Learning about Women's Competence:

The Dynamic Response of Political Parties to Gender Quotas in South Korea

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Motivation

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(International IDEA, 2023)

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   ▶ Recent studies in Europe find that quotas weakly improve avg. quality
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▶ **Why do we see so few women in politics?**
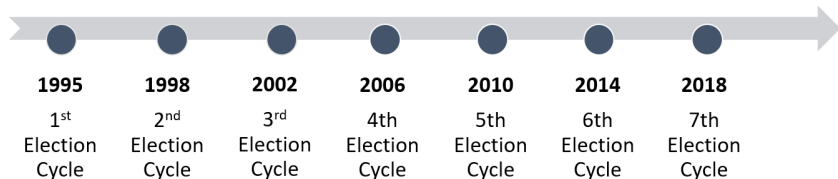
How do political parties respond to gender quotas?

▶ South Korea: info on **universe** of candidates and elected councilors for *226 municipal councils* since inception - *23 years and 7 election cycles*
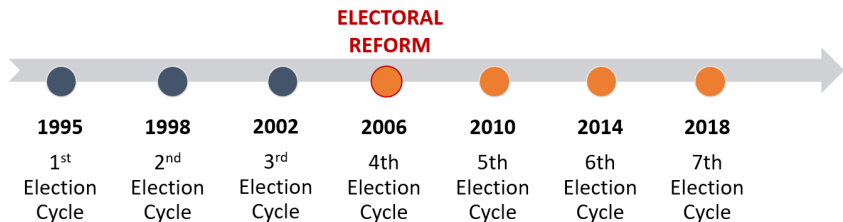
Why South Korea?

- ▶ **Nearly zero women** when quota was implemented `female share`
  - → lack of info and doubts about women's competence `attitudes`

- ▶ Double-arm election system where **quota regulated only one arm**
  - → infer what typically unobservable: parties' attitudes towards women

- ▶ Track party responses over **four election cycles post-quota**
  - → evolution helps uncover reasons for under-representation

Institutional setting

Electoral rules and gender quotas

Electoral rules and gender quotas

ELECTORAL REFORM

1995	1998	2002	2006	2010	2014	2018
1st Election Cycle	2nd Election Cycle	3rd Election Cycle	4th Election Cycle	5th Election Cycle	6th Election Cycle	7th Election Cycle

Electoral reform

1. Two election arms `Ballot paper`
   ▶ "Ward arm" - plurality vote in constituent **Ward**s
   ▶ "PR arm" - party-list **P**roportional **R**epresentation

2. Gender quota `Quota` `Background`
   ▶ PR arm: all odd-number candidates in party list need to be female
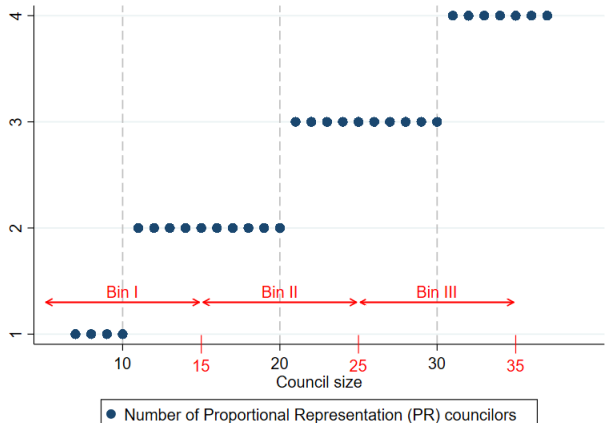
Electoral rules and gender quotas
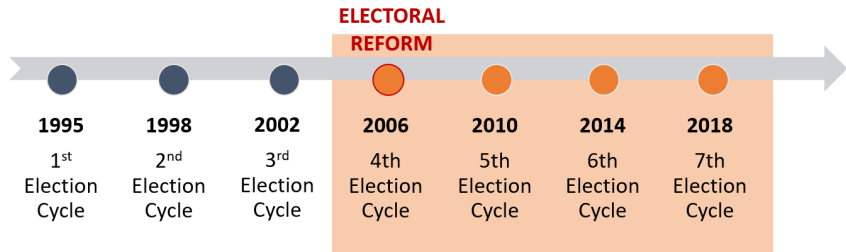
Empirical strategy

▶ Focus on the post-reform period

▶ Compare municipalities with different stringency of quota

Identification Strategy

Identification Strategy running variable council size validity

▶ Regression discontinuity design around the number of PR seats

• Number of Proportional Representation (PR) councilors

$$Y_{cbt} = \sum_{s=4}^{7} \beta_s \times Treat_{cb4} + f(x_{cb4}) + \pi X_{cbt} + \delta_b + \gamma_t + \epsilon_{cbt}$$

where $x_{cb4} \equiv (\text{council size})_{cb4} - \text{threshold}_b$,

$$Treat_{cb4} \equiv \mathbb{1}(x_{cb4} \geq 0)$$

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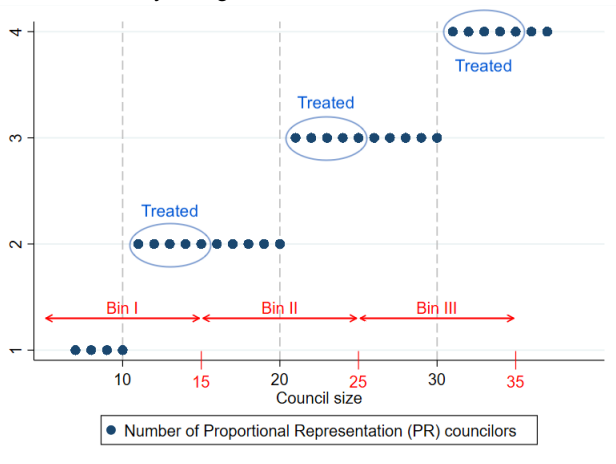

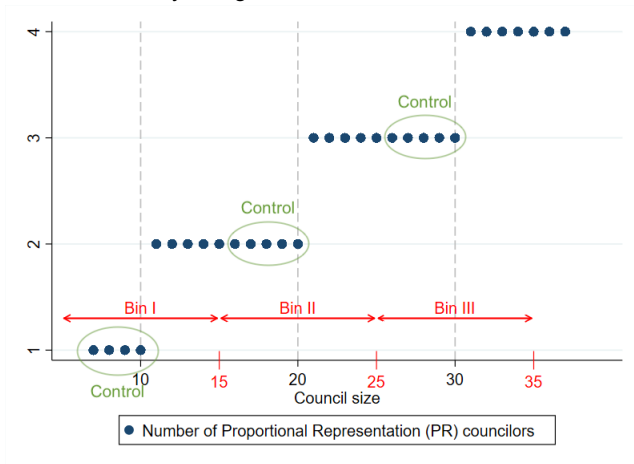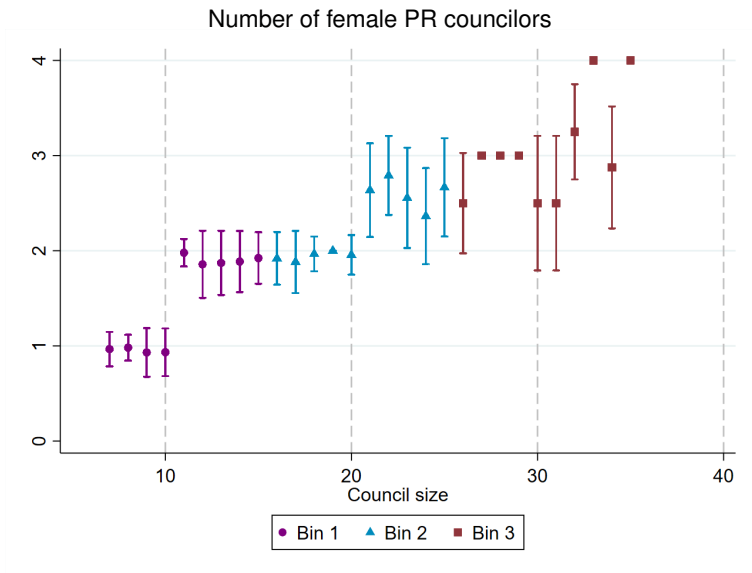Number of Proportional Representation (PR) councilors

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Number of female PR councilors

Main Results

Quota increased the number of female councilors... with time

	All political parties					
	Ward councilors		PR councilors		All councilors	
	Male (1)	Female (2)	Male (3)	Female (4)	Male (5)	Female (6)
Treat × Cycle 4	0.45*	-0.34	0.09	0.76***	-0.29	0.29
	(0.26)	(0.22)	(0.08)	(0.09)	(0.33)	(0.28)
Treat × Cycle 5	-0.13	0.31	0.10	0.71***	-0.87**	0.88***
	(0.29)	(0.23)	(0.06)	(0.08)	(0.35)	(0.29)
Treat × Cycle 6	-0.22	0.52*	0.08	0.71***	-0.97**	1.09***
	(0.33)	(0.27)	(0.06)	(0.08)	(0.38)	(0.32)
Treat × Cycle 7	-0.28	0.82***	0.04	0.72***	-1.08***	1.41***
	(0.36)	(0.29)	(0.06)	(0.08)	(0.41)	(0.35)
Running variable form	ward	ward	council	council	council	council
N	868	868	868	868	868	868

t statistics from standard errors clustered by municipality in parentheses
$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ The sample includes bins 1 and 2 only.

Quota increased the number of female councilors... with time

	All political parties					
	Ward councilors		PR councilors		All councilors	
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Election outcomes reflect parties' candidate selection

| | **All parties** | | **Main political parties** | | | | | |
| | All ward candidates | | All ward candidates | | Useful positions | | Rank 1 candidates | |
	Male (1)	Female (2)	Male (3)	Female (4)	Male (5)	Female (6)	Male (7)	Female (8)
Treat × Cycle 4	3.70***	-0.24	1.43*	-0.28	0.63	-0.40**	0.80*	-0.39**
	(1.16)	(0.35)	(0.76)	(0.23)	(0.46)	(0.18)	(0.47)	(0.18)
Treat × Cycle 5	0.56	0.49	0.39	0.48*	-0.47	0.43**	0.42**	0.42**
	(0.91)	(0.36)	(0.65)	(0.25)	(0.48)	(0.18)	(0.48)	(0.18)
Treat × Cycle 6	-1.39*	0.91**	0.57	0.76**	-0.02	0.44*	0.07	0.45*
	(0.84)	(0.42)	(0.64)	(0.29)	(0.45)	(0.23)	(0.45)	(0.23)
Treat × Cycle 7	-2.23**	1.10**	-0.54	1.17***	-0.20	0.70***	-0.13	0.68***
	(1.00)	(0.44)	(0.65)	(0.32)	(0.46)	(0.25)	(0.46)	(0.25)
Running variable form	ward	ward	ward	ward	ward	ward	ward	ward
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Initial counteraction → Gradual reversal

Parties' candidate selection for parties likely to win

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✓ Parties: Quota affects strategic decision-making
(e.g. Bagues and Campa, 2021; Casas-Arce and Saiz, 2015; Esteve-Volart and Bagues, 2012; Bhavnani, 2009)

  ▶ lack of info and **biased beliefs** → select sub-optimally low # women
  ▶ quota **forces** parties to **experience** female councilors → update beliefs on incumbent women and women as a whole

→ Dynamic model of statistical discrimination & test its predictions `Model`

1. Change occurs faster with more new information on women

- ▶ Additional women elected in treated municipalities due to quota are **rookies**
- ⇒ Quota exposed parties to **new information** about women

	Main political parties					
	Incumbent councilors			Rookie councilors		
	Ward Female (1)	PR Female (2)	All Female (3)	Ward Female (4)	PR Female (5)	All Female (6)
Treat × Cycle 4	-0.10	0.00	-0.16	-0.24*	0.44***	0.19
	(0.11)	(0.02)	(0.13)	(0.12)	(0.11)	(0.20)
Treat × Cycle 5	0.14	0.02	0.09	0.11	0.41***	0.50**
	(0.14)	(0.02)	(0.16)	(0.13)	(0.10)	(0.20)
Treat × Cycle 6	0.41**	-0.00	0.34*	0.07	0.68***	0.74***
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	(0.17)	(0.02)	(0.18)	(0.18)	(0.10)	(0.22)
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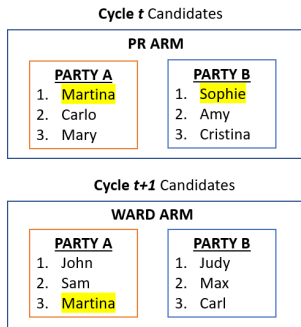## 2. Change occurs where stronger lack of information on women

▶ Proxy for lack of information: existence of female councilors before quota

⇒ Initial counteraction and reversal occur where **less information** about women

	Main political parties			
	No Elected Woman Before Quota		Female Councilors Before Quota	
	Ward Female (1)	Ward Female (2)	Ward Female (3)	Ward Female (4)
Treatment at cycle 4	-0.24	-0.46**	0.50	0.59
	(0.24)	(0.23)	(0.62)	(0.58)
Treat at cycle 4 x Cycle 5	0.78***	0.81***	0.43	0.57
	(0.21)	(0.20)	(0.38)	(0.34)
Treat at cycle 4 x Cycle 6	0.87***	0.84***	1.09**	1.10**
	(0.28)	(0.28)	(0.51)	(0.52)
Treat at cycle 4 x Cycle 7	1.77***	1.81***	0.30	0.27
	(0.36)	(0.39)	(0.49)	(0.55)
Running variable form	ward	ward	ward	ward
N	652	652	215	215
Control: N. ward candidates	No	Yes	No	Yes

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3. Experiencing women in action is pivotal

► RDD: Parties that marginally won vs marginally lost a female PR candidate

$\Rightarrow$ *Prob.(Female PR candidate in t is promoted to ward candidate in $t + 1$)* significantly higher if she won the election ... only if the party had a **preference for men**

Cycle t Candidates

PR ARM

PARTY A	PARTY B
1. Martina	1. Sophie
2. Carlo	2. Amy
3. Mary	3. Cristina

Cycle $t+1$ Candidates

WARD ARM

PARTY A	PARTY B
1. John	1. Judy
2. Sam	2. Max
3. Martina	3. Carl

Main political parties

$\mathbb{1}$(Number-1 PR candidate in t is a ward candidate in $t + 1$)

Bandwidth ($|v_{cpt}|$)	0.20	0.15	0.10	0.05
	(1)	(2)	(3)	(4)
Panel A: All parties				
$Winner_t$	0.41***	0.42***	0.35***	0.42***
	(0.07)	(0.08)	(0.09)	(0.13)
N	414	313	216	114
Panel B: 2nd PR candidate = Man				
$Winner_t$	0.44***	0.49***	0.40***	0.45***
	(0.08)	(0.08)	(0.10)	(0.14)
N	308	241	165	90
Panel C: 2nd PR candidate = Woman				
$Winner_t$	0.35*	0.21	0.07	-0.21
	(0.19)	(0.20)	(0.23)	(0.37)
N	106	72	51	24

t statistics from standard errors clustered by municipality×party in

parentheses $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Empirical strategy

4. Change occurs for the group of women as a whole

▶ Parties in Treated municipalities put forth more rookie women over time

⇒ not just about the women the party gets to **experience**

⇒ not just about the **availability** of women with political experience

Main political parties

	Incumbent ward candidates		Rookie ward candidates	
	Male	Female	Male	Female
	(1)	(2)	(3)	(4)
Treat × Cycle 4	0.67*	-0.00	0.76	-0.28*
	(0.40)	(0.13)	(0.62)	(0.17)
Treat × Cycle 5	1.04***	0.47***	-0.65	0.01
	(0.38)	(0.17)	(0.60)	(0.16)
Treat × Cycle 6	0.86**	0.61***	-0.30	0.15
	(0.37)	(0.21)	(0.50)	(0.18)
Treat × Cycle 7	-0.08	0.79***	-0.46	0.38*
	(0.40)	(0.20)	(0.52)	(0.21)
Running variable form	ward	ward	ward	ward
N	867	867	867	867

t statistics from standard errors clustered by municipality in parentheses

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Alternative mechanisms

✗ Parties: constrained in finding competent women
▶ not more difficult to find women for Treated municipalities `Table`

✗ Parties: change in taste for women (Becker, 1971)
▶ change occurs faster where the first elected women are more competent `Table`
→ a matter of quality not preferences

✗ Parties: change in women's power or # of women in powerful positions
(Athey et al., 2000; Gagliarducci and Paserman, 2012; O'Brien and Rickne, 2016; Born et al., 2022;
Cullen and Perez-Truglia, 2023)
▶ reversal happening primarily in wards where competition is high and important
to place the best candidate `Table`
→ women's quality driving the change, more than power dynamics

Conclusion

▶ Quota design matters: ineffective if does not ensure women end up elected
(e.g. Bagues and Campa, 2021; Dahlerup and Freidenvall, 2013)

▶ Broader relevance

   ▶ many other countries with very low female representation in politics
(e.g. Brazil, Japan, Hungary, Iran, Malaysia, Moldavia, Lebanon, Mali, Nigeria)

   ▶ quotas proposed in other settings with similarly male-dominated incumbents and male-friendly attitudes (e.g. company boards)

References I

Afridi, F., V. Iversen, and M. R. Sharan (2017). Women political leaders, corruption, and learning: Evidence from a large public program in india. *Economic Development and Cultural Change 66*(1), 1–30.

Arcidiacono, P. and M. Lovenheim (2016, March). Affirmative action and the quality-fit trade-off. *Journal of Economic Literature 54*(1), 3–51.

Athey, S., C. Avery, and P. Zemsky (2000, September). Mentoring and diversity. *American Economic Review 90*(4), 765–786.

Bagues, M. and P. Campa (2020). Women and Power: Unpopular, Unwilling, or Held Back? A Comment. *Journal of Political Economy 128*(5), 2010–2016.

Bagues, M. and P. Campa (2021). Can gender quotas in candidate lists empower women? evidence from a regression discontinuity design. *Journal of Public Economics 194*, 104315.

Baltrunaite, A., P. Bello, A. Casarico, and P. Profeta (2014). Gender quotas and the quality of politicians. *Journal of Public Economics 118*(C), 62–74.

Baltrunaite, A., A. Casarico, P. Profeta, and G. Savio (2019). Let the voters choose women. *Journal of Public Economics 180*, 104085.

Baskaran, T. and Z. Hessami (2018, August). 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., R. Chattopadhyay, E. Duflo, R. Pande, and P. Topalova (2009). Powerful women: Does exposure reduce bias? *The Quarterly Journal of Economics 124*(4), 1497–1540.

Becker, G. (1971). *The Economics of Discrimination* (2 ed.). University of Chicago Press.

Besley, T., O. Folke, T. Persson, and J. Rickne (2017). Gender quotas and the crisis of the mediocre man: Theory and evidence from sweden. *American Economic Review 107*(8), 2204–42.

Bhalotra, S., I. Clots-Figueras, and L. Iyer (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. *The American Political Science Review 103*(1), 23–35.

Born, A., E. Ranehill, and A. Sandberg (2022, 03). Gender and Willingness to Lead: Does the Gender Composition of Teams Matter? *The Review of Economics and Statistics 104*(2), 259–275.

References II

Braga, M. and F. Scervini (2017). The performance of politicians: The effect of gender quotas. *European Journal of Political Economy 46*, 1 – 14.

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

Casas-Arce, P. and A. Saiz (2015). Women and power: Unpopular, unwilling, or held back? *Journal of Political Economy 123*(3), 641 – 669.

Castilla, C. (2018). Political role models and child marriage in india. *Review of Development Economics 22*(4), 1409–1431.

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

Clayton, A. (2015). Womenâs political engagement under quota-mandated female representation: Evidence from a randomized policy experiment. *Comparative Political Studies 48*(3), 333–369.

Clots-Figueras, I. (2012). Are female leaders good for education? evidence from india. *American Economic Journal: Applied Economics 4*(1), 212–244.

Cullen, Z. and R. Perez-Truglia (2023, July). The old boys' club: Schmoozing and the gender gap. *American Economic Review 113*(7), 1703–40.

Dahlerup, D. and L. Freidenvall (2013). Electoral gender quota systems and their implementation in europe. Technical report, The European Parliament, the Committee on Womenâs Rights and Gender Equality.

Dal Bó, E. and F. Finan (2018). Progress and perspectives in the study of political selection. *Annual Review of Economics 10*(1), 541–575.

De Paola, M., V. Scoppa, and R. Lombardo (2010). Can gender quotas break down negative stereotypes? evidence from changes in electoral rules. *Journal of Public Economics 94*(5), 344 – 353.

Esteve-Volart, B. and M. Bagues (2012). Are women pawns in the political game? evidence from elections to the spanish senate. *Journal of Public Economics 96*(3), 387–399.

Ferreira, F. and J. Gyourko (2014). Does gender matter for political leadership? the case of u.s. mayors. *Journal of Public Economics 112*(C), 24–39.

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

Holzer, H. and D. Neumark (2000, September). Assessing affirmative action. *Journal of Economic Literature 38*(3), 483–568.

References III

International IDEA (2023). Gender quotas database. Global Database of Gender Quotas in parliaments worldwide by International Institute for Democracy and Electoral Assistance, Inter-Parliamentary Union and Stockholm University.

Lippmann, Q. (2022). Gender and lawmaking in times of quotas. *Journal of Public Economics 207*, 104610.

Lundberg, S. J. and R. Startz (1983). Private discrimination and social intervention in competitive labor market. *The American Economic Review 73*(3), 340–347.

Murray, R. (2010). Second among unequals? a study of whether france's âquota womenâ are up to the job. *Politics amp; Gender 6*(1), 93â118.

O'Brien, D. Z. (2012, 03). 57Quotas and Qualifications in Uganda. In *The Impact of Gender Quotas*. Oxford University Press.

O'Brien, D. Z. and J. Rickne (2016). Gender quotas and women's political leadership. *American Political Science Review 110*(1), 112â126.

Rigon, M. and G. M. Tanzi (2012, April). Does gender matter for public spending? Empirical evidence from Italian municipalities. Temi di discussione (Economic working papers) 862, Bank of Italy, Economic Research and International Relations Area.

Weeks, A. C. and L. Baldez (2015). Quotas and qualifications: the impact of gender quota laws on the qualifications of legislators in the italian parliament. *European Political Science Review 7*(1), 119â144.

Welch, F. (1976). Employment quotas for minorities. *Journal of Political Economy 84*(4), S105–S141.

APPENDIX

Contribution

- ▶ Literature on the effect of female representation and gender quotas:

  - ▶ competence/quality (e.g. Bagues and Campa, 2021; Bagues and Campa, 2020; Besley et al., 2017; Baltrunaite et al., 2014; Weeks and Baldez, 2015; Ferreira and Gyourko, 2014; O'Brien, 2012; Murray, 2010)

  - ▶ political outcomes (Lippmann, 2022; Bagues and Campa, 2021; Braga and Scervini, 2017; Afridi et al., 2017; Brollo and Troiano, 2016; Ferreira and Gyourko, 2014; Rigon and Tanzi, 2012; Clots-Figueras, 2012; Gagliarducci and Paserman, 2012; Chattopadhyay and Duflo, 2004; etc.)

  - ▶ women's empowerment and stereotypes in society (e.g. Baltrunaite et al., 2019; Baskaran and Hessami, 2018; Castilla, 2018; Bhalotra et al., 2018; Bhalotra et al., 2018; Brollo and Troiano, 2016; O'Brien and Rickne, 2016; Casas-Arce and Saiz, 2015; Ferreira and Gyourko, 2014; Clots-Figueras, 2012; De Paola et al., 2010; Beaman et al., 2009)

  - ▶ parties' strategies (Bagues and Campa, 2021; Besley et al. (2017); Bhalotra et al., 2018; Casas-Arce and Saiz, 2015; Esteve-Volart and Bagues, 2012; Bhavnani, 2009; etc.)

→ Pin down parties' responses and study them in an **unusually rich way**

  → **isolate** the effect of exposure to female councilors on parties strategies

  → uncover motives for lack of women: **imperfect info** and **biased beliefs**

  → contribute to discussion on design of quotas: **experiential learning**

Increase in the share of female councilors post-quota

Election year
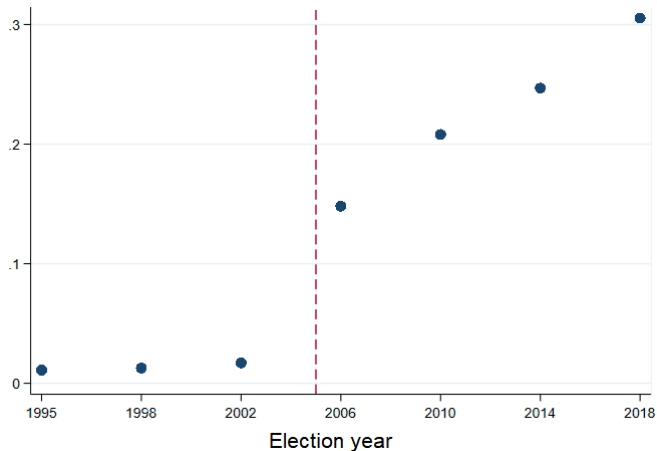
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Why South Korea municipal councils? Setting
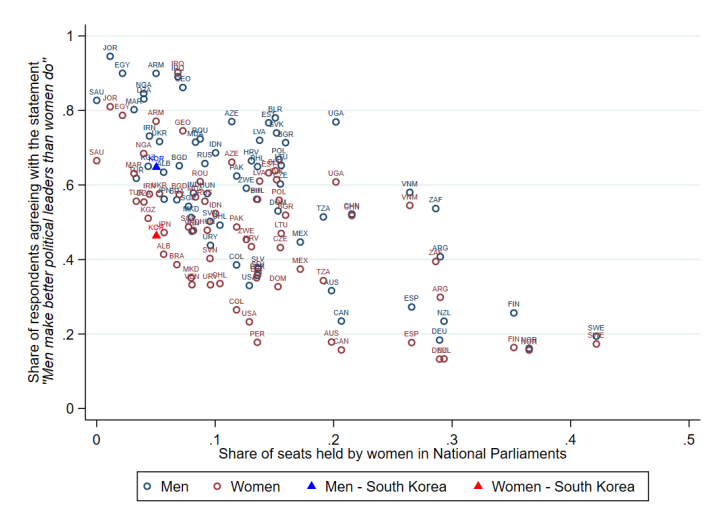
return

Ballot paper

BALLOT PAPER			
"Ward councilors"			
(Multi-member plurality vote)			
Municipality A - Ward X			

1-a	Party 1	Cand. i	
1-b	Party 1	Cand. ii	
2-a	Party 2	Cand. iii	✔
2-b	Party 2	Cand. iv	
3	Party 3	Cand. v	

BALLOT PAPER
"PR councilors"
(Party-list proportional representation)

Municipality A

1	Party 1	✔
2	Party 2	
3	Party 3	
4	Party 4	
5	Party 5	

return to reform   return to results

Background to the adoption of the gender quota

► First adopted in the National Assembly, because
  1. International pressure
  2. Demands from women's organizations
  3. Political tactic

► Natural next step to adopt it in municipal level. Move for the reform led by both major parties

return

How council size is determined

- ► There are rules against gerrymandering

- ► Who?
  - ► Municipal Council Election Committee in each district
  - ► ≤ 11 members, appointed by the district mayor from nominees by the media, legal & academic community, civic groups, district council, District Election Committee
  - ► Municipal councilor or party member cannot be in the committee

- ► How?
  - ► Council size determined based on population, administrative units, topography, transportation, etc
  - ► Cannot split smallest admin unit & make part of another ward

Allocation of PR seats across parties

| | Councils by the number of PR seats | | | | | |
| | 1 PR seat | | 2 PR seats | | 3 PR seats | |
	N.	Percent.	N.	Percent.	N.	Percent.
Election Cycle 4						
1 Party	117	100%	15	17.86%	0	0
2 Parties	0	0	69	82.14%	15	83.33%
3 Parties	0	0	0	0	3	16.67%
Election Cycle 5						
1 Party	117	100%	5	6.02%	0	0
2 Parties	0	0	78	93.98%	13	72.22%
3 Parties	0	0	0	0	7	27.78%
Election Cycle 6						
1 Party	110	100%	18	20.22%	0	0
2 Parties	0	0	71	79.78%	17	100%
3 Parties	0	0	0	0	0	0%
Election Cycle 7						
1 Party	105	100%	9	9.89%	1	4.35%
2 Parties	0	0	82	90.11%	18	94.74%
3 Parties	0	0	0	0	1	5.26%
Total	**449**		**347**		**72**	

Form of the running variable

$$x_{cbt} \equiv (\text{council size})_{cbt} - \text{threshold}_b$$

or

$$\tilde{x}_{cbt} \equiv (\text{number of ward councilors})_{cbt}$$
$$- (\text{number of ward councilors at the threshold})_b$$

return

Validating the identification strategy

Main assumption: treatment assignment is as good as random

1. Balance tests - no other characteristic is discontinuous at the threshold `evidence`

2. Bunching - municipalities cannot manipulate council size `evidence`

3. Placebo test - the thresholds do not matter before the reform `evidence`

`return`

Validating the Empirical Strategy (1) - Balance tests

| | *Panel A*: Population characteristics | | | | | | |
| | Population | | Voting age population | | | Households | |
	Total (1)	Foreign (2)	Total (3)	Male (4)	Female (5)	Total (6)	Foreign (7)
Treat	-27.01	0.01	-19.69	-9.09	-10.60	-6.62	0.01
	(-0.86)	(0.68)	(-0.85)	(-0.79)	(-0.91)	(-0.58)	(0.73)
Running variable	26.87***	-0.01	19.47***	9.39***	10.08***	9.10***	-0.01
	(4.36)	(-1.17)	(4.31)	(4.18)	(4.44)	(4.14)	(-1.19)
Treat $\times$ Running variable	14.16	0.01	11.51	5.83	5.68	4.79	0.01
	(1.05)	(1.62)	(1.14)	(1.17)	(1.11)	(0.97)	(1.64)
N	219	219	219	219	219	219	219

t statistics from standard errors clustered by municipality in parentheses
$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$
The sample includes bins 1 and 2 only.

***Panel B*: Political leaning and economic characteristics**

|	Past vote share by party		Budget	
	Conservative (8)	Progressive (9)	Total (10)	Council expenses (11)
Treat	-0.02	-0.01	66.33	0.02
	(-0.28)	(-0.28)	(0.78)	(0.53)
Running variable	-0.00	-0.01	37.52**	0.07***
	(-0.20)	(-0.86)	(2.13)	(8.14)
Treat $\times$ Running variable	0.01	0.02	-56.66**	-0.04**
	(0.25)	(1.63)	(-1.99)	(-2.00)
N	219	219	219	219

t statistics from standard errors clustered by municipality in parentheses
$*p < 0.10$, $**p < 0.05$, $***p < 0.01$
The sample includes bins 1 and 2 only.

return

Validating the Empirical Strategy (2) - Bunching
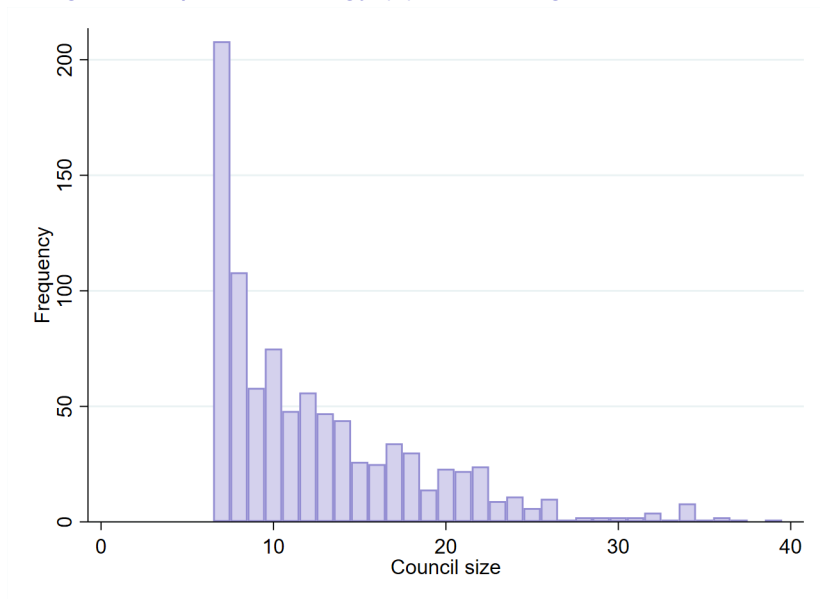
return

Validating the Empirical Strategy (3) - Placebo test

	Number of ward candidates			
	Male (1)	Female (2)	Male (3)	Female (4)
Treat × Cycle 1	0.92	0.01	0.03	0.04
	(1.32)	(0.26)	(1.33)	(0.31)
Treat × Cycle 2	0.40	-0.05	-0.61	0.03
	(1.12)	(0.24)	(1.01)	(0.30)
Treat × Cycle 3	1.06	0.06	0.01	0.15
	(1.02)	(0.27)	(0.90)	(0.32)
Treat × Cycle 4	3.22***	0.72**	2.93**	0.59**
	(1.21)	(0.28)	(1.15)	(0.27)
Treat × Cycle 5			-0.71	1.29***
			(0.83)	(0.31)
Treat × Cycle 6			-2.29***	1.58***
			(0.79)	(0.42)
Treat × Cycle 7			-2.79***	1.58***
			(0.98)	(0.44)
Running variable form	ward	ward	ward	ward
N	899	899	1577	1577

t statistics from standard errors clustered by municipality in parentheses

$*p < 0.10$, $**p < 0.05$, $***p < 0.01$

return

Dynamic model of discrimination - in a nutshell

▶ Consider a party trying to maximize average councilor ability

▶ Imperfect information about ability:
  ▶ **true ability** of person i (a_i) is only revealed after i **serves as councilor**
  ▶ party observes a signal of ability (s_i)
  ▶ party observes the gender and holds **beliefs** on the ability of the **group**

⇒ Party picks the candidates with the **highest expected ability**

▶ Start with **downward biased incorrect beliefs** about women's competence
  → select a **suboptimally low** # of women

▶ Quota **forces** parties to **experience** female councilors
  → update beliefs on incumbent women
  → update beliefs regarding women as a whole

Illustration of candidate selection at t

prior distribution of female ability

true distribution of male ability

$\tilde{\mu}_{f,t}$ μ_m k_1 a
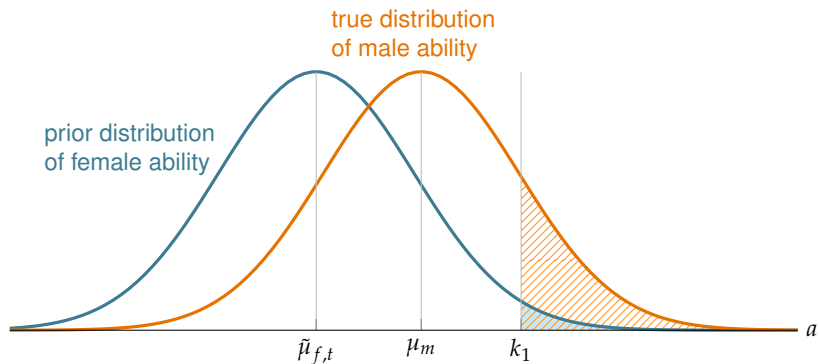
Rethinking the value of μ_f once true ability is revealed

true distribution of female ability $=$ true distribution of male ability

$\mu_f = \mu_m$ k_1 $\mu_f + (k_1 - \tilde{\mu}_{f,t})$ a
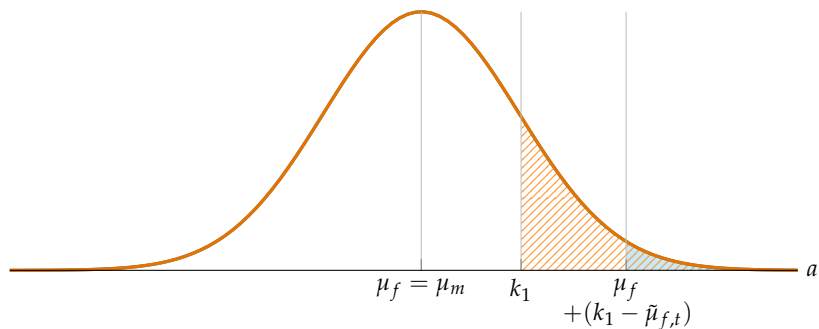
"What must μ_f be for females with signals $\{s_i\}$ to have true ability $\{a_i\}$?"

Illustration of candidate selection at $t+1$

true distribution of male ability

posterior distribution of female ability

$\tilde{\mu}_{f,t+1}$ μ_m k_2 a
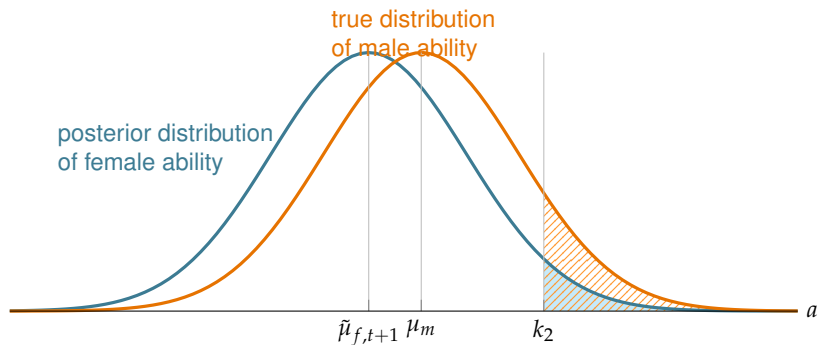
mechanism

Which parties are learning and how?

▶ Estimate for a party, the causal effect of having previously won a PR councilor.

▶ Marginal winners vs. marginal losers of the **last** PR seat

$$Y_{cpt} = \beta \times Winner_{cp,t-1} + f(v_{cp,t-1}) + X_{cpt} + \delta_n + \gamma_t + \epsilon_{cpt}$$

$$\text{where} \quad v_{cpt} \equiv (\text{vote share})_{cpt} - (\text{verdict-determining vote share})_{cpt},$$

$$Winner_{cp,t-1} \equiv \mathbb{1}(v_{cp,t-1} \geq 0)$$

Computing marginal winners and marginal losers
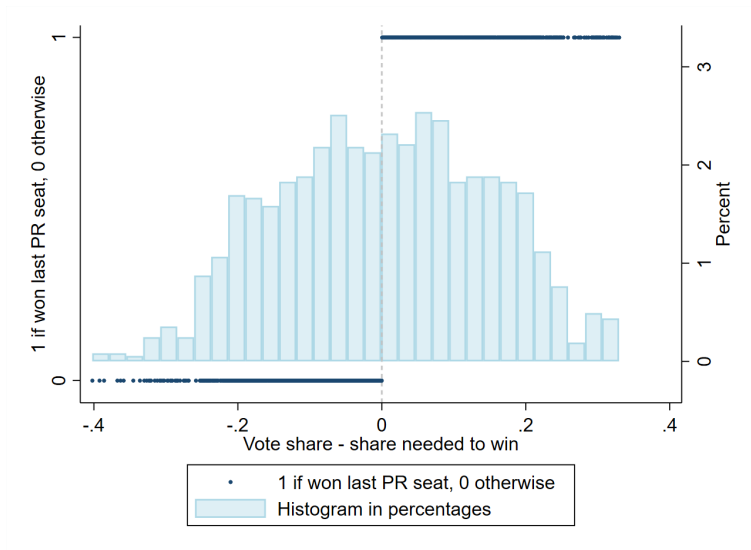
return

Voters do not vote increasingly more for female candidates in Treated

$$Y_{icbt} = \beta_1 Treat_{cb4} + \beta_2 Female_i \times Treat_{cb4} + \beta_3 Female_i$$

$$+ \sum_{s=5}^{7} [\beta_{1,s} Treat_{cb4} + \beta_{2,s} Female_i \times Treat_{cb4} + \beta_{3,s} Female_i]$$

$$+ f(x_{cb4}) + \pi_1 X_{cbt} + \pi_2 X_{icbt} + \delta_b + \gamma_t + \epsilon_{cbt}$$

Main political parties

	Candidate's vote share in the ward election arm (%)		
	(1)	(2)	(3)
Treat × Female	-1.213	0.428	-0.168
	(1.867)	(1.540)	(1.614)
Treat × Cycle 5 x Female	2.100	-0.595	-0.334
	(2.086)	(1.649)	(1.737)
Treat × Cycle 6 x Female	1.579	-0.435	0.192
	(1.880)	(1.527)	(1.597)
Treat × Cycle 7 x Female	0.599	-0.941	-0.165
	(2.088)	(1.722)	(1.749)
Running variable form	ward	ward	ward
N	11246	11246	10791
Controls	-	position on ballot	position on ballot & candidate charact.

return

Treated municipalities do not have more difficulty finding female candidates in cycle 4

	Pr(no_difficulty)		
	(1)	(2)	(3)
Treat × Cycle 4	-0.02	0.09	0.09
	(-0.46)	(1.19)	(1.27)
Treat × Cycle 5	-0.02	-0.09	-0.12*
	(-0.49)	(-1.19)	(-1.65)
Treat × Cycle 6	-0.04	-0.02	-0.04
	(-0.89)	(-0.33)	(-0.69)
Treat × Cycle 7	-0.00	-0.08	-0.10
	(-0.05)	(-1.18)	(-1.38)
Running variable from	council	council	council
Sample	all parties	main parties	main parties participating in ward arm
N	3795	1557	1520

t statistics from standard errors clustered by municipality in parentheses
$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ The sample includes bins 1 and 2 only.
no_difficulty: party places more female candidates in party list than it needs to

return

$$edu_{icbt} = \beta_1 Treat_{cb4} + \beta_2 Female_i \times Treat_{cb4} + \beta_3 Female_i$$

$$+ \sum_{s=5}^{7} [\beta_{1,s} Treat_{cb4} + \beta_{2,s} Female_i \times Treat_{cb4} + \beta_{3,s} Female_i]$$

$$+ f(x_{cb4}) + \pi_1 X_{cbt} + \pi_2 X_{icbt} + \delta_b + \gamma_t + \epsilon_{cbt}$$

	Main political parties			
	Education level (1)	Years of schooling (2)	Bachelor or more (3)	Attended top 20 uni (4)
Treat at cycle 4 × Female	0.127	0.235	-0.020	-0.033
	(0.171)	(0.282)	(0.043)	(0.025)
Treat at cycle 4 × Female × Cycle 5	0.073	0.064	0.065	-0.019
	(0.171)	(0.283)	(0.052)	(0.026)
Treat at cycle 4 × Female × Cycle 6	0.102	0.099	0.017	0.032
	(0.202)	(0.324)	(0.055)	(0.029)
Treat at cycle 4 × Female × Cycle 7	-0.150	-0.283	0.011	0.035
	(0.201)	(0.327)	(0.055)	(0.031)
N	13235	13235	13235	13235
Running variable form	council	council	council	council
Age polynomials	Yes	Yes	Yes	Yes
Party affiliation	Yes	Yes	Yes	Yes
Rookie vs Incumbent	Yes	Yes	Yes	Yes
Political experience	Yes	Yes	Yes	Yes

The gender gap in occupation remains similar in Treated and Control

$$occ_{icbt} = \beta_1 Treat_{cb4} + \beta_2 Female_i \times Treat_{cb4} + \beta_3 Female_i$$

$$+ \sum_{s=5}^{7} [\beta_{1,s} Treat_{cb4} + \beta_{2,s} Female_i \times Treat_{cb4} + \beta_{3,s} Female_i]$$

$$+ f(x_{cb4}) + \pi_1 X_{cbt} + \pi_2 X_{icbt} + \delta_b + \gamma_t + \epsilon_{cbt}$$

	Main political parties					
	Politician	Agriculture + Mining	Industry	Market Services	Non-market Services	Unemployed
	(1)	(2)	(3)	(4)	(5)	(6)
Treat at cycle 4 $\times$ Female	0.061	0.080***	-0.000	-0.020	0.023	0.014
	(0.042)	(0.023)	(0.012)	(0.032)	(0.041)	(0.035)
Treat at cycle 4 $\times$ Cycle 5 $\times$ Female	-0.013	-0.059**	-0.011	0.005	0.034	-0.054
	(0.052)	(0.024)	(0.016)	(0.040)	(0.054)	(0.044)
Treat at cycle 4 $\times$ Cycle 6 $\times$ Female	-0.048	-0.097***	-0.001	0.015	-0.010	-0.009
	(0.055)	(0.022)	(0.015)	(0.039)	(0.058)	(0.040)
Treat at cycle 4 $\times$ Cycle 7 $\times$ Female	-0.015	-0.060**	-0.008	0.004	0.012	-0.039
	(0.049)	(0.024)	(0.016)	(0.050)	(0.050)	(0.038)
N	13235	13235	13235	13235	13235	13235
Running variable form	council	council	council	council	council	council
Age polynomials	Yes	Yes	Yes	Yes	Yes	Yes
Party affiliation	Yes	Yes	Yes	Yes	Yes	Yes
Rookie vs Incumbent	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes

Change occurs faster where the first women are more competent

- ▶ Proxy for competence: candidates' **education**
- ⇒ Reversal is faster where **first female councilors** elected due to the quota are **more competent**
- → Not consistent with **taste based discrimination**: what matters is # not quality

	Main political parties							
	Ward candidates							
	Below-median education				Above-median education			
	Male (1)	Male (2)	Female (3)	Female (4)	Male (5)	Male (6)	Female (7)	Female (8)
Treat × Cycle 5	0.09	-0.04	-0.20	-0.04	-0.20	0.09	0.86**	0.92***
	(1.07)	(1.04)	(0.49)	(0.47)	(0.97)	(1.00)	(0.38)	(0.34)
Treat × Cycle 6	0.07	-0.07	0.22	0.38	0.10	0.39	0.98**	1.04**
	(0.93)	(0.90)	(0.50)	(0.43)	(0.95)	(1.00)	(0.45)	(0.41)
Treat × Cycle 7	-1.02	-1.15	0.74	0.90*	-0.63	-0.34	1.04**	1.10***
	(1.04)	(1.02)	(0.56)	(0.49)	(0.91)	(0.95)	(0.45)	(0.39)
Running variable form	ward	ward	ward	ward	ward	ward	ward	ward
N	272	272	272	272	269	269	269	269
Controls: N. & avg. edu of cycle-4 female candidates	No	Yes	No	Yes	No	Yes	No	Yes

t statistics from standard errors clustered by municipality in parentheses
$^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$ The sample includes bins 1 and 2 only.

return

- ▶ Safe wards: party won the greatest vote share in previous election cycle with margin of victory >10%
- ⇒ Women are put forth as candidate more over time when quality matters

| | Main political parties, (locality×party)-level regressions | | | | | | | |
| | All ward candidates | | | | Useful ward candidates | | | |
	Female Safe (1)	Female Safe (2)	Female Unsafe (3)	Female Unsafe (4)	Female Safe (5)	Female Safe (6)	Female Unsafe (7)	Female Unsafe (8)
Treat at cycle 4 x Cycle 4	-0.16	-0.18	-0.07	-0.09	-0.21*	-0.23**	-0.14	-0.14
	(0.15)	(0.15)	(0.12)	(0.12)	(0.12)	(0.12)	(0.10)	(0.10)
Treat at cycle 4 x Cycle 5	0.16	0.21	0.39***	0.34**	0.05	0.03	0.39***	0.39***
	(0.17)	(0.17)	(0.14)	(0.14)	(0.15)	(0.14)	(0.11)	(0.11)
Treat at cycle 4 x Cycle 6	0.10	0.08	0.43***	0.42***	0.10	0.08	0.22*	0.22*
	(0.21)	(0.21)	(0.15)	(0.15)	(0.17)	(0.17)	(0.11)	(0.11)
Treat at cycle 4 x Cycle 7	0.35*	0.32	0.62***	0.66***	0.08	0.08	0.44***	0.44***
	(0.21)	(0.20)	(0.15)	(0.16)	(0.17)	(0.17)	(0.13)	(0.13)
Running variable form	ward	ward	ward	ward	ward	ward	ward	ward
N	542	542	1171	1171	542	542	1171	1171
N. relevant party ward candidates	No	Yes	No	Yes	No	Yes	No	Yes
Party fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N. of safe wards	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N. of unsafe wards	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average past margin of victory	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

t statistics from standard errors clustered by municipality in parentheses
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$ The sample includes bins 1 and 2 only.