

# Powerful Women: Does Exposure Reduce Bias? <sup>a</sup>

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<sup>a</sup>Beaman, L., Chattopadhyay, R., Duflo, E., Pande, R., & Topalova, P. (2009). Quarterly Journal of Economics, 124(4), 1497-1540

## Highlights

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- This paper utilized random treatment of chief councilor reservation in India.
- Electoral prospect for women improved.
- Male's evaluation on female chief's effectiveness decreased in the short-run, but improved after 2 reservation.
- Some stereotypes against women persisted.

# Introduction

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General discussion around gender quota policy:

1. **Empathy:** exposure improves understanding
2. **Information Provision:** updating prior belief to reduce statistical discrimination
3. **Backlash:** "reverse discrimination", threatened status for privileged group

# Identification: Female Quota in Indian Local Councils

*Panchayat*: District > Block > **Village** (*Gram Panchayats, GP*)

- 1993 Constitutional Amendment
  - 1/3 councilor seats reserved for female
  - 1/3 GPs' chief councilor (*Pradhan*) reserved for female, chosen randomly.

## Related Subsequent Literatures

- Female entrepreneurship (Ghani, Kerr, and O'Connell 2014)
- Report of crimes against women (Iyer et al. 2012)
- Neonatal mortality of female (Kalsi 2017)
- Female educational attainment (Beaman et al. 2012)

- Sample: Villages in West Bengal
  - Active elections long before the amendment.
- Electoral results from 1998, 2003, 2008
- Supplemented by survey and experimental data

TABLE I  
VILLAGE-LEVEL RANDOMIZATION CHECK

Census variable	Only reserved 2003	Reserved 1998 and 2003	Only reserved 1998	Never reserved	Diff: (1) and (2)	Diff: (3) and (4)
	(1)	(2)	(3)	(4)	(5)	(6)
Total population	1,318 (1318)	1,197 (1295)	1,267 (1418)	1,362 (1555)	-102.279 (178.537)	-78.373 (189.410)
Fraction SC/ST population	0.432 (0.281)	0.502 (0.256)	0.450 (0.235)	0.471 (0.265)	0.004 (0.056)	-0.001 (0.033)
Average household size	5.436 (0.612)	5.222 (0.449)	5.362 (0.571)	5.497 (2.454)	0.137 (0.093)	-0.059 (0.135)
Sex ratio under 6	1.093 (0.590)	1.034 (0.276)	1.046 (0.218)	1.036 (0.226)	0.206 (0.113)	0.015 (0.025)
Literacy	0.387 (0.119)	0.351 (0.129)	0.391 (0.121)	0.373 (0.137)	0.014 (0.032)	0.021 (0.017)
Fraction women literate	0.287 (0.125)	0.265 (0.123)	0.296 (0.113)	0.275 (0.134)	-0.003 (0.033)	0.023 (0.016)
Fraction irrigated land	0.599 (0.321)	0.485 (0.349)	0.607 (0.323)	0.500 (0.352)	-0.038 (0.054)	0.054 (0.049)
Village has a bus or train stop	0.280 (0.451)	0.433 (0.500)	0.290 (0.456)	0.259 (0.439)	-0.130 (0.097)	0.061 (0.054)
Village has permanent approach road	0.110 (0.314)	0.300 (0.462)	0.176 (0.383)	0.194 (0.397)	-0.225 (0.082)	-0.006 (0.052)
Village has tube well	0.910 (0.288)	0.933 (0.252)	0.912 (0.285)	0.977 (0.151)	-0.022 (0.020)	-0.018 (0.031)
Village has hand pump	0.124 (0.331)	0.000 (0.000)	0.100 (0.302)	0.057 (0.233)	0.000 (0.000)	0.013 (0.012)
Village has well	0.440 (0.499)	0.533 (0.503)	0.402 (0.493)	0.528 (0.500)	0.043 (0.082)	-0.066 (0.074)
Village has community tap	0.065 (0.248)	0.050 (0.220)	0.042 (0.202)	0.010 (0.098)	0.022 (0.020)	-0.018 (0.017)
Number of schools	1.190 (0.895)	1.233 (0.810)	1.265 (0.889)	1.160 (0.910)	-0.167 (0.160)	0.149 (0.111)
Number of health facilities	0.170 (0.403)	0.217 (0.490)	0.118 (0.324)	0.218 (0.809)	-0.036 (0.090)	-0.015 (0.069)
Overall effect: $F$ stat					0.300	0.600
Overall effect: $p$ value					.586	.438
$N$	105	60	108	222		

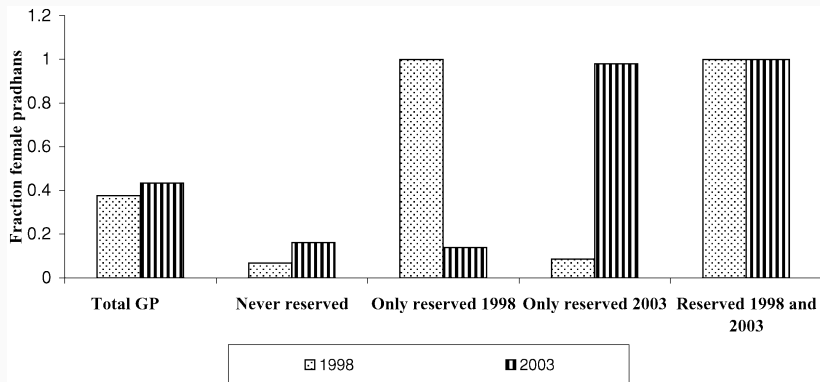
**Figure 1: Randomization Check**



## **Outcome: Electoral Results**

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# Reservation is Binding



**Figure 2:** Fraction of Female Pradhan by Reservation Status

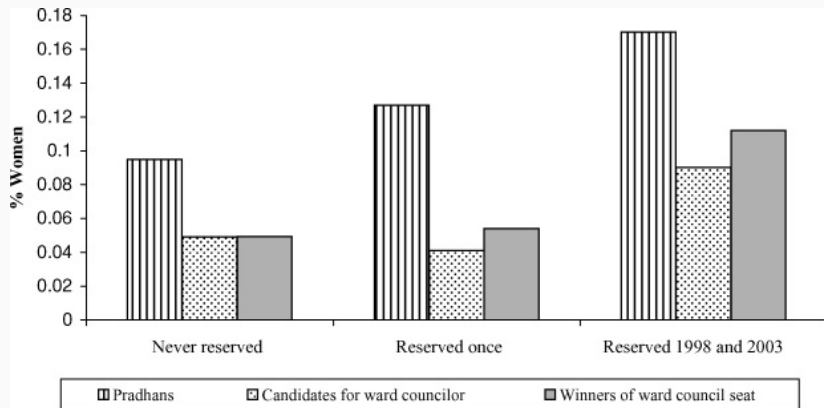
TABLE II  
PRADHAN CHARACTERISTICS

	Only reserved 2003	Reserved 1998 and 2003	Only reserved 1998	Never reserved	Diff: (1) and (2)	Diff: (1)+(2) vs. (3)+(4)
	(1)	(2)	(3)	(4)	(5)	(6)
Age	35.424 (8.143)	33.842 (6.801)	41.571 (12.425)	41.194 (9.728)	0.912 (2.550)	-6.339 (1.518)
Years of education	8.091 (4.126)	8.895 (3.017)	11.229 (2.691)	10.278 (3.199)	-1.119 (0.927)	-2.104 (0.548)
Married	0.727 (0.452)	0.895 (0.315)	0.857 (0.355)	0.889 (0.316)	-0.202 (0.117)	-0.103 (0.065)
SC/ST	0.588 (0.500)	0.450 (0.510)	0.543 (0.505)	0.514 (0.503)	0.070 (0.158)	0.013 (0.084)
Wealth index: quartile 1	0.382 (0.493)	0.300 (0.470)	0.143 (0.355)	0.208 (0.409)	0.081 (0.143)	0.164 (0.077)
Wealth index: quartile 4	0.088 (0.288)	0.250 (0.444)	0.257 (0.443)	0.208 (0.409)	-0.132 (0.121)	-0.075 (0.065)
First time as pradhan in 2003 term	0.912 (0.288)	0.850 (0.366)	0.657 (0.482)	0.611 (0.491)	0.062 (0.116)	0.265 (0.068)
Number of times elected as ward councilor	1.176 (0.521)	1.450 (0.686)	1.686 (1.451)	1.611 (0.928)	-0.346 (0.227)	-0.340 (0.142)
Other political experience	0.212 (0.415)	0.368 (0.496)	0.286 (0.458)	0.417 (0.496)	-0.114 (0.140)	-0.121 (0.079)
Affiliated with CPI(M)	0.697 (0.467)	0.842 (0.375)	0.686 (0.471)	0.681 (0.470)	-0.227 (0.114)	0.072 (0.067)
Spouse ever elected to panchayat	0 (0)	0.050 (0.224)	0.029 (0.169)	0 (0)	-0.041 (0.053)	0.011 (0.023)

**Figure 3:** Pradhan Characteristics in 2003

No significant incumbent advantage or being “shadows for their husband”

# Improved Female Electoral Prospect



**Figure 4:** 2008 Ward Council and Pradhan Election Outcomes

TABLE III  
ELECTORAL OUTCOMES FOR 2003 AND 2008

	Pradhans			Contestants			Winners		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Only reserved 1998	0.027 (0.023)	0.056 (0.031)		-0.003 (0.011)	-0.009 (0.011)		0.015 (0.020)	0.002 (0.019)	
Only reserved 2003		0.003 (0.026)			-0.007 (0.011)			0.000 (0.018)	
Only reserved once (either 2003 or 1998)			0.031 (0.022)			-0.004 (0.008)			0.012 (0.013)
Reserved 1998 and 2003		0.076 (0.041)	0.079 (0.041)		0.037 (0.014)	0.036 (0.014)		0.057 (0.032)	0.057 (0.030)
Test: equality of reservation indicators [ <i>p</i> values]		.157	.253		.009	.006		.224	.127
Year of election	2003	2008	2003 and 2008	2003	2008	2003 and 2008	2003	2008	2003 and 2008
Never reserved sample:									
Mean	0.092	0.109	0.099	0.076	0.049	0.066	0.083	0.049	0.071
Standard deviation	(0.290)	(0.312)	(0.299)	(0.265)	(0.216)	(0.248)	(0.276)	(0.217)	(0.257)
<i>N</i>	870	875	1,745	3,880	3,431	7,311	1,425	1,191	2,616

**Figure 5:** Electoral Outcomes for 2002 and 2008

# **Survey: Evaluation of Pradhan**

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# Survey: Evaluation of Pradhan

- Survey: 2006-2007 (in-office pradhan elected in 2003)
- 495 villages, 165 GPs in Birbhum District, West Bengal
- 15 households per village
- Questions
  1. "Is pradhan effective"
  2. "Did pradhan look after village needs"
  3. "Did pradhan look after your needs"
  4. "Did pradhan make BPL<sup>1</sup> lists well"

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<sup>1</sup>Below poverty line

TABLE IV  
EVALUATION OF ACTUAL PRADHAN: AVERAGE EFFECT

	Male				Female			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Only reserved 2003	-0.197 (0.058)	-0.139 (0.063)	-0.210 (0.058)	-0.152 (0.063)	-0.075 (0.060)	-0.012 (0.061)	-0.076 (0.060)	-0.015 (0.062)
Reserved 1998 and 2003	0.014 (0.072)	0.013 (0.083)	0.013 (0.072)	0.011 (0.083)	-0.006 (0.050)	0.010 (0.057)	-0.004 (0.050)	0.011 (0.057)
Only reserved 1998	0.001 (0.056)	-0.010 (0.057)	0.003 (0.056)	-0.009 (0.056)	0.037 (0.054)	0.018 (0.052)	0.040 (0.054)	0.021 (0.052)
With pradhan characteristics controls	N	Y	N	Y	N	Y	N	Y
With pradhan action controls	N	N	Y	Y	N	N	Y	Y
Test: 2003 = both 1998 and 2003 = 1998 [ <i>p</i> -value]	.008	.124	.004	.080	.216	.904	.191	.866
Test: 2003 = both 1998 and 2003 [ <i>p</i> -value]	.012	.084	.009	.065	.301	.736	.285	.686
<i>N</i>	6,642	6,642	6,642	6,642	6,568	6,568	6,568	6,568

**Figure 6:** Evaluation of 2003-elected Pradhan

- Worse evaluation for once and near reservation, compared to non-reserved
- Improved evaluation for twice reservation (not significant)
  - Characteristic difference? No
  - Behavioral difference?
  - Backlash?



# Behavioral Difference for Once v.s. Twice Reserved

TABLE V  
PRADHAN PERFORMANCE: PUBLIC GOODS, BRIBES, AND SATISFACTION

	Average public good provision		Average satisfaction		Average bribes	Alignment with female preferences
	Quantity	Quality	Male	Female		
	(1)	(2)	(3)	(4)	(5)	(6)
Only reserved 2003	0.192 (0.070)	-0.043 (0.046)	0.037 (0.042)	-0.001 (0.039)	-0.094 (0.031)	0.521 (0.279)
Reserved 1998 and 2003	0.039 (0.061)	-0.030 (0.052)	-0.063 (0.052)	-0.042 (0.044)	-0.072 (0.029)	0.659 (0.358)
Only reserved 1998	0.097 (0.082)	-0.069 (0.037)	-0.008 (0.045)	0.025 (0.038)	-0.045 (0.038)	0.563 (0.243)
Test: 2003 = both 1998 and 2003 = 1998 [ <i>p</i> -value]	.127	.763	.242	.381	.360	.942
Test: 2003 = both 1998 and 2003 [ <i>p</i> -value]	.343	.847	.095	.435	.493	.730

**Figure 7:** Pradhan Performance: Public Goods, Bribes, and Satisfaction

- Objective performance (public goods, bribes) and subjective satisfaction was even greater for once reserved
  1. Not taking bribes: public opinion adversely influenced
  2. Aligned preference for women

# **Experiments: Stereotypes Against Female**

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## Experiment (1) Hypothetical Leader Effectiveness

- Respondents were provided tape/vignette for policy speeches given by a pradhan
- Same tape/vignette for each respondent, but substituting protagonist's gender to elicit implicit bias
- Same questions regarding leader effectiveness

**TABLE VI**  
**PERCEPTION OF FEMALE EFFECTIVENESS AS LEADERS: EXPERIMENTAL EVIDENCE**  
**(SPEECH AND VIGNETTES)**

	Average effect	
	Male	Female
	(1)	(2)
<b>Panel A</b>		
Female pradhan	-0.054 (0.027)	-0.035 (0.031)
Female pradhan × ever reserved	0.091 (0.036)	0.024 (0.038)
Test: female pradhan + female pradhan × ever reserved	0.038 (0.023)	-0.011 (0.022)
<b>Panel B</b>		
Female pradhan × only reserved 2003	0.112 (0.047)	-0.001 (0.048)
Female pradhan × reserved 1998 and 2003	0.092 (0.062)	0.052 (0.060)
Female pradhan × only reserved 1998	0.073 (0.046)	0.035 (0.045)
Test: FP × 2003 = FP × (both 1998 and 2003) = FP × 1998 [ <i>p</i> -value]	.774	.652

## Experiment (2) Implicit Bias of Gender

- IAT Experiment: Matching two concepts in short time

Left	Right
Male/Female Picture	Leadership/Domestic
Male/Female Name	Good/Bad
Male/Female Politician	Good/Bad

TABLE VII  
EXPLICIT AND IMPLICIT PREFERENCES FOR FEMALE LEADERS

	IAT (D-measure of bias against females)						Feeling ladder	
	Leadership/domestic and male/female		Male/female names and good/bad		Male/female politician and good/bad		Male versus female pradhan	
	Male (1)	Female (2)	Male (3)	Female (4)	Male (5)	Female (6)	Male (7)	Female (8)
Panel A								
Ever reserved	-0.076 (0.032)	0.021 (0.041)	-0.004 (0.031)	-0.007 (0.043)	0.014 (0.037)	-0.023 (0.038)	0.208 (0.112)	0.099 (0.110)
Panel B								
Only reserved 2003	-0.090 (0.041)	0.112 (0.053)	-0.023 (0.045)	0.005 (0.051)	0.024 (0.051)	-0.004 (0.049)	0.271 (0.158)	0.088 (0.145)
Reserved 1998 and 2003	-0.023 (0.052)	-0.098 (0.075)	0.016 (0.041)	0.035 (0.074)	0.036 (0.057)	-0.011 (0.056)	0.063 (0.159)	0.053 (0.152)
Only reserved 1998	-0.098 (0.042)	-0.022 (0.051)	0.001 (0.045)	-0.061 (0.052)	-0.012 (0.048)	-0.050 (0.051)	0.240 (0.150)	0.139 (0.140)
Test: 2003 = both 1998 and 2003 = 1998 [ <i>p</i> -value]	.402	.021	.756	.316	.704	.709	.560	.875
Never reserved sample:								
Mean	0.110	0.150	0.134	-0.157	0.093	-0.079	1.446	0.560
Standard deviation	(0.340)	(0.384)	(0.425)	(0.418)	(0.452)	(0.441)	(2.655)	(2.572)
<i>N</i>	477	357	510	408	554	510	3,511	3,671

**Figure 9: IAT Results and Feeling Ladder**

## Conclusion

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- Gender quota helps improving female's political representation.
- Gender quota reduced bias in evaluating female's political effectiveness, but gender role bias persists.



## **Linkage to My Proposal**

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- Taiwanese experience: Better IV consists of time and geographical variation
- Further evidence on affirmative actions, public exposure of powerful women

## Current Findings

- More female politician, less son preference.
  - Supported by both newborn data and survey data.
- Improved female's gender role self-recognition.