

# 220 Project

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```
library(readr)
library(tidyverse)
```

```
## Warning: package 'tibble' was built under R version 3.5.2
```

```
## Warning: package 'tidyr' was built under R version 3.5.2
```

```
## Warning: package 'dplyr' was built under R version 3.5.2
```

```
library(stargazer)
dat <- read_csv("dat.csv")
```

```
## Warning: Missing column names filled in: 'X1' [1]
```

## Clean the data and make model spec. variables

```
head(dat)
```

```
## # A tibble: 6 x 62
##       X1 year congress party district statenam name  ngirls nboys totchi
##   <int> <chr>    <int> <int>    <int> <chr>    <chr>  <int> <int>  <int>
## 1     1  1997~    105     1         1 HAWAII  ABER~     0     0     0
## 2     2  1997~    105     1         5 NEW YOR  ACKE~     1     2     3
## 3     3  1997~    105     2         4 ALABAMA ADER~     0     0     0
## 4     4  1997~    105     1         1 MAINE   ALLE~     2     0     2
## 5     5  1997~    105     1         1 NEW JER ANDR~     2     0     2
## 6     6  1997~    105     2         7 TEXAS   ARCH~     3     4     7
## # ... with 52 more variables: anygirls <int>, propgirls <dbl>,
## #   rgroup <int>, statabb <chr>, statalph <int>, region <int>,
## #   repub <int>, srvlng <int>, female <int>, white <int>, bday <chr>,
## #   age <int>, demvote <dbl>, medinc <int>, perf <dbl>, perw <dbl>,
## #   perhs <dbl>, percol <dbl>, perur <dbl>, alabort <dbl>, moreserv <dbl>,
## #   moredef <dbl>, morecrimesp <dbl>, protgay <dbl>, dr1per <dbl>,
## #   dr2per <dbl>, dr3per <dbl>, dr4per <dbl>, dr5per <dbl>, aaaw <int>,
## #   rtl <int>, nowtot <int>, now1 <int>, now2 <int>, now3 <int>,
## #   now4 <int>, now5 <int>, now6 <int>, now7 <int>, now8 <int>,
## #   now9 <int>, now10 <int>, now11 <int>, now12 <int>, now13 <int>,
## #   now14 <int>, now15 <int>, now16 <int>, now17 <int>, now18 <int>,
## #   now19 <int>, now20 <int>
```

```
dat$age2 <- dat$age^2
dat$srvlng2 <- dat$srvlng^2
dat$rgroup <- factor(dat$rgroup)
prop.table(table(dat$rgroup))
```

```
##
##           0           1           2           3           4
## 0.01379310 0.59425287 0.29425287 0.04022989 0.05747126
```

```
levels(dat$rgroup) <- c("None", "Protestant", "Catholic", "Other Christian", "Other religion")
dat$rgroup <- factor(dat$rgroup, levels = c("Protestant", "None", "Catholic", "Other Christian", "Other
```

## Model with NOW data

```
datNOW <- dat %>%
  filter(congress == 105)

summary(datNOW)
```

```
##           X1           year           congress           party
## Min.      : 1.0   Length:435   Min.      :105   Min.      :1.000
## 1st Qu.:109.5   Class :character   1st Qu.:105   1st Qu.:1.000
## Median :218.0   Mode  :character   Median :105   Median :2.000
## Mean    :218.0           Mean    :105   Mean    :1.529
## 3rd Qu.:326.5           3rd Qu.:105   3rd Qu.:2.000
## Max.    :435.0           Max.    :105   Max.    :3.000
##
##           district           statenam           name           ngirls
## Min.      : 1.000   Length:435   Length:435   Min.      :0.000
## 1st Qu.: 3.000   Class :character   Class :character   1st Qu.:0.000
## Median : 6.000   Mode  :character   Mode  :character   Median :1.000
## Mean    : 9.979           Mean    :1.274
## 3rd Qu.:13.000           3rd Qu.:2.000
## Max.    :52.000           Max.    :7.000
##                                     NA's      :1
##           nboys           totchi           anygirls           propgirls
## Min.      :0.000   Min.      : 0.000   Min.      :0.0000   Min.      :0.0000
## 1st Qu.:0.000   1st Qu.: 2.000   1st Qu.:0.0000   1st Qu.:0.0000
## Median :1.000   Median : 2.000   Median :1.0000   Median :0.5000
## Mean    :1.219   Mean    : 2.493   Mean    :0.7258   Mean    :0.4481
## 3rd Qu.:2.000   3rd Qu.: 3.000   3rd Qu.:1.0000   3rd Qu.:0.6667
## Max.    :6.000   Max.    :10.000   Max.    :1.0000   Max.    :1.0000
## NA's      :1   NA's      :1   NA's      :1   NA's      :1
##           rgroup           statabb           statalph           region
## Protestant      :259   Length:435   Min.      : 1.0   Min.      :1.000
## None            : 6   Class :character   1st Qu.:11.0   1st Qu.:3.000
## Catholic        :129   Mode  :character   Median :25.0   Median :5.000
## Other Christian: 16           Mean    :25.1   Mean    :5.007
## Other religion : 25           3rd Qu.:38.0   3rd Qu.:7.000
##                                     Max.    :51.0   Max.    :9.000
##
##           repub           srvlng           female           white
## Min.      :0.0000   Min.      : 1.000   Min.      :0.0000   Min.      :0.000
## 1st Qu.:0.0000   1st Qu.: 3.000   1st Qu.:0.0000   1st Qu.:1.000
## Median :1.0000   Median : 5.000   Median :0.0000   Median :1.000
## Mean    :0.5241   Mean    : 8.678   Mean    :0.1103   Mean    :0.869
## 3rd Qu.:1.0000   3rd Qu.:13.000   3rd Qu.:0.0000   3rd Qu.:1.000
## Max.    :1.0000   Max.    :47.000   Max.    :1.0000   Max.    :1.000
##
##           bday           age           demvote           medinc
## Length:435   Min.      :26.00   Min.      :0.2600   Min.      :16683
```

```

## Class :character      1st Qu.:45.00      1st Qu.:0.4200      1st Qu.:29593
## Mode  :character      Median :51.00      Median :0.4800      Median :34018
##                                     Mean  :51.67      Mean  :0.5032      Mean  :35923
##                                     3rd Qu.:58.00      3rd Qu.:0.5700      3rd Qu.:40682
##                                     Max.   :87.00      Max.   :0.9400      Max.   :64199
##
##      perf              perw              perhs              percol
## Min.   :0.4651      Min.   :0.1866      Min.   :0.3360      Min.   :0.0530
## 1st Qu.:0.5129      1st Qu.:0.7563      1st Qu.:0.6985      1st Qu.:0.1435
## Median :0.5212      Median :0.8712      Median :0.7640      Median :0.1840
## Mean   :0.5208      Mean   :0.8043      Mean   :0.7501      Mean   :0.2006
## 3rd Qu.:0.5297      3rd Qu.:0.9347      3rd Qu.:0.8125      3rd Qu.:0.2420
## Max.   :0.5677      Max.   :0.9871      Max.   :0.9230      Max.   :0.5140
##
##      perur              alabort              moreserv              moredef
## Min.   :0.1310      Min.   :0.1870      Min.   :0.0000      Min.   :0.0000
## 1st Qu.:0.5650      1st Qu.:0.3655      1st Qu.:0.3252      1st Qu.:0.1716
## Median :0.7897      Median :0.4237      Median :0.3788      Median :0.2056
## Mean   :0.7515      Mean   :0.4385      Mean   :0.3618      Mean   :0.2141
## 3rd Qu.:0.9768      3rd Qu.:0.5677      3rd Qu.:0.4197      3rd Qu.:0.2524
## Max.   :1.0000      Max.   :0.6129      Max.   :0.5000      Max.   :0.5052
##                                     NA's   :26      NA's   :32      NA's   :26
##      morecrimesp      protgay      dr1per      dr2per
## Min.   :0.2000      Min.   :0.3924      Min.   :0.1200      Min.   :0.0500
## 1st Qu.:0.5441      1st Qu.:0.5957      1st Qu.:0.3300      1st Qu.:0.1900
## Median :0.6093      Median :0.6625      Median :0.4800      Median :0.2700
## Mean   :0.5993      Mean   :0.6398      Mean   :0.4807      Mean   :0.2461
## 3rd Qu.:0.6349      3rd Qu.:0.6786      3rd Qu.:0.5400      3rd Qu.:0.3200
## Max.   :0.8125      Max.   :0.7660      Max.   :0.8000      Max.   :0.5100
## NA's   :26      NA's   :26      NA's   :3      NA's   :3
##      dr3per      dr4per      dr5per      aaaw
## Min.   :0.00000      Min.   :0.02000      Min.   :0.0900      Min.   : 0.00
## 1st Qu.:0.01000      1st Qu.:0.03000      1st Qu.:0.1800      1st Qu.: 0.00
## Median :0.01000      Median :0.06000      Median :0.1900      Median : 38.00
## Mean   :0.01794      Mean   :0.05856      Mean   :0.1943      Mean   : 47.31
## 3rd Qu.:0.02000      3rd Qu.:0.08000      3rd Qu.:0.2100      3rd Qu.:100.00
## Max.   :0.57000      Max.   :0.12000      Max.   :0.3100      Max.   :100.00
## NA's   :3      NA's   :3      NA's   :3
##      rtl      nowtot      now1      now2
## Min.   : 0.00      Min.   : 0.00      Min.   :0.0000      Min.   :0.0000
## 1st Qu.: 6.00      1st Qu.: 5.00      1st Qu.:0.0000      1st Qu.:0.0000
## Median : 84.00      Median : 35.00      Median :0.0000      Median :0.0000
## Mean   : 58.92      Mean   : 41.31      Mean   :0.2854      Mean   :0.2367
## 3rd Qu.:100.00      3rd Qu.: 80.00      3rd Qu.:1.0000      3rd Qu.:0.0000
## Max.   :100.00      Max.   :100.00      Max.   :1.0000      Max.   :1.0000
##                                     NA's   :4      NA's   :4      NA's   :4
##      now3      now4      now5      now6
## Min.   :0.0000      Min.   :0.0000      Min.   :0.0000      Min.   :0.0000
## 1st Qu.:0.0000      1st Qu.:0.0000      1st Qu.:0.0000      1st Qu.:0.0000
## Median :0.0000      Median :0.0000      Median :1.0000      Median :0.0000
## Mean   :0.3016      Mean   :0.3411      Mean   :0.5128      Mean   :0.4617
## 3rd Qu.:1.0000      3rd Qu.:1.0000      3rd Qu.:1.0000      3rd Qu.:1.0000
## Max.   :1.0000      Max.   :1.0000      Max.   :1.0000      Max.   :1.0000
## NA's   :4      NA's   :4      NA's   :4      NA's   :4

```

```
##           now7           now8           now9           now10
## Min.      :0.0000   Min.      :0.0000   Min.      :0.0000   Min.      :0.0000
## 1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:0.0000
## Median :0.0000   Median :0.0000   Median :1.0000   Median :0.0000
## Mean     :0.4617   Mean     :0.4455   Mean     :0.5104   Mean     :0.3341
## 3rd Qu.:1.0000   3rd Qu.:1.0000   3rd Qu.:1.0000   3rd Qu.:1.0000
## Max.      :1.0000   Max.      :1.0000   Max.      :1.0000   Max.      :1.0000
## NA's      :4       NA's      :4       NA's      :4       NA's      :4
##           now11          now12          now13          now14
## Min.      :0.0000   Min.      :0.0000   Min.      :0.0000   Min.      :0.0000
## 1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:0.0000
## Median :0.0000   Median :0.0000   Median :0.0000   Median :0.0000
## Mean     :0.3132   Mean     :0.1816   Mean     :0.4942   Mean     :0.2738
## 3rd Qu.:1.0000   3rd Qu.:0.0000   3rd Qu.:1.0000   3rd Qu.:1.0000
## Max.      :1.0000   Max.      :1.0000   Max.      :1.0000   Max.      :1.0000
## NA's      :4       NA's      :4       NA's      :4       NA's      :4
##           now15          now16          now17          now18
## Min.      :0.0000   Min.      :0.0000   Min.      :0.0000   Min.      :0.0000
## 1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:0.0000
## Median :1.0000   Median :1.0000   Median :0.0000   Median :1.0000
## Mean     :0.5267   Mean     :0.5731   Mean     :0.4548   Mean     :0.5777
## 3rd Qu.:1.0000   3rd Qu.:1.0000   3rd Qu.:1.0000   3rd Qu.:1.0000
## Max.      :1.0000   Max.      :1.0000   Max.      :1.0000   Max.      :1.0000
## NA's      :4       NA's      :4       NA's      :4       NA's      :4
##           now19          now20          age2          srvlng2
## Min.      :0.0000   Min.      :0.0000   Min.      : 676   Min.      : 1
## 1st Qu.:0.0000   1st Qu.:0.0000   1st Qu.:2025   1st Qu.: 9
## Median :0.0000   Median :0.0000   Median :2601   Median : 25
## Mean     :0.4919   Mean     :0.4826   Mean     :2762   Mean     :137
## 3rd Qu.:1.0000   3rd Qu.:1.0000   3rd Qu.:3364   3rd Qu.:169
## Max.      :1.0000   Max.      :1.0000   Max.      :7569   Max.      :2209
## NA's      :4       NA's      :4
```

```
lm.1 <- lm(nowtot ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demvote +
summary(lm.1)
```

```
##
## Call:
## lm(formula = nowtot ~ ngirls + female + white + repub + age +
##      age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +
##      factor(region), data = datNOW)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -51.732  -9.666  -0.456   8.932  62.264
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    17.025463   21.661760   0.786  0.43235
## ngirls          2.299519    1.038119   2.215  0.02732 *
## female         10.838011    2.689784   4.029 6.70e-05 ***
## white           1.860315    3.451382   0.539  0.59018
## repub         -44.902819    2.109021 -21.291 < 2e-16 ***
## age              0.660705    0.799702   0.826  0.40919
## age2           -0.005706    0.007664  -0.745  0.45697
```

```
## srvlng          0.235404    0.300004    0.785    0.43311
## srvlng2         -0.008915    0.010147   -0.879    0.38015
## rgroupNone      7.261925    7.022355    1.034    0.30171
## rgroupCatholic  -3.973955    1.940810   -2.048    0.04126 *
## rgroupOther Christian  0.768547    4.600263    0.167    0.86740
## rgroupOther religion 10.866171    3.751570    2.896    0.00398 **
## demvote         84.158438   10.868851    7.743   8.11e-14 ***
## factor(totchi)1   -3.278460    3.497060   -0.937    0.34907
## factor(totchi)2   -5.523599    2.820904   -1.958    0.05092 .
## factor(totchi)3   -7.369559    3.272709   -2.252    0.02488 *
## factor(totchi)4  -11.011583    3.778913   -2.914    0.00377 **
## factor(totchi)5  -10.273736    4.718991   -2.177    0.03006 *
## factor(totchi)6  -12.453781    8.278559   -1.504    0.13329
## factor(totchi)7  -10.634369    9.583229   -1.110    0.26780
## factor(totchi)8  -28.973542   11.297360   -2.565    0.01069 *
## factor(totchi)9  -14.077336   17.660353   -0.797    0.42586
## factor(totchi)10 -23.044561   17.220364   -1.338    0.18159
## factor(region)2  -11.884261    4.095975   -2.901    0.00392 **
## factor(region)3  -13.046715    4.086030   -3.193    0.00152 **
## factor(region)4  -13.586565    4.701898   -2.890    0.00407 **
## factor(region)5  -11.358358    4.222274   -2.690    0.00744 **
## factor(region)6  -22.280800    4.984814   -4.470   1.02e-05 ***
## factor(region)7  -17.819681    4.523803   -3.939   9.66e-05 ***
## factor(region)8  -15.107737    5.035701   -3.000    0.00287 **
## factor(region)9   -8.186288    4.099879   -1.997    0.04654 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.09 on 398 degrees of freedom
## (5 observations deleted due to missingness)
## Multiple R-squared:  0.8199, Adjusted R-squared:  0.8058
## F-statistic: 58.44 on 31 and 398 DF,  p-value: < 2.2e-16
```

## Model with AAUW 105th Congress

```
datAAUW105 <- dat %>%
  filter (congress == 105)
lm.2 <- lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demvote +
summary(lm.2)

##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##     srvlng + srvlng2 + rgroup + demvote + factor(totchi) + factor(region),
##     data = datAAUW105)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -58.930 -11.232  -0.809   8.842  74.928
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    36.450769   23.400913   1.558 0.120100
```

```
## ngirls                2.384821    1.123848    2.122 0.034448 *
## female                9.193665    2.910140    3.159 0.001702 **
## white                 0.143934    3.675846    0.039 0.968785
## repub                -60.468440    2.280175   -26.519 < 2e-16 ***
## age                   0.854420    0.860012    0.993 0.321065
## age2                 -0.006414    0.008232   -0.779 0.436377
## srvlng               -0.207689    0.323641   -0.642 0.521416
## srvlng2              0.003581    0.010908    0.328 0.742865
## rgroupNone           5.670655    7.605983    0.746 0.456374
## rgroupCatholic      -4.504837    2.091041   -2.154 0.031806 *
## rgroupOther Christian 3.204342    4.983300    0.643 0.520580
## rgroupOther religion  9.682583    4.047467    2.392 0.017204 *
## demvote             62.147959   11.567940    5.372 1.32e-07 ***
## factor(totchi)1     -3.497354    3.738651   -0.935 0.350113
## factor(totchi)2     -4.408748    3.038459   -1.451 0.147565
## factor(totchi)3     -7.397466    3.526217   -2.098 0.036542 *
## factor(totchi)4    -10.871754    4.061698   -2.677 0.007740 **
## factor(totchi)5    -13.035875    5.093865   -2.559 0.010859 *
## factor(totchi)6    -17.865026    8.953045   -1.995 0.046672 *
## factor(totchi)7    -11.856900   10.376659   -1.143 0.253864
## factor(totchi)8    -43.702778   12.225549   -3.575 0.000393 ***
## factor(totchi)9    -15.928693   19.124351   -0.833 0.405395
## factor(totchi)10   -26.659436   18.646598   -1.430 0.153574
## factor(region)2     -9.286950    4.408594   -2.107 0.035775 *
## factor(region)3    -12.576558    4.421819   -2.844 0.004680 **
## factor(region)4     -7.869625    5.086779   -1.547 0.122632
## factor(region)5    -10.056063    4.565364   -2.203 0.028184 *
## factor(region)6    -19.685949    5.393746   -3.650 0.000297 ***
## factor(region)7    -15.546480    4.887668   -3.181 0.001583 **
## factor(region)8    -16.451153    5.450929   -3.018 0.002706 **
## factor(region)9     -8.656789    4.432920   -1.953 0.051532 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.44 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.84, Adjusted R-squared:  0.8276
## F-statistic: 68.06 on 31 and 402 DF, p-value: < 2.2e-16
```

## Model with AAUW 106th Congress

```
datAAUW106 <- dat %>%
  filter(congress == 106)
lm.3 <- lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demvote +
  summary(lm.3)

##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##     srvlng + srvlng2 + rgroup + demvote + factor(totchi) + factor(region),
##     data = datAAUW106)
##
## Residuals:
```

```
##      Min      1Q  Median      3Q      Max
## -68.861 -12.254  -0.263  10.379  77.986
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      9.384230   25.004019    0.375 0.707628
## ngirls           1.687779    1.135634    1.486 0.138008
## female          10.440223    2.881348    3.623 0.000328 ***
## white            2.594087    3.833331    0.677 0.498973
## repub          -55.927128    2.335258   -23.949 < 2e-16 ***
## age              2.034389    0.901753    2.256 0.024604 *
## age2            -0.018305    0.008505   -2.152 0.031961 *
## srvlng          -0.726083    0.379992   -1.911 0.056742 .
## srvlng2          0.024968    0.012860    1.941 0.052895 .
## rgroupNone       5.352528    7.790652    0.687 0.492450
## rgroupCatholic  -2.276623    2.128764   -1.069 0.285504
## rgroupOther Christian  1.690461    4.912183    0.344 0.730923
## rgroupOther religion  11.889799    4.342803    2.738 0.006459 **
## demvote          57.436919   12.017562    4.779 2.47e-06 ***
## factor(totchi)1   -5.469827    3.752974   -1.457 0.145767
## factor(totchi)2   -5.402323    3.150248   -1.715 0.087134 .
## factor(totchi)3   -6.654154    3.649826   -1.823 0.069022 .
## factor(totchi)4  -10.650334    4.337895   -2.455 0.014503 *
## factor(totchi)5  -11.565357    5.110870   -2.263 0.024174 *
## factor(totchi)6  -20.394694   10.255307   -1.989 0.047411 *
## factor(totchi)7  -10.534574   10.152137   -1.038 0.300046
## factor(totchi)8  -29.255772   12.752995   -2.294 0.022302 *
## factor(totchi)10 -13.980355   19.157892   -0.730 0.465971
## factor(region)2   -3.234622    4.482938   -0.722 0.470995
## factor(region)3  -12.105109    4.486371   -2.698 0.007265 **
## factor(region)4   -8.518744    5.213591   -1.634 0.103050
## factor(region)5   -6.371197    4.671525   -1.364 0.173380
## factor(region)6  -13.846102    5.484528   -2.525 0.011967 *
## factor(region)7  -15.202413    4.974428   -3.056 0.002391 **
## factor(region)8  -14.357427    5.641486   -2.545 0.011301 *
## factor(region)9   -5.079990    4.553775   -1.116 0.265277
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.88 on 403 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8144, Adjusted R-squared:  0.8006
## F-statistic: 58.95 on 30 and 403 DF, p-value: < 2.2e-16
```

## Model with AAUW 107th Congress

```
datAAUW107 <- dat %>%
  filter(congress == 107)
lm.4 <- lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demvote +
summary(lm.4)

##
## Call:
```

```
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + factor(totchi) + factor(region),
##      data = dataAAUW107)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -79.797  -7.674   0.000   7.851  79.645
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.745e+01  2.191e+01   1.252 0.211141
## ngirls          2.421e+00  1.092e+00   2.217 0.027194 *
## female          7.564e+00  2.618e+00   2.889 0.004069 **
## white          -2.626e+00  3.150e+00  -0.834 0.404940
## repub          -6.322e+01  2.120e+00 -29.820 < 2e-16 ***
## age             1.298e+00  7.990e-01   1.624 0.105074
## age2           -1.152e-02  7.466e-03  -1.543 0.123695
## srvlng          -1.001e-01  3.457e-01  -0.289 0.772363
## srvlng2         -1.683e-04  1.110e-02  -0.015 0.987905
## rgroupNone       7.027e+00  7.176e+00   0.979 0.328088
## rgroupCatholic  -4.016e+00  1.987e+00  -2.021 0.043926 *
## rgroupOther Christian 1.646e+00  4.491e+00   0.367 0.714184
## rgroupOther religion  1.029e+01  3.785e+00   2.718 0.006859 **
## demvote          5.621e+01  9.092e+00   6.182 1.56e-09 ***
## factor(totchi)1    -1.611e+00  3.378e+00  -0.477 0.633804
## factor(totchi)2    -3.251e+00  2.938e+00  -1.106 0.269226
## factor(totchi)3    -6.314e+00  3.465e+00  -1.822 0.069177 .
## factor(totchi)4    -8.223e+00  4.033e+00  -2.039 0.042116 *
## factor(totchi)5    -9.637e+00  4.836e+00  -1.992 0.046992 *
## factor(totchi)6    -2.121e+01  9.432e+00  -2.249 0.025049 *
## factor(totchi)7    -1.000e+00  1.053e+01  -0.095 0.924357
## factor(totchi)8    -2.079e+01  1.197e+01  -1.737 0.083078 .
## factor(totchi)9    -2.467e+01  1.928e+01  -1.279 0.201489
## factor(totchi)10   -1.559e+01  1.777e+01  -0.877 0.381083
## factor(region)2    -4.331e+00  4.132e+00  -1.048 0.295162
## factor(region)3    -9.906e+00  4.142e+00  -2.392 0.017233 *
## factor(region)4    -3.831e+00  4.891e+00  -0.783 0.433945
## factor(region)5    -1.001e+01  4.330e+00  -2.311 0.021320 *
## factor(region)6    -1.798e+01  5.075e+00  -3.543 0.000442 ***
## factor(region)7    -8.571e+00  4.747e+00  -1.805 0.071752 .
## factor(region)8    -8.901e+00  5.193e+00  -1.714 0.087306 .
## factor(region)9    -5.677e+00  4.203e+00  -1.351 0.177493
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.49 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8649, Adjusted R-squared:  0.8545
## F-statistic: 83.03 on 31 and 402 DF, p-value: < 2.2e-16
```



## Model with AAUW 107th Congress

```

datAAUW108 <- dat %>%
  filter (congress == 108)
lm.5 <- lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demvote + 
summary(lm.5)

##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 + 
##      srvlng + srvlng2 + rgroup + demvote + factor(totchi) + factor(region), 
##      data = datAAUW108)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -76.876  -9.159  -0.796   9.686  78.595
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.869862   24.069084    0.078 0.938116
## ngirls            2.250368    1.145479    1.965 0.050156 .
## female            6.908988    2.730097    2.531 0.011767 *
## white             1.938711    3.210661    0.604 0.546295
## repub            -63.931869    2.436017  -26.244 < 2e-16 ***
## age               2.300460    0.860041    2.675 0.007784 **
## age2             -0.020665    0.007987   -2.587 0.010024 *
## srvlng            -0.138930    0.326509   -0.426 0.670700
## srvlng2           0.004479    0.010171    0.440 0.659920
## rgroupNone        -7.137120    7.499321   -0.952 0.341823
## rgroupCatholic    -5.467578    2.077421   -2.632 0.008819 **
## rgroupOther Christian  3.873688    4.683620    0.827 0.408690
## rgroupOther religion  3.156054    3.959417    0.797 0.425865
## demvote           66.950320   10.888708    6.149 1.89e-09 ***
## factor(totchi)1     -7.450581    3.634887   -2.050 0.041041 *
## factor(totchi)2     -8.891984    3.118601   -2.851 0.004580 **
## factor(totchi)3    -14.094729    3.622081   -3.891 0.000117 ***
## factor(totchi)4    -10.660337    4.324511   -2.465 0.014117 *
## factor(totchi)5    -16.514534    5.315221   -3.107 0.002025 **
## factor(totchi)6    -24.936074    9.858029   -2.530 0.011805 *
## factor(totchi)7     -2.564773   11.019008   -0.233 0.816068
## factor(totchi)8    -25.529296   12.548549   -2.034 0.042566 *
## factor(totchi)9    -42.548910   20.181228   -2.108 0.035623 *
## factor(totchi)10   -14.668008   18.636690   -0.787 0.431719
## factor(totchi)12   -26.442540   19.525851   -1.354 0.176427
## factor(region)2     -8.727198    4.452392   -1.960 0.050676 .
## factor(region)3    -12.943889    4.482627   -2.888 0.004093 **
## factor(region)4    -11.613990    5.206694   -2.231 0.026262 *
## factor(region)5    -13.680979    4.556604   -3.002 0.002846 **
## factor(region)6    -20.166479    5.442755   -3.705 0.000241 ***
## factor(region)7    -11.724006    5.084689   -2.306 0.021636 *
## factor(region)8    -16.528372    5.368109   -3.079 0.002220 **
## factor(region)9    -10.709793    4.449345   -2.407 0.016534 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```
##
## Residual standard error: 17.23 on 400 degrees of freedom
## (2 observations deleted due to missingness)
## Multiple R-squared: 0.8586, Adjusted R-squared: 0.8473
## F-statistic: 75.92 on 32 and 400 DF, p-value: < 2.2e-16
```

## Put all models in a stargazer table

```
stargazer(lm.1, lm.2, lm.3, lm.4, lm.5, title = "Table 2-Impact of Female Children on Legislator Voting")
```

## Table 3 Replication

### NOW all legislators

```
lm_all_NOW<-lm(nowtot~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvote)
lm_all_NOW$coefficients[2]
```

```
##    girls
## 2.299519
```

### NOW Men only

```
lm_men_NOW <- lm(nowtot~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvote)
lm_men_NOW$coefficients[2]
```

```
##    girls
## 2.484019
```

### NOW Women only

```
lm_women_NOW <- lm(nowtot~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvote)
lm_women_NOW$coefficients[2]
```

```
##    girls
## -1.671572
```

### NOW Dems only

```
lm_Dem_NOW <- lm(nowtot~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvote)
lm_Dem_NOW$coefficients[2]
```

```
##    girls
## 2.931423
```

### NOW Repubs only

```
lm_Repub_NOW <- lm(nowtot~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvote)
lm_Repub_NOW$coefficients[2]
```

```
##    girls
## 1.278677
```

Table 1: Replication of Table 2—Impact of Female Children on Legislator Voting on Women's Issues

|                                   | <i>Dependent variable:</i> |                       |                       |                       |                       |
|-----------------------------------|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                   | NOW                        | AAUW                  |                       |                       |                       |
|                                   | 105th<br>(1)               | 105th<br>(2)          | 106th<br>(3)          | 107th<br>(4)          | 108th<br>(5)          |
| Number of female children         | 2.300**<br>(1.038)         | 2.385**<br>(1.124)    | 1.688<br>(1.136)      | 2.421**<br>(1.092)    | 2.250*<br>(1.145)     |
| Female                            | 10.838***<br>(2.690)       | 9.194***<br>(2.910)   | 10.440***<br>(2.881)  | 7.564***<br>(2.618)   | 6.909**<br>(2.730)    |
| White                             | 1.860<br>(3.451)           | 0.144<br>(3.676)      | 2.594<br>(3.833)      | −2.626<br>(3.150)     | 1.939<br>(3.211)      |
| Republican                        | −44.903***<br>(2.109)      | −60.468***<br>(2.280) | −55.927***<br>(2.335) | −63.216***<br>(2.120) | −63.932***<br>(2.436) |
| Age                               | 0.661<br>(0.800)           | 0.854<br>(0.860)      | 2.034**<br>(0.902)    | 1.298<br>(0.799)      | 2.300***<br>(0.860)   |
| Age squared                       | −0.006<br>(0.008)          | −0.006<br>(0.008)     | −0.018**<br>(0.009)   | −0.012<br>(0.007)     | −0.021**<br>(0.008)   |
| Service Length                    | 0.235<br>(0.300)           | −0.208<br>(0.324)     | −0.726*<br>(0.380)    | −0.100<br>(0.346)     | −0.139<br>(0.327)     |
| Service length squared            | −0.009<br>(0.010)          | 0.004<br>(0.011)      | 0.025*<br>(0.013)     | −0.0002<br>(0.011)    | 0.004<br>(0.010)      |
| No religion                       | 7.262<br>(7.022)           | 5.671<br>(7.606)      | 5.353<br>(7.791)      | 7.027<br>(7.176)      | −7.137<br>(7.499)     |
| Catholic                          | −3.974**<br>(1.941)        | −4.505**<br>(2.091)   | −2.277<br>(2.129)     | −4.016**<br>(1.987)   | −5.468***<br>(2.077)  |
| Other Christian                   | 0.769<br>(4.600)           | 3.204<br>(4.983)      | 1.690<br>(4.912)      | 1.646<br>(4.491)      | 3.874<br>(4.684)      |
| Other religion                    | 10.866***<br>(3.752)       | 9.683**<br>(4.047)    | 11.890***<br>(4.343)  | 10.286***<br>(3.785)  | 3.156<br>(3.959)      |
| Democratic vote share in district | 84.158***<br>(10.869)      | 62.148***<br>(11.568) | 57.437***<br>(12.018) | 56.206***<br>(9.092)  | 66.950***<br>(10.889) |
| N                                 | 430                        | 434                   | 434                   | 434                   | 433                   |

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

## AAUW All

```
lm_all_AAUW <- lm(aauw~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvot  
lm_all_AAUW$coefficients[2]
```

```
##   girls  
## 2.384821
```

## AAUW Men only

```
lm_men_AAUW <- lm(aauw~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvot  
lm_men_AAUW$coefficients[2]
```

```
##   girls  
## 2.486103
```

## AAUW Women only

```
lm_women_AAUW <- lm(aauw~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvot  
lm_women_AAUW$coefficients[2]
```

```
##   girls  
## -3.899658
```

## AAUW Dems only

```
lm_Dem_AAUW <- lm(aauw~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvot  
lm_Dem_AAUW$coefficients[2]
```

```
##   girls  
## 2.219818
```

## AAUW Repubs only

```
lm_Repub_AAUW <- lm(aauw~ngirls + female + white + repub + age + age2 + srvlng + srvlng2+ rgroup + demvot  
lm_Repub_AAUW$coefficients[2]
```

```
##   girls  
## 1.83106
```

## Make the table

Table 2: Replication of Table 3—Impact of Female Children on Legislator Voting on Women’s Issues, by Legislator Gender and Party  
*(Each cell presents the coefficient on number of daughters from a different regression)*

| Data Source          | All Legislators           | Men                       | Women                   | Democrats               | Republicans              |
|----------------------|---------------------------|---------------------------|-------------------------|-------------------------|--------------------------|
| NOW, 105th Congress  | 2.3**<br>(1.04)<br>[430]  | 2.48**<br>(1.09)<br>[382] | -1.67<br>(5.64)<br>[48] | 2.93*<br>(1.6)<br>[204] | 1.28*<br>(1.32)<br>[226] |
| AAUW, 105th Congress | 2.38**<br>(1.12)<br>[434] | 2.49**<br>(1.17)<br>[386] | -3.9<br>(6.41)<br>[48]  | 2.22<br>(1.44)<br>[207] | 1.83<br>(1.56)<br>[227]  |

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01