Are There Spillovers in the Representation of Excluded Groups?

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Word count:

ABSTRACT

How do groups traditionally excluded from political power gain political representation? Important scholarship suggests that exposure and demonstration effects are important: when one member of an excluded group is elected, it paves the way for other group members to win elections subsequently. An observable implication of these theories is that there should be spillovers in the representation of excluded groups. In this research note, we test this implication in India by looking at the spillover effects of electing MPs who are women or Muslim – groups whose political representation falls short of their population share – on the subsequent chances of electing politicians from the same group in lower-level elections in state-level constituencies nested within parliamentary constituencies (vertical spillovers) and in nearby parliamentary constituencies (horizontal spillovers). Utilizing a close-elections regression discontinuity design and different estimation approaches, we find mostly null effects on candidate entry, vote share, and win probabilities, complicating the conventional wisdom.

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1. Introduction

This research note looks at how groups who are traditionally excluded from political power – defined as those whose representation in legislatures falls short of their population share – gain political representation. We focus specifically on spillover effects, i.e., whether the election of a member of an excluded or underrepresented group impacts the chances of other members of the excluded group from winning elections subsequently.

Members of excluded groups can face several barriers to participation in the political process stemming from bias or discrimination from party elites, voters, and donors. Bias or discrimination can take at least four forms: taste-based (e.g. dislike based on racism or sexism), statistical (utilizing identity as a heuristic to infer other traits through stereotypes), structural (e.g. a systematic lack of access to networks or other support structures necessary for political access), and anticipatory/strategic (a reluctance to support candidates from an excluded group based on anticipation of their lack of support from others and concerns about "electability") (Bateson 2020; Goyal 2020; Prillaman 2023; Small and Pager 2020).

Past work suggests that exposure and demonstration effects are important to overcome these different sources of discrimination: when one member of an excluded group is elected, it can pave the way for same-group members to win elections subsequently. For instance, past work has found the exposure to women leaders as a result of randomized gender quotas at the local level in India improves the subsequent chances of electing women leaders by reducing stereotypes (Beaman, Chattopadhyay, and Duflo 2009; Bhavnani 2009). Exposure can reduce bias not just among members of the dominant group but also the dominated group, reflecting a role model effect which leads to changing ambitions among members of the dominated group (Alexander 2012; Beaman et al. 2009, 2012; Wolbrecht and Campbell 2007). Past scholarship has also shown that when women are elected as legislators, this can also encourage and mobilize the entry of women into politics as activists at the grassroots level by building vertical party-based networks (Goyal 2020). Plausibly, when taste-based, statistical, and structural discrimination are weakened, this should reduce fears among party elites, voters, donors, and potential candidates that members of excluded groups are "unelectable," thereby weakening anticipatory/strategic discrimination as well (Bateson 2020).

An observable implication of this body of work is that there should be spillovers in the representation of excluded groups. Positive spillovers occur when the election of an excluded group candidate improves the chances of electing other candidates belonging to the same group in elections. We focus on two types of spillovers. Spillovers might be spatial or *horizontal* – improving the chances of electing members from the same group in nearby constituencies (as compared to distant constituencies). Electing politicians from excluded groups might differentially impact nearby constituencies (as opposed to distant ones) as a result of exposure which decays with distance (such as shared media markets), political networks which tend to have a spatial structure (more easily incorporating nearby members), and lesson-drawing from comparable constituencies (as a result of Tobler's law – near things are more similar than distant things). Spillovers might also be cross-level or *vertical*, improving the chances of electing members of an excluded group in lower-level elections, which often represent a pipeline into higher levels office. Electing politicians from excluded groups might impact lower-level elections due to the formation of networks between high-level politicians and candidates for lower-level political office and because of 'pipeline' effects where visible politicians in higher tiers of office encourage the entry of candidates with similar backgrounds in lower tiers of the political system.

By focusing on vertical and horizontal spillovers, we add methodologically to existing literature which has tended to focus on the effects of electing politicians from excluded groups on the chances of electing same-group members in the *same constituency* over time (see e.g. Bhalotra, Clots-Figueras, and Iyer 2018; Broockman 2014). One issue with these designs is that they make it difficult to disentangle demonstration/exposure from positive or negative incumbency effects. For instance, some research has shown that reservations and quotas for women can improve women's representation not through exposure effects but by disrupting the power of incumbents who happened to be male (Clayton and Tang 2018). By focusing on the effects of electing a politician from an excluded group on outcomes where the winning or losing politician in question is not directly (potentially) re-contesting elections, we are able to more cleanly investigate the electoral effects of exposure alone.

2. Empirical Strategy

We test for electoral spillovers of electing members of historically excluded and under-represented groups in the context of gender and religious minority groups in India. Specifically, we look at female parliamentarians and Muslim parliamentarians. We ask: does electing a female or a Muslim MP have a "pathbreaking" effect that improves the chances of electing female or Muslim politicians in other elections? We take a close-elections regression discontinuity design (RDD) approach to answer this question. We compare elections where a female or a Muslim candidate was barely/narrowly elected to those where a female or a Muslim candidate barely/narrowly lost the election. We then study the spillover impacts of these quasi-randomized "as-if-by coin flip" variation in female and Muslim representation on subsequent elections in other constituencies.

As illustrated in Figure 1, we look at two types of spillovers. First, we look at "vertical" spillover impacts on the performance of candidates from underrepresented groups in elections to state legislatures in the state assembly constituencies that are nested within the parliamentary constituency. In India, assembly constituencies (ACs) are nested contiguously within parliamentary constituencies (PCs) and politicians elected in the former often go on to become parliamentarians. We look at whether the narrow election of a female or a Muslim politician at the PC level improves the chances of electing other women or Muslims at the AC level in the next state-level election (note that in India, national-level and state-level elections are typically not synchronized). In these analyses, the unit of analysis is the AC, and we use three measures of performance: i) an indicator for whether a woman/Muslim was elected; ii) a continuous variable measuring the total vote share of female/Muslim candidates; and iii) an integer-valued variable measuring the number of female/Muslim candidates.

FIGURE 1 ABOUT HERE

We then look at "horizontal" spillover impacts on the performance of candidates from underrepresented groups in neighboring parliamentary constituencies. Specifically, we look at whether over a 5-year time horizon and across nearby parliamentary constituencies located within a 100-km radius of a parliamentary constituency centroid the performance of female or Muslim politicians is improved by the narrow election of a female or Muslim MP. These analyses are carried out at the PC level, with outcomes averaged across constituencies within a 100km radius. We look at three measures of performance: i) the share of female or Muslim MPs elected over a 5-year time horizon; ii) the average vote share of female or Muslim candidates over a 5-year time horizon; and the iii) average number of female or Muslim candidates over a 5-year time horizon.

In the close-elections RD design, the running variable is defined as the win/loss margin of the top-performing female or Muslim candidate in PC-level election races. Treatment is discontinuous about zero, because when the win/loss margin is barely negative, a male or a non-Muslim MP is elected, and when the win/loss margin is barely positive, a female or a Muslim MP is elected. We drop all races where no female or Muslim candidates contested the election as the running variable is undefined in these cases. This does not introduce bias into our estimates but does imply that estimates from our study pertain to those of a particular subpopulation: regions and locations where women or Muslim candidates contested MP-level elections in the first place.

To estimate the analyses, we draw on two datasets covering the universe of parliamentary and state-level assembly constituency electoral returns in India from 1973 to 2009. We identify candidate gender from sex (male or female) as self-reported to the Election Commission. We identify candidate religion with a machine learning algorithm that predicts whether a candidate is Muslim from the character string comprising their name. To train this model, we utilized a labeled dataset from National Railway exams consisting of over a million records of applicant names and religion (Ash et al. 2022). Using this training dataset, we trained a recurrent neural network (a bidirectional LSTM) to identify Muslim applicants from their names, achieving an accuracy rate of over 99 percent in a test set. We then used this model to predict the religious identity of each candidate in our electoral data. Figure 2 below depicts the share of Muslim and

women MPs in our data over time, and Figure 3 depicts the distribution of elected women and Muslim legislators across space.

FIGURE 2 ABOUT HERE

FIGURE 3 ABOUT HERE

Panel A of Figure 4 plots the distribution of the running variables. For both female candidates and Muslim candidates, the distribution is centered substantially to the left of zero. This implies that, most of the time when women and Muslim candidates run for MP-level elections, they typically lose. However, there is a substantial amount of data where women and Muslims barely win or lose close elections, facilitating our close-elections RD empirical strategy. A key assumption of the RD design is that the running variable is smooth/continuous and not manipulated about the discontinuity, which would imply sorting that could confound our estimates. We test this formally in panel B of Figure 4 with a McCrary density test for potential discontinuities in distribution of the running variable around the threshold. We do not find any evidence of strategic manipulation (see Appendix for tables).

FIGURE 4 ABOUT HERE

We take three different estimation approaches. First, we model the running variable with a global cubic polynomial fitted to either side of the discontinuity. Second, we take a local linear approach where we prune data beyond a certain distance/bandwidth from the discontinuity where the bandwidth is selected automatically on the basis of the data-driven Imbens-Kalyanaraman (2012) algorithm and fit a linear regression to either side of the discontinuity, employing a triangular kernel that weights observations close the discontinuity more heavily. Third, we take the robust RD approach of Calonico, Cattaneo, and Titiunik (2014) which also computes estimates on the basis of a local-linear regression within an automatically selected bandwidth and using a triangular kernel but additionally computes robust standard errors on the basis of a polynomial fitted to the data in slightly larger bandwidth. In our analysis of "vertical" spillovers, where outcomes are measured at the lower, assembly constituency level, we cluster standard

errors by parliamentary constituency, since multiple ACs are nested within a PC and the running variable is measured at the PC level.

3. Results

Panel A of Table 1 looks at impacts on the probability of electing a female legislator in lower-level elections. Across specifications, these tend to be negative, substantially so in the robust RD specification using an especially narrow bandwidth around the discontinuity. For instance, the estimate in column (3) suggests that narrowly electing a female MP reduces the probability of electing a female MLA in the ACs nested within a PC by 9.5 percentage points, a sizable amount. Panel B looks at the vote share of female candidates. The coefficients tend to be positive, and significant only in the robust specification, suggesting that narrowly electing a female MP either has null or possibly a slightly positive impact on the vote share of female candidates in lower-level elections nested within the parliamentary constituency. Panel C looks at the number of female candidates contesting elections. These are also consistently negative, suggesting that many of the null or negative effects described above may be driven by a deterrence of female candidates. On the other hand, Panel D highlights that electing a Muslim MP positively impacts the chances of electing a Muslim MLA in the nested ACs within a PC, as evidenced by positive and significant coefficients in the robust RD specification. Panel E shows that the vote share for Muslim candidates declines when a Muslim MP is narrowly elected. Finally, Panel F displays a consistent negative trend, albeit statistically significant only in the robust specification, in the number of Muslim candidates contesting lower-level elections, suggesting slight negative or null effects.

TABLE 1 ABOUT HERE

In Table 2, we look at horizontal spillovers of electing a female (panels A-C) or a Muslim (panels D-F) MP on the performance of women or Muslims in neighboring parliamentary constituencies in subsequent elections. In panel A, the estimates suggest here appears to be little or perhaps slightly negative impact on the chances of electing a women MP in neighboring constituencies – the coefficients are not statistically significant. In panel B, the estimates suggest

that there is little impact on the vote share of female candidates in neighboring constituencies in subsequent elections. In panel C, we see there is consistently negative but small and statistically insignificant impact on female candidate entry. Overall, the models run on female candidates seem to suggest null effects. Conversely, for Muslim MPs, Panel D indicates a slight positive or null effect on electing another Muslim MP in neighboring constituencies. Panel E reveals null or slightly positive effects on Muslim candidate vote share, and Panel F shows a minor positive to null effect on Muslim candidate entry, indicating overall null to slightly positive effects for Muslims.

TABLE 2 ABOUT HERE

4. Conclusion

In this research note, we have examined the access to political power for traditionally excluded groups, focusing on females and Muslims in India. Past scholarship led us to expect positive spillovers, which arise when an excluded group member's election enhances the chances for others of that group. In the case of both horizontal and vertical spillovers, and looking at both the effects of electing women and Muslim MPs in India, we mostly arrive at null results, however.

There are different potential explanations for this surprising result. Though extant empirical scholarship focuses on positive spillovers, negative spillovers which offset or counteract potentially positive effects are also an important possibility. Here, a potential mechanism is that voters can be mobilized to vote against candidates from minority or excluded groups by members of the opposing, dominant group who may feel threatened by shifting social norms. One example of this is white voter mobilization in the United States as a response to increase in registration of African Americans and other minority populations to dilute the vote of minorities (Alt, Davidson, and Grofman 1994).

Another potential explanation is that at higher levels of political office, structural constraints and the power wielded by party leaders who control nominations and other aspects of political entry are more resistant to change arising from exposure and demonstration effects, which have been

persuasively identified at the level of more local political office. This is an important pathway for further investigation.

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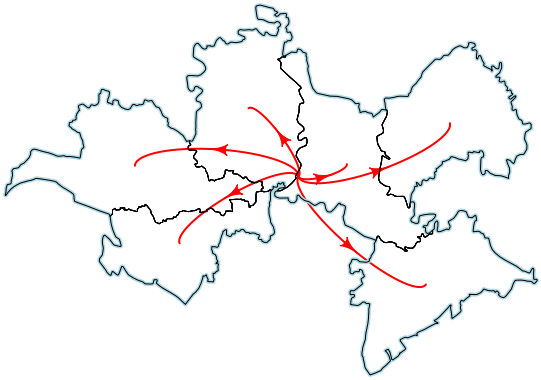
A. Vertical Spillovers to Nested ACs



B. Horizontal Spillovers to Nearby PCs

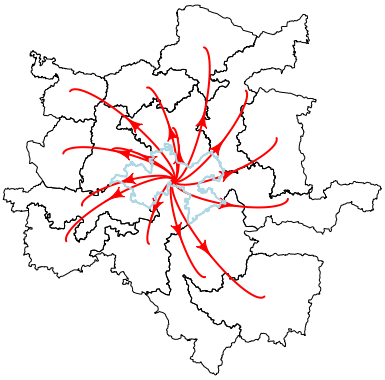
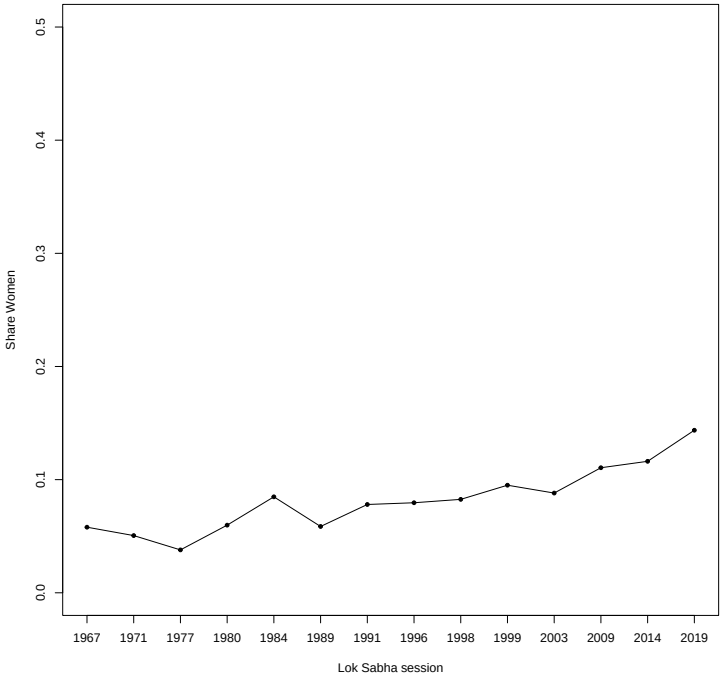
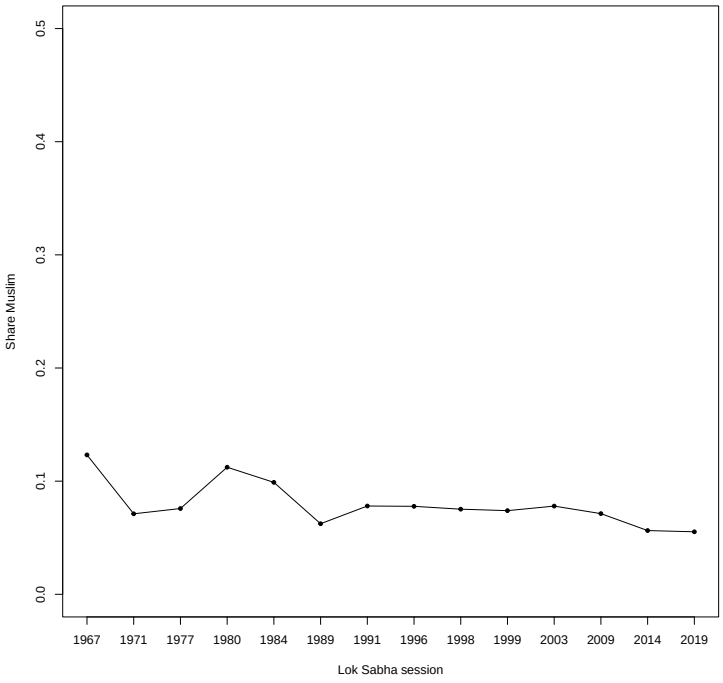


FIGURE I. Vertical and Horizontal Spillovers



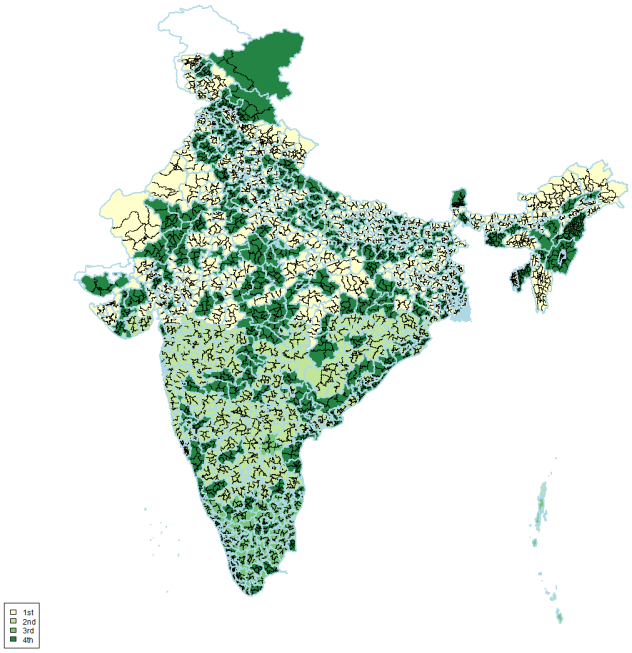
(a) Share of women among MPs over time



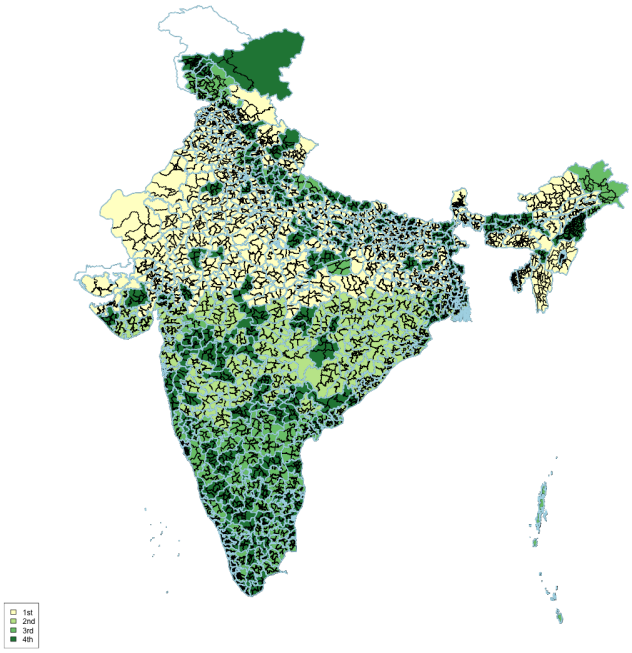
(b) Share of Muslim among MPs over time

FIGURE II. Share of female/ Muslim MPs over time

Notes: Points represent mean share of female/ Muslim legislators by Lok Sabha session.



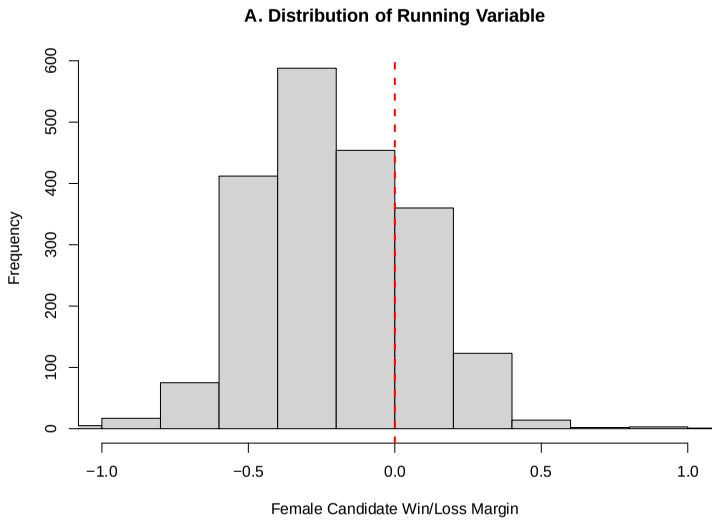
(a) Parliamentary Constituencies by Quartile of Women's Representation

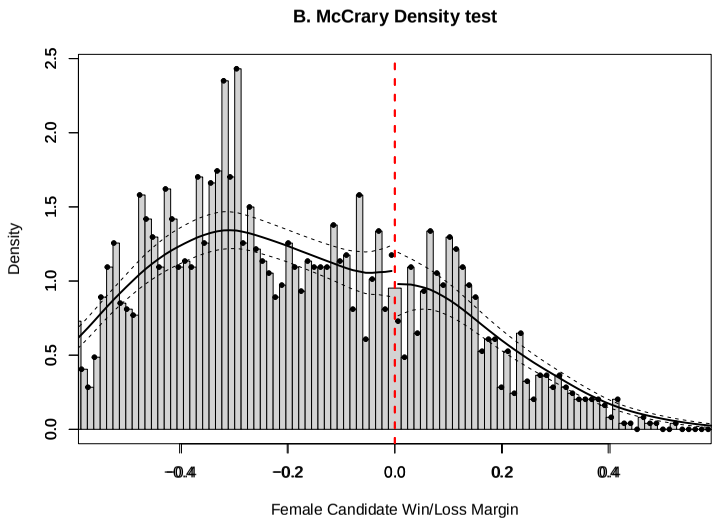


(b) Parliamentary Constituencies by Quartile of Muslim Representation

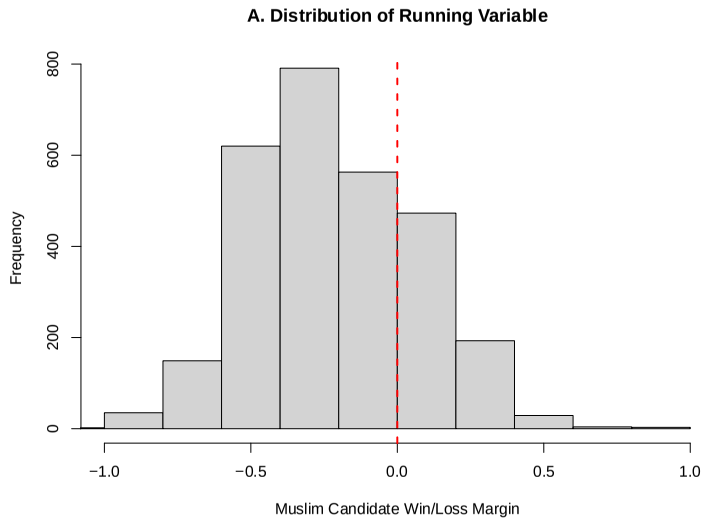
FIGURE III. Parliamentary representation over time

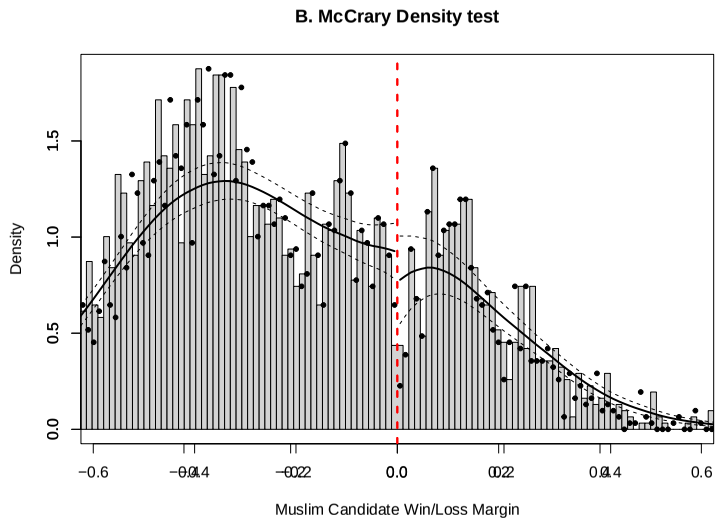
Notes: Parliamentary constituencies are shaded by quartile of share of female/ Muslim MPs between 1973 and 2009. Parliamentary constituency boundaries (national) in light blue. State assembly constituency boundaries (state level) in black. Note that ACs are nested within PCs.





(a) Female candidates





(b) Muslim Candidates

FIGURE IV. Running Variable

Notes: Panel A: Histogram represents distribution of running variable: win/loss margin of top performing Female/Muslim candidate in parliamentary elections. Panel B: McCrary density test for manipulation of running variable around threshold. In a) Bin size is 0.012 and bandwidth is 0.283; in b) Bin size is 0.0108 and bandwidth is 0.2877.

TABLE I. Vertical Spillover Effects of Electing Muslim MP

	Performance of Female/ Muslim candidates in nested ACs in Next Election		
	Global polynomial	Local linear	Robust
	(1)	(2)	(3)
Panel A: Female Winner			
Female MP	−0.029	−0.018	−0.095***
	(0.021)	(0.015)	(0.006)
Observations	8,231	4,875	635
Bandwidth	Full	0.433	0.042
Panel B: Female Vote Share			
Female MP	0.012	0.005	0.025***
	(0.018)	(0.015)	(0.001)
Observations	8,231	3,201	490
Bandwidth	Full	0.301	0.029
Panel C: # Female Candidates			
Female MP	−0.030	−0.183	−0.867***
	(0.205)	(0.173)	(0.039)
Observations	8,231	3,037	418
Bandwidth	Full	0.276	0.022
Panel D: Muslim Winner			
Muslim MP	0.001	0.009	0.046***
	(0.049)	(0.042)	(0.009)
Observations	13,400	4,153	1102
Bandwidth	Full	0.291	0.078
Panel E: Muslim Vote Share			
Muslim MP	−0.092	−0.081	−0.554***
	(0.139)	(0.092)	(0.048)
Observations	13,400	2,695	144
Bandwidth	Full	0.184	0.012
Panel F: # Muslim Candidates			
Muslim MP	−3.325	−2.310	−7.542***
	(2.977)	(2.643)	(0.681)
Observations	13,400	4,679	144
Bandwidth	Full	0.339	0.013

Notes: Unit of analysis is state assembly constituency-year. The running variable is the win/loss margin of the top-performing Female (Panels A - C) or Muslim (Panels D - F) candidate in the parliamentary constituency containing the state assembly constituency in the most recent preceding general elections. The outcomes are: binary indicator of a female winner (panel A), a measure of the total vote share of female candidates (panel B), and a measure of the number of female candidates (panel C), binary indicator of a Muslim winner (panel D), a measure of the total vote share of Muslim candidates (panel E), and a measure of the number of Muslim candidates (panel F). Coefficients represent regression dsicontinuity design (RDD) estimates of the vertical spillover effects of electing a female or Muslim MP on the performance of female or Muslim in lower-level elections. Three different estimation approaches are implemented. Column (1) reports estimates from specifications using a cubic global polynomial. Column (2) reports estimates using a local linear regression with a triangular kernel and bandwidth selected on the basis of Imbens-Kalyanaraman procedure. Column (3) reports estimates using robust regression discontinuity estimator of Calonico, Cattaneo, and Titiunik with a triangular kernel and automated bandwidth selection. Standard errors clustered by parliamentary constituency.

TABLE II. Horizontal Spillover Effects of Electing Female/Muslim MP

	Performance of Female/ Muslim candidates in nearby PCs in Next Election		
	Global polynomial	Local linear	Robust
	(1)	(2)	(3)
Panel A: Female Winner			
Female MP	−0.026	−0.024	0.001
	(0.028)	(0.016)	(0.029)
Observations	1,648	1,065	510
Bandwidth	Full	0.325	0.144
Panel B: Female Vote Share			
Female MP	−0.013	−0.024	−0.007
	(0.018)	(0.016)	(0.023)
Observations	1,648	1,121	617
Bandwidth	Full	0.343	0.179
Panel C: # Female Candidates			
Female MP	−0.084	−0.021	−0.083
	(0.092)	(0.019)	(0.133)
Observations	1,648	753	625
Bandwidth	Full	0.237	0.183
Panel D: Muslim Winner			
Muslim MP	0.036	0.037**	0.045
	(0.026)	(0.019)	(0.035)
Observations	2,421	1,159	884
Bandwidth	Full	0.269	0.201
Panel E: Muslim Vote Share			
Muslim MP	0.040	0.052*	0.055
	(0.033)	(0.030)	(0.052)
Observations	2,417	1,113	692
Bandwidth	Full	0.259	0.154
Panel F: # Muslim Candidates			
Muslim MP	0.393**	0.267**	0.329
	(0.180)	(0.126)	(0.335)
Observations	2,421	1,649	757
Bandwidth	Full	0.379	0.168

Notes: Unit of analysis is parliamentary constituency. The running variable is the win/loss margin of the top-performing female (panels A-C) or Muslim (panels D-F) candidate in a given race. Coefficients represent regression dsicontinuity design (RDD) estimates of the horizontal spillover effects of electing a female or Muslim MP on the performance of females or Muslims in same-level (MP) elections in a 100km radius over a 5-year time horizon. The outcomes are: share female winners (panel A), average vote share of female candidates (panel B), and average number of female candidates (panel C), share Muslim winners (panel D), average vote share of Muslim candidates (panel E), and average number of Muslim candidates (panel F).Three different estimation approaches are implemented. Column (1) reports estimates from specifications using a global cubic global polynomial. Column (2) reports estimates using a local linear regression with a triangular kernel and bandwidth selected on the basis of Imbens-Kalyanaraman procedure. Column (3) reports estimates using robust regression discontinuity estimator of Calonico, Cattaneo, and Titiunik with a triangular kernel and automated bandwidth selection.