Is there a Critical Mass?
Gender Composition and Behavior in U.S. City Councils.

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How does the participation of women in a political group change as the share of women increases? How do any changes in participation affect policy outcomes?

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- No detectable impact on voting patterns or policy outcomes.

Consistent with "behavioral" model of critical mass with similar female/male preferences.

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- Born et al. (2022), Bordalo et al. (2019), Chen and Houser (2019), Coffman, (2014), Coffman et al. (2021), and Stoddard et al. (2020).
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- Our results build the case for the external validity of this large literature.

Contributes to broader literature on gender in politics by studying city councils:

- Ferreira and Gyourko (2014), Gagliarducci and Paserman (2012), Chattopadhyay and Duflo (2004), Wasserman (WP) and others.
- Our results + model suggest male/female preferences drive much heterogeneity.
- Also related work on race and political representation (e.g. Beach and Jones, 2017).

Institutional and Electoral Context
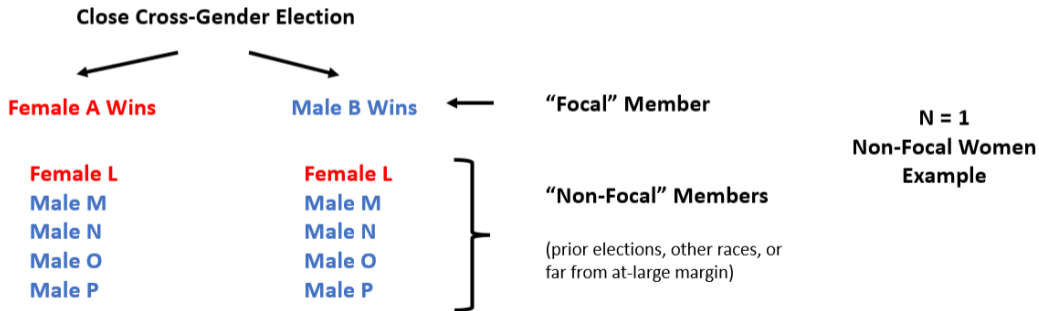
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Typical US city council characterized by: (National League of Cities, 2023)**:**

- 5-7 members, $\approx$ 3 seats up for election every 2 years.
- Direct election of councilors with (usually) no party affiliation listed on ballot.
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Close Cross-Gender Election

Female A Wins　　　**Male B Wins** ← "Focal" Member

Female A Wins	Male B Wins
Female L	**Female L**
Male M	**Male M**
Male N	**Male N**
Male O	**Male O**
Male P	**Male P**

"Non-Focal" Members

(prior elections, other races, or far from at-large margin)

N = 1
Non-Focal Women
Example

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Meeting minutes:

- 40,000 PDF's collected from cities with close gendered elections.
- Extract basic "meta-data" on attendance, meeting dates, etc. from every PDF.
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Estimation sample of small to mid-size cities for 34 states over ≈ 8 years. Summary Stats

Monday, November 15, 2010
4:00 PM - Room B-8
6:00 PM - Council Chambers
Civic Center, 2000 Main Street
Huntington Beach, California 92648

**An audio recording of the 4:00 PM portion of this meeting
and a video recording of the 6:00 PM portion of this meeting
are on file in the Office of the City Clerk and are archived at
www.surfcity-hb.org/government/agendas/**

4:00 PM - ROOM B-8

The City Clerk recessed until 4:30 PM due to a lack of quorum.

CALL TO ORDER - 4:35 PM

ROLL CALL

Present: Carchio, Coerper (arrived at 5:15 PM for Closed Session), Hardy, Green, Bohr,
            Dwyer, and Hansen

ANNOUNCEMENT OF COMMUNICATIONS RECEIVED AFTER AGENDA DISTRIBUTION

Pursuant to the Brown "Open Meetings" Act, City Clerk Joan Flynn announced that the following
communication was received by her office after distribution of the City Council agenda packet:

Communication received from Shari L. Freidenrich, CPA, City Treasurer, dated November 15,
2010 entitled City of Huntington Beach Investment Advisory Board (IAB) Annual Report to the
City Council for the Period October 1, 2009 to September 30, 2010.

28. Approved for introduction Ordinance No. 3905 amending Chapter 14.12 of the Huntington
Beach Municipal Code (HBMC) relating to fees, rates and deposits for water billing.

A motion was made by Coerper, second Hardy to after the City Clerk reads by title, approve for
introduction Ordinance No. 3905, "An Ordinance of the City of Huntington Beach Amending
Chapter 14.12 of the Huntington Beach Municipal Code Relating to Water Billing." The motion
carried by the following roll call vote:

AYES: Carchio, Coerper, Hardy, Green, Bohr, Dwyer, and Hansen
NOES: None

ORDINANCES FOR ADOPTION

29. Adopted Ordinance No. 3902 amending Huntington Beach Municipal Code (HBMC) section
8.43 relating to emergency response costs Approved for introduction November 1, 2010.

A motion was made by Hansen, second Carchio to after the City Clerk reads by title, approve
for introduction Ordinance No. 3905, "An Ordinance of the City of Huntington Beach Amending
Chapter 14.12 of the Huntington Beach Municipal Code Relating to Water Billing." The motion
carried by the following roll call vote:

AYES: Carchio, Coerper, Green, Dwyer, and Hansen
NOES: Hardy, and Bohr

30. Adopted Ordinance No. 3903 accepting modifications to Local Coastal Program Amendment
(LCPA) No. 2-10 approved by the California Coastal Commission and amend the Local Coastal
Program (LCP) accordingly Approved for introduction November 1, 2010.

A motion was made by Hansen, second Coerper to after the City Clerk reads by title, adopt
Ordinance No. 3903, "An Ordinance of the City Council of the City of Huntington Beach
amending sections 203.06, 216.04, 216.18, 221.10 and 230.82 of the Huntington Beach Zoning
and Subdivision Ordinance thereof to conform LCP Amendment No. 2-10 made by the
California Coastal Commission." The motion carried by the following roll call vote:

AYES: Carchio, Coerper, Hardy, Green, Bohr, Dwyer, and Hansen
NOES: None

Council Meeting Characteristics

	All	1 Non-Focal Women	> 1 Non-Focal Women
Panel A: Process			
Number of meetings	45.3	45.2	43.4
Meeting length	146.7	138	160.7
Panel B: Motions			
Moved by women (share)	0.3	0.26	0.43
Seconded by women (share)	0.35	0.3	0.5
Passed	0.93	0.92	0.93
Passed Unanimously	0.9	0.9	0.9
Panel C: Topics			
Admin (share)	0.61	0.6	0.6
Finance (share)	0.19	0.19	0.2
Public Utility (share)	0.13	0.14	0.13
Regulation (share)	0.10	0.11	0.09
Observations (councils)	325	136	124

Empirical Design

$$Y_c = \beta FemWin_c + F\left(FemVoteMargin_c\right) + \Gamma X_c + \varepsilon_c \qquad (1)$$

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- Includes council size, term length, and baseline spending as controls for precision.
- Specify $F()$ as piece-wise linear around the threshold.
- Data-driven bandwidth fixed across outcomes within each sample (Calonico et al., 2020).

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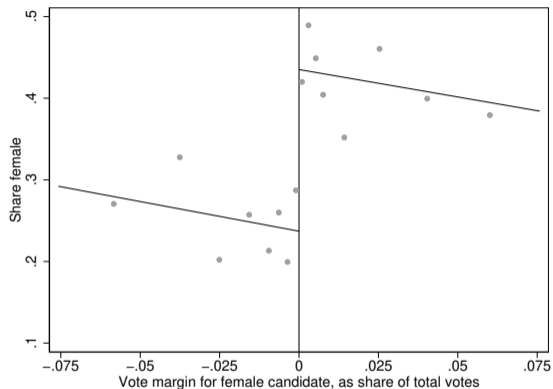
Robustness: Similar results with no controls, varying the functional form of $F()$, allowing bandwidth to vary, and fixing the bandwidth across samples.

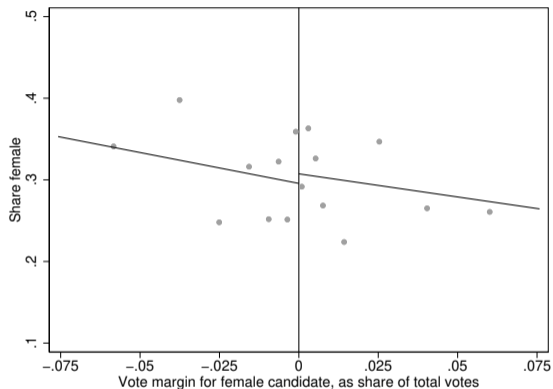# Female Win Effect on Female Representation
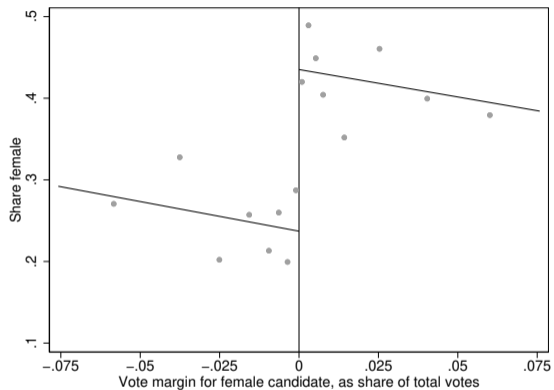
(a) Female Share: All Councilors

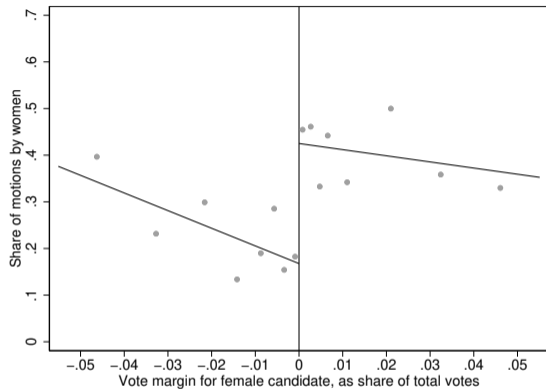# Female Win Effect on Female Representation

(a) Female Share: All Councilors

(b) Female Share: Non-focal Councilors

Increase in female rep of approx 20 p.p., composition of rest of council continuous.

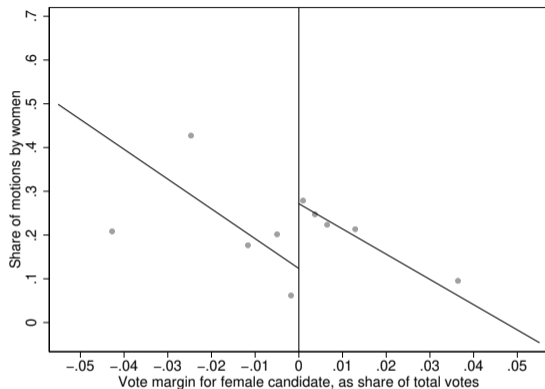# Female Win Effect on Female Participation

(a) Share of Motions made by Women

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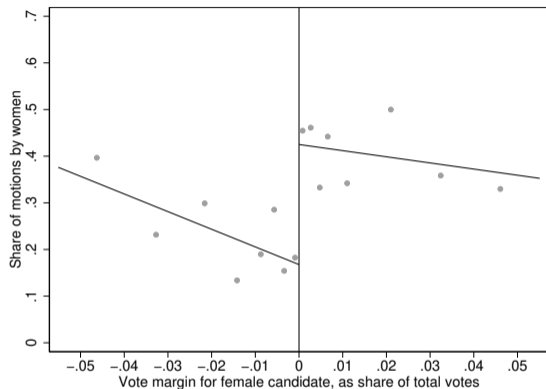
(a) Share of Motions made by Women

(b) Share by Non-focal Women ($N_w = 1$)

Share of motions by women increases by *more* than increase in rep., in part driven by increase in motions by otherwise isolated non-focal women.

Female Win Effects for Full Council Motions

	Full sample (1)	1 Non-Focal Woman (2)	> 1 Non-Focal Women (3)
No. of Motions	-4.962	-6.038	4.004
	(5.674)	(8.180)	(8.580)
Share moved by women	0.247***	0.301***	0.156*
	(0.048)	(0.054)	(0.080)
Share seconded by women	0.235***	0.267***	0.214***
	(0.055)	(0.068)	(0.074)
Share moved or seconded by women	0.335***	0.394***	0.217***
	(0.060)	(0.072)	(0.083)
Share moved and seconded by women	0.077**	0.084***	0.100
	(0.035)	(0.025)	(0.073)
Bandwidth	0.076	0.055	0.070
Observations	325	136	124

Female Win Effects for Non-Focal Council Motions

	1 Non-Focal Woman		> 1 Non-Focal Women	
	Men (1)	Women (2)	Men (3)	Women (4)
No. of Motions	-6.531 (5.839)	4.349** (1.967)	3.695 (4.742)	0.494 (4.340)
Share moved by women		0.148** (0.058)		-0.045 (0.095)
Share seconded by women		0.088 (0.076)		0.032 (0.089)
Share moved or seconded by women		0.219*** (0.064)		0.142 (0.087)
Bandwidth	0.055	0.055	0.070	0.070
Observations	136	136	124	124

No additional behavioral effect once two women on council.

Female Win Effects for Full Council Voting Outcomes

	Full sample (1)	1 Non-Focal Woman (2)	> 1 Non-Focal Women (3)
Share unanimous	0.005	-0.015	0.011
	(0.026)	(0.052)	(0.033)
Share failed	0.005	-0.000	0.020
	(0.006)	(0.006)	(0.013)
Vote margin	0.012	-0.084	0.061
	(0.138)	(0.252)	(0.215)
Votes in favor	0.007	-0.062	0.036
	(0.072)	(0.140)	(0.111)
Votes against	0.003	0.010	0.027
	(0.044)	(0.068)	(0.076)
Bandwidth	0.076	0.055	0.070
Observations	325	136	124

No evidence of "gridlock" or changes in internal voting strategy.

Female Win Effects on Per-Capita Spending

	Total (1)	Public Utility (2)	Health and Hospital (3)	Parks and Recreation (4)	Library (5)	Housing and Com Dev (6)	Airports and Water Ports (7)	Police and Fire (8)	Sewerage and Waste (9)	Roads and Parking (10)
All Councils	-38.452 (123.392)	-2.012 (44.313)	6.023 (9.443)	-14.833 (13.942)	-5.115 (5.177)	19.289 (40.067)	16.717** (8.363)	11.885 (20.837)	-41.357 (55.610)	-44.890 (38.663)
1 Non-focal Woman	101.065 (115.167)	-19.421 (54.343)	-5.829 (15.453)	-21.668 (23.146)	-12.070** (4.690)	103.363 (92.616)	17.964* (9.697)	40.074 (41.725)	-0.296 (32.759)	-4.017 (28.196)
> 1 Non-focal Woman	-147.084 (128.751)	-82.800 (66.792)	1.860 (1.807)	8.677 (13.891)	-8.021 (10.932)	-16.694 (19.533)	2.894 (2.997)	-2.103 (14.655)	-4.974 (38.811)	-16.891 (25.149)

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- Random committee member chosen to make a motion to approve the project.
- If majority votes in favor, councilors receive $U_g = u_g + \sum_j D_j \delta_j$.
- Otherwise, councilors receive outside option u_0.

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- When $d(u_w, u_m)$ is large: Consequential changes in voting patterns, topical content of motions brought to the floor, and the substantive content of public policy.
- When $d(u_w, u_m)$ is small: No impact on voting patterns, topical content of motions brought to the floor, or the substantive content of public policy.

Share of motions in given topic by gender

	Men's Share	Women's Share	Gender Gap	SE of Gap	P-Value
Administration	0.581	0.580	-0.002	0.008	0.846
Finance	0.206	0.219	0.014	0.007	0.035
Regulation	0.100	0.092	-0.009	0.005	0.071
Property	0.183	0.175	-0.008	0.006	0.180
Public Utilities	0.133	0.129	-0.004	0.005	0.503
Health	0.009	0.012	0.002	0.002	0.187
Parks	0.030	0.031	0.001	0.003	0.684
Libraries	0.005	0.005	0.000	0.001	0.814
Police	0.033	0.033	0.000	0.003	0.947
Airports	0.005	0.006	0.001	0.001	0.423

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First estimates "in-the-wild" of effects previously documented in laboratory-type settings.
- Suggests lab results may extend to other consequential decision making processes.

Suggests heterogeneity in gender gap in preferences might reconcile diverse findings from existing literature on women's political representation

Questions or Comments Welcome!

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