

Gender Attitudes in the Judiciary Evidence from U.S. Circuit Courts

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Deep Learning Classics and Trends

August 2020

Women in the U.S. judiciary

- ▶ Women are under-represented at the top of the legal profession
 - ▶ In U.S. Circuit Courts 26% of sitting judges are women



- ▶ Does differential treatment of female judges due to gender attitudes contribute to this gap?

Measuring attitudes for this population is challenging

- ▶ Challenge: traditional measures of gender attitudes such as IATs are not available for Circuit Court judges
 - ▶ Common to other populations in high-stakes policy-making roles
- ▶ Propose a novel measure of gender attitudes that exploits the large corpus of written text available appellate judges
 - ▶ Based in NLP literature aimed at measuring bias in language
Bolukbasi et al. 2016, Caliskan et al. 2017, Garg et al. 2018, Kozlowski et al. 2019
- ▶ We measure gender attitudes by looking at use of gender stereotypes in language

What we do in this paper

- ▶ The setting we study are U.S. Circuit Courts
 - ▶ Intermediate level of U.S. Federal Judicial System
 - ▶ Review District Court cases for errors of law
- ▶ Gender slant strength of association of men with careers and women with families in opinions authored by given judge
- ▶ Empirical strategy exploits these two features of the setting
 - ▶ Quasi-random assignment of judges to cases → no self-selection of judges to cases based on expected outcome
 - ▶ Conditioning on detailed judges' characteristics → isolates the effect of slant from the effect of other characteristics

Gender slant influences interactions with female judges

1. We validate the measure looking at whether gender slant influences judicial decision in gender related cases
 - ▶ Higher slanted judges vote more conservatively in these cases
2. We study how gender slant influences interactions (reversals, opinion assignment, citations) with female judges
 - ▶ Higher slanted judges are...
 - ▶ More likely to reverse decisions of female than male district judges
 - ▶ Less likely to assign opinions to female judges
 - ▶ Less likely to cite opinions authored by female judges
 - ▶ But no differential interactions based on other characteristics

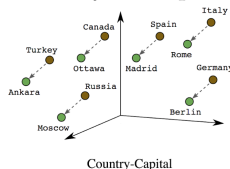
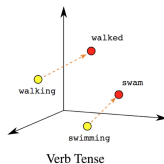
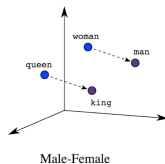
[contributions to the literature]

Outline

1. Introduction
- 2. Gender Slant**
3. Data and Empirical Strategy
4. Effect on Decisions
5. Effect on Interactions with Female Judges
6. Conclusions

Building the gender slant measure

- ▶ We represent judicial language using word embedding models
 - ▶ Low-dimensional vectorial representation of language that preserves semantic meaning
 - ▶ Position in the space is determined by algorithm that predicts the empirical co-occurrence of words within 10 words windows
- ▶ Position in space assigned based on context words are used in
 - ▶ Words frequently in the same context → similar representation
 - ▶ Words rarely in the same context → different representation
- ▶ Vectors capture semantic relationship between words
 1. Distance between two vectors informative about similarity
 2. Word vector differences can be used to identify concepts



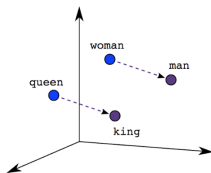
Identifying cultural dimensions using word embeddings

- ▶ Identify cultural dimension by taking difference between word sets whose semantic difference corresponds to step in the dimension

Bolukbasi et al. 2016, Caliskan et al. 2017, Garg et al. 2018, Kozlowski et al. 2019

- ▶ Identify gender dimension taking difference between average vectors representing male and female word sets [\[word sets\]](#)

- ▶ $\overrightarrow{man} - \overrightarrow{woman}$ identifies a step in gender direction

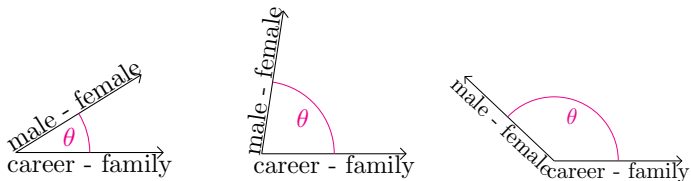


- ▶ Similarly, we identify stereotypical dimension by taking difference between words sets that represent career and family [\[why?\]](#)

- ▶ $\overrightarrow{career} - \overrightarrow{family}$ identifies a step in career direction

Measuring gender attitudes using cosine similarity

- Define gender slant as the cosine similarity between the two



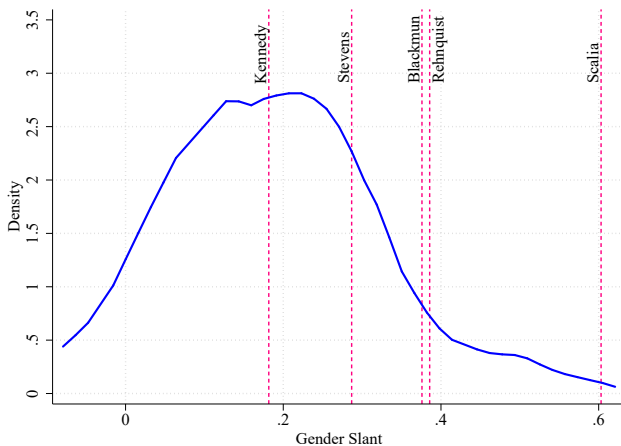
High Gender Slant ————— Low Gender Slant

- If $\overrightarrow{man} - \overrightarrow{woman}$ is very similar to $\overrightarrow{career} - \overrightarrow{family}$ the concepts are highly related in the corpus being represented

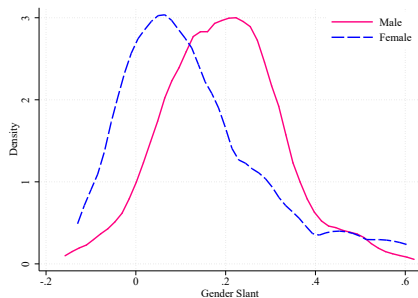
Constructing a judge specific gender slant measure

- ▶ Consider opinions authored by each judge as a separate corpus and train embeddings for each judge using GloVe [\[GloVe\]](#)
- ▶ Challenge: word embeddings need large corpora
 1. Use bootstrap approach [Antoniak and Minmo 2018](#)
 - ▶ 25 bootstrapped samples of size N_j
 - ▶ N_j = number of sentences written by judge j
 - ▶ Gender slant is median across different bootstrapped samples
 1. Restrict sample to judges that have sufficiently large corpus [\[more\]](#)
 - ▶ 139 judges with at least 1.5m tokens
 - ▶ Generally comparable to other full time judges along observables, but more likely to be born after 1920
- ▶ This is why we cannot have time varying measure

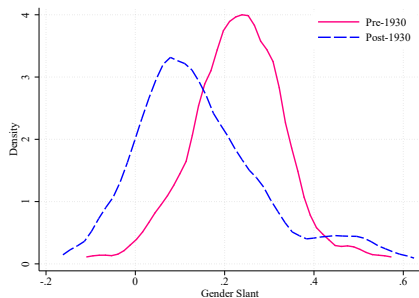
Most judges display stereotypical associations in their language, but they differ in how strong the association is



Female and younger judges display lower gender slant



(a) By Gender



(b) By Cohort

► But limited differences across other demographic characteristics

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- 3. Data and Empirical Strategy**
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5. Effect on Interactions with Female Judges
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Data Sources

1. Judges' biographical characteristics
 - ▶ Gender, party, region, cohort, religion, law school, prior experience
2. Circuit court cases from Bloomberg Law
 - ▶ Metadata for 380,000 cases 1890-2013
 - ▶ Year, circuit, topic, judges, affirm/reverse, authorship
 - ▶ 38% of cases matched to district judge
3. Citations
4. Judicial decisions in gender-related cases
 - ▶ Existing datasets with hand-coded vote direction and topic
 - ▶ Epstein et al. (2013), Glynn and Sen (2015)
 - ▶ Reproductive rights, gender discrimination, sexual harassment
 - ▶ 5% random sample of cases hand-coded for valence

Empirical Strategy

1. Quasi-random assignment of judges to cases [\[supporting evidence\]](#)
 - ▶ Ensures no endogenous selection of judges to cases
 - ▶ Cases assigned to judges with higher/lower slant are comparable
 - ⇒ Effect of being assigned a slanted judge is well identified
 2. Conditioning on detailed observable characteristics
 - ⇒ Effect of slant is not confounded by other characteristics
- ▶ Slightly different design depending on specific outcome

Outline

1. Introduction
2. Gender Slant
3. Data and Empirical Strategy
4. **Effect on Decisions**
5. Effect on Interactions with Female Judges
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Does gender slant affect judges' decisions in gender-related cases?

$$\textit{Conservative Vote}_{ijct} = \beta \textit{Gender Slant}_j + X_j' \gamma + \delta_{ct} + \epsilon_{ijct}$$

- ▶ i case, j judge, c circuit, t year
- ▶ $\textit{Conservative Vote}_{ijct}$: voted against expanding women's rights
- ▶ $\textit{Gender Slant}_j$: (standardized) gender slant of judge j
- ▶ X_j : gender, party, race, cohort, religion, law school attended, prior experience, region of birth
- ▶ δ_{ct} : circuit-year fixed effects
- ▶ Standard errors clustered at the judge level
- ▶ Vote-level dataset (one observation for each vote)

Judges with higher slant vote more conservatively in gender-related cases

Dependent Variable	Conservative Vote			
	(1)	(2)	(3)	(4)
Gender Slant	0.041*** (0.013)	0.041*** (0.012)	0.050*** (0.014)	0.046*** (0.012)
Democrat	-0.144*** (0.025)	-0.141*** (0.025)	-0.135*** (0.023)	-0.148*** (0.025)
Female	-0.031 (0.032)	-0.041 (0.032)	-0.017 (0.025)	-0.034 (0.034)
Observations	3086	3086	3086	3086
Clusters	113	113	113	113
Outcome Mean	0.606	0.606	0.606	0.606
Circuit-Year FE	X	X	X	X
Additional Demographic Controls	X	X	X	X
Year of Appointment		X		
Exposure FE			X	
Slant Excludes Gender-Related Cases				X

[robustness to word sets]

[additional robustness checks]

[non-gender-related cases]

Outline

1. Introduction
2. Gender Slant
3. Data and Empirical Strategy
4. Effect on Decisions
5. Effect on Interactions with Female Judges
 - ▶ Reversals
 - ▶ Opinion Assignment
 - ▶ Citations
6. Conclusions

1. Does gender slant affect reversals decisions?

- ▶ Differences-in-differences design comparing appealed cases decided by female and male district judges assigned to judges with different slant at the circuit level
- ▶ Identification assumption
 - ▶ Cases decided by male district judge assigned to circuit judges with different slant are a good control group for cases decided by a female district judge
 - ▶ Appealed cases can be different "in levels" as long as they are not different along dimensions that interact with slant
 - ▶ Quasi-random assignment helps us here
- ▶ Important: this is potentially career-relevant for female judges

Baseline specification for reversals analysis

$$\begin{aligned} \text{Voted to Reverse}_{ijdct} = & + \beta \text{Female District Judge}_i * \text{Gender Slant}_j \\ & + \text{Female District Judge}_i * X'_j \gamma \\ & + \delta_j + \delta_k + \delta_{ct} + \epsilon_{ijct} \end{aligned}$$

- ▶ i case, j judge, d district, c circuit, t year
- ▶ $\text{Voted to Reverse}_{ijdct}$ voted in favor of reversing the decision
- ▶ $\text{Female District Judge}_i$ dummy for district judge female
- ▶ Gender Slant_j : gender slant of judge j
- ▶ X_j includes gender, party, race, cohort, religion, law school attended, prior experience
- ▶ δ_j circuit judge fixed effects
- ▶ δ_k district judge fixed effects
- ▶ δ_{ct} circuit-year fixed effects
- ▶ Standard errors clustered at the judge level
- ▶ Vote-level dataset (one observation for each vote)

Higher slanted judges reverse female district judges more than male district judges

Dependent Variable	Voted to Reverse District Decision				
	(1)	(2)	(3)	(4)	(5)
Gender Slant * Female District Judge	0.010*** (0.004)	0.010*** (0.004)	0.010*** (0.004)	0.012*** (0.004)	0.009** (0.004)
Democrat * Female District Judge	-0.010 (0.006)	-0.010* (0.006)	-0.010 (0.006)	-0.010 (0.006)	-0.011* (0.006)
Female * Female District Judge	-0.003 (0.010)	-0.002 (0.010)	-0.003 (0.010)	-0.005 (0.011)	-0.005 (0.010)
Observations	145862	145862	145862	145563	145862
Clusters	133	133	133	133	133
Outcome Mean for Male District Judges	0.180	0.180	0.180	0.180	0.180
Outcome Mean for Female District Judges	0.157	0.157	0.157	0.157	0.157
Circuit-Year FE	X	X	X	X	X
Circuit Judge FE	X	X	X	X	X
District Judge FE	X	X	X	X	X
Additional Demographic Controls	X	X	X	X	X
Year of Appointment		X			
Exposure FE			X		
District-Year FE				X	
Slant Excludes Gender-Related Cases					X

2. Does gender slant affect opinion writing assignment?

- ▶ Opinions are assigned to judges by the most senior judge on panel

$$\begin{aligned} \textit{Female Author}_{ijct} = & \beta \textit{Gender Slant}_j^{\textit{SENIOR}} + X_j^{\textit{SENIOR}'} \gamma \\ & + \delta_{ct} + \epsilon_{ijct} \end{aligned}$$

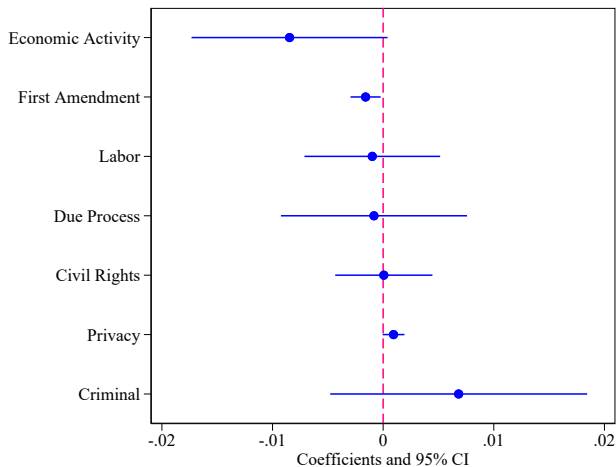
- ▶ i case, j judge, c circuit, t year
- ▶ $\textit{female author}_{ijct}$ senior judge assigns opinion to female judge
- ▶ $\textit{gender slant}_j^{\textit{SENIOR}}$ gender slant of most senior judge on panel
- ▶ $X_j^{\textit{SENIOR}}$ includes gender, party, race, cohort, religion, law school attended, prior experience
- ▶ δ_{ct} circuit-year fixed effects
- ▶ Standard errors clustered at the senior judge level
- ▶ Case-level dataset (one observation for each case)
- ▶ Sample restricted to cases with at least one female judge and a specific author, which were decided unanimously

Slanted judges are less likely to assign opinions to female judges

Dependent Variable	Author is Female			
	(1)	(2)	(3)	(4)
Gender Slant	-0.017** (0.008)	-0.017** (0.008)	-0.014 (0.010)	-0.016** (0.008)
Democrat	-0.001 (0.014)	-0.001 (0.014)	-0.012 (0.016)	0.002 (0.014)
Female	0.134*** (0.016)	0.133*** (0.016)	0.158*** (0.017)	0.137*** (0.016)
Observations	32052	32052	32052	32052
Clusters	125	125	125	125
Outcome Mean	0.383	0.383	0.383	0.383
Circuit-Year FE	X	X	X	X
Additional Demographic Controls	X	X	X	X
Year of Appointment		X		
Exposure FE			X	
Slant Excludes Gender-Related Cases				X

[\[robustness to word sets\]](#)
[\[additional robustness checks\]](#)
[\[sample restrictions\]](#)

But there is no clear pattern in the type of opinions assigned to female judges by more slanted judges



3. Does gender slant affect who gets cited?

$$Cites\ Female\ Judge_{ijct} = \beta Gender\ Slant_j + X_j' \gamma + \delta_{ct} + \epsilon_{ijct}$$

- ▶ i case, j judge, c circuit, t year
- ▶ $Cites\ Female\ Judge_{ijct}$ cites at least one female author
- ▶ $Gender\ Slant_j$: gender slant of judge authoring the opinion
- ▶ X_j includes gender, party, race, cohort, religion, law school attended, prior experience
- ▶ δ_{ct} circuit-year fixed effects
- ▶ Standard errors clustered at the judge level
- ▶ Case-level dataset (one observation for each case)

Judges with higher gender slant are less likely to cite opinions authored by female judges

Dependent Variable	Cites at Least One Female Judge			
	(1)	(2)	(3)	(4)
Gender Slant	-0.010*	-0.009*	-0.013*	-0.005
	(0.005)	(0.005)	(0.007)	(0.005)
Democrat	-0.012	-0.011	-0.018*	-0.011
	(0.011)	(0.011)	(0.010)	(0.011)
Female	0.128***	0.125***	0.139***	0.131***
	(0.016)	(0.016)	(0.015)	(0.016)
Observations	107923	107923	107923	107923
Clusters	139	139	139	139
Outcome Mean	0.383	0.383	0.383	0.383
Circuit-Year FE	X	X	X	X
Additional Demographic Controls	X	X	X	X
Year of Appointment		X		
Exposure FE			X	
Slant Excludes Gender-Related Cases				X

[robustness to word sets]

[additional robustness checks]

Is gender slant really proxying for gender preferences?

- ▶ Gender slant explains liberal votes in non-gender related cases, but the effect is smaller than in gender-related cases [\[voting\]](#)
 - ▶ Slanted judges do not differentially respond to other judge characteristics such as party of appointing President, minority status, or age [\[authorship\]](#) [\[reversals\]](#) [\[citations\]](#)
 - ▶ Robust to controlling for additional conservative measures
- ⇒ Higher slanted judges tend to be more conservative, but this does not explain the entirety of the results

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Next steps

- ▶ What are we measuring?
 - ▶ Are these implicit attitudes?
 - ▶ How does our measure correlate with actual IAT scores?
- ▶ Other forms of slant?
 - ▶ e.g. racial sentiment
- ▶ Relevant in other domains?
 - ▶ Preliminary analysis on congressional speech shows similar results
 - ▶ Also looking at district judges to relate to sentencing

Thanks!

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How do these results contribute to existing evidence?

1. Literature on how/why gender shapes labor market

Card et al. 2018, Bohren et al. 2018, Hengel 2019, Kolev et al. 2019, Sarsons 2019 [among others..]

- ▶ We study a novel setting with rich data
- ▶ Show that attitudes might be at play even in high-stakes environment

2. Literature on importance of stereotypes in decisions

Bertrand et al. 2005, Glover et al. 2017, Carlana 2018

- ▶ Propose and implement novel measure of gender attitudes
- ▶ Allows us to study the role played by attitudes for high-skilled professionals

3. Literature on determinants of judicial decisions

Sunstein et al. 2006, Boyd, Epstein, and Martin 2010, Kestellec 2013, Glynn and Sen 2015

- ▶ Provide evidence that measure of gender attitudes expressed in language matters for decisions
- ▶ Step towards opening up "black box" of judges' FE design

[\[back to main\]](#)

Word sets used to identify dimensions

Male	his, he, him, mr, himself, man, men, king, male, fellow
Female	her, she, ms, women, woman, female, herself, girl, girls, queen

Career	company, inc, work, business, service, pay, corp, employee, employment, benefits
Family	family, wife, husband, mother, father, parents, son, brother, parent, brothers

- ▶ Identify word sets using Linguist Inquiry and Word Count lists
 - ▶ Consider lists for work, family, male, female
 - ▶ Order words by frequency in judicial corpus
 - ▶ Exclude words that have specific legal meaning
 - ▶ Keep top 10 most frequent words for each concept

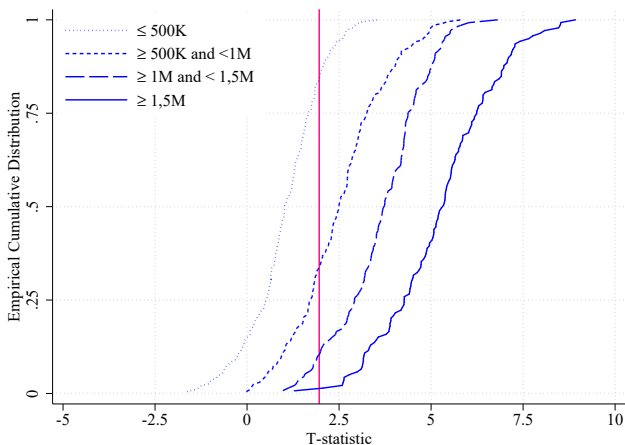
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Why focus on career-family?

- ▶ Need to identify concept relevant to judicial setting
 1. Gender and science/art
 - ▶ But these words are quite rare in judicial corpus
 2. Gender and positive/negative attributes
 - ▶ No evidence of such a bias in judicial corpus

[\[back to main\]](#)

Gender dimension predicts gender of first names if corpus size is sufficient



GloVe Embeddings Algorithm Pennington et al, 2014

- ▶ Starting point: C_{ij} = global co-occurrence counts between i, j
 - ▶ Vocabulary size: $N = 50,000$
 - ▶ Co-occurrence window = 10 words

- ▶ Learn word vectors $\mathbf{w} = (w_1, \dots, w_i, \dots, w_N)$ that solve:

$$\min_{\mathbf{w}} \sum_{i,j} f(C_{ij}) \left(w_i^T w_j - \log(C_{ij}) \right)^2$$

- ▶ where $f(\cdot)$ is weighting function to down-weight frequent words
- ▶ Objective function minimizes squared difference between:
 - ▶ Dot product of word vectors, $w_i^T w_j$
 - ▶ Empirical co-occurrence between words $\log(C_{ij})$
- ▶ Intuitively: words that co-occur have high correlation (\cdot product)

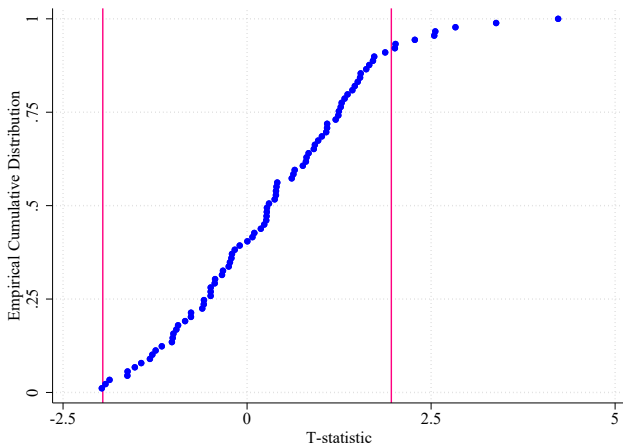
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Female and younger judges display lower gender slant

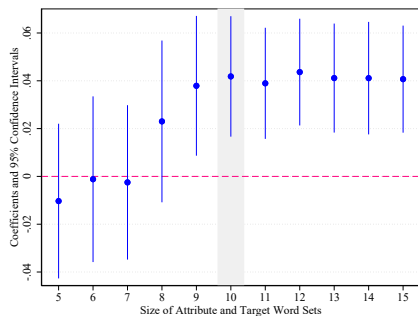
Dependent Variable	Gender Slant					
	(1)	(2)	(3)	(4)	(5)	(6)
Democrat	-0.027 (0.172)				-0.003 (0.178)	0.083 (0.269)
Female		-0.502* (0.288)			-0.592*** (0.202)	-0.713** (0.276)
Minority			-0.098 (0.329)		-0.164 (0.194)	0.453 (0.283)
Born in 1920s				-0.069 (0.191)	0.080 (0.208)	0.152 (0.299)
Born in 1930s				-0.765*** (0.203)	-0.740*** (0.234)	-0.606* (0.336)
Born after 1940				-0.537** (0.229)	-0.558** (0.258)	-0.381 (0.338)
Daughter						-0.490* (0.275)
Observations	139	139	139	139	139	98
Outcome Mean	0.000	0.000	0.000	0.000	0.000	-0.085
Adjusted R2	-0.007	0.020	-0.007	0.087	0.440	0.529
Circuit FE					X	X
Additional Demographic Controls					X	X
Number of Children FE						X

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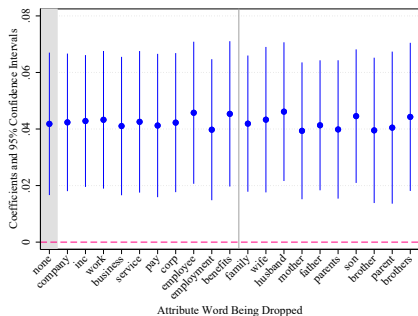
Higher slanted judges are not differentially assigned cases in given topics



Effect on decisions in gender-related cases does not depend on word set



(a) Robustness to Size of Word Set



(b) Robustness to Dropping Words

[\[back to main\]](#)

Effect on decisions is robust to controlling for female clerks, placebo association, and conservativeness

Dependent Variable	Conservative Vote			
	(1)	(2)	(3)	(4)
Gender Slant	0.039*** (0.013)	0.041*** (0.013)	0.040*** (0.013)	0.039*** (0.012)
Democrat	-0.157*** (0.031)	-0.143*** (0.025)	-0.137*** (0.027)	-0.157*** (0.026)
Female	-0.010 (0.035)	-0.031 (0.032)	-0.030 (0.032)	-0.024 (0.032)
Share Female Clerks	0.006 (0.088)			
Association Between Gender and +/- Attributes		0.010 (0.0143)		
Conservative Score (Epstein et al. 2013)			0.059 (0.098)	
Observations	2348	3086	3078	3086
Clusters	72	113	111	113
Outcome Mean	0.612	0.606	0.606	0.606
Circuit-Year FE	X	X	X	X
Additional Demographic Controls	X	X	X	X
Weights by Inverse of Slant Variance				X

Judges with higher slant also vote more conservatively in non-gender-related cases, but the effect is smaller

Dependent Variable	Conservative Vote			
	Epstein et al. (2013) Data			
	(1)	(2)	(3)	(4)
Gender Slant	0.027** (0.012)	0.027*** (0.012)	0.004 (0.012)	0.018* (0.010)
Democrat	-0.070*** (0.020)	-0.075*** (0.020)	-0.059*** (0.020)	-0.070*** (0.018)
Female	-0.060** (0.026)	-0.046* (0.024)	-0.075*** (0.020)	-0.067*** (0.024)
Observations	5477	5477	5477	5477
Clusters	112	112	112	112
Outcome Mean	0.569	0.569	0.569	0.569
Circuit-Year FE	X	X	X	X
Additional Demographic Controls	X	X	X	X
Year of Appointment		X		
Exposure FE			X	
Slant Excludes Gender-Related Cases				X

[\[DID specification\]](#)

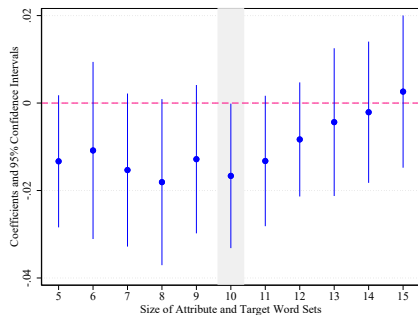
[\[back to main, voting\]](#)

[\[back to main, gender\]](#)

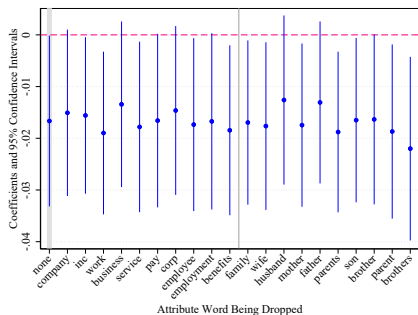
This is confirmed in differences-in-differences specification

Dependent Variable	Conservative Vote
Dataset	Epstein et al. (2013) Data
	(1)
Gender Slant * Gender-Related Case	0.027** (0.013)
Democrat * Gender-Related Case	-0.082*** (0.029)
Female * Gender-Related Case	0.028 (0.039)
Observations	8565
Clusters	113
Outcome Mean	0.582
Circuit-Year FE	X
Judge FE	X
Exposure FE	X

Effect on authorship robust to perturbing the word sets



(a) Robustness to Size of Word Set



(b) Robustness to Dropping Words

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Effect on authorship is robust to controlling for female clerks, placebo association, and conservativeness

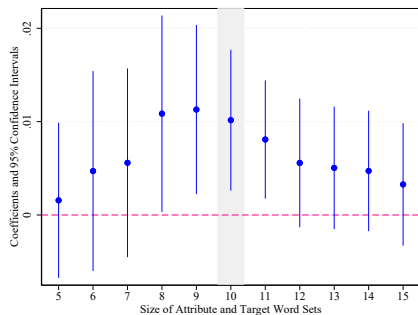
Dependent Variable	Author is Female						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender Slant	-0.016 (0.011)	-0.017** (0.008)	-0.018** (0.009)	-0.029*** (0.009)	-0.012* (0.007)	-0.020** (0.008)	-0.017** (0.008)
Democrat	-0.016 (0.025)	-0.002 (0.014)	-0.002 (0.017)	0.005 (0.015)	0.001 (0.014)	-0.001 (0.013)	-0.001 (0.014)
Female	0.172*** (0.018)	0.134*** (0.017)	0.134*** (0.017)	0.126*** (0.017)		0.133*** (0.017)	0.134*** (0.016)
Share Female Clerks	-0.021 (0.055)						
Association Between Gender and +/- Attributes		0.004 (0.008)					
Conservative Score (Epstein et al. 2013)			0.023 (0.040)				
Observations	20543	32052	30614	32052	22828	36939	31998
Clusters	72	125	111	125	108	125	124
Outcome Mean	0.396	0.383	0.387	0.383	0.347	0.383	0.383
Circuit-Year FE	X	X	X	X	X	X	X
Controls for Demographics	X	X	X	X	X	X	X
Weights by Inverse of Slant Variance				X			
Excludes Female Senior Judges					X		
Includes Dissents/Concurrences After 1980						X	X

Sample restrictions imposed do not correlate with slant of senior judge

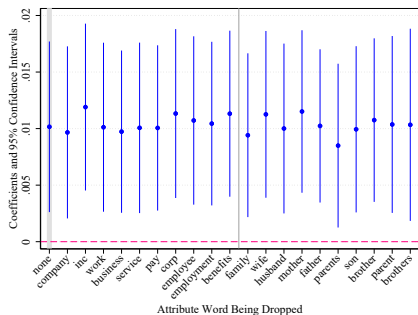
Dependent Variable	Has Author		Per Curiam		Decided Unanimously	
	(1)	(2)	(3)	(4)	(5)	(6)
Gender Slant	0.002 (0.005)	0.003 (0.004)	-0.000 (0.003)	-0.001 (0.003)	0.001 (0.006)	0.001 (0.006)
Democrat	0.002 (0.011)	-0.010 (0.010)	-0.007 (0.006)	0.003 (0.006)	-0.017 (0.010)	-0.002 (0.009)
Female	-0.001 (0.011)	0.013 (0.010)	0.005 (0.005)	-0.004 (0.004)	0.020* (0.010)	0.009 (0.010)
Observations	171441	43601	171441	43601	171441	43601
Clusters	139	125	139	125	139	125
Outcome Mean	0.803	0.847	0.092	0.045	0.887	0.874
Circuit-Year FE	X	X	X	X	X	X
Controls for Demographics	X	X	X	X	X	X
One Female Judge on Panel		X		X		X

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Effect on reversals is robust to perturbing the word sets



(a) Robustness to Size of Word Set



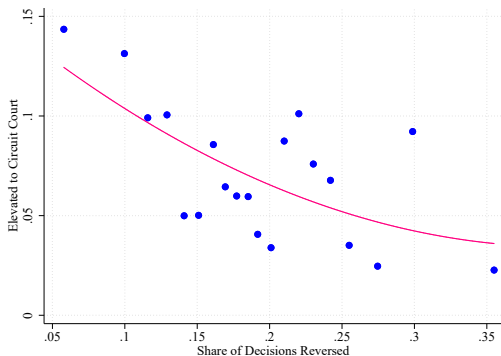
(b) Robustness to Dropping Words

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Effect on reversals is robust to controlling for female clerks, placebo association, and conservativeness

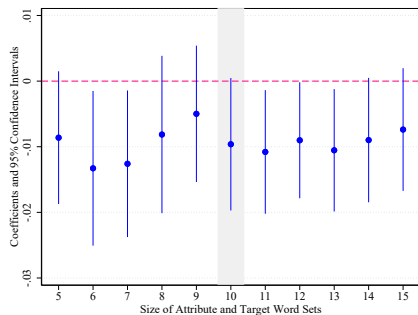
Dependent Variable	Votes to Reverse District Decision				
	(1)	(2)	(3)	(4)	(5)
Gender Slant * Female District Judge	0.009** (0.005)	0.010*** (0.004)	0.012*** (0.004)	0.016*** (0.004)	0.010** (0.004)
Democrat * Female District Judge	-0.023** (0.009)	-0.010 (0.006)	-0.010 (0.007)	-0.012* (0.007)	-0.010 (0.006)
Female * Female District Judge	0.018 (0.012)	-0.003 (0.010)	-0.000 (0.010)	-0.003 (0.010)	-0.003 (0.010)
Share Female Clerks * Female District Judge	0.035 (0.039)				
Association Between Gender and +/- Attributes * Female District Judge		-0.001 (0.005)			
Conservative Score (Epstein et al. 2013) * Female District Judge			0.007 (0.026)		
Observations	83751	145862	129677	145862	130381
Clusters	68	133	106	133	119
Outcome Mean for Male Judges	0.163	0.180	0.167	0.180	0.168
Outcome Mean for Female Judges	0.151	0.157	0.157	0.157	0.157
Circuit-Year FE	X	X	X	X	X
Circuit Judge FE	X	X	X	X	X
District Judge FE	X	X	X	X	X
Additional Demographic Controls	X	X	X	X	X
Weights by Inverse of Slant Variance After 1980				X	X

Gender slant has the potential to affect the career of female judges

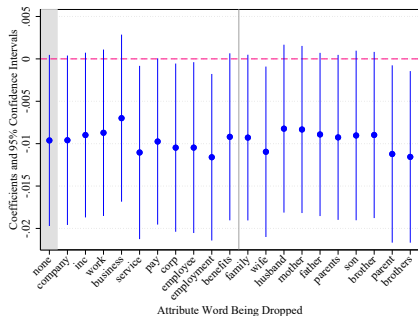


- ▶ A female judges whose appealed decisions were assigned to circuit judges with a one standard deviation higher slant would be 6.3% less likely to be elevated than a male judge faced with similarly slanted circuit judges

Effect on citations is robust to perturbing the word sets



(a) Robustness to Size of Word Set



(b) Robustness to Dropping Words

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Effect on citations is robust to controlling for female clerks, placebo association, and conservativeness

Dependent Variable	Cites at Least One Female Judge					
	(1)	(2)	(3)	(4)	(5)	(6)
Gender Slant	-0.006 (0.009)	-0.009* (0.005)	-0.009 (0.006)	-0.008 (0.006)	-0.010 (0.006)	-0.009* (0.005)
Democrat	-0.038** (0.018)	-0.011 (0.010)	-0.020 (0.013)	-0.012 (0.011)	-0.013 (0.012)	-0.027*** (0.010)
Female	0.157*** (0.022)	0.128*** (0.016)	0.125*** (0.017)	0.138*** (0.017)	0.128*** (0.017)	-0.084** (0.018)
Share Female Clerks	-0.018 (0.042)					
Association Between Gender and Positive/Negative Attributes		-0.008 (0.005)				
Conservative Score <small>(Epstein et al. 2013)</small>			-0.039 (0.035)			
Observations	54301	107923	86910	107923	83680	107923
Clusters	73	139	112	139	125	139
Outcome Mean	0.536	0.383	0.452	0.383	0.487	0.383
Circuit-Year FE	X	X	X	X	X	X
Additional Demographic Controls	X	X	X	X	X	X
Weights by Inverse of Slant Variance After 1980				X		
Excludes Self-Citations					X	X

Slant of senior judge does not predict authorship assignment based on other characteristics

Dependent Variable	Author is Democrat	Author is Minority	Author Age
	(1)	(2)	(3)
Gender Slant	-0.007 (0.006)	0.005 (0.008)	0.041 (0.175)
Democrat	0.224*** (0.011)	-0.002 (0.013)	0.081 (0.382)
Female	0.030 (0.019)	0.027* (0.016)	0.056 (0.563)
Observations	92816	23436	120365
Clusters	139	126	139
Outcome Mean	0.616	0.340	63.030
Circuit-Year FE	X	X	X
Additional Demographic Controls	X	X	X
Panel Includes Democrat Judge	X		
Panel Includes Minority Judge		X	

Higher slanted judges are not more likely to district judges appointed by a Democratic President

Dependent Variable	Votes to Reverse District Decision	
	(1)	(2)
Gender Slant * Democrat District Judge	0.005 (0.004)	
Democrat * Democrat District Judge	-0.006 (0.007)	
Female * Democrat District Judge	-0.003 (0.010)	
Gender Slant * Minority District Judge		0.0112** (0.005)
Democrat * Minority District Judge		0.002 (0.007)
Female * Minority District Judge		0.016 (0.011)
Observations	145862	145862
Clusters	133	133
Outcome Mean	0.177	0.177
Circuit-Year FE	X	X
Circuit Judge FE	X	X
District Judge FE	X	X
Additional Demographic Controls	X	X

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Higher slanted judges are less likely to cite Democrat judges

Dependent Variable	Cites Democrat	Cites Minority	Average Age	Average Bias
	(1)	(2)	(3)	(4)
Gender Slant	-0.008** (0.004)	-0.006 (0.005)	-0.072 (0.082)	0.113*** (0.012)
Democrat	0.008 (0.007)	-0.021* (0.011)	-0.071 (0.105)	0.013 (0.018)
Female	0.023** (0.009)	0.058*** (0.011)	0.026 (0.173)	-0.032 (0.022)
Observations	107923	107923	107923	98435
Clusters	139	139	139	139
Outcome Mean	0.875	0.336	61.407	0.052
Circuit-Year FE	X	X	X	X
Additional Demographic Controls	X	X	X	X

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