# Online Appendix

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

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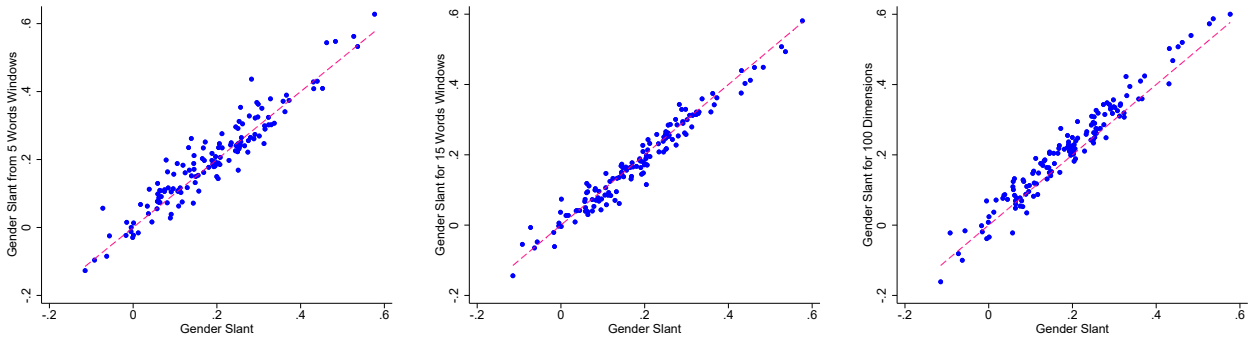
# A Appendix Figures

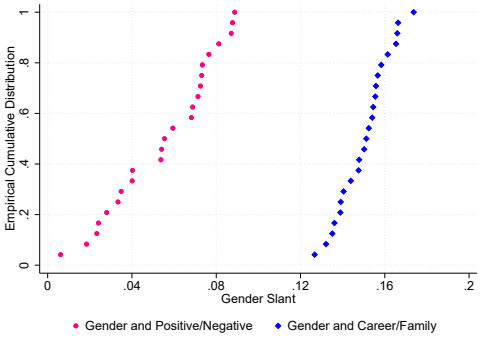
**Appendix Figure 1:** Gender Slant for Different Window Sizes and Embedding Dimensions

**(a)** 5 Words **(b)** 15 Words **(c)** 100-Dimensional



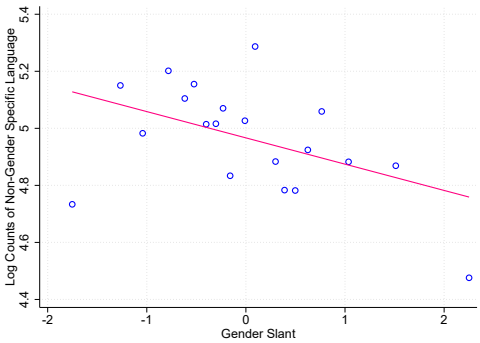

Notes: The graphs show a scatter plot of the gender slant measure obtained by training embeddings using different window sizes to construct the co-occurrence matrix (panel (a) and (b)) and embeddings with different dimensions (100 versus 300) (panel (c)).

**Appendix Figure 2:** Cumulative Distribution of Slant for Different Associations



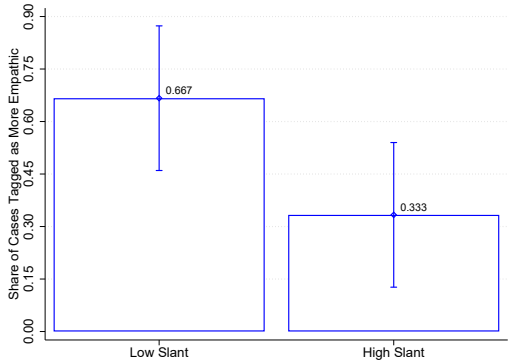

Notes: The graph shows the empirical cumulative distribution of gender slant measured using the stereotypical association between males and career versus female and family and using the stereotypical association between male and positive attributes versus female and negative attributes. The distibution comes for the 24 repetitions of bootstrapped embeddings for the full judicial corpus.

**Appendix Figure 3:** Gender Slant and Gender Neutral Language



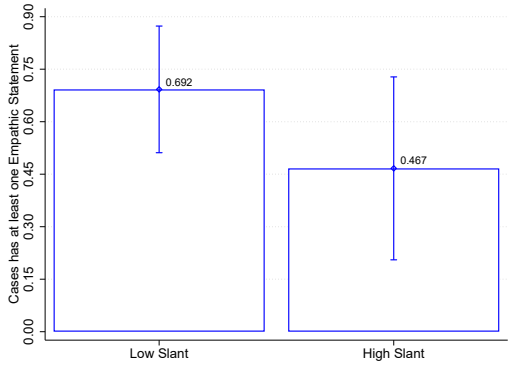

Notes: The graph shows a binned scatterplot of the relationship between the number of sentences in which the judge uses gender neutral language (e.g. 'he or she', 'he/she', 'he and she', etc.) and gender slant, conditional on the log number of tokens in the corpus.

**Appendix Figure 4:** Human Coding of Opinions and Gender Slant, Most Empathic



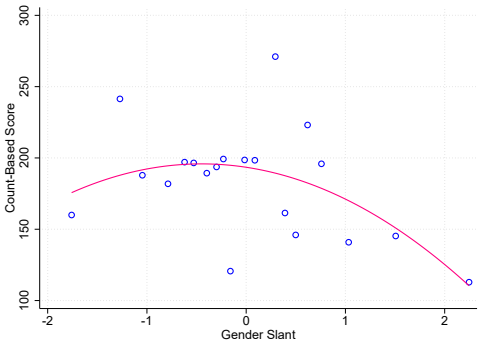

Notes: The graph shows the share of cases that were tagged as being the most empathic within a pair, by whether the opinion was authored by a judge with high or low slant. The sample includes 40 cases (20 pairs). The pairs were selected among gender-related cases that we were able to match with the opinion text from Bloomberg Law and that were decided in favor of expanding women' rights. The sample was further restricted to cases whose majority opinon was authored by a judge with the slant in the top/bottom 10% of the slant distribution. Cases were then randomly paired with replacement, with one case from the top and one from the bottom of the slant distribution. A reader, blind to the slant of each judge, was asked to assess which case presented the opinon that was most empathic towards women within each pair. In 13 out of the 20 pairs, the case selected to be the most empathic was the one with the lowest slant.

**Appendix Figure 5:** Human Coding of Opinions and Gender Slant, Has Empathic Statement



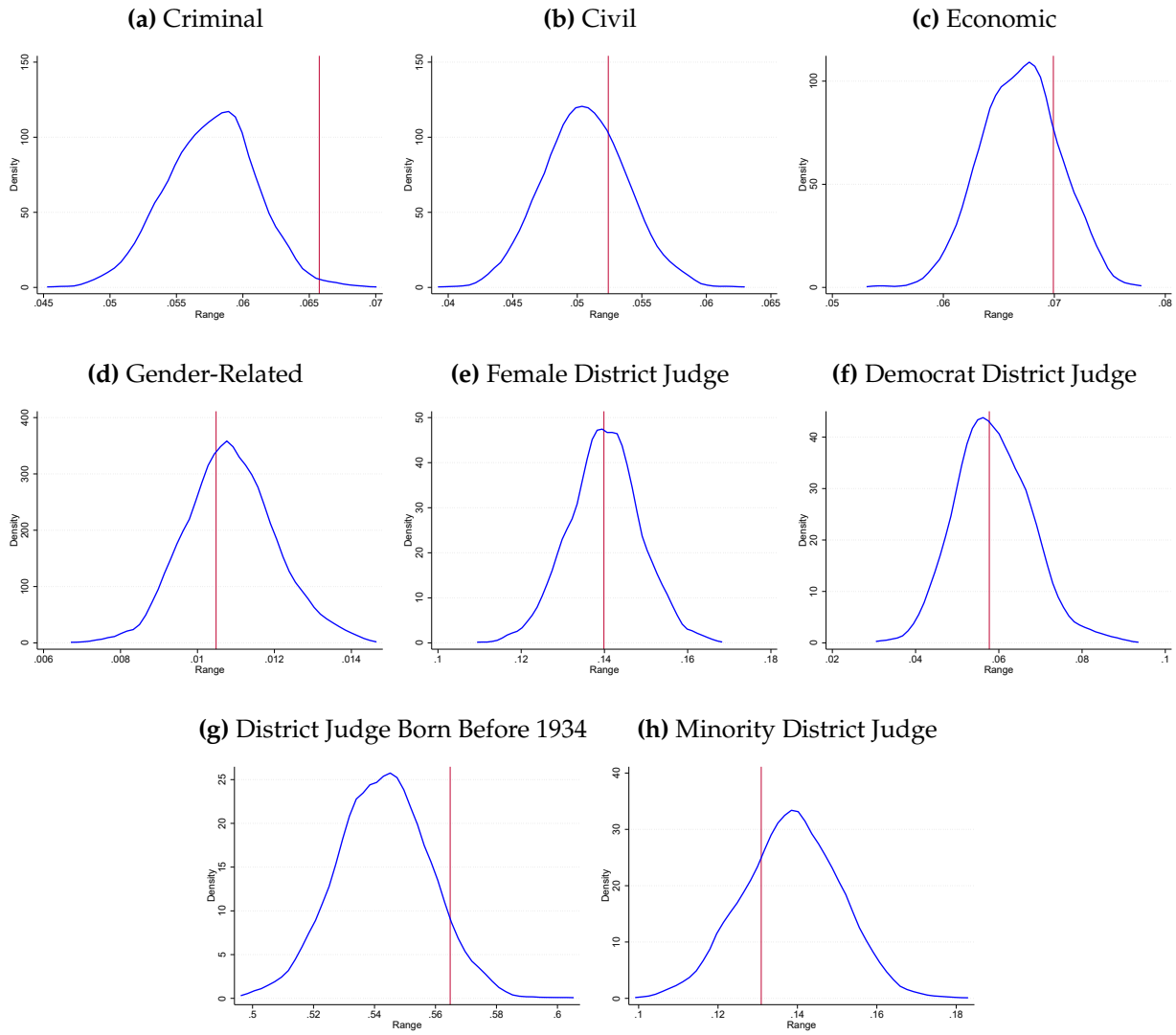

Notes: The graph shows the share of cases that were tagged as having at least one empathic statement, by whether the opinion was authored by a judge with high or low slant. The sample includes 38 cases. The pairs were selected among gender-related cases that we were able to match with the opinion text from Bloomberg Law and that were decided in favor of expanding women' rights. The sample was further restricted to cases whose majority opinon was authored by a judge with the slant in the top/bottom 10% of the slant distribution. A reader, blind to the slant of each judge, was asked to annotate each case.

**Appendix Figure 6:** Gender Slant and Count-Based Score



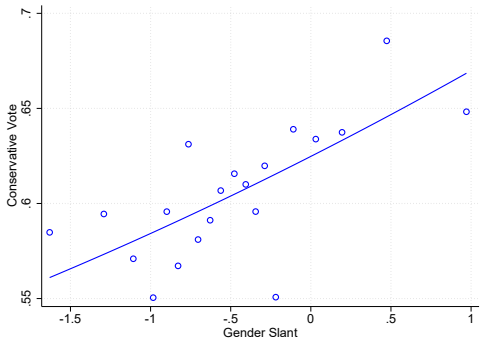

Notes: The graph shows a binned scatterplot of the relationship between the count based score and gender slant. The count-based score is defined as the ratio of the difference between the number of male/career snippets and the number of female/career snippets over the difference between the number of male/family snippets minus the number of female/family snippets, where male/career snippets are snippets in which a male and career word appear within a ten word window from each other and the other terms are similarly defined.

**Appendix Figure 7:** Randomization Check




Notes: These figures shows, for eight different judge characteristic, the distribution of the interquantile range of judge-specific averages resulting from 1000 simulated datasets. The vertical line represents the actual interquantile range.

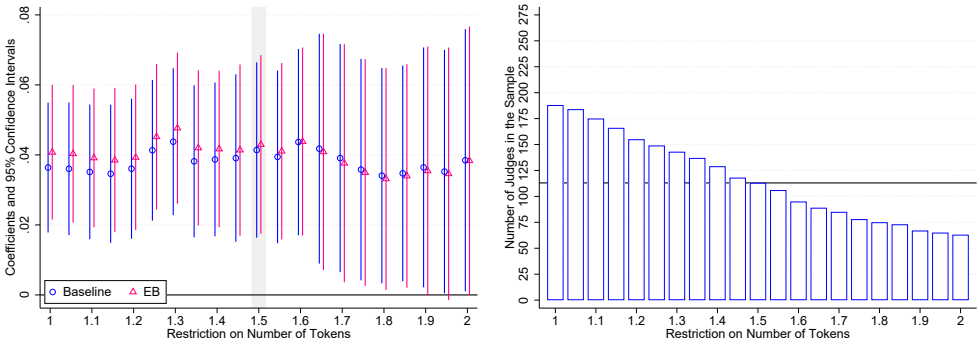
**Appendix Figure 8:** Slanted Judges and Decisions in Gender-Related Cases, Binned Scatterplot




Notes: The graph shows a binned scatterplot of the relationship between gender slant and conservative votes in gender-related cases, conditional on demographic controls and circuit-year fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court.

**Appendix Figure 9:** Slanted Judges and Decisions in Gender-Related Cases, Robustness to EB-Adjustment and Tokens Threshold

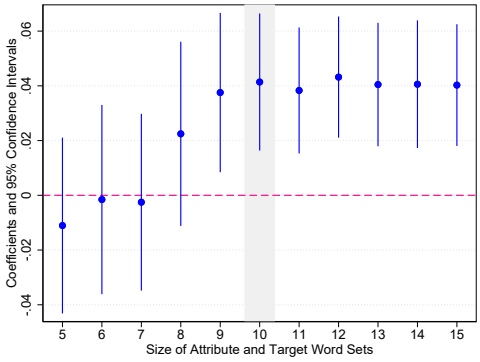
**(a)** Point Estimates and 95% CI **(b)** Number of Judges



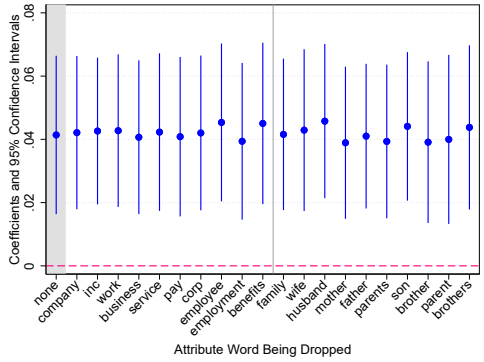

Notes: The graphs show how the effect of slanted judges on decisions in gender-related cases varies based on the tokens thresholds used to select the sample. The graph on the left shows both the point estimate and the 95% confidence interval for the baseline measure of gender slant and EB-adjusted gender slant, estimated including judges selected using different token tresholds. The graph on the right shows the number of judges included in the analysis for each token threshold. We regress an indicator variable equal to 1 if a judge voted conservatively in a gender-related case on the judge's gender slant, demographic controls, and circuit-year fixed effects (equation (2)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. Standard errors are clustered at the judge level.

**Appendix Figure 10:** Slanted Judges and Decisions in Gender-Related Cases, Robustness to Word Set Choice

**(a)** Size of Word Set

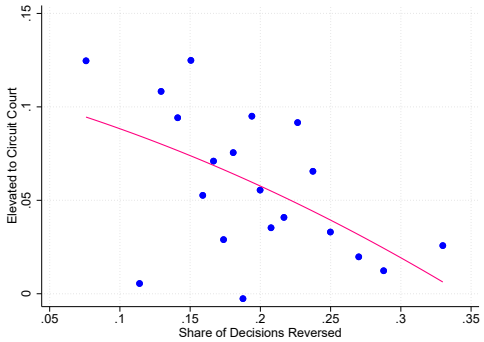



**(b)** Dropping Attribute Words



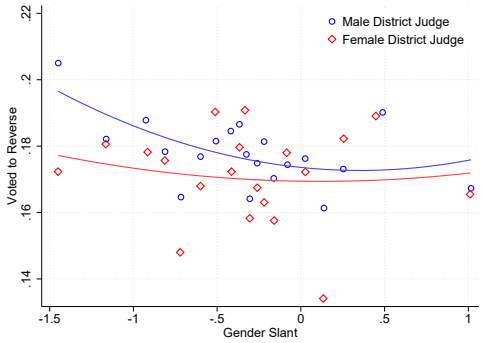

Notes: The graphs show how the effect of slanted judges on decisions in gender-related cases varies based on the word sets used to identify the gender and attribute dimension. The graph on the left shows robustness to using word sets of different sizes; the graph on the right shows robustness to dropping one attribute word at the time. The graphs show the coefficient on gender slant, together with 95% confidence intervals. We regress an indicator variable equal to 1 if a judge voted conservatively in a gender-related case on the judge's gender slant, demographic controls, and circuit-year fixed effects (equation (2)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. Standard errors are clustered at the judge level.

**Appendix Figure 11:** Reversals and Promotions from District to Circuit Courts



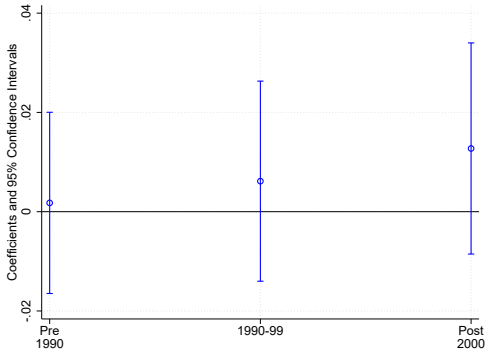

Notes: The graph shows the relationship between the probability of being elevated from a district to a circuit court and the share of decisions that were reversed on appeal, conditional on demographic controls and circuit fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. The sample is restricted to district judges for which we observe at least 50 cases.

**Appendix Figure 12:** Slanted Judges and Reversals, Binned Scatter Plot




Notes: The graph shows a binned scatterplot of the relationship between gender slant and the probability of voting to reverse the district court decision by the gender of the district judge, conditional on demographic controls and circuit-year fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. The sample is restricted to cases for which we were able to determine the identity of the district judge.

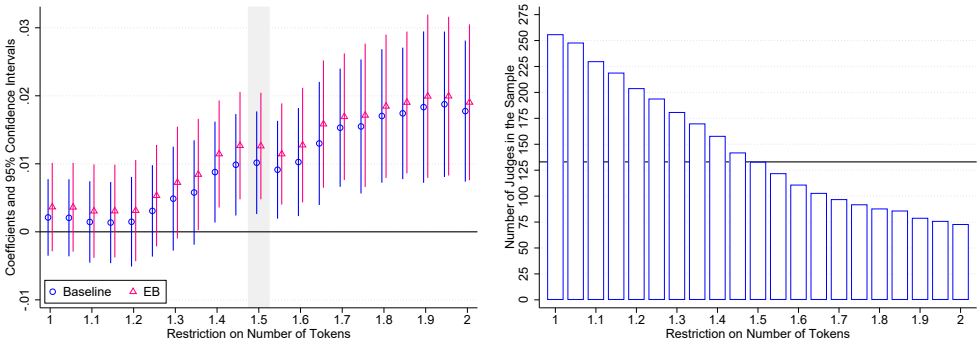
**Appendix Figure 13:** Slanted Judges and Reversals, by District Judge Gender




Notes: The graphs show how the differential effect of slanted judges on the reversal probability of cases originally decided by male and female district judges varies over time. The graph shows both the point estimate and the 95% confidence interval for three periods: before 1990, 1990-1999, and after 2000. We regress an indicator variable equal to 1 if the judge voted to reverse the district decision on the gender slant of the judge interacted with an indicator variable for whether the district judge is female and dummies for time period, demographic controls interacted with an indicator variable for whether the district judge is female, circuit judge fixed effects, district judge fixed effects and circuit-year fixed effects (equation (3)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. The sample is restricted to cases for which we were able to determine the gender of the district judge. Standard errors are clustered at the judge level.

**Appendix Figure 14:** Slanted Judges and Reversals, Robustness to EB-Adjustment and Token Threshold

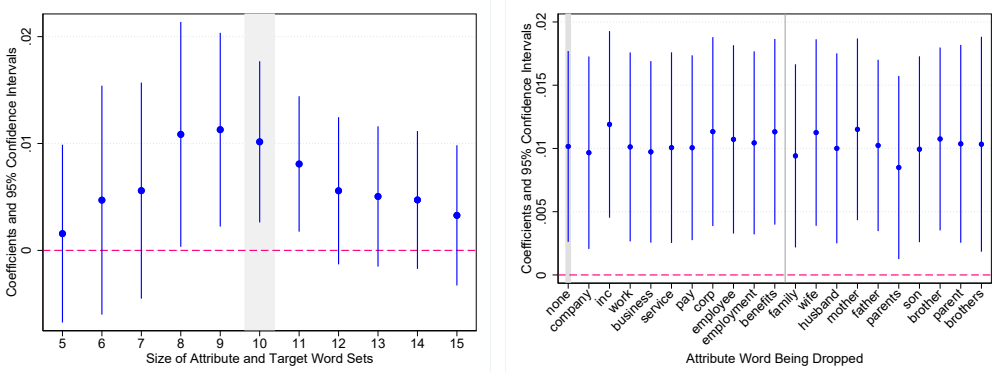
**(a)** Point Estimates and 95% CI **(b)** Number of Judges




Notes: The graphs show how the differential effect of slanted judges on the reversal probability of cases originally decided by male and female district judges varies based on the token thresholds used to select the sample. The graph on the left shows both the point estimate and the 95% confidence interval for the baseline measure of gender slant and EB-adjusted gender slant, estimated including judges selected using different token thresholds. The graph on the right shows the number of judges included in the analysis for each token threshold. We regress an indicator variable equal to 1 if the judge voted to reverse the district decision on the gender slant of the judge interacted with an indicator variable for whether the district judge is female, demographic controls interacted with an indicator variable for whether the district judge is female, circuit judge fixed effects, district judge fixed effects and circuit-year fixed effects (equation (3)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. The sample is restricted to cases for which we were able to determine the gender of the district judge. Standard errors are clustered at the judge level.

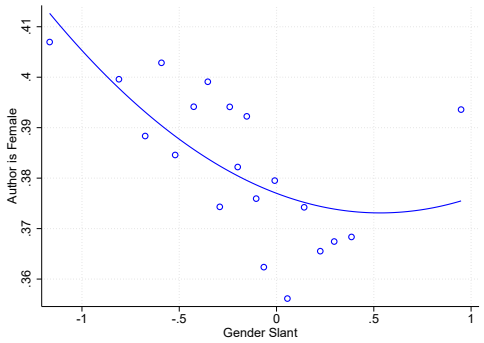
**Appendix Figure 15:** Slanted Judges and Reversals, Robustness to Word Set Choice

**(a)** Size of Word Set **(b)** Dropping Attribute Words



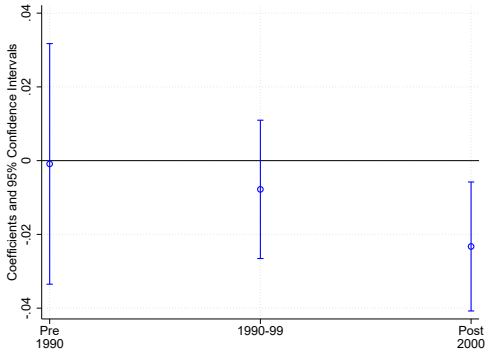

Notes: The graphs show how the differential effect of slanted judges on the reversal probability of cases originally decided by male and female district judges varies based on the word sets used to identify the gender and attribute dimension. The graph on the left shows robustness to using word sets of different sizes; the graph on the right shows robustness to dropping one attribute word at the time. The graphs show the coefficient on gender slant interacted with an indicator variable for whether the district judge is female, together with 95% confidence intervals. We regress an indicator variable equal to 1 if the judge voted to reverse the district decision on the gender slant of the judge interacted with an indicator variable for whether the district judge is female, demographic controls interacted with an indicator variable for whether the district judge is female, circuit judge fixed effects, district judge fixed effects and circuit-year fixed effects (equation (3)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and refer to the circuit judge. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. The sample is restricted to cases for which we were able to determine the gender of the district judge. Standard errors are clustered at the circuit judge level.

**Appendix Figure 16:** Slanted Judges and Opinion Assignment, Binned Scatterplot




Notes: The graph shows a binned scatterplot of the relationship between gender slant and the probability of the majority opinion beign assigned to a female judge, conditional on demographic controls and circuit-year fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously.

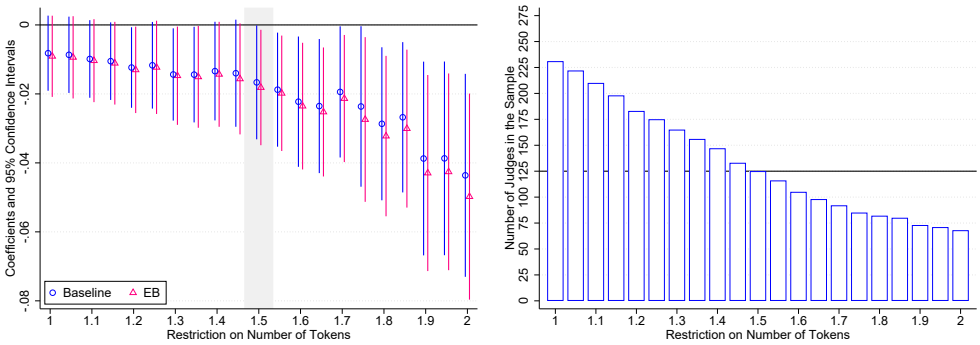
**Appendix Figure 17:** Slanted Judges and Opinion Assignment, Over Time




Notes: The graph shows how the effect of slanted judges on the probability of the majority opinion being assigned to a female judge varies over time. The graph shows both the point estimate and the 95% confidence interval for three periods: before 1990, 1990-1999, and after 2000. We regress an indicator variable equal to 1 if the authoring judge is female on the gender slant of the most senior judge on the panel interacted with dummies for time period, demographic controls, and circuit-year fixed effects (equation (4)). The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the case level. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously. Standard errors are clustered at the judge level.

**Appendix Figure 18:** Slanted Judges and Opinion Assignment, Robustness to EB-Adjustment and token threshold

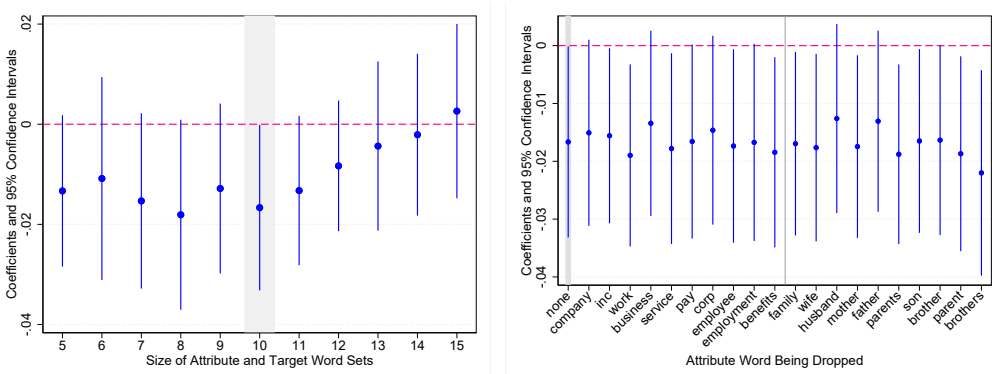
**(a)** Point Estimates and 95% CI **(b)** Number of Judges




Notes: The graphs show how the effect of slanted judges on the probability of the majority opinion being assigned to a female judge varies based on the token thresholds used to select the sample. The graph on the left shows both the point estimate and the 95% confidence interval for the baseline measure of gender slant and EB-adjusted gender slant, estimated including judges selected using different token tresholds. The graph on the right shows the number of judges included in the analysis for each token threshold. We regress an indicator variable equal to 1 if the authoring judge is female on the gender slant of the most senior judge on the panel, demographic controls, and circuit-year fixed effects (equation (4)). The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the case level. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously. Standard errors are clustered at the judge level.

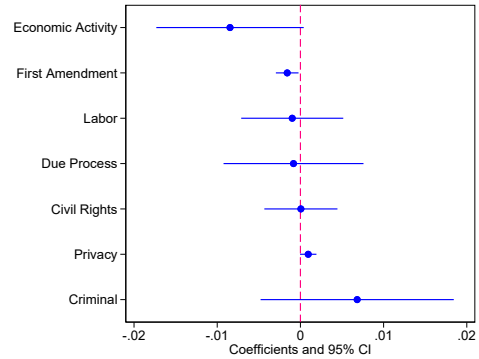
**Appendix Figure 19:** Slanted Judges and Opinion Assignment, Robustness to Word Set Choice

**(a)** Size of Word Set **(b)** Dropping Attribute Words



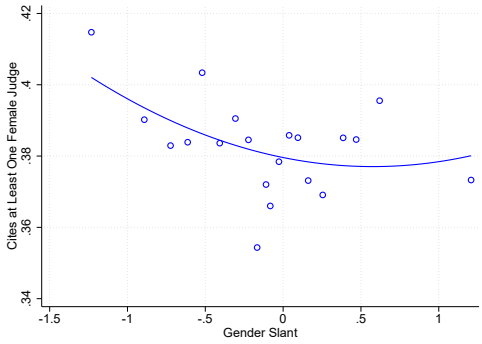

Notes: The graphs show how the effect of slanted judges on the probability of the majority opinion being assigned to a female judge varies based on the word sets used to identify the gender and attribute dimension. The graph on the left shows robustness to using word sets of different sizes; the graph on the right shows robustness to dropping one attribute word at the time. The graphs show the coefficient on gender slant, together with 95% confidence intervals. We regress an indicator variable equal to 1 if the authoring judge is female on the gender slant of the most senior judge on the panel, demographic controls, and circuit-year fixed effects (equation (4)). The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and refer to the most senior judge on the panel. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously. Standard errors are clustered at the judge level.

**Appendix Figure 20:** Differential Effect of Slanted Judges on Case Topic by Author's Gender



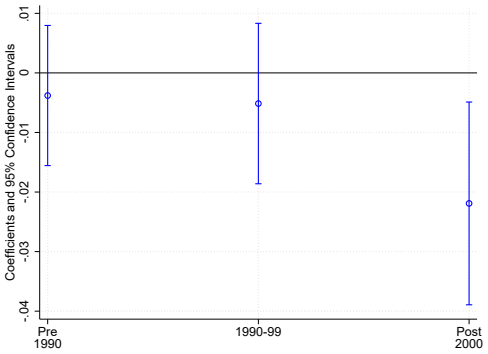

Notes: The graph explores whether slanted judges assign different cases to female judges. We regress an indicator variable equal to 1 if the case is on one of seven topics on an indicator variable for whether the opinion is assigned to a female judge, the gender slant of the most senior judge on the panel interacted with an indicator variable for whether the opinion is assigned to a female judge, demographic controls for the most senior judge interacted with an indicator variable for whether the opinion is assigned to a female judge, senior judge fixed, and circuit-year fixed effects. The graphs show the coefficient on gender slant interacted with an indicator variable for whether the opinion is assigned to a female judge, together with 95% confidence intervals. The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and they refer to the most senior judge on the panel. The dataset is at the case level. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously. Standard errors are clustered at the senior judge level.

**Appendix Figure 21:** Slanted Judges and Citations, Binned Scatterplot




Notes: The graph shows a binned scatterplot of the relationship between gender slant and the probability of citing at least one female judge, conditional on demographic controls and circuit-year fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. The sample is restricted to cases in which the opinion was authored by a specific judge.

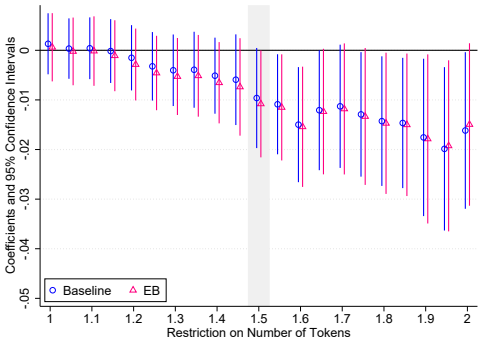
**Appendix Figure 22:** Slanted Judges and Citations, Over Time



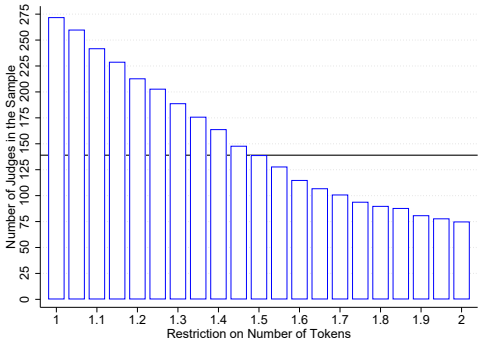

Notes: The graphs show how the effect of slanted judges on the probability of citing at least one female judge varies over time. The graph shows both the point estimate and the 95% confidence interval for three periods: before 1990, 1990-1999, and after 2000. We regress a dummy equal to 1 if the majority opinion cites at least one case authored by a woman on the gender slant of the author of the majority opinion interacted with dummies for time period, demographic controls, and circuit-year fixed effects (equation (5)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the case level. The sample is restricted to cases in which the opinion is authored by a specific judge. Standard errors are clustered at the judge level.

**Appendix Figure 23:** Slanted Judges and Citations, Robustness to EB-Adjustment and token threshold

**(a)** Point Estimates and 95% CI



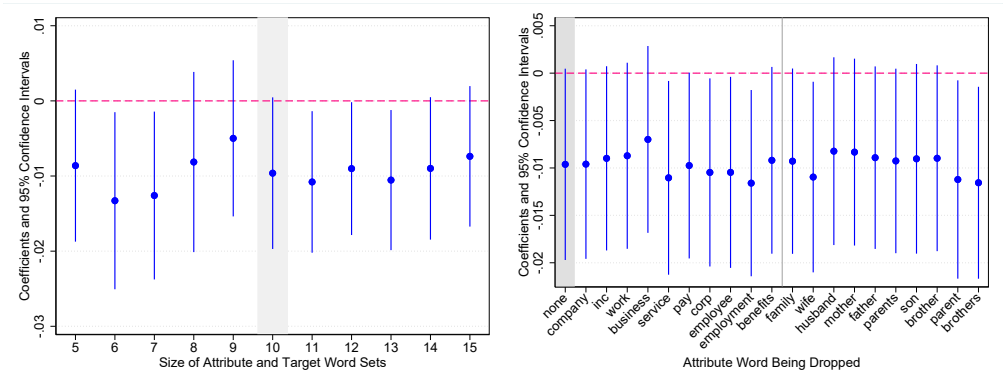

**(b)** Number of Judges




Notes: The graphs show how the effect of slanted judges on the probability of citing at least one female judge varies based on the token thresholds used to select the sample. The graph on the left shows both the point estimate and the 95% confidence interval for the baseline measure of gender slant and EB-adjusted gender slant, estimated including judges selected using different token tresholds. The graph on the right shows the number of judges included in the analysis for each token threshold. We regress a dummy equal to 1 if the majority opinion cites at least one case authored by a woman on the gender slant of the author of the majority opinion, demographic controls, and circuit-year fixed effects (equation (5)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the case level. The sample is restricted to cases in which the opinion is authored by a specific judge. Standard errors are clustered at the judge level.

**Appendix Figure 24:** Slanted Judges and Citations, Robustness to Word Set Choice

**(a)** Size of Word Set **(b)** Dropping Attribute Words




Notes: The graphs show how the effect of slanted judges on the probability of citing at least one female judge varies based on the word sets used to identify the gender and attribute dimension. The graph on the left shows robustness to using word sets of different sizes; the graph on the right shows robustness to dropping one attribute word at the time. The graphs show the coefficient on gender slant, together with 95% confidence intervals. We regress a dummy equal to 1 if the majority opinion cites at least one case authored by a woman on the gender slant of the author of the majority opinion, demographic controls, and circuit-year fixed effects (equation (5)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases in which the opinion is authored by a specific judge. Standard errors are clustered at the judge level.

# B Appendix Tables

**Appendix Table 1:** Median Word Count by Concept

| Concept | Median Word Count |
|---|---|
| Male | 1,114,493 |
| Female | 24,563 |
| Career | 359,683 |
| Family | 44,925 |
| Positive | 43,651 |
| Negative | 73,200 |
| Art | 12,399 |
| Science | 5,117.5 |

Notes: The table shows the median number of times that words used to define the gender, career-family, positive-negative, and art-science dimensions appear in the full judicial corpus.

**Appendix Table 2:** Examples of Empathic Passages from Human Coding of Opinions

| |
|---|
| It is obvious from Davis's distraught journal entries that these incidents upset her and made it more difficult for her to work. |
| The Sheriff's Department's response was an institutional shrug of the shoulders. It neither investigated further nor did it discipline Gamble. Instead, in response to Smith's request that further action be taken, one Investigator Sullivan made light of the incident and jokingly suggested that Smith should "kiss and make up" with Gamble. |
| DiTusa walked past Plaintiff, paced around the common area of the trailer, swearing loudly. He returned to the office and glared at Plaintiff. Plaintiff feared for her safety. |
| Valentine alleged that Tominello's harassment was very frequent: he rubbed his crotch in front of her nearly every day; asked her on twenty occasions to leave her fiance'; asked her on dates between 30 and 40 times; made repeated comments about her "tits" and "ass"; and on six occasions rubbed Valentine's arm or shoulder. Valentine also alleged that Tominello's behavior was humiliating. |
| On the other hand, by Hostetler's description (which at this point is undisputed), the new assignment brought with it a lengthy commute and a marathon work schedule. |
| Cynthia Stoll was sexually harassed, raped, and abused by supervisors and coworkers at the Sacramento Post Office. As a result of the defendant's plainly wrongful conduct, Stoll was severely psychiatrically impaired. She presented compelling direct evidence, which the district court failed to consider, that this impairment interfered with her relationship with her lawyer and rendered her unable to communicate with him or to protect her legal rights. |
| Rowe testified to a constant fear of Moore and to experiencing panic attacks variously characterized by nausea, headaches, sweating, and hyperventilation. She was so afraid of Moore that she moved to a different home, obtained a gun card, purchased mace, and since June of 2000 has been eating lunch and taking coffee breaks in the women's restroom to avoid any contact with Moore. |

**Appendix Table 3:** Text Snippets

| | |
|---|---|
| male and career | "there is no question here that neither the trustee nor mrs coggin executed *service* on coggin *himself*" |
| | "*he* then contracted with manhattan consolidated gold mines, *inc*" |
| | "kosereis was required to *work* in a particular building that *he* says lacked ventilation and was dirty" |
| | "eventually, *he* ordered white back to *work* in the infirmary, however" |
| | "after being joined by other officers, they cornered *mr* avery on a crowded street in the town's *business* district" |
| | "if *he* failed to make any payment, *he* forfeited the *business* plus any payments made before the default" |
| | "talbert left the management conference about noon and returned to *his* regular post of *work*" |
| | "at the same time, *he* was continuing full time secular *employment*" |
| | "in 1986, *he* had to stop *work* because of the back pain did you do any *work* on *his* appeal?" |
| female and career | "1291, this court affirms. adt hired harris as a customer *service* specialist in 1997, promoting *her* to team manager the next year" |
| | "from 1980 until shortly before the end of *her employment* on august 23, 1987, *she* worked as an "extra board" *employee*" |
| | "however, *her* condition remained of such severity as to preclude her from engaging in sedentary *work*" |
| | "*she* said *she* did not feel well enough to return to *work*" |
| | "neither of the decisions cited by *her* involved an *employee* who was receiving owcp *benefits*" |
| | "this effort was due in part to mrs arlinghaus' need for cash to *pay* the federal tax on *her* husband's estate" |
| | "metlife's letter outlined its reasoning for denying *her benefits* under the any occupation period" |
| | "an *employee* is deemed qualified only if she can perform all of the essential functions of *her* job, whether accommodated or not" |
| | "the resume contained *her* home and *work* addresses and telephone numbers" |
| male and family | "before trial, appellant's *husband* died and appellant, as administratrix of *his* estate, was substituted as plaintiff in *his* stead" |
| | "reynolds told defendant mcpheters that raymond lived with *his mother*" |
| | "sultan refused to bring *his son* to the police because the *family* was ashamed of the sexual abuse" |
| | "on may 1, 1942, delfino ferdinando cinelli died, leaving *his* estate of spannocchia to *his wife* and children" |
| | "in support of *his* claim, lambros refers to the government's agreement not to prosecute *his wife*" |
| | "at the last january term, as my learned *brother* informs me, *he* intimated that the case, in *his* opinion, was against the defendant" |
| | "syed reports that each time *he* returned to hyderabad *he* was told that *he* would be killed if *he* left his *wife* again" |
| | "holloman, *wife* of the plaintiff, and for *his* use" |
| | "*he* testified bolyard told abigando that they knew either *he* or *his wife* had "some connection" with the mustang" |
| female and family | "further, the alj did not believe cox, or *her husband* and neighbor, who both testified at cox's hearing on *her* behalf" |
| | "mrs willging and *her husband* were wheat farmers, owning community property, and reporting their income on the accrual basis" |
| | "*she* points to the incidents involving *her* father, *her mother* and *her* father's associates" |
| | "*she* does aver that some of the personnel in the entities sued by *her father* were high-ranking officials within the government" |
| | "no evidence was presented to show that mrs gordon intended to inculpate *her husband* falsely" |
| | "whitten testified, however, that tilley was not the *father* and claimed that *she* had lied on the birth certificate" |
| | "told *her mother* about problems at eagle's house" |
| | "ms johnson, accompanied by members of *her family* and jonathan young, went to a grocery store with a western union office" |
| | "second, during the assault, natasha had been subjected to physical abuse and death threats made against *her* and *her family*" |

Notes: This table report randomly selected text snippets used to create the count-based measure as an example. Words that are part of the selected sets used to construct the gender slant measure are in italics.

**Appendix Table 4:** Correlates of Having a Sufficiently Large Corpus

| Dependent Variable | Tokens >= 1.5m | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Democrat | 0.004 | -0.020 | -0.021 |
| | (0.021) | (0.021) | (0.021) |
| Female | -0.027 | -0.001 | 0.023 |
| | (0.048) | (0.045) | (0.046) |
| Minority | -0.049 | -0.004 | 0.029 |
| | (0.050) | (0.048) | (0.046) |
| Born in 1920s | 0.311*** | 0.246*** | 0.256*** |
| | (0.050) | (0.051) | (0.055) |
| Born in 1930s | 0.383*** | 0.311*** | 0.302*** |
| | (0.052) | (0.055) | (0.055) |
| Born after 1940 | 0.121*** | 0.125*** | 0.156*** |
| | (0.035) | (0.036) | (0.048) |
| Observations | 951 | 951 | 951 |
| Adjusted R2 | 0.138 | 0.202 | 0.247 |
| Additional Controls | | X | X |
| Circuit FE | | | X |

Notes: The table shows what demographic characteristics correlate with the judge having a sufficiently large corpus to be included in the main sample. In column (1) we regress an indicator variable equal to one if the judge's corpus includes more than 1.5m tokens (i.e., the judge is included in the sample) on gender, party of appointing President, race (i.e. whether minority), region of birth, cohort of birth. Column (2) additionally controls for region of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Column (3) include circuit fixed effects. The sample is composed of 951 judges who served in circuit courts 1890-2013. Standard errors are robust. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 5:** Randomization Check

| Dependent Variable | Topic | | | | District Judge | | | |
|---|---|---|---|---|---|---|---|---|
| | Criminal | Civil | Economic | Gender-Related | Female | Democrat | Old | Minority |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Gender Slant | -0.001 | 0.001 | 0.001 | -0.000 | -0.003** | -0.001 | 0.003 | -0.003* |
| | (0.001) | (0.001) | (0.001) | (0.000) | (0.002) | (0.002) | (0.002) | (0.002) |
| Democrat | -0.003 | -0.003 | 0.002 | -0.001 | -0.002 | 0.003 | -0.002 | 0.005 |
| | (0.003) | (0.002) | (0.003) | (0.001) | (0.003) | (0.004) | (0.004) | (0.005) |
| Female | 0.007* | -0.001 | -0.006* | 0.001 | 0.000 | -0.006 | 0.004 | -0.006 |
| | (0.004) | (0.003) | (0.004) | (0.001) | (0.004) | (0.005) | (0.005) | (0.005) |
| Observations | 399141 | 399141 | 399141 | 147124 | 148881 | 148881 | 148881 | 148881 |
| Clusters | 139 | 139 | 139 | 118 | 133 | 133 | 133 | 133 |
| Outcome Mean | 0.245 | 0.320 | 0.277 | 0.017 | 0.119 | 0.398 | 0.547 | 0.124 |
| Circuit-Year FE | X | X | X | X | X | X | X | X |
| Controls for Demographics | X | X | X | X | X | X | X | X |

Notes: The table provides suggestive evidence supporting the hypothesis that cases are quasi-randomly assigned to judges within each circuit-year. We regress indicator variables equal to 1 if the case has a certain characteristic on the gender slant of the judge, demographic controls, and circuit-year fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and they refer to the most senior judge on the panel. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the vote level. Column (4) restricts the sample to cases after 1995. Columns (5) to (8) restrict the sample to cases that were matched to a district judge. Standard errors are clustered at the senior judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 6:** Oster Test for Selection on Unobservables

| $\beta$ Uncontrolled | $\beta$ Controlled | $\overline{R_{max}}$ | $\delta$ for $\beta = 0$ |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| Panel (a) Decisions in Gender Related Cases | | | |
| -0.041 | -0.041 | 0.057 | 3.498 |
| | | 0.076 | 1.861 |
| | | 0.191 | 0.489 |
| Panel (b) Disparities in Reversals | | | |
| 0.006 | 0.010 | 0.000 | 43.772 |
| | | 0.000 | 16.585 |
| | | 0.001 | 4.529 |
| Panel (c): Disparities in Opinion Authorship | | | |
| -0.028 | -0.017 | 0.025 | 0.877 |
| | | 0.033 | 0.445 |
| | | 0.082 | 0.113 |
| Panel (d): Disparities in Citations | | | |
| -0.024 | -0.010 | 0.022 | 0.670 |
| | | 0.030 | 0.338 |
| | | 0.074 | 0.085 |

Notes: The table shows the results from applying the method proposed by Oster (2019) to assess bias from unobservables based on selection on observables. Column (1) shows the estimate of the coefficient on gender slant from the uncontrolled specification, in which we drop demographic controls. Column (2) shows the estimate of the coefficient from the baseline specification (equation (2)). Based on the recommendations in Oster (2019), we perform the test for three different levels of $R_{max}$ (the $R^2$ of a regression that included all unobservable charactestics): 1.5, 2, and 5 times the of the controlled regression. For each value of $R_max$, we compute the degree of selection on unobservables as a proportion of the selection on observables that would be needed to obtain a bias-adjusted coefficient equal to 0 ($\delta$). Column (3) shows the value of $R_max$ for which $\delta$ (column (4)) is computed.

**Appendix Table 7:** Slanted Judges and Decisions in Gender-Related Cases, by Dataset

| Dependent Variable | Conservative Vote | |
|---|---|---|
| Dataset | Epstein et al. | Glynn-Sen |
| | (1) | (2) |
| Gender Slant | 0.037*** | 0.040 |
| | (0.014) | (0.024) |
| Democrat | -0.145*** | -0.082 |
| | (0.026) | (0.054) |
| Female | -0.054 | 0.030 |
| | (0.033) | (0.056) |
| Observations | 2335 | 738 |
| Clusters | 112 | 104 |
| Outcome Mean | 0.583 | 0.675 |
| Circuit-Year FE | X | X |
| Additional Controls | X | X |

Notes: The table shows the effect of slanted judges on decisions in gender-related cases, separately by dataset. We regress an indicator variable equal to 1 if the judge voted conservatively in a gender-related case on the judge's gender slant, demographic controls, and circuit-year fixed effects (equation (2)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 8:** Slanted Judges and Decisions in Gender-Related Cases, Additional Robustness Checks

| Dependent Variable | Conservative Vote | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Gender Slant | 0.039*** | 0.032* | 0.039*** | 0.033*** | 0.040*** |
| | (0.015) | (0.017) | (0.012) | (0.014) | (0.013) |
| Democrat | -0.219*** | -0.129*** | -0.157*** | -0.154*** | -0.137*** |
| | (0.058) | (0.032) | (0.026) | (0.026) | (0.027) |
| Female | -0.020 | -0.021 | -0.024 | -0.033 | -0.030 |
| | (0.049) | (0.038) | (0.032) | (0.033) | (0.032) |
| Share Female Clerks | -0.030 | | | | |
| | (0.072) | | | | |
| Log Tokens | | | | -0.067** | |
| | | | | (0.031) | |
| Conservative Score | | | | | 0.059 |
| | | | | | (0.098) |
| Observations | 1946 | 2114 | 3086 | 3086 | 3078 |
| Clusters | 58 | 91 | 113 | 113 | 111 |
| Outcome Mean | 0.619 | 0.626 | 0.606 | 0.606 | 0.606 |
| Circuit-Year FE | X | X | X | X | X |
| Additional Controls | X | X | X | X | X |
| Drops 2nd, 8th, 9th, and D.C. Circuits | | X | | | |
| Weights by Inverse of Slant Variance | | | X | | |

Notes: The table shows the robustness of the effect of slanted judges on decisions in gender-related cases. We regress an indicator variable equal to 1 if the judge voted conservatively in a gender-related case on the judge's gender slant, demographic controls, and circuit-year fixed effects (equation (2)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Column (1) additionally controls for the share of clerks that are female. Column (2) drops the 2nd, 8th, 9th, and D.C. circuits. Column (3) weights the regression by the inverse of the variance of the gender slant measure across bootstrap sample. Column (4) additionally controls for the log number of tokens in a judge's corpus, while column (5) for the judge's share of conservative votes in non gender-related cases from the Epstein et al. (2013) data. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. Data on votes on gender-related cases are from Epstein et al. (2013)'s update of Sunstein's (2006) data and Glynn and Sen (2015). Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 9:** Slanted Judges and Decisions in Non-Gender-Related Cases

| Dependent Variable | Conservative Vote | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Gender Slant | 0.027** | 0.027*** | 0.009 | 0.018* |
| | (0.012) | (0.012) | (0.013) | (0.010) |
| Democrat | -0.070*** | -0.075*** | -0.059*** | -0.070*** |
| | (0.020) | (0.020) | (0.020) | (0.018) |
| Female | -0.060** | -0.046* | -0.075*** | -0.067*** |
| | (0.026) | (0.024) | (0.020) | (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 Controls | X | X | X | X |
| Year of Appointment | | X | | |
| Exposure FE | | | X | |
| No Gender-Related Cases | | | | X |

Notes: The table shows the effect of slanted judges on decisions in non-gender-related cases. We regress an indicator variable equal to 1 if the judge voted conservatively in a gender-related case on the judge's gender slant, demographic controls, and circuit-year fixed effects (equation (2)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Column (2) controls for year of first appointment of the judge to a circuit court. Column (3) includes exposure fixed effects, which are indicator variables equal to 1 if the judge sat on at least one panel in a given circuit over a given 25-year period. In column (4), gender slant is calculated using embeddings trained excluding gender-related cases. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 10:** Slanted Judges and Decisions in Gender-Related and Non-Gender-Related Cases, Differences-in-Differences Specification

| Dependent Variable | Conservative Vote |
|---|---|
| | (1) |
| Gender-Related | 0.0087 |
| | (0.080) |
| Gender Slant * Gender-Related | 0.027** |
| | (0.013) |
| Democrat * Gender-Related | -0.082*** |
| | (0.029) |
| Female * Gender-Related | 0.030 |
| | (0.039) |
| Observations | 8565 |
| Clusters | 113 |
| Outcome Mean | 0.582 |
| Circuit-Year FE | X |
| Judge FE | X |

Notes: The table tests whether slanted judges are more likely to vote conservatively in gender-related rather than in non-gender-related cases. We regress an indicator variable equal to 1 if a judge voted conservatively in a gender-related case on the gender slant of the judge interacted with an indicator variable for the case being gender-related, demographic controls interacted with an indicator variable for the case being gender-related, judge fixed effects, and circuit-year fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 11:** Slanted Judges and Decisions in All Cases, Songer Data

| Dependent Variable | Conservative Vote | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Gender Slant | 0.006 | 0.008 | -0.002 | 0.006 |
| | (0.007) | (0.009) | (0.016) | (0.008) |
| Democrat | -0.026* | -0.019 | -0.031 | -0.025* |
| | (0.014) | (0.013) | (0.023) | (0.014) |
| Female | 0.004 | -0.003 | -0.056 | 0.002 |
| | (0.028) | (0.027) | (0.026) | (0.027) |
| Observations | 7691 | 7691 | 7691 | 7691 |
| Clusters | 117 | 117 | 117 | 117 |
| Outcome Mean | 0.607 | 0.607 | 0.607 | 0.607 |
| Circuit-Year FE | X | X | X | X |
| Additional Controls | | X | X | X |
| Controls for Year of Appointment | | X | | |
| Includes Exposure FEs | | | X | |
| No Gender-Related Cases | | | | X |

Notes: The table shows the effect of slanted judges on decisions in all cases. We regress an indicator variable equal to 1 if the judge voted conservatively in a non-gender-related case on the judge's gender slant, demographic controls, and circuit-year fixed effects (equation (2)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Column (2) controls for year of first appointment of the judge to a circuit court. Column (3) includes exposure fixed effects, which are indicator variables equal to 1 if the judge sat on at least one panel in a given circuit over a given 25-year period. In column (4), gender slant is calculated using embeddings trained excluding gender-related cases. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. Data on votes are from the U.S. Court of Appeal Dataset (Songer, 2008). Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 12:** Slanted Judges and Reversals, Additional Robustness Checks

| Dependent Variable | Votes to Reverse District Decision | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Gender Slant * F District Judge | 0.012*** | 0.015** | 0.012*** | 0.010** | 0.015** | 0.016*** | 0.011*** |
| | (0.004) | (0.007) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) |
| Democrat * F District Judge | -0.010 | -0.016 | -0.010 | -0.010 | -0.023** | -0.012* | -0.008 |
| | (0.006) | (0.016) | (0.007) | (0.006) | (0.009) | (0.007) | (0.006) |
| Female * F District Judge | -0.005 | 0.020 | -0.000 | -0.003 | -0.004 | -0.003 | -0.004 |
| | (0.011) | (0.019) | (0.010) | (0.010) | (0.011) | (0.010) | (0.010) |
| Share Fem. Clerks * F District Judge | | -0.020 | | | | | |
| | | (0.034) | | | | | |
| Conservative Score * F District Judge | | | 0.007 | | | | |
| | | | (0.026) | | | | |
| Log Tokens * F District Judge | | | | | | | 0.010 |
| | | | | | | | (0.011) |
| Observations | 145863 | 83751 | 129677 | 130381 | 96637 | 145862 | 145862 |
| Clusters | 133 | 68 | 106 | 119 | 110 | 133 | 133 |
| Outcome Mean for Male Judges | 0.180 | 0.163 | 0.167 | 0.168 | 0.158 | 0.180 | 0.180 |
| Outcome Mean for Female Judges | 0.157 | 0.151 | 0.157 | 0.157 | 0.135 | 0.157 | 0.157 |
| Circuit-Year FE | X | X | X | X | X | X | |
| Circuit Judge FE | X | X | X | X | X | X | |
| District Judge FE | X | X | X | X | X | X | |
| Additional Controls | X | X | X | X | X | X | |
| District -Year FE | X | | | | | | |
| After 1980 | | | | X | | | |
| Drops 2nd, 8th, 9th, and D.C. Circuits | | | | | X | | |
| Weights by Inverse of Slant Variance | | | | | | X | |

Notes: The table shows the robustness of the differential effect of slanted judges on the reversal probability of cases originally decided by male and female district judges. We regress an indicator variable equal to 1 if the judge voted to reverse the district decision on the gender slant of the judge interacted with an indicator variable for whether the district judge is female, demographic controls interacted with an indicator variable for whether the district judge is female, circuit judge fixed effects, district judge fixed effects and circuit-year fixed effects (equation (3)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and refer to the circuit judge. Column (1) includes district-year fixed effects. Column (2) additionally controls for the share of clerks that are female, and column (3) for the share of conservative votes of the judge in non gender-related cases from the Epstein et al. (2013) data both interacted with an indicator variable for the district judge being female. Column (4) restricts the sample to cases decided after 1980, and column (5) drops cases decided in the 2nd, 8th, 9th, and D.C. circuits. Column (6) weights the regression by the inverse of the variance of the gender slant measure across bootstrap sample, while column (7) controls for the log number of tokens in a judge's corpus interacted with an indicator variable for the district judge being female. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. The sample is restricted to cases for which we were able to determine the identity of the district judge. Standard errors are clustered at the circuit judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 13:** Reversals and Promotion from District to Circuit Courts

| Dependent Variable | Elevated to Circuit Court | |
|---|---|---|
| | (1) | (2) |
| Share of Decisions Reversed on Appeal | -0.348** | |
| | (0.136) | |
| Share of Votes to Reverse on Appeal | | -0.374*** |
| | | (0.117) |
| Female | 0.025 | 0.027 |
| | (0.027) | (0.027) |
| Democrat | -0.001 | 0.003 |
| | (0.018) | (0.018) |
| Observations | 862 | 862 |
| Outcome Mean | 0.058 | 0.058 |
| Circuit FE | X | X |
| Additional Controls | X | X |

Notes: The table shows the relationship between reversals and promotion of judges from district to circuit courts. We regress an indicator variable equal to 1 if the judge was elevated to a circuit court on the share of decisions that were reversed on appeal (column (1)) or the share of circuit judges that voted to reverse the decision (column (2)), demographic controls and circuit fixed effects. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. The sample is restricted to district judges for which we observe at least 50 cases (this requires that the case was appealed, and that we were able to match the circuit court case to the respective district judge). Standard errors are clustered at the district judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 14:** Slanted Judges and Whether the Opinion has Specific Author, or the Opinion is Per Curiam

| Dependent Variable | Has Author | | Per Curiam | | Decided Unanimously | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Gender Slant | 0.002 | 0.003 | -0.000 | -0.001 | 0.001 | 0.001 |
| | (0.005) | (0.004) | (0.003) | (0.003) | (0.006) | (0.006) |
| Democrat | 0.002 | -0.010 | -0.007 | 0.003 | -0.017 | -0.002 |
| | (0.011) | (0.010) | (0.006) | (0.006) | (0.010) | (0.009) |
| Female | -0.001 | 0.013 | 0.005 | -0.004 | 0.020* | 0.009 |
| | (0.011) | (0.010) | (0.005) | (0.004) | (0.010) | (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 |

Notes: The table shows the effect of slanted judges on whether the opinion has a specific author or is per curiam, and on whether the decision was unanimous. We regress an indicator variable equal to 1 if the opinion has a specific author (columns (1) and (2)), if the opinion is per curiam (columns (3) and (4)), or if the panel decided unanimously (columns (5) and (6)) on the gender slant of the most senior judge on the panel, demographic controls, and circuit-year fixed effects. The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and they refer to the most senior judge on the panel. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. In columns (2), (4), and (6) the sample is restricted to cases with at least one female judge on the panel. Standard errors are clustered at the senior judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 15:** Slanted Judges and Opinion Assignment, Additional Robustness Checks

| Dependent Variable | Author is Female | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Gender Slant | -0.018 | -0.018** | -0.012* | -0.020** | -0.017** | -0.028*** | -0.029*** | -0.020** |
| | (0.015) | (0.009) | (0.007) | (0.008) | (0.008) | (0.009) | (0.009) | (0.008) |
| Democrat | -0.079** | -0.002 | 0.001 | -0.001 | -0.001 | 0.001 | 0.005 | -0.006 |
| | (0.038) | (0.017) | (0.014) | (0.013) | (0.014) | (0.021) | (0.015) | (0.015) |
| Female | 0.209*** | 0.134*** | | 0.133*** | 0.134*** | 0.171*** | 0.126*** | 0.140*** |
| | (0.033) | (0.017) | | (0.017) | (0.016) | (0.026) | (0.017) | (0.017) |
| Share Female Clerks | 0.067 | | | | | | | |
| | (0.059) | | | | | | | |
| Conservative Score | | 0.023 | | | | | | |
| | | (0.040) | | | | | | |
| Log Tokens | | | | | | | | -0.048*** |
| | | | | | | | | (0.023) |
| Observations | 16582 | 30614 | 22828 | 36939 | 31998 | 21380 | 32052 | 32052 |
| Clusters | 57 | 111 | 108 | 125 | 124 | 80 | 125 | 125 |
| Outcome Mean | 0.385 | 0.387 | 0.347 | 0.383 | 0.383 | 0.383 | 0.383 | 0.383 |
| Circuit-Year FE | X | X | X | X | X | X | X | X |
| Controls for Demographics | X | X | X | X | X | X | X | X |
| Excludes Female Senior Judges | | | X | | | | X | |
| Includes Dissents/Concurrences | | | | X | | | | |
| After 1980 | | | | | X | | | |
| Drops 2nd, 8th, 9th, and D.C. Circuits | | | | | | X | | |
| Weights by Inverse of Slant Variance | | | | | | | X | |

Notes: The table shows robustness of the effect of slanted judges on the probability of assigning the majority opinion to a female judge. We regress an indicator variable equal to 1 if the authoring judge is female on the gender slant of the most senior judge on the panel, demographic controls, and circuit-year fixed effects (equation (4)). The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and they refer to the most senior judge on the panel. Column (1) additionally controls for the share of clerks that are female, and column (2) for the share of conservative votes of the judge in non gender-related cases from the Epstein et al. (2013) data. Column (3) excludes panels in which the most senior judge is female. Column (4) does not restrict the sample to cases decided unanimously, but includes cases with dissents or concurrences. Column (5) restrict the sample to post-1980 cases, and column (6) drops cases decided in the 2nd, 8th, 9th, and D.C. circuits. Column (7) weights the regression by the inverse of the variance of the gender slant measure across bootstrap sample, while column (8) controls for the log number of tokens in a judge's corpus. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously (with the exception of column (5). Standard errors are clustered at the senior judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 16:** Differential Effect of Slanted Judges on Predicted Case Importance by Author's Gender

| Dependent Variable | Predicted Forward Citations |
|---|---|
| | (1) |
| Gender Slant * Female Author | 0.001 |
| | (0.002) |
| Democrat * Female Author | 0.005 |
| | (0.009) |
| Female * Female Author | -0.010 |
| | (0.009) |
| Observations | 31616 |
| Clusters | 123 |
| Outcome Mean | 1.726 |
| Circuit-Year FE | X |
| Judge FE | X |
| Additional Controls | X |

Notes: The table tests whether slanted judges assign different types of cases to female judges. We regress predicted forward citations on an indicator variable for whether the opinion is assigned to a female judge, the gender slant of the most senior judge on the panel interacted with an indicator variable for whether the opinion is assigned to a female judge, demographic controls for the most senior judge interacted with an indicator variable for whether the opinion is assigned to a female judge, senior judge fixed, and circuit-year fixed effects. The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and they refer to the most senior judge on the panel. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases with a specific author, with at least one female judge on the panel, and that were decided unanimously. Standard errors are clustered at the senior judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 17:** Slanted Judges and Citations, Additional Robustness Checks

| Dependent Variable | Cites at Least One Female Judge | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Gender Slant | 0.004 | -0.009 | -0.010 | -0.006 | -0.009* | -0.008 | -0.006 |
| | (0.009) | (0.006) | (0.006) | (0.008) | (0.005) | (0.006) | (0.005) |
| Democrat | -0.055*** | -0.020 | -0.013 | -0.017 | -0.027*** | -0.012 | -0.007 |
| | (0.016) | (0.013) | (0.012) | (0.012) | (0.010) | (0.011) | (0.010) |
| Female | 0.187*** | 0.125*** | 0.128*** | 0.135*** | -0.084** | 0.138*** | 0.126*** |
| | (0.022) | (0.017) | (0.017) | (0.022) | (0.018) | (0.017) | (0.017) |
| Share Female Clerks | -0.026 | | | | | | |
| | (0.034) | | | | | | |
| Conservative Score | | -0.039 | | | | | |
| | | (0.035) | | | | | |
| | | | | | | | 0.034** |
| | | | | | | | (0.015) |
| Observations | 44472 | 86910 | 83680 | 67497 | 107923 | 107923 | 107923 |
| Clusters | 58 | 112 | 125 | 114 | 139 | 139 | 139 |
| Outcome Mean | 0.526 | 0.452 | 0.487 | 0.413 | 0.383 | 0.383 | 0.383 |
| Circuit-Year FE | X | X | X | X | X | X | X |
| Additional Controls | X | X | X | X | X | X | X |
| After 1980 | | | X | | | | |
| Drops 2nd, 8th, 9th, and D.C. Circuits | | | | X | | | |
| Excludes Self-Citations | | | | | X | | |
| Weights by Inverse of Slant Var. | | | | | | X | X |

Notes: The table shows the robustness of the effect of slanted judges on the probability of citing at least one female judge. We regress a dummy equal to 1 if the majority opinion cites at least one case authored by a woman on the gender slant of the author of the majority opinion, demographic controls, and circuit-year fixed effects (equation (5)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Column (1) additionally controls for the share of clerks that are female, and column (2) for the judge's share of conservative votes in non gender-related cases from the Epstein et al. (2013) data. Column (3) restricts the sample to cases decided after 1980, and column (4) drops cases decided in the 2nd, 8th, 9th, and D.C. circuits. Column (5) defines the outcome excluding self-citations. Column (6) weights the regression by the inverse of the variance of the gender slant measure across bootstrap sample, while column (8) controls for the log number of tokens in a judge's corpus. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases in which the opinion is authored by a specific judge. Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 18:** Slanted Judges and Reversals, Characteristics other than Gender

| 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 | | 0.012** |
| | | (0.005) |
| Democrat * Minority District Judge | | 0.001 |
| | | (0.007) |
| Female * Minority District Judge | | 0.022** |
| | | (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 Controls | X | X |

Notes: The table shows the differential effect of slanted judges on the reversal probability of cases originally decided by district judges with different characteristics. We regress an indicator variable equal to 1 if the judge voted to reverse the district decision on the gender slant of the judge interacted with an indicator variable for whether the district judge was appointed by a Democratic President (column (1)) or is a minority (column (2)), demographic controls interacted with an indicator variable for whether the district judge was appointed by a Democratic President (column (1)) or is a minority (column (2)), circuit judge fixed effects, district judge fixed effects and circuit-year fixed effects (similar to equation (3)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and refer to the circuit judge. Gender slant is the standardized cosine similarity between the gender and the career-family dimensions. The dataset is at the vote level. The sample is restricted to cases for which we were able to determine the identity of the district judge. Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 19:** Slanted Judges and Opinion Assignment, Characteristics other than Gender

| Dependent Variable | Author is Democrat | Author is Minority | Author Age |
|---|---|---|---|
| | (1) | (2) | (3) |
| Gender Slant | -0.007 | 0.005 | 0.041 |
| | (0.006) | (0.008) | (0.175) |
| Democrat | 0.224*** | -0.002 | 0.081 |
| | (0.011) | (0.013) | (0.382) |
| Female | 0.030 | 0.027* | 0.056 |
| | (0.019) | (0.016) | (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 Controls | X | X | X |
| Panel Includes Democrat Judge | X | | |
| Panel Includes Minority Judge | | X | |

Notes: The table shows the the effect of slanted judges on the probability of assigning the majority opinion to judges with different characteristics. We regress an indicator variable equal to 1 if the authoring judge was appointed by a Democratic President (column (1)), if the authoring judge is minority (column (2)) and age of the authoring judge (column (3)) on the gender slant of the most senior judge on the panel, demographic controls, and circuit-year fixed effects (equation (4)). The most senior judge on the panel is customarily in charge of assigning the majority opinion. Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court and they refer to the most senior judge on the panel. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases with a specific author that were decided unanimously. Column (1) additionally restricts the sample to cases with one democratic judge on the panel and column (2) to cases with one minority judge on the panel. Standard errors are clustered at the senior judge level. *** p<0.01, ** p<0.05, * p<0.1.

**Appendix Table 20:** Slanted Judges and Citations, Characteristics other than Gender

| Dependent Variable | Cites Democrat | Cites Minority | Average Age | Average Bias |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Gender Slant | -0.008** | -0.006 | -0.072 | 0.118*** |
| | (0.004) | (0.005) | (0.082) | (0.011) |
| Democrat | 0.008 | -0.021* | -0.071 | 0.011 |
| | (0.007) | (0.011) | (0.105) | (0.016) |
| Female | 0.023** | 0.058*** | 0.026 | -0.022 |
| | (0.009) | (0.011) | (0.173) | (0.019) |
| 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 Controls | X | X | X | X |

Notes: The table shows the the effect of slanted judges on the probability of citing judges with different characteristics. We regress a dummy equal to 1 if the majority opinion cites at least one case authored by a judge nominated by a Democratic President (column (1)), at least one case authored by a minority judge (column (2)), the average age of the authors of cited opinions (column (3)), and the average slant of the authors of the cited opinions (column (4)) on the gender slant of the author of the majority opinion, demographic controls, and circuit-year fixed effects (equation (5)). Demographic controls are gender, party of appointing President, region of birth, cohort of birth, religion, law school attended, and whether the judge had federal experience prior to being appointed to a circuit court. Gender slant is the standardized cosine similarity between the gender and career-family dimensions. The dataset is at the case level. The sample is restricted to cases in which the opinion is authored by a specific judge. Standard errors are clustered at the judge level. *** p<0.01, ** p<0.05, * p<0.1.

## C Robustness to Empirical Bayes Adjustment and Sample Restrictions

This appendix shows that our results are robust to applying shrinkage techniques from the Empirical Bayes literature to our gender slant measure. Because these techniques are often used to deal with noisy estimates, they are especially attractive in our setting as they might help us expand the sample to include judges with smaller corpora.

We implement the EB-adjustment procedure described in **?**. For each judge, we estimate a gender slant parameter as described in Section 2. As a measure of the precision of each estimate, we use the standard deviation of slant in our twenty-five bootstrap samples. We assume that the underlying mean of slant is a function of the biographical characteristics of the judges, and only run the EB procedure only on judges with more than 1 million tokens. Appendix Figure 25 shows that as one would expect, the EB-adjusted estimates tend to shrink toward the mean slant in the sample.

In Appendix Figures 9, 14, 18, and 23, we report the coefficient estimates and 95% confidence intervals from our baseline specification estimated using the gender slant measure we use throughout the paper and the EB-adjusted estimate, for different restrictions on the number of tokens for the corpus of each judge (from 1 million tokens to 2 million tokens). To put the restriction of tokens in perspective, we also report the number of judges that are included in the baseline estimation for each token threshold.

Our main results are always robust to using an EB approach to reduce noise in the estimation. However, the EB-adjustment approach is limitedly helpful in increasing our sample size. More precisley, the results on decisions and opinion assignment are robust to including all judges with more than 1 million tokens. However, the result on reversals is only robust to including all judges with more then 1.3 million tokens, and the one on citations is generally not robust to restricting the sample. Further restricting the sample to higher thresholds generally yields larger point estimates and larger confidence intervals.

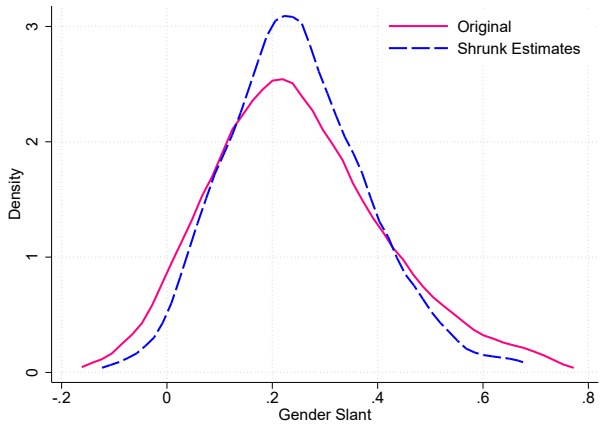
Two points are worth noting. When we decrease the size of the corpus, we are not just introducing noise (which would be accounted for by the EB-adjustment), we are also introducing bias. As we reduce the size of the corpus, we lose predictive power to the point that, for judges with small corpora, the quality of the embeddings is not sufficient to even predict the gender of the very common first names (see Figure **??**). It is perhaps not surprising that moving towards these lower quality embeddings gives us different results.

Second, even lowering the token threshold to 1.25 million tokens already implies a large increase in the number of judges included in the regression. While we present all esti-

mates to readers so that they can come to an independent conclusion, we are confident that our result are not limited to a very specific group of judges.

Still, the figures suggest heterogeneity in the treatment effects, with judges with a larger number of tokens displaying larger effects of gender slant. These judges tend to be born in more recent cohorts (as Appendix Table 4) and thus are more likely to operate in recent years. Also, they tend to have lower slant (as shown in Table **??**). In line with our findings when we estimate heterogeneous treatment effects over time, it is plausible that those who still express stereotyped views of gender in their writings in recent years might display especially discriminatory behavior when dealing with female colleagues. However, a potential concern is that the results are purely driven by the size of a judge's corpus. To check whether this is the case, we estimate specifications that control for the log number of tokens, a proxy for corpus size. With the exception of the effect on citations, our results are robust to this additional check (as shown in Appendix Tables 8, 12, 15, and 17).

**Appendix Figure 25:** Distribution of Gender Slant




Notes: The graph shows the distribution of the gender slant measure for 272 judges with corpora with more than 1,000,000 tokens, for the baseline measure of gender slant and EB-adjusted gender slant.