food shopping (5)
HC	−0.16*** (0.02)	−0.03** (0.01)	−0.09*** (0.03)	−0.08* (0.04)	−0.05*** (0.01)
Mean dependent	0.48	0.45	0.91	2.70	0.53
Observations	21,801	19,127	21,801	21,801	21,801
<i>Panel B: Women's presence in the public sphere</i>					
	Member of an SHG (1)	Attended gram sabha last year (2)	Member of political organization (3)		
HC	−0.02** (0.01)	−0.02** (0.01)	0.00 (0.00)		
Mean dependent	0.20	0.09	0.01		
Observations	21,801	21,801	21,801		

In Panel A, the dependent variables are as follows: In column (1) it is a dummy indicating the woman ever worked for pay, and in column (2) that she has most say in decisions about her work. In column (3) it is the total number of places for which the woman does not have to ask permission to go among (i) the local health centre, (ii) the home of relatives or friends, (iii) the kirana shop, (iv) a short distance by train or bus, and in column (4) the total number of those places the woman can visit alone. Finally, in column (5) it is a dummy indicating the woman does the food and vegetable shopping in the household. In Panel B, the dependent variables are dummies indicating that the woman is a member of a SHG or another savings group (column (1)), attended at least one Gram Sabha meeting over the past year (column (2)), and is a member of a political organization (column (3)).

All columns include district fixed effects and the following control variables: age, age squared, years of education, marital status, total land owned and total land owned squared. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Source: The 2011–2012 edition of the Indian Human Development Survey, women module, rural households, sample of states present in the REDS data.

Table 10
Gender Norms by Caste – Empowerment Within the Household.

	Decision making (1)	Interaction with husband (2)	Has cash in hand (3)	Name on documents house (4)	Practices Purdah (5)	Men eat first (6)
HC	0.03 (0.04)	0.02 (0.03)	0.00 (0.01)	−0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
Mean dependent	2.24	1.23	0.90	0.16	0.62	0.71
Observations	21,801	21,801	21,801	21,801	21,797	21,801

The dependent variables are as follows: In column (1) it is the total number of decisions the woman has most say on among (i) what to cook on a daily basis, (ii) whether to buy an expensive item, (iii) the number of children to have, (iv) what to do if she falls ill, (v) whether to buy land or property, (vi) the amount of money to spend on a social function, (vii) what to do if a child falls ill, and (viii) to whom her children should marry. In column (2) it is the total number of topics the woman talks about with her husband among (i) things that happen at work or on the farm, (ii) what to spend money on, and (iii) things that happen in the community. In column (3) it is a dummy indicating the woman has cash in hand to spend on household expenditures, in column (4) that her name is on the ownership or rental papers for the house, in column (5) that she practises Purdah, and in column (6) that men eat first when the family takes the main meal. All columns include district fixed effects and the following control variables: age, age squared, years of education, marital status, religion, total land owned and total land owned squared. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Source: The 2011–2012 edition of the Indian Human Development Survey, women module, rural households, sample of states present in the REDS data.

While the freedom to move differs significantly between HC and LC women, their position within the household is similar, as can be seen from Table 10. Indeed, within household decision making appears to be the same for HC and LC.

Finally, we study opinions about women in politics. To do so, we make two adjustments to Eq. 3. First, as the NES data contains information about both men and women, we look at gender differences by including an interaction term. Second, we do not have information about land ownership, but control for income categories instead.²⁴ The results in Table 11 suggest that HCs, and HC men in particular, tend to see women's political participation more negatively.

In conclusion, the results suggest HC women are more restricted in their mobility outside the house, and tend to participate less in the public sphere. In addition, HC tend to oppose the political participation of women.

Appendix B. Additional robustness checks

We now show that the results are robust to (i) keeping electoral terms that were simultaneously reserved for gender and caste, (ii) using the intensity of preferences for a public good, and (iii) controlling for characteristics of the president.

B.1. Inclusion of elections reserved for both caste and gender

In Table 12, we include the 19 election-terms that were jointly reserved for women and LCs. The different type of reservations: (i) reserved for women and LCs, (ii) reserved for women only, and (iii) reserved for LCs only, are compared to unreserved electoral terms. Given the limited number of elections that were jointly reserved, we want to be careful with the interpretation of the results. The findings suggest that the impact on LC preferred policies of being jointly reserved for women and LCs, or being reserved for LCs only is small and insignificant when it comes to moving policies towards LC's preferences, but similar in magnitudes to that of

²⁴ The results are robust to omitting the income controls.

Table 11
Opinion about women's political activity.

	Against women in politics	
	(1)	(2)
HC	0.02** (0.01)	0.03** (0.01)
Woman	-0.06*** (0.01)	-0.06*** (0.01)
HC woman		-0.02 (0.02)
Mean dependent	0.25	0.25
Observations	20,332	20,332

The dependent variable takes value one if the respondent is against women in politics, and zero otherwise. All columns include district fixed effect and the following control variables: age, age squared, education level categories, religion and income categories. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Source: National Election Survey, 2004, rural individuals.

women's reservation when it comes to moving policies towards the preferences of women.

B.2. Using the intensity of preferences

The household questionnaire asks individuals how they want to divide the GP budget among a given list of public goods. Thus far,

Table 12
Impact of Reservations, Gender and Caste Preferences on Public Goods Provision – Including Elections that were Simultaneously Reserved for Gender and Caste.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: men – women *	-0.45 (0.61)	-0.56 (0.34)	0.00 (0.53)	-0.51 (0.35)
Reserved for women and LC				
Pref diff: men – women *	-0.48** (0.19)	-0.33* (0.18)	-0.47** (0.22)	-0.46** (0.20)
Reserved for women only				
Pref diff: men – women *	-0.15 (0.15)	-0.01 (0.17)	0.02 (0.21)	-0.16 (0.21)
Reserved for LC only				
Pref diff: men – women	0.23** (0.11)	0.32** (0.13)	0.17 (0.16)	0.44*** (0.16)
Pref diff: HC – LC *	0.07 (0.16)	-0.01 (0.31)	0.05 (0.23)	0.40 (0.38)
Reserved for women and LC				
Pref diff: HC – LC *	-0.21** (0.09)	0.01 (0.11)	-0.25** (0.11)	-0.06 (0.16)
Reserved for women only				
Pref diff: HC – LC *	-0.14 (0.10)	-0.03 (0.10)	-0.15 (0.12)	0.05 (0.14)
Reserved for LC only				
Pref diff: HC – LC	0.15** (0.06)	0.06 (0.06)	0.21*** (0.08)	0.13 (0.09)
Reserved for women and LC				
	-0.03 (0.08)	0.04 (0.07)	-0.09 (0.08)	0.02 (0.08)
Reserved for women				
	-0.01 (0.02)	0.02 (0.02)	0.01 (0.02)	0.05* (0.03)
Reserved for LC				
	-0.00 (0.03)	0.01 (0.02)	-0.02 (0.03)	0.00 (0.02)
Total effect of Pref diff: men – women when there is a reservation for women and LCs	-0.21 (0.58)	-0.24 (0.31)	0.17 (0.51)	-0.07 (0.32)
Total effect of Pref diff: men – women when there is a reservation for women only	-0.25* (0.14)	-0.01 (0.13)	-0.30* (0.16)	-0.02 (0.18)
Total effect of Pref diff: men – women when there is a reservation for LCs only	0.09 (0.13)	0.31** (0.14)	0.19 (0.16)	0.28* (0.16)
Total effect of Pref diff: HC – LC when there is a reservation for women and LCs	0.22 (0.14)	0.05 (0.31)	0.26 (0.21)	0.53 (0.39)
Total effect of Pref diff: HC – LC when there is a reservation for women only	-0.06 (0.07)	0.07 (0.11)	-0.04 (0.10)	0.06 (0.17)
Total effect of Pref diff: HC – LC when there is a reservation for LCs only	0.02 (0.10)	0.03 (0.09)	0.06 (0.11)	0.17 (0.12)
Mean dependent	0.27	0.31	0.48	0.51
Observations	1734	1734	1734	1734
Election-terms (#)	289	289	289	289
Villages (#)	173	173	173	173

See Table 4 for a description of the dependent variables, control variables and data source. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

we used this information to create dummies that take value one if a person wants to allocate part of the budget to the good, and zero otherwise (see Eq. 1). We now re-estimate our main regression using the intensity of preferences:

$$Pref_{gdp} = \frac{\sum_i allocation_{igdp}}{N_{gd}}, i = 1, \dots, N_{gd}$$

$Pref_{gdp}$ is now the average share of the budget allocated to public good p by members of group g in district d . We did not use this measure in our main specification, because it is subject to more noise. Therefore, it is not surprising that the results – shown in Table 13 – are less precisely estimated. However, the impact is qualitatively similar, and our conclusions remain unchanged.

B.3. Controlling for president characteristics

Our final check – which is inspired by Chattopadhyay & Duflo (2004) – looks at the robustness of our results to the inclusion of characteristics of the president and their interaction with the preference differences. This allows the coefficients on the preference differentials to vary with the following characteristics: Dummies indicating the president was a member of the previous GP as well, received at least primary education, and is a Muslim, a Sikh or a Christian. Table 14 shows the results are again unaltered.

Table 13
Impact of Reservations, Gender and Caste Preferences on Public Goods Provision – Using the Intensity of Preferences.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: men – women * Reserved for women	–0.75** (0.35)	–0.36 (0.32)	–0.74* (0.38)	–0.52 (0.39)
Pref diff: men – women * Reserved for LC	–0.52* (0.29)	0.15 (0.31)	–0.27 (0.33)	–0.07 (0.35)
Pref diff: men – women	0.29 (0.21)	0.19 (0.23)	0.24 (0.26)	0.36 (0.28)
Pref diff: HC – LC * Reserved for women	–0.44** (0.20)	0.01 (0.24)	–0.40* (0.25)	–0.11 (0.31)
Pref diff: HC – LC * Reserved for LC	–0.30 (0.21)	–0.04 (0.23)	–0.29 (0.26)	0.04 (0.28)
Pref diff: HC – LC	0.34*** (0.12)	0.15 (0.15)	0.39** (0.16)	0.33* (0.18)
Reserved for women	0.00 (0.02)	0.01 (0.02)	0.01 (0.02)	0.03 (0.03)
Reserved for LC	0.02 (0.03)	0.01 (0.01)	–0.01 (0.03)	0.01 (0.02)
Total effect of Pref diff: men – women when there is a reservation for women	–0.47* (0.27)	–0.17 (0.23)	–0.50 (0.33)	–0.16 (0.29)
Total effect of Pref diff: men – women when there is a reservation for LCs	–0.24 (0.23)	0.34 (0.28)	–0.03 (0.24)	0.29 (0.29)
Total effect of Pref diff: HC – LC when there is a reservation for women	–0.10 (0.19)	0.16 (0.21)	–0.01 (0.25)	0.22 (0.28)
Total effect of Pref diff: HC – LC when there is a reservation for LCs	0.04 (0.18)	0.11 (0.19)	0.10 (0.22)	0.37 (0.23)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1620	1620	1620	1620
Election-terms (#)	270	270	270	270
Villages (#)	168	168	168	168

See Table 4 for a description of the dependent variables, controls and data source. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Table 14
Impact of Reservations, Gender and Caste Preferences on Public Goods Provision – Controlling for Characteristics of the President.

	Share construction (1)	Share maintenance (2)	Any construction (3)	Any maintenance (4)
Pref diff: men – women * Reserved for women	–0.53*** (0.19)	–0.33* (0.19)	–0.51** (0.21)	–0.39* (0.20)
Pref diff: men – women * Reserved for LC	–0.18 (0.16)	0.01 (0.17)	–0.06 (0.21)	–0.19 (0.19)
Pref diff: men – women	0.55** (0.23)	0.39 (0.28)	0.57* (0.30)	0.13 (0.39)
Pref diff: HC – LC * Reserved for women	–0.14* (0.08)	0.10 (0.13)	–0.20** (0.10)	0.09 (0.16)
Pref diff: HC – LC * Reserved for LC	–0.13 (0.09)	0.03 (0.09)	–0.15 (0.12)	0.11 (0.13)
Pref diff: HC – LC	–0.11 (0.15)	–0.32* (0.19)	–0.06 (0.17)	–0.45** (0.17)
Reserved for women	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)	0.05* (0.03)
Reserved for LC	0.02 (0.02)	0.01 (0.02)	–0.02 (0.03)	–0.00 (0.02)
Mean dependent	0.27	0.31	0.48	0.52
Observations	1602	1602	1602	1602
Election-terms (#)	267	267	267	267
Villages (#)	167	167	167	167

See Table 4 for a description of the dependent variables and data source. In addition to village, electoral term, and public good fixed effects, all columns now include the following additional control variables: dummies indicating the president was a member of the previous GP as well, received at least primary education, and is a Muslim, a Sikh or a Christian. We also include the interaction of each of these five dummies with the preference difference between men and women, and with the preference difference between HC and LC. Standard errors, clustered at the district level, are provided in parenthesis. *** significant at 1 percent, ** significant at 5 percent, * significant at 10 percent.

Appendix C. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.worlddev.2021.105408>.

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