Who Votes for Anti-Abortion Bills?

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Introduction

Throughout the year of 2020, and even 2019, the case Roe v. Wade has been brought into question multiple times, and many news sources have warned readers that it has a chance of being overturned while state and federal administrations shift, and new Supreme Court nominees are considered. Abortion, while politicized in the sixties, has become a rather polarizing subject among politicians and parties. The question of a woman's right to abortion has even found itself in speeches of those running for president, and clearly is a subject of importance to the American people and women's health, freedom, and privacy.

While it is easy to assume that those who are anti-abortion dont have the ability to bear a child and are male, while those who are pro-abortion or pro-choice are females and can bear children, this study aims to look beyond such assumptions. Looking beyond sex and into party and ideology, for example, can give more information to voters and pro-abortion activists regarding what a legislative body looks like and the chances of abortion rights being strengthened or weakened.

With this, It is also a mistake to assume that all anti-abortion bills are a monolith in the way that they are argued and the grounds on which they stand on. Frameworks of religion, discussion of the "fetus" or "unborn baby," or "pro-woman," can have an impact on the way anti-abortion bills are interpreted and thus voted for by different people of different parties, standards, morals, perspectives, and experiences. The research question of this study looks to understand what type of legislators vote most often for anti-abortion bills, and to that, what types of anti abortion bills.

The hypothesis for this study states that conservative Republican men are most likely to support anti-abortion bills that adhere to a fetal issue frame while conservative Republican women are most likely to support anti-abortion bills that adhere to a "pro-life, pro-woman" issue frame. We also hypothesize that party will have a stronger effect on support of anti-abortion bills than gender. This study looks to detect if a legislators party, ideology score, majority party control of the state house, and sex have an impact on voting for anti-abortion bills. Analyzing this data set can provide answers to our question by quantifying relationships between certain legislators' voting patterns and anti-abortion bills, and can allow us to be as specific as the type of abortion bill certain legislators vote for. Using linear models and interpreting their coefficients can help us understand the effect of certain characteristics like party and gender on a legislators decision to vote for an anti abortion bill.

Data

The data source for this study is comprised of replication data from the "Anti-abortion Policymaking and Women's Representation" study. The sample contains all legislators serving in the lower chambers of the Arkansas, Arizona, California, Colorado, Florida, Illinois, Louisiana, Maryland, Mississippi, Nevada, New Jersey (1996-2013), New Mexico, North Dakota, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Washington, and Wisconsin from 1997-2012.

There are several important variables in this dataset, most of which are binary, that are useful to this study. This data set provides binary variables that reflect sponsoring at least one bill that restricts or expands

Table 1: Gender and Party Quantities of Population

	D	I	R	WI
0	2699	16	3021	1
1	1062	2	685	0

Table 2: Sex Proportions of Population

Female	Freq
0	0.7663639
1	0.2336361

abortion rights, both of these being anti-abortion and pro-abortion, respectively. This variable will aid the analysis by allowing us to separate those who have vote for anti-abortion bills and those who have not. Uniquely, this dataset also further breaks down abortion bills by their issue frame, all of which can be pro-life and pro-woman, fetal centric, or religious or moral. Having this specificity in anti-abortion bill types gives an interesting nuance to the results of this data and can help us understand what types of anti-abortion bills are more attractive to certain types of legislators. The variables for these sub types of abortion bills are also binary. Variables used to describe abortion bill types or represent having voted for an anti-abortion bill are used as dependent variables in this study.

As for the necessary independent variables, this sample includes the legislators sex as a binary variable, party (R, D, WI, I), IPG8 identifier, and ideology score. The ideology score is a component measure of ideology on a positive scale from 0, being most liberal, to 7.259, being most conservative. This scale is useful to differentiate moderate members of certain parties and examine extremists as well. While there is a difference between, for example, a very conservative Republican and a moderate Republican, this scale will provide another layer of clarity regarding types of legislators that goes beyond party. The IPG8 score connects a legislators sex, party, and ideology with a number for each sex ranging from 1 to 8. A 1 denotes a conservative Repubican woman, 2, a conservative Republican man, 3, a moderate to liberal Republican woman, and 4, a moderate to liberal Republican man. The second half of these numbers represent 5 through 8 as a moderate conservative Democratic man, a moderate to conservative Democratic woman, a liberal Democratic man, and a liberal Democratic woman, respectively. This variable is helpful for combining all variables of interest in this study as well as diving deeper into the types and range of legislators within a gender and party category by identifying one's ideology.

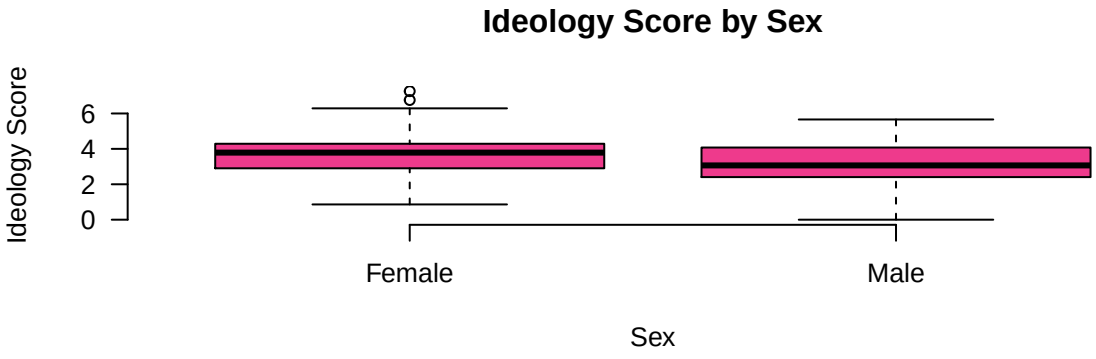
Additional variables that might be helpful in understanding the conditions of legislators voting for or against anti-abortion bills are two binary variables that denote whether Republicans or democrats are the majority party in the house (binary 1 = R, 0 = D), or if neither party has a majority. Finally, another useful variable that explains conditions is an additional binary variable that illustrates whether or not a competitive party environment is at play.

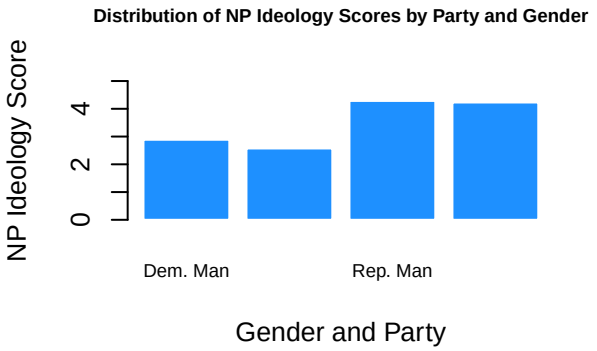
These variables are measured via coding and are based on several other datasets including bill data from the Lexis Nexis State Capital online database, Center for Women in American Politics, and the "Ideological Mapping of American Legislators," Shor, Boris, and Nolan McCarthy written in 2011, among a few other sources.

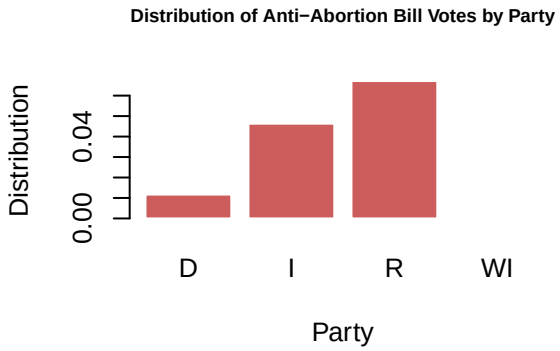
This data set consists of 7,486 total observations and 17 different variables. Regarding the variables of interest in this dataset, there are a total of 2,699 male Democrats, 1,062 female Democrats, 17 male and 2 female Independents, and finally, 3,021 male and 685 female Republicans. About 77% of this dataset consists of men while 23% are female, relaying quite a bit of unbalance. Although it is important to note that this is an observational study and women are a minority regarding elected officials.

Table 3: IPG8 Distribution

Identifier	Percentage
Conservative Republical Woman	2.93
Conservative Republical Man	14.32
Moderate Liberal Republican Woman	6.24
Moderate Liberal Republican Man	6.14
Moderate Liberal Democratic Woman	26.26
Moderate Liberal Republican Man	7.06
Liberal Democratic Man	9.88
Liberal Democratic Woman	7.16

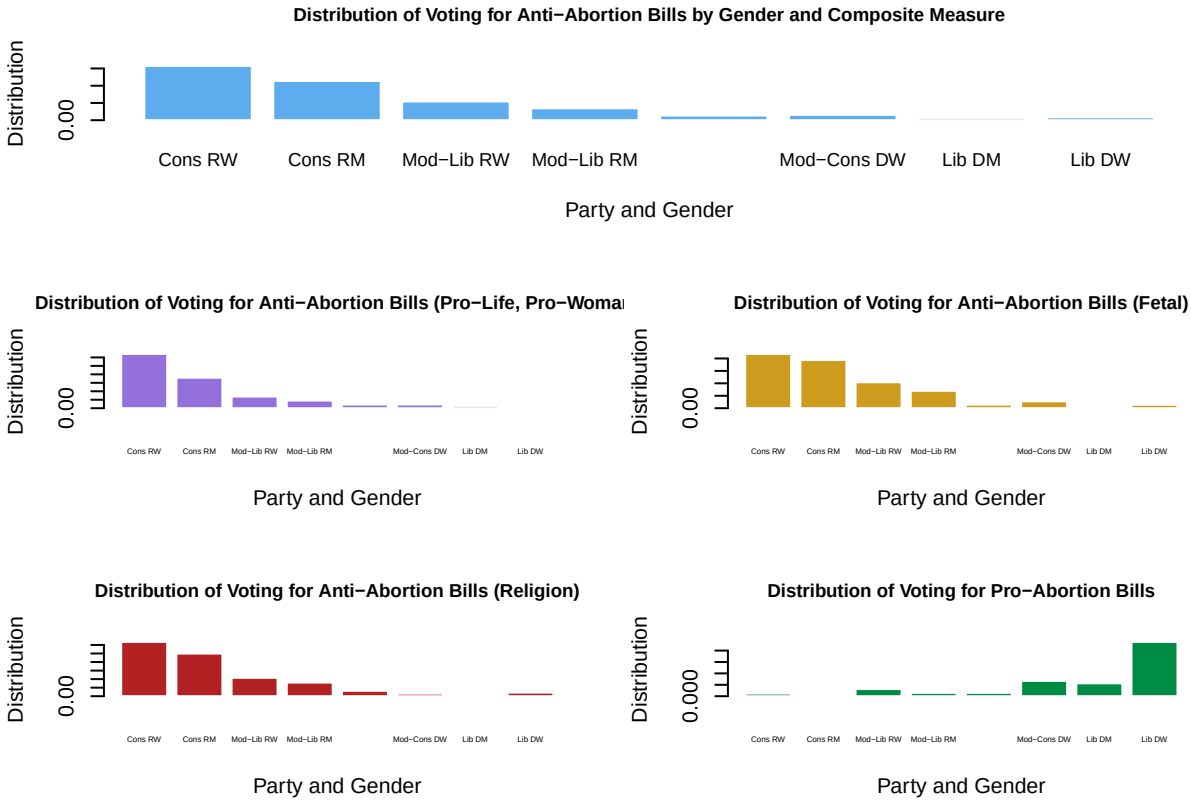






Analysis

Our main relationship of interest is between sponsorship of anti-abortion bills and gender, ideology, and party. We find that conservative Republican women are the most likely to sponsor at least one anti-abortion rights bill of any type (insert Distribution of Voting for Anti-Abortion Bills by Gender and Composite Measure). The group that is least likely to do so is liberal Democratic men, which according to the IPG8 variable, is group 8. Breaking this down to the three different issue frames, anti-abortion bills that adhere to a "pro-life pro-woman" issue frame see the greatest distribution of support from conservative Republican women, followed by a religious or moral issue frame and, finally, a fetal-centric one.



Another factor that has an appreciable effect was the majority party in the state house. Specifically looking at the interaction between the np_score_2 and rep_control variables, given the fact that there is Democratic control of the state house or a 50-50 split, there is a 2.2 percentage point increase in sponsorship of at least one anti-abortion bill for every 1 unit increase in NP score (this translates to a shift toward a more conservative ideology), which is statistically significant at an alpha of 0.05. The reasoning behind this might be that a bill could be of more importance or carry more weight when the opposite party is in control of the state house, potentially causing female legislators or a certain party to voice concerns at a greater rate or be more active and willing to vote against or for a bill. In other words, one party actively voicing concern, engaging in debate, and ultimately voting may galvanize the party not in power.

Table 4: Linear Regression Models for NP Score and Republican Control of State House's Effect on Voting for Anti-Abortion Bills

	Dependent variable:
	Voting for an Anti-Abortion Bill
NP Score	0.026^{***}
	(0.003)
Republican Majority in State House	-0.067^{***}
	(0.016)
NP Score and Republican Majority in State House Interaction	0.022^{***}
	(0.004)
Constant	-0.061^{***}
	(0.010)
Observations	7,486
R^2	0.048
Adjusted R^2	0.047
Residual Std. Error	0.157 (df = 7482)
F Statistic	124.847^{***} (df = 3; 7482)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 5: Linear Regression Models for NP Score and Republican Control of State House's Effect on Voting for Fetal-Centric Anti-Abortion Bills

	Dependent variable:
	Voting for Fetal-Centric Anti-Abortion Bills
NP Score	0.010^{***}
	(0.002)
Republican Majority in State House	-0.025^{***}
	(0.009)
NP Score and Republican Majority in State House Interaction	0.007^{***}
	(0.003)
Constant	-0.022^{***}
	(0.006)
Observations	7,486
R^2	0.017
Adjusted R^2	0.017
Residual Std. Error	0.092 (df = 7482)
F Statistic	42.930^{***} (df = 3; 7482)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 6: Linear Regression Models for NP Score and Republican Control of State House's Effect on Voting for Anti-Abortion Bills with a Religious or Moral Framework

	Dependent variable:
	Voting for a Religious or Moral Anti-Abortion Bill
NP Score	0.011^{***}
	(0.002)
Republican Majority in State House	-0.033^{***}
	(0.010)
NP Score and Republican Majority in State House Interaction	0.010^{***}
	(0.003)
Constant	-0.025^{***}
	(0.006)
Observations	7,486
R^2	0.021
Adjusted R^2	0.021
Residual Std. Error	0.101 (df = 7482)
F Statistic	54.195^{***} (df = 3; 7482)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 7: Linear Regression Models for NP Score and Republican Control of State House's Effect on Voting for Anti-Abortion Bills with a Pro-Woman Pro-Life Framework

	Dependent variable:
	Voting for a Pro-Woman Pro-Life Anti-Abortion Bill
NP Score	0.018^{***}
	(0.002)
Republican Majority in State House	-0.038^{***}
	(0.012)
NP Score and Republican Majority in State House Interaction	0.013^{***}
	(0.003)
Constant	-0.045^{***}
	(0.008)
Observations	7,486
R^2	0.035
Adjusted R^2	0.035
Residual Std. Error	0.123 (df = 7482)
F Statistic	91.330^{***} (df = 3; 7482)
Note:	*p<0.1; **p<0.05; ***p<0.01

To further analyze these bill types and their relationship to certain legislators, we ran linear model regressions to find their strength and magnitude. When looking at the relationship between a female legislator and sponsorship of at least one anti-abortion bill that adheres to a "pro-life pro-woman" issue frame when the environment is competitive, given a female legislator, there is a 0.7 percentage point increase in sponsorship. This value proved not to be statistically significant at an alpha of 0.05. When it comes to anti-abortion bills that have a fetal centric framework, given a female legislator, there is a 0.5 percentage point increase in sponsorship of at least one anti-abortion bill that adheres to a fetal issue frame when the environment is competitive. This value is also prove not to be statistically significant at an alpha of 0.05. Finally, for bills that adhere to a religious or moral issue frame, given a female legislator, there is a 0.2 percentage point increase in sponsorship of at least one anti-abortion bill of this type when the environment is competitive. A summary of this regression showed this value not to be statistically significant at an alpha of 0.05 as well. In a separate model where party and a competitive environment is held constant, given a female legislator, there is a 1.1 point increase in the sponsorship of at least one anti-abortion bill. This value shows not to be significant at a 0.05 alpha. Given a republican male, there is a 5.7 point increase in sponsorship of at least one anti-abortion bill. This also shows to be statistically significant at a 0.05 and 0.01 alpha. Additionally, while examining the interaction between a legislators sex, party, and whether or not the environment is competitive, given a Republican female legislator, there is 3.4 percentage point increase in sponsorship of at least one anti-abortion bill when the environment is competitive. This value also shows not to be statistically significant at an alpha of 0.05. In both models, the only statistically significant values at an alpha of 0.05 were that of the Republican party and women when coupled with the party variable.

Table 8: Linear Regression Models for Sex and Competition's Effect on Voting for Anti-Abortion Bills

	Dependent variable:
	Voting for an Anti-Abortion Bill
Party	0.036
	(0.038)
Female	0.057^{***}
	(0.004)
Competitive	-0.010
	(0.159)
Female	0.011^{**}
	(0.004)
competitive	0.002
	(0.004)
Constant	0.007^{**}
	(0.003)
Observations	7,486
R^2	0.030
Adjusted R^2	0.030
Residual Std. Error	0.159 (df = 7480)
F Statistic	46.854^{***} (df = 5; 7480)
Note:	*p<0.1; **p<0.05; ***p<0.01

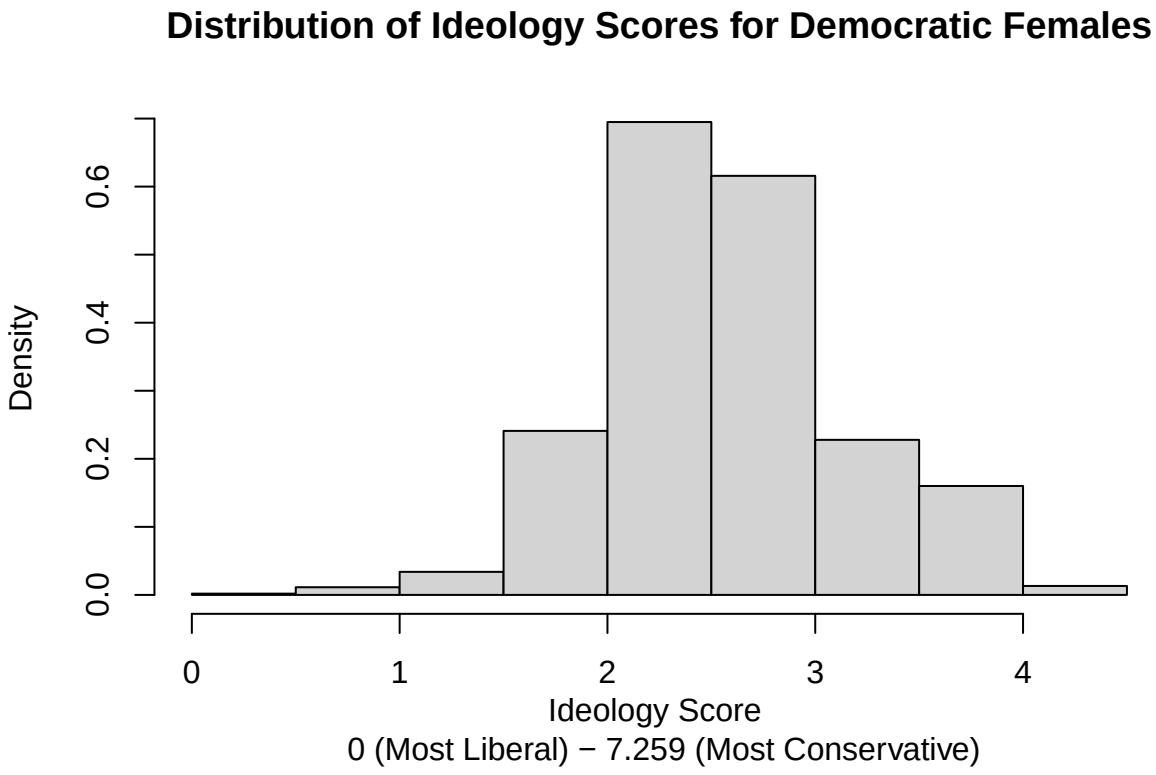
Conclusion

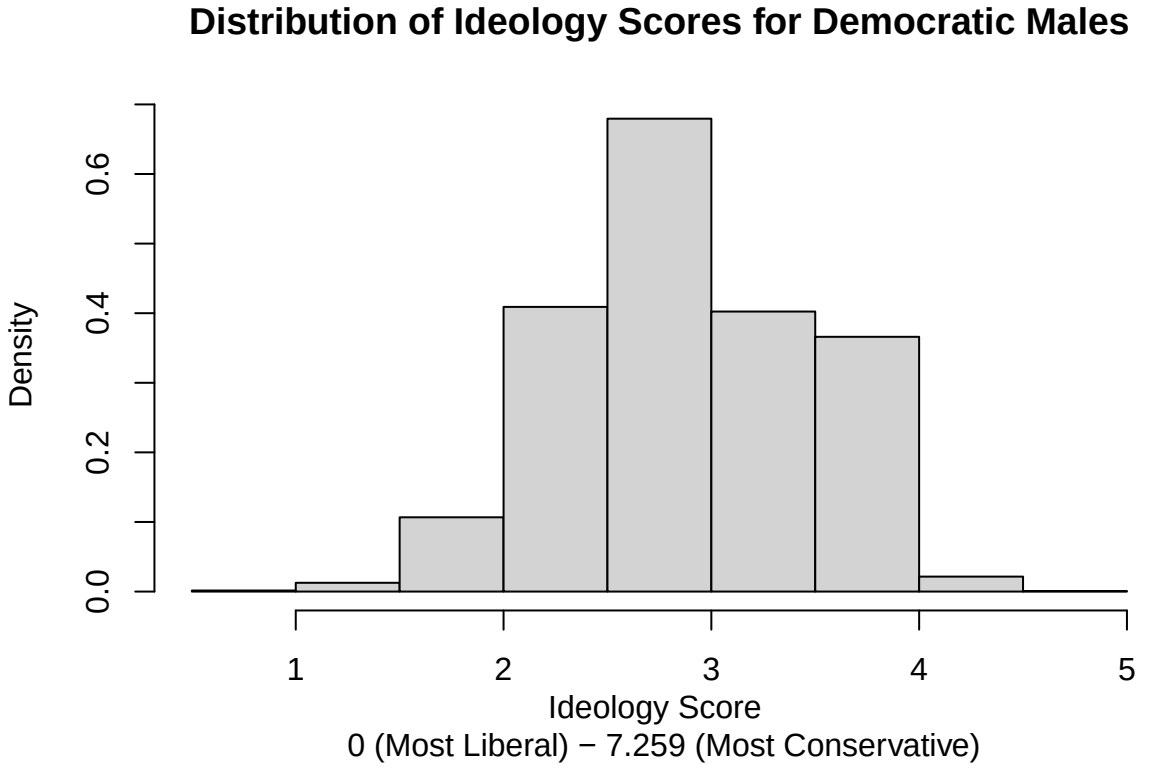
Based on our results, we reject part of our first null hypothesis. While we correctly hypothesized that conservative Republican women are most likely to support anti-abortion bills that adhere to a "pro-life, pro-woman" issue frame, conservative Republican men actually voted for anti abortion bills with a fetal framework at a lower rate than conservative Republican women. Though conservative Republican women make up the greatest percentage of votes for anti-abortion bills across all three issue frames, the intuition in our null hypothesis is partially supported; the differential between conservative Republican women and conservative Republican men is greater for the "pro-life, pro-woman" issue frame (~5.62 percentage points) than for the fetal issue frame (~0.49 percentage points). We fail to reject our second null hypothesis that party has a larger effect on support of anti-abortion bills than gender.

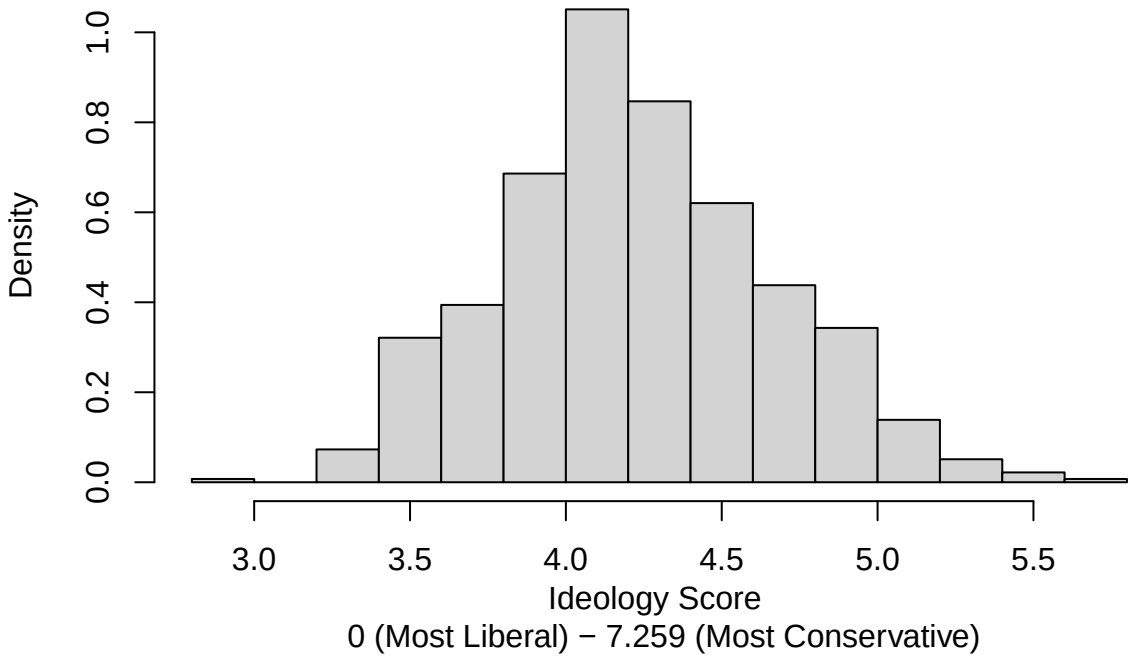
A limitation of our analysis is that there are likely other confounding variables that we cannot take into account with this specific replication dataset. It is important to note that the analysis of this data should not be interpreted as causal. Parties and the individuals in them were not randomized, people often self-select to become engaged with politics, and there are a plethora of confounding variables that could have been at play, as the real world, especially when it comes to politics, is very messy and this data does not come from a randomized experiment. Potential confounders include factors such as party pressure to vote a certain way, social pressures by voting constituents, the popularization of certain movements and efforts such as the Women's March, as well as personal information about legislators that impact how they vote, such as if they have daughters, if they know someone who has had an abortion, and many other things that are very difficult to add to a regression.

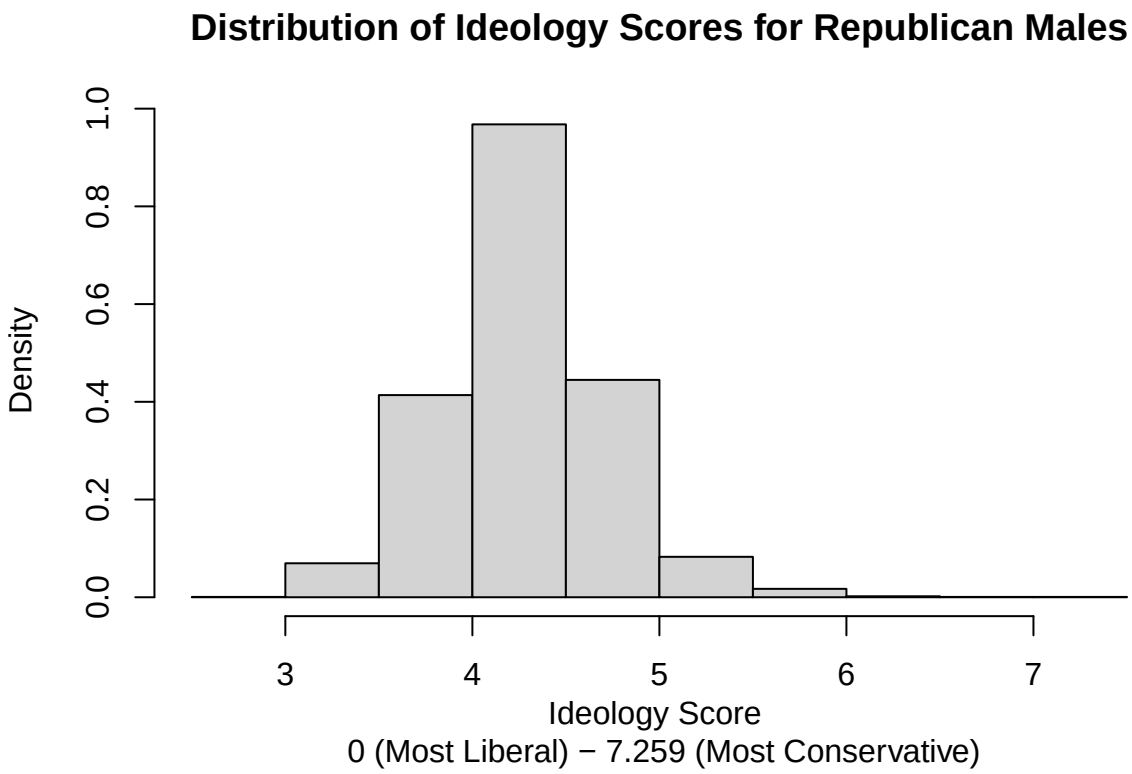
In terms of improvements, one part of the dataframe that could be expanded is the fips variable, which stratifies by state but excludes more than half of the states. Data that stratifies by state nationwide would provide us with a more holistic understanding of anti-abortion policymaking across the country and would ensure that the missing states are not skewing our understanding of the overall party and gender distribution in the United States. Additionally, a second limitation of our analysis that also links to the data is the unbalance in the population regarding party and sex. Men are overwhelmingly represented in this dataset and independents make a very small portion of the observations. While this is partially a product of being observational data and not a randomly selected population, the impact of sexism and gender imbalance in power positions within the United States affected the balance of the population of interest, and therefore the results of this study.

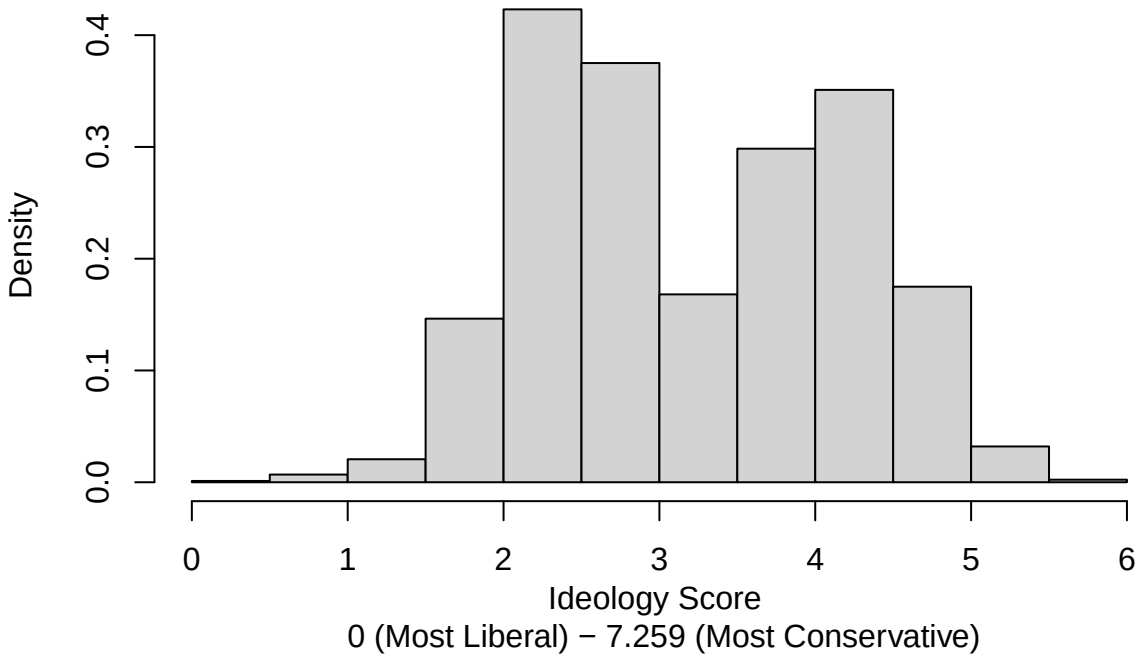
APPENDIX

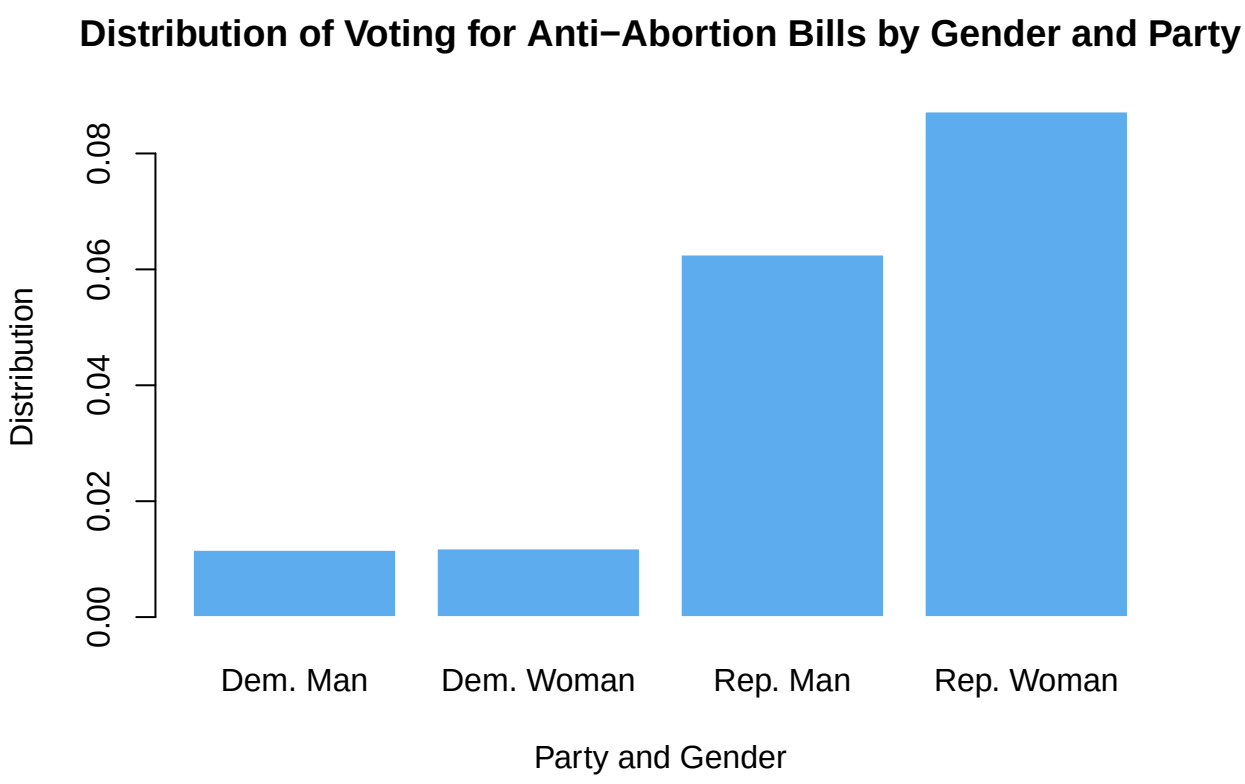

Distribution of Ideology Scores for Democratic Females
Density
0.0
0.2
0.4
0.6
0
1
2
3
4
Ideology Score
0 (Most Liberal) − 7.259 (Most Conservative)


Distribution of Ideology Scores for Democratic Males
Density
0.0
0.2
0.4
0.6
1
2
3
4
5
Ideology Score
0 (Most Liberal) − 7.259 (Most Conservative)


Distribution of Ideology Scores for Republican Females
Density
0.0
0.2
0.4
0.6
0.8
1.0
3.0
3.5
4.0
4.5
5.0
5.5
Ideology Score
0 (Most Liberal) − 7.259 (Most Conservative)


Distribution of Ideology Scores for Republican Males
Density
0.0
0.2
0.4
0.6
0.8
1.0
3
4
5
6
7
Ideology Score
0 (Most Liberal) − 7.259 (Most Conservative)


Distribution of Ideology Scores for Female Legislators 1997−2012
Density
0.0
0.1
0.2
0.3
0.4
0
1
2
3
4
5
6
Ideology Score
0 (Most Liberal) − 7.259 (Most Conservative)




```
##
## Call:
## lm(formula = anti_a$bin_anti_womtot ~ anti_a$np_score_2)
##
## Coefficients:
##       (Intercept)  anti_a$np_score_2
##          -0.06324            0.02475

##
## Call:
## lm(formula = anti_a$bin_anti_relig ~ anti_a$np_score_2)
##
## Coefficients:
##       (Intercept)  anti_a$np_score_2
##          -0.03866            0.01570

##
## Call:
## lm(formula = anti_a$bin_anti_fetus ~ anti_a$np_score_2)
##
## Coefficients:
##       (Intercept)  anti_a$np_score_2
##          -0.03209            0.01282

##
```

```
## Call:
## lm(formula = anti_a$bin_anti_relig ~ anti_a$party)
##
## Coefficients:
##    (Intercept)   anti_a$partyI   anti_a$partyR  anti_a$partyWI
##       0.004485       -0.004485        0.024800       -0.004485

##
## Call:
## lm(formula = anti_a$bin_anti_fetus ~ anti_a$party)
##
## Coefficients:
##    (Intercept)   anti_a$partyI   anti_a$partyR  anti_a$partyWI
##       0.002808       -0.002808        0.020949       -0.002808

##
## Call:
## lm(formula = anti_a$bin_anti_womtot ~ anti_a$party)
##
## Coefficients:
##    (Intercept)   anti_a$partyI   anti_a$partyR  anti_a$partyWI
##       0.006997        0.039299        0.034420       -0.006997

##
## Call:
## lm(formula = bin_anti_all ~ np_score_2 * rep_control, data = anti_a)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.22591 -0.06166 -0.03254 -0.00324  0.99882
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)            -0.060528   0.009668  -6.261 4.05e-10 ***
## np_score_2              0.026256   0.002739   9.585  < 2e-16 ***
## rep_control            -0.066818   0.015823  -4.223 2.44e-05 ***
## np_score_2:rep_control  0.022408   0.004306   5.204 2.00e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1574 on 7482 degrees of freedom
## Multiple R-squared:  0.04767,    Adjusted R-squared:  0.04729
## F-statistic: 124.8 on 3 and 7482 DF,  p-value: < 2.2e-16

##
## Call:
## lm(formula = bin_anti_womtot ~ np_score_2 * rep_control, data = anti_a)
##
## Coefficients:
##            (Intercept)              np_score_2             rep_control
##               -0.04550                 0.01832                -0.03818
## np_score_2:rep_control
##                0.01336
```

```
##
## Call:
## lm(formula = bin_anti_fetus ~ np_score_2 * rep_control, data = anti_a)
##
## Coefficients:
##            (Intercept)              np_score_2             rep_control
##              -0.021697                0.009607                -0.024666
## np_score_2:rep_control
##               0.007295
```

```
##
## Call:
## lm(formula = bin_anti_relig ~ np_score_2 * rep_control, data = anti_a)
##
## Coefficients:
##            (Intercept)              np_score_2             rep_control
##                -0.02456                 0.01117                 -0.03281
## np_score_2:rep_control
##                0.01005
```

```
##
## Call:
## lm(formula = bin_anti_all ~ np_score_2 * competitive, data = anti_a)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.17809 -0.06229 -0.03801 -0.00256  0.99914
##
## Coefficients:
##                          Estimate Std. Error t value Pr(>|t|)
## (Intercept)            -0.094586   0.010352  -9.137   <2e-16 ***
## np_score_2              0.037563   0.002831  13.269   <2e-16 ***
## competitive             0.007510   0.014676   0.512    0.609
## np_score_2:competitive -0.001440   0.004028  -0.357    0.721
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.1578 on 7482 degrees of freedom
## Multiple R-squared:  0.04288,    Adjusted R-squared:  0.04249
## F-statistic: 111.7 on 3 and 7482 DF,  p-value: < 2.2e-16
```

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.