ECON 3510: Poverty and Economic Development
Lecture 6: Voting II

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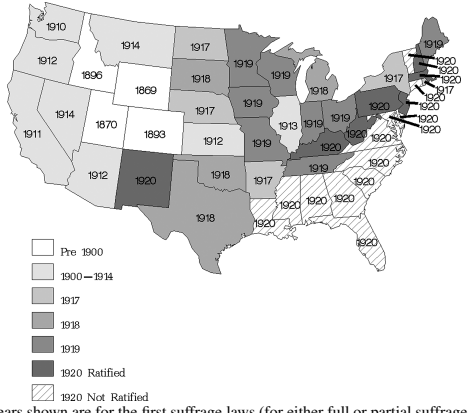
Changing the Electorate: Miller (2008)

- Universal suffrage for American women was achieved in 1920, with ratification of the 19th Amendment to the US Constitution.

- Before 1920, 29 out of 48 states already granted (at least partial) suffrage rights to women.



Source: Miller (2008). Years shown are for the first suffrage laws (for either full or partial suffrage rights).

Women's Suffrage in the US

- A body of literature suggests that women emphasize child welfare more than men.
- What will the MVT predict the effect of women's enfranchisement on child welfare policies?
- Suppose the the voter preference is expressed as: $u_i = -\frac{1}{2}(\tau - \tau_i)^2$.
  - Single-peakedness, with τ_i being the most preferred point.
  - Suppose: for men $\tau_i \sim U[0,1]$, and for women $\tau_i \in [0.4, 1.4]$.
- Before women's enfranchisement, only men vote, the median voter prefers $\tau_{m,\text{pre}} = 0.5$.
- After women's enfranchisement, voters are distributed as follows:

τ_i	Share of the electorate
$[0, 0.4]$, men	0.2
$(0.4, 1)$, men & women	0.6
$[1, 1.4]$, women	0.2

Thus, the median voter prefers $\tau_{m,\text{post}} = 0.7$.

Empirics

- Miller (2008) collects rich historical data on measures of child welfare-related policies:
  - Local public spending on health (state $\times$ year, municipal $\times$ year);
  - Deaths by age and reason (state $\times$ year);
  - Congressional roll-call voting records (aggregated to state $\times$ year).

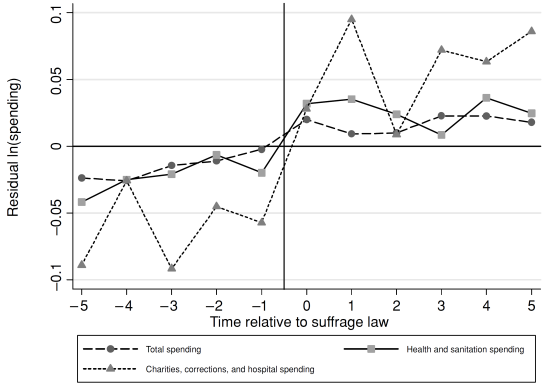
- DiD design:

$$\ln(d_{it}) = \alpha + \beta v_{st} + \delta_t + \delta_i + \delta_s \times t + \varepsilon_{it},$$

  where
  - d_{it} is the outcome in region (state or municipal) i and year t;
  - v_{st} is a dummy that equals 1 after state s had the first suffrage law;
  - $\delta\_$'s: region/state/year fixed effect.
  - $\delta_s \times t$ controls for the state-specific linear trends. Thus, β captures the *trend break* in an outcome between states after women's enfranchisement.

- **Parallel trends assumption:** the outcome should have similar trends across states in the absence of women's enfranchisement.
  - Miller (2008) assumes random timing of enfranchisement, which is stronger than needed. He presents a body of evidence in favor of parallel trends.

Effects on Health Spending



- For visualization, Miller (2008) regresses $\ln(d_{it})$ on $\delta_t, \delta_i, \delta_s \times t$ and gets the residual $\ln(d_{it}) - \widehat{\ln(d_{it})}$. He plots the mean residuals by years around the first suffrage law.

- More common practice today: an event study model with leads and lags,

$$\ln(d_{it}) = \alpha + \sum_{\tau} \beta_\tau \mathbb{1}\{t \text{ relative to suffrage law in state } s = \tau\} + \delta_t + \delta_i + \delta_s \times t + \varepsilon_{it}.$$

Effects on Progressive Votes

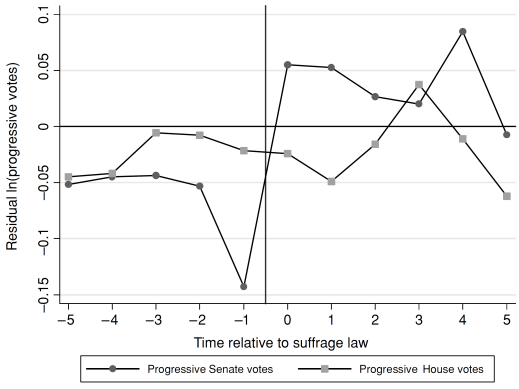


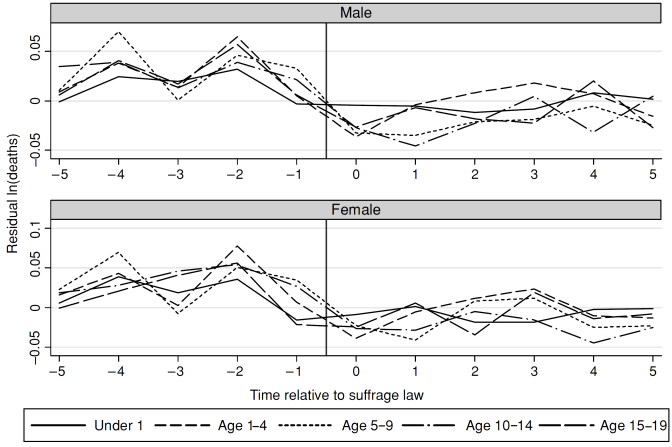
TABLE III
WOMEN'S SUFFRAGE LAWS AND LEGISLATIVE BEHAVIOR

	ln("progressive" Senate votes)	ln("progressive" House votes)
Suffrage law	0.228***	0.010
	(0.079)	(0.051)
N	1,110	1,399
R^2	0.83	0.95

Note. Legislative roll call data from the Voteview database; coding of progressive voting done by author as described in the Data Appendix. Estimates and standard errors (in parentheses, clustered by state) shown for the women's suffrage law dummy variable obtained by estimating equation (1) (controlling for state and year fixed effects and state-specific linear time trends). The Voteview sample contains state-year observations from the years 1900–1930.
$^{*}p < .10$.
$^{**}p < .05$.
$^{***}p < .01$.

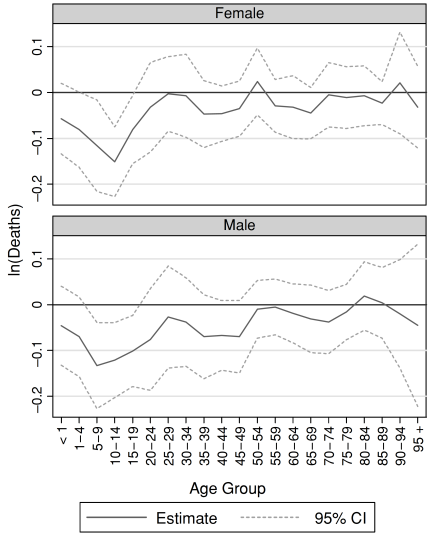
- Women's enfranchisement made Senators more likely to vote for progressive reforms. No effect in the House.
  - Politicians adjusted positions based on their expectations of how women would vote.

Effects on Child Deaths



- Suffrage laws reduced child deaths.

Effects on Death Rates by Age



- No effects on adult mortality rates

Cause-Specific Mortality

- Miller (2008) also looks at deaths by reason, and he finds reductions in deaths from diseases that are more fatal for children.

WOMEN'S SUFFRAGE LAWS AND CAUSE-SPECIFIC MORTALITY

Dependent variable	Estimate (standard error)	N	R^2
ln(typhoid deaths)	−0.058	1,109	0.97
	(0.070)		
ln(malaria deaths)	−0.067	911	0.96
	(0.130)		
ln(smallpox deaths)	−0.237	690	0.55
	(0.233)		
ln(measles deaths)	−0.061	1,094	0.73
	(0.133)		
ln(scarlet fever deaths)	0.174	1,107	0.89
	(0.162)		
ln(whooping cough deaths)	−0.052	1,108	0.90
	(0.090)		
ln(diphtheria deaths)	−0.241*	1,106	0.95
	(0.125)		
ln(influenza deaths)	−0.089	1,109	0.97
	(0.085)		
ln(meningitis deaths)	−0.234**	1,107	0.93
	(0.097)		
ln(pneumonia deaths)	−0.050	1,109	0.99
	(0.042)		
ln(diarrhea deaths under age 2)	−0.114*	1,109	0.98
	(0.065)		

Cause-Specific Mortality (Cont'd)

ln(TB deaths)	−0.044	1,109	1.00
	(0.042)		
ln(childbirth deaths)	0.001	1,109	0.98
	(0.053)		
ln(heart disease deaths)	−0.002	1,109	0.99
	(0.030)		
ln(diabetes deaths)	0.038	1,108	0.99
	(0.042)		
ln(nephritis deaths)	−0.003	1,109	0.99
	(0.034)		
ln(cancer deaths)	−0.014	1,109	1.00
	(0.030)		
ln(accidents/violent deaths)	−0.022	1,109	0.99
	(0.041)		
ln(suicide deaths)	−0.029	1,109	0.99
	(0.030)		
ln(childhood infectious disease deaths)	−0.175***	7,323	0.81
	(0.078)		
ln(other deaths)	−0.067	9,782	0.88
	(0.046)		

Validity Test: Correlates of Suffrage Law Timing

- Suffrage law dates are not correlated with state characteristics.

ONLINE APPENDIX TABLE 4
Correlates of Women's Suffage Law Timing

Independent Variable	Estimate	Standard Error
Year Joined Death Registration Area	-0.114	(0.120)
Year of State Alimony/Divorce Law	0.184	(0.279)
Year of State General Federation of Women's Clubs Chapter	-0.085	(0.337)
Year of State Mother's Pension Law	1.335	(0.835)
Year of Women's Maximum Hour Law	-0.079	(0.460)
Year of Women's Minimum Wage Law	1.105	(0.984)
Year of Prohibition	-0.162	(0.283)
Year of Workers' Compensation Law	0.097	(0.205)
Year of First Child Labor Law	-0.131	(0.432)
Year of First Compulsory Schooling Law	0.220	(0.319)
Population in 1000s, 1900	0.002*	(0.001)
Total Mortality Rate per 1000, 1900	0.071	(0.233)
Percent of the Native White Population 21+ Illiterate, 1900	0.449	(0.400)
Per Capita Capital Investment in Manufacturing, 1900	-10.297	(14.148)
Per Capita Wage in Manufacturing, 1900	-0.080	(0.057)

Validity Test: Overall Liberalization Trends

- Results can't be explained by overall liberalization trends: no differential effects between voluntary enfranchisement and involuntary enfranchisement imposed by the 19th Amendment:

$$\ln(d_{it}) = \alpha + \beta v_{st} + \gamma(v_{st} \times \text{voluntary}_s) + \delta_t + \delta_i + \delta_s \times t + \varepsilon_{it}.$$

ONLINE APPENDIX TABLE 5
Women's Suffrage Laws and Mortality in Voluntary vs. Mandatory States

Dependent Variable	Estimate	Standard Error	N	R^2
ln(Male Deaths Under 1)	0.000	(0.094)	1062	0.99
ln(Male Deaths 1-4)	0.021	(0.104)	1062	0.99
ln(Male Deaths 5-9)	0.135	(0.099)	1062	0.98
ln(Male Deaths 10-14)	0.079	(0.085)	1062	0.98
ln(Male Deaths 15-19)	0.024	(0.075)	1062	0.99
ln(Female Deaths Under 1)	-0.001	(0.092)	1062	0.99
ln(Female Deaths 1-4)	0.030	(0.099)	1062	0.99
ln(Female Deaths 5-9)	0.108	(0.098)	1062	0.98
ln(Female Deaths 10-14)	0.131	(0.090)	1062	0.98
ln(Female Deaths 15-19)	0.004	(0.067)	1062	0.99
ln(Diphtheria Deaths)	0.060	(0.151)	1106	0.95
ln(Meningitis Deaths)	0.167	(0.160)	1107	0.93
ln(Diarrhea Deaths Under Two)	-0.002	(0.131)	1109	0.98
ln(State Social Service Spending)	0.008	(0.093)	688	0.84
ln(Municipal Health Conservation and Sanitation Spending)	0.307	(0.274)	3661	0.26
ln(Municipal Charities, Hospitals, and Corrections Spending)	0.518	(0.684)	3454	0.42
ln("Progressive" Senate Votes)	-0.025	(0.129)	1110	0.83

Chattopadhyay and Duflo (2004): Female Politician and Policy

- To increase women's representation in politics, India randomly reserves some village council head positions for a woman. Chattopadhyay and Duflo (2004) study the effects of women's reservation on public goods.
- What is the MVT's prediction? Would gender matter?

Chattopadhyay and Duflo (2004): Female Politician and Policy

- Chattopadhyay and Duflo (2004) look at villages in West Bengal and Rajasthan:
  - West Bengal: women complained more about drinking water and roads than men.
  - Rajasthan: women complained more about drinking water than men.

TABLE V

EFFECT OF WOMEN'S RESERVATION ON PUBLIC GOODS INVESTMENTS

	West Bengal			Rajasthan		
	Mean, Reserved GP	Mean, Unreserved GP	Difference	Mean, Reserved GP	Mean, Unreserved GP	Difference
Dependent Variables	(1)	(2)	(3)	(4)	(5)	(6)
A. *Village Level*						
Number of Drinking Water Facilities	23.83	14.74	9.09	7.31	4.69	2.62
Newly Built or Repaired	(5.00)	(1.44)	(4.02)	(.93)	(.44)	(.95)
Condition of Roads (1 if in good	.41	.23	.18	.90	.98	−.08
condition)	(.05)	(.03)	(.06)	(.05)	(.02)	(.04)
Number of Panchayat Run	.06	.12	−.06			
Education Centers	(.02)	(.03)	(.04)			
Number of Irrigation Facilities	3.01	3.39	−.38	.88	.90	−.02
Newly Built or Repaired	(.79)	(.8)	(1.26)	(.05)	(.04)	(.06)
Other Public Goods (ponds, biogas,	1.66	1.34	.32	.19	.14	.05
sanitation, community buildings)	(.49)	(.23)	(.48)	(.07)	(.06)	(.09)
Test Statistics: Difference Jointly Significant			4.15			2.88
(*p*-value)			(.001)			(.02)

References I

Chattopadhyay, Raghabendra and Esther Duflo (2004). “Women as policy makers: Evidence from a randomized policy experiment in India”. *Econometrica* 72.5, pp. 1409–1443.

Miller, Grant (2008). “Women’s suffrage, political responsiveness, and child survival in American history”. *The Quarterly Journal of Economics* 123.3, pp. 1287–1327.