

Gender Reservations in Elections

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Lecture 19

Gender Reservations in Elections: Introduction

- Unequal gender representation in government: 9/14% of all legislators world-wide were women in 1987/2000
- Gender based reservations in elections seek to ensure greater gender parity among elected representatives
- What would we expect the effects of such policies to be?
- What does the empirical evidence show?
- Examine Chattopadhyay and Duflo (CD, 2003) on effects of randomized gender reservations for mayor positions in Indian local governments (panchayats)

Predictions of Different Models

- *Pure Downsian model*: gender or other characteristics of elected officials do not matter, only voter preferences matter; hence no effect expected
- *Citizen Candidate model*: policy preferences of elected officials do matter, hence expect effects of reservations that raise female representation
- *Hybrid models*: combine policy preferences with electoral commitment (Lindbeck-Weibull 1993, Bardhan-Mookherjee 2010): equilibrium policy platforms diverge, weighted average of own preference and mean voter preference (relative weights depend on competition)

Chattopadhyay-Duflo 2003: Gender Reservation in Indian panchayats

- In 1994, constitutional amendment in India mandated three tier local governments (panchayats) in rural areas, with one third seats reserved for women
- CD study impacts of this reform in two districts in different states of India (WB, Rajasthan), using data for 1998-2003
- Panchayats administer top-down expenditure programs for local public goods and (private) welfare benefits
- CD examine effects on allocation of panchayat spending across different public goods
- Panchayat mayor (pradhan) reservations allocated randomly across village list, with rotation in subsequent years: 6% of women elected in unreserved panchayats

Institutional Background and Policy Reservation in India

FRACTION OF WOMEN AMONG PRADHANS IN RESERVED AND UNRESERVED GP

	Reserved GP (1)	Unreserved GP (2)
<i>West Bengal</i>		
Total Number	54	107
Proportion of Female Pradhans	100%	6.5%
<i>Rajasthan</i>		
Total Number	40	60
Proportion of Female Pradhans	100%	1.7%

Theory: Application of Citizen Candidate Model

- Policy space: $[0, 1]$; ideal points of women distributed on $[0, W]$, men on $[M, 1]$, median voter is m , local elite ideal point $\mu > m$
- Utility of citizen with ideal point w and policy x is $|x - w|$, of male (resp. female) candidate is $|x - w| - \delta_m$ (resp. $|x - w| - \delta_w$) where $\delta_w > \delta_m > 0$
- In absence of election, elite controls policy: $x = \mu$
- With election won by candidate j with ideal point w_j , resulting policy is $x_j \equiv \alpha w_j + (1 - \alpha)\mu$
- Focus only on single candidate and two-candidate pure strategy equilibria

Equilibria without Reservations

Proposition

Without reservation, no woman runs in any one-candidate or two-candidate equilibrium, if

$$\delta_w > \delta_w^{nr} \equiv \max\left\{\frac{1}{2}\delta_m + \mu - m, \alpha\mu - (\mu - m)\right\} \quad (1)$$

First (second) condition rules out one (two) candidate equilibrium with a woman running

Equilibria with Reservation

Proposition

With gender reservation, there is an equilibrium with a woman running, if and only if $\delta_w \leq \alpha\mu$.

Corollary: Gender reservations increase female representation if

$$\delta_w^{nr} < \delta_w < \alpha\mu.$$

Welfare Effects: When Policy Backfires

Proposition

If $\delta_w > \alpha\mu$ and $\mu > \max\{m + \frac{1}{2}\delta_m, 2m - M\}$, the reservation policy does not raise female representation, and makes all women and the median voter worse off.

With reservation, first condition implies no woman (hence no one) runs, resulting in elite dictator and policy μ

Without reservation, some man runs if $\mu - [\alpha M + (1 - \alpha)\mu] \geq \delta_m$; ideal point of most pro-male candidate would be $m + \frac{1}{2}\delta_m$ in one-candidate equilibrium and $2m - M$ in two-candidate equilibrium, resulting in policy outcome smaller than μ if the second condition is satisfied

Data collection

- ▶ Data was collected from two locations: Birbhum in West Bengal and Udaipur in Rajasthan.
- ▶ Survey in all GPs in Birbhum was conducted in two stages (summer of 2000):
 1. Interview with each GP Pradhan: Information about his or her family background, education, previous political experience, political ambitions and activities of the GP since his or her election in May 1998.
 2. Survey of three villages in each GP: two randomly selected and the village in which the GP Pradhan resides. Information about available infrastructure and whether it was built or repair since May 1998, and details about investments in various public goods. Also asked whether women and men of the village had expressed complaints or requests to the GP in the previous six months.

Data collection

- ▶ For the survey in Udaipur (August 2002-December 2002), they randomly select 100 villages (from a subset of villages covered by a local NGO) and then choose randomly one hamlet (sub-division of a village) per village.
- ▶ They collected similar information about investments and public good provision in a similar length period, 2000-2002.
- ▶ No Pradhan interviews were conducted in Udaipur.
- ▶ They also collect data for both West Bengal and Rajasthan of formal requests or complaints made by villagers to the Panchayat in the six months prior to the surveys.

Political Participation of Women

EFFECT OF WOMEN'S RESERVATION ON WOMEN'S POLITICAL PARTICIPATION

Dependent Variables	Mean, Reserved GP (1)	Mean, Unreserved GP (2)	Difference (3)
<i>West Bengal</i>			
Fraction of Women Among Participants in the Gram Samsad (in percentage)	9.80 (1.33)	6.88 (.79)	2.92 (1.44)
Have Women Filed a Complaint to the GP in the Last 6 Months	.20 (.04)	.11 (.03)	.09 (.05)
Have Men Filed a Complaint to the GP in the Last 6 Months	.94 (.06)	1.00	.06 (.06)
Observations	54	107	
<i>Rajasthan</i>			
Fraction of Women Among Participants in the Gram Samsad (in percentage)	20.41 (2.42)	24.49 (3.05)	-4.08 (4.03)
Have Women Filed a Complaint to the GP in the Last 6 Months	.64 (.07)	.62 (.06)	.02 (.10)
Have Men Filed a Complaint to the GP in the Last 6 Months	.95 (.03)	.88 (.04)	.073 (.058)
Observations	40	60	

Notes: 1. Standard errors in parentheses. 2. Standard errors are corrected for clustering at the GP level in the West Bengal regressions, using the Moulton (1986) formula.

Issues Raised by Women and Men in the Last 6 Month

	West Bengal					
	Women			Men	Average	Difference
	Reserved (1)	Unreserved (2)	All (3)			
<i>Other Programs</i>						
Public Works	.84	.84	.84	.85	.84	-.01
Welfare Programs	.12	.09	.10	.04	.07	.06
Child Care	.00	.02	.01	.01	.01	.00
Health	.03	.04	.04	.02	.03	.02
Credit or Employment	.01	.01	.01	.09	.05	-.08
Total Number of Issues	153	246	399	195		
<i>Breakdown of Public Works Issues</i>						
Drinking Water	.30	.31	.31	.17	.24	.13
Road Improvement	.30	.32	.31	.25	.28	.06
Housing	.10	.11	.11	.05	.08	.05
Electricity	.11	.07	.08	.10	.09	-.01
Irrigation and Ponds	.02	.04	.04	.20	.12	-.17
Education	.07	.05	.06	.12	.09	-.06
Adult Education	.01	.00	.00	.01	.00	.00
Other	.09	.11	.10	.09	.09	.01
Number of Public Works Issues	128	206	334	166		
<i>Public Works</i>						
Chi-square		8.84	71.72			
p-value		.64	.00			

Notes: 1. Each cell lists the number of times an issue was mentioned, divided by the total number of issues in each panel. 2. The data for men in West Bengal comes from a subsample of 48 villages. 3. Chi-square values placed across two columns test the hypothesis that issues come from the same distribution in the two columns.

Issues Raised by Women and Men in the Last 6 Month

	Rajasthan					
	Women			Men (10)	Average (11)	Difference (12)
	Reserved (7)	Unreserved (8)	All (9)			
<i>Other Programs</i>						
Public Works	.60	.64	.62	.87	.74	-.26
Welfare Programs	.25	.14	.19	.03	.04	.16
Child Care	.04	.09	.07	.01	.02	.06
Health	.06	.08	.07	.04	.03	.03
Credit or Employment	.06	.06	.05	.04	.09	.01
Total Number of Issues	72	88	160	155		
<i>Breakdown of Public Works Issues</i>						
Drinking Water	.63	.48	.54	.43	.49	.09
Road Improvement	.09	.14	.13	.23	.18	-.11
Housing	.02	.04	.03	.04	.04	-.01
Electricity	.02	.04	.03	.02	.02	.01
Irrigation and Ponds	.02	.02	.02	.04	.03	-.02
Education	.02	.07	.05	.13	.09	-.09
Adult Education	0	0	.00	.00	.00	.00
Other	.19	.21	.20	.12	.28	.05
Number of Public Works Issues	43	56	99	135		
<i>Public Works</i>						
Chi-square		7.48		16.38		
p-value		.68		.09		

Notes: 1. Each cell lists the number of times an issue was mentioned, divided by the total number of issues in each panel. 2. The data for men in West Bengal comes from a subsample of 48 villages. 3. Chi-square values placed across two columns test the hypothesis that issues come from the same distribution in the two columns.

Effect of Women's Reservation on Investments

Dependent Variables	West Bengal		
	Mean, Reserved GP (1)	Mean, Unreserved GP (2)	Difference (3)
A. Village Level			
Number of Drinking Water Facilities Newly Built or Repaired	23.83 (5.00)	14.74 (1.44)	9.09 (4.02)
Condition of Roads (1 if in good condition)	.41 (.05)	.23 (.03)	.18 (.06)
Number of Panchayat Run Education Centers	.06 (.02)	.12 (.03)	-.06 (.04)
Number of Irrigation Facilities Newly Built or Repaired	3.01 (.79)	3.39 (.8)	-.38 (1.26)
Other Public Goods (ponds, biogas, sanitation, community buildings)	1.66 (.49)	1.34 (.23)	.32 (.48)
Test Statistics: Difference Jointly Significant (<i>p</i> -value)			4.15 (.001)
B. GP Level			
1 if a New Tubewell Was Built	1.00	.93 (.02)	.07 (.03)
1 if a Metal Road Was Built or Repaired	.67 (.06)	.48 (.05)	.19 (.08)
1 if There Is an Informal Education Center in the GP	.67 (.06)	.82 (.04)	-.16 (.07)
1 if at Least One Irrigation Pump Was Built	.17 (.05)	.09 (.03)	.07 (.05)
Test Statistics: Difference Jointly Significant (<i>p</i> -value)			4.73 (.001)

Notes: 1. Standard errors in parentheses. 2. In West Bengal, there are 322 observations in the village level regressions, and 161 in the GP level regressions. There are 100 observations in the Rajasthan regressions. 3. Standard errors are corrected for clustering at the GP level in the village level regressions, using the Moulton (1986) formula, for the West Bengal regressions.

Effect of Women's Reservation on Investments

Dependent Variables	Rajasthan		
	Mean, Reserved GP (4)	Mean, Unreserved GP (5)	Difference (6)
<i>A. Village Level</i>			
Number of Drinking Water Facilities Newly Built or Repaired	7.31 (.93)	4.69 (.44)	2.62 (.95)
Condition of Roads (1 if in good condition)	.90 (.05)	.98 (.02)	-.08 (.04)
Number of Panchayat Run Education Centers			
Number of Irrigation Facilities Newly Built or Repaired	.88 (.05)	.90 (.04)	-.02 (.06)
Other Public Goods (ponds, biogas, sanitation, community buildings)	.19 (.07)	.14 (.06)	.05 (.09)
Test Statistics: Difference Jointly Significant (<i>p</i> -value)			2.88 (.02)

Notes: 1. Standard errors in parentheses. 2. In West Bengal, there are 322 observations in the village level regressions, and 161 in the GP level regressions. There are 100 observations in the Rajasthan regressions.

3. Standard errors are corrected for clustering at the GP level in the village level regressions, using the Moulton (1986) formula, for the West Bengal regressions.

Testing the Empirical Predictions

- ▶ Measuring average preferences of women and men:
 - ▶ Use data on formal request and complaints that are brought to the Pradhan.

$$D_i = \left(\frac{n_i^w}{N^w} - \frac{n_i^m}{N^m} \right) \quad (1)$$

$$S_i = \frac{1}{2} \left(\frac{n_i^w}{N^w} + \frac{n_i^m}{N^m} \right) \quad (2)$$

where n_i^x ($x = w, m$) is the number of requests about good i made by women or men and N^x ($x = w, m$) is the total number of request made by women or men.

- ▶ D_i = strength of the difference between women's and men's preferences for a good i .
- ▶ S_i = strength of the preference in the aggregate population for good i .

OLS Regressions: Determinants of Public Good Provision

	West Bengal				
	(1)	(2)	(3)	(4)	(5)
Reserved for a Woman	.23 (.101)	-.17 (.123)	.00 (.159)	.18 (.136)	.17 (.111)
Reserved * D_i	1.63 (.501)		1.22 (.799)	1.56 (.629)	1.67 (.554)
Reserved * S_i		2.04 (.642)			
Reserved * $D_{(ij)}$ (village level)			.03 (.047)		
Reserved * $S_{(ij)}$ (village level)			-.01 (.155)		
Pradhan is New					-.09 (.079)
Pradhan is New * D_i					-.10 (.323)
Reservation in 2003					.03 (.093)
Reservation in 2003 * D_i					-.19 (.326)
Reserved for SC/ST					-.07 (.075)
Reserved for SC/ST * D_i					.10 (.145)
$D_{(ij)}$	No	No	Yes	No	No
$S_{(ij)}$	No	No	Yes	No	No
Pradhan's Characteristics	No	No	No	Yes	No
Pradhan's Characteristics * D_i	No	No	No	Yes	No

OLS Regressions: Determinants of Public Good Provision

	Rajasthan			
	(6)	(7)	(8)	(9)
Reserved for a Woman	.16	-.29	.04	.16
	(.115)	(.19)	(.16)	(.118)
Reserved * D_i	4.40		4.66	4.29
	(1.454)		(1.6)	(1.491)
Reserved * S_i		1.78		
		(.728)		
Reserved * $D_{(ij)}$ (village level)			-.37	
			(.169)	
Reserved * $S_{(ij)}$ (village level)			.05	
			(.27)	
Pradhan is New				
Pradhan is New * D_i				
Reservation in 2003				
Reservation in 2003 * D_i				
Reserved for SC/ST				.00
				(.18)
Reserved for SC/ST * D_i				.03
				(.315)
$D_{(ij)}$	No	No	Yes	No
$S_{(ij)}$	No	No	Yes	No
Pradhan's Characteristics	No	No	No	No
Pradhan's Characteristics * D_i	No	No	No	No

Pradhan's Characteristics (West Bengal)

Dependent Variables	Mean, Reserved GP	Mean, Unreserved GP	Difference
	(1)	(2)	(3)
Years of Education	7.13 (.48)	9.92 (.29)	-2.79 (.54)
Literacy	.80 (.06)	.98 (.01)	-.19 (.04)
Below Poverty Line	.46 (.07)	.28 (.04)	.18 (.08)
Was Elected to the GP Council Before 1998	.11 (.04)	.43 (.05)	-.32 (.07)
Was Elected Pradhan Before 1998	.00	.12 (.03)	-.12 (.04)
Took Part in Panchayat Activities Prior to Being Elected	.28 (.06)	.78 (.04)	-.50 (.07)
Knew How GP Functioned	.00	.35 (.05)	-.35 (.07)
Did Not Receive any Formal Training	.06 (.03)	.00	.06 (.02)
Spouse ever Elected to the Panchayat	.17 (.05)	.02 (.01)	.15 (.04)
Spouse Helps	.43 (.07)	.13 (.03)	.30 (.07)
Will Not Run Again	.33 (.06)	.21 (.04)	.13 (.07)
Observations	54	107	

Note: 1. Standard errors, corrected for clustering at the GP level using the Moulton (1986) formula, are in parentheses.

Robustness Checks

- ▶ *Women as New Pradhans*: compare investments in GPs reserved for women to those in GPs that are not reserved, but where the councilor's seat of the previous Pradhan is reserved. None of the results on public goods provisions are affected. [Results](#)
- ▶ *Women as Lame Ducks*: control for whether the Pradhan is likely to be re-elected in 2003. Restrict the sample of GPs reserved in 1998 and those that will be reserved in 2003. None of the results on public goods provisions are affected. [Results](#)
- ▶ *Social Status and Other Effects of Reservation*: compare outcomes in GPs reserved for SC or ST; among SC/ST Pradhans, women and men come from villages of the same size and men are not significantly richer than women. None of the results on public goods provisions are affected. [Results](#)

They also includes controls in the regression analysis to account for these three factor. [OLS Regressions](#)

Conclusion

- ▶ Women elected as leaders under reservation policy invest more in the public goods more closely linked to women's concern. They invest less in public goods that are more closely linked to men's concerns.
- ▶ Results contradict the simple intuition behind the Downsian model and the idea that political decisions are the outcomes of a Coasian bargaining process. In both theoretical views, the gender of the head of the GP should not influence policy decisions.
- ▶ Results are relevant given the fact that reservations for women are increasingly being implemented at various levels of government around the world.
- ▶ Additionally, the findings have implications beyond reservation policy, suggesting that, even at the lowest level of a decentralized government, all mechanisms that affect politician's identities may affect policy decisions.

EFFECT OF WOMEN'S RESERVATION IN SELECTED SUBSAMPLES

	Difference Between GP Reserved for Women and Unreserved GP			
	All GPs	Previous Pradhan Barred from Running for Re-election	GP Will Be Reserved in 2003	GP Is Reserved for SC/ST
	(1)	(2)	(3)	(4)
<i>A. Pradhan's Background and Experience</i>				
Pradhan's Education	-2.79 (.54)	-2.58 (.68)	-3.31 (.61)	-2.65 (.86)
Number of Assets	-.64 (.23)	-.70 (.26)	-.60 (.26)	-.37 (.27)
Pradhan is Below the Poverty Line	.18 (.08)	.12 (.10)	.18 (.09)	.12 (.12)
Population of Pradhan's Village	-554 (291)	-482 (312)	-357 (349)	14 (381)
Elected in GP Council Before 1998	-.32 (.07)	-.24 (.08)	-.31 (.08)	-0.14 (.09)
Elected as Pradhan Before 1998	-.12 (.04)	.00 (.)	-0.08 (.04)	-0.02 (.03)
Will Not Run Again	.13 (.07)	.14 (.09)	.13 (.09)	.16 (.1)

Notes: 1. Column 2 presents the difference between the mean of the dependent variable in GPs reserved for women and GPs where the previous Pradhan was prevented from re-election due to a reservation of his seat. There are 55 GPs (110 villages) reserved for women, and 51 GPs (102 villages) where the previous pradhan's seat is reserved. 2. Column 3 presents the difference between the mean of the dependent variable in GPs reserved for women and GPs that will be reserved for woman in 2003. There are 55 GPs (110 villages) reserved for women in 1998, and 52 GPs (146 villages) that will be reserved in 2003. 3. Column 4 presents the difference between the mean of the dependent variable in GPs reserved for a woman SC/ST and GPs reserved for a SC/ST. There are 78 GPs (146 villages) reserved for SC and ST, including 28 reserved for women as well. 4. Standard errors are in parentheses, and are corrected for correlation at the GP level in the village level regressions using the Moulton (1986) formula.