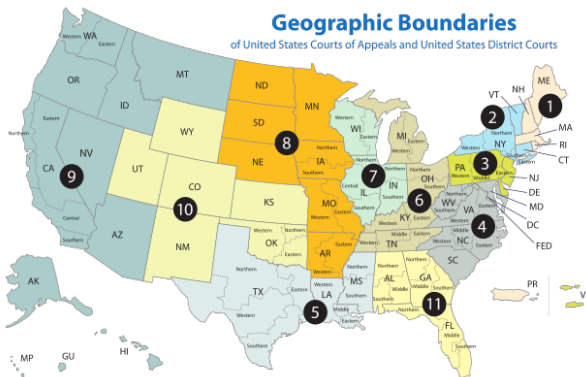


How Do Rights Revolutions Occur? Free Speech and the First Amendment

Daniel L. Chen & Susan Yeh

June 2019

US Federal Courts as Natural Laboratory



- **Random** assignment of judges
 - ▶ Judge characteristics **predict** decisions
- Binding precedent **within** circuit
 - ▶ 98% of decisions are final

High-stakes common-law space

Introduce theories:

- **Contract duty posits a general obligation to keep promises** vs.
- a party should be allowed to breach a contract and pay damages, if it's more **economically efficient** than performing (i.e., **efficient breach theory**) (Posner 7th Cir. 1985)
- **Tort law: duty of care** is breached when $PL > B$ (i.e., **least cost avoider theory**)

Shift in standards or thresholds:

- **Shift** from **reasonable person** standard to **reasonable woman** standard for **what constitutes sexual harassment**.
- **Waive** need to prove **emotional harm** in court by plaintiff (to a jury).

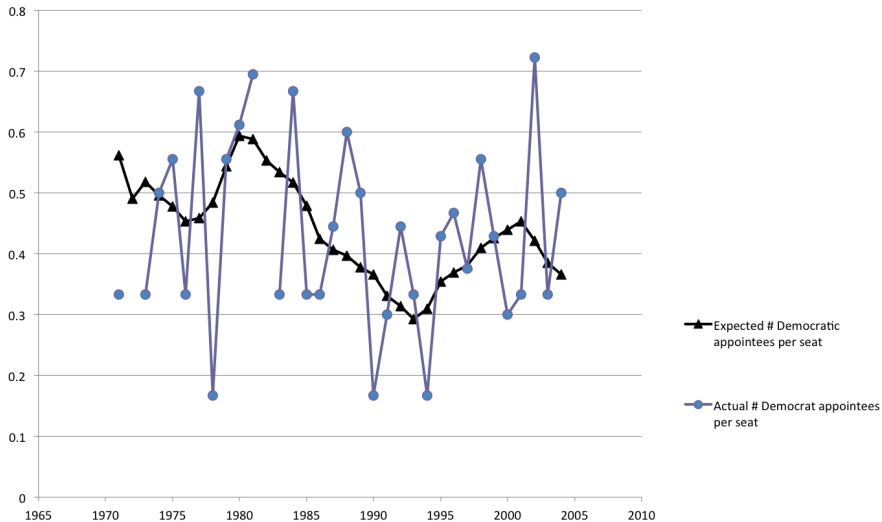
Rule on states' laws:

- 5th Circuit **allowed Texas law** *requiring abortion clinics to meet building standards of ambulatory surgery centers*. (would reduce to < 10 clinics)

WHAT ARE CAUSAL EFFECTS OF RULINGS LIKE THESE?

Graphical Intuition of “coin flip”

Figure 3: Judicial Composition and Random Assignment, 1971-2004



Data

- Chicago Judges Project (Sunstein et al. 2006; Heise and Sisk 2012; other smaller samples)
6000+ hand-coded cases in 26 polarized legal areas

Civil Rights	Property	Constitutional	Constitutional
sexual harassment	eminent domain	free speech	abortion
affirmative action	corporate veil piercing	campaign finance	Establishment Clause
sex discrimination	contracts	First Amendment	Free Exercise Clause
Title VII	environmental protection	Eleventh Amendment	capital punishment
desegregation	NEPA	standing	criminal appeals
gay rights	punitive damages	federalism	
disability rights	National Labor Review Board	FCC	

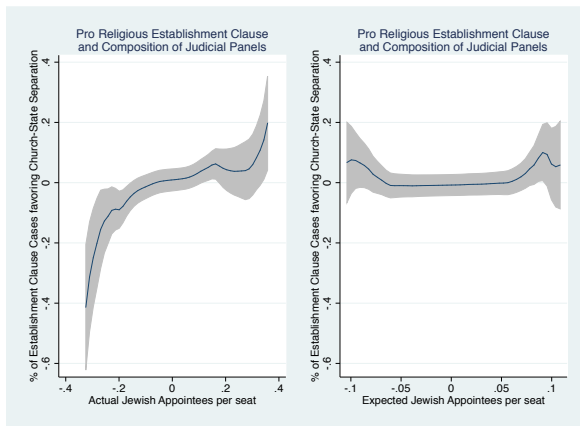
- Federal Judicial Center biographies

e.g., party, religion, race, gender, college, law school, graduate law degree, year of birth, ABA rating, wealth, appointed when President and Congress majority were from same party, appointed by president from opposing party, prior judiciary experience, prior law professor, prior government experience, previous U.S. attorney, previous asst U.S. attorney

Dissent is roughly half-driven by shared personal features.

What Matters, Chen, Cui, Shang, Zheng, NIPS 2016

Biographies Predict Decisions



Minority religion judges prefer separate church and state

$$\begin{cases} Law_{ct} = \alpha_{ict} + \phi Z_{ct} + \gamma_1 X_{ict} + \gamma_2 W_{ct} + \eta_{ict} & (machine\ learning\ step) \\ Y_{ict} = \alpha_{ict} + \rho Law_{ct} + \beta_1 X_{ict} + \beta_2 W_{ct} + \varepsilon_{ict} & (causal\ inference\ step) \end{cases}$$

Broad Sketch

- District Cases $\rightarrow$
- District Judge Bio $\rightarrow$
- Circuit Case Appeal $\mathbf{1}[M_{ct} > 0]$ $\rightarrow$
- Circuit Judge Bio $\rightarrow$
- Circuit Case Decision $Law_{ct} \rightarrow$
- Precedential Effects (e.g., State Laws) $\rightarrow$
- Promulgation (e.g., News) $\rightarrow$
- Outcomes

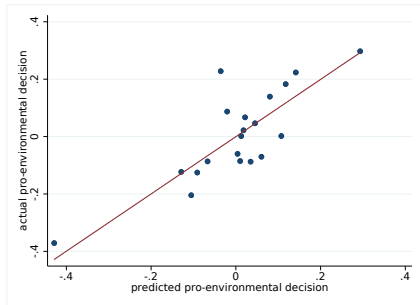
- ▶ Law_{ct} distinguishes pro vs. anti

What if Roe v. Wade decided opposite?

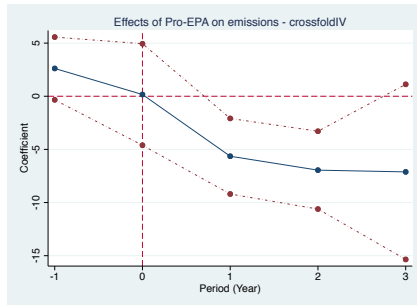
- ▶ $Law_{ct} + \mathbf{1}[M_{ct} > 0]$ distinguishes pro vs. none

What if no Roe v. Wade?

Impact of Environmental Decisions on Pollution



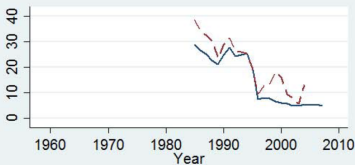
Calibration plot for cross-validated prediction



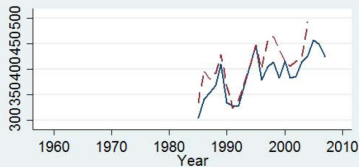
Rulings in favor of EPA regulations reduce air pollution

Impact of First Amendment Free Speech (preview)

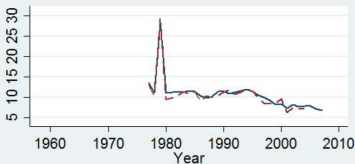
Counterfactual analysis for UCR



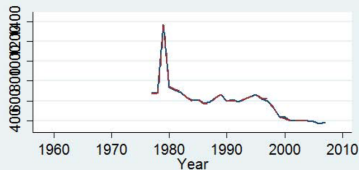
— Actual Prostitution per 100,000
- - Counterfactual Prostitution per 100,000



— Actual Drug violations per 100,000
- - Counterfactual Drug violations per 100,000



— Actual Forcible Rapes per 100,000
- - Counterfactual Forcible Rapes per 100,000



— Actual Property crimes per 100,000
- - Counterfactual Property crimes per 100,000

Free Speech and the First Amendment

- Does law shape values? (Acemoglu and Jackson 2014; Benabou and Tirole 2012)
- Evaluate theories about the effects of law
 - ▶ Law and Economics (deterrence) (Becker 1968)
 - ▶ Law and Norms (policy shapes preferences) (Tyler 2006)
- Expressive or Backlash?
 - ▶ **Consequentialist:** Cost-benefit analyses (Posner 1998)
 - ▶ **Legitimacy:** Democratic will of the people (Breyer 2006)

Two Empirical Challenges

- (1) Causal Inference
 - ▶ Random Variation in Legal Precedent
- (2) Distinguishing Expressive from Deterrence
 - ▶ Legal Area with Emotional Salience – free speech related to obscenity
 - ▶ Experiment with Data Entry Workers
 - ▶ Previous papers on law and norms use experimental economics with exogenous variation in the rules of the games to mimic the law (Dal Bo, Foster, Putterman 2010; Galbiati and Vertova 2008)

Literature

Fernandex-Villaverde, Greenwood, Guner (2014) attribute 50% of sexual revolution to moral views on sexual rights being shaped by law and doctrine

- U.S. Supreme Court greatly expanded civil liberties in the 1960s; States quickly liberalized regulations in response (Bailey 2010)
- Judges: “Moral decay” and “Secondary effects” – sexual violence, disease, drugs (*Fort Wayne Books v. Indiana*, 489 U.S. 46 (1989), *Amatel v. Reno*, 156 F.3d 192 (D.C. Cir. 1998), *Ginsburg v. New York*, 390 U.S. 629 (1968), 50 AM. JUR.2d §§ I, 2 (1995))
- Female empowerment, commodification of women, anti-pornography theorists (Radin 1996, Dworkin and MacKinnon 1988)
- US, India, Norway - technology facilitates broader dissemination of media, increased sex-related crimes (Bhuller, Havnes, Leuven, Mogstad 2013)
- Isolating law from technological factors is challenging (Akerlof, Yellen, Katz 1996)

Potential for multiple steady states (*Miller v. California*, 413 U.S. 15 (1973))

Courts define obscenity according to community standards

- If free speech precedent gives people more room for sexually progressive expression and greater social acceptance of alternative behaviors,
 - ▶ then more progressive community standards would make it easier to subsequently challenge restrictive free speech regulations,
 - ▶ which can lead to multiple steady states through which abrupt shifts in normative commitments can occur.
- Laws can influence the population through moralizing language designed to affect social norms and ultimately judgment and behavior
 - ▶ Media, mobilization, indirect news (Hoekstra 2000, Weinrib 2012, Barth 1968)
 - ▶ Expressive law, authority, peer effects, perceived morality of rule-breaker (Sunstein 1996, Funk 2007, Stroebe and Bentham 2012, Card and Giuliano 2011)

Model (Benabou and Tirole 2012)

- Intrinsic motivations
- Extrinsic motivations - material incentives, deterrence
- Social motivations - norms, social sanctions
 - ▶ People get honor or stigma for doing something that is outside the norm (**social multiplier**)
 - ▶ Information is conveyed by legal decisions on the distribution of actions (**information multiplier**)

Basic Model

$$U(a) = (v_a + y)a - C(a) + \mu E(x | a)_s$$

v_a : intrinsic motivation

y : extrinsic payoff

$C(a)$: cost

μ : agents' weight on social perceptions

$E(x | a)_s$: other people's perception of your intrinsic motivations

$$a = 1: U(1) = v_a - c + \mu E(x | 1)_s$$

$$a = 0: U(0) = \mu E(x | 0)_s$$

$$v^* - c + \mu E(v_a | 1) = \mu E(v_a | 0)$$

the cutoff rule

if agent chooses action $a = 1$ at some v_a , then he would choose $a = 1$ at any $v > v_a$

holding others' actions fixed in equilibrium

Social Multiplier

$$v^* - c + \mu E(v_a \mid 1) = \mu E(v_a \mid 0)$$

the cutoff rule: $[v, v^*]$ share of the population choose $a = 0$

$$\Delta(v) \equiv E(v_a \mid 1) - E(v_a \mid 0)$$

$$v^* + \mu \Delta(v^*) = c$$

$\Delta(v)$: GSS asks individuals about the morality of particular actions

A sufficient condition for a fixed point: $1 + \mu \Delta'(v) > 0$

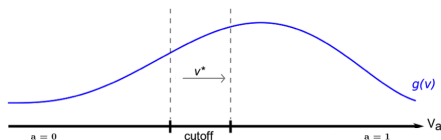
if $1 + \mu \Delta'(v) < 0$

Multiple and unstable equilibria possible, so big shifts can occur

Strategic Substitutes or Complements?

- When choosing $a = 0$ is rare (i.e., v^* on left side of distribution),
 - ▶ Social multiplier makes actions strategic complements:
 - ▶ the more people choose $a = 0$, the more other people will do it

$E(v_a | 0)$ will include very few points on the left tail of the v -distribution, and so by slightly increasing the right margin, we include a large share of individuals with relatively high v 's in $E(v_a | 0)$

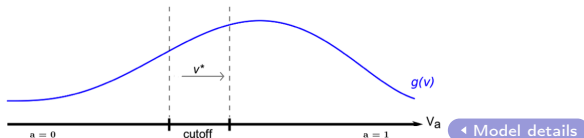


Information Multiplier

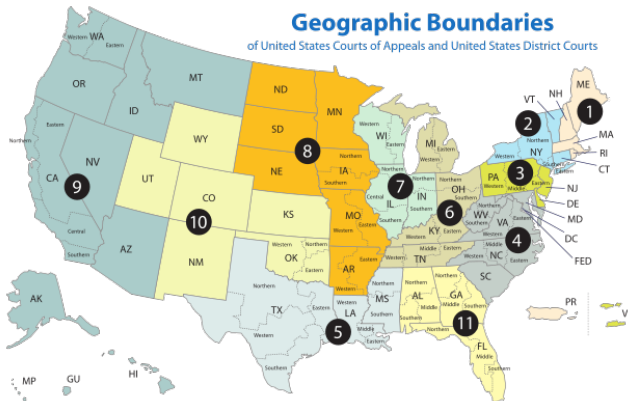
- Explicit incentives indicates the policymaker sees a problem
 - ▶ Conservative free speech decisions lead people to think a larger percentage of people choose $a = 0$ (v^* is higher)

Backlash or Expressive?

- When choosing $a = 0$ is rare,
 - ▶ Social multiplier makes actions strategic complements: the more people choose $a = 0$, the more other people will choose $a = 0$
 - ★ **Backlash is predicted**
- When choosing $a = 1$ is rare,
 - ▶ Social multiplier makes actions strategic substitutes: the more people choose $a = 0$, the less likely others will choose $a = 0$
 - ★ **Expressive is predicted**

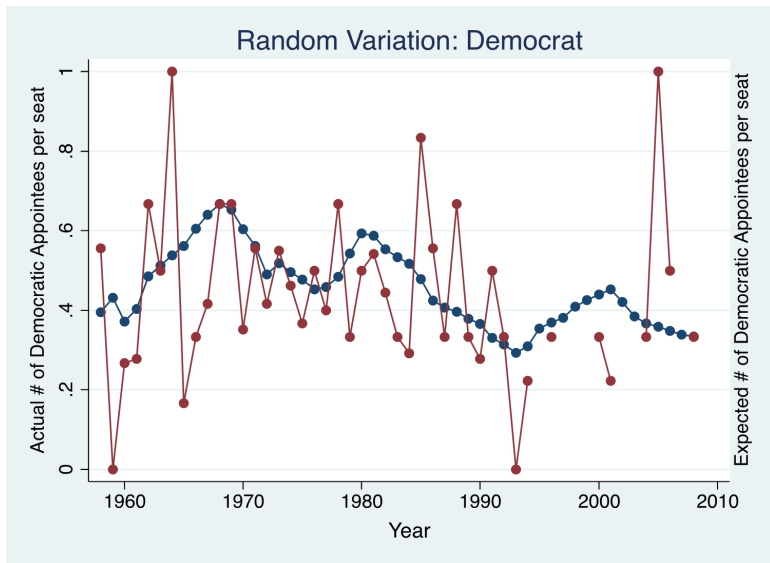


Methodology

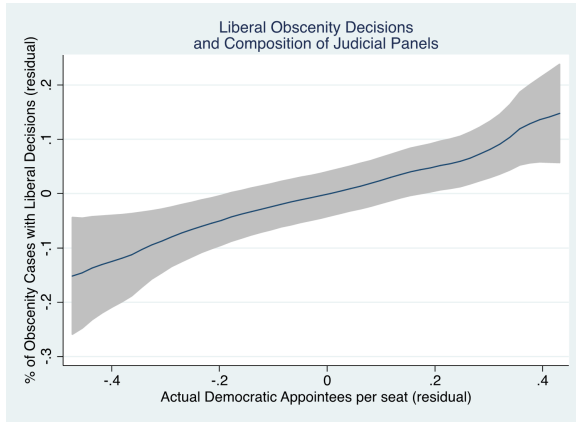


- Binding precedent within circuit
- Random assignment of judges
- Biographical characteristics predict decisions
- Deciding issues of *new law* ◀ Innovation of Rights
- General equilibrium response incorporated

Graphical Intuition of IV



Graphical Intuition of IV



- Many judge characteristics (LASSO)
- Many years without cases (Randomly assigned District Judges) ◀ District IV

Judicial Data

Legal Cases

All 175 free speech precedent from 1958-2008 regulating obscenity

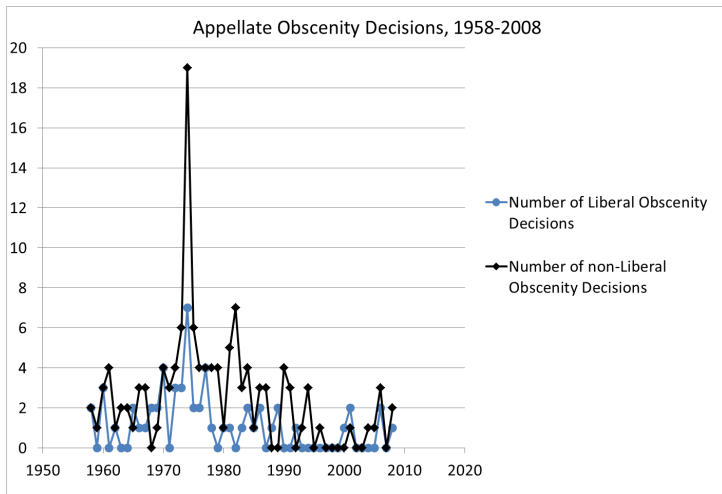
- Cases identified by tracking the citations of three landmark Supreme Court decisions, narrowed to cases decided on substantive grounds regarding obscenity
 - ▶ Many cases involve challenges to charges of the distribution, production, or possession of obscene materials.
- We also collect all 2,960 District Court cases from 1957 to 2008.
- We update FJC biographical database (in particular, religious affiliation).
- Finding “not obscene” = coded as progressive [◀ Summary Statistics](#)
 - ▶ (Sunstein, Schkwade, Ellman, and Sawicki 2006)

Summary Statistics

		Mean [Standard Deviation]
Free Speech Cases (1958-2008)		
Number of Judges		16.79 [8.42]
Number of Free Speech Panels		0.30 [0.73]
Proportion of Circuit-Years with No Free Speech Panels		80%
Proportion of Progressive Free Speech Decisions for Circuit-Years with Free Speech Panels		35%
Expected # of Democratic Appointees per Seat for Circuit-Years with Free Speech Panels		0.46 [0.16]
N (circuit-years)		612

[◀ Data](#)

Timeline of Cases



Majority of decisions are conservative

Distributed Lag

$$Y_{ict} = \beta_0 + \sum_j \beta_{1j} Law_{c(t-j)} + \sum_j \beta_{2j} \mathbf{1}[M_{c(t-j)} > 0] + \beta_3 C_c + \beta_4 T_t +$$

$$\beta_5 C_c * Time + \sum_j \beta_{6j} W_{c(t-j)} + \beta_7 X_{ict} + \varepsilon_{ict}$$

- Y_{ict} : attitudes, behavior, crime, and disease
- M_{ct} : number of free speech cases
- Law_{ct} : percent of cases that were progressive
 - ▶ 0 when there are no cases (otherwise lag reduces sample size)
- Instrumental Variable ◀ Moment Conditions

$$p_{ct} = \begin{cases} N_{ct}/M_{ct} & \text{if } \mathbf{1}[M_{ct} > 0] = 1 \\ 0 & \text{if } \mathbf{1}[M_{ct} > 0] = 0 \end{cases}$$

- ▶ “612 experiments” (51 years $\times$ 12 circuits); Cluster or wild bootstrap standard errors

Interpretation

In common law, hard cases precede easy cases

COMPLIERS PRECEDE ALWAYS/NEVER-TAKERS

- Compliers are the hard cases whose decisions are affected by biography
- β_{1n} captures hard cases n years ago

$$\sum_{n=0}^{\infty} \beta_{1n} = \sum_{n=0}^{\infty} TOT_{ct}^n = \sum_{n=0}^{\infty} LATE_{ct}^n$$

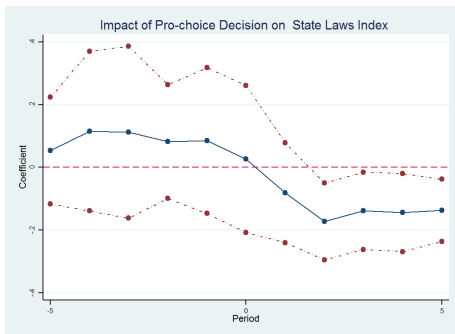
- their subsequent effects at $t = 0$ can be decomposed into delayed **direct** effects and to subsequent easy cases that **cite** these hard cases.

Broad Sketch

- District Cases $\rightarrow$
- District Judge Bio $\rightarrow$
- Circuit Case Appeal $\mathbf{1[M_{ct} > 0]}$ $\rightarrow$
- Circuit Judge Bio $\rightarrow$
- **Circuit Case Decision** $Law_{ct} \rightarrow$
- **Precedential Effects (e.g., State Laws)** $\rightarrow$
- Promulgation (e.g., News) $\rightarrow$
- Outcomes
 - ▶ Do Circuit Cases Affect State Laws?
 - ▶ Do District Courts Comply with Circuit Precedent?
 - ▶ Are Circuit Cases Reported in Newspapers?
 - ▶ Do Circuit Cases Have “Area” Effects Beyond the Litigant?
 - ▶ Exclusion Restriction and Randomization
 - ★ Are Effects Robust to Controls? Is First Stage strong in “Wrong” Years?

Do Circuit Cases Affect State Laws?

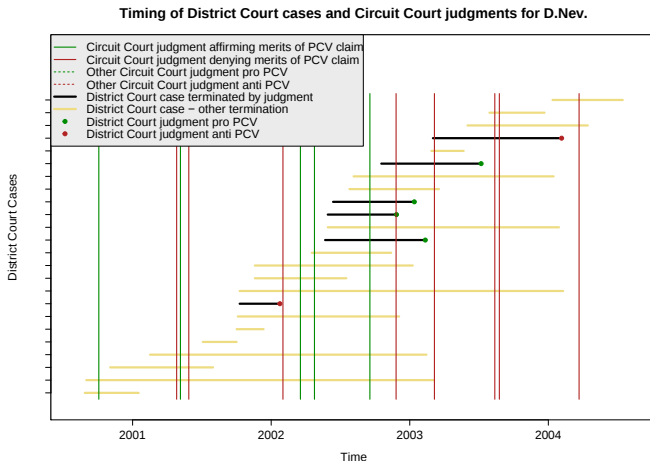
Abortion Jurisprudence affects index of state laws



- Index of state laws (Blank et al. 1996)
 - ▶ (i) regulations requiring mandatory delay,
 - ▶ (ii) banning the use of Medicare payments to fund abortion,
 - ▶ (iii) requiring parental notification
- Immediately observed after 1 year
- Pro-choice precedent causes 18% smaller likelihood in *each* regulation in *each* state
- No lead effect: state laws are not changing in advance of the Circuit precedent

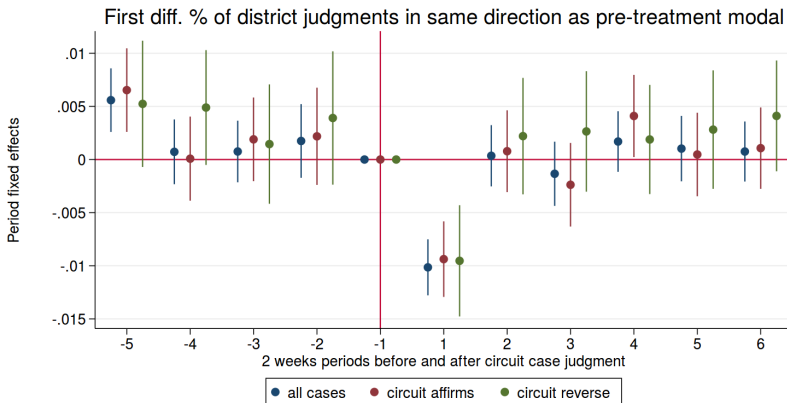
Do District Courts Comply With Circuit Precedents?

Consider only cases pending at the time of the circuit court decisions

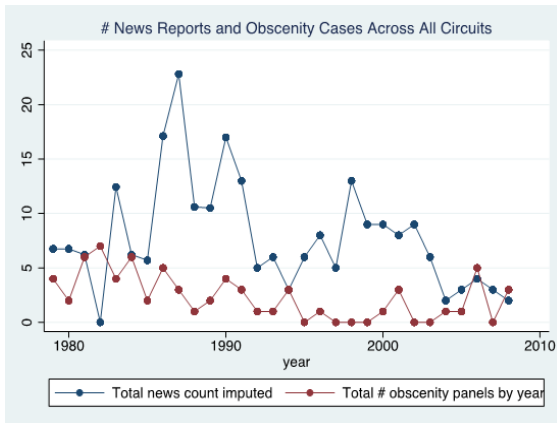


Do District Courts Comply With Circuit Precedents?

Using all District cases merged to Circuit cases (broad legal areas):



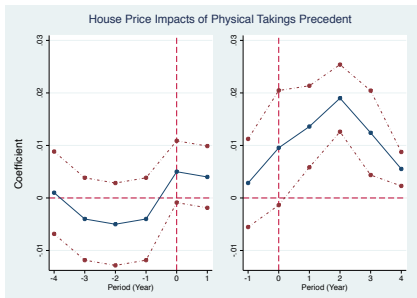
Newspapers



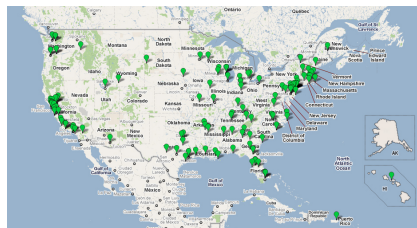
Corr (# of obscenity decisions, # of newspaper mentions) > 0; $p < 0.1$

◀ Recap

Do Circuit Cases Have “Area” Effects Beyond the Litigant?



No lead effect



Zip code origin distinguishes local v. precedential effects

$$Law_{ct} + LocalLaw_{zct}$$

Exclusion Restriction

- Randomization check
 - ▶ 2-3 weeks before oral argument, computer randomly assigns
 - ▶ or panels are set up on a yearly basis, and ensured that judges are not sitting together too often
- Judge panels announced very late
 - ▶ No differential rate of settlement when judges are known earlier
- Supported by orthogonality checks of judicial characteristics vs. pre-determined district case features and random strings tests
- Not accounting for vacation, sick leave, senior status, en banc, remand, and recusal can lead to the inference that judges are not randomly assigned. Treat these as Rubin-ignorable.
- Exclusion restriction
 - ▶ Judge identity not usually announced in newspapers
 - ▶ Impacts likely only through policy
 - ▶ No stock market response to judge identity when panels are revealed

The Shareholder Wealth Effects of Delaware Litigation, Badawi and Chen, ALER 2017

Are Effects Robust to Controls? (also randomization check)

Sexual Harassment Law Increases Female Labor Share

	β_3	Joint F
A. Add Circuit-Specific Trends	0.016	8.35
B. Drop θ_c, θ_t	0.016	8.17
C. Only 1 $[M_{ct-n} > 0], F_{ict}$	0.017	8.08
D. Add $E(\frac{N_{ct}}{M_{ct}})$	0.016	8.31
E. Add State Fixed Effects	0.016	8.00
F. No CPS Weights	0.013	16.49
G. Add 2-year Lead	0.021	19.25
H. Drop 1 Circuit		
Circuit 1	0.015	6.57
Circuit 2	0.017	14.22
Circuit 3	0.016	13.81
Circuit 4	0.017	17.12
Circuit 5 (TX, LA, MS)	0.007	37.15
Circuit 6	0.017	6.61

First Stage for Free Speech

Panel C: Circuit-Year Level		Outcome: % Progressive Free Speech Decisions				
	(1)	(2)	(3)	(4)	(5)	(6)
Democratic Appointees per Seat	0.336* (0.130)	0.336* (0.129)	0.355** (0.113)	0.357** (0.110)	0.362** (0.115)	0.357** (0.111)
N	124	612	612	612	612	612
R-sq	0.043	0.365	0.427	0.427	0.436	0.437
F-statistic of instrument	6.726	6.759	9.893	10.480	9.963	10.411
Circuit-years with no cases	Dropped	Dummied	Dummied	Dummied	Dummied	Dummied
Circuit-year controls	N	N	Fixed Effects	FE, Expect	FE, Trends	All

Panel D: Circuit-Year Level (Merged with Individual-Level GSS Data)		Outcome: % Progressive Free Speech Decisions				
	(1)	(2)	(3)	(4)	(5)	(6)
Democratic Appointees per Seat	0.529* (0.231)	0.529* (0.230)	0.530** (0.168)	0.589** (0.163)	0.590** (0.163)	0.588** (0.164)
N	11777	44897	44897	44897	44613	44613
R-sq	0.107	0.366	0.494	0.521	0.521	0.520
F-statistic of instruments	5.244	5.288	9.992	13.072	13.137	12.912
Circuit-years with no cases	Dropped	Dummied	Dummied	Dummied	Dummied	Dummied
Circuit-year controls	N	N	Fixed Effects	All	All	All
Individual controls	N	N	N	N	Y	Y, weighted

- LASSO tends to choose characteristics related to religion, political party, and having attended non-elite schools.
- The F statistics increase significantly to 37 to 104

◀ First Stage details

◀ Falsification

Is First Stage Strong in “Wrong” Years? (also randomization check)

Circuit-Year Level	Outcome: Proportion of Progressive Free Speech Decisions _t			
	(1)	(2)	(3)	(4)
Democratic Appointees per Seat _t	0.335* (0.125)	0.326* (0.129)	0.362** (0.110)	0.361** (0.108)
Democratic Appointees per Seat _{t-1}	-0.129 (0.0977)	-0.137 (0.100)		
Democratic Appointees per Seat _{t-2}		-0.0526 (0.0886)		
Democratic Appointees per Seat _{t+1}			-0.0917 (0.0865)	-0.0753 (0.0944)
Democratic Appointees per Seat _{t+2}				0.160 (0.101)
N	600	588	600	588
R-sq	0.436	0.438	0.444	0.452
Circuit-years with no cases	Dummied	Dummied	Dummied	Dummied
Circuit-year controls	All	All	All	All

Notes: Heteroskedasticity-robust standard errors are in parentheses. Observations are clustered at the circuit level. Proportions of progressive free speech decisions and judicial type per seat during circuit-years with no cases are defined to be 0 and dummied out. Circuit-year controls also include circuit fixed effects, year fixed effects, circuit-specific time trends, and expected Democratic Appointees per seat.

+ Significant at 10%; * Significant at 5%; ** Significant at 1%

◀ First Stage

Impact

Dependent Variable	Number of Female Partners (reported by Men)					Wild BS %LE	Behavior
	(6)	(7)	(8)	(9)	(10)		
Proportion Progressive Free Speech Decisions _{t+1}	1.466 (3.835)	-7.887 (8.287)	-5.880 (9.012)	-5.195 (4.170)	-2.703 (4.139)	0.32	
Proportion Progressive Free Speech Decisions _t	5.722 (3.374)	16.09 (13.45)	3.321 (15.71)	11.27* (4.980)	10.49* (4.136)	0.03	
Proportion Progressive Free Speech Decisions _{t-1}	8.739** (2.669)	6.962 (7.593)	19.05** (4.855)	15.42** (3.767)	16.89** (3.390)	0.03	1-2 year lag
Proportion Progressive Free Speech Decisions _{t-2}	10.04** (2.280)	9.426 (8.386)	18.69+ (10.42)	12.65** (4.910)	13.62** (3.846)	0.05	
Proportion Progressive Free Speech Decisions _{t-3}	1.633 (1.944)	4.608 (5.878)	17.85* (8.611)	5.162+ (2.958)	8.658+ (4.676)	0.24	
Proportion Progressive Free Speech Decisions _{t-4}	2.519 (1.886)	-0.257 (9.863)	4.862 (7.326)	5.619* (2.416)	7.055** (2.031)	0.03	
N	6077	6077	6077	6077	6077		
R-sq	0.010	0.008	0.006	0.009	0.009		
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV	
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV	
Aggregation Level				Individual			
Mean dependent variable	14.041	14.041	14.041	14.041	14.041		
Average Law _{ct} effect	5.730	7.366	12.756	10.025	11.342		
P-value of Law _{ct} lags	0.001	0.049	0.000	0.000	0.000		
P-value of Law _{ct} leads	0.709	0.341	0.514	0.213	0.514		

- If secondary vices anticipated as problem, courts may rule conservatively, ↓ bias OLS

- ◀ Robustness

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Proportion Progressive Free Speech Decisions _t	5.722 (3.374)	16.09 (13.45)	3.321 (15.71)	11.27* (4.980)	10.49* (4.136)	0.03	
Proportion Progressive Free Speech Decisions _{t-1}	8.739** (2.669)	6.962 (7.593)	19.05** (4.855)	15.42** (3.767)	16.89** (3.390)	0.03	1-2 year lag
Proportion Progressive Free Speech Decisions _{t-2}	10.04** (2.280)	9.426 (8.386)	18.69+ (10.42)	12.65** (4.910)	13.62** (3.846)	0.05	
Proportion Progressive Free Speech Decisions _{t-3}	1.633 (1.944)	4.608 (5.878)	17.85* (8.611)	5.162+ (2.958)	8.658+ (4.676)	0.24	
Proportion Progressive Free Speech Decisions _{t-4}	2.519 (1.886)	-0.257 (9.863)	4.862 (7.326)	5.619* (2.416)	7.055** (2.031)	0.03	
N	6077	6077	6077	6077	6077		
R-sq	0.010	0.008	0.006	0.009	0.009		
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV	
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV	
Aggregation Level		Individual					
Mean dependent variable	14.041	14.041	14.041	14.041	14.041		
Average Law _{ct} effect	5.730	7.366	12.756	10.025	11.342		
P-value of Law _{ct} lags	0.001	0.049	0.000	0.000	0.000		
P-value of Law _{ct} leads	0.709	0.341	0.514	0.213	0.514		

- β_1 is quite stable whether or not presence of a case is instrumented for.

Recall

$\mathbf{1}[M_{\text{ct}} > 0]$ permits the identification of additional counterfactuals:

- β_1 captures progressive vs. conservative precedent
- $\beta_1 + \beta_2$ captures progressive vs. no precedent
- β_2 captures conservative vs. no precedent

Summary Impact

Typical Effects	Progressive vs. Conservative Decision	Progressive Decision vs. No Case	Conservative Decision vs. No Case
Sexual Attitudes			
Extramarital Sex is OK	0.0005	0.0005	-0.0000
Premarital Sex is OK	0.0002	0.0004	0.0010
Homosexual Sex is OK	0.0001	0.0004	0.0013
Sexual Behaviors			
Paid Sex	0.0001	0.0000	-0.0002
Partners Per Year	0.003	0.005	0.013
Number of Female Partners	0.120	0.080	-0.103
Partners Per Year (reported by Men)	0.007	0.012	0.033
Number of Female Partners (reported by Men)	0.276	0.199	-0.157
Extramarital Sex (reported by Men)	0.002	0.001	-0.002
Crimes			
Prostitution	0.140	-0.116	-0.705
Drug Violations	1.665	-0.446	-5.402
Rape	0.143	0.086	-0.092
Offenses Against Family and Children	-2.646	-1.904	0.289
Sexually Transmitted Diseases			
Chlamydia Incidence	1.977	1.223	-0.991

Crime impacts suggest that conservative free speech precedent are not simply empowering police to arrest more.

◀ Additional Results

◀ Typical Effects details

Summary Impact

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Rape	0.143	0.086	-0.092
Offenses Against Family and Children	-2.646	-1.904	0.289
Sexually Transmitted Diseases			
Chlamydia Incidence	1.977	1.223	-0.991

No displacement for attitudes, behavior, or disease (progressive law providing norm-shifting information)

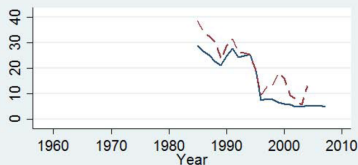
Summary Impact

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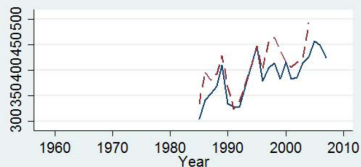
Since the majority of decisions are conservative, suggests that on net:
obscenity laws reduced sex-related crimes

What if 175 Free Speech Precedents Didn't Exist?

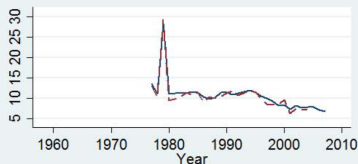
Counterfactual analysis for UCR



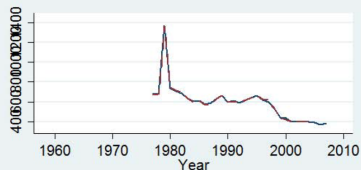
— Actual Prostitution per 100,000
- - - Counterfactual Prostitution per 100,000



— Actual Drug violations per 100,000
- - - Counterfactual Drug violations per 100,000



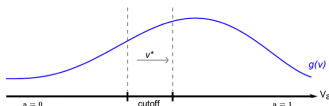
— Actual Forcible Rapes per 100,000
- - - Counterfactual Forcible Rapes per 100,000



— Actual Property crimes per 100,000
- - - Counterfactual Property crimes per 100,000

Returning to Model

- Backlash in early years; Expressive in later year ◀ Evidence
 - ▶ Historical studies of the advent of the sexual revolution document **backlash to stop the Supreme Court** from encroaching on state rights to control pornography during the 1950s and 1960s.
 - ▶ Liberal backlash to conservative decisions



- ▶ v^* is low, spike of conservative decisions led to backlash
 - ★ then v^* increases
- ▶ v^* high enough, then obscenity law is expressive

Historical Context

Of the 175 obscenity cases in our database

- 45% mention “gay” or “lesbian”
 - ▶ including the historical term, “pervert,” increases proportion to 65%
- As such, our findings may shed light on contemporary debates over same-sex marriage and discrimination
 - ▶ we emphasize the decisions are about obscenity (as defined in its historical context) and not gay rights per se

Expressive or Deterrence?

- To understand the causal mechanism

- ▶ Is it cheap talk?
- ▶ Is it deterrence?
- ▶ Is it expressive?
- ▶ We conduct three data entry experiments assigning workers to transcribe news reports on obscenity decisions
 - ★ Progression decisions increased progressive attitudes
 - ★ But not self-reported behaviors

▶ ◀ Experiment details ▶ Interpretation

Data Entry Paragraphs

Conservative Obscenity Decision:

A federal court has ruled that the North Carolina legislature may ban the sale of hardcore pornography in bookstores. The North Carolina legislature had enacted the ban as a nuisance abatement measure. The legislature considered adult bookstores to be nuisances. Adult bookstore owners had challenged the North Carolina statute as unconstitutional. They argued that the statute would be restricting expression before they reach the public and before they are deemed obscene or not. In general, prior restraints on speech are unconstitutional under the First Amendment. However, the [First Amendment does not protect obscene speech](#). The Fourth Circuit court said that statute's prior restraints on explicit photographs and films are acceptable, because they applied only to films and photos sold in hardcore pornography stores. The speech was not completely limited since other stores, such as regular newsstands, could still sell the material.

Data Entry Paragraphs

Progressive Obscenity Precedent:

The Boys of Cocodorm – Snow Bunni, J Fizzo, et al – are staying put, after a federal [judge ruled that the gay porn website has a right to film out of its Edgewater home](#). Cocodorm.com features black and Hispanic men, known as “dorm dudes,” who share a webcam-filled house together and have sex on schedule. For that they are paid at least \$1,200 a month, plus free room and board. Miami has tried to shut the house down, arguing it constitutes an adult business illegally operation in a residential area. The city’s Code Enforcement Board in 2007 agreed, but Cocodorm responded to the code enforcement proceedings by suing in federal court. From the outside, the Cocodorm house looks like any other residence. Those who want to see Cocodorm’s “hottest and horniest” do so via the Internet, with a credit card.

The Effect of Exposure to Progressive Obscenity Decisions on Sexual Attitudes and Behaviors

Panel A: Attitudes	Premarital Sex is OK (1)	Extramarital Sex is OK (2)	Teen Sex is OK (3)	Homosexual Sex is OK (4)	Favor Sex Ed in Public School (5)
Progressive Free Speech Decision	0.00568 (0.0363)	-0.0403 (0.0280)	-0.0292 (0.0304)	0.0637+ (0.0373)	-0.0537 (0.0392)
India	-0.386** (0.0680)	0.0528 (0.0524)	-0.307** (0.0569)	-0.363** (0.0697)	-0.181* (0.0734)
Male	0.246** (0.0693)	0.0698 (0.0534)	0.135* (0.0580)	0.138+ (0.0711)	0.0631 (0.0748)
Mean Dep. Var.	0.569	0.153	0.222	0.483	0.488
Observations	197	197	197	197	197
R-squared	0.163	0.030	0.142	0.133	0.042
Panel B: Behaviors	Nonmarital Sex in Last Year (6)	Casual Date Sex in Last Year (7)	Paid Sex in Last Year (8)	Saw X-rated Movie (9)	Sex Frequency Monthly or More (10)
Progressive Free Speech Decision	-0.0131 (0.0387)	-0.00403 (0.0286)	0.0187 (0.0235)	0.0419 (0.0380)	0.0335 (0.0388)
India	0.124+ (0.0724)	0.00969 (0.0535)	-0.00506 (0.0440)	-0.110 (0.0712)	-0.213** (0.0726)
Male	0.0478 (0.0738)	0.146** (0.0546)	0.149** (0.0449)	0.328** (0.0725)	-0.0173 (0.0740)
Mean Dep. Var.	0.399	0.158	0.099	0.517	0.438
Observations	197	197	197	197	197
R-squared	0.021	0.040	0.057	0.098	0.050

The Effect of Exposure to Progressive Free Speech Decisions on Sexual Attitudes and Beliefs

Attitudes	Premarital Sex is OK (1)	Extramarital Sex is OK (2)	Teen Sex is OK (3)	Homosexual Sex is OK (4)	Favor Sex Ed in Public School (5)	Percentage of People who have Extramarital Sex (6)
Progressive Free Speech Decision	0.00942 (0.0190)	0.0145 (0.0156)	-0.0192 (0.0231)	0.0351+ (0.0209)	0.0425+ (0.0227)	-2.511* (0.979)
Male	0.0576 (0.0360)	0.0839** (0.0297)	0.150** (0.0439)	0.0213 (0.0398)	-0.000567 (0.0430)	-6.741** (1.861)
Mean Dep. Var.	0.803	0.124	0.392	0.739	0.655	44.532
Observations	548	548	548	548	548	548
R-squared	0.005	0.016	0.022	0.006	0.006	0.035

- 1.7% more likely to think homosexual sex is OK when directly exposed to decision
- 2SLS estimates indicate that 0.3% more likely to think homosexual sex is OK when circuit-year is exposed to decision, includes direct & indirect exposure to individuals
- Experimental $TOT_{direct} * P(\text{exp}_{direct}) + \text{Spillovers } TOT_{indirect} * P(\text{exp}_{indirect})$
- $0.3\% + \text{effect on always takers} = (3.5\%) * P(\text{individual exposure in treated circuit}) + TOT_{indirect} * P(\text{exp}_{indirect})$ [◀ Experiment](#)
- Liberal decision reduces beliefs on fraction of population with extramarital sex (consistent with model)

Modularity and Extensibility (automating the Chicago Judges Project)

- **District Cases** →
- District Judge Bio →
- Circuit Case Appeal $\mathbf{1}[M_{ct} > 0]$ →
- Circuit Judge Bio →
- **Circuit Case Decision** Law_{ct} →
- Precedential Effects (e.g., State Laws) →
- Promulgation (e.g., News) →
- Outcomes

- ▶ 1. Identifying the nearest cases

Learning Policy Levers

- ▶ 2. Fast decision classification

Automated Fact-Value Distinction, Cao, Ash, Chen

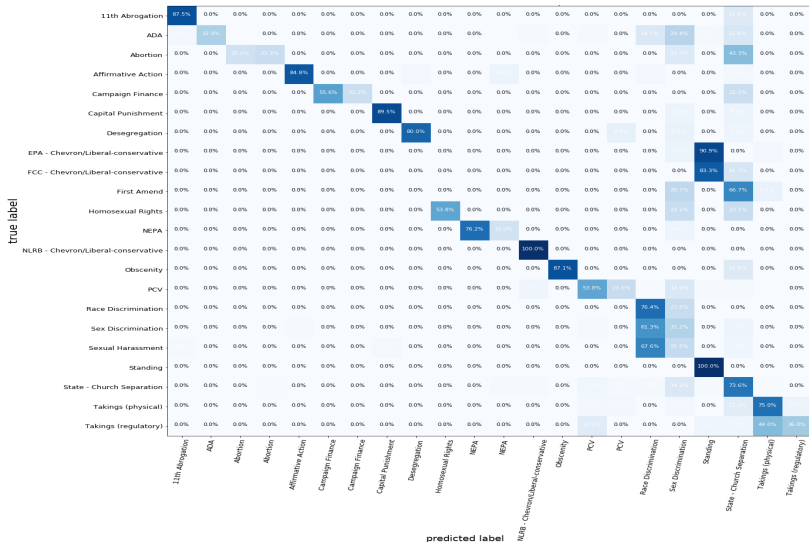
- ▶ 3. Document embedding

Does Dicta Matter, Ash, Chen

- ▶ 4. Judge embedding using own corpora

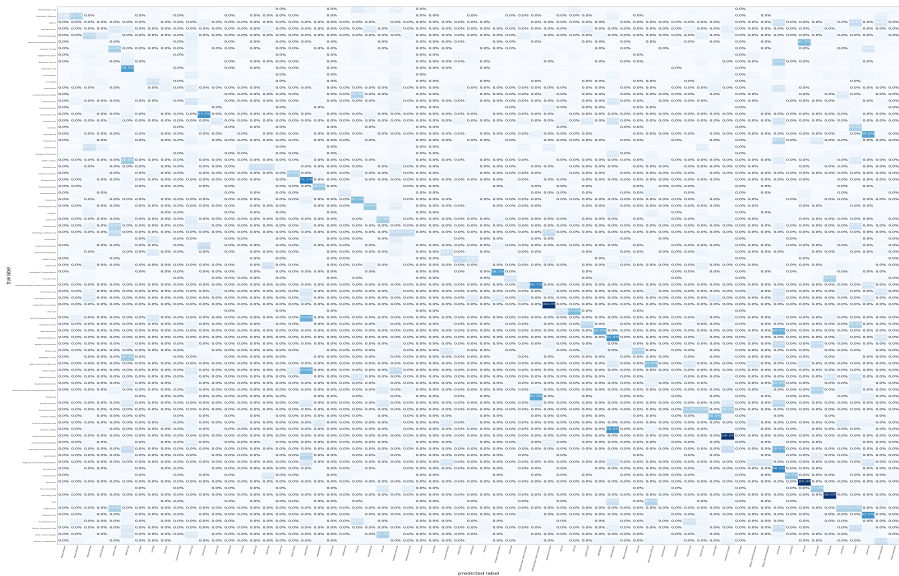
Deep IV in Law, Ash, Chen, Huang, Wang

Learning Policy Levers *Ash, Chen, Delgado, Fierro, Lin*



correctly identifies 15 of 22 Chicago Judges Project areas

Learning Policy Levers (baseline just using text)



Chicago Judges Project as training, classifies 35 out of 82 topics correctly in 5% sample

Fast decision classification

Liberal vs. Conservative decisions can be predicted by text ~ facts or reasonings salient to judge

Campaign Finance	advertis influenc outcom vote, argument appel consid definit, challeng present, case controversi district, disclosur sourc	Expens, inform elector mean provis, compel court went histori, buckley court limit
Capital Punishment	duti make reason, Involuntari, materi reason probabl, mental health	consid mitig, Attack, Inelig, counti jail
EPA	act impos, board character, Chevron, Elimin, interst transport hazard wast	factor demonstr, id statut silent ambigu respect, requir provis

(Note: Buckley held that limits on election spending are unconstitutional)

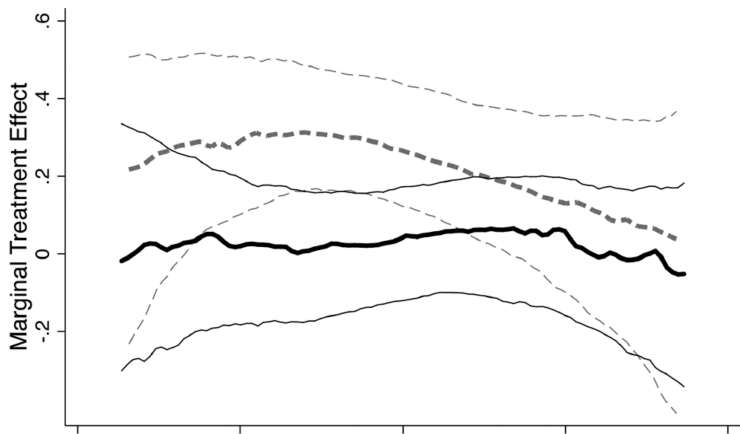
Fast decision classification (baseline)

AUC	Logistic Regression with tf-idf
11th Abrogation	0.845
Abortion	0.642
ADA	0.751
Affirmative Action	0.653
Campaign Finance	0.876
Capital Punishment	0.650
EPA	0.72
FCC	0.96
First Amend	0.695
Homosexual Rights	0.873
NEPA	0.783
NLRB	0.715
Obscenity	0.855
Piercing Corp Veil	0.719
Sex Discrimination	0.752
Title 7	0.78

Judicial Analytics

- Predicting **REVERSALS** (district → circuit; circuit → scotus)
 - ▶ achieve accuracy of 72% in supreme court and 79% in circuit courts (using only the text)

Impacts of Hard vs. Easy Cases



Predicted likelihood of reversal based on district court opinion

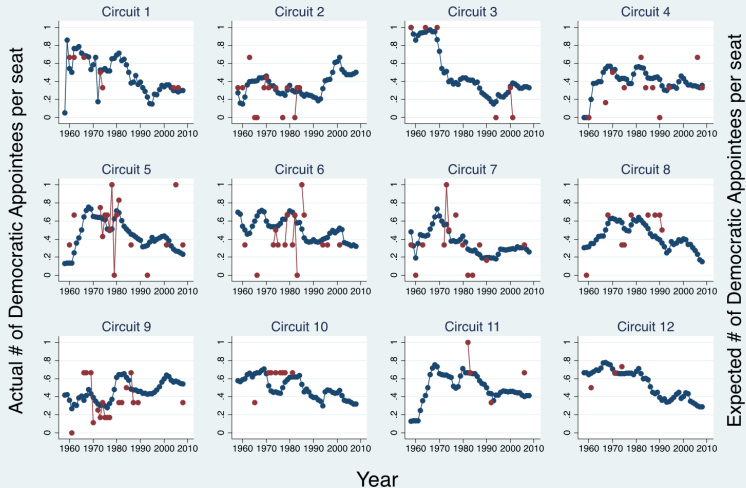
See also Heckman and Vytlačil, ECMA 2005

DO HARD CASES ESTABLISH PRECEDENT $\Rightarrow$ SOCIAL CHANGE? (Dashed)

DO SURPRISE DECISIONS OVERTURNING PRECEDENT $\Rightarrow$ SOCIAL CHANGE? (Solid)

Graphical Intuition of IV

Random Variation by Circuit: Democrat



Robustness

The Effect of Progressive Free Speech Precedent on Paid Sex

	Average of yearly lags	P-value of lags	P-value of leads
	(1)	(2)	(3)
No Circuit-Specific Trends	0.001	0.218	0.530
No Fixed Effects	0.000	0.007	0.816
State Cluster	0.003	0.121	0.186
No State-Level Controls	0.003	0.000	0.136
No Population Weights	0.006	0.001	0.018
No Community Standards	0.004	0.002	0.274
No Controls except $1[M_{ct} > 0]$	0.000	0.029	0.834
Drop Circuit 1	0.004	0.074	0.044
Drop Circuit 2	0.003	0.247	0.004
Drop Circuit 3	0.006	0.000	0.157
Drop Circuit 4	0.002	0.001	0.625
Drop Circuit 5	0.002	0.005	0.352
Drop Circuit 6	0.005	0.000	0.264
Drop Circuit 7	0.002	0.000	0.063
Drop Circuit 8	0.005	0.007	0.039
Drop Circuit 9	0.003	0.000	0.303
Drop Circuit 10	0.004	0.072	0.246
Drop Circuit 11	0.001	0.008	0.421
Drop Circuit 12	0.004	0.082	0.062
1 Current 1 Lag	0.002	0.386	
1 Current 2 Lags	-0.000	0.203	
2 Leads 4 Lags	0.004	0.036	0.289
1 Lead 5 Lags	0.001	0.000	0.236
4 Leads 1 Lag	0.004	0.163	0.367

Robust to
controls and
lag structure

Robustness

Behavior

The Effect of Progressive Free Speech Precedent on Paid Sex						
	(t0)	(t1)	(t2)	(t3)	(t4)	(t5)
No Trends	-0.002 (0.003)	0.002 (0.002)	0.001 (0.004)	0.001 (0.003)	0.003 (0.002)	
No FE	-0.000 (0.002)	-0.001 (0.001)	-0.002 (0.004)	0.001 (0.002)	0.003 (0.003)	
State Cluster	-0.005 (0.004)	0.008 (0.004)	+ 0.003 (0.005)	0.006 (0.003)	0.005 (0.005)	
No Ind Control	-0.006 (0.004)	0.007 (0.004)	0.004 (0.005)	0.005 (0.003)	0.004 (0.002)	+
No Weights	-0.006 * (0.003)	0.008 * (0.004)	0.007 (0.005)	0.007 * (0.003)	0.012 (0.003)	**
No Community Standards	-0.003 (0.003)	0.007 (0.004)	+ 0.002 (0.004)	0.007 (0.002)	0.006 (0.002)	**
No Controls except 1[M _{ct} > 0]	-0.000 (0.002)	0.003 * (0.001)	-0.003 (0.004)	0.002 (0.002)	0.001 (0.002)	
Drop Circuit 1	-0.005 * (0.003)	0.008 (0.004)	+ 0.003 (0.005)	0.007 * (0.003)	0.006 (0.003)	+
Drop Circuit 2	-0.006 ** (0.002)	0.008 (0.005)	+ 0.004 (0.005)	0.006 ** (0.003)	0.005 (0.003)	
Drop Circuit 3	-0.004 (0.002)	0.013 ** (0.005)	0.006 (0.003)	+ 0.007 (0.003)	0.007 (0.002)	**
Drop Circuit 4	-0.001 (0.002)	0.003 (0.002)	+ -0.001 (0.003)	0.005 (0.002)	0.004 (0.002)	*
Drop Circuit 5	-0.004 (0.004)	0.007 (0.003)	* -0.004 (0.004)	0.007 (0.004)	0.001 (0.004)	
Drop Circuit 6	-0.006 (0.006)	0.010 (0.010)	+ 0.004 (0.004)	0.007 (0.007)	0.010 (0.010)	**

1-2 year lag

Robustness

	Behavior					
Drop Circuit 6	-0.006 (0.006)	0.010 (0.006)	+ 0.004 (0.004)	0.007 (0.003)	0.010 (0.002)	**
Drop Circuit 7	-0.005 (0.003)	+ 0.003 (0.004)	0.002 (0.004)	0.005 (0.002)	+ 0.005 (0.003)	+
Drop Circuit 8	-0.007 (0.003)	* 0.011 (0.005)	* 0.008 (0.004)	* 0.006 (0.003)	* 0.006 (0.004)	
Drop Circuit 9	-0.002 (0.002)	0.003 (0.003)	0.001 (0.004)	0.008 (0.003)	0.006 (0.002)	**
Drop Circuit 10	-0.003 (0.002)	0.007 (0.004)	0.003 (0.005)	0.007 (0.003)	0.007 (0.003)	*
Drop Circuit 11	-0.002 (0.003)	0.004 (0.004)	-0.003 (0.005)	0.005 (0.002)	0.002 (0.003)	
Drop Circuit 12	-0.005 (0.002)	+ 0.008 (0.004)	+ 0.003 (0.005)	0.007 (0.003)	+ 0.006 (0.003)	+
1 current 1 lag	0.004 (0.004)	0.000 (0.004)				
1 current 2 lag	0.003 (0.003)	-0.001 (0.004)	-0.003 (0.003)			
2 leads 4 lags	-0.003 (0.003)	0.009 (0.004)	* 0.002 (0.005)	0.007 (0.003)	0.005 (0.003)	+
1 lead 5 lags	-0.003 (0.002)	0.005 (0.003)	-0.001 (0.004)	0.003 (0.003)	0.003 (0.003)	-0.002 (0.003)
4 leads 1 lag (t0, t1, f4, f3, f2, f1)	0.004 (0.004)	0.003 (0.003)	0.002 (0.003)	0.003 (0.006)	0.004 (0.003)	-0.001 (0.004)
						No leads

THANK YOU !

Latest draft available at:

<http://users.nber.org/~dlchen/papers/RightsRevolution.pdf>

Comments welcome

LASSO method

- Law need not be coded as a binary indicator, pro-plaintiff, pro-government, pro-privacy, etc.
- Law can be coded in more nuanced manner
 - ▶ multiple binary indicators for each dimension of the decision
 - ▶ continuous
 - ▶ multinomial logit
 - ▶ damages awarded
- The use of multiple instruments and LASSO identifies the causal effects of different aspects of the law simultaneously

- Dantzig selector accounts for correlated candidates
- Conceptualize naive IV as chosen by group LASSO

Instrument

Moment Conditions

- If we use $N_{ct}/M_{ct} - \mathbf{E}(N_{ct}/M_{ct})$ as the instrument:

$$\mathbf{E}[(N_{ct}/M_{ct} - \mathbf{E}(N_{ct}/M_{ct}))\varepsilon_{ict}] = 0.$$

- ▶ Construct an instrument, $p_{ct} - \mathbf{E}(p_{ct})$, whose moment conditions are implied by the original moment conditions.

$$p_{ct} = \begin{cases} N_{ct}/M_{ct} & \text{if } \mathbf{1}[M_{ct} > 0] = 1 \\ 0 & \text{if } \mathbf{1}[M_{ct} > 0] = 0 \end{cases}$$

- $\mathbf{E}[(p_{ct} - \mathbf{E}(p_{ct}))\varepsilon_{ict}] = \mathbf{Pr}[M_{ct} > 0]\mathbf{E}[(p_{ct} - \mathbf{E}(p_{ct}))\varepsilon_{ict} | M_{ct} > 0] + \mathbf{Pr}[M_{ct} = 0]\mathbf{E}[(p_{ct} - \mathbf{E}(p_{ct}))\varepsilon_{ict} | M_{ct} = 0]$

- $= \mathbf{Pr}[M_{ct} > 0] * 0 + \mathbf{Pr}[M_{ct} = 0] * 0 = 0$

- Furthermore,

$$\mathbf{E}[(p_{ct} - \mathbf{E}(p_{ct}))\varepsilon_{ict}] = \mathbf{E}(p_{ct}\varepsilon_{ict}) - \mathbf{E}[\mathbf{E}(p_{ct})\varepsilon_{ict}] = \mathbf{E}(p_{ct}\varepsilon_{ict}) - \mathbf{E}(p_{ct})\mathbf{E}(\varepsilon_{ict}) = \mathbf{E}[p_{ct}\varepsilon_{ict}].$$

◀ Specification

Innovation of Rights

- Progressive free speech precedent on the margin makes it easier to subsequently challenge restrictive free speech regulations
 - ▶ Theoretically, evolution of common law through innovation of distinctions expands or contracts the space over which subsequent actions may be found liable (Gennaioli and Shleifer 2007)
 - ▶ Free Speech Example:
 - ★ *Young v. American Mini Theatres, Inc.*, 427 U.S. 50 (U.S. 1976) declared constitutional a city ordinance that prohibited adult movie theaters from being located within 1000 feet of any two other "regulated uses"
 - ★ Later, *Renton v. Playtime Theatres*, 475 U.S. 41 (U.S. 1986) introduced a distinction that provided further restrictions: These kinds of city ordinances applied to theater owners who intended to exhibit adult motion pictures in their theaters, even if there may be some uncertainty about their secondary effects on other persons.
 - ▶ Abortion example: Fifth Circuit invalidate a Mississippi statute but allowed an identical Texas statute, resulting in one-third of Texas abortion clinics shutting down [◀ Map](#)

Interpretation

M_{ct} and Law_{ct} are typically 1 or 0, but the typical Circuit-year is unlikely to have a case. Scale the coefficients to measure typical effects:

- $\beta_1 * E[Law_{ct} | 1[M_{ct} > 0]] * E[1[M_{ct} > 0]]$
- $\beta_2 * E[1[Progressive_{ct} > 0]] + \beta_1 * E[Law_{ct} | 1[M_{ct} > 0]] * E[1[Progressive_{ct} > 0]]$
- $\beta_2 * E[1[Conservative_{ct} > 0]]$

◀ Results

Dynamic Effects

The presence of cases $\mathbf{1}[M_{ct} > 0]$ may respond to $p_{c(t-n)}$, introducing downward bias for lag coefficients.

- Use the random assignment of district judges to instrument for the presence of cases.
 - ▶ Some district judges are more likely to be reversed on appeal. (Sen 2011)
 - ▶
$$w_{ct} = \frac{K_{1t} * \left(\frac{L_{1t}}{K_{1t}}\right) + \dots + K_{6t} * \left(\frac{L_{6t}}{K_{6t}}\right)}{K_{1t} + \dots + K_{6t}}$$
 - ▶
$$\tilde{w}_{ct} = K_{1t} * \left(\frac{L_{1t}}{K_{1t}} - E\left(\frac{L_{1t}}{K_{1t}}\right)\right) + \dots + K_{6t} * \left(\frac{L_{6t}}{K_{6t}} - E\left(\frac{L_{6t}}{K_{6t}}\right)\right)$$
 - ★ Law of Iterated Expectations (LIE) addresses potential endogeneity or absence of K_{it} and in $E\left(\frac{L_{it}}{K_{it}}\right)$ [◀ Proof](#)
- Identifying both $\mathbf{1}[M_{ct} > 0]$ and Law_{ct} permit leads to serve as falsification check.
- Can define Law_{ct} : +1/0/-1 for progressive/no case/conservative (average per Circuit-year)
 - ▶ Identification assumption: the effects of progressive and conservative precedent are opposite and equal in absolute value.
 - ▶ No need to include or instrument for $\mathbf{1}[M_{ct} > 0]$ [◀ Graphical Intuition](#)

First Stage

Panel A: Judge Level	Outcome: Progressive Free Speech Vote			
	(1)	(2)	(3)	(4)
Democratic Appointee	0.0983+	0.113**	0.0947+	0.102**
	(0.0474)	(0.0348)	(0.0446)	(0.0316)
N	525	525	525	525
R-sq	0.010	0.288	0.011	0.292
F-statistic of instrument	4.310	10.564	4.511	10.470
Circuit-year controls	N	Fixed Effects	Expectations	Both

Panel B: Case Level	Outcome: Progressive Free Speech Decision			
	(1)	(2)	(3)	(4)
Democratic Appointees per Seat	0.162	0.296*	0.177	0.257*
	(0.0979)	(0.114)	(0.104)	(0.113)
N	175	175	175	175
R-sq	0.009	0.315	0.010	0.317
F-statistic of instrument	2.732	6.738	2.875	5.188
Circuit-year controls	N	Fixed Effects	Expectations	Both

◀ First Stage

LASSO

Basic Idea

We have a large number of biographical characteristics.

- Weak instruments problem with too many instruments

LASSO (Belloni, Chen, Chernozhukov, Hansen 2012)

- LASSO minimizes sum of squares subject to sum of absolute value of coefficients being less than a constant
- Sparse: Add penalty for too many coefficients; force less important coefficients = 0
- Continuity: stability of predictors
- OLS: low bias, large variance – but lacks the above
- Joint F goes up 100%

Implementation

- All per-capita biographical characteristics supplemented with two-way interactions at the judge and panel-level
- Optimal penalty is a function of number of candidates

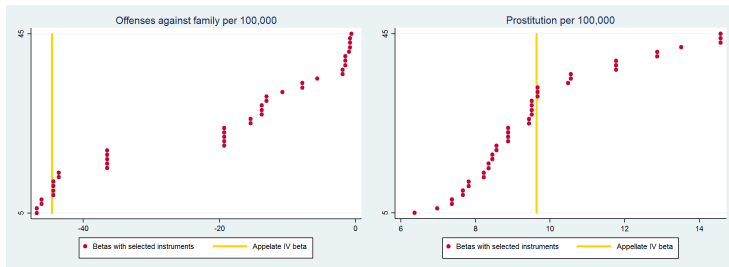
Visual Hausman

Basic Idea

We have a large number of biographical characteristics.

- LASSO assumes sparsity

Report the 2SLS estimates from the top 50 instruments



Separate First Stages

- With many endogenous variables and many instruments, danger of overfitting with instrument from “wrong” year

$$Y_{ict} = \beta_{10}Law_{c(t)} + \beta_{11}Law_{c(t-1)} + \dots + \varepsilon_{ict}$$

- $L_{c(t)} = Z_0\Pi_0 + u_0$, where $Z_0 = [p_{c(t)}]$
- $L_{c(t-1)} = Z_1\Pi_1 + u_1$, where $Z_1 = [p_{c(t-1)}]$
- Set $\hat{X} = [\hat{L}_{c(t)} \quad \hat{L}_{c(t-1)} \quad \dots \quad \hat{L}_{c(t-j)}]$ for $j = 0, 1, \dots$

- ▶ $\hat{L}_{c(t-j)} = Z_j\hat{\Pi}_j = Z_j(Z_j'Z_j)^{-1}Z_j' L_{c(t-j)}$
- ▶ $\hat{\beta} = (\frac{\hat{X}'X}{n})^{-1}\frac{\hat{X}'Y}{n} = \beta + (\frac{\hat{X}'X}{n})^{-1}\frac{\hat{X}'\varepsilon}{n}$
- ▶ Let $\hat{Q} = (\frac{\hat{X}'X}{n})$, then $\sqrt{n}(\hat{\beta} - \beta) = \hat{Q}^{-1}\frac{\hat{X}'\varepsilon}{\sqrt{n}}$

$$\star \quad \frac{1}{\sqrt{n}}\hat{X}_j'\varepsilon = \frac{1}{\sqrt{n}}\frac{X_jz_j}{n}(\frac{z_j'z_j}{n})^{-1}z_j'\varepsilon = \hat{\Gamma}\sqrt{n}\frac{z_j'\varepsilon}{n}$$

$$\star \quad \sqrt{n}\frac{z_j'\varepsilon}{n} \rightarrow N(0, \Phi_j), \text{ so } \sqrt{n}(\hat{\beta} - \beta) \rightarrow N(0, V), V = Q^{-1}\Gamma\Phi\Gamma Q^{-1}$$

◀ Recap

Appellate Randomization Check $E[p_{ct}\varepsilon_{ict}] = 0$

- Interviews of circuit courts and orthogonality checks of observables (Chen and Sethi 2011)
 - ▶ **What about endogenous settlement?**
 - ★ Judges are revealed very late
 - ★ Parties are unlikely to settle in response to judge identity
 - ★ Settlement is unaffected by earlier announcement of judges (Jordan 2007)
 - ▶ **What about endogenous publication decision?**
 - ★ Publication decision is uncorrelated with judicial ideology (Merritt and Brudney 2001)
 - ★ Unpublished cases are not supposed to have precedential value
 - ★ Decisions in unpublished cases are uncorrelated with judicial ideology (Keele et al. 2009)
 - ▶ **What about strategic use of keywords or citation of Supreme Court precedent?**
 - ★ (Weak) Omnibus test: examine how similar the string of actual panel assignments is to a random string (Chen 2013)

Survey

- 2-3 weeks before oral argument, computer
 - ▶ randomly assigns available judges including visiting judges
 - ▶ ensures judges are not sitting together repeatedly
 - ▶ senior judges set how often they want to sit on cases before they are entered into the program
- Randomly assign panels, randomly assign cases
 - ▶ Panels are set up on a yearly basis, and ensured that judges are not sitting together too often
 - ▶ 8 weeks before oral argument, calendar is sent out, judges can occasionally recuse
 - ▶ If a panel has seen a case, it will see it again on remand
 - ▶ Exceptions for specialized cases like death penalty

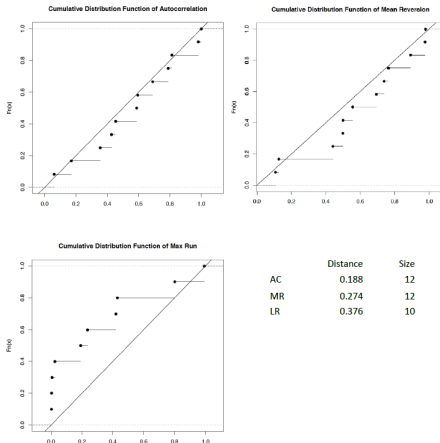
Random Strings

- 1. Propose a statistic Summarizing the yearly sequence of numbers of democratic appointees per seat within a circuit.
 - ▶ Test for autocorrelation (judges seeking out cases), mean-reversion (judges 'due' for certain cases), and longest-run (specialization)
- 2. Compute the statistic for the actual sequence, s^* .
- 3. Compute the statistic for each of 1,000 bootstrap samples like the actual sequence, i.e., $s_1, s_2, s_3 \dots s_n$.
- 4. Compute the empirical p-value, p_i by determining where s^* fits into $s_1, s_2, s_3 \dots s_n$.
- 5. Repeat steps 1-4 and calculate p_i for each circuit.

Random Strings

- p-values should look uniformly distributed
 - ▶ (1001th random string should have a statistic anywhere between 1-1000)
 - ▶ Kolmogorov-Smirnov Test for whether the empirical distribution of p-values approaches the CDF of a uniform distribution

Appellate Randomization Check $E[p_{ct}\varepsilon_{ict}] = 0$



- Test for autocorrelation (judges seeking out cases), mean-reversion (judges 'due' for certain cases), and longest-run (specialization)
- p-values should look uniform (1001th random string should have a statistic anywhere between 1-1000)
- KS-Test for whether the empirical distribution of p-values approaches the CDF of a uniform distribution

Randomization

Not accounting for vacation, sick leave, senior status, en banc, remand, and recusal can lead to the inference that judges are not randomly assigned.

- Our identification strategy assumes that these kinds of deviations from random assignment are ignorable.
- Even a gold-standard random process — the roll of a die — has a deterministic element. If known with precision, the force and torque applied to the die, the subtle air currents, the hardness of the surface, etc., might allow us (or a physicist) to determine with certainty the outcome of these “random” rolls.
- Despite this obvious non-randomness, we would still have faith in the outcome of a trial with treatment assignments based on die rolls because we are certain that the factors affecting the assignment have no impact on the outcome of interest and hence are ignorable.

District Randomization Check $E[w_{ct}\varepsilon_{ict}] = 0$ and $E[w_{ct}p_{c(t-n)}] = 0$

- We confirm the method of random assignment by contacting all the District Courts
- Rules for randomization are less systematic (Waldfogel 1995)
- But district judges are much more constrained
 - ▶ Judicial ideology does not predict district court:
 - ★ settlement rates (Ashenfelter et al. 1995, Nielsen et al. 2010)
 - ★ settlement fees (Fitzpatrick 2010)
 - ★ publication choice (Taha 2004)
 - ★ decisions in published or unpublished cases (Keele et al. 2009)
- (Weak) Omnibus test: whether district court judicial biographical characteristics in *filed* cases jointly predict publication (into the sample of collected district opinions)
 - ▶ PACER (Swartz (~36% sample with judges)) district court case filings linked to AOC (3-digit case category) and our data collection (of published district opinions)

District Randomization Check $E[w_{ct}\varepsilon_{ict}] = 0$ and $E[w_{ct}p_{c(t-n)}] = 0$

- District IV needs to be uncorrelated with unobservables *and appellate IV*.
- Our construction of w_{ct}
 - ▶ permits endogenous M_{it} ,
 - ★ litigant forum selection
 - ★ endogenous local economic/government activity
 - ★ endogenous funding of cases in certain locations
 - ▶ permits endogenous $E\left(\frac{N_i}{M_i}\right)$
 - ★ district judge retirement
 - ★ relative caseload of senior judges
 - ★ visiting judges
- In Circuit and District IV, $E\left(\frac{N_i}{M_i}\right)$ is not computable for visiting, senior, and magistrate judges (collectively <10%)
 - ▶ Preferred Solution: Drop these judges in constructing w_{ct} and p_{ct}

◀ Recap

Outcomes

Attitudes and Behavior

General Social Survey (1973-2004) (Fernandez-Villaverde, Greenwood, Guner 2014)

- attitudes towards more progressive sexual behaviors such as premarital sex, extramarital sex, and same-sex sex
 - ▶ For attitudes on the morality of progressive sexual behaviors, we construct a binary indicator dividing the four possible responses: always wrong, almost always wrong, wrong only sometimes, or not wrong at all. Wrong only sometimes and not wrong at all are coded as “okay.”
- self-reports of one's actual sexual behaviors (e.g., number of partners last year, extramarital sex, or paid sex)
- construct a measure for community standards using the response to whether sexual materials lead to breakdown of morals, an additional control because the *Miller* standard instructs judges to take into account the community's standards
- GSS survey weights

Outcomes

Crime

FBI Uniform Crime Reports (1977-2007)

- Arrest data at the county level are available for prostitution, rape, and drug-related incidents and are constructed to be arrests per 100,000 population
- We also include standard controls for crime in the crime regressions: unemployment rate, per capita real income, police employment, the proportion of the population that is nonwhite, percent urban, infant mortality, and the age profile of the population in each state and year.
- County population numbers are used as weights.
 - ▶ The fact that self reports of paid sex and arrests for prostitution move in tandem suggests that the arrest data might not simply be due to police reporting bias.

Outcomes

Disease

Centers for Disease Control and Prevention (1963-1980; 1980-2008)

- Incidence (i.e., new cases) of sexually transmitted diseases—chlamydia, syphilis, and gonorrhea.
- Weighted by annual state population [◀ Recap](#)

Expressive or Deterrence?

- We obtain state-level data on sales of the pornographic magazines, *Playboy* and *Penthouse*, from the Audit Bureau of Circulations. These data were collected annually for a single month's issue, 1955-2010 for *Playboy* and 1970-2010 for *Penthouse*. *Playboy* circulated widely in the 1960s and '70s among men and its total circulation peaked in the 1970s.
 - ▶ We did not find an effect on magazine circulation, but it is possible that the effects of progressive free speech law include shifts in content or other forms of media not captured by magazine circulation.
- The role of material penalties is unlikely to be significant in the short time frame of our experiments.
- Backlash effects would not be explained by deterrence.
- Finally, the effects of free speech law on paid sex reported by individuals and arrests for prostitution reported by the police move in tandem from backlash to expressive. This suggests that the effects found in the arrest data may reflect actual changes in underlying behavior and are not due to changes in law enforcement aggressively making arrests in response to court decisions.

Social Multiplier

$$v^* - c + \mu E(v_a \mid 1) = \mu E(v_a \mid 0)$$

the cutoff rule

$$\Delta(v) = E(v_a \mid 1) - E(v_a \mid 0)$$

$$v^* + \mu \Delta(v^*) = c$$

A sufficient condition for a fixed point is if $1 + \mu \Delta'(v) > 0$

$[\underline{v}, v^*]$ share of the population have extramarital sex

- marginal benefit is the sum of the intrinsic motivation and social motivation
- If the derivative is positive, then the marginal benefit will eventually equal the marginal cost c
- In words, actions are strategic substitutes: the more people do an action, the less likely others will do it because it is harder to signal your intrinsic type

Social Multiplier

$$\Delta(v) = E(v_a | 1) - E(v_a | 0)$$

$$v^* + \mu \Delta(v^*) = c$$

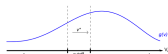
$1 + \mu \Delta'(v)$ can be negative for some cutoff values.

A raise in v^* , raises both $E(v_a | 1) = E(v_a | v_a > v)$ and $E(v_a | 0) = E(v_a | v_a < v)$.

when v^* is small (most people are not having extramarital sex), then raising v^* will increase $E(v_a | 0)$ more than $E(v_a | 1)$.

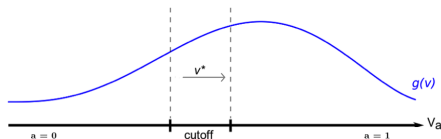
$E(v_a | 0)$ will include very few points on the left tail of the v -distribution, and so by slightly increasing the right margin, we include a lot bigger v 's, and also a lot more proportionately than what we had before in $E(v_a | 0)$.

Actions are strategic complements: the more people do some misdeed, the more other people will do it.



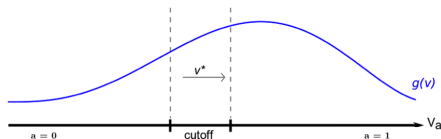
Social Multiplier

- When choosing $a = 1$ is rare (i.e., v^* on the right side of the distribution),
 - ▶ Social multiplier makes actions strategic substitutes: the less people choose $a = 1$, the more likely others will do it



Social Multiplier

- When there are few extramarital sexual activities (v^* on the left side of the distribution)
 - ▶ Social multiplier makes actions strategic complements
- When there are many extramarital sexual activities (v^* on the right side of the distribution)
 - ▶ Social multiplier makes actions strategic substitutes



Information Multiplier

- When there are few extramarital sexual activities (v^* on the left side of the distribution)
 - ▶ 1. Excessive optimism: people think v^* even lower
 - ★ E.g. People think even fewer extramarital sexual activities exist than is actually true
 - ★ Social stigma is sufficient motivator
 - ★ Releasing (true) statistical information backfires, reducing the stigma effect
 - ★ Explicit sanctions indicates the policymaker sees a problem
 - ★ Substitutes for norm-based stigma: “backlash”
 - ▶ 2. Excessive pessimism: people think v^* not that low
 - ★ E.g. People think a larger percentage of people have extramarital sexual activities than is actually true
 - ★ Statistical information strengthens stigma effect
 - ★ Explicit sanctions indicates the policymaker sees a problem
 - ★ Complements norm-based stigma: “expressive”

Information Multiplier

- When there are few extramarital sexual activities (v^* on the left side of the distribution)
 - ▶ 1. Excessive optimism: people think v^* even lower
 - ★ E.g. People think even fewer extramarital sexual activities exist than is actually true
 - ★ (True) statistical information backfires, reducing the stigma effect
 - ★ Explicit sanctions indicates the policymaker sees a problem
 - ★ Substitutes for norm-based stigma: “backlash”
 - ▶ 2. Excessive pessimism: people think v^* not that low
 - ★ E.g. People think a larger percentage of people have extramarital sexual activities than is actually true
 - ★ Social honor is sufficient motivator
 - ★ Releasing statistical information backfires, reducing the honor effect
 - ★ Explicit sanctions indicates the policymaker sees a problem
 - ★ Substitutes norm-based stigma: “backlash”

Information Multiplier

- **Conservative obscenity decisions lead people to think a larger percentage of people have extramarital sex (v^* is higher)**
- Variation from random judge assignment allows identifying effects in an envelope around the optimum
- Pluralistic Ignorance and Case 1 (few extramarital sex)
 - ▶ Regardless of excessive optimism/pessimism
 - ★ ***Backlash* is predicted when: people think a larger percentage of people do not have extramarital sex than is actually true**
- Pluralistic Ignorance and Case 2 (mostly extramarital sex)
 - ▶ Regardless of excessive optimism/pessimism
 - ★ ***Expressive* is predicted when: people think a larger percentage of people do not have extramarital sex than is actually true** ◀ Model

<i>Average Lag effect</i>	OLS (1)	Appellate IV (2)	Appellate and District IV (3)	LASSO IV (4)	Obs (5)	Mean Dependent Variable (6)
Extramarital Sex is OK	0.005	0.001	-0.027	0.008	18874	0.097
Joint P-value of lags	0.002	0.001	0.639	0.001		
Joint P-value of leads	0.936	0.968	0.576	0.315		
Premarital Sex is OK	0.000	-0.057	0.047	0.014	18801	0.633
Joint P-value of lags	0.126	0.666	0.815	0.000		
Joint P-value of leads	0.041	0.174	0.949	0.307		
Homosexual Sex is OK	0.001	0.017	-0.043	0.003	18073	0.267
Joint P-value of lags	0.805	0.000	0.574	0.000		
Joint P-value of leads	0.810	0.228	0.732	0.510		

<i>Average Lag effect</i>	OLS (1)	Appellate IV (2)	Appellate and District IV (3)	LASSO IV (4)	Obs (5)	Mean V
Paid Sex	0.003	0.006	0.006	0.004	16659	
Joint P-value of lags	0.022	0.075	0.100	0.001		
Joint P-value of leads	0.434	0.789	0.247	0.263		
# Partners per Year	0.066	0.517	0.193	0.132	15346	
Joint P-value of lags	0.348	0.001	0.000	0.181		
Joint P-value of leads	0.306	0.598	0.014	0.477		
# Female Partners	2.450	1.252	5.292	5.028	13833	
Joint P-value of lags	0.095	0.961	0.000	0.000		
Joint P-value of leads	0.881	0.791	0.725	0.347		
# Partners per Year (reported by Men)	0.134	1.453	0.193	0.278	6626	
Joint P-value of lags	0.095	0.581	0.000	0.017		
Joint P-value of leads	0.662	0.153	0.042	0.894		
# Female Partners (reported by Men)	5.730	7.366	12.756	11.342	6077	
Joint P-value of lags	0.001	0.049	0.000	0.000		
Joint P-value of leads	0.709	0.341	0.514	0.514		
Extramarital Sex (reported by Men)	0.056	0.113	0.048	0.069	7170	
Joint P-value of lags	0.014	0.968	0.000	0.003		
Joint P-value of leads	0.635	0.801	0.966	0.437		
Divorced or Separated (older than 40)	0.009	0.043	0.028	0.011	10778	
Joint P-value of lags	0.460	0.674	0.000	0.008		
Joint P-value of leads	0.157	0.370	0.301	0.496		
Divorced or Separated (40 or younger)	-0.020	0.027	-0.084	-0.039	6368	
Joint P-value of lags	0.060	0.123	0.000	0.003		
Joint P-value of leads	0.053	0.534	0.425	0.216		

<i>Average Lag effect</i>	OLS (1)	Appellate IV (2)	Appellate and District IV (3)	LASSO IV (4)	Obs (5)	Mean Dependent Variable (6)
Offenses Against Family and Children	-11.002	-44.588	-47.575	-56.475	43992	46.063
Joint P-value of lags	0.422	0.000	0.000	0.001		
Joint P-value of leads	0.170	0.201	0.418	0.985		
Community Vices	1.309	9.641	8.620	2.998	43992	5.104
Joint P-value of lags	0.094	0.000	0.000	0.081		
Joint P-value of leads	0.229	0.096	0.737	0.381		
Drug Violations	30.956	69.391	90.613	35.542	43992	286.987
Joint P-value of lags	0.038	0.002	0.000	0.002		
Joint P-value of leads	0.594	0.148	0.633	0.750		
Forcible Rapes	-0.413	4.614	2.609	2.190	67017	10.044
Joint P-value of lags	0.367	0.268	0.103	0.268		
Joint P-value of leads	0.097	0.154	0.833	0.885		
Property Crimes	-17.811	-59.631	-98.440	-96.232	67017	559.876
Joint P-value of lags	0.205	0.438	0.241	0.769		
Joint P-value of leads	0.118	0.481	0.648	0.598		

Progressive decisions decreased child abuse.

<i>Average Lag effect</i>	OLS (1)	Appellate IV (2)	Appellate and District IV (3)	LASSO IV (4)	Obs (5)	Mean Dependent Variable (6)
Chlamydia	13.029	87.392	74.130	49.636	1117	207.509
Joint P-value of lags	0.014	0.000	0.979	0.000		
Joint P-value of leads	0.435	0.299	0.755	0.501		
Gonorrhea	13.367	40.036	221.957	186.113	2141	243.911
Joint P-value of lags	0.404	0.263	0.987	0.980		
Joint P-value of leads	0.842	0.368	0.900	0.888		
Syphilis	-3.601	-0.243	1.853	0.681	2141	6.748
Joint P-value of lags	0.172	0.946	0.598	0.756		
Joint P-value of leads	0.906	0.609	0.599	0.562		

Chlamydia is invisible and fastest growing STD.

Dependent Variable	Extramarital Sex is OK					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-0.000817 (0.00995)	0.00247 (0.0606)	-0.272 (0.486)	-0.000585 (0.0142)	0.0188 (0.0187)	0.69
Proportion Progressive Free Speech Appellate Decisions _t	-0.0192 (0.0147)	-0.0136 (0.0812)	-0.0501 (0.410)	-0.0179 (0.0161)	-0.0310+ (0.0159)	0.09
Proportion Progressive Free Speech Appellate Decisions _{t-1}	0.00770 (0.0111)	-0.0547 (0.0741)	0.259 (0.670)	0.0183 (0.0193)	0.0389+ (0.0233)	0.18
Proportion Progressive Free Speech Appellate Decisions _{t-2}	-0.00296 (0.0120)	0.0484 (0.138)	0.0430 (0.570)	0.0209 (0.0198)	0.0197 (0.0232)	0.60
Proportion Progressive Free Speech Appellate Decisions _{t-3}	0.0256+ (0.0137)	-0.0303 (0.0393)	-0.287 (1.447)	0.0175 (0.0150)	0.00465 (0.0289)	0.81
Proportion Progressive Free Speech	0.0142	0.0534*	-0.102	0.00224	0.00661	0.94
Appellate Decisions _{t-4}	(0.0109)	(0.0254)	(0.161)	(0.0179)	(0.0194)	
N	18874	18874	18874	18874	18874	
R-sq	0.014	0.012	.	0.013	0.013	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	0.097	0.097	0.097	0.097	0.097	
Average Law_{ct} effect	0.005	0.001	-0.027	0.008	0.008	
P-value of Law_{ct} lags	0.002	0.001	0.639	0.135	0.001	
P-value of Law _{ct} leads	0.936	0.968	0.576	0.967	0.315	
Average 1[M _{ct} >0] lag	0.001	0.002	-0.003	0.000	-0.001	
P-value of 1[M _{ct} >0] lags	0.379	0.270	0.738	0.346	0.814	
P of Law _{ct} +1[M _{ct} >0] lags	0.001	0.000	0.866	0.000	0.000	
Typical Law _{ct} effect	0.000	0.000	-0.001	0.000	0.000	
Unconditional effect - progressive	0.000	0.000	-0.002	0.000	0.000	
Unconditional effect - conser	0.000	0.000	-0.001	0.000	-0.000	
Unconditional effect - all	0.001	0.000	-0.002	0.000	0.000	
P of 1[M _{ct} >0] leads	0.063	0.466	0.514	0.018	0.041	
P of Law _{ct} +1[M _{ct} >0] leads	0.178	0.623	0.650	0.329	0.075	

Dependent Variable	Premarital Sex is OK					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-0.0421* (0.0182)	-0.387 (0.284)	-0.0186 (0.292)	-0.0294 (0.0256)	-0.0284 (0.0278)	0.73
Proportion Progressive Free Speech Appellate Decisions _t	0.0611 (0.0358)	0.0856 (0.413)	0.00340 (0.926)	0.0644+ (0.0347)	0.0614+ (0.0365)	0.45
Proportion Progressive Free Speech Appellate Decisions _{t-1}	-0.0613+ (0.0286)	-0.0947 (0.515)	-0.224 (0.785)	-0.0644+ (0.0351)	-0.0627+ (0.0356)	0.39
Proportion Progressive Free Speech Appellate Decisions _{t-2}	0.00118 (0.0281)	-0.243 (0.335)	0.119 (0.515)	0.0190 (0.0309)	0.0299 (0.0328)	0.69
Proportion Progressive Free Speech Appellate Decisions _{t-3}	-0.00424 (0.0198)	-0.0823 (0.497)	0.259 (3.728)	0.0260 (0.0282)	0.0278 (0.0302)	0.85
Proportion Progressive Free Speech Appellate Decisions _{t-4}	0.00468 (0.0180)	0.0491 (0.263)	0.0792 (2.421)	0.0284+ (0.0158)	0.0153 (0.0164)	0.94
N	18801	18801	18801	18801	18801	
R-sq	0.028	0.014	0.015	0.028	0.028	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	0.633	0.633	0.633	0.633	0.633	
Average Law _{ct} effect	0.000	-0.057	0.047	0.015	0.014	
P-value of Law _{ct} lags	0.126	0.666	0.815	0.001	0.000	
P-value of Law _{ct} leads	0.041	0.174	0.949	0.251	0.307	
Average 1[M _{ct} >0] lag	0.005	0.036	0.007	0.002	0.001	
P-value of 1[M _{ct} >0] lags	0.001	0.091	0.983	0.000	0.000	
P of Law _{ct} +1[M _{ct} >0] lags	0.894	0.871	0.914	0.000	0.012	
Typical Law _{ct} effect	0.000	-0.003	0.002	0.001	0.001	
Unconditional effect - progressive	0.000	-0.001	0.003	0.001	0.001	
Unconditional effect - conser	0.001	0.007	0.001	0.000	0.000	
Unconditional effect - all	0.001	0.006	0.004	0.001	0.001	
P of 1[M _{ct} >0] leads	0.371	0.383	0.999	0.631	0.581	
P of Law _{ct} +1[M _{ct} >0] leads	0.106	0.176	0.990	0.292	0.371	

Dependent Variable	Homosexual Sex is OK					Wild BS
(11)	(12)	(13)	(14)	(15)	%LE	
Proportion Progressive Free Speech	-0.00374	0.0854	-0.304	-0.0243	-0.0224	0.90
Appellate Decisions $_{t+1}$	(0.0152)	(0.0708)	(0.887)	(0.0329)	(0.0341)	
Proportion Progressive Free Speech	-0.0113	-0.0314	-0.232	0.0125	0.0137	0.80
Appellate Decisions $_t$	(0.0358)	(0.140)	(0.510)	(0.0411)	(0.0447)	
Proportion Progressive Free Speech	-0.0133	-0.0624	-0.165	-0.0410	-0.0369	0.64
Appellate Decisions $_{t-1}$	(0.0242)	(0.144)	(0.958)	(0.0461)	(0.0603)	
Proportion Progressive Free Speech	0.0219	0.126	-0.214	0.0772**	0.0904**	0.05
Appellate Decisions $_{t-2}$	(0.0241)	(0.238)	(0.909)	(0.0213)	(0.0190)	
Proportion Progressive Free Speech	-0.0105	-0.114+	0.454	-0.0361	-0.0364	0.48
Appellate Decisions $_{t-3}$	(0.0306)	(0.0660)	(2.168)	(0.0317)	(0.0426)	
Proportion Progressive Free Speech	0.0182	0.165+	-0.0601	-0.00737	-0.0151	0.97
Appellate Decisions $_{t-4}$	(0.0147)	(0.0859)	(0.462)	(0.0304)	(0.0252)	
N		18073	18073	18073	18073	
R-sq	0.057	0.052	.	0.057	0.056	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	0.267	0.267	0.267	0.267	0.267	
Average Law $_{ct}$ effect	0.001	0.017	-0.043	0.001	0.003	
P-value of Law $_{ct}$ lags	0.805	0.000	0.574	0.000	0.000	
P-value of Law $_{ct}$ leads	0.810	0.228	0.732	0.460	0.510	
Average 1[$M_{ct}>0$] lag	0.006	-0.002	0.060	0.006	0.006	
P-value of 1[$M_{ct}>0$] lags	0.053	0.585	0.760	0.221	0.000	
P of Law $_{ct}$ +1[$M_{ct}>0$] lags	0.000	0.000	0.539	0.000	0.000	
Typical Law $_{ct}$ effect	0.000	0.001	-0.002	0.000	0.000	
Unconditional effect - progressive	0.000	0.001	0.001	0.000	0.001	
Unconditional effect - conser	0.001	-0.000	0.011	0.001	0.001	
Unconditional effect - all	0.001	0.000	0.011	0.001	0.002	
P of 1[$M_{ct}>0$] leads	0.122	0.971	0.592	0.203	0.154	
P of Law $_{ct}$ +1[$M_{ct}>0$] leads	0.376	0.108	0.831	0.721	0.850	

Dependent Variable	Paid Sex					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-0.00176 (0.00216)	0.00381 (0.0142)	-0.00422 (0.00364)	-0.00521* (0.00254)	-0.00279 (0.00249)	0.32
Proportion Progressive Free Speech Appellate Decisions _t	0.00600 (0.00360)	-0.00621 (0.0360)	0.0123* (0.00525)	0.00767+ (0.00414)	0.00627+ (0.00341)	0.14
Proportion Progressive Free Speech Appellate Decisions _{t-1}	-0.000137 (0.00344)	-0.00135 (0.0104)	0.00212 (0.00511)	0.00266 (0.00493)	0.00115 (0.00355)	0.72
Proportion Progressive Free Speech Appellate Decisions _{t-2}	0.00632** (0.00201)	0.0218 (0.0155)	0.00731+ (0.00431)	0.00631* (0.00272)	0.00713** (0.00203)	0.15
Proportion Progressive Free Speech Appellate Decisions _{t-3}	0.00499* (0.00223)	0.0205 (0.0207)	0.00525 (0.00362)	0.00531+ (0.00319)	0.00584** (0.00222)	0.08
Proportion Progressive Free Speech Appellate Decisions _{t-4}	-0.000925 (0.00208)	-0.00612 (0.00676)	0.00109 (0.00206)	0.000490 (0.00280)	0.000132 (0.00261)	0.88
N	16659	16659	16659	16659	16659	
R-sq	0.002	.	0.002	0.002	0.002	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level	Individual					
Mean dependent variable	0.003	0.003	0.003	0.003	0.003	
Average Law _{ct} effect	0.003	0.006	0.006	0.004	0.004	
P-value of Law _{ct} lags	0.022	0.075	0.100	0.101	0.001	
P-value of Law _{ct} leads	0.434	0.789	0.247	0.040	0.263	
Average 1[M _{ct} >0] lag	-0.001	-0.002	-0.002	-0.002	-0.001	
P-value of 1[M _{ct} >0] lags	0.129	0.043	0.232	0.062	0.072	
P of Law _{ct} +1[M _{ct} >0] lags	0.067	0.478	0.074	0.159	0.008	
Typical Law _{ct} effect	0.000	0.000	0.000	0.000	0.000	
Unconditional effect - progressive	0.000	0.000	0.000	0.000	0.000	
Unconditional effect - conser	-0.000	-0.000	-0.000	-0.000	-0.000	
Unconditional effect - all	-0.000	-0.000	-0.000	-0.000	-0.000	
P of 1[M _{ct} >0] leads	0.270	0.409	0.252	0.603	0.238	
P of Law _{ct} +1[M _{ct} >0] leads	0.085	0.914	0.126	0.011	0.058	

Dependent Variable	Number of Partners per Year					Wild BS
	(1)	(2)	(3)	(4)	(5)	%LE
Proportion Progressive Free Speech Appellate Decisions _{t+1}	0.135 (0.126)	-0.537 (1.020)	0.439* (0.179)	0.0509 (0.201)	0.105 (0.148)	0.60
Proportion Progressive Free Speech Appellate Decisions _t	-0.300 (0.241)	2.025 (2.608)	-0.159 (0.280)	-0.130 (0.245)	-0.240 (0.220)	0.57
Proportion Progressive Free Speech Appellate Decisions _{t-1}	0.753+ (0.405)	1.291* (0.615)	0.994* (0.423)	1.177** (0.434)	0.861* (0.400)	0.40
Proportion Progressive Free Speech Appellate Decisions _{t-2}	0.0420 (0.192)	-0.558 (1.068)	0.421+ (0.220)	0.0901 (0.187)	0.0954 (0.171)	0.93
Proportion Progressive Free Speech Appellate Decisions _{t-3}	-0.198 (0.196)	-0.767 (1.223)	-0.394 (0.375)	0.0709 (0.145)	-0.131 (0.166)	0.79
Proportion Progressive Free Speech Appellate Decisions _{t-4}	0.0313 (0.111)	0.593 (0.800)	0.104 (0.159)	0.108 (0.123)	0.0724 (0.107)	0.55
N	15346	15346	15346	15346	15346	
R-sq	0.010	.	0.009	0.009	0.010	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	1.129	1.129	1.129	1.129	1.129	
Average Law_{ct} effect	0.066	0.517	0.193	0.263	0.132	
P-value of Law_{ct} lags	0.348	0.001	0.000	0.061	0.181	
P-value of Law _{ct} leads	0.306	0.598	0.014	0.800	0.477	
Average 1[M _{ct} >0] lag	0.088	-0.012	0.077	0.019	0.069	
P-value of 1[M _{ct} >0] lags	0.562	0.110	0.085	0.005	0.351	
P of Law _{ct} +1[M _{ct} >0] lags	0.285	0.000	0.000	0.025	0.152	
Typical Law _{ct} effect	0.002	0.013	0.005	0.007	0.003	
Unconditional effect - progressive	0.004	0.013	0.007	0.007	0.005	
Unconditional effect - conser	0.010	-0.001	0.009	0.002	0.008	
Unconditional effect - all	0.014	0.011	0.015	0.009	0.013	
P of 1[M _{ct} >0] leads	0.239	0.675	0.293	0.349	0.267	
P of Law _{ct} +1[M _{ct} >0] leads	0.171	0.639	0.094	0.443	0.209	

Dependent Variable	Number of Female Partners					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-0.281 (1.827)	-1.281 (4.829)	-1.319 (3.749)	-3.370 (2.265)	-2.207 (2.347)	0.34
Proportion Progressive Free Speech Appellate Decisions _t	3.111 (1.805)	1.702 (24.70)	-0.657 (7.551)	5.432* (2.461)	5.176* (2.130)	0.01
Proportion Progressive Free Speech Appellate Decisions _{t-1}	3.829* (1.280)	-0.0335 (8.566)	8.222** (2.253)	6.648** (2.178)	7.772** (1.668)	0.04
Proportion Progressive Free Speech Appellate Decisions _{t-2}	3.262+ (1.526)	2.834 (3.765)	9.065+ (5.381)	4.172+ (2.402)	4.958* (1.985)	0.10
Proportion Progressive Free Speech Appellate Decisions _{t-3}	0.780 (0.927)	3.416 (6.657)	8.824* (4.291)	2.078 (1.743)	4.019+ (2.132)	0.19
Proportion Progressive Free Speech Appellate Decisions _{t-4}	1.268 (0.938)	-1.661 (9.933)	1.004 (2.663)	2.284+ (1.262)	3.217** (1.133)	0.03
N	13833	13833	13833	13833	13833	
R-sq	0.005	0.004	0.003	0.004	0.004	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	6.296	6.296	6.296	6.296	6.296	
Average Law_{ct} effect	2.450	1.252	5.292	4.123	5.028	
P-value of Law_{ct} lags	0.095	0.961	0.000	0.003	0.000	
P-value of Law _{ct} leads	0.881	0.791	0.725	0.137	0.347	
Average 1[M _{ct} >0] lag	-0.705	-0.317	-2.419	-1.319	-1.645	
P-value of 1[M _{ct} >0] lags	0.028	0.279	0.001	0.000	0.000	
P of Law _{ct} +1[M _{ct} >0] lags	0.142	0.894	0.002	0.037	0.000	
Typical Law _{ct} effect	0.058	0.030	0.126	0.098	0.120	
Unconditional effect - progressive	0.042	0.022	0.068	0.067	0.080	
Unconditional effect - conser	-0.079	-0.035	-0.269	-0.147	-0.183	
Unconditional effect - all	-0.037	-0.013	-0.201	-0.080	-0.103	
P of 1[M _{ct} >0] leads	0.235	0.901	0.049	0.496	0.299	
P of Law _{ct} +1[M _{ct} >0] leads	0.364	0.789	0.293	0.065	0.094	

Dependent Variable	Number of Partners per Year (reported by Men)					Wild BS
	(1)	(2)	(3)	(4)	(5)	%LE
Proportion Progressive Free Speech Appellate Decisions _{t+1}	0.160 (0.356)	-2.660 (1.862)	0.749* (0.368)	-0.0470 (0.469)	0.0501 (0.376)	0.61
Proportion Progressive Free Speech Appellate Decisions _t	-0.810 (0.561)	3.451 (3.125)	-0.787+ (0.442)	-0.423 (0.589)	-0.673 (0.535)	0.44
Proportion Progressive Free Speech Appellate Decisions _{t-1}	1.858+ (0.904)	2.653 (2.246)	2.266* (0.934)	2.767** (0.991)	2.080* (0.909)	0.33
Proportion Progressive Free Speech Appellate Decisions _{t-2}	0.0799 (0.349)	0.0437 (1.627)	0.205 (0.467)	0.103 (0.315)	0.185 (0.321)	0.49
Proportion Progressive Free Speech Appellate Decisions _{t-3}	-0.647 (0.491)	-0.307 (1.872)	-1.054 (0.773)	-0.00362 (0.363)	-0.510 (0.441)	0.72
Proportion Progressive Free Speech Appellate Decisions _{t-4}	0.188 (0.298)	1.425 (2.206)	0.336 (0.304)	0.468 (0.328)	0.306 (0.275)	0.71
N	6626	6626	6626	6626	6626	
R-sq	0.023	0.006	0.022	0.022	0.023	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	1.421	1.421	1.421	1.421	1.421	
Average Law_{ct} effect	0.134	1.453	0.193	0.582	0.278	
P-value of Law_{ct} lags	0.095	0.581	0.000	0.016	0.017	
P-value of Law _{ct} leads	0.662	0.153	0.042	0.920	0.894	
Average 1[M _{ct} >0] lag	0.237	-0.154	0.231	0.073	0.185	
P-value of 1[M _{ct} >0] lags	0.241	0.465	0.090	0.004	0.055	
P of Law _{ct} +1[M _{ct} >0] lags	0.008	0.003	0.000	0.001	0.000	
Typical Law _{ct} effect	0.003	0.036	0.005	0.015	0.007	
Unconditional effect - progressive	0.009	0.033	0.011	0.016	0.012	
Unconditional effect - conser	0.027	-0.018	0.027	0.008	0.021	
Unconditional effect - all	0.037	0.015	0.037	0.025	0.033	
P of 1[M _{ct} >0] leads	0.337	0.259	0.816	0.349	0.336	
P of Law _{ct} +1[M _{ct} >0] leads	0.357	0.207	0.135	0.716	0.490	

Dependent Variable	Extramarital Sex (reported by Men)					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-0.0142 (0.0290)	-0.0747 (0.296)	0.00240 (0.0563)	-0.0553 (0.0423)	-0.0298 (0.0383)	0.65
Proportion Progressive Free Speech Appellate Decisions _t	0.0705 (0.0584)	0.500 (1.262)	0.0251 (0.0770)	0.102+ (0.0589)	0.0927 (0.0584)	0.41
Proportion Progressive Free Speech Appellate Decisions _{t-1}	0.107* (0.0448)	0.279 (0.519)	0.0872 (0.0710)	0.133* (0.0517)	0.122* (0.0493)	0.03
Proportion Progressive Free Speech Appellate Decisions _{t-2}	0.0583+ (0.0308)	-0.0482 (0.368)	0.110** (0.0424)	0.0826* (0.0370)	0.0774* (0.0341)	0.03
Proportion Progressive Free Speech Appellate Decisions _{t-3}	0.0572 (0.0434)	-0.100 (0.354)	0.0600 (0.0534)	0.0691 (0.0478)	0.0667 (0.0501)	0.12
Proportion Progressive Free Speech Appellate Decisions _{t-4}	-0.0131 (0.0267)	-0.0632 (0.788)	-0.0434 (0.0265)	-0.00149 (0.0328)	-0.0132 (0.0285)	0.69
N	7170	7170	7170	7170	7170	
R-sq	0.010	.	0.010	0.010	0.010	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			Individual			
Mean dependent variable	0.161	0.161	0.161	0.161	0.161	
Average Law _{ct} effect	0.056	0.113	0.048	0.077	0.069	
P-value of Law _{ct} lags	0.014	0.968	0.000	0.003	0.003	
P-value of Law _{ct} leads	0.635	0.801	0.966	0.192	0.437	
Average 1[M _{ct} >0] lag	-0.023	-0.027	-0.021	-0.030	-0.027	
P-value of 1[M _{ct} >0] lags	0.029	0.919	0.009	0.000	0.000	
P of Law _{ct} +1[M _{ct} >0] lags	0.000	0.989	0.000	0.000	0.000	
Typical Law _{ct} effect	0.001	0.003	0.001	0.002	0.002	
Unconditional effect - progressive	0.001	0.002	0.001	0.001	0.001	
Unconditional effect - conser	-0.003	-0.003	-0.002	-0.003	-0.003	
Unconditional effect - all	-0.002	-0.001	-0.002	-0.002	-0.002	
P of 1[M _{ct} >0] leads	0.008	0.892	0.003	0.013	0.001	
P of Law _{ct} +1[M _{ct} >0] leads	0.077	0.809	0.225	0.005	0.034	

Dependent Variable	Community Vices per 100,000					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-4.471 (3.492)	33.69+ (20.24)	7.843 (23.39)	18.78+ (9.633)	36.06 (41.16)	0.39
Proportion Progressive Free Speech Appellate Decisions _t	1.028 (5.325)	12.31 (13.07)	18.49 (14.92)	14.74 (10.90)	-5.061 (36.76)	0.74
Proportion Progressive Free Speech Appellate Decisions _{t-1}	0.408 (2.160)	0.995 (5.901)	15.57 (21.12)	5.398 (3.501)	53.61 (40.67)	0.18
Proportion Progressive Free Speech Appellate Decisions _{t-2}	1.254 (4.656)	11.29 (11.88)	-10.05 (27.92)	3.989 (8.726)	-15.48 (29.16)	0.37
Proportion Progressive Free Speech Appellate Decisions _{t-3}	-2.548 (3.581)	0.164 (11.23)	2.311 (12.32)	2.260 (10.81)	18.83 (26.28)	0.82
Proportion Progressive Free Speech Appellate Decisions _{t-4}	6.403 (5.063)	23.44* (9.460)	16.78 (20.89)	24.79* (10.81)	-36.91 (69.17)	0.85
N	43992	43992	43992	43992	43992	
R-sq	0.146	0.135	0.140	0.140	0.105	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			ORI Agency - Year			
Mean dependent variable	5.104	5.104	5.104	5.104	5.104	
Average Law_{ct} effect	1.309	9.641	8.620	10.235	2.998	
P-value of Law_{ct} lags	0.094	0.000	0.000	0.000	0.081	
P-value of Law _{ct} leads	0.229	0.096	0.737	0.051	0.381	
Average 1[M _{ct} >0] lag	-0.876	-4.138	-5.715	-4.176	-5.316	
P-value of 1[M _{ct} >0] lags	0.156	0.016	0.000	0.019	0.256	
P of Law _{ct} +1[M _{ct} >0] lags	0.001	0.000	0.103	0.002	0.346	
Typical Law _{ct} effect	0.061	0.452	0.404	0.480	0.140	
Unconditional effect - progressive	0.022	0.276	0.145	0.303	-0.116	
Unconditional effect - conser	-0.101	-0.477	-0.659	-0.482	-0.613	
Unconditional effect - all	-0.078	-0.206	-0.505	-0.184	-0.705	
P of 1[M _{ct} >0] leads	0.386	0.188	0.737	0.115	0.585	
P of Law _{ct} +1[M _{ct} >0] leads	0.263	0.057	0.813	0.075	0.491	

Dependent Variable	Drug Violations per 100,000					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech	12.59	254.6	-74.52	144.0	105.7	0.94
Appellate Decisions _{t+1}	(22.86)	(176.1)	(156.3)	(98.99)	(332.2)	
Proportion Progressive Free Speech	58.97	126.0+	272.4+	141.7**	62.82	0.77
Appellate Decisions _t	(41.18)	(68.06)	(144.5)	(48.43)	(221.5)	
Proportion Progressive Free Speech	10.92	37.83	-19.57	56.69	294.1	0.41
Appellate Decisions _{t-1}	(39.35)	(31.15)	(212.1)	(36.78)	(397.7)	
Proportion Progressive Free Speech	3.219	10.45	-10.53	-4.894	-69.43	0.44
Appellate Decisions _{t-2}	(22.50)	(50.28)	(197.1)	(43.31)	(201.2)	
Proportion Progressive Free Speech	30.58	67.50	36.36	65.38	127.1	0.56
Appellate Decisions _{t-3}	(24.21)	(49.49)	(86.60)	(41.53)	(183.3)	
Proportion Progressive Free Speech	51.09	105.2*	174.4*	115.8*	-236.9	0.26
Appellate Decisions _{t-4}	(36.39)	(47.47)	(81.75)	(52.21)	(376.2)	
N	43992	43992	43992	43992	43992	
R-sq	0.335	0.323	0.322	0.329	0.302	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			ORI Agency - Year			
Mean dependent variable	286.987	286.987	286.987	286.987	286.987	
Average Law_{ct} effect	30.956	69.391	90.613	74.925	35.542	
P-value of Law_{ct} lags	0.038	0.002	0.000	0.000	0.002	
P-value of Law _{ct} leads	0.594	0.148	0.633	0.146	0.750	
Average 1[M _{ct} >0] lag	-20.745	-42.342	-61.412	-42.898	-44.445	
P-value of 1[M _{ct} >0] lags	0.001	0.000	0.000	0.003	0.038	
P of Law _{ct} +1[M _{ct} >0] lags	0.016	0.256	0.005	0.001	0.269	
Typical Law _{ct} effect	1.450	3.251	4.245	3.510	1.665	
Unconditional effect - progressive	0.511	1.355	1.462	1.604	-0.446	
Unconditional effect - conser	-2.394	-4.886	-7.086	-4.950	-5.128	
Unconditional effect - all	-1.848	-3.482	-5.520	-3.311	-5.402	
P of 1[M _{ct} >0] leads	0.240	0.154	0.898	0.107	0.626	
P of Law _{ct} +1[M _{ct} >0] leads	0.042	0.198	0.352	0.376	0.870	

Dependent Variable	Forcible Rapes per 100,000					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech	2.231+	6.604	-0.923	14.60	0.838	0.99
Appellate Decisions _{t+1}	(1.220)	(4.628)	(4.384)	(13.03)	(5.805)	
Proportion Progressive Free Speech	-0.648	4.394	8.918	11.18	9.335	0.02
Appellate Decisions _t	(0.867)	(3.218)	(8.373)	(15.11)	(7.986)	
Proportion Progressive Free Speech	-0.105	4.935	3.665	11.92	2.979	0.58
Appellate Decisions _{t-1}	(2.245)	(5.333)	(10.14)	(8.537)	(11.75)	
Proportion Progressive Free Speech	-0.273	4.122	2.749	12.37	2.301	0.53
Appellate Decisions _{t-2}	(0.948)	(4.242)	(5.573)	(10.11)	(6.752)	
Proportion Progressive Free Speech	0.469	8.496	-4.052	7.324	-4.044	0.36
Appellate Decisions _{t-3}	(1.084)	(5.570)	(6.101)	(9.786)	(5.153)	
Proportion Progressive Free Speech	-1.510	1.123	1.764	4.129	0.380	0.91
Appellate Decisions _{t-4}	(1.577)	(4.068)	(4.745)	(8.157)	(3.639)	
N	67017	67017	67017	67017	67017	
R-sq	0.077	0.051	0.039	.	0.043	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			ORI Agency - Year			
Mean dependent variable	10.044	10.044	10.044	10.044	10.044	
Average Law_{ct} effect	-0.413	4.614	2.609	9.385	2.190	
P-value of Law_{ct} lags	0.367	0.268	0.103	0.000	0.268	
P-value of Law _{ct} leads	0.097	0.154	0.833	0.262	0.885	
Average 1[M _{ct} >0] lag	0.035	-1.643	-0.985	-3.534	-1.001	
P-value of 1[M _{ct} >0] lags	0.200	0.044	0.252	0.515	0.425	
P of Law _{ct} +1[M _{ct} >0] lags	0.536	0.309	0.004	0.000	0.008	
Typical Law _{ct} effect	-0.027	0.301	0.170	0.612	0.143	
Unconditional effect - progressive	-0.027	0.216	0.118	0.425	0.086	
Unconditional effect - conser	0.006	-0.290	-0.174	-0.625	-0.177	
Unconditional effect - all	-0.019	-0.085	-0.061	-0.217	-0.092	
P of 1[M _{ct} >0] leads	0.241	0.264	0.444	0.350	0.769	
P of Law _{ct} +1[M _{ct} >0] leads	0.294	0.128	0.850	0.239	0.749	

<i>Dependent Variable</i>	Offenses Against Family and Children per 100,000 Wild BS					
(1)	(2)	(3)	(4)	(5)	%LE	
Proportion Progressive Free Speech	-19.09	-75.89	-35.61	-56.89+	0.744	0.39
Appellate Decisions _{t+1}	(12.91)	(59.36)	(43.93)	(32.38)	(39.84)	
Proportion Progressive Free Speech	-5.989	-54.85**	-19.10	-51.84**	-63.15	0.50
Appellate Decisions _t	(6.722)	(4.151)	(58.25)	(15.68)	(55.22)	
Proportion Progressive Free Speech	-18.87	-61.20**	-121.6+	-69.98**	-48.80	0.14
Appellate Decisions _{t-1}	(12.41)	(8.438)	(66.10)	(6.784)	(61.30)	
Proportion Progressive Free Speech	-13.48	-46.39**	4.754	-55.26**	-46.01	0.85
Appellate Decisions _{t-2}	(7.642)	(10.28)	(54.46)	(10.74)	(38.04)	
Proportion Progressive Free Speech	-12.75	-35.52+	-66.43*	-33.32+	-47.07	0.03
Appellate Decisions _{t-3}	(7.441)	(18.39)	(28.86)	(18.04)	(35.18)	
Proportion Progressive Free Speech	-3.920	-24.98	-35.53	-18.01	-77.34	0.84
Appellate Decisions _{t-4}	(6.687)	(16.04)	(35.03)	(22.51)	(74.70)	
N	43992	43992	43992	43992	43992	
R-sq	0.206	0.189	0.175	0.192	0.182	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			ORI Agency - Year			
Mean dependent variable	46.063	46.063	46.063	46.063	46.063	
Average Law_{ct} effect	-11.002	-44.588	-47.575	-45.683	-56.475	
P-value of Law_{ct} lags	0.422	0.000	0.000	0.000	0.001	
P-value of Law _{ct} leads	0.170	0.201	0.418	0.079	0.985	
Average 1[M _{ct} >0] lag	8.466	21.077	21.449	21.549	18.459	
P-value of 1[M _{ct} >0] lags	0.078	0.000	0.004	0.000	0.000	
P of Law _{ct} +1[M _{ct} >0] lags	0.905	0.000	0.036	0.000	0.115	
Typical Law _{ct} effect	-0.515	-2.089	-2.229	-2.140	-2.646	
Unconditional effect - progressive	-0.127	-1.177	-1.308	-1.209	-1.904	
Unconditional effect - conser	0.977	2.432	2.475	2.486	2.130	
Unconditional effect - all	0.831	1.262	1.182	1.286	0.289	
P of 1[M _{ct} >0] leads	0.426	0.244	0.703	0.092	0.754	
P of Law _{ct} +1[M _{ct} >0] leads	0.036	0.189	0.446	0.108	0.833	

Dependent Variable	Property Crimes per 100,000					
	(1)	(2)	(3)	(4)	(5)	Wild BS %LE
Proportion Progressive Free Speech Appellate Decisions _{t+1}	27.89 (16.29)	-51.91 (73.69)	-91.47 (200.5)	136.3 (161.4)	-102.8 (195.3)	0.51
Proportion Progressive Free Speech Appellate Decisions _t	1.663 (18.65)	-54.87 (42.31)	-43.15 (181.7)	143.2 (207.1)	-60.04 (188.9)	0.50
Proportion Progressive Free Speech Appellate Decisions _{t-1}	-16.41 (20.13)	-82.48+ (49.50)	-129.8 (183.0)	119.3 (133.9)	-117.4 (187.2)	0.39
Proportion Progressive Free Speech Appellate Decisions _{t-2}	-25.82+ (13.66)	-83.96 (59.70)	18.26 (183.2)	121.7 (132.5)	42.38 (199.9)	0.64
Proportion Progressive Free Speech Appellate Decisions _{t-3}	-14.01 (15.64)	-54.52 (55.03)	-215.0 (163.7)	94.86 (147.2)	-231.1 (182.8)	0.10
Proportion Progressive Free Speech Appellate Decisions _{t-4}	-34.48* (14.05)	-22.32 (59.65)	-122.5 (139.2)	3.649 (122.3)	-115.0 (163.8)	0.47
N	67017	67017	67017	67017	67017	
R-sq	0.228	0.224	0.210	0.213	0.206	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level	ORI Agency - Year					
Mean dependent variable	559.876	559.876	559.876	559.876	559.876	
Average Law_{ct} effect	-17.811	-59.631	-98.440	96.546	-96.232	
P-value of Law _{ct} lags	0.205	0.438	0.241	0.733	0.769	
P-value of Law _{ct} leads	0.118	0.481	0.648	0.399	0.598	
Average 1[M _{ct} >0] lag	-3.557	13.374	28.689	-44.527	29.720	
P-value of 1[M _{ct} >0] lags	0.161	0.337	0.557	0.490	0.758	
P of Law _{ct} +1[M _{ct} >0] lags	0.173	0.009	0.032	0.780	0.835	
Typical Law _{ct} effect	-1.161	-3.887	-6.416	6.293	-6.272	
Unconditional effect - progressive	-1.551	-3.358	-5.063	3.776	-4.828	
Unconditional effect - conser	-0.629	2.364	5.070	-7.869	5.253	
Unconditional effect - all	-1.995	-0.750	0.311	-4.149	0.697	
P of 1[M _{ct} >0] leads	0.375	0.691	0.750	0.543	0.671	
P of Law _{ct} +1[M _{ct} >0] leads	0.241	0.400	0.571	0.358	0.556	

The Effect of Appellate Free Speech Precedent on Offenses Against Family and Children per 100,000

	Average of yearly lags (1)	P-value of lags (2)	P-value of leads (3)
No Circuit-Specific Trends	-81.698	0.140	0.156
No Fixed Effects	-63.238	0.714	0.176
State Cluster	-53.458	0.008	0.119
No State-Level Controls	-91.126	0.089	0.404
No Population Weights	-24.107	0.000	0.304
No Community Standards	-53.846	0.000	0.077
No Controls except 1[$M_{ct}>0$]	-165.204	0.749	0.382
Drop Circuit 1	-65.941	0.000	0.158
Drop Circuit 2	-54.088	0.000	0.072
Drop Circuit 3	-52.431	0.000	0.033
Drop Circuit 4	-53.162	0.000	0.127
Drop Circuit 5	-52.673	0.000	0.106
Drop Circuit 6	-22.058	0.056	0.816
Drop Circuit 7	-58.951	0.000	0.172
Drop Circuit 8	-9.430	0.026	0.805
Drop Circuit 9	-82.132	0.000	0.173
Drop Circuit 10	-54.119	0.000	0.106
Drop Circuit 11	-50.734	0.000	0.062
Drop Circuit 12	-53.458	0.000	0.079
1 Current 1 Lag	-9.132	0.248	
1 Current 2 Lags	-21.557	0.062	
2 Leads 4 Lags	-65.505	0.000	0.364
1 Lead 5 Lags	-45.856	0.000	0.090
4 Leads 1 Lag	7.297	0.001	0.891

Dependent Variable	Chlamydia Incidence					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	-11.04 (13.64)	142.5 (137.3)	-171.7 (549.8)	80.06 (148.5)	67.48 (100.2)	0.54
Proportion Progressive Free Speech Appellate Decisions _t	-1.047 (14.03)	186.1* (94.12)	-71.07 (818.5)	-84.61 (374.9)	249.2* (115.2)	0.07
Proportion Progressive Free Speech Appellate Decisions _{t-1}	14.21 (19.56)	70.15 (67.48)	446.0 (1431.5)	380.1 (247.2)	209.1 (194.4)	0.40
Proportion Progressive Free Speech Appellate Decisions _{t-2}	34.45+ (17.44)	43.20 (207.0)	76.93 (320.3)	157.3 (158.0)	-124.4 (304.5)	0.39
Proportion Progressive Free Speech Appellate Decisions _{t-3}	3.188 (16.69)	89.09 (78.89)	264.8 (1192.9)	102.2 (431.6)	-79.83 (257.6)	0.52
Proportion Progressive Free Speech Appellate Decisions _{t-4}	14.34 (17.59)	48.46 (117.1)	-346.0 (925.0)	355.2 (329.2)	-5.852 (193.9)	0.98
N	1117	1117	1117	1117	1117	
R-sq	0.736	0.648	0.055	0.369	0.491	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			State - Year			
Mean dependent variable	207.509	207.509	207.509	207.509	207.509	
Average Law_{ct} effect	13.029	87.392	74.130	182.040	49.636	
P-value of Law _{ct} lags	0.014	0.000	0.979	0.211	0.000	
P-value of Law _{ct} leads	0.435	0.299	0.755	0.590	0.501	
Average 1[M _{ct} >0] lag	0.754	-34.057	-34.856	-56.527	-23.852	
P-value of 1[M _{ct} >0] lags	0.147	0.000	0.507	0.483	0.055	
P of Law _{ct} +1[M _{ct} >0] lags	0.005	0.064	0.998	0.269	0.012	
Typical Law _{ct} effect	0.519	3.482	2.953	7.252	1.977	
Unconditional effect - progressive	0.654	2.531	1.863	5.955	1.223	
Unconditional effect - conser	0.069	-3.140	-3.214	-5.212	-2.199	
Unconditional effect - all	0.613	-0.757	-1.384	0.218	-0.991	
P of 1[M _{ct} >0] leads	0.482	0.445	0.957	0.408	0.547	
P of Law _{ct} +1[M _{ct} >0] leads	0.709	0.252	0.756	0.432	0.538	

Dependent Variable	Gonorrhea Incidence					Wild BS %LE
	(1)	(2)	(3)	(4)	(5)	
Proportion Progressive Free Speech Appellate Decisions _{t+1}	2.683 (10.65)	47.26 (41.09)	-306.2 (2436.5)	70.32 (46.22)	-245.6 (1767.9)	0.17
Proportion Progressive Free Speech Appellate Decisions _t	4.518 (10.42)	64.70 (66.96)	-30.98 (816.6)	133.6+ (71.03)	-47.10 (630.0)	0.78
Proportion Progressive Free Speech Appellate Decisions _{t-1}	8.016 (11.05)	44.79 (75.12)	457.1 (2026.4)	115.3 (81.69)	391.2 (1613.1)	0.33
Proportion Progressive Free Speech Appellate Decisions _{t-2}	20.84 (13.36)	56.46 (61.55)	365.9 (1097.6)	99.35 (87.67)	311.6 (762.3)	0.80
Proportion Progressive Free Speech Appellate Decisions _{t-3}	18.67 (12.52)	72.87+ (38.36)	-563.6 (2679.5)	118.4 (72.55)	-500.6 (2039.9)	0.82
Proportion Progressive Free Speech Appellate Decisions _{t-4}	12.58 (11.98)	20.34 (36.27)	615.8 (2585.3)	83.74 (89.54)	521.4 (1991.3)	0.24
N		2141	2141	2141	2141	2141
R-sq	0.724	0.707	.	0.642	.	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level			State - Year			
Mean dependent variable	243.911	243.911	243.911	243.911	243.911	
Average Law_{ct} effect	13.367	40.036	221.957	101.040	186.113	
P-value of Law _{ct} lags	0.404	0.263	0.987	0.027	0.980	
P-value of Law _{ct} leads	0.842	0.368	0.900	0.199	0.888	
Average 1[M _{ct} >0] lag	7.277	-5.505	-86.507	-32.242	-67.354	
P-value of 1[M _{ct} >0] lags	0.477	0.003	0.990	0.159	0.990	
P of Law _{ct} +1[M _{ct} >0] lags	0.268	0.174	0.985	0.067	0.965	
Typical Law _{ct} effect	1.107	3.316	18.381	8.368	15.413	
Unconditional effect - progressive	2.237	3.742	14.677	7.455	12.869	
Unconditional effect - conser	1.145	-0.866	-13.616	-5.075	-10.602	
Unconditional effect - all	2.708	2.105	-0.649	1.275	0.596	
P of 1[M _{ct} >0] leads	0.163	0.758	0.875	0.946	0.859	
P of Law _{ct} +1[M _{ct} >0] leads	0.184	0.230	0.930	0.091	0.930	

Dependent Variable	Syphilis Incidence					Wild BS
	(1)	(2)	(3)	(4)	(5)	%LE
Proportion Progressive Free Speech Appellate Decisions _{t+1}	0.327 (0.725)	-3.205 (4.190)	7.592 (16.24)	-5.412 (3.950)	3.787 (18.11)	0.90
Proportion Progressive Free Speech Appellate Decisions _t	-0.386 (0.922)	-2.318 (6.006)	10.55 (13.29)	-5.495 (5.245)	9.191 (11.62)	0.31
Proportion Progressive Free Speech Appellate Decisions _{t-1}	-1.263 (0.857)	-6.492 (7.131)	6.928 (20.97)	-8.808 (6.121)	9.680 (21.27)	0.93
Proportion Progressive Free Speech Appellate Decisions _{t-2}	-0.878 (0.848)	-7.445 (6.115)	3.459 (15.45)	-9.131 (7.685)	7.140 (13.62)	0.28
Proportion Progressive Free Speech Appellate Decisions _{t-3}	-0.643 (0.894)	-2.442 (5.010)	0.368 (23.47)	-1.975 (5.384)	-3.938 (18.57)	0.15
Proportion Progressive Free Speech Appellate Decisions _{t-4}	-0.228 (1.238)	3.261 (5.082)	0.0919 (26.07)	6.604 (8.815)	5.797 (25.56)	0.65
N	2141	2141	2141	2141	2141	
R-sq	0.576	0.528	0.451	0.467	0.412	
Appellate IV	N	Y	Y	Lasso IV	Lasso IV	Lasso IV
District IV	N	N	Lasso IV	N	Lasso IV	Lasso IV
Aggregation Level	State - Year					
Mean dependent variable	6.748	6.748	6.748	6.748	6.748	
Average Law_{ct} effect	-3.601	-0.243	1.853	1.025	0.681	
P-value of Law_{ct} lags	0.172	0.946	0.598	0.589	0.756	
P-value of Law _{ct} leads	0.906	0.609	0.599	0.705	0.562	
Average 1[M _{ct} >0] lag	1.070	-0.196	-0.890	-0.458	-0.841	
P-value of 1[M _{ct} >0] lags	0.078	0.966	0.886	0.862	0.599	
P of Law _{ct} +1[M _{ct} >0] lags	0.328	0.331	0.828	0.431	0.619	
Typical Law _{ct} effect	-0.158	-0.011	0.081	0.045	0.030	
Unconditional effect - progressive	-0.132	-0.023	0.050	0.030	-0.008	
Unconditional effect - conser	0.102	-0.019	-0.084	-0.043	-0.080	
Unconditional effect - all	-0.018	-0.036	-0.035	-0.015	-0.080	
P of 1[M _{ct} >0] leads	0.731	0.477	0.473	0.621	0.577	
P of Law _{ct} +1[M _{ct} >0] leads	0.822	0.773	0.815	0.842	0.718	

The Effect of Appellate Free Speech Precedent on Chlamydia Incidence			
	Average of yearly lags	P-value of lags	P-value of leads
	(1)	(2)	(3)
No Circuit-Specific Trends	11.432	0.003	0.235
No Fixed Effects	529.154	0.107	0.911
State Cluster	127.014	0.038	0.422
No State-Level Controls	127.014	0.211	0.590
No Population Weights	27.185	0.000	0.000
No Community Standards	64.303	0.000	0.501
No Controls except $1[M_{ct}>0]$	-5.5e+03	1.000	0.998
Drop Circuit 1	94.326	0.033	0.516
Drop Circuit 2	196.974	0.737	0.758
Drop Circuit 3	153.973	0.660	0.744
Drop Circuit 4	110.036	0.000	0.442
Drop Circuit 5	122.780	0.000	0.133
Drop Circuit 6	161.737	0.022	0.851
Drop Circuit 7	184.328	0.890	0.652
Drop Circuit 8	183.479	0.000	0.538
Drop Circuit 9	145.875	0.260	0.624
Drop Circuit 10	121.589	0.374	0.634
Drop Circuit 11	123.501	0.117	0.612
Drop Circuit 12	125.999	0.201	0.594
1 Current 1 Lag	64.842	0.010	
1 Current 2 Lags	94.582	0.013	
2 Leads 4 Lags	103.268	0.003	0.869
1 Lead 5 Lags	154.005	0.105	0.581
4 Leads 1 Lag	58.206	0.198	0.800

District IV

We need to show that:

$$E \left(M_i * \left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \right) = 0 \quad (1)$$

To show this, use the Law of Iterated Expectations (LIE):

$$E \left(M_i * \left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \right) = E \left(E \left[M_i * \left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \mid M_i \right] \right) \quad (2)$$

And,

$$E \left(E \left[M_i * \left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \mid M_i \right] \right) = E \left(M_i E \left[\left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \mid M_i \right] \right)$$

Moreover, again by LIE:

$$\begin{aligned} & E \left[\left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \mid M_i \right] = \\ & E \left[E \left(\left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) * \epsilon_{ct} \mid \epsilon_{ct}, M_i \right) \mid M_1, \dots, M_6 \right] = \\ & E \left[\epsilon_{ct} E \left(\left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) \mid \epsilon_{ct}, M_i \right) \mid M_1, \dots, M_6 \right] \end{aligned}$$

Now, note that the expression $\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right)$ is the deviation of the ratio of judge assignment characteristics from the mean. It should therefore be independent of both ϵ_{ct} , and $M_1, \dots, M_6$. Therefore,

$$E \left(\left(\frac{N_i}{M_i} - E \left(\frac{N_i}{M_i} \right) \right) \mid \epsilon_{ct}, M_i \right) = 0 \quad (3)$$