Supplemental Information for: Sustainable Representation through Electoral Quotas: Evidence from India

November 25, 2024

Contents

1 Indian Case

India serves as a compelling case study for investigating the effectiveness of gender and ethnic quotas in facilitating the upward mobility of politicians. Against the backdrop of entrenched caste-based discrimination and gender inequality, affirmative action policies, referred to as reservations, have been imperative in addressing historical injustices and fostering social equity.

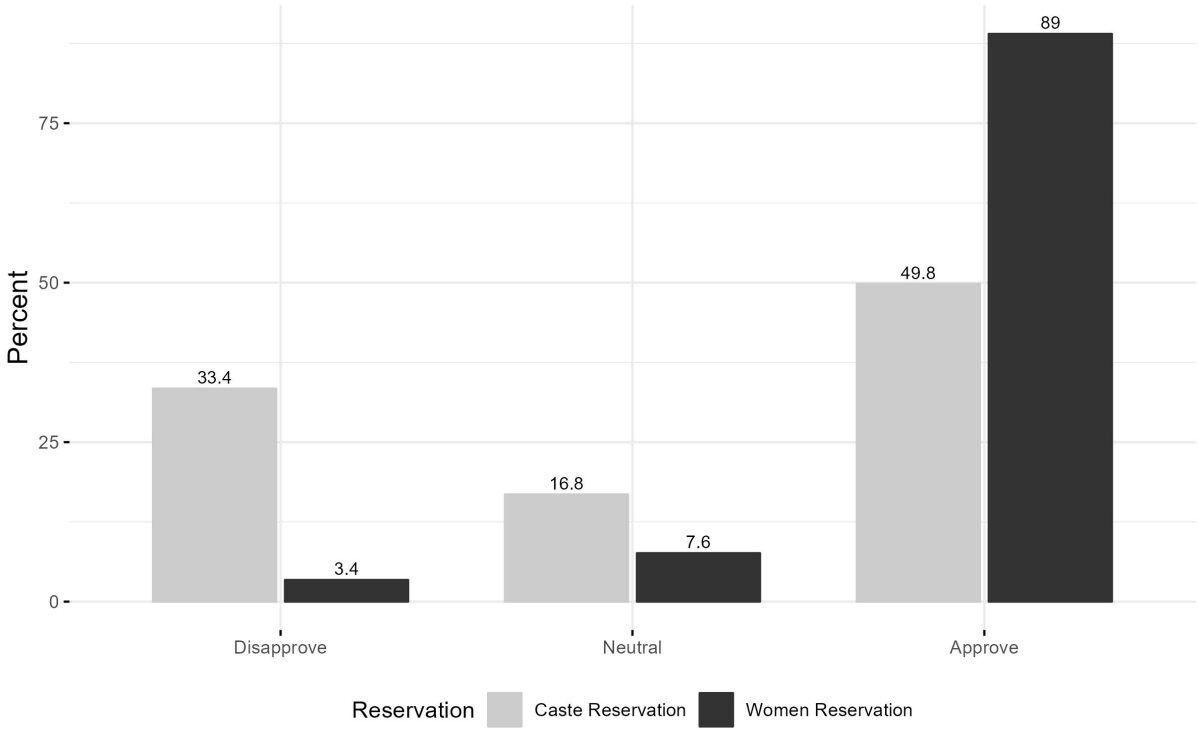
Although gender quotas existed in pre-Independent India, they were abolished after Independence. Subsequently, reservations for historically disadvantaged groups, specifically Scheduled Castes (SC) and Scheduled Tribes (ST), were mandated at the national and state levels for electing Members of Parliament (MPs) and Members of Legislative Assembly (MLAs), respectively, since 1961 (Jensenius 2015). These quotas allocate reserved seats in single-member districts in proportion to the population share of SCs and STs, allowing eligible voters, regardless of caste, to participate in elections for these seats. While SCs are dispersed across India, STs are predominantly concentrated in the central and northeastern states.

The 73rd Constitutional Amendment in 1993 introduced provisions for elected local governments in rural and urban areas, with council members and presidents selected through elections every five years. This amendment also mandated quotas for gender and ethnic minorities, reserving 33% of seats for women in addition to those reserved for SCs and STs based on state-wise population shares. Since the mid-2000s, several state governments have opted to increase the share of reserved seats from 33% to 50% at different intervals. It is noteworthy that women's reservations intersect with reservations for SCs and STs, providing equal opportunities for women from both privileged and historically disadvantaged groups to engage in politics through quotas.

Despite the constitutional provisions facilitating millions of women's entry into politics via local-level gender quotas, their representation in state and national-level political offices has remained modest, typically between 10-15%. In contrast, ethnic quotas have been consistently applied across all three levels of government – lo-

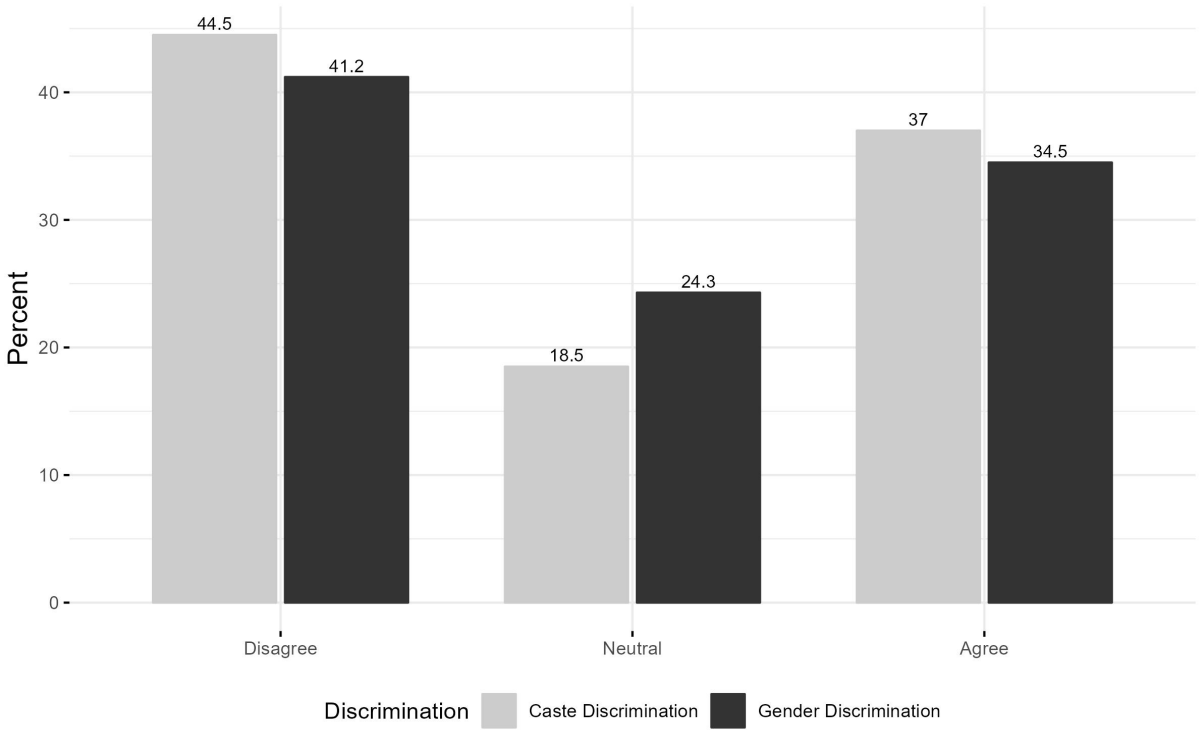
cal, state, and national – due to reserved seats for SCs and STs. While existing research indicates that local-level gender quotas have positively influenced women's political advancement at higher levels, progress has been gradual (Kaur and Philips 2022; Karekurve-Ramachandra 2020; O'Connell 2020). Notably, the Indian government passed the Women's Reservation Bill in 2023, mandating 33% reservations for women in state and national elections, with anticipated implementation within a decade. Building on current empirical research, it is plausible that women who enter politics through local gender quotas will increasingly emerge as competitive candidates for higher-order elections to capitalize on the forthcoming reservations for women at the state and national levels. Hence, it is pertinent to examine whether voters exhibit specific preferences regarding the upward mobility of candidates who have contested elections from reserved seats.

Our India-specific dataset can also speak to existing literature that contends that historical reasons may be why ethnic and gender quotas are supported differently, with the former occurring much earlier (e.g., during colonial periods) than the latter (Hughes 2018, c.f.,). We find similar descriptive evidence in terms of voter support in the context of India using our survey data, as shown in Figure 1; women's reservation has more support than caste reservation in politics even though the proportion of respondents acknowledging gender and caste discrimination are similar (Figure 2).



Note: Respondents were asked the following two questions on a five-point Likert scale: (1) Do you approve of women's reservation in politics? (2) Do you approve of caste-based reservations in politics?

Figure 1: Respondents' views on gender and caste reservation in politics



Note: Respondents were asked the following two questions on a five-point Likert scale: (1) Women are discriminated against in India. (2) People are discriminated against based on caste in India.

Figure 2: Respondents' views on gender and caste discrimination

2 Experimental Set up

Respondents were asked the first nine political sophistication questions, followed by 11 questions about the respondent's views towards women, caste, and reservations in general. Then the respondents received a randomized vignette, after which they immediately answered the 12 series of conjoint questions. Finally, the respondent was asked 6 demographic questions. So, our vignettes, which preceded the conjoint questions, were intended to prime respondents. The vignettes are as follows:

- **Gender quota**: "*Women have been historically excluded leading to their underrepresentation in politics. To address this, a series of reservation policies have been enacted, whereby seats in local-level governments are reserved only for them. As a result, at least one-third of the seats are occupied by women in local political councils (panchayat or municipal councils).*"

- **Caste quota**: "*Some caste groups have been historically excluded leading to their underrepresentation in politics. To address this, a series of reservation policies have been enacted, whereby seats in local level governments are reserved only for them. As a result, these caste groups occupy seats proportional to their population in local political councils (panchayat or municipal councils).*"

- **Gender and Caste quota**: "*Both women and oppressed caste groups have been historically excluded leading to their under representation in politics. In order to address this, a series of reservation policies have been enacted, whereby seats in local level governments are reserved only for them. As a result, women and persons of these caste groups occupy seats proportional to their population in local political councils (panchayat or municipal councils).*"

- **Control**: "*Milkha Singh's childhood was no less than a tragedy. Born before Indian independence, he lost his parents and siblings during the India-Pakistan partition. After years of hardships, he joined the Indian Army and he was among the first athletes to represent India in the Olympics. He fueled a new life to a generation of Indians grappling*

with the loss of home, and hope."

To minimize the chance that the control vignette unintentionally primes respondents about quotas and quota beneficiaries and consequently affects their vote choice, we picked the story of Milkha Singh, who belonged to a historically privileged caste group (Rajput).

2.1 Power Analysis

Given prior literature (c.f., Ono and Yamada 2020, p. 485), we might have expected an AMCE of about 0.027 for the effect of women versus men political candidates.[1] Of course, our study is further complicated in that we also examine caste, prior quota beneficiary status, and also included priming vignettes.

Still, it is useful to consider whether our study is adequately powered. Assuming an effect size of 0.03, our effective N of 11352 (coming from 946 completed respondents times the 12 conjoint tasks each respondent completed), and an alpha of 0.05, our study has a power of 0.89, assuming two attribute levels (which are the core focus of our conjoint setup, e.g., men versus women candidates, quota versus non-quota beneficiary, etc...). With three attribute levels, such as the caste variable, this drops to 0.74. Where our study might be substantially more underpowered is for the vignettes, which result in an effective size of only about a quarter of the total (since there are three treatment vignettes plus the control). Of course, if the expected AMCE effect size is larger than that of Ono and Yamada (2020), the power of our study might still overcome the reduction in effective sample size, as shown in Figure 3. Ideally, our study would have included the full 1497 individuals who took the survey, although 1) not all completed the survey, 2) not all had a unique Indian IP address 3) were over the age of 18. Had all respondent results been available, our study would have had a power of 0.98 using the setup described above.

[1] de Geus et al. (2020) is another study similar to ours, although the authors do not show the isolated effect of gender as an AMCE; rather, they pool men versus women candidate profiles to see how the effect of other attributes interact with gender.

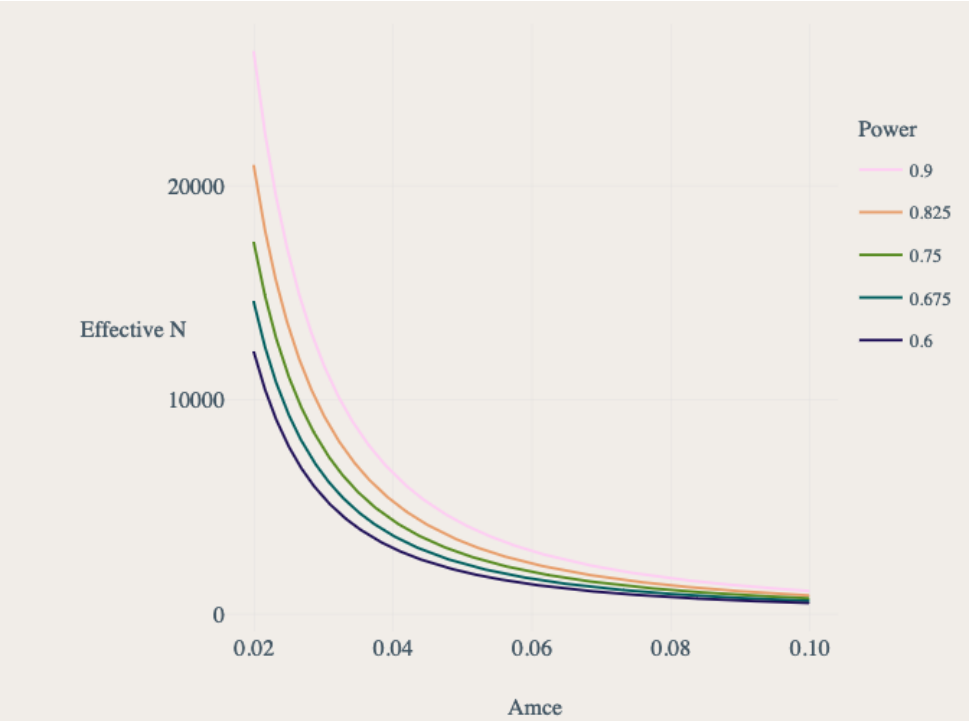


Figure 3: Expected power curve

Note: Plot shows effective *N* required to achieve a given power level across expected AMCE, assuming $\alpha = 0.05$ and two attribute levels. Source: Schuessler and Freitag (2020).

3 Summary Statistics

In Tables 1 through 4 we present the proportion of respondents across, respectively, gender and caste, age, religion, and the vignette they received.

Table 1: Proportion of respondents based on their gender and caste

	General	SC	ST
Female	0.26	0.03	0.00
Male	0.62	0.07	0.02

Table 2: Age-wise proportion of respondents

	Respondent's age	N	percent
1	18-24	63	6.7%
2	25-34	526	55.6%
3	35-44	287	30.3%
4	45-54	51	5.4%
5	55-64	13	1.4%
6	65 and above	6	0.6%

Table 3: Religion-wise proportion of respondents

	Religion	N	Percent
1	Hindu	730	77.2%
2	Christian	101	10.7%
3	Muslim	75	7.9%
4	Sikh	5	0.5%
5	Other	11	1.2%
6	Prefer not to say	24	2.5%
	Total	946	

Table 4: Vignette-wise proportion of respondents

	Vignette	N	Percent
1	Control	251	26.5%
2	Gender Quota	228	24.1%
3	Caste quota	244	25.8%
4	Both gender and caste quota	223	23.6%
	Total	946	

4 Logit Results

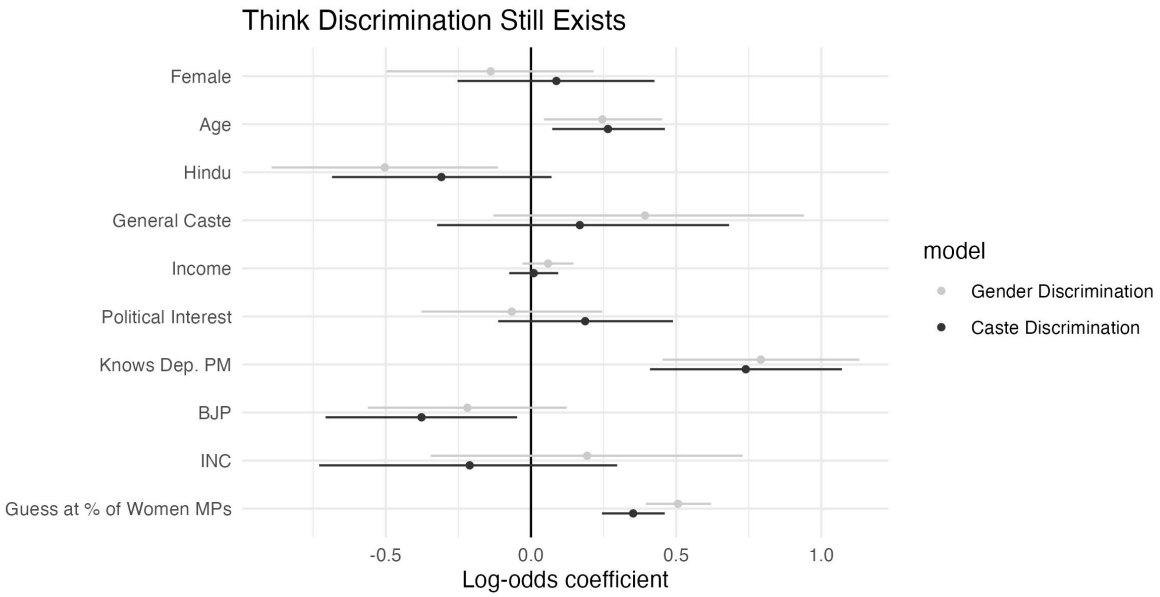
In this section we present results from a series of logit models in order to see whether views on caste and gender reservation and discrimination (Figures 2 and 3 in the main manuscript) are held by certain groups of voters. To do so, we regress our dichotomous dependent variables on the following factors which may affect views on discrimination and reservation in politics:

- Female is a dichotomous variable equal to one if the respondent is female.
- Age is the age of the respondent.
- Hindu is a dichotomous variable equal to one if the respondent is Hindu.
- General Caste is equal to one if the respondent is from the general caste and zero otherwise.
- Income is a six-category scale where higher values mean the respondent earns a higher income.
- Political Interest is a three-point scale where higher values mean more interested in politics.
- Knows Dep. PM is a dichotomous variable equal to one if the respondent correctly knew that there is currently no Deputy Prime Minister in India.
- BJP and INC are dichotomous variables equal to one if the respondent supports the Bharatiya Janata Party or Indian National Congress, respectively.
- Guess at % of Women MPs is a 5-point index where higher values mean the respondent was closer to estimating the correct number of women MPs in the Lok Sabha (14.9% as of December 2022).

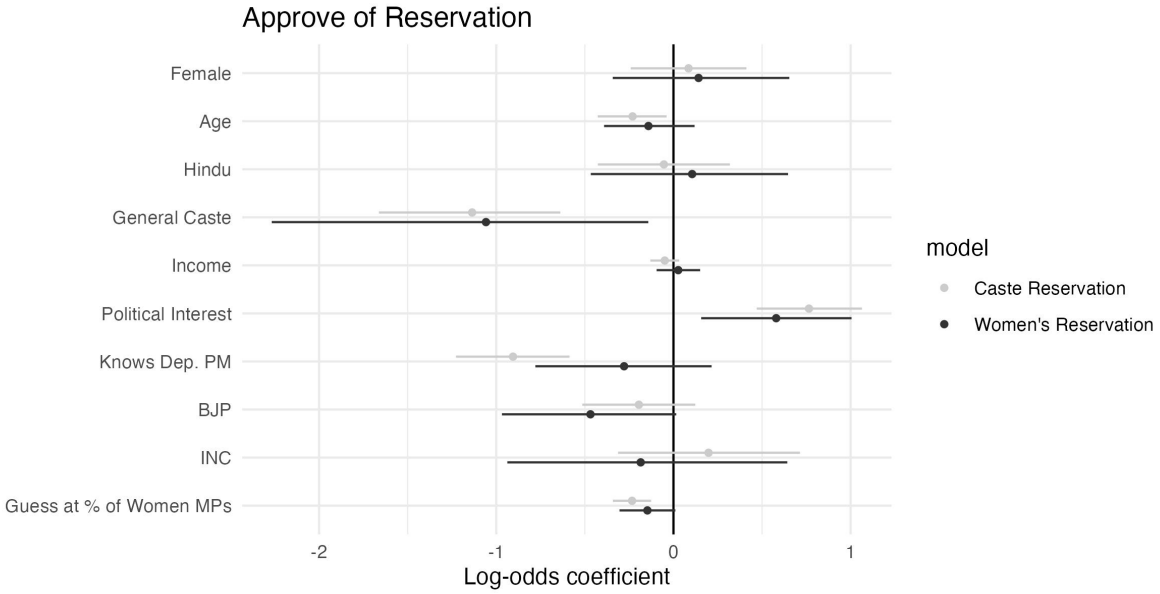
Using our survey of Indian respondents, in Figure 4a we show the log-odds coefficients from logistic models where the dependent variable was equal to one if the re-

spondent thought gender (gray lines) or caste (black) still exists in politics. Most striking is how similar the coefficients are across the two types of discrimination. Older respondents, those who correctly knew there is currently no Deputy Prime Minister (a measure of political sophistication), and those who were better at estimating the actual percentage of women MPs in India's parliament were all more likely to think that gender and caste discrimination still exists in politics. In contrast, Hindu and BJP respondents appear to be less likely to support the notion that discrimination exists (although these effects were not always statistically significant across both models).

For those who approve of gender or caste reservation in politics (Figure 4), respondents with higher levels of political interest were more likely to approve of such reservations; again, such effects are consistent for both caste and women's reservations. In contrast, general caste respondents, older respondents, and those who correctly guessed the PM and were closer to estimating the correct percentage of women MPs were less likely to approve of both gender and caste reservations, although many of these effects were not statistically significantly different from zero. In sum across all of these models, the gender of the respondent appears to be unrelated to their thoughts on discrimination and reservation in politics, while respondents being from an ethnic majority, their age and political interests/sophistication do appear to matter.



(a) Think gender or caste discrimination still exists in politics



(b) Approve of gender or caste reservation in politics

Figure 4: Very few differences between gender and caste

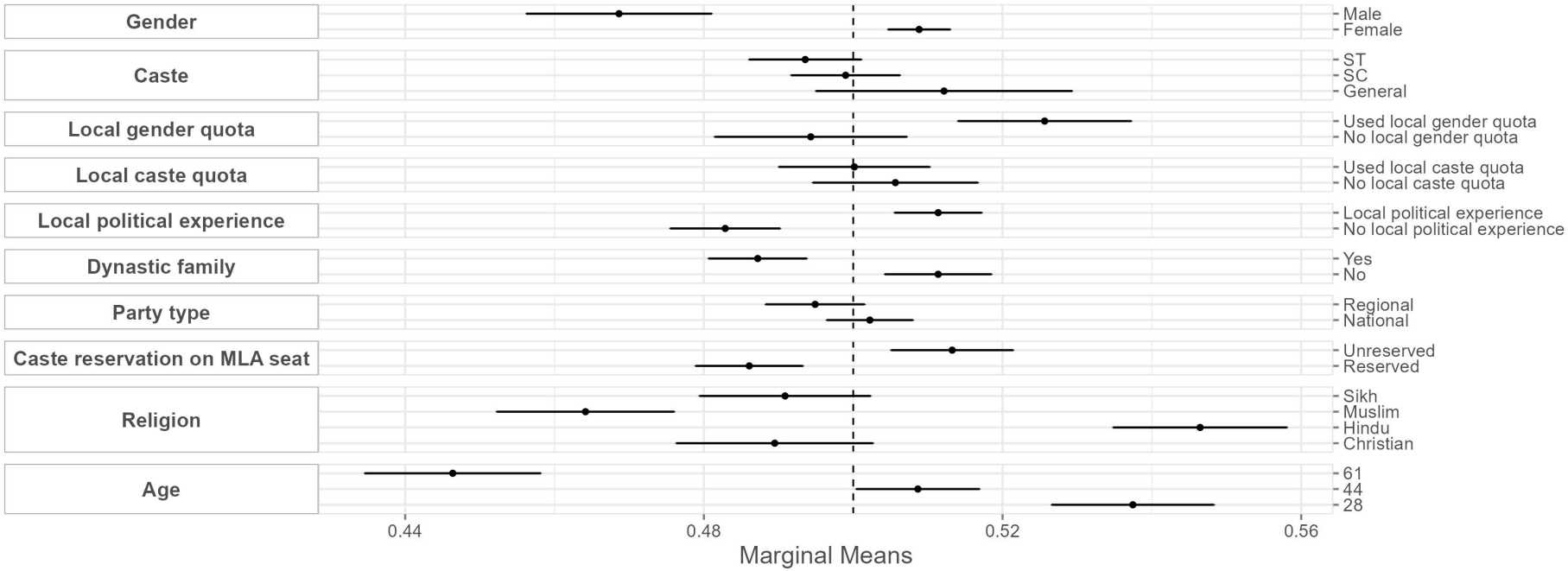
Note: Log-odds coefficients from logistic regression shown along with 95% confidence intervals. 873 respondents.

5 Full Results

Although other personal traits of candidates were not the primary analytical focus of our experiment, in Figure 5, we present the full table of marginal means from our experiment, while Figure 6 does the same but breaks them out by vignette. Religion, age, local political experience, and the political history of the family of the candidate are the most salient attributes. Being Hindu, young, and having been in local politics seem to be the most favored attributes for MLA candidates. In contrast, respondents punish those who have a family history of being in politics. Though these results are different from observational patterns of Indian politics where elder men and dynastic politicians seem to still dominate politics (Chandra 2016), nationally representative surveys indicate similar trends to our study in that there is low public support for dynastic families (Ghosh 2023). These results indicate divergence in party strategies and voters' preferences as the literature on party politics observes; parties prefer candidates who bring both financial resources as well as political clout to win elections (Jaffrelot and Verniers 2020).

6 Robustness Checks

To test for differences in respondent sensitivity to our vignettes—perhaps men are more sensitive to the gender quota prompts than women respondents, for instance—we disaggregate vignette-specific marginal means based on respondent's gender in Figure 8. We find similar patterns of candidate favorability among men and women respondents, although women respondents are less likely to support men candidates for political positions than male respondents in three out of four conditions. The only point of divergence is the results on caste quota priming, where women respondents are significantly more likely to vote for a woman MLA candidate who used a local gender quota in the local-level elections. These results indicate that women perceive caste quota priming differently than men, and their support for women who gained



Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

Figure 5: Marginal means for full sample

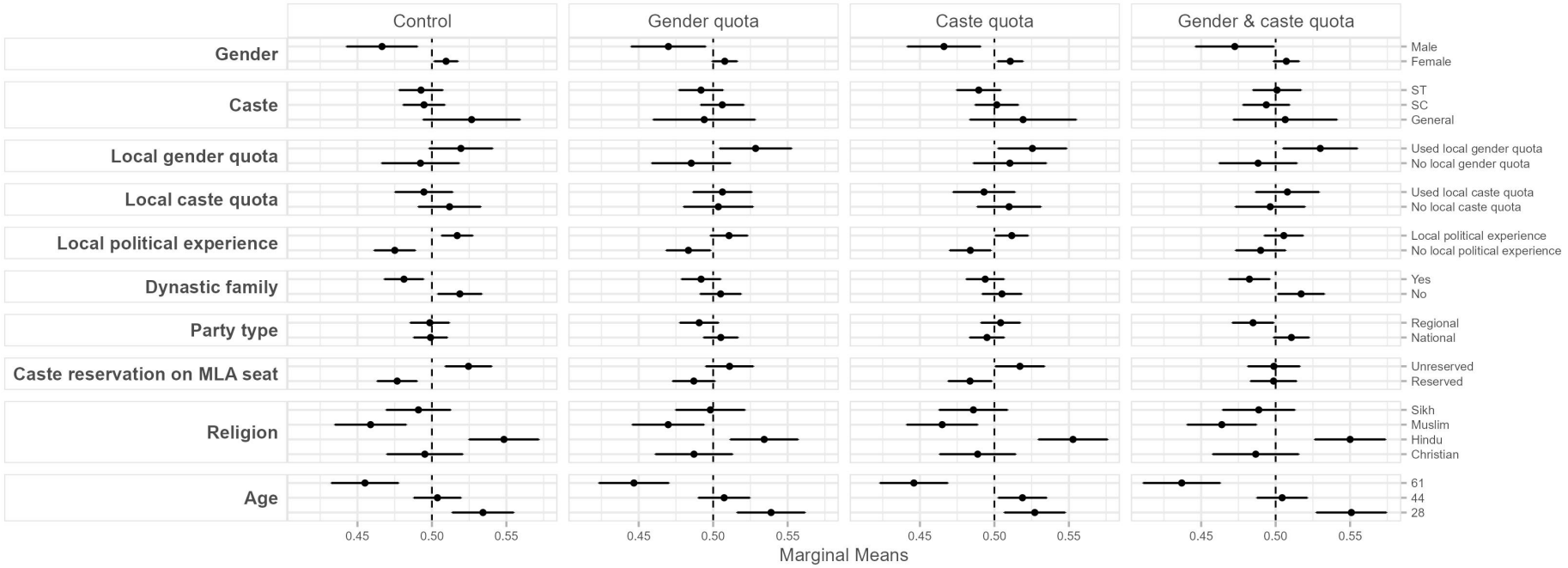


Figure 6: Marginal means conditional on vignette

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

the benefit of a gender quota increases for their political careers.

We also analyze sub-groups of respondents based on their caste (Figure 9). Our analysis shows that gender quota priming makes SC candidates more favorable for SC/ST respondents, while simultaneously rendering ST candidates least favorable. Interestingly, SC/ST respondents prefer candidates who have not previously used a local caste quota. Conversely, when primed about caste quotas, dominant caste groups (non-SC/STs) prefer those who have benefitted from a local-level gender quota.

Additionally, we disaggregate respondents based on their age (Figure 7). We observe that respondents in the 45-54 age group are more inclined to support General candidates under the control condition. However, on priming about quotas, their caste-based preference diminishes. On the other hand, respondents aged 18-24 are more responsive towards selecting women candidates on receiving gender quota priming.

It is plausible that respondents who hold sexist attitudes may assess women candidates and gender quota beneficiaries differently from others. We measure sexism using two indicators: "Women are simply unsuitable for politics because politics is a dirty business." and "Women are unsuitable for politics and that their scope should remain limited to work that their father or husband approves of." Both these indicators are measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). For ease of analysis, we created a composite measure by averaging these indicators. Values above 2.5 are coded as higher levels of sexism, while values below 2.5 indicate lower levels of sexism. We do not observe any systematic differences between these two sub-groups (Figure 17). Similarly, we explore whether individuals with positive attitudes towards gender quotas or those who acknowledge discrimination against women are more supportive of women or gender quota beneficiaries. However, we do not detect any systematic differences between these groups of respondents (Figure 12). Interestingly, those who deny discrimination against women are more likely to support gender quota beneficiaries on receiving a gender quota vignette (Figure 13).

It may be the case that respondents who acknowledge caste discrimination or those

who already endorse caste quotas may be more responsive towards favoring SC/STs or caste quota beneficiaries. In control conditions, those who acknowledge caste discrimination are less inclined to support local caste quota beneficiaries in their upward mobility (Figure 10). Additionally, we find no evidence of backlash against caste quota beneficiaries among those who disagree with the existence of caste discrimination in Indian society or those who disapprove of caste quotas.

In addition, while not a part of our original pre-analysis plan, some of the imbalances in the summary statistics section above—in particular for gender—might make us wary of generalizing to the target population of Indian voters. Therefore, we also replicated our main analysis using survey weights that weighted on gender, religion and caste.[2] These survey-weighted marginal means plots are shown in Figure 14 (showing the marginal means for the full sample), Figure 15 (showing marginal means conditional on priming, and Figure 16 (showing conditional marginal means along with the intersectional traits of candidates). These survey-weighted results are quite similar to the unweighted ones in the main manuscript.

Finally, we consider the subset of the sample that passed the attention checks to analyze the differences in marginal means for each treatment compared to the control group. Our results remain consistent with the main results as we find none of the treatments are significant for candidate attributes of interest compared to the control group (Figure 18).

We also present these results for subgroups of respondents. We find that women and non-SC/ST respondents favor dominant men candidates the least on receiving the vignette about both gender and caste quotas compared to the control group (Figures 19, 21). Compared to control, gender quota priming has a positive impact on male candidates for respondents of age 45-54, indicating backlash against women candidates

[2]Target populations were obtained at https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?locations=IN (for gender), https://www.pewresearch.org/short-reads/2021/09/21/key-findings-about-the-religious-composition-of-india/ (for religion), and https://www.pewresearch.org/decoded/2021/06/29/measuring-caste-in-india/ (for caste). A trim of the top and bottom 5% was utilized. The sample size is slightly smaller due to missing data than in the main analysis.

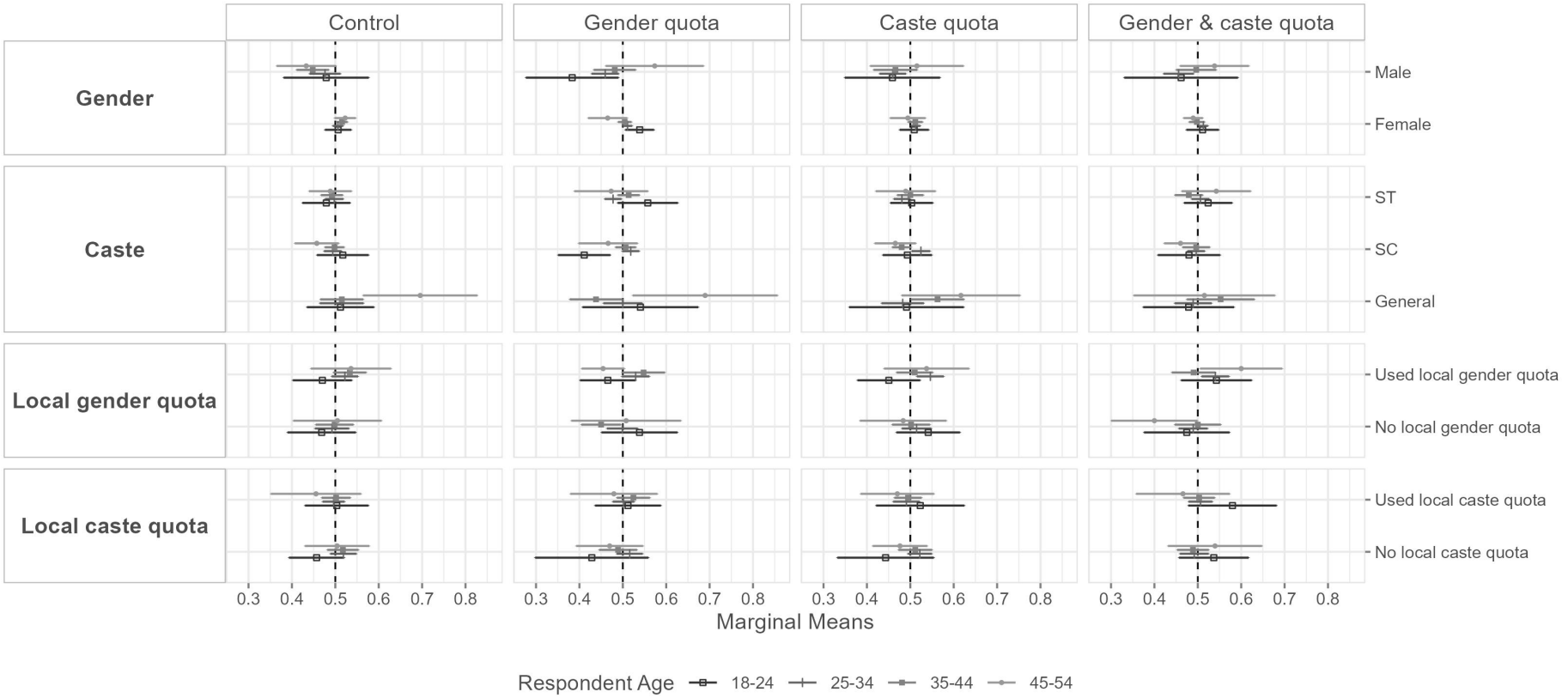


Figure 7: Marginal means conditional on vignette based on age groups

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

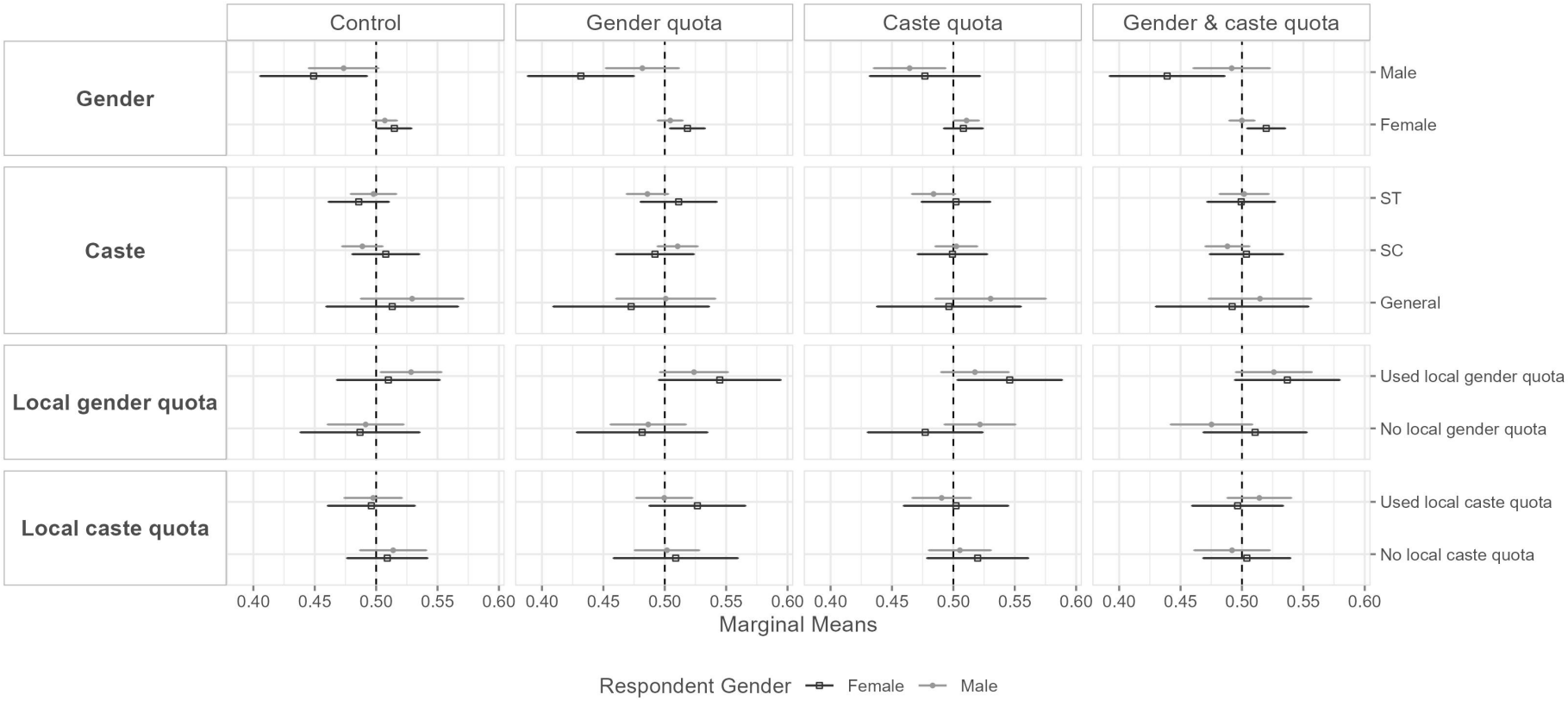


Figure 8: Marginal means conditional on priming based on respondent's sex

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

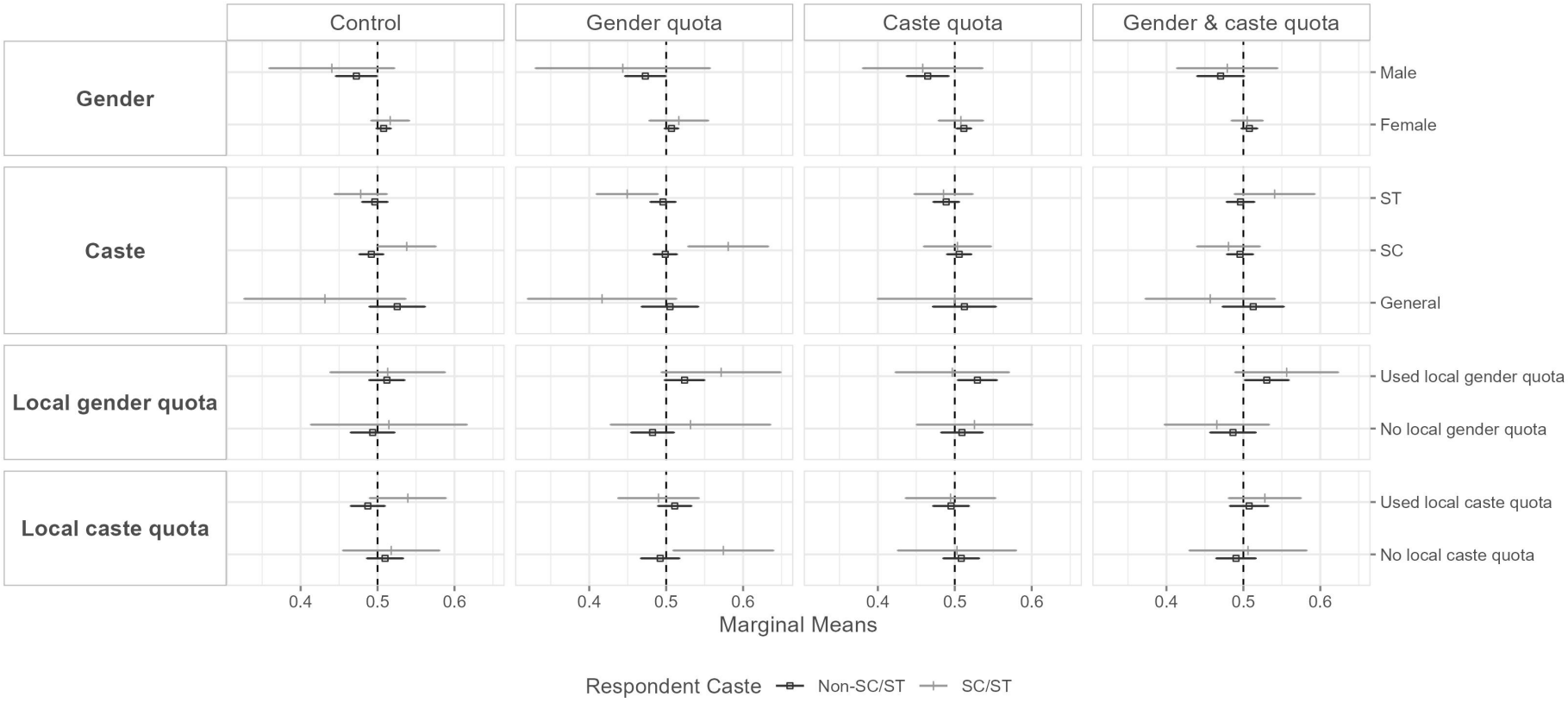


Figure 9: Marginal means conditional on priming based on respondent's caste

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

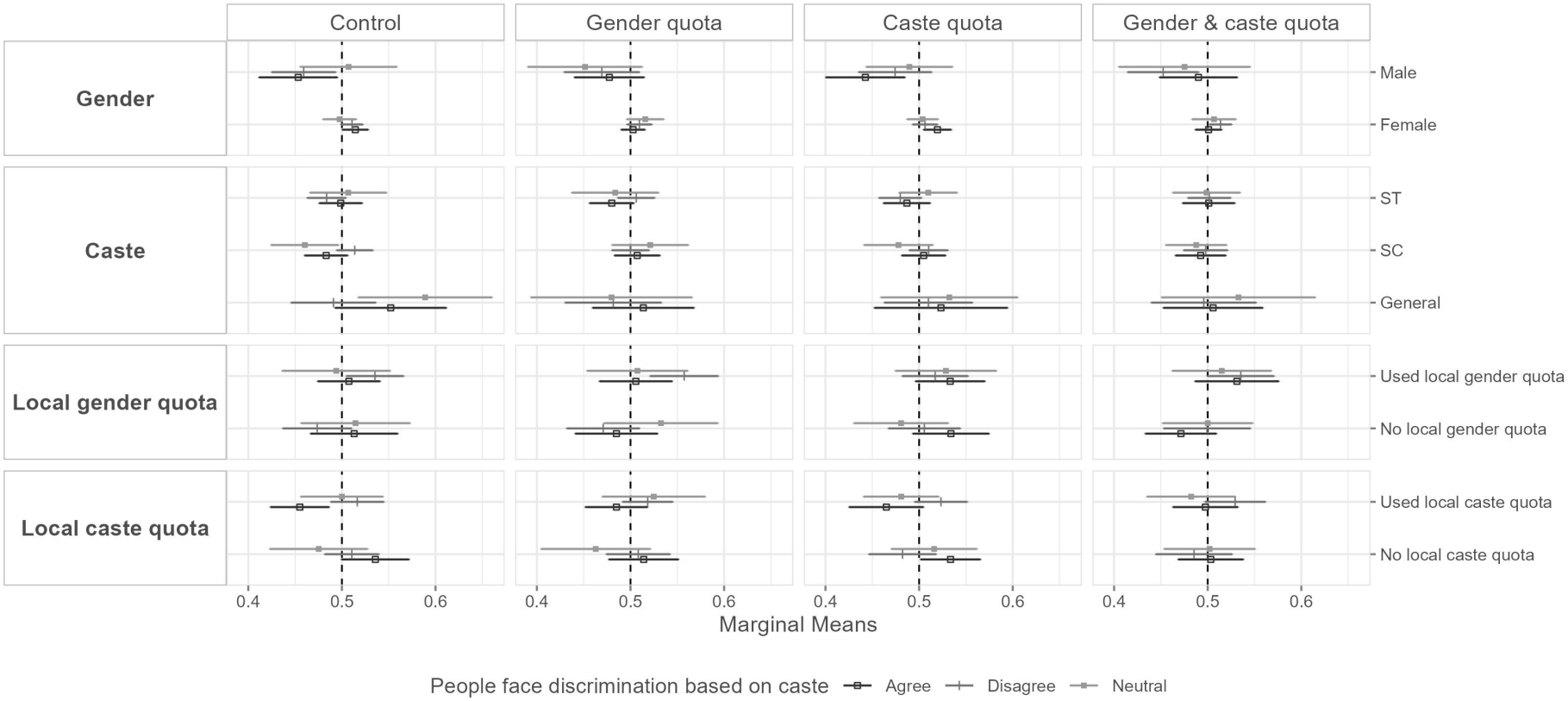


Figure 10: Marginal means conditional on priming based on respondents' attitudes towards caste discrimination

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

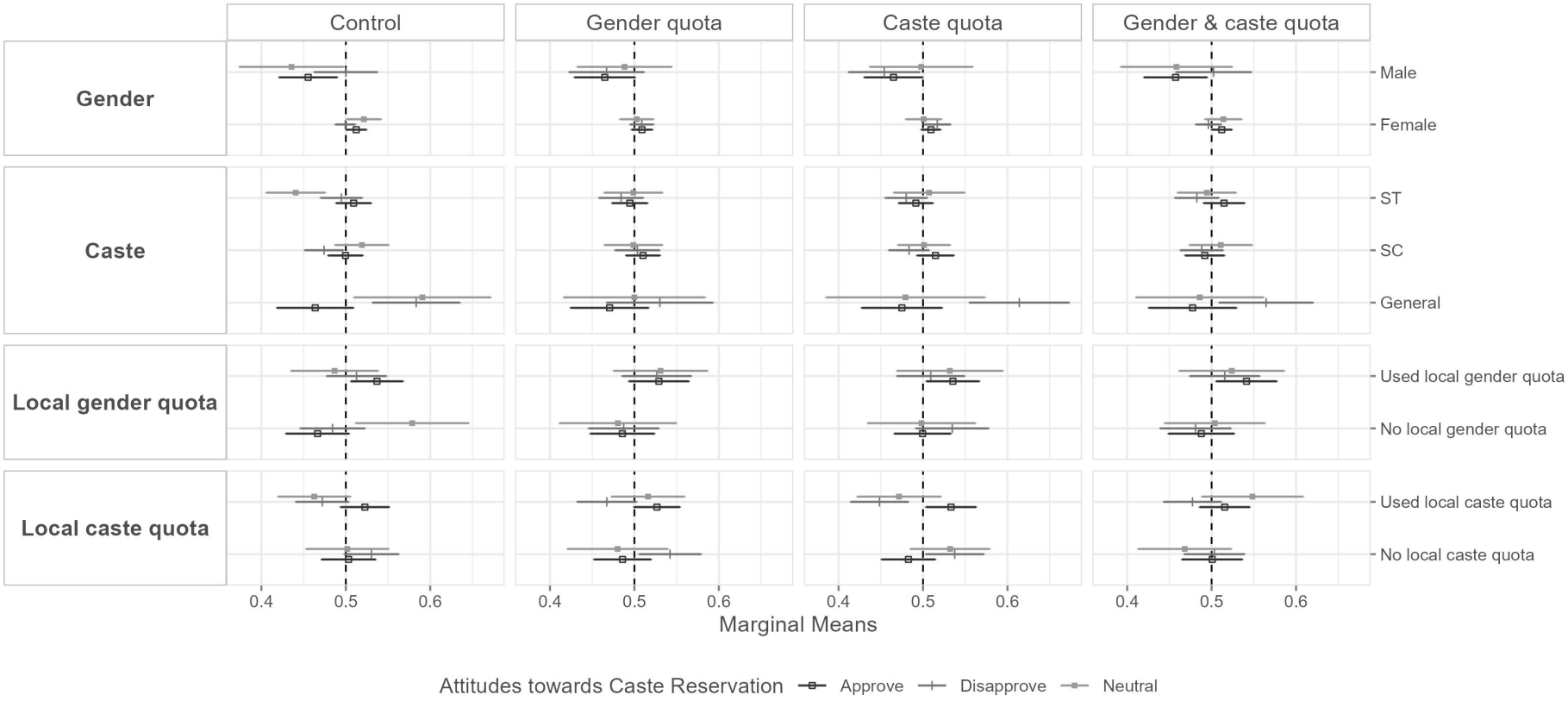


Figure 11: Marginal means conditional on priming based on respondents' attitudes towards caste quotas

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

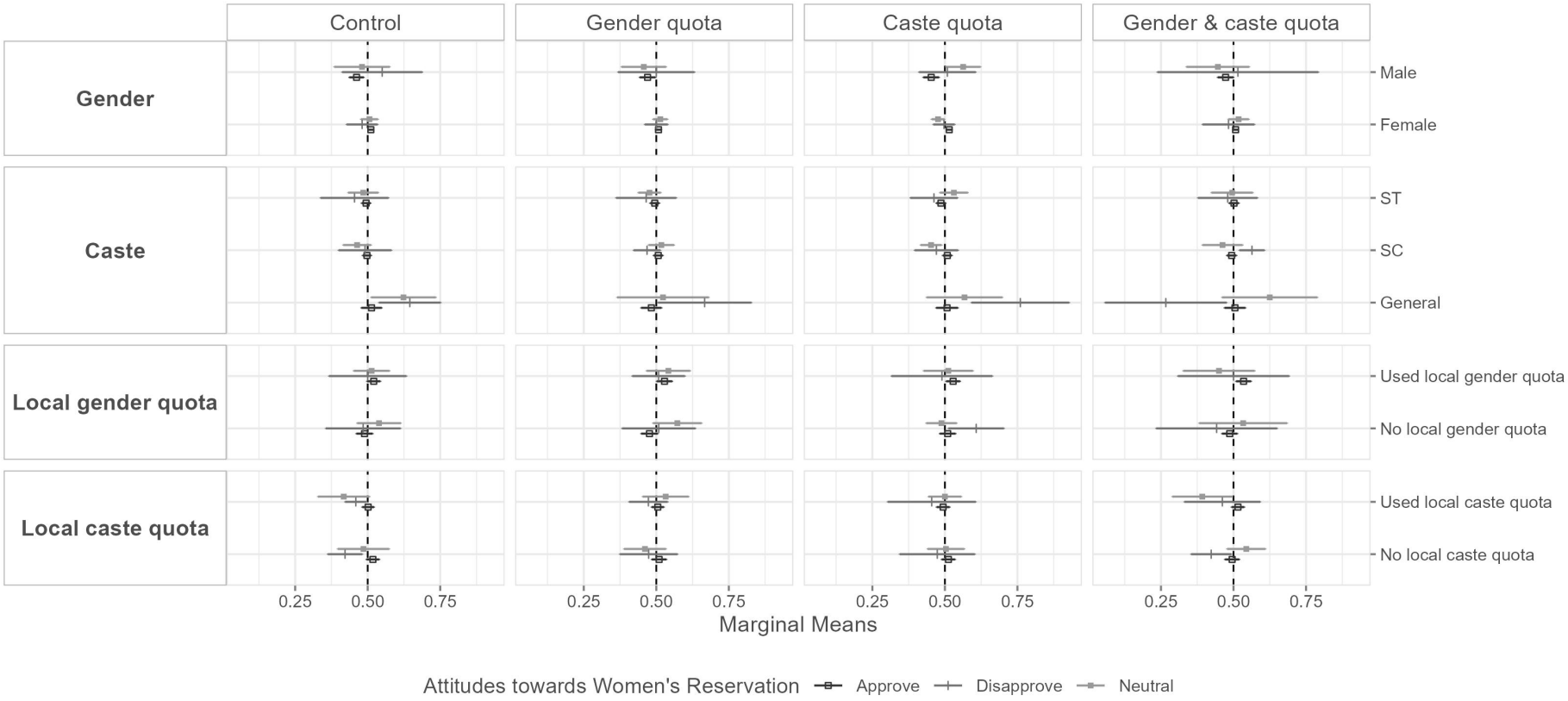


Figure 12: Marginal means conditional on priming based on respondent's attitudes towards gender quotas

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

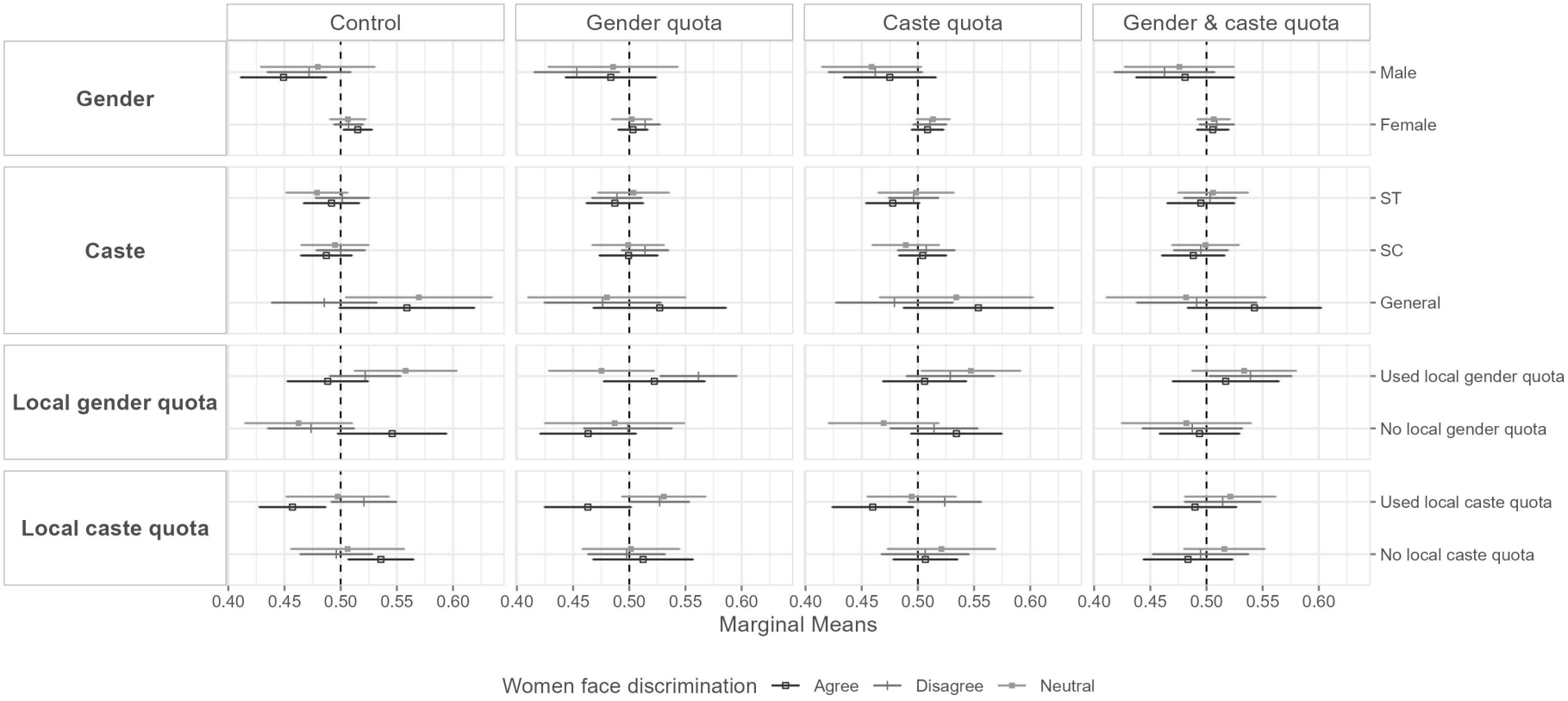


Figure 13: Marginal means conditional on priming based on respondents' attitudes towards women's discrimination in society

Note: Horizontal lines are 95% confidence intervals based on respondent-clustered standard errors.

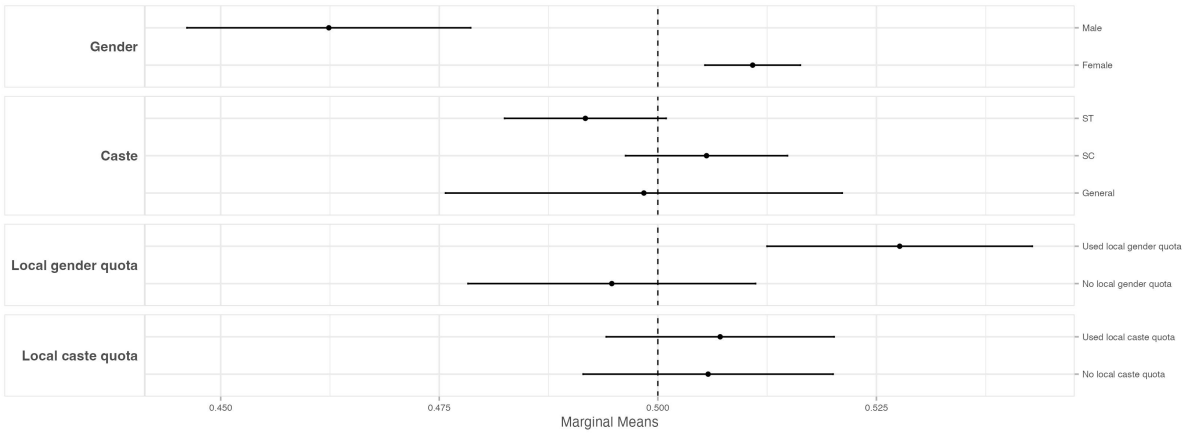


Figure 14: Replication of main results: Marginal means for the full sample (survey-weighted)

on receiving the vignette about gender quota (Figure 20).

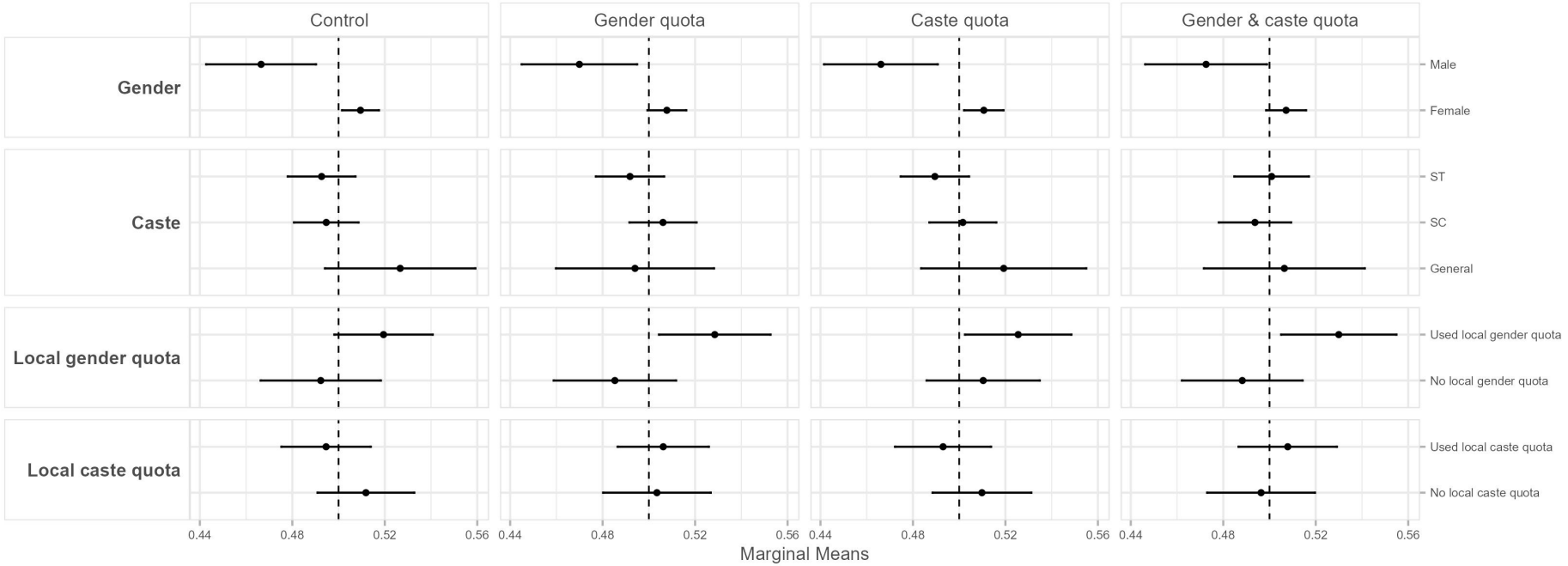


Figure 15: Replication of main results: Marginal means conditional on priming (survey-weighted)

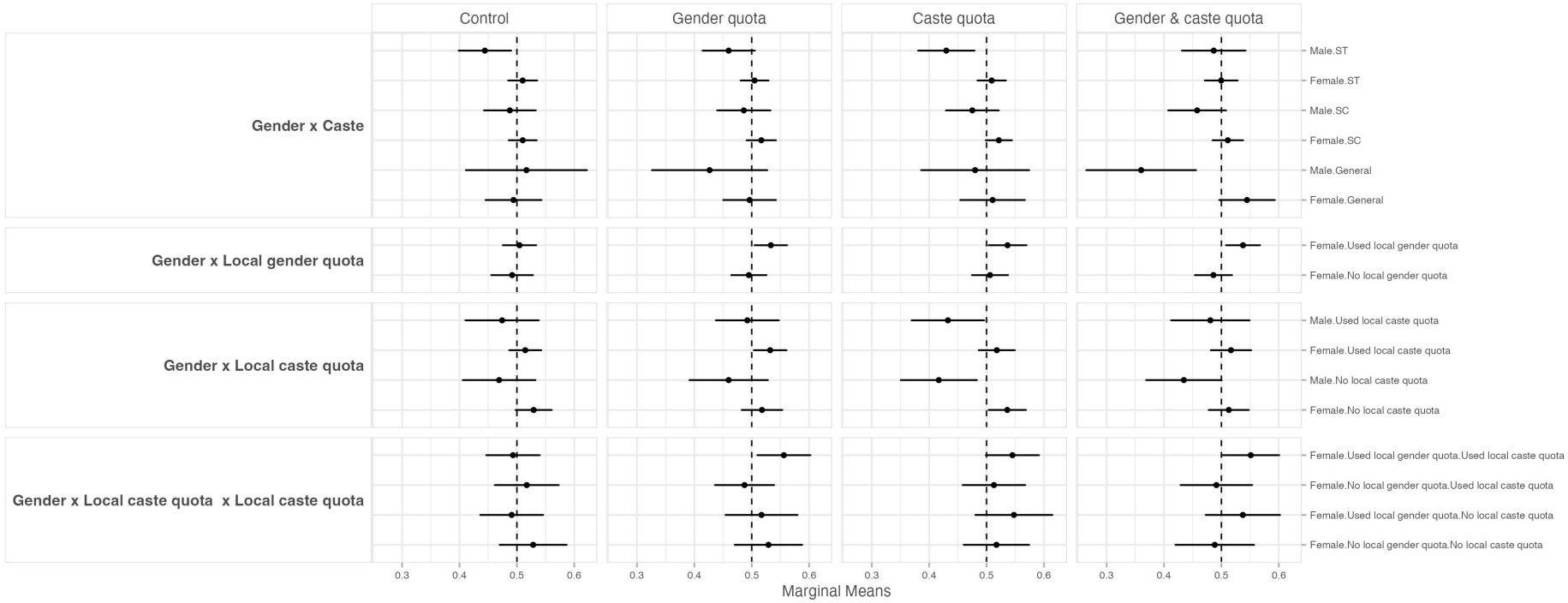


Figure 16: Replication of main results: Conditional marginal means of priming on intersectional traits of candidates (survey-weighted)

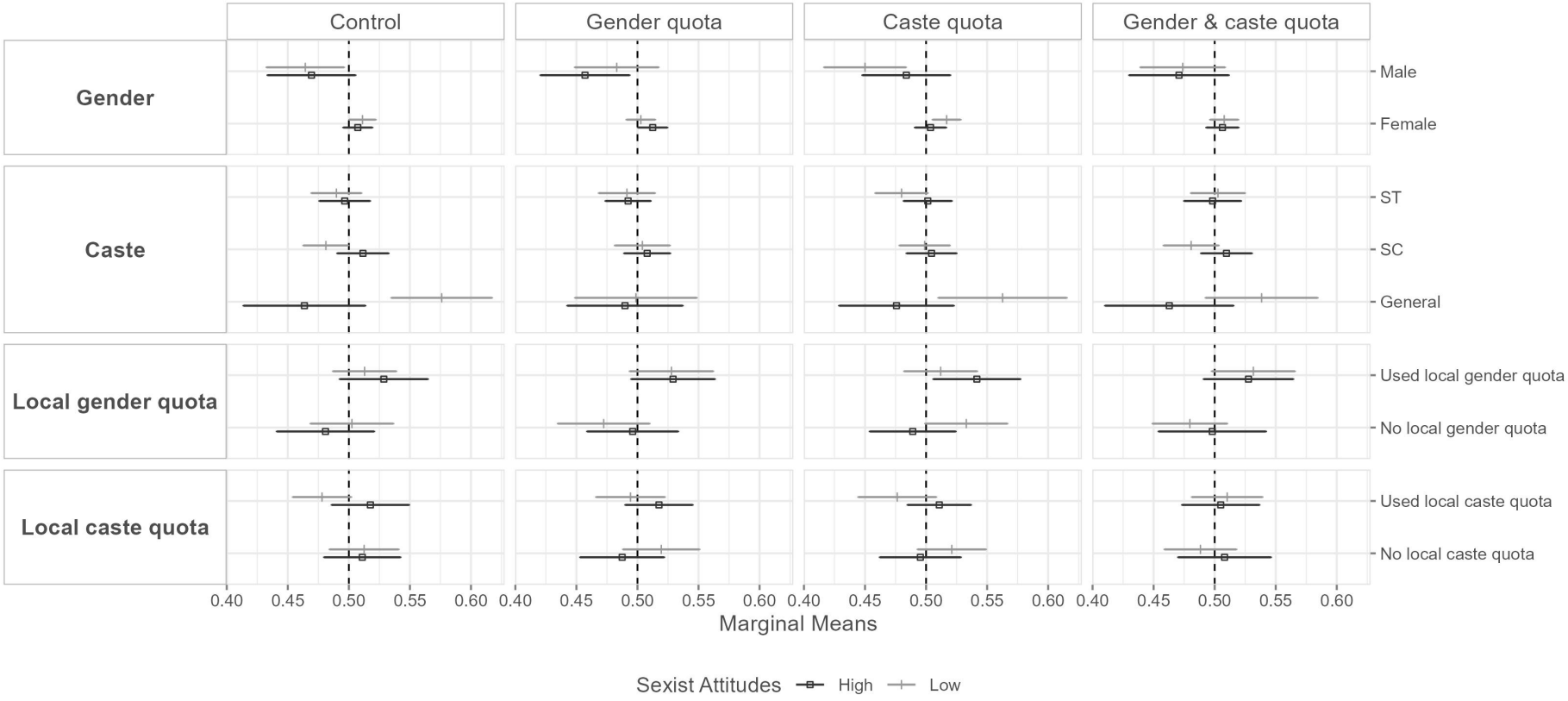


Figure 17: Comparing marginal means between respondents who hold higher levels of sexism viz-a-viz those who hold lower values of sexism

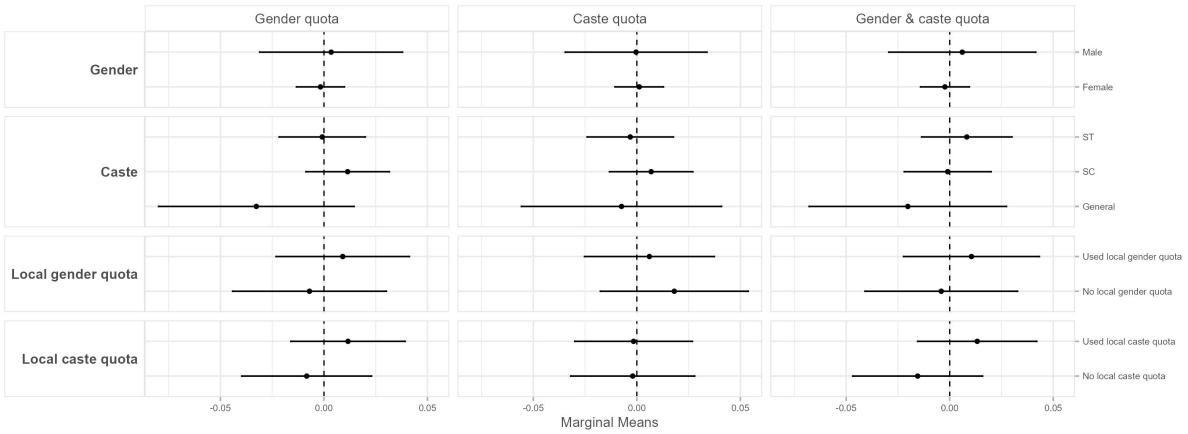


Figure 18: Differences in marginal means relative to the control group for those who passed the attention check

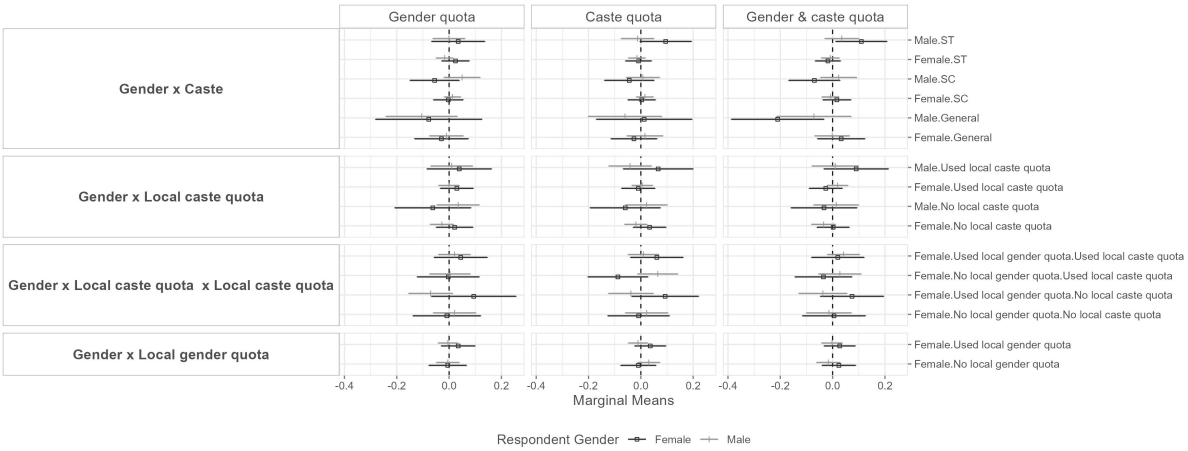


Figure 19: Differences in marginal means relative to the control group for intersectional traits of candidates

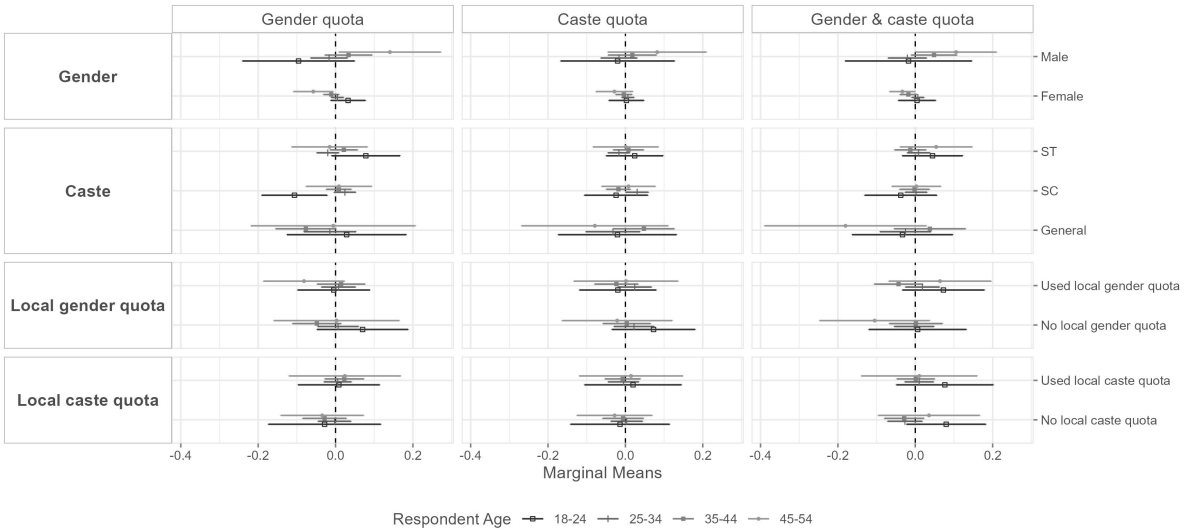


Figure 20: Differences in marginal means relative to the control group based on the age groups

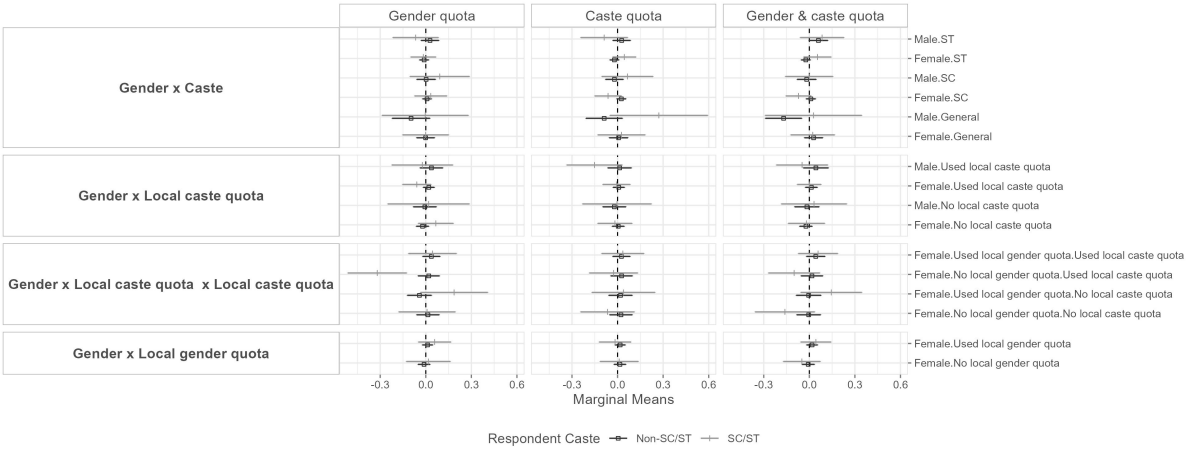


Figure 21: Differences in marginal means relative to the control group based on the age groups

7 Preanalysis Plan

7.1 Tests of hypotheses listed in the pre-analysis plan

Below is a copy of the pre-analysis plan that was uploaded online by the authors on January 31, 2022, at [source omitted for peer review]. However, in this subsection, we list all of the hypotheses that can be found in the pre-analysis plan, as well as either test them here or describe where in the main manuscript or SI they can be tested.

- **Hypothesis H1:** "Respondents will prefer men Members of the Legislative Assembly (MLA) candidates to women candidates." **Location:** In the main manuscript (Figure 4). **Findings:** Not supported; women are statistically significantly more likely to be preferred than men.

- **Hypothesis H2:** "Respondents will prefer MLA candidates from General caste groups to SC and ST caste groups." **Location:** In the main manuscript (Figure 4). **Findings:** Weak support; General caste candidates are more preferred than SC/ST, but the effect is not statistically significant.

- **Hypothesis H3:** Respondents will prefer women MLA candidates from General caste groups to women from SC and ST caste groups, i.e. gender bias will be more pronounced on non-reserved MLA seats." **Location:** In the main manuscript

(Figure 6, looking at the Control vignette column). **Findings:** Weak support; Women belonging to general caste are only slightly more preferred than ST/SC women, and the effect is not statistically significant

- **Hypothesis H4:** The beneficiaries of local-level quotas are less preferred than non-quota counterparts for MLA positions." **Location:** In the main manuscript (Figure 4). **Findings:** Mixed/no support; gender quota beneficiaries are actually *more* preferred than non-gender quota beneficiaries (statistically significant), yet caste quota beneficiaries are less preferred (though not statistically significant).

- **Hypothesis H5:** "Local-level caste quotas beneficiaries are less preferred for MLA elections than local-level gender quota beneficiaries." **Location:** In the main manuscript (Figure 4). **Findings:** Support; women quota beneficiaries are more preferred than those who benefited from caste quota.

- **Hypothesis H6:** "The beneficiaries of local-level quotas are less preferred than non-quota counterparts for MLA elections" **Location:** In the main manuscript (Figure 4). **Findings:** Some support; that women utilizing a local-level gender quota are statistically significantly more preferred than women who did not, while there is no statistically significant effect for those benefitting from a local-level caste quota.

- **Hypothesis H7:** "Local-level caste quotas beneficiaries are less preferred for MLA elections than local-level gender quota beneficiaries." [typo...hypothesis the same as H5]

- **Hypothesis H8:** "Local-level gender quotas beneficiaries are less preferred for MLA elections than other women." **Location:** In the main manuscript (Figure 4). **Findings:** Opposite effect; women benefiting from local gender quota are more preferred (and this effect is statistically significant) than women who did not use a local gender quota.

- **Hypothesis H9:** "Local-level caste quotas beneficiaries are less preferred for MLA

elections than other candidates from the same caste." **Location:** In the main manuscript (Figure 4). **Findings:** No support; no statistically significant difference between caste quota beneficiaries and those eligible but who did not receive the quota.

- **Hypothesis H10:** "Candidates with local-level political experience are less preferred for MLA elections than those who belong to the political dynastic families" **Location:** In SI (Figure 5). **Findings:** Opposite effect; there is statistically significantly more support for those with local political experience compared to those coming from a dynastic family. In other words, local experience appears to be rewarded, while political dynasts are punished.

- **Hypothesis H11:** "Women candidates with local-level political experience due to gender quotas are less preferred for MLA elections than those who belong to the political dynastic families." **Location:** In SI (Figure 5). **Findings:** Opposite effect; there is statistically significantly more support for those with local political experience due to a gender quota compared to those coming from a dynastic family. In other words, local experience via a gender quota appears to be rewarded, while political dynasts are punished.

- **Hypothesis H12:** "SC and ST candidates with local-level political experience due to caste quotas are less preferred for MLA elections than those who belong to the political dynastic families." **Location:** In SI (Figure 5). **Findings:** Opposite effect (though not statistically significant); those with previous local political experience due to caste quota are more preferred than those coming from a political dynast.

- **Hypothesis H13:** "Respondents prefer voting for women on MLA positions when they are primed about gender quotas." **Location:** In the main manuscript (Figure 5). **Findings:** No support. If anything, there is slightly less support for women candidates as a result of gender priming (compared to control), although the difference between these two is not statistically significant.

- **Hypothesis H14:** "Respondents prefer voting for ST and SC candidates in MLA elections when they are primed about caste quotas." **Location:** In the main manuscript (Figure 5). **Findings:** No support. There does not seems to be a statistically significant preference for SC/ST candidates over General caste in either the control or caste prompts.

- **Hypothesis H15:** "Respondents prefer voting for women from General caste in MLA elections than SC and ST women when they are primed about both gender and caste quotas." **Location:** In main manuscript (Figure 6, far right column, top box). **Findings:** Support. There is a positive (and a statistically significant difference from women ST but just barely not women SC) difference between women from the General caste relative to a woman who is also SC/ST.

- **Hypothesis H16:** "Respondents prefer voting for women from General caste in MLA elections than SC and ST women when they are primed about both gender and caste quotas." [typo...hypothesis the same as H15]

- **Hypothesis H17:** "The effect of priming wanes over time, i.e. respondents in the treatment group may have differential preferences in the beginning rounds of the experiment than in the latter rounds." **Location:** SI Figure 22. **Findings:** Some evidence. Because there are 12 waves it becomes very hard to see overall trends. Therefore, in Figure 22 we split the conjoint into the first and last 6 conjoint pairs respondents completed. There does appear to be some muting of more extreme preferences as more waves occur—especially in gender (the strong preference against men wanes over time) and religion. But for other categories (e.g., dynastic family) preferences appear to grow stronger across waves.

- **Hypothesis H18:** "Respondents who are eligible to vote in states with provisions for 50 percent women's reservation at the local level tend to prefer women candidates than respondents in states with provisions for 33 percent women's reservation." **Location:** In SI (Figure 23). **Findings:** No evidence. There is not a statistically significant difference between the marginal means for women candi-

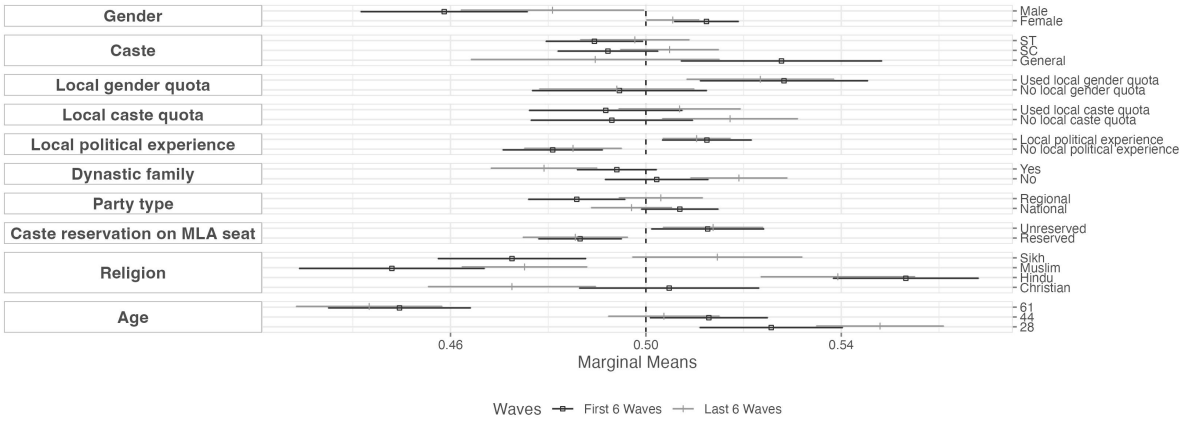


Figure 22: Test of Hypothesis H17

dates for those living in a 33 percent versus a 50 percent women's reservation at the local level, although note that only 85 of our respondents lived in states with a 33 percent reservation.

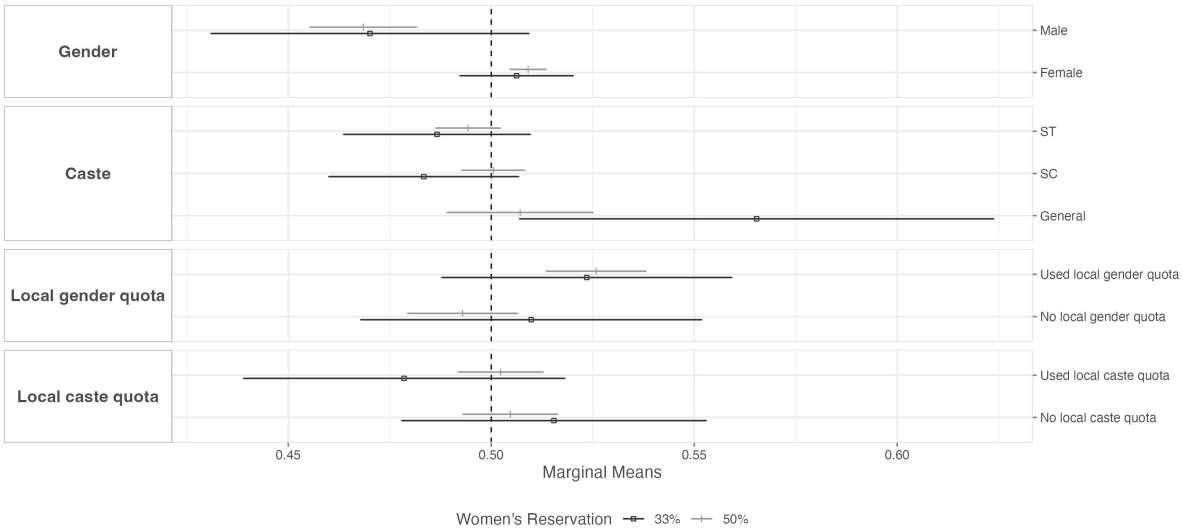


Figure 23: Tests of Hypothesis H18

- **Hypothesis H19:** "Respondents who are eligible to vote in states with provisions for 50 percent women's reservation at local level tend to prefer women candidates from General caste than respondents in states with provisions for 33 percent women's reservation." **Location: In SI (Figure 24)** . **Findings:** No evidence. There is not a statistically significant difference between the respondents eligible to vote in states with provisions for 50 percent women's reservations and the respondents eligible to vote in states with provisions for 33 percent women's

reservation in terms of preferring women from General caste groups.

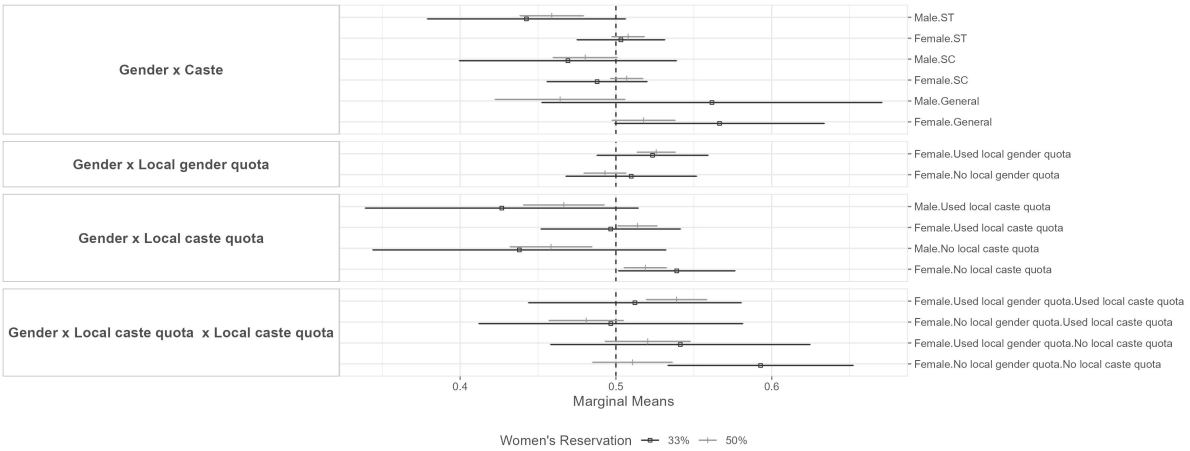


Figure 24: Tests of Hypothesis H19

7.2 Original Pre-analysis Plan

Motivation

The representational gaps in electoral politics have received significant attention from researchers and policymakers. Quotas, or legislation designed to balance numeric representation of women and ethnic minorities in legislatures, have become popular over the last few decades (Hughes 2018). So far, scholarly work has tended to focus on how quotas affect representation at the level of government for which they were designed (c.f., Chattopadhyay and Duflo 2004; Beaman et al. 2009*b*, 2011; Deininger, Jin and Nagarajan 2012). We explore whether instituting quotas at one level of government can lead to spillover effects at higher levels of government.

In a parallel project, we use observational data show show how local-level gender quotas lead to state-level differences in women's representation. Yet, three pieces of this puzzle are still missing. First, we do not yet know how voters evaluate women and minority caste candidates who may have benefited from these policies. Second, we do not know whether these evaluations may be conditional on other factors, such

as intersectional traits of contestants, or political backgrounds as a quota beneficiary or belonging to a political dynastic family. Third, we seek to understand how quotas themselves may impact views on women and minority candidates. Answering these questions—which we propose to do so in a single survey—will better explain the causal mechanisms behind the unintended effects of gender quotas.

Upstream Effects of Quotas

The short-term purpose of quotas is to ensure inclusive representation in politics. The research is replete with highlighting that descriptive representation—numeric representation of women and disadvantaged groups—has led to substantive gains for their constituents (Chattopadhyay and Duflo 2004; Clayton, Josefsson and Wang 2017; Banerjee and Somanathan 2007; Gajwani and Zhang 2008). As a result of quotas, there could be lasting implications on voters' attitudes towards quota beneficiaries and the communities they belong to. However, how quota beneficiaries are perceived by voters has received modest attention. A handful of studies have explored this research question but are mainly centered around the European and American contexts (O'Brien and Rickne 2016). With further empirical investigation, we can lay out how quotas could have unintended positive or negative effects on quota beneficiaries' progress to higher political office. If voters do not perceive quota beneficiaries positively, then their upward mobility is threatened. Despite quotas narrowing representational gaps at one level of electoral politics, persistent gaps could remain in other levels of political office. Thus, there could be concerns that quotas may constrain long-term electoral gains for quota beneficiaries in accessing powerful positions.

We expect that the following could be the possible channels explaining voters' perception towards the career progression of quota beneficiaries:

1. There could be a positive impact of quotas on voters. Traditionally, voters have more experience of men from dominant groups in political positions and they tend to associate these characteristics with the qualified candidates. As a result

of quotas, women and minorities receive the opportunity to present themselves as political representatives and leaders. Having given an opportunity to observe 'non-traditional' politicians through quotas, voters may be able to update their biases and stereotypes . Eventually, voters may perceive them as qualified for the higher levels of political office as well.

There could also be role model effect in place. Successful women politicians may be perceived as promising and empowering by women voters, leading the latter to engage in politics more (Beaman et al. 2009*a*; Campbell and Wolbrecht 2006; Ladam, Harden and Windett 2018). As women voters engage more in politics, they may favor women politicians. Thus, women politicians may be able to strengthen their voter base as they run for higher levels of political office.

2. However, there could a backlash effect of quotas hindering quota beneficiaries' ability to reach higher political positions. First, voters may perceive them as unqualified and incompetent (Gangadharan et al. 2016). In the presence of legally-binding quotas, voters may perceive their placement to political positions as merely a token representation (Ramaswamy 2005; Dahlerup 2005). Second, voters from dominant groups may perceive political gains as a zero-sum game and feel threatened when historically underrepresented communities hold positions of power (Claassen 2020). Thus, rather than updating voters' biases positively, quotas may adversely affect voters' evaluations of women and minority politicians (Fréchette, Maniquet and Morelli 2008). If so, then quotas can raise barriers to their career advancement at other levels of government.

We acknowledge that the treatment effect of quotas on voters' attitudes may not exist in isolation. Rather, voters's inferences could be driven by a number of factors, including voters' own attributes and quota beneficiaries' other characteristics (or those characteristics of a candidate's electoral opponent). We take these factors into consideration when designing our research study.

Case Selection

We explore voters' attitudes towards career progression of quota beneficiaries in the Indian context. India is an ideal case given the institutional set of gender and caste quotas. Gender quotas were first pegged at the 33 percent level in 1993. Later, some states expanded this proportion to 50 percent at different times post-2005. These are constituted at the lowest level of political office, i.e., at the village and municipal levels in form of reserved seats. But, no such mechanism is present at the state assembly level. Moreover, the Indian constitution allows for caste-based reservation in all three levels of political office at the local, state, and national level. Note that caste based reserved seats proportionally overlap with the seats reserved for women. For example, say, 10 percent of seats are reserved based on caste, and 50 percent seats are reserved for women. Then, 50 percent of caste-based reserved seats will be reserved for women. Given the history of both caste and gender based discrimination in India, this project will allow an intersectional analysis to better understand the voters' attitudes towards quota beneficiaries.

Study Design

We plan to conduct a conjoint experiment to unravel the underlying causal mechanisms for the demand-side explanation of our theory. Originating in market research, conjoint experiments are ideal in assessing causal effects simultaneously for multidimensional aspects. For our purposes, how do voters respond to certain candidate-based characteristics? Moreover, conjoint experiments have been used in the gender and politics literature before (e.g., Ono and Yamada 2020; de Geus et al. 2020).[3] While standard experiments are limited by the number of items to manipulate with block de-

[3]Specifically, de Geus et al. (2020) look at how individuals evaluate the performance of candidates once they are in office, while Ono and Yamada (2020) examine candidates in Japan, mainly focusing on the candidates issue area of expertise. Thus, while the core of these papers is also on the 'electability' of women candidates, our focus on the spillover effects of quotas in career progression distinguishes our work from theirs.

signs, or have a hard time distinguishing which component of manipulation (e.g., reading a vignette) is producing the causal effect (Hainmueller, Hopkins and Yamamoto 2014), conjoint experiments allow us to examine a large number of attributes and better uncover which ones are the causal drivers.[4] We propose to conduct our survey experiment with around 1000 participants living in India on Amazon MTurk. To start, a basic set of questions will be asked, which include socio-demographic information, their interest and participation in politics, and their attitudes towards women and minorities. We then use three experimental designs embedded in the survey in order to help us answer the questions described above, which we detail below.

Conjoint Experiment

The conjoint experiment—designed to test whether respondents prefer one candidate over another based on randomly assigned attributes presented in a short description—is able not only to see whether there are gender differences among candidates, but also whether these evaluations may be conditional on other factors. To this end, respondents will be asked to choose between a series of pairs of potential candidates based on the following traits: gender, caste, age, party type, religion, constituency status, whether they previously were a local level politician, dynastic status, and whether they were a local-level politician due to a quota. All of these attributes are shown in Table 5. [5]

[4]Since all other attributes are independently assigned from a given attribute of interest, we can calculate the average marginal component effect (AMCE) of each attribute on the probability of a candidate being chosen over the other candidate (Hainmueller, Hopkins and Yamamoto 2014).

[5]Note that the variables "Held Local-Level Political Office on a gender based reserved seat" and "Held Local-Level Political Office on a caste-based reserved seat" are not applicable if the hypothetical candidate was not previously a local-level politician. Similarly, the variable "Held Local-Level Political Office on a gender based reserved seat" is not applicable if the hypothetical candidate is not a woman. The variable "Held Local-Level Political Office on a caste based reserved seat" is not applicable if the hypothetical candidate is from a General category. The order of appearance of these attributes during the experiment will be random.

Table 5: Conjoint table: Variable attributes manipulated in study

Variable	Attributes
Gender	Male, Female
Caste category	General, Scheduled Caste, Scheduled Tribe
Age	28, 44, 61
Party Type	Regional, National
Religion	Hindu, Muslim, Sikh, Christian
MLA Constituency Status	Reserved, Unreserved
Dynastic Status/Family Has History in Politics	Yes, No
Was Previously a Local-Level Politician	Yes, No
Held Local-Level Political Office on a gender-based reserved seat[a]	Yes, No, N/A
Held Local-Level Political Office on a caste-based reserved seat[b]	Yes, No, N/A

[a] Attribute is Yes/No *only* if "Was Previously a Local-Level Politician" = Yes and "Gender" = Female; if not, option will be N/A or blank.

[b] Attribute is Yes/No *only* if "Was Previously a Local-Level Politician" = Yes and Caste = SC/ST; if not, option will be N/A or blank.

Dependent Variables

Our dependent variables are voters' preference towards a candidate and voters' final candidate choice. These variables will be obtained from the following questions that respondents will answer once a pair of candidate profiles is displayed:

- "On a scale from 1 to 5 (one being the least preferred and 5 being the most preferred), how would you rate each of the candidates described above?" Respondents will do so for each candidate.
- "Which candidate will you vote for?" Respondents must select one of the two candidate profiles shown.

As we test the quota impact based on different attributes of candidates and voters, we would be able to assess why some women candidates are more likely to progress in politics than others. Moreover, we are able to assess the extent to which voters' inferences are influenced by women being quota beneficiaries.

Conjoint-style experiments typically show the candidate-pairs and questions above multiple times to each respondent. There of course is a trade-off between gaining more data and respondents satisficing. Therefore, we plan to show 12 candidate-pairs to each of our 1000 respondents, resulting in 12,000 contrasts between a total of 24,000 hypothetical candidates. We note that since there are only 10 possible attributes for a given candidate (and no long candidate profile statements), we expect relatively low levels of satisficing or drop-off.

Priming Respondents on Gender and Caste Quotas

It might also be that if respondents are primed about gender and caste quotas, they may respond differently. To test whether quotas themselves have any sort of causal effect, we will randomly divide participants into four groups. One group will receive a prompt about gender quotas before being asked the conjoint questions described

above. Second group will receive a similar prompt before, but the quota will refer to caste-based reservations. Third group will receive prompt for both gender and caste quotas. A final group will receive no prompt. The prompts are as follows:

Gender Prompt: "Women have been historically excluded leading to their underrepresentation in politics. To address this, a series of reservation policies have been enacted, whereby seats in local level governments are reserved only for them. As a result, at least one-third of the seats are occupied by women in local political councils (panchayat or municipal councils)."

Caste Prompt: "Some caste groups have been historically excluded leading to their underrepresentation in politics. To address this, a series of reservation policies have been enacted, whereby seats in local level governments are reserved only for them. As a results, these caste groups occupy seats proportional to their population in local political councils (panchayat or municipal councils)."

Gender and Caste Prompt: "Both women and oppressed caste groups have been historically excluded leading to their under representation in politics. In order to address this, a series of reservation policies have been enacted, whereby seats in local level governments are reserved only for them. As a results, women and persons of these caste groups occupy seats proportional to their population in local political councils (panchayat or municipal councils)."

Control Prompt: "Milkha Singh's childhood was no less than a tragedy. Born before Indian independence, he lost his parents and siblings during the India-Pakistan partition. After years of hardships, he joined the Indian Army and he was among the first athletes to represent India in Olympics. He fueled a new life to a generation of Indians grappling with the loss of home, and hope."

This strategy will help us observe how voters respond to information on gender quotas and the proportion of seats reserved for women. Moreover, since we also have a caste-based reservation prompt, we can understand whether sentiments towards caste reservations are any different than those towards gender (relative to the control group).

To ensure that respondents are primed about the treatment, we have designed attention checks that are mentioned in the section 7.3.

Hypotheses

Gender and Caste Attitudes

Below we offer the following set of hypotheses about our expectations towards gender and caste quotas:

- **H1**: Respondents will prefer men Members of the Legislative Assembly (MLA) candidates to women candidates.
- **H2**: Respondents will prefer MLA candidates from General caste groups to SC and ST caste groups.
- **H3**: Respondents will prefer women MLA candidates from General caste groups to women from SC and ST caste groups, i.e. gender bias will be more pronounced on non-reserved MLA seats.

Quotas' Spillover Effect

- **H4**: The beneficiaries of local-level quotas are less preferred than non-quota counterparts for MLA positions.
- **H5**: Local-level caste quotas beneficiaries are less preferred for MLA elections than local-level gender quota beneficiaries.

Quotas and Political Experience

- **H6**: The beneficiaries of local-level quotas are less preferred than non-quota counterparts for MLA elections.
- **H7**: Local-level caste quotas beneficiaries are less preferred for MLA elections than local-level gender quota beneficiaries.
- **H8**: Local-level gender quotas beneficiaries are less preferred for MLA elections than other women.
- **H9**: Local-level caste quotas beneficiaries are less preferred for MLA elections than other candidates from the same caste.
- **H10**: Candidates with local-level political experience are less preferred for MLA elections than those who belong to the political dynastic families.
- **H11**: Women candidates with local-level political experience due to gender quotas are less preferred for MLA elections than those who belong to the political dynastic families.
- **H12**: SC and ST candidates with local-level political experience due to caste quotas are less preferred for MLA elections than those who belong to the political dynastic families.

Effect of Priming

- **H13**: Respondents prefer voting for women on MLA positions when they are primed about gender quotas.
- **H14**: Respondents prefer voting for ST and SC candidates in MLA elections when they are primed about caste quotas.

- **H15**: Respondents prefer voting for women from General caste in MLA elections than SC and ST women when they are primed about both gender and caste quotas.

- **H16**: Respondents prefer voting for women from General caste in MLA elections than SC and ST women when they are primed about both gender and caste quotas.

Other Hypotheses

- **H17**: The effect of priming wanes over time, i.e. respondents in the treatment group may have differential preferences in the beginning rounds of the experiment than in the latter rounds.

- **H18**: Respondents who are eligible to vote in states with provisions for 50 percent women's reservation at the local level tend to prefer women candidates than respondents in states with provisions for 33 percent women's reservation.

- **H19**: Respondents who are eligible to vote in states with provisions for 50 percent women's reservation at local level tend to prefer women candidates from General caste than respondents in states with provisions for 33 percent women's reservation.

All the hypotheses will also be tested conditional on other attributes mentioned in Table 5. For example, respondents may have lower preference towards young candidates. We also expect heterogenous effects for subpopulations. For example, women respondents may be less discriminatory towards women, SC, and ST candidates. Similarly, respondents may have higher preference towards candidates belonging to same caste groups. Respondents who are young, educated, and earn higher income may be less biased towards women and candidates from SC and ST caste groups. Therefore, we will estimate the heterogeneous treatment effects in addition to the key hypotheses listed above.

Data Collection

All participants will be informed of the purpose of this study without revealing the specific gender/caste focus (e.g., "the purpose of this study is to better understand the desirability of certain types of political candidates") as approved by the IRB protocols. Any personal information or identifying attributes about respondents will remain confidential. This online survey experiment will be administered through Amazon's Mechanical Turk (MTurk), specifically for those living in India. MTurk is cost-effective, and has been shown to be relatively high in quality (Boas, Christenson and Glick 2020).[6] We expect that the entire survey will take about 15-20 minutes to complete. The participants will be compensated for their time with 2.0 USD (equivalent to Indian rupee INR 150/-).

To ensure good quality data collection, our exclusion criteria are as follows:

- The answers from respondents below 18 years of age.
- Those who fail to correctly answer the questions for attention checks.
- Respondents who had a very rapid response rate (threshold of less than five minutes).

Analysis

First, the data will be analyzed using linear regression, logit, and ordered logit regression with clustered robust standard errors at individual level as each individual makes 12 decisions. The coefficients obtained from this analysis will indicate Average Marginal Component Effect (AMCE) i.e. average change in the likelihood of voting for a candidate having a listed attribute for a variable compared with the baseline attribute holding other variables constant. The statistical significance will be based on

[6]To further improve respondent quality we plan on using reCAPTCHA as well as validating IP addresses (Kennedy et al. 2020).

the threshold of α =0.05. The results will be presented as coefficient plots with 95% confidence interval.

Second, we will obtain Average Component Interaction Effect (ACIE) for assessing the likelihood of voting for a candidate based on respondents' attributes.

Third, we plan to estimate Individual Marginal Component Effects (IMCE) to assess the individual-level effect of specific attributes (Zhirkov 2021). Further, we will estimate the relationship between respondent's characteristics with IMCEs.

Part I: Local-level reservations and candidate desirability

The conjoint experiment allows us to test several theoretical expectations regarding candidate characteristics. Most importantly, we suspect that respondents will prefer men to women candidates:

- **H1**: Respondents will prefer men candidates to women candidates.

This can be evaluated either through using the AMCE or the 5-point scale of a candidate's favorability. We will also analyze the conditional expectations based on other attributes of candidates.

Key to our argument is whether women who have previously held local-level office.

- **H2a**: Women candidates who were previously local-level politicians are evaluated more favorably than women candidates without such experience

We expect the difference between women with and without local-level experience to be statistically significant, but do not have clear expectations for women relative to men (e.g., is a woman with local-level experience evaluated more highly than a man without?). Key to local-level experience, however, is also whether a woman politician held office due to an enacted gender quota or not. Since this expectation explicitly contrasts women who *did* hold local-level office, we also have the following expectation:

- **H2b**: Among women who previously held local-level office, those who held their position due to a gender quota will be evaluated less favorably than those who did not

Hypothesis H2b specifically tests whether there is a backlash effect, as has sometimes been suggested by the literature (Ramaswamy 2005; Dahlerup 2005; Gangadharan et al. 2016). In contrast, we expect that political experience gained by holding political office at the local level (regardless of whether this office was due to a quota or not) will be rewarded by respondents (see hypothesis H2a).

Part II: State-specific quota effects

As described above, India represents an ideal place to conduct our experiment, since some, but not all states, enacted a 50 percent quota at the local level (and at different times). By asking respondents about the state where they were eligible to vote for last state level election, we are able to see whether quotas (in effect, a treatment applied to some individuals at the aggregate state level) have had an effect on how individuals evaluate the conjoint experiments above. Such a finding would compliment our existing study, insofar as we are now able to test if individuals have been affected by these quotas. While not a hypothesis we are able to test experimentally, we expect the following. Note that these match up with hypotheses H1 and H2b above:

- **H3a**: The negative effect seen in H1 will be attenuated for respondents living a state that has enacted a 50% quota—especially if they have lived there a long time
- **H3b**: Respondents living in a state that has enacted a 50% quota—especially if they have lived there a long time—are more likely to support women candidates that have benefitted from a quota (and rate them more highly) than those not living in these states

In other words, while respondents on the whole may be less likely to support a women candidate who has benefitted from a quota, this negative effect should be lessened in

states in which a large number (50%) of all lower-level candidates are women. Note that we do not expect any change in regards to hypothesis H2a, since this expectation was just about the experience level of women, not specifically whether they have benefitted from a quota at the local level.

Part III: Effects from priming respondents about gender and caste quotas

Our last set of expectations focuses on a prompt that two groups of respondents received (the last group is a control and receives no prompt)—either before starting their evaluations of candidate profiles or halfway through—that primes them on .

Expectations About Quotas' Effect on Preferences for Women Candidates

Other Expectations

We also have a series of other expectations that we think are possible, that are testable using the conjoint experiment.

Survey Instrument

We also plan on asking a series of basic socio-demographic questions to better understand how certain characteristics of respondents may affect our findings.

Demographics

1. What is your age? (Respondents with age more than or equal to 18 years of age will be eligible for participating in this study. a. Under 18, b. 18-24, c. 25-34, d.

35-44, e. 45-54, f. 55-64, g. 65 and above)

2. What is your gender? (a. Male, b. Female, c. Transgender, d. Non-binary, e. Other, f. Prefer not to say)

3. What religion do you adhere to? (a. Hindu, b. Muslim, c. Sikh, d. Christian, e. Other, f. Prefer not to say)

4. What is your highest level of education completed? (a. No formal schooling, b. Primary school (Class V), c. Middle school (Class VIII), d. High school (Class X), e. Senior Secondary school (Class XII), f. Undergraduate (BA/BSc level), g. Graduate or doctorate levels (MA/MSc/Ph.D.), i. Diploma, j. Other, k. Prefer not to say)

5. What is your caste? (a. General, b. Scheduled caste (SC), c. Scheduled Tribe (ST), d.Prefer not to say)

6. What is your approximate monthly household income (in INR)? (a. Under 25k, b. 25k-50k, c. 50k-100k, d. 100k-250k, e. 250k-500k, f. more than 500k)

7. What state/union territory do you currently live in? (Choose from the list of states/UTs)

   (a) How long have you lived in this state/union territory (in years)? (a. Upto 2 years, b. 2-5 years, c. 5-10 years, d. more than 10 years)

Political sophistication

The following questions are about your experience of voting and interactions with political leaders.

1. Do you have a valid voter ID? (a. Yes, b. No)

   (a) Which locality does your voter ID belong to? (a. Rural, b. Urban)

2. In which state you were eligible to vote for in last MLA elections? (Choose from the list of states/UTs)

3. Did you vote in the last MLA elections? (a. Yes, b. No)

4. Did you vote in the last national level elections? (a. Yes, b. No)

5. How often do you interact with political leaders (personally or in a group setting)? (a. Once a week, b. Once a month, c. Once a year, d. Never)

   (a) At the village/municipal level

   (b) At the MLA level

   (c) At the MP level

6. Generally, how interested are you in politics? (On a scale from 1 - 5 ranging from the least to the most interested.)

7. Which political party you feel most closely associated with? Choose from a drop-down list of the top 50 biggest parties. If your preferred party is not in the list, please specify the party name in Other category.

Experiment

This study is about voting in assembly elections for electing an MLA in your constituency. You will be asked to evaluate several pairs of candidate profiles for MLA elections. These candidate profiles will have limited information about their personal attributes and their political experience in village or municipal-level elections (referred to as local-level elections henceforth).

Please indicate your preference for each of the profiles, and your choice to vote for a candidate from the given pair of candidates.

- Respondents will be randomly assigned to four groups. Treatment group will read one of the three prompts. The fourth group will receive an unrelated prompt

and will be assigned as control group. The prompt is as follows: "[women/oppressed caste/both] have been historically excluded leading to their underrepresentation in politics. In order to address this, a series of reservation policies have been enacted, whereby seats in local level governments are reserved only for them."

Prompt for control group: "Milkha Singh's childhood was no less than a tragedy. Born before Indian independence, he lost his parents and siblings during the India-Pakistan partition. After years of hardships, he joined Indian Army and he was among the first athletes to represent India in Olympics. He fueled a new life to a generation of Indians grappling with the loss of home, and hope."

- Attention/manipulation checks:
  - Could you tell what the prompt was about? (a. Political management, b. History of violence, c. women's labor participation, d. Reservation in politics, e. history of an Indian athlete
  - For treatment group: To what extent do you agree that such a reservation policy is necessary? (On a scale from 1 to 5, 1 being strongly disagree to 5 being strongly agree. Or Prefer not to say). For control group: Which of the following names was mentioned in the prompt? (a. Jeev Milkha Singh, b. Abhinav Bindra, c. Pargat Singh, d. Milkha Singh, e. Manpreet Singh)
- Conjoint experiment: 12 pairs shown. For each pair, respondents answer the following:
  - On a scale from 1 to 5 (one being the least preferred and 5 being the most preferred), how would you rate each of the candidates described above?
  - Which candidate will you vote for? Respondents must select one of the two candidate profiles shown.
  - After the last round, a following question will be presented as an attention check: What were the genders of participants presented in the last round?

Final set of questions

- Do you approve of women's reservation in politics? (a. Yes, b. No)
- Could you guess what proportion of seats in Lok Sabha are occupied by women? (pick from 0-100%)
- Do you agree with the following:
  - Some people think that women are unsuitable for politics and that their scope should remain limited to work that their father or husband approves of. Do you agree with this statement? (a. Yes, b. No)
  - Some say that people from General caste are more intelligent on an average. Do you agree? (a. Yes, b. No)
  - Do you approve of caste-based reservation in politics? (a. Yes, b. No)
  - Women are not discriminated against in India. (a. Yes, b. No)
  - People are not discriminated based on caste or religion in India.
  - Did you have to bear a personal loss of a family member during Covid-19? (a. Yes, b. No)

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