Women at the Top: Downstream Representation Effects of Female Parliamentarians in India*

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Abstract

This paper examines whether electing a woman to a higher-level political office affects women's candidacy in subsequent lower-tier elections in a plurality-rule single-member district system. Using a close-election regression discontinuity (RD) design and 40 years of electoral data from India's parliamentary and state elections, I find that the competitive election of a female Member of Parliament (MP) leads to a 33–36% lower share of female candidates in the subsequent state election. The effect is concentrated among party-nominated female candidates, with a reduction observed in both experienced candidates and new entrants. The negative effect is driven primarily by political parties whose male candidates narrowly lost to women in the parliamentary election. In contrast, parties whose female candidate narrowly won are no more likely to field women than parties whose male candidate narrowly defeated a woman. As mechanisms, I find that these effects are concentrated in settings with skewed gender norms and a lower ex-ante electoral competitiveness. I rule out alternative explanations, including differences in MP performance and the length of exposure to a female MP, as drivers of the results. Overall, these findings point to a backlash effect, especially in settings where the electoral cost of gendered gatekeeping is low.

Keywords: Political Representation; Gender Norms; Candidacy; Regression Discontinuity
JEL Classification Codes: D72, J16, J71

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1 Introduction

Female underrepresentation in leadership roles permeates nearly every domain in the developed and developing world. According to a UN Women report, women hold just one in five management positions in the private sector across Asia, the Pacific, and Africa, while in North America and Europe, this figure remains one in three (Hanna et al., 2023).[1] The disparity is more pronounced for executive positions, with only 10.4% of the Fortune 500 companies featuring a female CEO in 2024.[2] The political sphere reflects a similar imbalance, despite women comprising roughly half of the electorate in democratic nations. As of 2024, only 28 countries had a female head of state or government, and women accounted for only 25% of elected parliamentarians worldwide. A greater presence of female representatives has been linked to increased investments in children (Clots-Figueras, 2012, Bhalotra and Clots-Figueras, 2014, Brollo and Troiano, 2016), a reduction in societal gender biases (Beaman et al., 2009) and crimes against women (Iyer et al., 2012, Bochenkova et al., 2023), enhanced economic growth and development (Baskaran et al., 2024), and policy decisions that better reflect women's interests (Chattopadhyay and Duflo, 2004). Therefore, the welfare consequences of women's exclusion from legislative positions are potentially substantial.

In this paper, I examine how women's election to a higher-tier political office influences female candidacy in subsequent local government elections in India. Theoretically, exposure to elected female politicians in upper echelons of the government can affect women's candidacy in lower-tier elections through two opposing channels. On the one hand, it may result in a larger number of women contesting local elections through (i) a role model effect, encouraging new women to enter the electoral arena (Campbell and Wolbrecht, 2006, Ladam et al., 2018), and (ii) an improvement of voter and party perceptions of female can-

[1] See the UN Women report here.

[2] See the article by Emma Hinchliffe in the Fortune Magazine here.

didates, thereby increasing their likelihood of securing nominations and winning (Baskaran and Hessami, 2018, Beaman et al., 2009). On the other hand, exposure to female politicians at higher levels of the government may result in a reinforcement of existing biases against women, potentially resulting in fewer women featuring as candidates in local elections (Bhalotra et al., 2018, Gagliarducci and Paserman, 2012). Particularly, the presence of a female MP may trigger a backlash (from voters or political parties), mirroring evidence from other contexts in which men respond negatively to women's entry into male-dominated and competitive environments (Lippmann, 2023, Gangadharan et al., 2016, Gagliarducci and Paserman, 2012, Luke and Munshi, 2011). Alternatively, parties may perceive female parliamentarians as mere 'symbolic' representatives or political 'tokens' and, after exposure to a female parliamentarian, may reduce the number of women they nominate in local elections. Thus, it remains theoretically unclear whether exposure to elected female parliamentarians encourages or discourages women's political participation.

The empirical challenge in answering this question arises from the fact that the election of female legislators in the parliament may be non-random. For instance, regions with more progressive voters are more likely to elect women in parliament, which could directly affect the number of female candidates contesting the corresponding local elections. Further, local social norms may serve as a confounding factor, shaping both voter behavior and women's decision to contest elections. In general, unobserved differences between electoral districts with and without a female parliamentarian may bias estimates derived from a simple comparison between the two.

Combining data from India's General Assembly (national) and Legislative Assembly (state) elections held between 1984 and 2023, I employ a close-election regression discontinuity (RD) design to alleviate these empirical challenges. A typical single-member General Assembly or parliamentary constituency (or electoral district) in India contains 7-9 single-member Legislative Assembly constituencies, each of which directly elects a state legislator through a plurality rule system. The treatment is then defined at the higher tier: whether

a female candidate wins a parliamentary (General Assembly) seat over a male candidate in a mixed-gender contest. Within the RD setup, I then compare female candidacy outcomes in lower-tier state Assembly constituencies where a female candidate *barely* won the most recent parliamentary election to those Assembly constituencies where the female candidate *barely* lost the election to a male candidate. The forcing variable in this setup is the vote share difference between the female candidate and the male candidate ranked among the top two in the parliamentary election. By construction, a positive value indicates the female candidate won, while a negative value indicates the male candidate won. Conditional on satisfying the assumption of continuity in the conditional means of potential outcomes, the gender of the elected candidate in a close mixed-gender contest is as good as random.

I find that assembly constituencies exposed to a competitively elected female parliamentarian have a 33-36% lower share of women contesting the subsequent state elections. This translates to 1–2 fewer female candidates contesting state assembly seats within a parliamentary constituency represented by a female MP. These results are robust to a host of alternative specifications, sample adjustments, alternative bandwidth choices, and placebo thresholds. Examining the source of this candidacy response, I find that the negative effect is completely party-driven: political parties field fewer women, with no significant difference observed in the share of women contesting as independents, that is, those contesting without a party affiliation. This reduced share is due both to fewer women with prior electoral experience and a lower share of first-time female candidates (*new entrants*) who would have otherwise been nominated in the counterfactual. Finally, I find that the negative effect is driven mainly by non-incumbent parties- (i) those whose male candidate narrowly lost to a woman in the parliamentary election, and (ii) other parties that did not win the seat. In contrast, parties whose female candidate narrowly won are no more likely to field women than those whose male candidate narrowly defeated a woman.

I explore several potential explanations for these negative effects. *First*, a potential mechanism driving these effects could be that exposure to female politicians may reinforce existing

biases against women, substantially reducing female candidacy. I find that the negative impact on women's candidacy is concentrated in states with skewed gender norms, proxied by a male-biased population sex ratio (Sen, 2003), while the corresponding effect is small and statistically insignificant in states with more balanced sex ratios. This heterogeneity suggests a potential backlash effect, particularly in settings where the exclusion of women from the candidate pool potentially carries low electoral costs (i.e., in states with skewed sex ratios).

Second, building on this hypothesis, I explore whether parties' nomination decisions, following the election of a female parliamentarian, vary by the ex-ante competitiveness of the constituencies. I find that (non-incumbent) parties are less likely to nominate women only in those assembly constituencies that exhibited a lower level of competition in the previous state election. This further strengthens the backlash argument: that is, parties tend to express their backlash against female candidates and reduce their nominations only in contexts where they are less likely to be punished for it. In more competitive environments, by contrast, candidate selection is likely shaped by other strategic considerations, with the gender of nominees playing a less salient role in the calculus.

Third, I test whether the negative effect on women's candidacy can be attributed to differences in the performance of female and male MPs. I find no statistically significant differences in MP performance across a broad set of metrics, ruling out this explanation. *Fourth*, I assess whether the duration of exposure to a female MP affects nomination decisions. The evidence shows nearly identical negative effects in states holding state elections soon after the parliamentary election and in those with a much longer gap, suggesting that the length of exposure does not explain the results.

This paper contributes to two broad strands of the literature. First and foremost, it contributes to the nascent literature examining the effect of increasing female representation on the subsequent political participation of women. Particularly, this literature has focused on representation effects within the *same* level of government (Bhavnani, 2009, Sekhon and

Titiunik, 2012, Broockman, 2014, Gilardi, 2015, Bhalotra et al., 2018), or the upward transmission of representation, from lower to higher levels of government (O'Brien and Rickne, 2016, O'Connell, 2020, Brown et al., 2022, Maitra and Rosenblum, 2022). In contrast, I examine the underexplored 'downstream' effects of representation- i.e., the impacts of electing women in higher tiers of political office on women's candidacy in lower-tier elections. Two closely related papers that examine similar downstream representation effects in other contexts are Baskaran and Hessami (2018) and Ladam et al. (2018).[3]

Second, I contribute to the literature on the gender gap in competitive leadership positions. Specifically, this paper contributes to the literature on how women leaders are subjected to differential evaluations and perceptions compared to men across various sectors (Beaman et al., 2009, Branton et al., 2018, Rheault et al., 2019, Elsesser and Lever, 2011, Gangadharan et al., 2016, Sarsons et al., 2021, Mengel et al., 2019, Faravelli et al., 2023). In this paper, I present evidence suggesting that political parties- a key example of hierarchical organizations- may respond unfavorably when exposed to female parliamentarians, while making nomination decisions regarding women candidates. Within this literature, I also contribute to the role of cultural norms in shaping gender differences in representation and leadership (Booth et al., 2019, Gneezy et al., 2009), showcasing the concentration of negative representation effects in states with relatively skewed gender norms.

The rest of the paper is structured as follows. Section 2 provides an overview of the Indian electoral context and describes the data used in the analysis. Section 3 outlines the empirical framework used in this study and presents several tests to assess the validity of

[3]My paper differs from the two in the following way. First, the focus of Baskaran and Hessami (2018) is German mayoral and council elections, where parties field lists of candidates ranked according to party preferences, and each individual candidate receives preferential votes from voters. In contrast, the setting I explore features a plurality rule system without open-list nominations. Second, in German council elections, voters can cast multiple votes, either for candidates within a single party or across different parties. In contrast, Indian Assembly elections follow a single-member constituency system, where voters cast a single vote to elect one legislator to the Legislative Assembly. Third, there is substantial functional overlap between German mayors and council members, whereas, in India, state legislators and parliamentarians operate within distinct legislatures, each with constitutionally distinguished domains of authority. On the other hand, Ladam et al. (2018) examine role models in the form of U.S. governors and senators, who are high-ranking politicians, roughly equivalent to chief ministers in the Indian context. Further, female U.S. senators and governors often progress from state legislatures, making them more likely to be perceived as role models who have progressed through different levels of government. In contrast, fewer than 20% of Indian parliamentarians have prior experience in state legislatures (Brown et al., 2022), limiting the extent to which they are viewed as part of a political pipeline.

the design (Section 3.2). Section 4 contains the main results of the paper on candidacy outcomes by gender, along with a host of robustness exercises (Section 4.1). Section 4.2 examines the source of the candidacy effects. Section 5 explores potential channels underlying the observed effects: (i) gender norms (Section 5.1), (ii) competitiveness of the electorate (Section 5.2), (iii) MP performance (Section 5.3), and duration of exposure to the female MP (Section 5.4). Finally, Section 6 concludes.

2 Background and Data

In this section, I begin by outlining key aspects of India's institutional framework and electoral laws that govern the country's election processes (Section 2.1). I then describe the data used in the analysis and present descriptive statistics to provide context and motivation for the paper's central research question (Section 2.2).

2.1 Institutional Background: Indian Elections

The world's largest democracy, India, follows a parliamentary system whereby political power is shared between the *Centre* and the federal *States*. Elections for representatives at all tiers of the government are conducted under a plurality rule. In particular, citizens directly elect representatives to the (national-level) General Assembly, formally known as *Lok Sabha*, and to the (state-level) Legislative Assembly, *Vidhan Sabha*. The parliamentary or General Assembly elections elect 543 members, Members of Parliament (MPs), from single-member parliamentary constituencies (PCs) on a quinquennial basis. On the other hand, the State Legislative Assembly elections, or simply Assembly Elections, are conducted in single-member Assembly constituencies (ACs) to elect Members of the Legislative Assembly (MLAs). As per the latest delimitation exercise, which came into force in 2008, there are 4,123 Assembly Constituencies across 640 districts in the 28 states and three union territories of the country. By design, ACs are smaller electoral units than Parliamentary

Constituencies (PCs); therefore, multiple ACs are entirely contained within a single PC.

The Election Commission of India (ECI) is the apex non-partisan institutional body responsible for the conduct of elections in India. An electoral term for both the General and the Legislative Assembly lasts for five years unless the assembly is prematurely dissolved, in which case elections are held ahead of the scheduled date. The electoral calendar of a state for both the state and the general election is fixed across electoral cycles. To optimize the electoral process, state assembly elections follow an asynchronous format- i.e., while some states hold their assembly elections concurrently with parliamentary elections, a majority of them conduct elections within an ongoing parliamentary term. In general, there are no barriers to entry to contesting an election, apart from a conditionally refundable deposit of 10,000 INR (5,000 INR for candidates from historically disadvantaged (Scheduled Caste/Tribe or SC/ST) groups) for contesting a Legislative Assembly election, and 25,000 INR (and 12,500 INR for SC/ST candidates) for General Assembly elections.[4] Finally, candidates can either contest as *independents*, those that are not affiliated to a political party, or be *party-nominated* and officially contest under a party affiliation. Typically, nearly 35% of all candidates contesting an election are independents, of which nearly 96% lose their electoral security deposit.

2.2 Data

I utilize constituency-level and candidate-level electoral data from the administrative statistical reports of the ECI for General Assembly elections and Legislative Assembly elections in India.[5] My sample period includes the following parliamentary elections: 1984, 1989, 1991, 1996, 1999, 2004, 2009, 2014, and 2019. I consider all state elections that were con-

[4]These deposit amounts are a nominal fee relative to the campaign expenditure limits under the electoral laws. In particular, the deposit fee is a mere 0.4-0.7% of the campaign expenditure upper limit (Faravelli et al., 2023). The security deposit is refunded only in the scenario where the candidate is able to secure 1/6th or 16.6% of the total votes cast in the election. The Representation of the People Act, 1951 regulates election candidacy rules. See details of the law here.

[5]I use the cleaned and compiled ECI dataset provided by the Trivedi Centre for Political Data, Ashoka University.

ducted between 1984 and 2023, with each year witnessing at least one state going to polls. Therefore, my primary dataset is comprehensive, spanning 40 years of elections, which allows me to generate sufficient statistical power in my analysis.

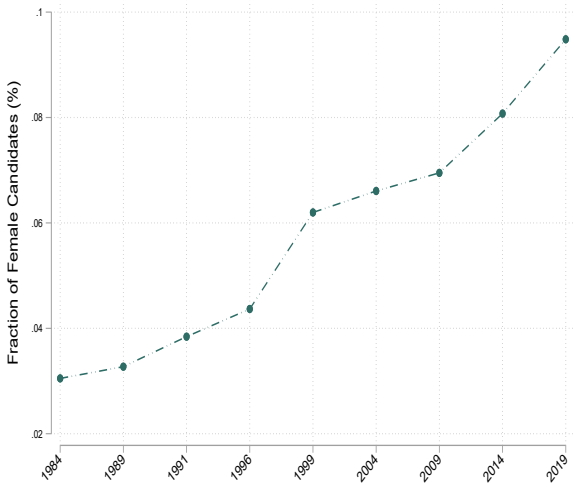
From the ECI statistical reports, I am able to identify the gender of each contesting candidate, their party affiliation, their final ranking, and the number of votes received, regardless of their final position. The constituency-level reports provide a within-state unique constituency number that remains constant across electoral cycles, along with data on the number of electors, the number of polling booths, the reservation status of the constituency, and the total number of candidates contesting a particular election. From these reports, I construct a dataset of those constituencies where either (i) the winner was a woman, and the runner-up was a man, or (ii) the winner was a man, and the runner-up was a woman. Therefore, my final *mixed* sample of parliamentary elections only includes those constituencies where the top two candidates comprised a male and a female candidate.

The next key step is to match Assembly Constituencies to parliamentary constituencies. Since 1999, the ECI has been publishing a section that contains AC-wise disaggregated data for parliamentary elections, which contains all the relevant candidate-level data for every AC contained with a PC. While I continue to utilize aggregate information on female parliamentarians and contestants in parliamentary elections, the disaggregated data allows me to map each AC to a parent PC. In 2008, a national delimitation exercise re-drew constituency boundaries at the parliamentary and state assembly levels while keeping the number of constituencies unchanged. Owing to this, I have two sets of election samples for Assembly elections (1984-2008 and 2009-2023). However, the estimation sample pools these two samples together to maximize statistical power. Each AC's outcomes are then mapped to the most recent parliamentary election (see Section 3.1 for more details).

MPs' Performance Data. Additionally, I also collect data on MP performance on two dimensions- (i) parliamentary, and (ii) budgetary performance. For parliamentary activi-

Figure 1: Women in the Indian Parliament: 1984-2019

(a) Female Candidates (%)



(b) Female Winners (%)

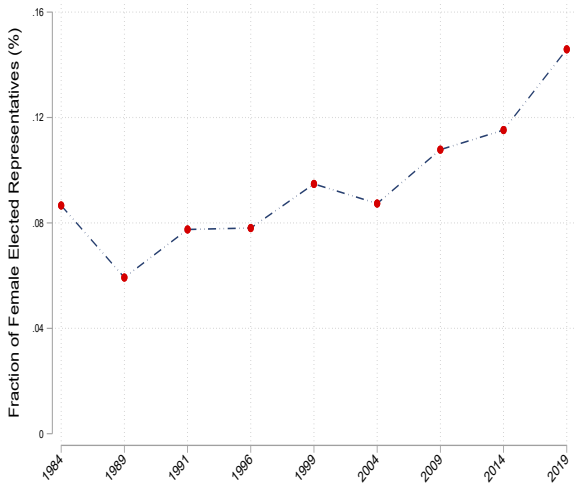
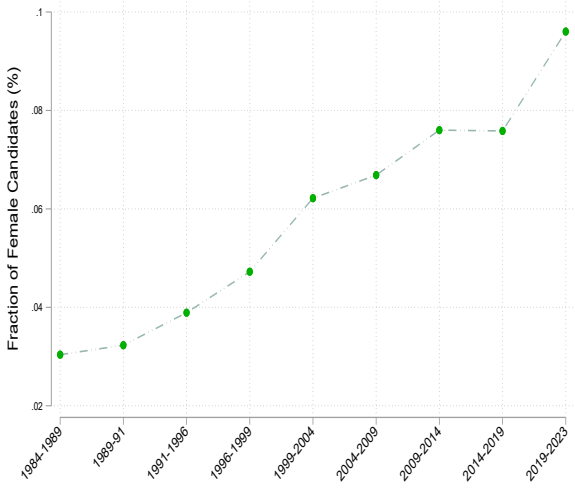
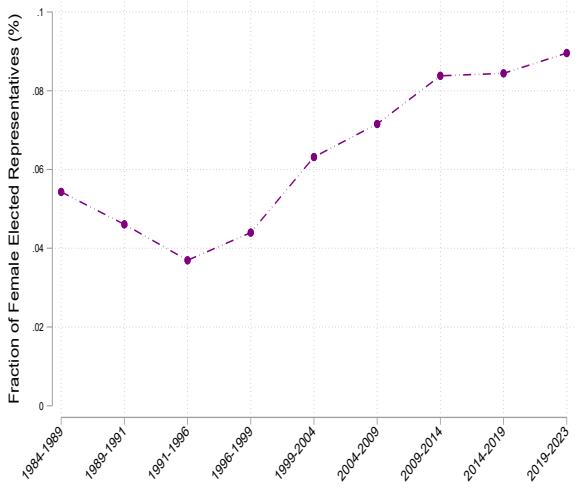


Figure 2: Women in State Assembly Elections: 1984-2023

(a) Female Candidates (%)



(b) Female Winners (%)



ties, I use data from the MP Track portal of PRS Legislative Research[6]. This portal offers detailed information on the performance of elected Members of Parliament (MPs) from 2009 onwards. Specifically, it documents each MP's participation in parliamentary debates, the number of questions they raised, their attendance throughout the electoral term, and the

[6]Available at https://prsindia.org/mptrack.

number of private member bills they introduced[7]. Second, I use administrative data on the utilization of funds allocated under the Member of Parliament Local Area Development Scheme (MPLADS) as a measure of MPs' budgetary performance[8]. The MPLADS portal, available from the 15th Lok Sabha (2009) onwards, provides annual information on the total funds released, the unspent balance, and the unsanctioned balance for each MP.

Descriptive Statistics. I present the summary statistics for a key set of variables in Table A1 in the Appendix. Figures 1 and 2 present a graphical descriptive counterpart for the primary variables of interest- the number of female candidates and the number of female winners in both state and national elections. The share of women contesting elections and winning elections has generally trended upwards since 1984 in both parliamentary and state elections. In particular, the share of women contestants in state elections grew from nearly 3% in 1984-89 to 9.6% in 2019-24. Parliamentary elections, too, saw a similar increase- from 3.04% in 1984 to 9.5% in 2019. On the other hand, the fraction of seats held by women in the state legislature grew from 5.4% to nearly 9% in the same period, while the corresponding figures for the parliamentary assembly grew from 8% to 14.5% in the same time period. Across the full sample, the average number of female candidates per constituency was 0.598 and 0.813 for state and parliamentary elections, respectively (with the average number of candidates contesting an election being 10 and 14, respectively).

3 Empirical Framework

In this section, I outline the primary empirical methodology employed throughout the course of the paper (Section 3.1) and additionally present a host of validity checks supporting the credibility of the empirical design (Section 3.2).

[7]Private members' bills are legislative proposals by MPs who are not ministers in the current ruling government.

[8]Under the MPLADS scheme, each MP may recommend development works in their constituency to the District Collector, with an annual allocation of INR 50 million over the course of their term. The data is available at https://mplads.gov.in/MPLADS/.

3.1 Estimation Strategy

The goal of this paper is to estimate the causal effect of electing a female legislator in the *General Assembly* (national) on female political participation in the subsequent *Legislative Assembly* (state) elections. The empirical challenge in estimating the aforementioned relation arises from the fact that the election of female legislators in the parliament may be non-random. For instance, constituencies with more progressive voters are more likely to elect women in parliament, which could directly affect the number of female candidates contesting the corresponding state elections. In general, unobserved differences between constituencies with and without a female parliamentarian can introduce bias in the estimates from a simple comparison of the two types of constituencies.

To alleviate this concern, I use a close-election regression discontinuity (RD) design whereby I compare constituencies where a female politician *barely* won against a male candidate with constituencies where a woman *barely* lost to a man in the corresponding parliamentary election. Formally, let $M_{j,t}$ be the top-two vote share difference between a female candidate and a male candidate in parliamentary constituency j in election-year t.[9] By construction, a positive value of $M_{j,t}$ indicates a woman winning against a man (*treated*), while a negative value implies that the woman lost (*control*). The treatment effect, τ, is given by:

$$\tau = \lim_{M_{j,t}\uparrow 0} \mathbb{E}[y_{i,j,t+1} \mid M_{j,t}] - \lim_{M_{j,t}\downarrow 0} \mathbb{E}[y_{i,j,t+1} \mid M_{j,t}] \tag{1}$$

where $y_{i,j,t+1}$ is an outcome variable in Assembly Constituency i contained within the parliamentary constituency j in the Assembly Election-year $t+1$ (following the realization of $M_{j,t}$ in t). Further, $\lim_{M_{j,t}\uparrow 0} \mathbb{E}[y_{i,j,t+1} \mid M_{j,t}]$ is the expected outcome just above the threshold (where a female candidate barely wins), and $\lim_{M_{j,t}\downarrow 0} \mathbb{E}[y_{i,j,t+1} \mid M_{j,t}]$ is the expected outcome just below the threshold (where a female candidate barely loses). Under

[9] I only consider the case of mixed races in my empirical design, i.e., those contests where a man and a woman were in the top-two.

a continuity assumption on $M_{j,t}$, the first term converges to the expected outcome of a constituency where a female winner's vote share exactly equals the male runner-up's vote share. On the other hand, the second term converges to the expected outcome of a constituency where a male winner's vote share exactly equals the female runner-up's vote share. The second term then serves as a valid counterfactual for constituencies with a female parliamentarian. The difference between the two terms in equation (1) allows me to estimate the causal effect of electing a female politician to the parliament. More generally, the estimation counterpart of (1) is presented as follows:

$$y_{i,j,t+1} = \alpha + \beta FP_{j,t} + f(M_{j,t}) + \varepsilon_{i,j,t+1} \tag{2}$$

where

$$FP_{j,t}\ (Female\ Parliamentarian) = \begin{cases} 1 & if \quad M_{j,t} > 0 \\ 0 & if \quad M_{j,t} \leq 0 \end{cases} \tag{3}$$

In equation (2), $f(M_{j,t})$ is a flexible polynomial function of the forcing variable. By construction, the probability that an Assembly constituency i has a woman legislator in the associated parliamentary constituency j, $\Pr(FP_{j,t} = 1 \mid M_{j,t})$, faces a discontinuous jump at $M_{j,t} = 0$. Therefore, the treatment assignment rule is completely described by equation (3). I non-parametrically estimate (2) using a local linear regression technique with a triangular kernel following Gelman and Imbens (2019) and Cattaneo and Titiunik (2022). As a robustness exercise, I also estimate a local quadratic regression and utilize the Epanechnikov kernel weighting procedure, and find that the results remain identical to the use of the aforementioned estimation choices. Additionally, I employ the robust optimal bandwidth selection procedure by Calonico et al. (2014) to select the optimal neighborhood around the cutoff, and provide extensive evidence showcasing the robustness of the results to alternative bandwidth choices. Finally, I cluster the standard errors at the parliamentary constituency $\times$ PC election-year level, the level of treatment assignment (see Section 4.4.2 in Cattaneo et al., 2024).

3.2 Validity of the RD Design

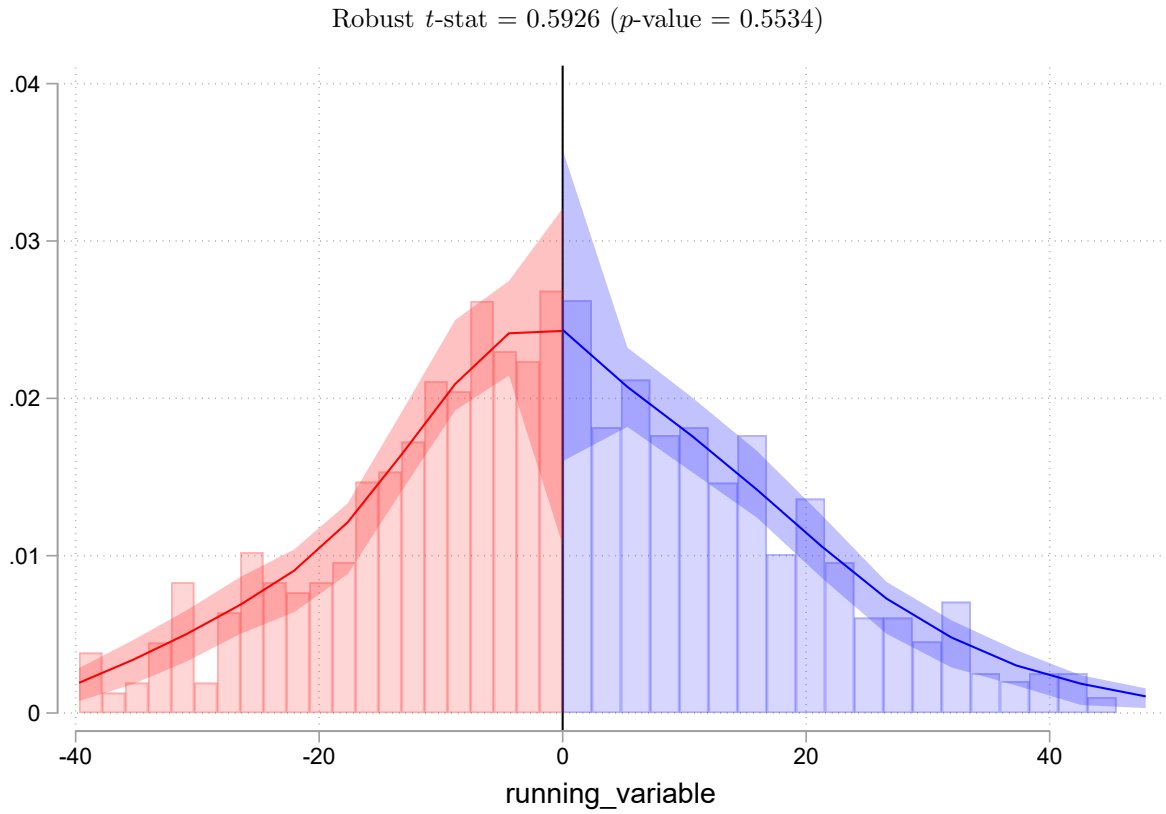
In this section, I conduct a wide range of tests to assess the validity of the RD design outlined in the preceding section. The first set of these tests involves examining the continuity of the running variable, $M_{j,t}$, at the cutoff ($= 0$). If (female) candidates have control over choosing which side of the threshold they end up on- i.e., in our setting, they can *choose* to be a winner or a runner-up-, this invalidates the RD design by introducing a selection bias, owing to a potential manipulation of the forcing variable (Gerard et al., 2020). To evaluate the continuity of the forcing variable, the most common density test is that of McCrary (2008). While the McCrary density test is the workhorse method to evaluate manipulation in RD designs, it is shown to be problematic due to its feature of pre-binning the data (Cattaneo and Titiunik, 2022). I use the manipulation test formulated by Cattaneo et al. (2020) that (i) does not require pre-binning of data, and (ii) generates sufficient statistical power in small samples. The graphical plot for this test, along with the robust t-stat and associated p-value, is presented in Figure 3.

I find that the discontinuity estimate is small and statistically indistinguishable from zero, with a t-statistic of 0.5926 (p-value $= 0.5534$). This provides evidence against any potential manipulation in the running variable around the threshold of zero. As robustness, I also report results from the McCrary (2008) density test in Figure A1 in the Appendix, which corroborates the absence of a discontinuity in $M_{j,t}$ documented in Figure 3. Further, as suggested in the literature, I also employ the approximate permutation-based sign test by Bugni and Canay (2021) and again find no evidence of manipulation in the running variable at the cutoff[10].

The second set of validity tests involves ruling out a discontinuity in the conditional means of outcomes realized in the previous election at $t-1$ around the threshold at t. In essence, the lack of a discontinuity in pre-determined variables indirectly points to the continuity of

[10]The approximate permutation-based sign test by Bugni and Canay (2021) yields a p-value of 0.2215 with $N_q = 67$.

Figure 3: Manipulation Testing Plot à la Cattaneo et al. (2020)



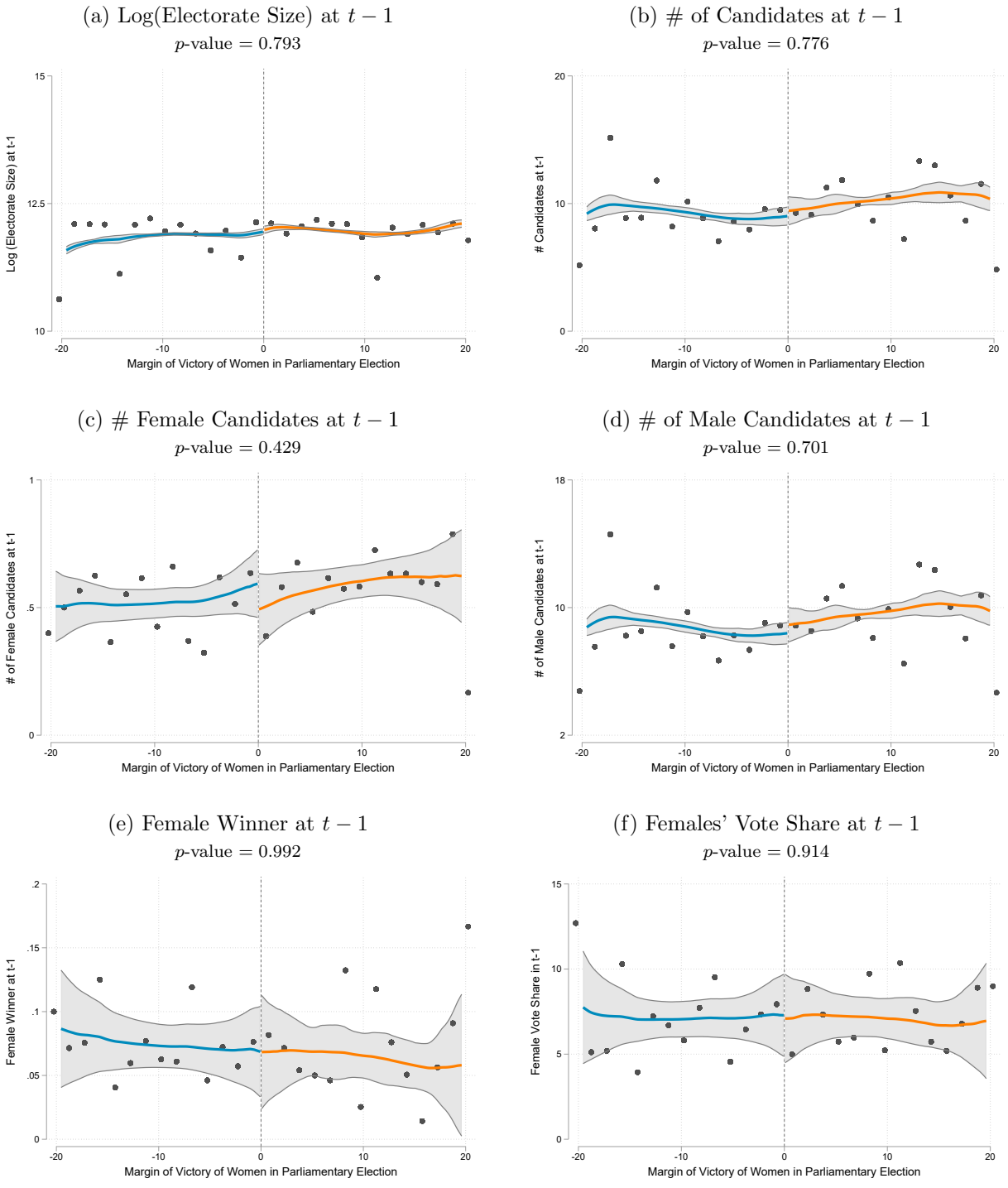
Notes: This figure presents the density plot using the local polynomial density method suggested by Cattaneo et al. (2020) to estimate the continuity, or check for the manipulation, of the running variable at the threshold (zero). The robust bias-corrected density test yields a small t-stat of 0.5926 (with an associated p-value of 0.5534), indicating no manipulation in the running variable.

the conditional expectation functions in equation (1)- the RD design's main identification assumption (Lee, 2008). To carry out this empirical exercise, I re-estimate equation (2) using a set of pre-determined constituency-level characteristics from the Assembly election just preceding the parliamentary election at t (where the treatment variable $M_{j,t}$ is realized) as outcome variables.[11] The graphical counterpart of the RD estimates derived from this exercise is presented in Figure 4.

I find no evidence of a discontinuity in any of the lagged outcomes presented in Figure 4. Of

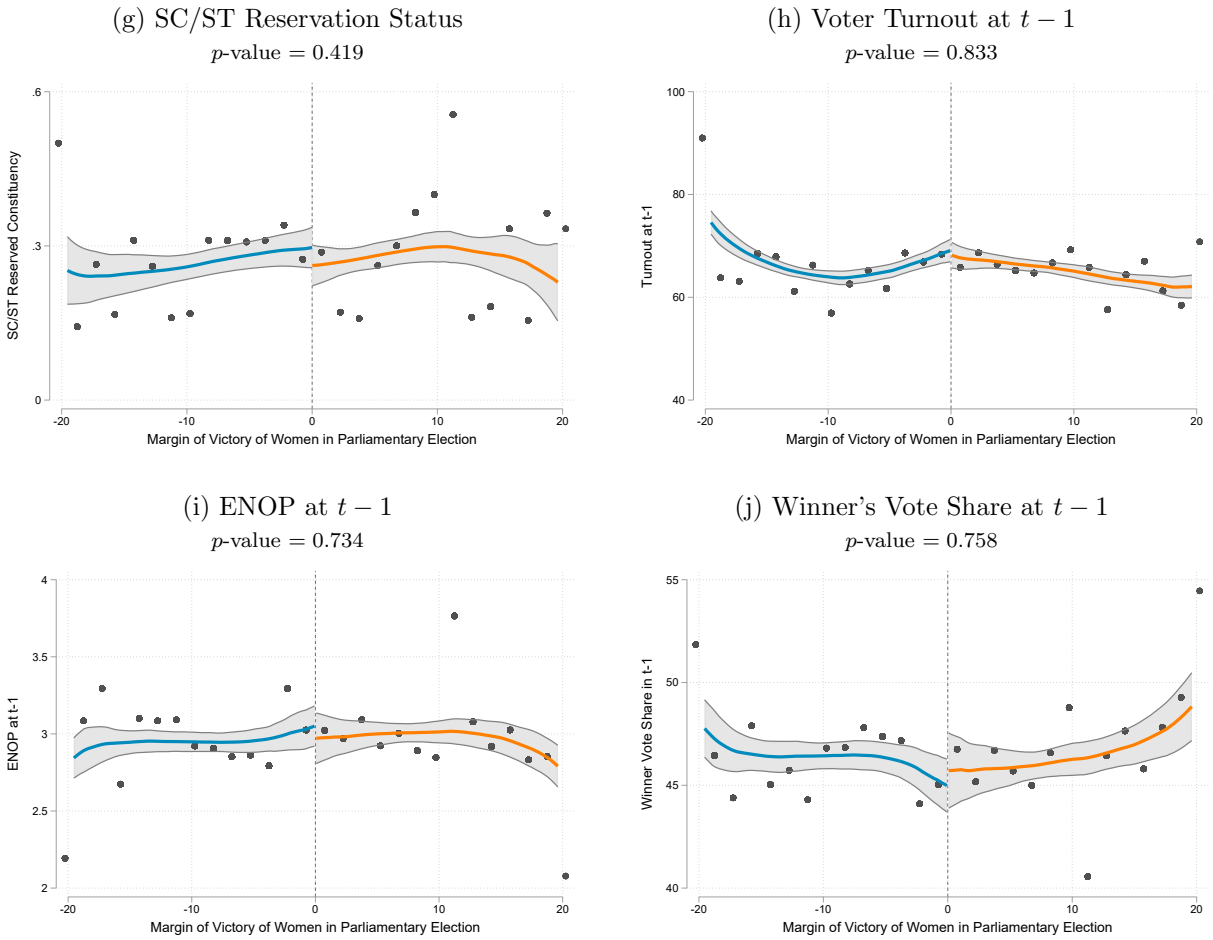
[11] An example of this estimation is as follows. Consider the state of Bihar, which had Legislative Assembly elections in 2015 and 2020 and a General Assembly election with the rest of the country in 2019. In this exercise, I use variables determined in the 2015 election as the outcome, with the treatment variable realized in the 2019 parliamentary election.

Figure 4: Effect of a *Female Parliamentarian* on Pre-Determined Characteristics



particular interest are the following outcomes: (i) the lagged number of female candidates, (ii) female candidates' vote share at $t-1$, (iii) female winner at $t-1$, and (iv) the number of

Figure 4: Effect of a *Female Parliamentarian* on Pre-Determined Characteristics (*continued*)



Notes: The running variable is the margin of victory of the female parliamentarian, defined as the difference between the first-position (second-position) female candidate and the second-position (first-position) male candidate. Each dot on the scatter plot is an average over successive bins of 1.5% of the running variable. The curves are local linear regressions fit separately for regions above and below the cut-off using a triangular kernel and an optimal bandwidth à la (Calonico et al., 2014).

male candidates at $t-1$. Outcomes (i) and (iii) (presented in Panel (c) and (e) in Figure 4) allow me to rule out the concern that constituencies that had a female parliamentarian at t had a disproportionately larger number of female contestants and probability of having a female AC winner in the preceding state election at $t-1$ for those constituencies. The lack of a discontinuity in the vote share of female candidates in the Assembly election at $t-1$ assuages the concern that constituencies with (without) an elected female parliamentarian at t also saw female candidates scoring a disproportionately higher (lower) vote share in the preceding Assembly election. Similar statistically insignificant discontinuity estimates

for pre-determined outcomes observed in Figure 4 lend further credibility to the RD design. The point estimates from this exercise are reported in Table A2 in the Appendix, along with their corresponding p-values that fail to reject the null.

4 Results

In this section, I first document the main results from the RD framework outlined in Section 3.1. My primary outcomes of interest are: (i) the number of female candidates, (ii) fraction of contestants in the assembly election who are women, and (iii) a binary variable indicating whether at least one female candidate contested the assembly election. The treatment variable is a binary variable indicating the election of a female politician in the most recently conducted parliamentary election. Table 1 presents the results from this estimation exercise for the sample of assembly elections conducted between 1984-2023. Columns (1)–(3) report results from estimating (2) using a local linear estimator with a triangular kernel, using different factors of the optimal bandwidth calculated using the robust bias-corrected selection procedure of Calonico et al. (2014). Column (4) reports results from a local quadratic estimator.

I find that the number of female candidates contesting an assembly election following the competitive election of a female parliamentarian is significantly lower compared to constituencies where a male parliamentarian barely won (see Column (1) in Panel (A) of Table 1). This effect remains fairly stable using half the optimal bandwidth (Column (2)), double the optimal bandwidth (Column (3)), or a local quadratic estimator (Column (4)). Relative to the control group's mean, the estimate reported for the baseline specification in Column (1) corresponds to a 33.82% lower number of female candidates contesting the succeeding state election.[12] Following Cattaneo and Titiunik (2022), I additionally report

[12]This is calculated by dividing the RD estimate by the control group's mean in the optimal neighborhood. In particular, for the estimates in column (1), this effect is calculated as $0.2268/0.6706 = 0.3382$ or 33.82%.

Table 1: Effect of a *Female Parliamentarian* on Candidacy

	(1)	(2)	(3)	(4)
	$p = 1$			$p = 2$
	h	$0.5 * h$	$2 * h$	h_2
Panel (A): Number of Female Candidates				
Female Parliamentarian	-0.2268***	-0.2350***	-0.1624**	-0.2367***
	(0.0753)	(0.0837)	(0.0662)	(0.0813)
	[0.003]	[0.024]	[0.002]	[0.007]
Bandwidth size	15.818	7.909	31.637	22.843
Effective Obs.	2,479	1,566	3,411	2,975
Control Mean	0.6706	0.7091	0.7103	0.6833
Panel (B): Share of Female Candidates (% of Total Contestants)				
Female Parliamentarian	-0.0275***	-0.0274***	-0.0235***	-0.0286***
	(0.0072)	(0.0083)	(0.0062)	(0.0082)
	[0.000]	[0.005]	[0.000]	[0.001]
Bandwidth size	18.914	9.457	37.828	23.167
Effective Obs.	2,729	1,776	3,563	2,992
Control Mean	0.0744	0.0813	0.0733	0.0739
Panel (C): At Least One Female Contestant (Yes = 1)				
Female Parliamentarian	-0.0855**	-0.0833*	-0.0659**	-0.0850**
	(0.0374)	(0.0426)	(0.0325)	(0.0409)
	[0.027]	[0.116]	[0.016]	[0.065]
Bandwidth size	15.730	7.865	31.459	22.248
Effective Obs.	2,472	1,549	3,382	2,951
Control Mean	0.4499	0.4711	0.4657	0.4544

Notes: Local linear RD regression ($p = 1$) results are presented in Columns (1)–(3), while Column (4) presents results for a local quadratic RD regression ($p = 2$) using a triangular kernel using the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In Panel (A), the outcome variable is the number of female candidates contesting the Legislative Assembly election in a given Assembly Constituency; in Panel (B), the outcome variable is the number of male candidates in an AC. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent parliamentary election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

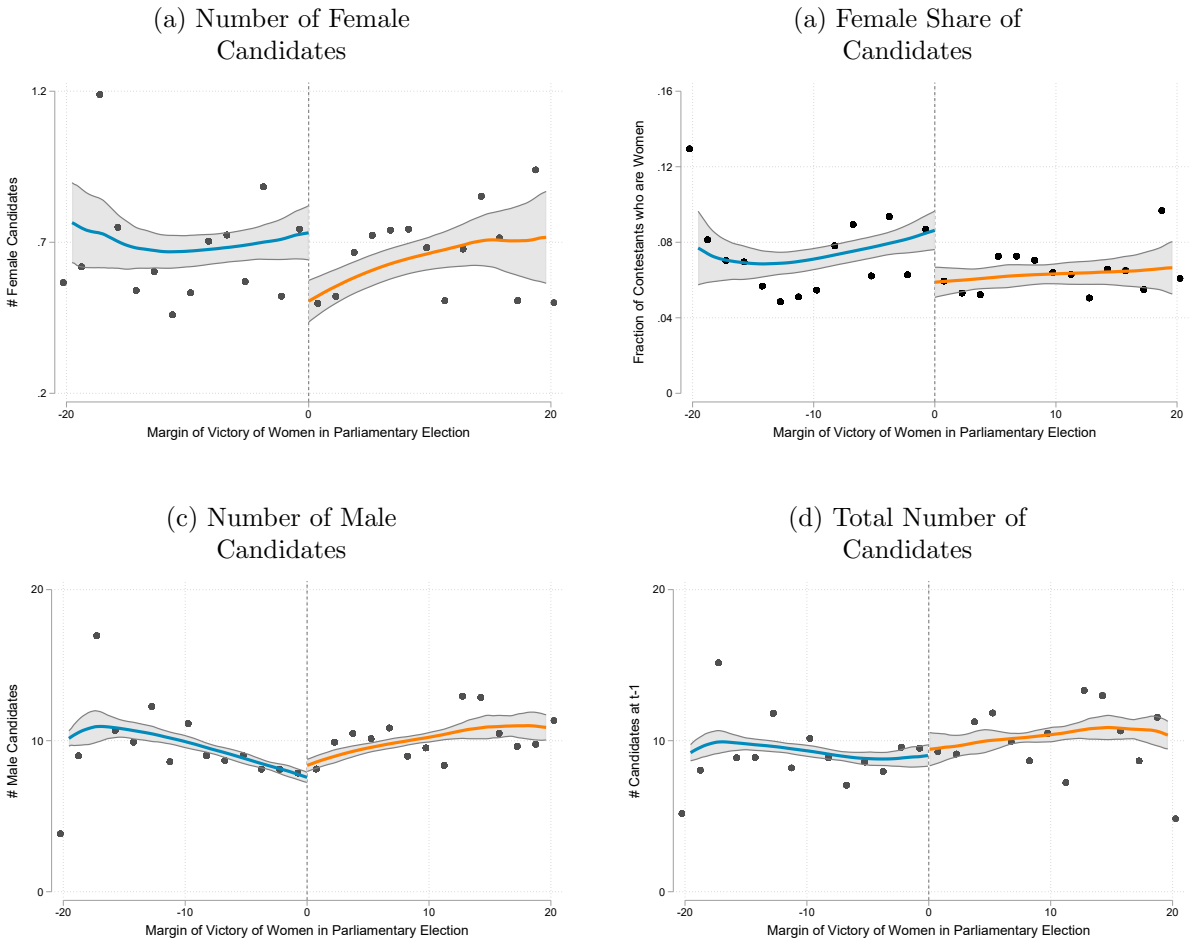
$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

the robust bias-corrected p-values in square parentheses and find that all specifications reject the null at the 5% significance level even when considering a stronger inference procedure. In absolute terms, the effect implies that 1-2 fewer women contest state elections per parliamentary constituency, which, on average, comprises 7-9 assembly constituencies. Further, I find that the election of a female parliamentarian leads to a 2.75% lower share of female candidates (36.9% relative to the control group mean) in the contestant pool (Panel (B)), as well as an 8.5 percentage point lower likelihood of the assembly constituency featuring at least one female contestant (Panel (C)).

This finding contrasts with Baskaran and Hessami (2018) and Ladam et al. (2018), who document positive role-model effects of female politicians in higher-tier political office. Instead, my results suggest that female MPs do not uniformly act as prominent role models; rather, their election can trigger a negative candidacy response, reducing the likelihood of other women contesting. Next, I examine whether the competitive election of a female politician to the parliament affects the composition of the state assembly candidate pool more broadly. In particular, I re-run the main specification described by (2) using two additional outcome variables: (i) the total number of candidates, and (ii) the number of male candidates contesting the state election within an AC. These results are presented in Table 2. Irrespective of the specification employed, I document null estimates on both outcomes. The graphic analog of these results are presented in Figure 5.

These results, coupled with the results on female candidacy presented in Table 1, suggest two key points. *First*, the decline in the share of female candidates (Panel B, Table 1) is not driven by an expansion of the overall size of the candidate pool. *Second*, in addition to the constant candidate pool size, the statistically insignificant effect on the number of male candidates points to a substitution rather than an additive effect. That is, male candidates replace women who would have otherwise contested in the counterfactual, rather than entering the race in addition to them. I explore the nature and the underlying channels for these effects more comprehensively in Sections 4.2 and 5.

Figure 5: Effect of a *Female Parliamentarian* on Candidacy



Notes: The figure plots (a) the number of female candidates, (b) the fraction of contestants who are women, (c) the number of male candidates, and (d) the total number of candidates contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

4.1 Robustness

In this section, I evaluate the sensitivity of the estimates documented in Table 1 to a host of alternative specifications. While the validity checks in Section 3.2, specifically those presented in Figure 4 serve as valid placebo tests for the estimates, I perform additional analyses to address key concerns relevant to my setting.

Table 2: Effect of a *Female Parliamentarian* on Candidacy

	(1)	(2)	(3)	(4)
		$p = 1$		$p = 2$
	h	$0.5 * h$	$2 * h$	h_2
Panel A: Number of Male Candidates				
Female Parliamentarian	0.7876	0.3221	0.9392	0.5637
	(0.6082)	(0.6263)	(0.5723)	(0.6384)
	[0.305]	[0.665]	[0.266]	[0.443]
Bandwidth size	13.488	6.744	26.976	19.284
Effective Obs.	2,240	1,432	3,213	2,741
Control Mean	8.8098	8.0703	9.5506	9.2926
Panel B: Total Number of Candidates				
Female Parliamentarian	0.5521	0.0869	0.7440	0.3167
	(0.6386)	(0.6603)	(0.5997)	(0.6711)
	[0.548]	[0.923]	[0.491]	[0.713]
Bandwidth size	13.262	6.631	26.525	19.268
Effective Obs.	2,198	1,423	3,191	2,746
Control Mean	9.4284	8.7808	10.1972	9.9775

Notes: Local linear RD regression ($p = 1$) results are presented in Columns (1)–(3), while Column (4) presents results for a local quadratic RD regression ($p = 2$) using a triangular kernel using the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In Panel (A), the outcome variable is the number of male candidates contesting the Legislative Assembly election in a given Assembly Constituency; in Panel (B), the outcome variable is the *total* number of candidates in an AC. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent parliamentary election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

4.1.1 Alternative Specifications

In Table A3 in the Appendix, I present the results from estimating equation (2) using the Epanechnikov kernel weighting function (Column (1)), including election year fixed effects (Column (2)), including state fixed effects (Column (3)), and using the optimal bandwidth

by Imbens and Kalyanaraman (2012) (Column (4)). As before, I run the RD estimation for (i) the number of female candidates, and (ii) the share of female candidates as the outcomes. The estimates corresponding to both outcomes remain reassuringly stable across different specification choices, with all estimates being significantly negative and rejecting the null at the 5% level of significance. This further strengthens the credibility of my estimates, indicating that the choice of specification does not erroneously drive the results.

4.1.2 Alternative Bandwidths

Next, I examine the sensitivity of the results to incremental increases in the optimal neighborhood around the threshold. In Table 1, I presented RD estimates using the optimal bandwidth (h), half the optimal bandwidth ($0.5 * h$), and two times the optimal bandwidth ($2 * h$). While moving farther away from the threshold potentially introduces a higher bias in the estimates, it is important to assess the stability of coefficients across different factors of the bandwidth. This is done to assuage the concern that the results may be specific to a select set of neighborhoods around the threshold. In Figure A2 in the Appendix, I present the point estimates (and the conventional 95% confidence intervals) by varying the bandwidth between 0.1 and 2 of the optimal bandwidth, h, in increments of 0.1. The coefficient patterns are fairly stable and negative throughout for the number and share of female candidates, as h increases.

4.1.3 Sensitivity to Sample Adjustments

Here, I examine whether the inclusion of specific states or election years in the sample drives the results presented in Table 1. I examine the sensitivity of the results to three alternative sample adjustments. First, in Figure A3 in the Appendix, I drop one state at a time from my estimation sample and re-estimate equation (2) for the two primary outcome variables. I find that the results remain consistent for the number of female

candidates contesting state elections, with a consistently insignificant and null effect for male candidates. Second, I drop those state assembly elections that were conducted during a Lok Sabha election year. This is done to rule out the possibility that the observed negative effect may be confounded by strategic considerations of parties around national elections. Figure A4 presents the graphic analog of this exercise- I continue to document significantly negative effects for the number as well as the share of female candidates contesting state elections. Third, I impose a stronger restriction on the sample and evaluate whether a particular general assembly term drives the observed effects. In particular, I drop state elections that were conducted within a particular *Lok Sabha* electoral term one by one, and find that the results are robust to this sample adjustment (see Figure A5)[13].

4.1.4 Placebo Thresholds

Following Cattaneo et al. (2024) and Imbens and Lemieux (2008), I conduct an additional robustness exercise, replacing the true cutoff (zero) by another value at which the treatment status does not change, and perform the standard estimation and inference using this placebo cutoff. For instance, a placebo cutoff of +5 would imply comparing constituencies that elected a female politician with a winning margin of more than 5 percentage points with constituencies where the female politician won by a winning margin $\in [0, 5)$ percentage points. I conduct this exercise on both sides of the true threshold, varying the cutoff value in the intervals $[-15, -5]$ and $[5, 15]$ in increments of 0.25[14]. Figure A6 plots the distribution of the t-statistics associated with each placebo RD estimate alongside the true t-statistic from the original cutoff of zero. I find that a majority of the placebo t-statistics are clustered around zero, and less than 4% of these yield statistical significance, with the true t-statistic

[13] An example of this exercise is as follows. Dropping the 1999 parliamentary electoral term implies dropping all state elections that happened between 1999 and the date of the 2004 parliamentary election, i.e., 4-5 years of elections in the sample.

[14] As noted in Cattaneo et al. (2024), when using placebo cutoff values to the right (left) of the true cutoff, the sample is restricted to only the treated (control) units to ensure using only those observations with the same treatment status. The choice of starting from 5 is to ensure sufficient observations around the placebo thresholds.

being the largest.

4.2 Nature of the Candidacy Response: Who are the *Missing* Women?

In this section, I further explore the sources of the negative candidacy effects reported in Table 1. In particular, before turning to the underlying channels, I first examine which female candidates exit the candidate pool. Identifying which women drop out of the race, or do not contest, helps understand whether the observed effects are driven by specific types of candidates, thereby providing a clearer foundation for exploring the underlying mechanisms.

4.2.1 Party-Driven or Individual Response? Heterogeneity by Candidates' Party Affiliation

In this section, I re-estimate equation (2) using two alternative outcomes- party-nominated female candidates and independently contesting women[15]. This distinction enables me to separate candidacy effects that reflect both individual and party-level responses from those that are purely party-driven. Table 3 presents the results from this estimation exercise.

I find that both the number and the fraction of female party-nominated candidates is significantly lower following the election of a female parliamentarian. Relative to the control group mean, the effect corresponds to 35–37.3% fewer party-nominated women contesting the subsequent state elections. In contrast, the effect on the number of independent women candidates is statistically indistinguishable from zero[16]. These results points to a potential underlying mechanism. If the election of a female parliamentarian broadly discouraged women from political participation, such as through a male backlash (Bhalotra et al.,

[15] As mentioned in Section 2.1, candidates can either contest with a party affiliation or as *independents*, without a political party affiliation. In my sample of state elections conducted between 1984 and 2023, nearly 65% of the female candidates contested with a political party affiliation.

[16] Figure A7 in the Appendix presents the graphic analog of these results.

Table 3: Effect of a *Female Parliamentarian* on Female Candidacy: By Candidate Affiliation

	(1)	(2)	(3)	(4)
	$p = 1$	$p = 2$	$p = 1$	$p = 2$
	Number of Party-Nominated Female Candidates		Fraction of Female Party-Nominated Candidates	
Female Parliamentarian	-0.1727***	-0.1802***	-0.0288***	-0.0298***
	(0.0549)	(0.0590)	(0.0089)	(0.0096)
	[0.002]	[0.003]	[0.004]	[0.003]
Bandwidth size	17.286	27.136	19.052	30.960
Effective Obs.	2,587	3,115	2,725	3,346
Control Mean	0.4627	0.4747	0.0830	0.0826
	Number of *Independent* Female Candidates		Fraction of Female *Independent* Candidates	
Female Parliamentarian	-0.0509	-0.0589	-0.0158	-0.0180
	(0.0350)	(0.0383)	(0.0097)	(0.0114)
	[0.127]	[0.151]	[0.121]	[0.140]
Bandwidth size	15.539	20.644	18.185	21.565
Effective Obs.	2,451	2,853	2,363	2,458
Control Mean	0.2140	0.2239	0.0608	0.0598

Notes: Odd numbered columns present local linear RD regression ($p = 1$) results, while even-numbered columns present local quadratic ($p = 2$) RD estimates using a triangular kernel and the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In the upper panel, the outcome variable in Columns (1) and (2) are the number of party-nominated female candidates contesting the Legislative Assembly election in a given Assembly Constituency, and in Columns (3) and (4), the outcome is the share of party-nominated candidates who are women. In the lower panel, the outcome variables in Columns (1)-(2) and (3)-(4) are the number of independent female candidates and the share of independent candidates who are women, respectively. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate barely (within h percentage points) lose the recent general assembly election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

2018), we would expect to observe a decline in candidacy across both party-nominated and independent categories. Instead, the evidence indicates that the negative effect is concentrated entirely within parties' candidate selection processes. This suggests that political parties themselves may react negatively to the electoral success of women by strategically reducing women's nominations. This is consistent with evidence from other

contexts where men respond adversely to the performance of women in competitive and hierarchical settings (Gangadharan et al., 2016, Gagliarducci and Paserman, 2012, Luke and Munshi, 2011). I examine which types of candidates receive fewer nominations from parties, and more importantly, which parties nominate fewer women in subsequent sections.

4.2.2 Heterogeneity by Electoral Experience

To further examine the source of the negative candidacy effects, I estimate equation (2) using two alternative sets of outcomes: (i) female candidates without any contesting experience (*first-time* candidates) and (ii) female candidates who have contested at least one election in the past (*experienced* candidates). As before, I also consider as outcomes the respective share of female candidates in the two categories of candidate types. In my sample, 83.8% of the female candidates were contesting an election for the first time. Table 4 presents the results from this estimation.

I find that following the competitive election of a female parliamentarian, the number (and share) of both first-time and experienced female candidates is significantly lower. Relative to the respective control group means, the number of new and experienced female candidates reduces by 30.3% and 44.4%, respectively, while the negative effect on the respective fractions is identical in magnitude[17]. In other words, parties after being exposed a competitively elected female parliamentarian nominate fewer women, irrespective of their electoral experience. In contrast, I find null effects for the number of experienced and first-time male candidates contesting the subsequent state elections (see Table A4 in the Appendix).

[17]The graphic analog of these results is presented in Figure A8 in the Appendix.

Table 4: Effect of a *Female Parliamentarian* on Female Candidacy: By Experience

	(1)	(2)	(3)	(4)
	$p = 1$	$p = 2$	$p = 1$	$p = 2$
	Number of First-Time Female Candidates		Fraction of First-Time Female Candidates	
Female Parliamentarian	-0.1619**	-0.1692**	-0.0252***	-0.0285***
	(0.0667)	(0.0711)	(0.0089)	(0.0101)
	[0.015]	[0.019]	[0.004]	[0.007]
Bandwidth size	16.179	25.928	21.450	26.282
Effective Obs.	2,512	3,134	2,863	3,143
Control Mean	0.5332	0.5712	0.0766	0.0773
	Number of Experienced Female Candidates		Fraction of Experienced Female Candidates	
Female Parliamentarian	-0.0603***	-0.0702***	-0.0345***	-0.0371**
	(0.0229)	(0.0263)	(0.0127)	(0.0145)
	[0.008]	[0.008]	[0.007]	[0.014]
Bandwidth size	21.130	22.048	20.741	22.307
Effective Obs.	2,892	2,951	2,656	2,735
Control Mean	0.1356	0.1333	0.0704	0.0698

Notes: Odd numbered columns present local linear RD regression ($p = 1$) results, while even-numbered columns present local quadratic ($p = 2$) RD estimates using a triangular kernel and the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). The outcome variables in the upper panel correspond to female candidates who had zero years of electoral experience; in the lower panel, the outcome variables correspond to female candidates who had contested an election at least once in the past. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent general assembly election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

4.2.3 Which Parties Nominate Fewer Women?

In this section, I examine which types of parties drive the reduction in female nominations. Specifically, I consider the following outcomes: (i) a binary variable indicating whether the party whose MP was *competitively* elected in the most recent parliamentary election fields a female candidate, (ii) whether the party whose candidate narrowly lost in that

election nominates a woman, and (iii) number of female candidates fielded by other non-incumbent parties. This enables me to disentangle which political parties in the state-level contest respond negatively to the election of a woman to parliament. The results from this estimation are presented in Table 5.

The estimates in Panel (A) of Table 5 show that there is no statistically significant difference in the probability of nominating a woman in assembly elections between parties that had a woman narrowly elected (over a man) and those whose male candidate narrowly won (over a woman) in the parliamentary election. In contrast, I document a significantly lower likelihood of nominating a female candidate in the state contest by the party whose candidate closely lost the parliamentary election (Panel (B), Table 5). Additionally, the number of female contestants fielded by other non-incumbent parties is significantly lower following the election of a female parliamentarian (Panel (C), Table 5)[18].

These results point to two important dynamics underlying the candidacy effects of electing a female MP. *First*, the statistically nonsignificant effect in Panel (A) rules out the possibility that female MPs serve merely as 'token' representatives for their parties in that winning parties do not reduce nominations of other women in subsequent lower-tier elections. The absence of any effects on women's nominations from these parties, however, suggests that the demonstration effects remain weak in inducing increased nominations for women in state elections. *Second,* results in Panel (B) suggest a potential intensification of a backlash among parties that lost to a female MP candidate. That is, rather than updating their beliefs about the electoral strength or winnability of female candidates, parties losing to women revert to fielding fewer women. This is consistent with evidence from other contexts where the entry of women into predominantly male domains elicits an unfavorable and negative response from men (Bagues et al., 2017, Gagliarducci and Paserman, 2012). While empirically verifying this channel is hard, I present a number of explanations in the next section to support these arguments.

[18]Figure A9 in the Appendix presents the graphical analog of these results

Table 5: Effect of a *Female Parliamentarian* on Female Candidacy: By Party

	(1)	(2)	(3)	(4)
		$p = 1$		$p = 2$
	h	$0.5 * h$	$2 * h$	h_2
Panel A: Female Candidate from the Elected MP's Party				
Female Parliamentarian	-0.0174	-0.0240	-0.0134	-0.0213
	(0.0147)	(0.0164)	(0.0129)	(0.0161)
	[0.193]	[0.233]	[0.281]	[0.158]
Bandwidth size	16.123	8.062	32.247	21.589
Effective Obs.	2,457	1,566	3,424	2,875
Control Mean	0.0565	0.0575	0.0603	0.0606
Panel B: Female Candidate from the PC Runnerup's Party				
Female Parliamentarian	-0.0543***	-0.0506**	-0.0480***	-0.0519**
	(0.0184)	(0.0217)	(0.0157)	(0.0230)
	[0.005]	[0.078]	[0.006]	[0.049]
Bandwidth size	24.363	12.181	48.725	20.339
Effective Obs.	3,085	2,077	3,644	2,788
Control Mean	0.1055	0.1154	0.1038	0.1077
Panel C: Number of Female Candidates Nominated by Other Parties				
Female Parliamentarian	-0.1057**	-0.1155**	-0.0732*	-0.1204**
	(0.0446)	(0.0500)	(0.0395)	(0.0498)
	[0.020]	[0.061]	[0.014]	[0.021]
Bandwidth size	17.958	8.979	35.915	21.379
Effective Obs.	2,632	1,678	3,485	2,843
Control Mean	0.2997	0.3141	0.3037	0.3001

Notes: Local linear RD regression ($p = 1$) results are presented in Columns (1)–(3), while Column (4) presents results for a local quadratic RD regression ($p = 2$) using a triangular kernel using the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In Panel (A), the outcome variable is a binary variable indicating whether MP's party fields a woman in a given Assembly Constituency; in Panel (B), the outcome variable is the likelihood of nominating a female candidate in the state election by parties whose candidate barely lost in the national election; and in Panel (C), the outcome is the number of female candidates fielded by other non-incumbent parties. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate barely (within h percentage points) lose the recent general assembly election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

5 Mechanisms

To summarize, the evidence in the preceding sections indicates that electing a female parliamentarian leads to a lower number (and share) of female candidates in the subsequent state election, with no significant change in the number of male candidates or the overall candidate pool size, suggesting a substitution effect where men replace women who would otherwise have contested. The negative effect is driven completely by a lower share of party-nominated female candidates, with both first-time and experienced female candidates being fielded in fewer numbers. Finally, this candidacy effect is driven largely by those parties whose male candidate narrowly lost to a woman in the parliamentary election. In this section, I explore potential channels underlying these effects.

5.1 Gender Norms

A plausible channel underlying the gendered candidacy response observed in Table 1 is the influence of societal gender norms, which may shape these outcomes through both voter preferences and party strategies. The Indian society has historically been characterized by skewed social norms that disadvantage women in different spheres, ranging from discrimination in the labor market to unequal power within the household.

To examine whether gender norms are the underlying mechanism, I conduct a state-level heterogeneity analysis as follows. I bifurcate the sample of states based on the population sex ratio, which is defined as the number of females per 1000 males in the state. The population sex ratio has been widely used as a measure of gender norms in India (Sen, 2003, Jayachandran and Pande, 2017, Bhalotra et al., 2018, Faravelli et al., 2023). Using information from the 2001 Census of India, I divide the sample into above-median sex ratio states (*progressive* gender norms) and below-median sex ratio states (*regressive* gender norms). In 2001, the population sex ratio of India stood at 933 females per 1,000 males.

There is, however, significant spatial variation in sex ratios across Indian states, ranging from 1,059 in Kerala to 861 in Haryana.

Table 6: Effect of a *Female Parliamentarian* on Female Candidacy: By Gender Norms

	(1)	(2)	(3)	(4)	(5)
	# of Female Candidates	% of Female Candidates	Female Candidates: By Party-Type		
			Elected MP	PC Runner-up	Others
Panel A: Below-Median States					
Female Parliamentarian	-0.3936***	-0.0375***	-0.0309	-0.0668***	-0.2780***
	(0.1019)	(0.0094)	(0.0209)	(0.0248)	(0.0749)
	[0.000]	[0.000]	[0.138]	[0.011]	[0.000]
Bandwidth size	16.850	20.970	18.637	24.523	18.640
Effective Obs.	1,553	1,787	1,522	1,903	1,622
Control Mean	0.8194	0.0812	0.0654	0.1127	0.4859
Panel B: Above-Median States					
Female Parliamentarian	-0.0208	-0.0149	-0.0074	-0.0349	-0.0207
	(0.0793)	(0.0107)	(0.0199)	(0.0308)	(0.0590)
	[0.750]	[0.177]	[0.565]	[0.438]	[0.808]
Bandwidth size	12.412	15.007	10.068	11.404	12.477
Effective Obs.	867	960	778	784	867
Control Mean	0.4595	0.0663	0.0492	0.0962	0.2732

Notes: All columns present local linear RD regression ($p = 1$) results using a triangular kernel and the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency × year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). The outcome in Columns (1)-(2) is the number and share of female candidates contesting a state election in an AC (see table notes of Table 1); in Columns (3)-(4), the outcome variables are binary variables indicating whether the MP's party (3) and the PC runner-up party (4) field a woman in a given Assembly Constituency; and in Column (5), the outcome is the number of female candidates fielded by other non-incumbent parties (see table notes of Table 5). In Panel (A), the estimates are from the sample of states with a below-median sex ratio as per the 2001 Census; in Panel (B), the estimates are from the sample of states with an above-median sex ratio as per the 2001 Census. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent parliamentary election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

The estimates from this sub-sample analysis are presented in Table 6. I find that both the

number of female candidates and the female share of candidates contesting the succeeding election is significantly lower *only* in the states characterized as having regressive gender norms, i.e., the below-median states. Relative to the control mean, the effects documented in Columns (1)–(2) and Panel (A) correspond to a 46–48% decline in female candidacy following the election of a female parliamentarian in these states. In contrast, I do not find a statistically significant effect on either outcome in the sub-sample of states with above-median sex ratios (Panel (B) in Table 6)[19].

Consistent with the results presented in Section 4.2.3, I find that the likelihood of fielding female candidates by the non-incumbent parties is lower only in states with relatively skewed gender norms (Columns (4) and (5) in Table 6). The probability of a female candidate being nominated by the elected MP's party continues to be statistically indistinguishable from zero in both sub-samples (Column (3)). These results lend further support to the backlash interpretation outlined in Section 4.2.3. That is, in states where entrenched social biases are strong, both parties and voters may be more accepting of a reduced female presence on the ballot (Faravelli et al., 2023). In such settings, parties whose male candidate narrowly lost to a woman may face little electoral cost in nominating women with a lower probability. In contrast, parties may receive resistance for excluding women from the candidate pool in progressive states. I explore an interrelated explanation in the next section.

5.2 Competitiveness of the Electorate

The previous section documented that political parties, particularly those whose male candidate lost to a woman, strategically field fewer women in seats where they are less likely to be punished for this disproportionate exclusion- i.e., in states with relatively skewed sex ratios. In this section, I expand on this hypothesis by examining whether the gendered candidate selection by parties is determined by the ex-ante competitiveness of the state

[19]Figure A10 in the Appendix presents the graphic analog of these results.

constituency. That is, if parties strategically nominate fewer women, following the election of a female parliamentarian, in seats where the electoral cost of doing so would be lower, the negative effects should be more pronounced in ex-ante less competitive constituencies.

For this analysis, I create two sub-samples dividing the sample of constituencies based on the previous election's winning margin[20]. I define a constituency as *ex-ante competitive* if the winning margin was less than 5% in the previous election, and as *less competitive* if it exceeded 5%[21]. Note that the margin used to create sub-samples here refers to the winning margin in the preceding *state* election, regardless of whether the winner was male or female, and is distinct from the parliamentary election winning margin that serves as the running variable in the RD specification. The results from this sub-sample analysis are presented in Table 7.

I find that the overall number and share of female candidates is significantly lower only in constituencies that were ex-ante less competitive (Columns (1) and (2) in Panel (B), Table 7). Consistent with the results presented in Table 5 and 6, this effect is concentrated among non-incumbent parties- the *runner-up* party whose candidate barely lost in the parliamentary election and other parties who did not win the parliamentary election in that particular PC (Columns (4)-(5)). I continue to find no statistically significant effects on the probability of fielding a female candidate by the elected MP's party (Column (3)).

This further strengthens the argument outlined in the previous section. That is, parties tend to express their backlash against female candidates and reduce their nominations only in contexts where they are less likely to be punished for it. In more competitive environments, by contrast, candidate selection is likely shaped by other strategic considerations, with the gender of nominees playing a less salient role in the calculus. This is consistent with the

[20]The winning margin is defined as the difference in the vote shares of the winner and the runner-up candidate. The winning margin has been widely used in the literature as a measure of competition (Besley et al., 2010). For example, for a West Bengal constituency with state elections in 2011 and 2016 (and a national parliamentary election in 2014), I use the 2011 winning margin to measure the ex-ante competitiveness of the constituency in 2016.

[21]Following Bhalotra et al. (2014), I also use a cutoff of 2% to define competitive constituencies, and find that the results remain largely unaffected. The choice of 5% as the cutoff is to allow for sufficient statistical power.

Table 7: Effect of a *Female Parliamentarian* on Female Candidacy: By Competitiveness

	(1)	(2)	(3)	(4)	(5)
	# of Female Candidates	% of Female Candidates	Female Candidates: By Party-Type		
			Elected MP	PC Runner-up	Others
Panel A: Winning Margin at $t-1 < 5\%$					
Female Parliamentarian	-0.1178	-0.0179	-0.0173	-0.0186	-0.1420
	(0.1255)	(0.0129)	(0.0256)	(0.0415)	(0.0973)
	[0.339]	[0.199]	[0.487]	[0.705]	[0.157]
Bandwidth size	22.808	17.320	14.228	18.291	17.035
Effective Obs.	687	609	531	632	598
Control Mean	0.6869	0.0728	0.0712	0.1012	0.4062
Panel B: Winning Margin at $t-1 \geq 5\%$					
Female Parliamentarian	-0.2673***	-0.0309***	-0.0236	-0.0525**	-0.1605***
	(0.0824)	(0.0088)	(0.0172)	(0.0209)	(0.0585)
	[0.001]	[0.001]	[0.121]	[0.015]	[0.006]
Bandwidth size	17.117	19.902	16.395	25.156	19.690
Effective Obs.	1,600	1,756	1,550	1,941	1,730
Control Mean	0.6724	0.0770	0.0507	0.1042	0.3876

Notes: All columns present local linear RD regression ($p = 1$) results using a triangular kernel and the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency × year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). The outcome in Columns (1)-(2) is the number and share of female candidates contesting a state election in an AC (see table notes of Table 1); in Columns (3)-(4), the outcome variables are binary variables indicating whether the MP's party (3) and the PC runner-up party (4) field a woman in a given Assembly Constituency; and in Column (5), the outcome is the number of female candidates fielded by other non-incumbent parties (see table notes of Table 5). In Panel (A), the estimates are from the sample of assembly constituencies where the winning margin in the previous election was less 5% (*competitive*); in Panel (B), the estimates correspond to constituencies with a previous winning margin exceeding 5%. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent parliamentary election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

findings of Fujiwara et al. (2024), who show that women's 'electability' is not a primary driver of gendered gatekeeping or candidacy decisions by party elites. However, in contrast to their results, I find that women are more likely to be excluded from the candidate pool

in constituencies that are ex-ante less competitive, whereas Fujiwara et al. (2024) find that women are fielded in fewer numbers in more competitive settings. This is primarily because the candidacy response in the context studied here is potentially borne out of a backlash towards the election of a woman politician to the parliament.

5.3 The Performance Channel

In this section, I explore an alternative channel that could potentially drive the negative candidacy effects observed in Section 4. Particularly, I examine whether the effects are driven primarily by the fact that the performance of the elected female MPs is significantly worse than male MPs. If this were the case, parties might update their beliefs about the competence of the pool of female politicians downward to a lower posterior, thereby reducing the likelihood of nominating women in subsequent state elections.

However, the institutional design of an MP's role in India makes it challenging to evaluate their performance using objective metrics. MLAs exercise a more localized and comprehensive role in constituency development, making it relatively straightforward to assess their effectiveness through changes in measurable indicators such as the provision of public goods, crime incidence, implementation of state and central programs, and bureaucratic performance (Gulzar and Pasquale, 2017, Asher and Novosad, 2017, Jain et al., 2023, Prakash et al., 2024). On the other hand, MPs are responsible for larger constituencies and their primary responsibilities lie in national legislation, government oversight, and broader policy formulation. In addition, they are endowed with limited discretionary funds through the *Members of Parliament Local Area Development Scheme* (MPLADS), which allocates INR 50 million per annum (approximately USD 57,000) for constituency-level projects (Pal and Das, 2010); however, this funding is modest, and does not grant MPs the same direct control over local governance as MLAs.

I measure MP performance along two dimensions: *budgetary* and *parliamentary*. Budgetary

performance is based on MPLADS utilization, using (i) the *unspent balance*—funds sanctioned for projects but unused by term's end—and (ii) the *unsanctioned balance*—funds never approved for any project. Following Jaiswal (2025), parliamentary performance is captured by (i) attendance rate, (ii) questions asked, (iii) debates participated in, and (iv) private member bills (see Section 2.2)[22]. The data on these measures are available only from 2009 onwards, resulting in a limited coverage relative to the primary sample used in the preceding sections. Nevertheless, in the absence of alternative data or measures, they provide suggestive indicators of MP performance.

The results from evaluating the differences in these measures between female and male MPs are presented in Table 8. I estimate tight null effects in the utilization of MPLADs funds, irrespective of whether I use the total unspent/unsanctioned funds or their share of total funds released as the outcomes. For parliamentary engagement, I find no statistically significant differences in any measure, except for a lower attendance rate among barely elected female MPs compared to male MPs who narrowly defeated a female candidate[23].. While these estimates must be interpreted with caution owing to the small sample size and limited temporal coverage, they nonetheless provide suggestive evidence that the performance channel is unlikely to be the primary driver of the negative candidacy effects observed in the preceding sections. This further strengthens the backlash argument, suggesting that parties, regardless of the performance of female MPs, potentially engage in taste-based discrimination against female candidates and thereby lower the nominations extended to female candidates in subsequent elections.

[22]These measures are normalized at the MP level by their respective electoral-term averages. For example, for MP i, the normalized number of questions equals the total questions asked by her during the term divided by the average number of questions asked by all MPs in that term. This normalization is done for ease of interpretation and does not affect the results.

[23]Figure A12 in the Appendix presents the graphical analog of these results

Table 8: Differences in Parliamentary Performance: Male v/s Female MPs

	(1)	(2)	(3)	(4)
		Parliamentary Activities		
	Attendance	Debates	Questions	Bills
Female Parliamentarian	-0.1679**	-0.3772	-0.1046	0.2746
	(0.0661)	(0.4579)	(0.3180)	(0.5966)
	[0.011]	[0.423]	[0.643]	[0.602]
Bandwidth size	8.890	13.174	13.955	10.797
Effective Obs.	104	152	158	124
Control Mean	1.0141	0.8720	0.9327	1.1545
		Budgetary Performance		
	Unspent Balance		Unsanctioned Balance	
	Total (10 mn. INR)	% of Funds	Total (10 mn. INR)	% of Funds
Female Parliamentarian	0.3250	0.0230	-0.2711	0.0015
	(0.4929)	(0.0719)	(0.5569)	(0.0138)
	[0.498]	[0.877]	[0.352]	[0.878]
Bandwidth size	10.411	12.939	8.364	8.677
Effective Obs.	150	181	121	101
Control Mean	1.4448	0.0961	0.2496	0.0660

Notes: Local linear RD regression ($p = 1$) results are presented in Columns (1)–(4) using a triangular kernel and the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In Panel (A), the outcome variables correspond to parliamentary activities normalized by electoral-term averages: (1) attendance rate, (2) the number of debates the MP has participated in, (3) the number of questions asked by the MP in the parliament, and (4) the number of private member bills tabled by the MP. In Panel (B), the outcomes correspond to the utilization of MPLAD funds by the MP: (1) total unspent funds, (2) fraction of total MPLAD funds released that are unspent, (3) total unsanctioned funds (in 10 million INR), and (4) fraction of total MPLAD funds released that are unsanctioned. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for male candidates who barely win (within h percentage points) the recent parliamentary election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

5.4 Length of Exposure to the MP

Finally, an alternative channel that could potentially provide an explanation for these results is the length of exposure to the female MP. A longer gap between the date of the parliamentary and the state elections may give parties more time to observe the performance of the MPs and update their beliefs about women politicians, potentially reducing the likelihood of the gendered candidacy response observed in earlier sections. On the other hand, a shorter gap may heighten the salience of the MP's gender and elicit a greater backlash from the parties. The asynchronous electoral calendar of state elections, which is fixed by the apex non-partisan constitutional body, the Election Commission of India, allows me to directly test for this mechanism.

For this analysis, I construct two sub-samples: (i) states that held an assembly election within two years of the parliamentary election, and (ii) states where the election occurred three or more years after. While shorter intervals would be preferable for precision, these broader cutoffs are chosen to ensure sufficient statistical power in both sub-samples. The results for this sub-sample analysis, using the primary outcome variables- the number and the share of female candidates- are presented in Table 9.

Across the two sub-samples, I find identical negative effects on the number and the share of female candidates contesting the subsequent state elections, following the election of a female MP[24]. These results complement the null effects on performance differentials in Table 8, suggesting that parties do not update their beliefs either temporally or in response to observed MP performance. This potentially highlights a taste-based discrimination driving the negative candidacy effects in response to the election of a female MP.

[24]Figure A13 in the Appendix presents the graphical analog of these results.

Table 9: Effect of a *Female Parliamentarian* on Candidacy: Length of Exposure

	(1)	(2)	(3)	(4)
	Number of Female Candidates		Fraction of Female Candidates	
	$p = 1$	$p = 2$	$p = 1$	$p = 2$
Panel A: Exposure to MP for ≤ 2 years				
Female Parliamentarian	-0.2088***	-0.2019**	-0.0287***	-0.0288***
	(0.0790)	(0.0811)	(0.0093)	(0.0102)
	[0.005]	[0.014]	[0.003]	[0.009]
Bandwidth size	12.860	16.363	15.789	21.409
Effective Obs.	1,254	1,476	1,450	1,686
Control Mean	0.5880	0.6065	0.0725	0.0715
Panel B: Exposure to MP for ≥ 3 and ≤ 5 years				
Female Parliamentarian	-0.2870**	-0.2639*	-0.0276**	-0.0281**
	(0.1241)	(0.1413)	(0.0119)	(0.0128)
	[0.041]	[0.088]	[0.045]	[0.054]
Bandwidth size	17.887	19.685	14.247	20.507
Effective Obs.	1,108	1,173	962	1,173
Control Mean	0.8090	0.7959	0.0801	0.0807

Notes: Odd numbered columns present local linear RD regression ($p = 1$) results, while even-numbered columns present local quadratic ($p = 2$) RD estimates using a triangular kernel and the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). The outcome in Columns (1)-(2) is the number of female candidates contesting a state election in an AC; in Columns (3)-(4), the outcome is the fraction of total contestants who are women in the AC. In Panel (A), the sample consists of those states that had their election within 2 years of the most recent parliamentary election; in Panel (B), the sample consists of those states that had their election 3-5 years following the parliamentary election. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent parliamentary election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

$^{***}p < 0.01;^{**}p < 0.05;^{*}p < 0.1$

6 Conclusion

Women continue to be severely underrepresented in politics across the world, with a much lower share in plurality-rule single-member electoral district systems compared with other

settings such as proportional representation systems (Fujiwara et al., 2024). Numerous sources of this underrepresentation have been identified in different contexts, ranging from the lack of role models and aversion to competition to stereotype threats and cultural norms. In this paper, I shed light on this phenomenon by examining the downstream representation effects of female MPs in India, a country ranked 131st among 148 countries in terms of gender parity[25].

Using 40 years of electoral data on the national (parliamentary) and state elections in India, I examine whether the election of a female politician to the parliament influences women's candidacy in subsequent state elections. Employing a close-election regression discontinuity design, I find that constituencies exposed to a competitively elected female MP witness a 33-36% lower share of women contesting the subsequent state elections. Further analysis underscores the role of political parties in explaining the negative candidacy effects: only party-nominated female candidates are less likely to feature in the election, whereas the share of women contesting as independents (without a party affiliation) remains unchanged. I find that these effects are more pronounced for parties whose male candidate was narrowly defeated by a woman, and other parties whose candidate did not win the parliamentary election. In contrast, parties whose (male or female) candidate was narrowly elected in a mixed-gender contest are not differentially likely to field a female candidate in the state election, which rules out the possibility that female MPs are viewed primarily as 'token' representatives.

As mechanisms, I find that the negative effects hold in settings with skewed gender norms and a lower level of ex-ante electoral competitiveness. These estimates suggest a backlash effect and offer novel insight into the contexts under which such a backlash is feasible: that is, parties are more likely to exclude women from the candidate pool only in settings where the electoral cost of gendered gatekeeping is low. In contrast, I find no evidence that

[25]See World Economic Forum's Global Gender Gap Report 2025 here: https://www.weforum.org/publications/global-gender-gap-report-2025/.

alternative channels, such as differences in MP performance or the duration of exposure to a female MP, drive these results.

The findings in this paper have important implications, particularly for single-member district systems under plurality rule, where parties can nominate at most one candidate per electoral district. *First*, they suggest that an increased presence of women in higher-level political offices may not necessarily generate positive spillovers for women's political representation at other levels, and may even trigger exclusionary responses from political parties. *Second*, the existence of a potential backlash effect in settings with skewed gender norms and low political competition highlights the crucial role played by the cultural and political context in shaping the trajectory of women's political participation. *Finally*, the null effects for alternative explanations, such as candidate performance and duration of the exposure to the MPs suggest that parties may not update their beliefs about women politicians and thereby engage in taste-based discrimination, lowering their nominations in subsequent lower-tier elections.

References

Asher, S. and Novosad, P. (2017). Politics and local economic growth: Evidence from india. *American Economic Journal: Applied Economics*, 9(1):229–273.

Bagues, M., Sylos-Labini, M., and Zinovyeva, N. (2017). Does the gender composition of scientific committees matter? *American Economic Review*, 107(4):1207–1238.

Baskaran, T., Bhalotra, S., Min, B., and Uppal, Y. (2024). Women legislators and economic performance. *Journal of Economic Growth*, 29(2):151–214.

Baskaran, T. and Hessami, Z. (2018). Does the election of a female leader clear the way for more women in politics? *American Economic Journal: Economic Policy*, 10(3):95–121.

Beaman, L., Chattopadhyay, R., Duflo, E., Pande, R., and Topalova, P. (2009). Powerful

women: does exposure reduce bias? *The Quarterly journal of economics*, 124(4):1497–1540.

Besley, T., Persson, T., and Sturm, D. M. (2010). Political competition, policy and growth: theory and evidence from the us. *The Review of Economic Studies*, 77(4):1329–1352.

Bhalotra, S. and Clots-Figueras, I. (2014). Health and the political agency of women. *American Economic Journal: Economic Policy*, 6(2):164–197.

Bhalotra, S., Clots-Figueras, I., Cassan, G., and Iyer, L. (2014). Religion, politician identity and development outcomes: Evidence from india. *Journal of Economic Behavior & Organization*, 104:4–17.

Bhalotra, S., Clots-Figueras, I., and Iyer, L. (2018). Pathbreakers? women's electoral success and future political participation. *The Economic Journal*, 128(613):1844–1878.

Bhavnani, R. R. (2009). Do electoral quotas work after they are withdrawn? evidence from a natural experiment in india. *American Political Science Review*, 103(1):23–35.

Bochenkova, A., Buonanno, P., and Galletta, S. (2023). Fighting violence against women: The role of female political representation. *Journal of Development Economics*, 164:103140.

Booth, A., Fan, E., Meng, X., and Zhang, D. (2019). Gender differences in willingness to compete: The role of culture and institutions. *The Economic Journal*, 129(618):734–764.

Branton, R., English, A., Pettey, S., and Barnes, T. D. (2018). The impact of gender and quality opposition on the relative assessment of candidate competency. *Electoral Studies*, 54:35–43.

Brollo, F. and Troiano, U. (2016). What happens when a woman wins an election? evidence from close races in brazil. *Journal of Development Economics*, 122:28–45.

Broockman, D. E. (2014). Do female politicians empower women to vote or run for office? a regression discontinuity approach. *Electoral Studies*, 34:190–204.

Brown, R., Mansour, H., and O'Connell, S. D. (2022). Does local female political representation empower women to run for higher office? evidence from state and national legislatures in india. *The World Bank Economic Review*, 36(1):198–218.

Bugni, F. A. and Canay, I. A. (2021). Testing Continuity of a Density via G-order Statistics in the Regression Discontinuity Design. *Journal of Econometrics*, 221(1):138–159.

Calonico, S., Cattaneo, M. D., and Titiunik, R. (2014). Robust Nonparametric Confidence Intervals for Regression-discontinuity Designs. *Econometrica*, 82(6):2295–2326.

Campbell, D. E. and Wolbrecht, C. (2006). See jane run: Women politicians as role models for adolescents. *The Journal of Politics*, 68(2):233–247.

Cattaneo, M. D., Idrobo, N., and Titiunik, R. (2024). *A practical introduction to regression discontinuity designs: Extensions*. Cambridge University Press.

Cattaneo, M. D., Jansson, M., and Ma, X. (2020). Simple Local Polynomial Density Estimators. *Journal of the American Statistical Association*, 115(531):1449–1455.

Cattaneo, M. D. and Titiunik, R. (2022). Regression Discontinuity Designs. *Annual Review of Economics*, 14(Volume 14, 2022):821–851.

Chattopadhyay, R. and Duflo, E. (2004). Women as policy makers: Evidence from a randomized policy experiment in india. *Econometrica*, 72(5):1409–1443.

Clots-Figueras, I. (2012). Are female leaders good for education? evidence from india. *American economic journal: applied economics*, 4(1):212–244.

Elsesser, K. M. and Lever, J. (2011). Does gender bias against female leaders persist? quantitative and qualitative data from a large-scale survey. *Human relations*, 64(12):1555–1578.

Faravelli, M., Khalil, U., and Ponnusamy, S. (2023). Procedural barriers to political candidacy: Gender, discouragement, and candidate persistence. *Discouragement, and Candidate Persistence (December 24, 2023)*.

Fujiwara, T., Hilbig, H., and Raffler, P. (2024). Biased party nominations as a source of women's electoral underperformance. *OSF Preprints*.

Gagliarducci, S. and Paserman, M. D. (2012). Gender interactions within hierarchies: evidence from the political arena. *The Review of Economic Studies*, 79(3):1021–1052.

Gangadharan, L., Jain, T., Maitra, P., and Vecci, J. (2016). Social identity and governance: The behavioral response to female leaders. *European Economic Review*, 90:302–325.

Gelman, A. and Imbens, G. (2019). Why high-order polynomials should not be used in regression discontinuity designs. *Journal of Business & Economic Statistics*, 37(3):447–456.

Gerard, F., Rokkanen, M., and Rothe, C. (2020). Bounds on treatment effects in regression discontinuity designs with a manipulated running variable. *Quantitative Economics*, 11(3):839–870.

Gilardi, F. (2015). The temporary importance of role models for women's political representation. *American Journal of Political Science*, 59(4):957–970.

Gneezy, U., Leonard, K. L., and List, J. A. (2009). Gender differences in competition: Evidence from a matrilineal and a patriarchal society. *Econometrica*, 77(5):1637–1664.

Gulzar, S. and Pasquale, B. J. (2017). Politicians, bureaucrats, and development: Evidence from india. *American Political Science Review*, 111(1):162–183.

Hanna, T., Meisel, C., Moyer, J., Azcona, G., Bhatt, A., and Valero, S. D. (2023). Forecasting women in leadership positions. *UN Women*, pages 2023–11.

Imbens, G. and Kalyanaraman, K. (2012). Optimal Bandwidth Choice for the Regression Discontinuity Estimator. *The Review of Economic Studies*, 79(3):933–959.

Imbens, G. W. and Lemieux, T. (2008). Regression discontinuity designs: A guide to practice. *Journal of econometrics*, 142(2):615–635.

Iyer, L., Mani, A., Mishra, P., and Topalova, P. (2012). The power of political voice: women's political representation and crime in india. *American Economic Journal: Applied Economics*, 4(4):165–193.

Jain, C., Kashyap, S., Lahoti, R., and Sahoo, S. (2023). The impact of educated leaders on economic development: Evidence from india. *Journal of Comparative Economics*, 51(3):1068–1093.

Jaiswal, S. (2025). Do educated leaders perform better? evidence on parliamentary effort and constituency outcomes in india. *Economic Modelling*, page 107177.

Jayachandran, S. and Pande, R. (2017). Why are indian children so short? the role of birth order and son preference. *American Economic Review*, 107(9):2600–2629.

Ladam, C., Harden, J. J., and Windett, J. H. (2018). Prominent role models: high-profile female politicians and the emergence of women as candidates for public office. *American Journal of Political Science*, 62(2):369–381.

Lee, D. S. (2008). Randomized experiments from non-random selection in us house elections. *Journal of Econometrics*, 142(2):675–697.

Lippmann, Q. (2023). Persistence of incumbents and female access to political positions. *Journal of Economic Behavior & Organization*, 206:327–349.

Luke, N. and Munshi, K. (2011). Women as agents of change: Female income and mobility in india. *Journal of development economics*, 94(1):1–17.

Maitra, P. and Rosenblum, D. (2022). Upstream effects of female political reservations. *European Journal of Political Economy*, 71:102061.

McCrary, J. (2008). Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of econometrics*, 142(2):698–714.

Mengel, F., Sauermann, J., and Zölitz, U. (2019). Gender bias in teaching evaluations. *Journal of the European economic association*, 17(2):535–566.

O'Connell, S. D. (2020). Can quotas increase the supply of candidates for higher-level positions? evidence from local government in india. *Review of Economics and Statistics*, 102(1):65–78.

O'Brien, D. Z. and Rickne, J. (2016). Gender quotas and women's political leadership. *American Political Science Review*, 110(1):112–126.

Pal, R. and Das, A. (2010). a scrutiny of the mp-lads in india: Who is it for? *Economic and Political Weekly*, pages 63–68.

Prakash, N., Sahoo, S., Saraswat, D., and Sindhi, R. (2024). When criminality begets crime: the role of elected politicians in india. *The Journal of Law, Economics, and Organization*, page ewae021.

Rheault, L., Rayment, E., and Musulan, A. (2019). Politicians in the line of fire: Incivility and the treatment of women on social media. *Research & Politics*, 6(1):2053168018816228.

Sarsons, H., Gërxhani, K., Reuben, E., and Schram, A. (2021). Gender differences in recognition for group work. *Journal of Political economy*, 129(1):101–147.

Sekhon, J. S. and Titiunik, R. (2012). When natural experiments are neither natural nor experiments. *American Political Science Review*, 106(1):35–57.

Sen, A. (2003). Missing women – revisited. *British Medical Journal (BMJ)*.

Appendix

A Additional Tables and Figures

A.1 Descriptive Statistics

Table A1: Summary Statistics

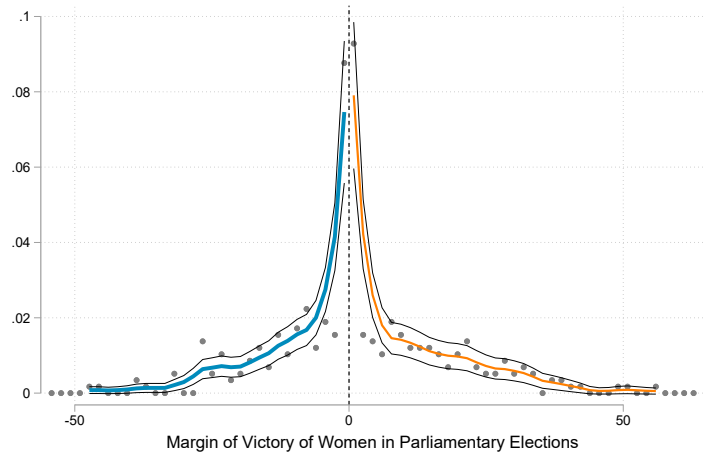
	N	Mean	SD	Min	Max
	(1)	(2)	(3)	(4)	(5)
Panel A: Parliamentary Elections					
Electors ('000)	4,775	1196.312	362.109	89.717	3368.399
Voter Turnout (%)	4,775	60.861	12.166	5.01	91.67
Number of Candidates	4,775	14.248	6.501	2	185
Number of Female Contestants	4,775	0.964	1.143	0	8
Female Candidates (% of Total Candidates)	4,775	0.077	0.095	0	0.75
Female Candidates' Vote Share (%)	4,775	10.397	19.648	0	97.03
Female Winner in PC	4,775	0.095	0.294	0	1
Effective Number of Candidates (ENOC)	4,775	2.758	0.747	1.05	10
Panel B: Assembly Elections					
Electors ('000)	29,278	168.090	88.938	1	1593.907
Voter Turnout (%)	29,319	66.420	14.169	0.01	99.94
Number of Candidates	29,319	10.405	6.608	1	301
Number of Female Contestants	29,319	0.598	0.943	0	49
Female Candidates (% of Total Candidates)	29,319	0.059	0.093	0	1
Female Candidates' Vote Share (%)	29,142	6.432	15.546	0	99.7
Female Winner in AC	29,319	0.065	0.246	0	1
Party-Nominated Female Candidates	29,319	0.387	0.688	0	7
Independent Female Candidates	29,319	0.211	0.580	0	49
SC/ST Reserved Constituency	29,319	0.271	0.444	0	1
Effective Number of Candidates (ENOC)	29,319	2.980	1.013	1	14.29

Notes: Data for parliamentary elections is for nine elections: 1984, 1989, 1991, 1996, 1999, 2004, 2009, 2014, and 2019. The data for assembly elections cover all states that held elections between 1984 and 2023.

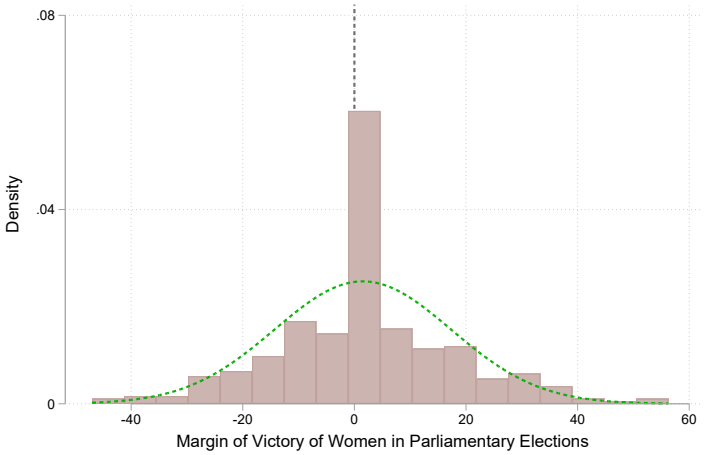
A.2 McCrary Density Test and Histogram Representation

Figure A1: Alternative Density Test: McCrary (2008)

Panel A: McCrary Density Test



Panel B: Density of the Forcing Variable



Notes: The figure shows the continuity of the forcing variable, $M_{j,t}$, which is defined as the vote share difference between a female and a male top-two candidate. A positive value of $M_{j,t}$ indicates that the female candidate won against the man (i.e., $FP_{j,t} = 1$). On the other hand, a negative value implies that the woman lost against the man (i.e., $FP_{j,t} = 0$). The estimated size of the discontinuity in our running variable, $M_{j,t}$, (log difference in height) is 0.0711 (SE = 0.21276).

A.3 Validity of the RD Design: Balance Tests

Table A2: Balance Test: RD Estimates

Variable	RD Estimate	h	N_h	Conventional p-value	Robust p-value
Log(Electors) $(t-1)$	0.0376 (0.1436)	10.624	1,099	0.793	0.893
Total Number of Candidates $(t-1)$	0.4051 (1.4205)	13.361	1,313	0.776	0.942
Number of Female Candidates $(t-1)$	-0.1023 (0.1293)	12.807	1,244	0.429	0.369
Number of Male Candidates $(t-1)$	0.5181 (1.3478)	13.627	1,328	0.701	0.868
Female Winner $(t-1)$	-0.0002 (0.0288)	14.752	1,459	0.992	0.999
Female Candidates' Vote Share $(t-1)$	-0.1951 (1.8109)	13.845	1,360	0.914	0.872
Turnout $(t-1)$	-0.9297 (4.4089)	10.780	1,107	0.833	0.736
SC/ST Reserved	-0.0353 (0.0437)	17.192	2,587	0.419	0.471
ENOP $(t-1)$	-0.0822 (0.2415)	13.867	1,360	0.734	0.653
Winner's Vote Share $(t-1)$	0.7459 (2.4234)	12.625	1,171	0.758	0.661

Notes: The table presents the RD estimates for pre-determined constituency-level characteristics estimated for the optimal bandwidth (h) employing the bandwidth selection procedure of Calonico et al. (2014), and a triangular kernel. N_h represents the effective number of observations within the selected optimal bandwidth. Further, I present the p-values from both the conventional estimators as well as the bias-corrected robust estimators (see Cattaneo and Titiunik (2022)).

A.4 Robustness 1: Alternative Specifications

Table A3: Effect of a *Female Parliamentarian* on Candidacy

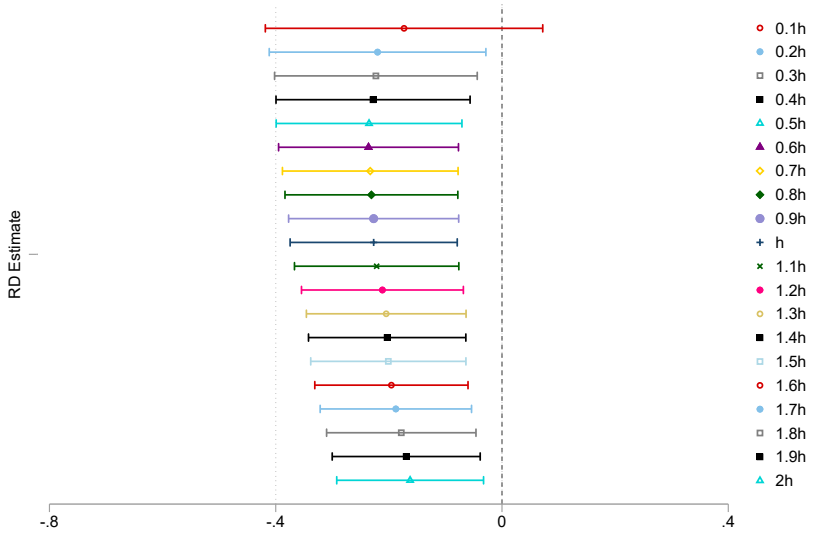
	Number of Candidates: By Gender			
	(1)	(2)	(3)	(4)
	Epanechnikov Kernel	Year FE	State FE	IK(h)
Panel A: Number of Female Candidates				
Female Parliamentarian	-0.2270***	-0.1903***	-0.2490***	-0.2308***
	(0.0768)	(0.0616)	(0.0640)	(0.0779)
	[0.003]	[0.006]	[0.000]	[0.008]
Bandwidth size	13.525	13.234	13.686	12.713
Effective Obs.	2,240	2,292	2,269	2,142
Control Mean	0.6801	0.6779	0.6859	0.6779
Panel B: Share of Female Candidates (% of Total Contestants)				
Female Parliamentarian	-0.0281***	-0.0235***	-0.0254***	-0.0275***
	(0.0072)	(0.0061)	(0.0067)	(0.0082)
	[0.000]	[0.000]	[0.000]	[0.004]
Bandwidth size	17.276	16.011	15.129	9.901
Effective Obs.	2,587	2,486	2,415	1,827
Control Mean	0.0751	0.0749	0.0750	0.0809

Notes: Local linear RD regression ($p = 1$) results are presented in Columns (1)–(4). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In column (1), I use the Epanechnikov kernel weighting function; in column (2), I include Assembly election-year fixed effects; in column (3), I include state fixed effects; column (4) presents results from using the optimal bandwidth à la Imbens and Kalyanaraman (2012). In columns (1)–(3), I continue to utilize the bandwidth selection procedure of Calonico et al. (2014). In Panel (A), the outcome variable is the number of female candidates contesting the Legislative Assembly election in a given Assembly Constituency; in Panel (B), the outcome variable is the share of contestants who are women. Effective Obs. represents the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate barely (within h percentage points) lose the recent general assembly election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.
$^{***}p < 0.01$;** $p < 0.05$;* $p < 0.1$

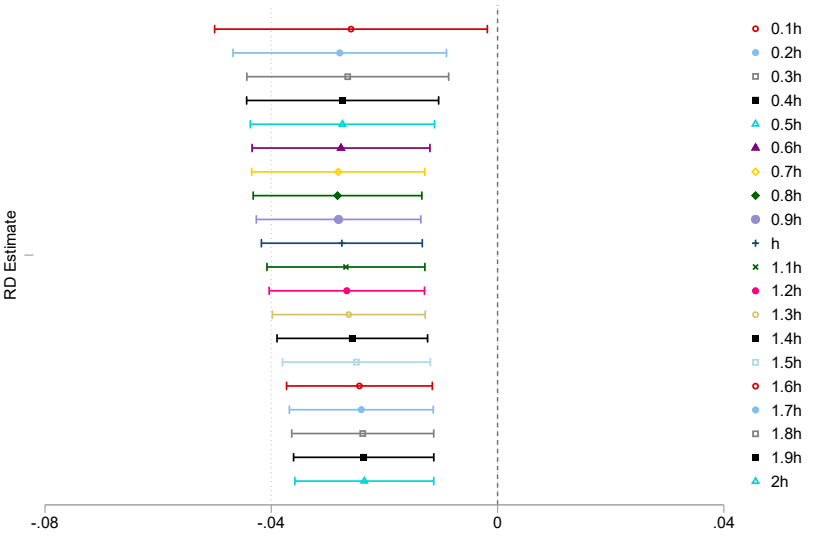
A.5 Robustness 2: Sensitivity to Bandwidth Choice

Figure A2: Evolution of Estimates with Incremental Bandwidth Increases

Panel A: Number of Female Candidates



Panel B: Fraction of Female Candidates (% of Total Candidates)

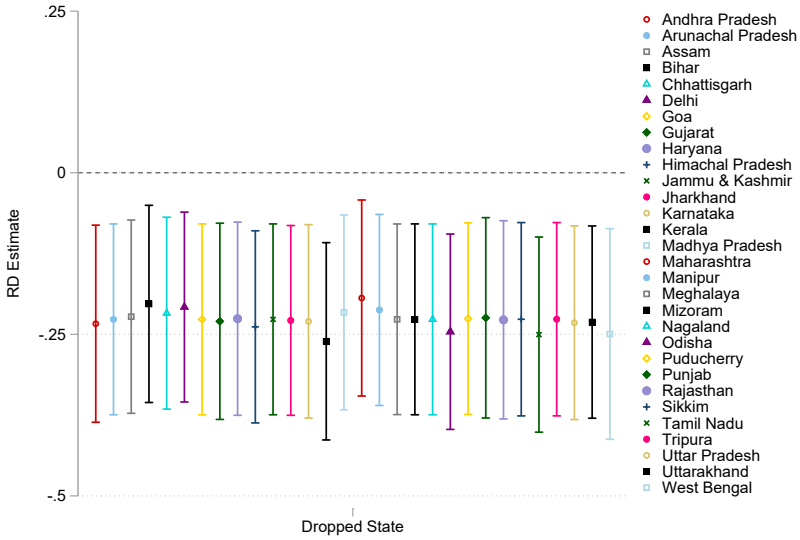


Notes: This presents different point estimates (and the 95% confidence interval) by varying the optimal bandwidth (h) between a factor of 0.1 and 2 of the optimal bandwidth in increments of 0.1.

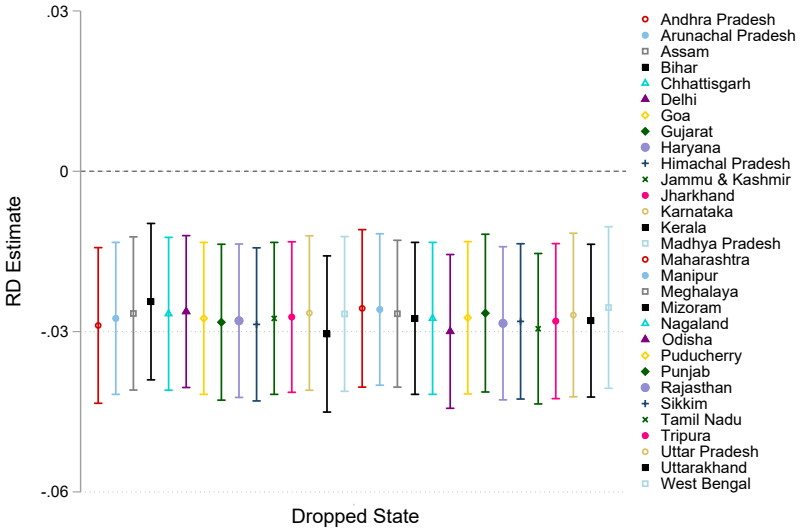
A.6 Robustness 3(a): Leave-One-Out Analysis by State

Figure A3: Leave-One-Out Analysis by State

Panel A: Number of Female Candidates



Panel B: Fraction of Female Candidates (% of Total Candidates)

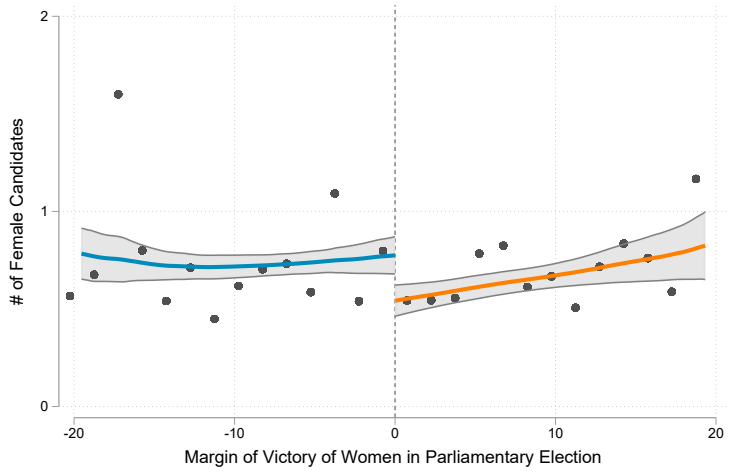


Notes: This presents different point estimates (and the 95% confidence interval) by dropping one state at a time from the sample.

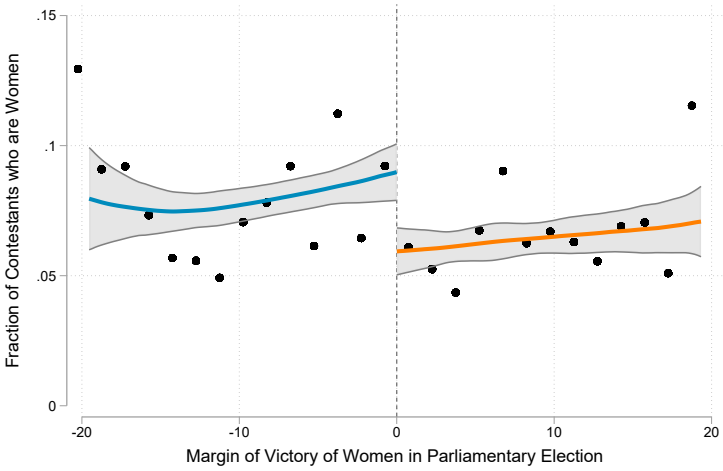
A.7 Robustness 3(b): Sensitivity to Concurrent Election Calendars

Figure A4: Effect of a *Female Parliamentarian* on Female Candidacy: Dropping Concurrent Elections

Panel A: Number of Female Candidates



Panel B: Fraction of Female Candidates (% of Total Candidates)

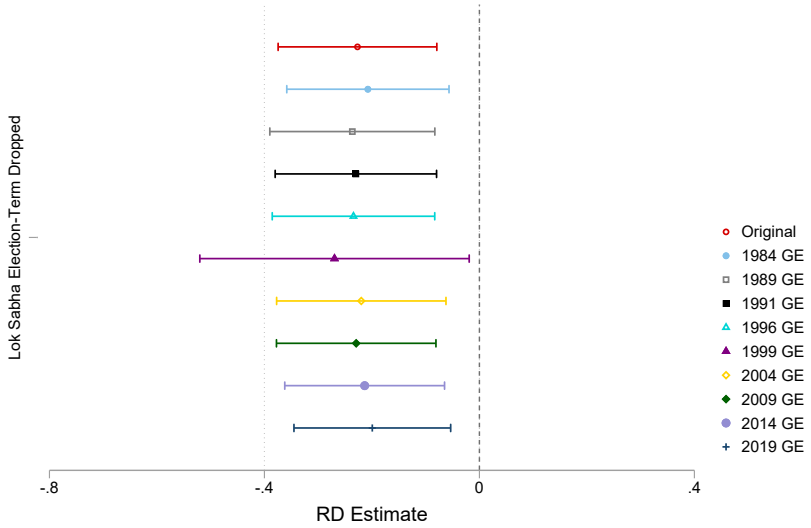


Notes: The figure plots the number of female candidates (Panel A) and the fraction of candidates who are women (Panel B) contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The sample includes only those state assembly elections that were held in years that did not feature a Lok Sabha election. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

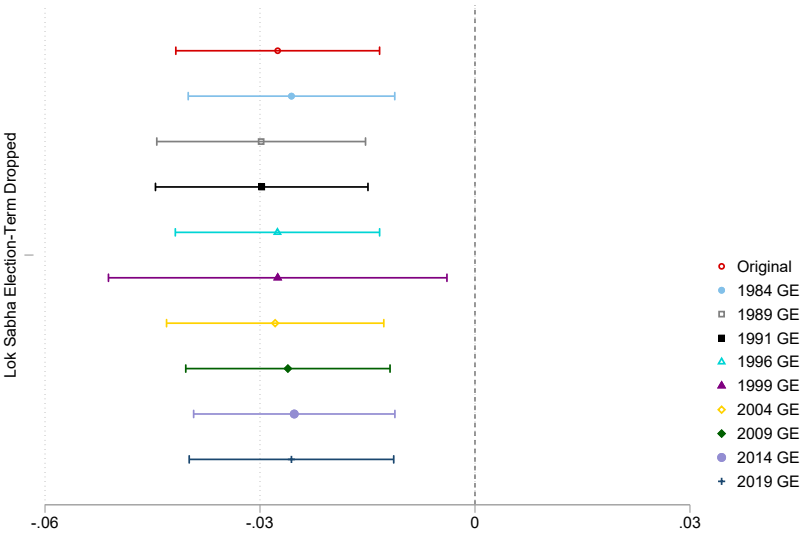
A.8 Robustness 3(c): Sensitivity to General Assembly Terms

Figure A5: Leave-One-Out Analysis by *Lok Sabha* Term

Panel A: Number of Female Candidates



Panel B: Fraction of Female Candidates (% of Total Candidates)

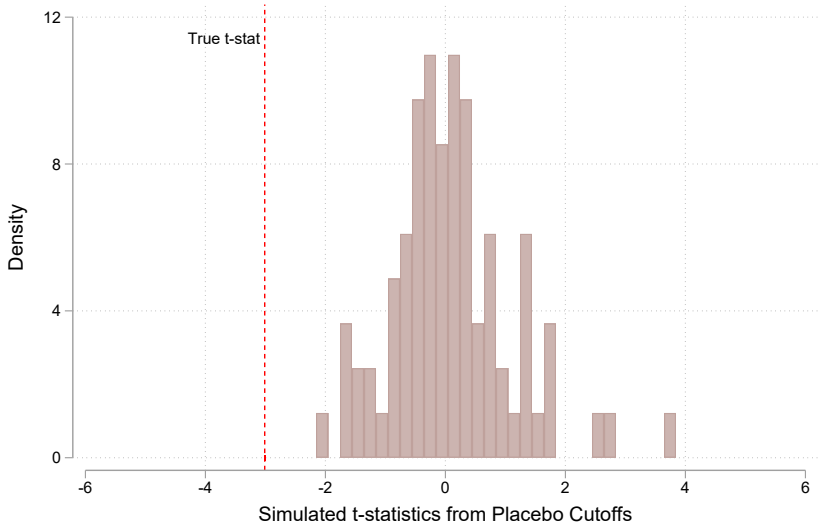


Notes: This presents different point estimates (and the 95% confidence interval) by dropping one General Assembly term (comprising of state elections spanning 4-5 years) at a time from the sample. Each point estimate and confidence interval (barring the red CI which represents the original RD estimate from the full sample) corresponds to a dropped Lok Sabha term (see the legends).

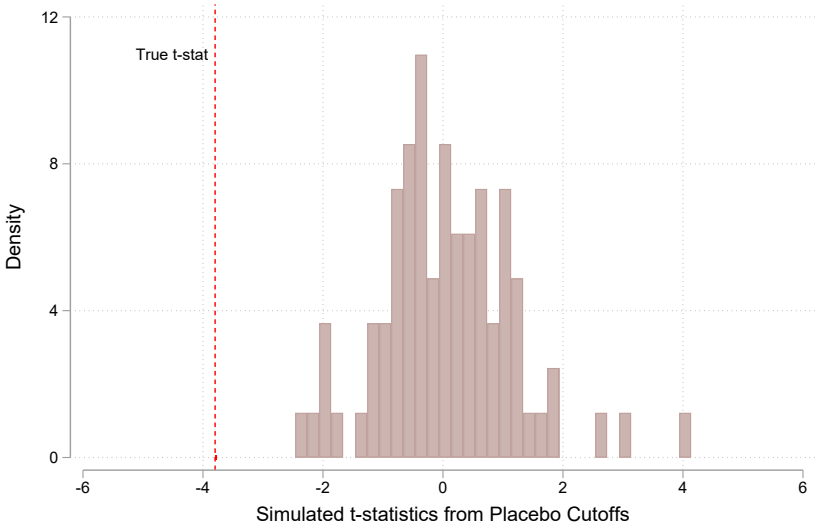
A.9 Robustness 4: Placebo Thresholds

Figure A6: *t*-Statistics from RD Estimates using Placebo Thresholds

Panel A: Number of Female Candidates



Panel B: Fraction of Female Candidates (% of Total Candidates)

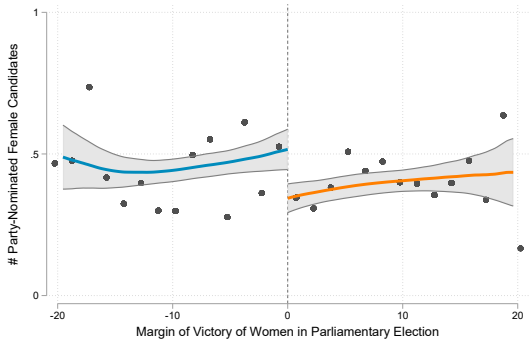


Notes: The figure plots the t-statistics of different placebo tests conducted at alternative placebo thresholds in the intervals $[-15, -5]$ and $[5, 15]$ with increments of 0.25. The red vertical line represents the t-statistic of the discontinuity at zero (the true estimate). Specifications restrict the sample to observations either at the left or at the right of the true cutoff.

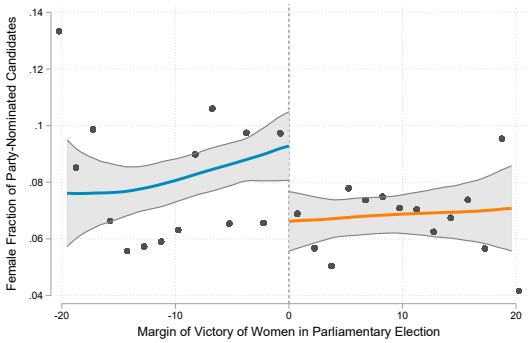
A.10 Party-Nominated and Independent Female Candidacy

Figure A7: Effect of a *Female Parliamentarian* on Female Candidacy: By Candidate-Type

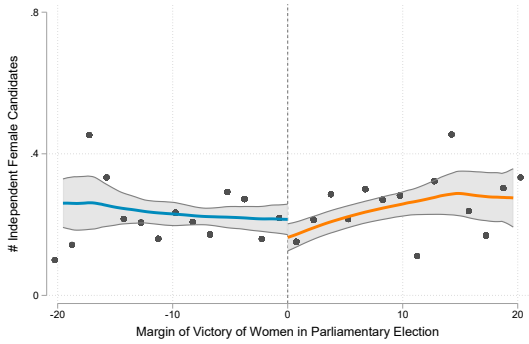
(a) Number of Party-Nominated Female Candidates



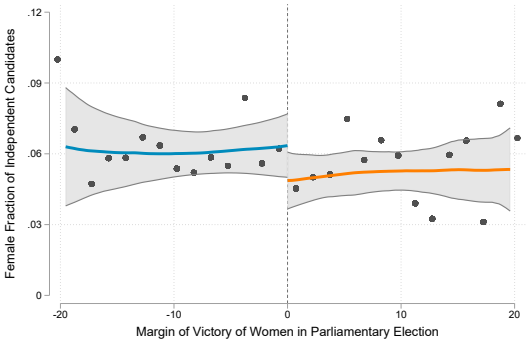
(b) Fraction of Female Party-Nominated Candidates



(c) Number of Independent Female Candidates



(d) Fraction of Female Independent Candidates

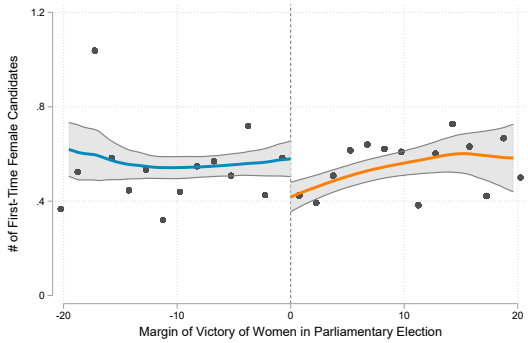


Notes: The figure plots (a) the number of party-nominated female candidates, (b) the share of women in party-nominated candidates, (c) the number of independent female candidates, and (d) the share of women in independent candidates contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

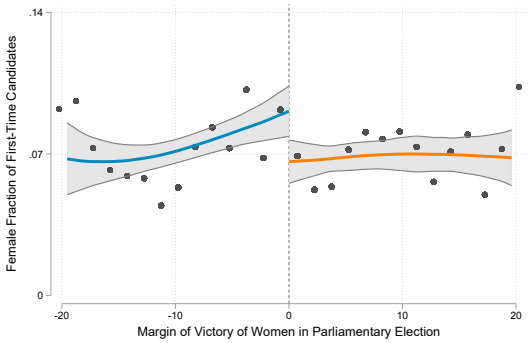
A.11 Female Candidacy by Electoral Experience

Figure A8: Effect of a *Female Parliamentarian* on Female Candidacy: By Candidate-Type

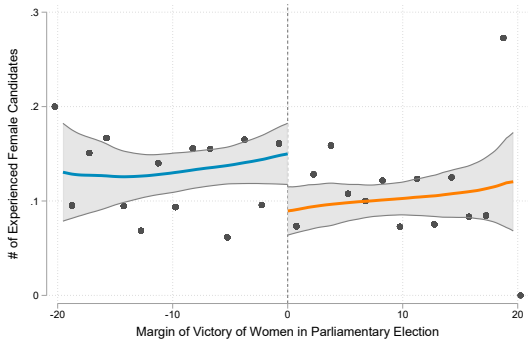
(a) Number of First-Time Female Candidates



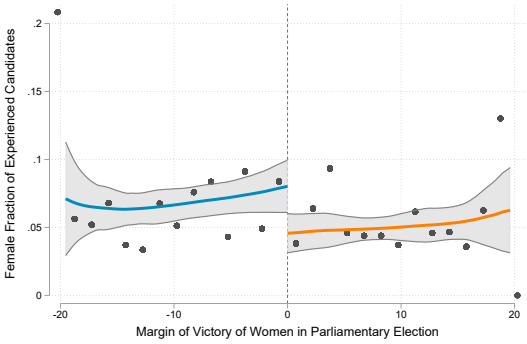
(b) Fraction of First-Time Female Candidates



(c) Number of Experienced Female Candidates



(d) Fraction of Experienced Female Candidates



Notes: The figure plots (a) the number and (b) the share of first-time female candidates, and (c) the number and (d) the share of experienced female candidates contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

A.12 First-time and Experienced Male Candidacy

Table A4: Effect of a *Female Parliamentarian* on Male Candidacy: By Experience

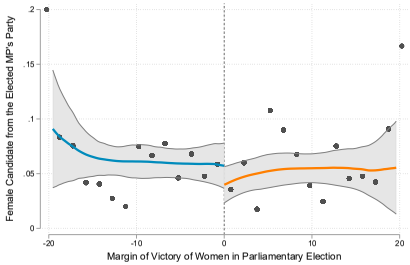
	Number of Male Candidates: Heterogeneity			
	(1)	(2)	(3)	(4)
	$p = 1$			$p = 2$
	h	$0.5 * h$	$2 * h$	h_2
Panel A: Number of *First-Time* Male Candidates				
Female Parliamentarian	0.7046	0.2418	0.8654	0.4913
	(0.5814)	(0.5895)	(0.5472)	(0.6072)
	[0.346]	[0.834]	[0.312]	[0.490]
Bandwidth size	13.157	6.578	26.314	18.786
Effective Obs.	2,192	1,416	3,178	2,716
Control Mean	6.7093	6.1556	7.4134	7.2397
Panel B: Number of *Experienced* Male Candidates				
Female Parliamentarian	0.0675	0.0757	0.0985	0.0707
	(0.1106)	(0.1237)	(0.0969)	(0.1178)
	[0.675]	[0.323]	[0.568]	[0.614]
Bandwidth size	15.611	7.805	31.221	25.989
Effective Obs.	2,458	1,536	3,367	2,752
Control Mean	1.9689	1.9126	2.0061	1.9948

Notes: Local linear RD regression ($p = 1$) results are presented in Columns (1)–(3), while Column (4) presents results for a local quadratic RD regression ($p = 2$) using a triangular kernel using the optimal bandwidth h à la Calonico et al. (2014). Conventional standard errors clustered at the Parliamentary constituency-year level are presented in the round parentheses. Robust bias-corrected p-values are presented in the square parentheses, as suggested by Cattaneo and Titiunik (2022). In Panel (A), the outcome variable is the number of male candidates who had zero years of electoral experience; in Panel (B), the outcome variable is the number of male candidates who had contested an election at least once in the past. Effective Obs. represent the number of observations within the optimally chosen bandwidth. Control mean is the mean of the dependent variable for constituencies that had a female candidate who barely lost (within h percentage points) the recent general assembly election. *Female Parliamentarian* is the treatment variable indicating the presence of a female winner in the most recent General Assembly election.

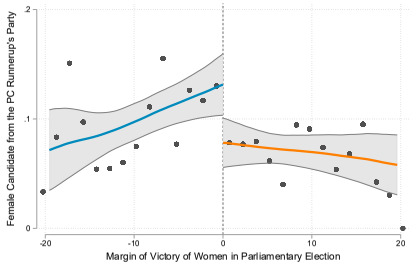
$^{***}p < 0.01; ^{**}p < 0.05; ^{*}p < 0.1$

Figure A9: Effect of a *Female Parliamentarian* on Female Candidacy: By Candidate-Type

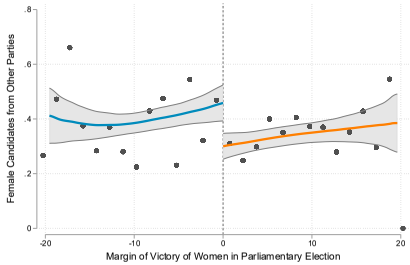
(a) Female Candidate from the Elected MP's Party



(b) Female Candidate from the PC Runnerup's Party



(c) # of Female Candidate from Other Parties



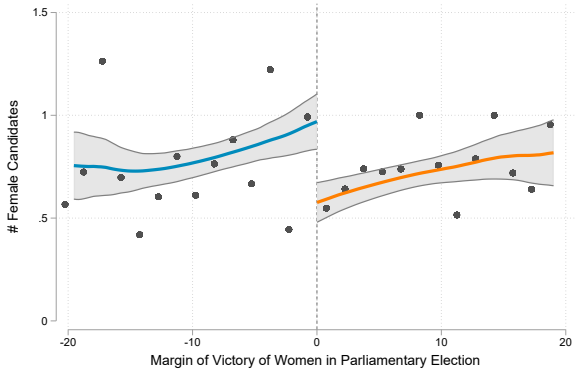
Notes: The figure plots (i) a binary variable indicating whether the party whose MP was *competitively* elected in the most recent parliamentary election fields a female candidate, (ii) whether the party whose candidate narrowly lost in that election nominates a woman, and (iii) number of female candidates fielded by other non-incumbent parties against the running variable- the margin of victory of women candidates in the most recent parliamentary election. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

A.13 Heterogeneity by Gender Norms

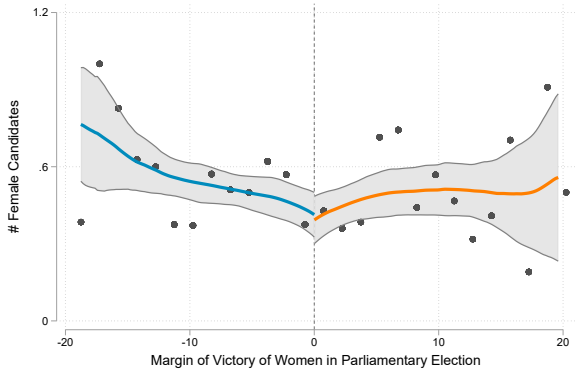
Figure A10: Effect of a *Female Parliamentarian* on Candidacy: By Gender Norms

Panel A: Number of Female Candidates

(a) Below-Median States

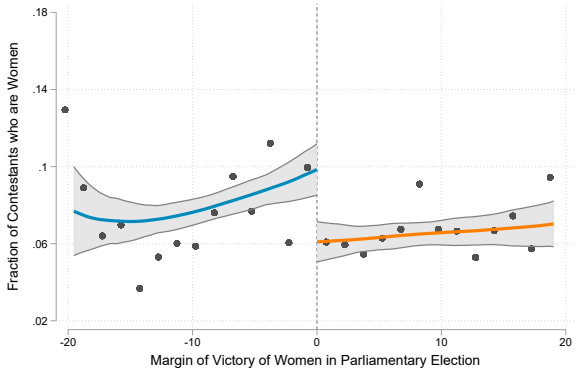


(b) Above-Median States

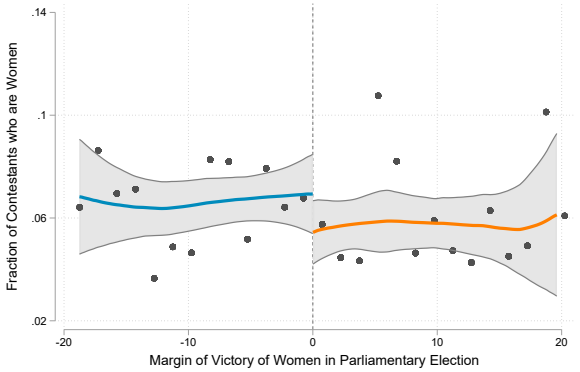


Panel B: Fraction of Female Candidates (% of Total Candidates)

(a) Below-Median States



(b) Above-Median States



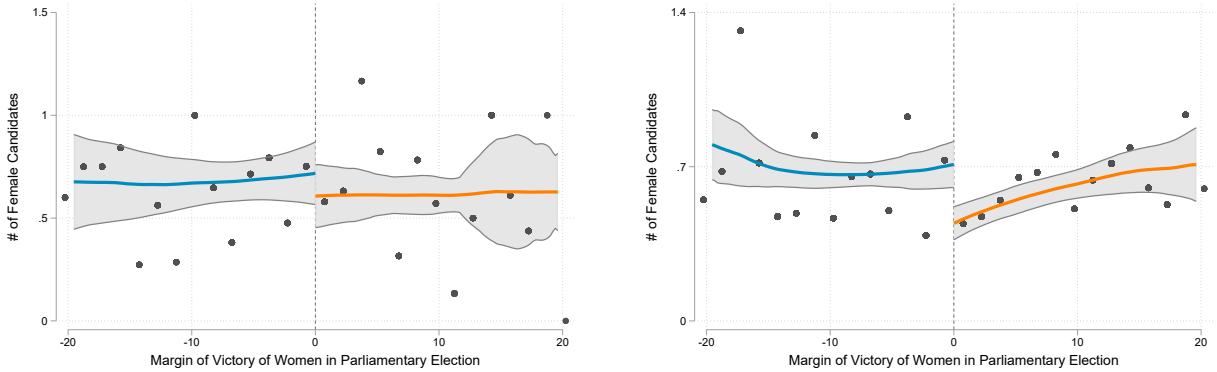
Notes: The figure plots the number of female candidates (Panel A) and fraction of candidates who are women (Panel B) contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. In both panels, (a) and (b) represent the estimation for states with below-median and above-median sex ratios, respectively. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

A.14 Heterogeneity by Competitiveness of the Electorate

Figure A11: Effect of a *Female Parliamentarian* on Candidacy: By Competitiveness

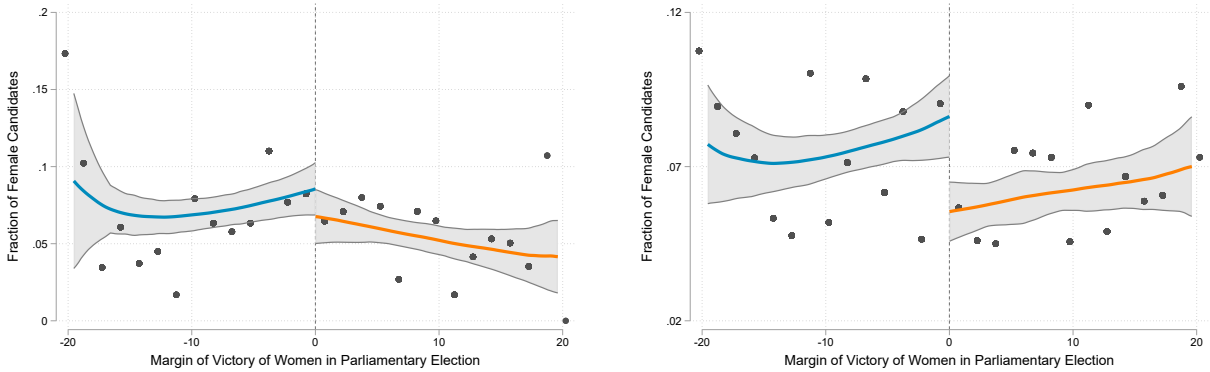
Panel A: Number of Female Candidates

(a) Margin at $t+1 < 5\%$ (b) Margin at $t+1 \geq 5\%$



Panel B: Fraction of Female Candidates (% of Total Candidates)

(a) Margin at $t+1 < 5\%$ (b) Margin at $t+1 \geq 5\%$



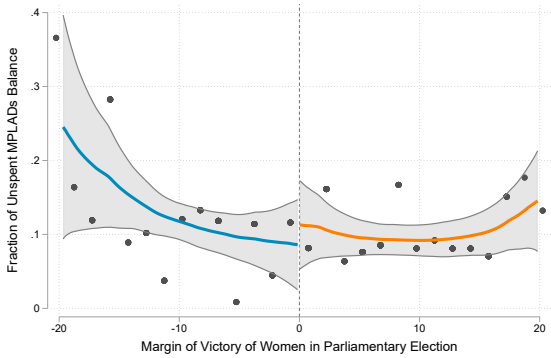
Notes: The figure plots the number of female candidates (Panel A) and fraction of candidates who are women (Panel B) contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. In both panels, (a) and (b) represent the estimation for constituencies with the winning margin in the previous election being 5 pp and above 5 pp, respectively. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.

A.15 The Performance Channel

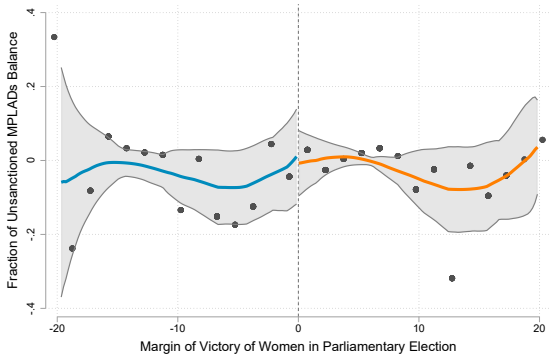
Figure A12: Differences in the Performance of Male and Female MPs

Panel A: MPLADS Fund Utilization

(a) *Unspent* Funds (%)

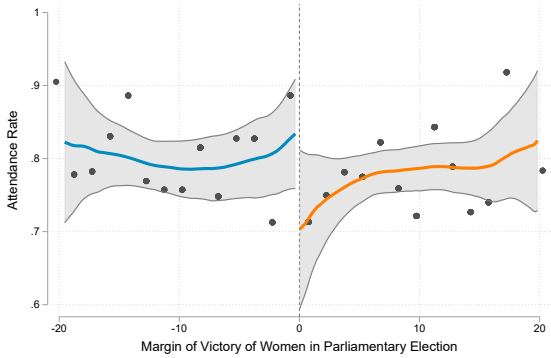


(b) *Unsanctioned* Balance (%)

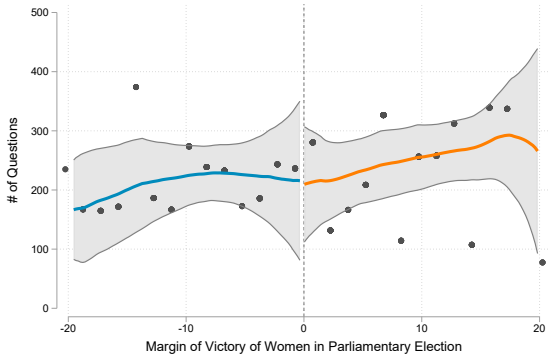


Panel B: Parliamentary Performance

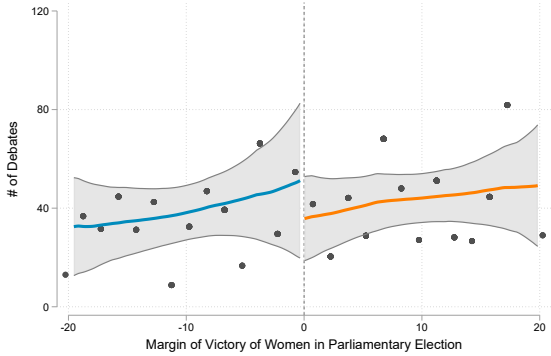
(a) Attendance Rate



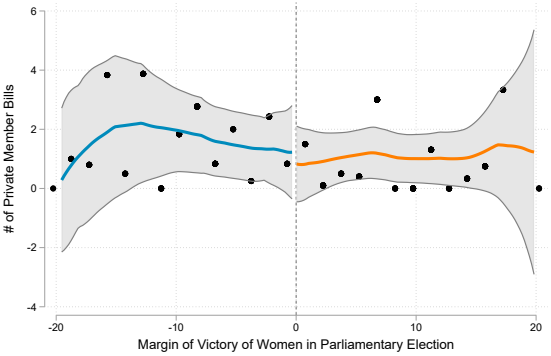
(b) # of Questions



(c) # of Debates



(b) # of Bills introduced

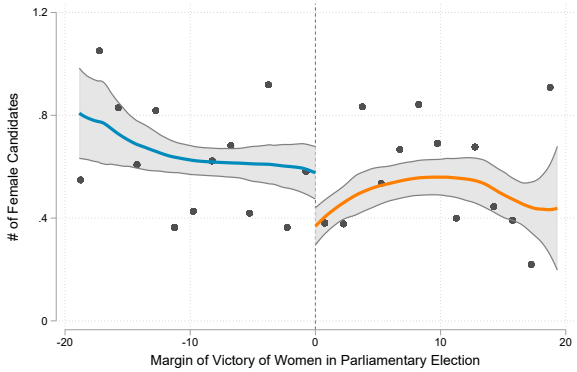


A.16 Heterogeneity by Length of Exposure to Female MP

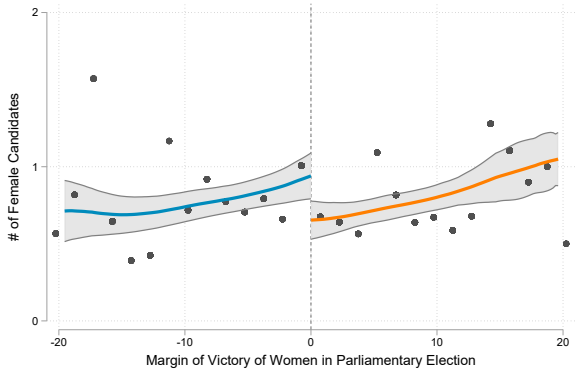
Figure A13: Effect of a *Female Parliamentarian* on Candidacy: By Election Timing

Panel A: Number of Female Candidates

(a) Exposure $\leq$ 2 years

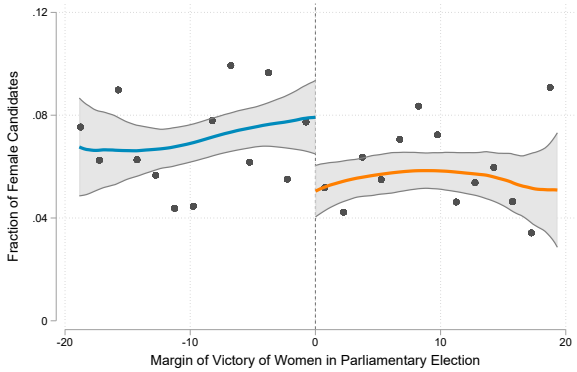


(b) Exposure $\geq$ 3 years

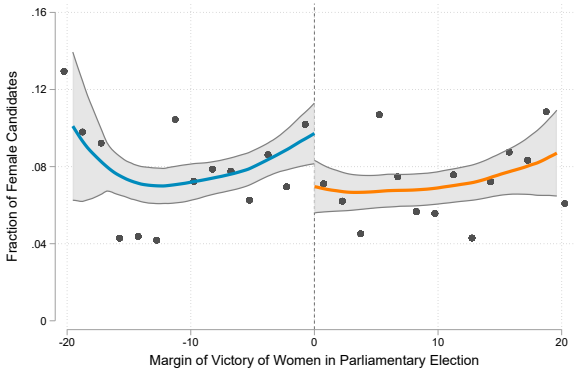


Panel B: Fraction of Female Candidates (% of Total Candidates)

(a) Exposure $\leq$ 2 years



(b) Exposure $\geq$ 3 years



Notes: The figure plots the number of female candidates (Panel A) and fraction of candidates who are women (Panel B) contesting a state Assembly election against the running variable- the margin of victory of women candidates in the most recent parliamentary election. In both panels, (a) and (b) represent the estimation for states with elections conducted within 2 years of the parliamentary election and 3 or more years after the parliamentary election, respectively. A positive value of the running variable implies a female PC winner; a negative value implies a female PC runner-up. Each dot in the figure depicts the averages over successive bins of 1.5% of the running variable. The curves are local linear regression (with 95% confidence intervals) fit separately for the positive and negative parts of the cut-off. The optimal bandwidth à la Calonico et al. (2014) is used to arrive at the figures.