Social attitudes cannot be predicted from federal court decisions and judge characteristics.

William T. Adler, Anna Coenen, Alexander S. Rich (adviser: Daniel L. Chen)

Datasets

- General Social Survey (GSS)[1]: A long running (1972-) survey on social attitudes and practices in the US.
  - Each row represents one respondent, with demographic information and responses to statements (e.g. do you agree that _____?)
- A database[2] of federal appeals court cases, by issue (e.g. affirmative action, sex discrimination). Each case is decided by a randomly-assigned panel of 3 judges.
  - Each row represents one case, coded for whether the decision was "progressive" or not.
  - Codes for judge characteristics (e.g., party of appointing president).
  - Restricted to court cases on sex discrimination (100 cases, 1995-2004)

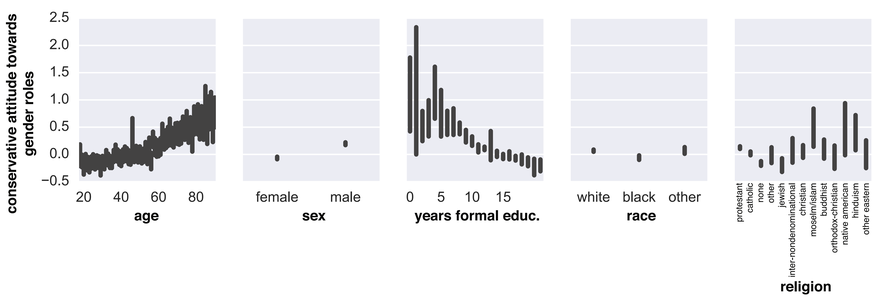
Preprocessing

- GSS
  - Used several demographic predictors: age, sex, years formal educ., race, region, religion
  - For discrete predictors, used one-hot encoding
  - For continuous predictors, set zero mean and unit variance
  - Included race-by-region and race-by-religion interactions, and interactions of all demographic predictors with year in which survey was administered.
- Court cases
  - Grouped cases by circuit and year
  - Chose a temporal "window" of $w \in [1,10]$ years in which to aggregate cases
  - For each year and circuit, calculated:
    - # liberal decisions in the last w years
    - # conservative decisions in the last w years
    - Difference of judge ideology from expectation over the last w years. To calculate this, we took the proportion of judges assigned to each case who were appointed by Democratic presidents, and subtracted the proportion predicted based on the pool of judges in that circuit at that time.
- Integrating the data sources
  - Removed GSS data for years where court data was unavailable
  - Using the year of survey and location of respondent, we merged the three court predictors with the demographic predictors.
  - For each court predictor, added interactions of court-predictor-by-year, and court-predictor-by-demographic for each demographic predictor.

Target variable: Index of conservative attitudes towards gender roles

- Index of conservative attitude towards gender roles
- Based on 7 questions from GSS
  - Principal component analysis
  - Question data projected onto 1st component
  - Explains 36% of variance
- Missing values imputed with yearly average

GSS statement	coefficient of 1st component
Working mothers can bond with children.	-0.53
I favor preferential hiring of women.	-0.02
I favor preferential promotion of women.	0
Women are not suited for politics.	0.30
It is better if men work and women stay home.	0.54
Family life suffers if men work too much.	0.54
Preschoolers suffer if their mother works.	0.56

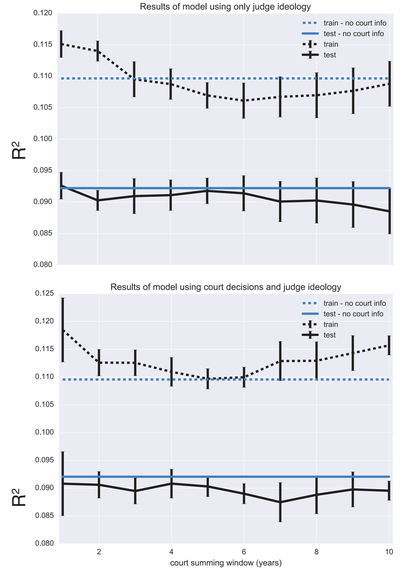


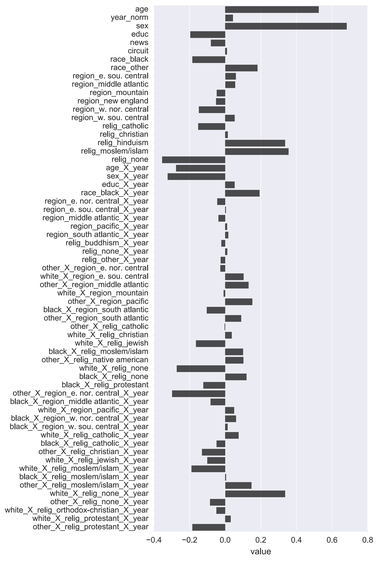
Modeling

- Regularized elastic net linear regression for ease of interpretability
  - Combined L1/L2 regularization with a ratio of .9/.1
  - L1 regularization eased interpretation by yielding a model with few nonzero coefficients.
  - L2 regularization stabilized estimates in the case of correlated predictors.
- Total amount of regularization was determined via 10-fold cross-validation within the training set.

Results

- All results are calculated based on ten runs of the model, using a different randomly selected 10% of the GSS data held out as a test set on each run.
- **Using demographics as the only predictors**
  - We achieved an R^2 of ~.11 on the training set, and ~.092 on the test set.
- **Using demographics and court data as predictors**
  - We tested a model with court decisions and judge ideology
  - We tested a model with only judge ideology (judge assignment is random, so this constitutes an interesting "natural experiment."
  - Across all temporal windows tested (1 to 10 years), **the addition of information from recent circuit court decisions yielded no improved prediction of social attitudes** in our test set.





We also tried:

- Regression with a decision tree
- Regression with a random forest
- Regression with AdaBoost
- Including the GSS respondent's frequency of reading the news as an interaction with court predictors
- Dropping data from respondents for whom no court case had occurred in their circuit within the temporal window.
- In all cases, court-related predictors yielded no improved prediction of social attitudes.

References

1. Smith, Tom W, Peter Marsden, Michael Hout, and Jibum Kim. General Social Surveys, 1972-2014. Chicago: NORC at the University of Chicago.
2. Sunstein, Cass R., David Schkade, Lisa M. Ellman, and Andres Sawicki. Are Judges Political?: An Empirical Analysis of the Federal Judiciary. Washington: Brookings Institution Press, 2006.