

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 religion"))
```

Model with NOW data

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

lm.1 <- lm(nowtot ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demvote +
  factor(totchi) + factor(region), data = datNOW)
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 = datAAUW107)
##
## 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]

##   ngirls
## 2.299519
```

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

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

Note:

*p<0.1; **p<0.05; ***p<0.01

NOW Men only

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

```
##   ngirls  
## 2.484019
```

NOW Women only

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

```
##   ngirls  
## -1.671572
```

NOW Dems only

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

```
##   ngirls  
## 2.931423
```

NOW Repubs only

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

```
##   ngirls  
## 1.278677
```

AAUW All

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

```
##   ngirls  
## 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]
```

```
##   ngirls  
## 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]
```

```
##    ngirls
## -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]

##    ngirls
## 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]

##    ngirls
## 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	Gender		Party	
		Men	Women	Democrats	Republicans
NOW, 105th Congress	2.3** (1.04) [430]	2.48** (1.09) [382]	-1.67 (5.64) [48]	2.93* (1.6) [204]	1.28* (1.32) [226]
AAUW, 105th Congress	2.38** (1.12) [434]	2.49** (1.17) [386]	-3.9 (6.41) [48]	2.22 (1.44) [207]	1.83 (1.56) [227]

Note:

*p<0.1; **p<0.05; ***p<0.01

Extensions

Ext2: Use whether ever having a female child instead of number of female children.

```
lm_ext2_105 <-lm(aauw ~ anygirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + der
lm_ext2_106 <-lm(aauw ~ anygirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + der
lm_ext2_107 <-lm(aauw ~ anygirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + der
lm_ext2_108 <-lm(aauw ~ anygirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + der

summary(lm_ext2_105)
```

```
##
```

```
## Call:
## lm(formula = aa uw ~ anygirls + female + white + repub + age +
##      age2 + sr vlng + sr vlng2 + rgroup + demvote + factor(totchi) +
##      factor(region), data = datAAUW105)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -59.209 -11.312  -1.182   9.342  77.523
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    37.549028   23.469977   1.600 0.110412
## anygirls        4.400304    2.660851   1.654 0.098965 .
## female         9.174455    2.917601   3.145 0.001787 **
## white          0.034731    3.683122   0.009 0.992481
## repub        -60.542153    2.284562 -26.501 < 2e-16 ***
## age            0.833830    0.862622   0.967 0.334314
## age2          -0.006255    0.008256  -0.758 0.449059
## sr vlng       -0.238510    0.324229  -0.736 0.462390
## sr vlng2       0.004477    0.010954   0.409 0.682952
## rgroupNone      5.491746    7.625841   0.720 0.471851
## rgroupCatholic  -4.612795    2.095053  -2.202 0.028250 *
## rgroupOther Christian  3.085298    4.998079   0.617 0.537389
## rgroupOther religion  9.506190    4.058649   2.342 0.019657 *
## demvote        62.509541   11.593861   5.392 1.19e-07 ***
## factor(totchi)1  -4.763818    4.040148  -1.179 0.239048
## factor(totchi)2  -5.489878    3.527021  -1.557 0.120371
## factor(totchi)3  -7.580083    3.865501  -1.961 0.050574 .
## factor(totchi)4 -10.256540    4.221213  -2.430 0.015546 *
## factor(totchi)5 -11.069347    4.906375  -2.256 0.024600 *
## factor(totchi)6 -15.081256    8.726112  -1.728 0.084704 .
## factor(totchi)7  -7.707428    9.948194  -0.775 0.438939
## factor(totchi)8 -36.941630   11.337860  -3.258 0.001216 **
## factor(totchi)9  -7.455375   18.385058  -0.406 0.685316
## factor(totchi)10 -21.518302   18.319286  -1.175 0.240840
## factor(region)2  -9.790279    4.415070  -2.217 0.027150 *
## factor(region)3 -12.929771    4.425617  -2.922 0.003679 **
## factor(region)4  -7.916308    5.098292  -1.553 0.121273
## factor(region)5 -10.312843    4.571536  -2.256 0.024615 *
## factor(region)6 -20.690342    5.387579  -3.840 0.000143 ***
## factor(region)7 -15.952797    4.893943  -3.260 0.001210 **
## factor(region)8 -16.741231    5.460523  -3.066 0.002317 **
## factor(region)9  -8.929651    4.439701  -2.011 0.044959 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.48 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8393, Adjusted R-squared:  0.8269
## F-statistic: 67.71 on 31 and 402 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext2_106)
```

```
##
## Call:
```

```
## lm(formula = aauw ~ anygirls + female + white + repub + age +
##     age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +
##     factor(region), data = datAAUW106)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -69.54 -12.58  -0.64   10.90   79.86
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    10.673409    25.052756   0.426 0.670308
## anygirls         3.251886     2.564918   1.268 0.205590
## female          10.455956     2.883417   3.626 0.000324 ***
## white            2.538095     3.836739   0.662 0.508654
## repub          -56.007673     2.336650 -23.969 < 2e-16 ***
## age              2.001482     0.902919   2.217 0.027203 *
## age2           -0.018006     0.008514  -2.115 0.035057 *
## srvlng          -0.748428     0.381499  -1.962 0.050473 .
## srvlng2         0.025601     0.012930   1.980 0.048390 *
## rgroupNone       4.782127     7.803521   0.613 0.540343
## rgroupCatholic  -2.322617     2.129971  -1.090 0.276169
## rgroupOther Christian  1.336072     4.932313   0.271 0.786621
## rgroupOther religion  11.705204     4.345250   2.694 0.007360 **
## demvote          57.591245    12.024849   4.789 2.35e-06 ***
## factor(totchi)1    -6.456705     4.007911  -1.611 0.107965
## factor(totchi)2    -6.269217     3.543006  -1.769 0.077573 .
## factor(totchi)3    -6.847022     3.903002  -1.754 0.080140 .
## factor(totchi)4   -10.440232     4.462434  -2.340 0.019793 *
## factor(totchi)5   -10.501780     4.927209  -2.131 0.033662 *
## factor(totchi)6   -17.991105     9.878424  -1.821 0.069310 .
## factor(totchi)7    -9.121052     9.995699  -0.912 0.362052
## factor(totchi)8   -23.349897    11.473461  -2.035 0.042492 *
## factor(totchi)10  -10.515623    18.794209  -0.560 0.576122
## factor(region)2    -3.597226     4.484511  -0.802 0.422942
## factor(region)3   -12.258163     4.488133  -2.731 0.006587 **
## factor(region)4    -8.672191     5.215545  -1.663 0.097138 .
## factor(region)5    -6.602354     4.666945  -1.415 0.157927
## factor(region)6   -14.535016     5.479964  -2.652 0.008308 **
## factor(region)7   -15.270970     4.977710  -3.068 0.002301 **
## factor(region)8   -14.419912     5.645122  -2.554 0.011004 *
## factor(region)9    -5.264974     4.554179  -1.156 0.248335
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.89 on 403 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8142, Adjusted R-squared:  0.8003
## F-statistic: 58.85 on 30 and 403 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext2_107)
```

```
##
## Call:
## lm(formula = aauw ~ anygirls + female + white + repub + age +
##     age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +
```

```

##      factor(region), data = datAAUW107)
##
## Residuals:
##      Min        1Q    Median        3Q        Max
## -79.922  -7.509   0.291   8.194  80.360
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.645e+01  2.202e+01   1.201 0.230428
## anygirls       2.318e+00  2.396e+00   0.967 0.333880
## female        7.503e+00  2.631e+00   2.852 0.004574 **
## white        -2.744e+00  3.165e+00  -0.867 0.386565
## repub        -6.341e+01  2.129e+00 -29.786 < 2e-16 ***
## age           1.353e+00  8.025e-01   1.686 0.092514 .
## age2          -1.203e-02  7.500e-03  -1.604 0.109538
## srvlng        -9.161e-02  3.486e-01  -0.263 0.792813
## srvlng2       -7.088e-04  1.120e-02  -0.063 0.949594
## rgroupNone     6.681e+00  7.221e+00   0.925 0.355446
## rgroupCatholic -3.969e+00  1.997e+00  -1.988 0.047522 *
## rgroupOther Christian 1.136e+00  4.516e+00   0.252 0.801474
## rgroupOther religion 1.027e+01  3.805e+00   2.700 0.007222 **
## demvote       5.633e+01  9.148e+00   6.157 1.8e-09 ***
## factor(totchi)1 -1.634e+00  3.608e+00  -0.453 0.650768
## factor(totchi)2 -2.713e+00  3.296e+00  -0.823 0.411020
## factor(totchi)3 -4.470e+00  3.692e+00  -1.211 0.226700
## factor(totchi)4 -5.786e+00  4.185e+00  -1.383 0.167578
## factor(totchi)5 -6.267e+00  4.726e+00  -1.326 0.185599
## factor(totchi)6 -1.662e+01  9.252e+00  -1.797 0.073139 .
## factor(totchi)7  3.250e+00  1.045e+01   0.311 0.755837
## factor(totchi)8 -9.796e+00  1.067e+01  -0.918 0.359204
## factor(totchi)9 -7.531e+00  1.742e+01  -0.432 0.665654
## factor(totchi)10 -7.813e+00  1.743e+01  -0.448 0.654287
## factor(region)2 -4.682e+00  4.153e+00  -1.127 0.260280
## factor(region)3 -1.004e+01  4.163e+00  -2.412 0.016333 *
## factor(region)4 -4.116e+00  4.919e+00  -0.837 0.403289
## factor(region)5 -1.049e+01  4.344e+00  -2.414 0.016219 *
## factor(region)6 -1.862e+01  5.103e+00  -3.650 0.000297 ***
## factor(region)7 -8.662e+00  4.772e+00  -1.815 0.070267 .
## factor(region)8 -8.871e+00  5.219e+00  -1.700 0.089949 .
## factor(region)9 -6.049e+00  4.220e+00  -1.433 0.152522
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.57 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8636, Adjusted R-squared:  0.8531
## F-statistic: 82.09 on 31 and 402 DF,  p-value: < 2.2e-16
summary(lm_ext2_108)

##
## Call:
## lm(formula = aa uw ~ anygirls + female + white + repub + age +
##      age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +
##      factor(region), data = datAAUW108)

```

```
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -76.503  -9.019  -1.183   9.323  79.170
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.064084   24.180296    0.044 0.964921
## anygirls       1.609477    2.468453    0.652 0.514764
## female         6.907251    2.743247    2.518 0.012195 *
## white          1.794268    3.225859    0.556 0.578376
## repub        -63.919155    2.448355  -26.107 < 2e-16 ***
## age            2.311620    0.863707    2.676 0.007748 **
## age2          -0.020619    0.008021   -2.570 0.010518 *
## srvlng        -0.126942    0.328189   -0.387 0.699112
## srvlng2         0.003803    0.010227    0.372 0.710232
## rgroupNone     -7.286441    7.540912   -0.966 0.334501
## rgroupCatholic -5.356426    2.085453   -2.568 0.010577 *
## rgroupOther Christian  3.421615    4.707051    0.727 0.467705
## rgroupOther religion  3.278195    3.976171    0.824 0.410169
## demvote        67.648344   10.961545    6.171 1.66e-09 ***
## factor(totchi)1  -7.124929    3.910761   -1.822 0.069220 .
## factor(totchi)2  -8.032416    3.453290   -2.326 0.020517 *
## factor(totchi)3 -11.919211    3.858129   -3.089 0.002146 **
## factor(totchi)4  -7.970584    4.493148   -1.774 0.076833 .
## factor(totchi)5 -13.153057    5.255116   -2.503 0.012716 *
## factor(totchi)6 -20.232059    9.665698   -2.093 0.036962 *
## factor(totchi)7   1.867983   10.934646    0.171 0.864443
## factor(totchi)8 -14.754761   11.177221   -1.320 0.187565
## factor(totchi)9 -26.013362   18.185730   -1.430 0.153375
## factor(totchi)10 -7.537433   18.356505   -0.411 0.681576
## factor(totchi)12 -12.471390   18.088184   -0.689 0.490923
## factor(region)2  -8.924136    4.473957   -1.995 0.046755 *
## factor(region)3 -13.064870    4.502206   -2.902 0.003914 **
## factor(region)4 -11.849088    5.229562   -2.266 0.023998 *
## factor(region)5 -13.910114    4.574567   -3.041 0.002515 **
## factor(region)6 -20.511030    5.484060   -3.740 0.000211 ***
## factor(region)7 -11.567733    5.105901   -2.266 0.024012 *
## factor(region)8 -16.453530    5.391322   -3.052 0.002426 **
## factor(region)9 -10.995565    4.465921   -2.462 0.014233 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.3 on 400 degrees of freedom
## (2 observations deleted due to missingness)
## Multiple R-squared:  0.8574, Adjusted R-squared:  0.846
## F-statistic: 75.17 on 32 and 400 DF,  p-value: < 2.2e-16
```

Ext3: Use proportion of female children instead of number of female children

```
lm_ext3_105 <-lm(aaaw ~ propgirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + d
lm_ext3_106 <-lm(aaaw ~ propgirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + d
lm_ext3_107 <-lm(aaaw ~ propgirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + d
```

```
lm_ext3_108 <-lm(aauw ~ propgirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgrou + d
summary(lm_ext3_105)
```

```
##
## Call:
## lm(formula = aauw ~ propgirls + female + white + repub + age +
##      age2 + srvlng + srvlng2 + rgrou + demvote + factor(totchi) +
##      factor(region), data = datAAUW105)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -59.012 -11.293  -0.879   8.620  75.670
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    36.05111    23.36639   1.543 0.123651
## propgirls       6.922091   2.907100   2.381 0.017726 *
## female         9.284116   2.905086   3.196 0.001504 **
## white        -0.034804   3.669570  -0.009 0.992437
## repub        -60.372814   2.278084 -26.502 < 2e-16 ***
## age           0.875635   0.858544   1.020 0.308386
## age2          -0.006622   0.008218  -0.806 0.420862
## srvlng        -0.227124   0.323016  -0.703 0.482379
## srvlng2        0.004442   0.010902   0.407 0.683918
## rgrouNone      5.664916   7.594964   0.746 0.456177
## rgrouCatholic  -4.534956   2.087714  -2.172 0.030423 *
## rgrouOther Christian  3.212906   4.975754   0.646 0.518834
## rgrouOther religion  9.780592   4.041623   2.420 0.015965 *
## demvote       62.280372  11.551213   5.392 1.19e-07 ***
## factor(totchi)1   -6.399997   4.104862  -1.559 0.119753
## factor(totchi)2   -5.563063   3.187666  -1.745 0.081717 .
## factor(totchi)3   -7.322704   3.418575  -2.142 0.032791 *
## factor(totchi)4   -9.618560   3.685328  -2.610 0.009394 **
## factor(totchi)5  -10.467689   4.421513  -2.367 0.018384 *
## factor(totchi)6  -14.709108   8.523394  -1.726 0.085164 .
## factor(totchi)7   -7.022829   9.685051  -0.725 0.468800
## factor(totchi)8  -36.869440  11.090297  -3.324 0.000967 ***
## factor(totchi)9   -7.468789  18.229977  -0.410 0.682246
## factor(totchi)10 -19.803542  18.069159  -1.096 0.273741
## factor(region)2   -9.293134   4.401431  -2.111 0.035356 *
## factor(region)3  -12.437223   4.417392  -2.816 0.005110 **
## factor(region)4   -7.751305   5.080593  -1.526 0.127879
## factor(region)5  -10.098594   4.554335  -2.217 0.027157 *
## factor(region)6  -19.998742   5.374364  -3.721 0.000227 ***
## factor(region)7  -15.554670   4.879641  -3.188 0.001546 **
## factor(region)8  -16.385100   5.443442  -3.010 0.002777 **
## factor(region)9   -8.674813   4.425681  -1.960 0.050674 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.42 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8404, Adjusted R-squared:  0.8281
```

```
## F-statistic: 68.29 on 31 and 402 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext3_106)
```

```
##
```

```
## Call:
```

```
## lm(formula = aa uw ~ propgirls + female + white + repub + age +  
##      age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +  
##      factor(region), data = datAAUW106)
```

```
##
```

```
## Residuals:
```

```
##      Min       1Q   Median       3Q      Max  
## -70.006 -12.314  -0.434   10.545   78.479
```

```
##
```

```
## Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
## (Intercept)	9.290829	24.985299	0.372	0.710199
## propgirls	4.764178	2.846832	1.674	0.095005 .
## female	10.563133	2.879160	3.669	0.000276 ***
## white	2.389159	3.833077	0.623	0.533440
## repub	-55.878672	2.334121	-23.940	< 2e-16 ***
## age	2.055534	0.901138	2.281	0.023067 *
## age2	-0.018508	0.008499	-2.178	0.030012 *
## srvlng	-0.747095	0.380267	-1.965	0.050140 .
## srvlng2	0.025837	0.012886	2.005	0.045634 *
## rgroupNone	5.135400	7.784608	0.660	0.509832
## rgroupCatholic	-2.249803	2.127466	-1.058	0.290915
## rgroupOther Christian	1.509767	4.911826	0.307	0.758718
## rgroupOther religion	11.954533	4.340327	2.754	0.006148 **
## demvote	57.198580	12.012502	4.762	2.68e-06 ***
## factor(totchi)1	-7.365778	4.071013	-1.809	0.071146 .
## factor(totchi)2	-6.113500	3.264681	-1.873	0.061845 .
## factor(totchi)3	-6.534557	3.519680	-1.857	0.064101 .
## factor(totchi)4	-9.704155	3.968024	-2.446	0.014889 *
## factor(totchi)5	-9.784800	4.505532	-2.172	0.030459 *
## factor(totchi)6	-17.401136	9.674915	-1.799	0.072833 .
## factor(totchi)7	-7.817877	9.704737	-0.806	0.420964
## factor(totchi)8	-23.469889	11.350389	-2.068	0.039300 *
## factor(totchi)10	-9.029411	18.602946	-0.485	0.627674
## factor(region)2	-3.273628	4.478393	-0.731	0.465215
## factor(region)3	-12.121191	4.482540	-2.704	0.007139 **
## factor(region)4	-8.648520	5.207873	-1.661	0.097559 .
## factor(region)5	-6.500434	4.659959	-1.395	0.163798
## factor(region)6	-14.240824	5.470388	-2.603	0.009575 **
## factor(region)7	-15.180259	4.970879	-3.054	0.002409 **
## factor(region)8	-14.387753	5.636266	-2.553	0.011057 *
## factor(region)9	-5.147879	4.548543	-1.132	0.258407

```
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
```

```
## Residual standard error: 17.87 on 403 degrees of freedom
```

```
## (1 observation deleted due to missingness)
```

```
## Multiple R-squared:  0.8147, Adjusted R-squared:  0.8009
```

```
## F-statistic: 59.06 on 30 and 403 DF,  p-value: < 2.2e-16
```



```
summary(lm_ext3_107)
```

```
##
## Call:
## lm(formula = aa uw ~ propgirls + female + white + repub + age +
##      age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +
##      factor(region), data = datAAUW107)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -79.914  -7.551  -0.304   7.990  79.917
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.639e+01  2.195e+01   1.202 0.230043
## propgirls       4.728e+00  2.645e+00   1.788 0.074553 .
## female         7.643e+00  2.625e+00   2.911 0.003803 **
## white          -2.737e+00  3.156e+00  -0.867 0.386449
## repub          -6.325e+01  2.124e+00 -29.774 < 2e-16 ***
## age             1.354e+00  8.003e-01   1.692 0.091446 .
## age2           -1.204e-02  7.479e-03  -1.609 0.108319
## srvlng          -1.142e-01  3.473e-01  -0.329 0.742586
## srvlng2         2.288e-04  1.116e-02   0.020 0.983655
## rgroupNone      6.803e+00  7.193e+00   0.946 0.344802
## rgroupCatholic  -3.937e+00  1.991e+00  -1.977 0.048687 *
## rgroupOther Christian 1.338e+00  4.498e+00   0.297 0.766241
## rgroupOther religion  1.033e+01  3.793e+00   2.724 0.006735 **
## demvote         5.613e+01  9.116e+00   6.158 1.79e-09 ***
## factor(totchi)1    -2.966e+00  3.648e+00  -0.813 0.416682
## factor(totchi)2    -3.231e+00  3.033e+00  -1.065 0.287437
## factor(totchi)3    -4.958e+00  3.313e+00  -1.497 0.135293
## factor(totchi)4    -5.844e+00  3.672e+00  -1.592 0.112275
## factor(totchi)5    -6.224e+00  4.317e+00  -1.442 0.150159
## factor(totchi)6    -1.654e+01  9.015e+00  -1.835 0.067278 .
## factor(totchi)7     3.742e+00  1.017e+01   0.368 0.713109
## factor(totchi)8    -1.088e+01  1.053e+01  -1.033 0.302177
## factor(totchi)9    -9.525e+00  1.737e+01  -0.548 0.583746
## factor(totchi)10   -7.512e+00  1.725e+01  -0.436 0.663394
## factor(region)2    -4.486e+00  4.140e+00  -1.084 0.279132
## factor(region)3    -1.001e+01  4.151e+00  -2.412 0.016302 *
## factor(region)4    -4.101e+00  4.902e+00  -0.836 0.403375
## factor(region)5    -1.027e+01  4.335e+00  -2.370 0.018265 *
## factor(region)6    -1.855e+01  5.083e+00  -3.650 0.000297 ***
## factor(region)7    -8.611e+00  4.757e+00  -1.810 0.071050 .
## factor(region)8    -8.906e+00  5.204e+00  -1.711 0.087805 .
## factor(region)9    -5.912e+00  4.209e+00  -1.405 0.160854
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.53 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8643, Adjusted R-squared:  0.8539
## F-statistic: 82.63 on 31 and 402 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext3_108)
```

```
##
## Call:
## lm(formula = aa uw ~ propgirls + female + white + repub + age +
##      age2 + srvlng + srvlng2 + rgroup + demvote + factor(totchi) +
##      factor(region), data = datAAUW108)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -77.455  -8.690  -0.886   9.540  78.899
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.675180   24.120813    0.069  0.944666
## propgirls         4.109954    2.749084    1.495  0.135696
## female           6.995088    2.737251    2.556  0.010972 *
## white            1.759899    3.217633    0.547  0.584715
## repub          -63.935910    2.441246  -26.190 < 2e-16 ***
## age              2.306545    0.861762    2.677  0.007744 **
## age2            -0.020652    0.008003   -2.581  0.010221 *
## srvlng          -0.136259    0.327249   -0.416  0.677357
## srvlng2          0.004373    0.010199    0.429  0.668326
## rgroupNone      -7.273672    7.515937   -0.968  0.333746
## rgroupCatholic  -5.412070    2.081159   -2.601  0.009653 **
## rgroupOther Christian  3.617688    4.690680    0.771  0.441014
## rgroupOther religion  3.238529    3.966883    0.816  0.414762
## demvote         67.071330   10.920299    6.142  1.97e-09 ***
## factor(totchi)1   -8.673372    3.967865   -2.186  0.029402 *
## factor(totchi)2   -8.745550    3.205632   -2.728  0.006649 **
## factor(totchi)3  -12.675913    3.454610   -3.669  0.000276 ***
## factor(totchi)4   -8.349681    3.966406   -2.105  0.035906 *
## factor(totchi)5  -13.392258    4.854836   -2.759  0.006072 **
## factor(totchi)6  -20.485613    9.426620   -2.173  0.030354 *
## factor(totchi)7    1.882415   10.646517    0.177  0.859747
## factor(totchi)8  -16.121993   11.039820   -1.460  0.144979
## factor(totchi)9  -28.143529   18.142754   -1.551  0.121638
## factor(totchi)10  -7.400961   18.147275   -0.408  0.683618
## factor(totchi)12 -13.131389   17.942333   -0.732  0.464679
## factor(region)2   -8.804988    4.461128   -1.974  0.049102 *
## factor(region)3  -12.972630    4.491613   -2.888  0.004085 **
## factor(region)4  -11.791214    5.216562   -2.260  0.024337 *
## factor(region)5  -13.812633    4.564635   -3.026  0.002638 **
## factor(region)6  -20.516078    5.457237   -3.759  0.000196 ***
## factor(region)7  -11.577749    5.094032   -2.273  0.023568 *
## factor(region)8  -16.515329    5.379095   -3.070  0.002284 **
## factor(region)9  -10.848167    4.457019   -2.434  0.015372 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.26 on 400 degrees of freedom
## (2 observations deleted due to missingness)
## Multiple R-squared:  0.8581, Adjusted R-squared:  0.8467
## F-statistic: 75.56 on 32 and 400 DF,  p-value: < 2.2e-16
```

Ext4: Add an interaction term between “girls” and female representatives.

```
lm_ext4_105 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
lm_ext4_106 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
lm_ext4_107 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
lm_ext4_108 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
```

```
summary(lm_ext4_105)
```

```
##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * female + factor(totchi) +
##      factor(region), data = datAAUW105)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -58.990 -11.162  -0.807   8.618  74.670
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    36.699901   23.429289   1.566 0.118041
## ngirls          2.529842    1.165413   2.171 0.030535 *
## female        10.924008    4.656734   2.346 0.019470 *
## white           0.328220    3.699676   0.089 0.929352
## repub        -60.433737    2.283534 -26.465 < 2e-16 ***
## age             0.832684    0.862049   0.966 0.334659
## age2          -0.006205    0.008252  -0.752 0.452544
## srvlng         -0.199895    0.324366  -0.616 0.538070
## srvlng2         0.003349    0.010929   0.306 0.759449
## rgroupNone      5.509780    7.620798   0.723 0.470106
## rgroupCatholic -4.549289    2.095135  -2.171 0.030490 *
## rgroupOther Christian  3.132032    4.990409   0.628 0.530616
## rgroupOther religion  9.676909    4.051382   2.389 0.017377 *
## demvote        62.512149   11.604303   5.387 1.22e-07 ***
## factor(totchi)1  -3.594471    3.747803  -0.959 0.338093
## factor(totchi)2  -4.467591    3.043894  -1.468 0.142964
## factor(totchi)3  -7.426436    3.530137  -2.104 0.036025 *
## factor(totchi)4 -10.880115    4.065648  -2.676 0.007754 **
## factor(totchi)5 -13.041628    5.098785  -2.558 0.010901 *
## factor(totchi)6 -18.129905    8.978909  -2.019 0.044135 *
## factor(totchi)7 -12.145478   10.404311  -1.167 0.243763
## factor(totchi)8 -44.179230   12.278146  -3.598 0.000360 ***
## factor(totchi)9 -16.554127   19.187760  -0.863 0.388794
## factor(totchi)10 -27.201024   18.699165  -1.455 0.146544
## factor(region)2  -9.560090    4.449951  -2.148 0.032284 *
## factor(region)3 -12.816095    4.454562  -2.877 0.004228 **
## factor(region)4  -8.026999    5.102389  -1.573 0.116465
## factor(region)5 -10.237167    4.585555  -2.232 0.026135 *
## factor(region)6 -19.886747    5.415378  -3.672 0.000273 ***
## factor(region)7 -15.831847    4.928930  -3.212 0.001424 **
## factor(region)8 -16.785524    5.501162  -3.051 0.002430 **
## factor(region)9  -8.879320    4.461723  -1.990 0.047257 *
## ngirls:female   -1.272127    2.671063  -0.476 0.634147
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.46 on 401 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8401, Adjusted R-squared:  0.8273
## F-statistic: 65.81 on 32 and 401 DF,  p-value: < 2.2e-16
```

summary(lm_ext4_106)

```
##
## Call:
## lm(formula = aaaw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * female + factor(totchi) +
##      factor(region), data = dataAAUW106)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -69.074 -12.733  -0.815   10.726   79.104
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      8.779896   24.946429    0.352  0.72506
## ngirls           1.122507    1.179843    0.951  0.34197
## female           4.950257    4.301339    1.151  0.25047
## white            1.993668    3.840100    0.519  0.60393
## repub          -55.996684    2.330000  -24.033 < 2e-16 ***
## age              2.100313    0.900406    2.333  0.02016 *
## age2            -0.019021    0.008494   -2.239  0.02569 *
## srvlng          -0.740840    0.379177   -1.954  0.05142 .
## srvlng2           0.025624    0.012835    1.996  0.04656 *
## rgroupNone        6.552323    7.803332    0.840  0.40159
## rgroupCatholic   -2.136034    2.125230   -1.005  0.31546
## rgroupOther Christian  1.732014    4.900440    0.353  0.72394
## rgroupOther religion 12.283763    4.338449    2.831  0.00487 **
## demvote          56.568548   11.999367    4.714 3.35e-06 ***
## factor(totchi)1    -5.012036    3.753453   -1.335  0.18253
## factor(totchi)2    -5.206636    3.144748   -1.656  0.09857 .
## factor(totchi)3    -6.451708    3.642968   -1.771  0.07732 .
## factor(totchi)4   -10.542649    4.327928   -2.436  0.01529 *
## factor(totchi)5   -11.513498    5.098680   -2.258  0.02447 *
## factor(totchi)6   -18.878295   10.268775   -1.838  0.06674 .
## factor(totchi)7    -9.292952   10.153568   -0.915  0.36061
## factor(totchi)8   -26.901782   12.796124   -2.102  0.03615 *
## factor(totchi)10  -11.525014   19.165368   -0.601  0.54795
## factor(region)2    -2.507375    4.492210   -0.558  0.57705
## factor(region)3   -11.316862    4.499111   -2.515  0.01228 *
## factor(region)4    -8.105897    5.206628   -1.557  0.12029
## factor(region)5    -5.927807    4.667461   -1.270  0.20481
## factor(region)6   -13.197309    5.484403   -2.406  0.01656 *
## factor(region)7   -14.310179    4.989651   -2.868  0.00435 **
## factor(region)8   -13.186605    5.669154   -2.326  0.02051 *
## factor(region)9    -4.625321    4.550557   -1.016  0.31004
## ngirls:female       4.369328    2.546701    1.716  0.08699 .
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.84 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8158, Adjusted R-squared:  0.8016
## F-statistic: 57.42 on 31 and 402 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext4_107)
```

```
##
## Call:
## lm(formula = aaaw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * female + factor(totchi) +
##      factor(region), data = datAAUW107)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -79.593  -7.507   -0.097    8.102   79.852
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      2.574e+01  2.198e+01   1.171 0.242257
## ngirls            2.110e+00  1.133e+00   1.862 0.063394 .
## female            4.886e+00  3.700e+00   1.320 0.187469
## white            -2.975e+00  3.168e+00  -0.939 0.348353
## repub            -6.317e+01  2.120e+00 -29.791 < 2e-16 ***
## age               1.394e+00  8.044e-01   1.732 0.083973 .
## age2             -1.245e-02  7.522e-03  -1.656 0.098547 .
## srvlng            -1.332e-01  3.472e-01  -0.384 0.701373
## srvlng2           9.475e-04  1.115e-02   0.085 0.932311
## rgroupNone        7.643e+00  7.201e+00   1.061 0.289173
## rgroupCatholic    -3.856e+00  1.993e+00  -1.935 0.053724 .
## rgroupOther Christian 1.819e+00  4.494e+00   0.405 0.685925
## rgroupOther religion 1.060e+01  3.797e+00   2.791 0.005511 **
## demvote           5.580e+01  9.100e+00   6.131 2.09e-09 ***
## factor(totchi)1    -1.729e+00  3.380e+00  -0.511 0.609324
## factor(totchi)2    -3.370e+00  2.940e+00  -1.146 0.252343
## factor(totchi)3    -6.464e+00  3.468e+00  -1.864 0.063058 .
## factor(totchi)4    -8.385e+00  4.036e+00  -2.078 0.038385 *
## factor(totchi)5    -1.003e+01  4.851e+00  -2.067 0.039392 *
## factor(totchi)6    -2.096e+01  9.434e+00  -2.221 0.026898 *
## factor(totchi)7    -4.188e-01  1.054e+01  -0.040 0.968339
## factor(totchi)8    -1.976e+01  1.201e+01  -1.645 0.100664
## factor(totchi)9    -4.006e+01  2.445e+01  -1.639 0.102084
## factor(totchi)10   -1.426e+01  1.782e+01  -0.800 0.424080
## factor(region)2    -3.866e+00  4.156e+00  -0.930 0.352919
## factor(region)3    -9.428e+00  4.168e+00  -2.262 0.024233 *
## factor(region)4    -3.295e+00  4.919e+00  -0.670 0.503292
## factor(region)5    -9.661e+00  4.343e+00  -2.225 0.026664 *
## factor(region)6    -1.747e+01  5.099e+00  -3.427 0.000674 ***
## factor(region)7    -8.033e+00  4.776e+00  -1.682 0.093371 .
## factor(region)8    -8.328e+00  5.223e+00  -1.594 0.111618
## factor(region)9    -5.454e+00  4.208e+00  -1.296 0.195657
## ngirls:female       2.487e+00  2.429e+00   1.024 0.306522
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.49 on 401 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8653, Adjusted R-squared:  0.8545
## F-statistic: 80.48 on 32 and 401 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext4_108)
```

```
##
## Call:
## lm(formula = aaaw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * female + factor(totchi) +
##      factor(region), data = datAAUW108)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -76.842  -8.770  -1.092   9.632  78.720
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      1.295642   24.117821    0.054 0.957184
## ngirls            2.082166    1.193234    1.745 0.081759 .
## female           5.517221    3.866134    1.427 0.154344
## white            1.804376    3.224463    0.560 0.576073
## repub          -63.954577    2.438684  -26.225 < 2e-16 ***
## age              2.332704    0.863167    2.702 0.007176 **
## age2           -0.020986    0.008019   -2.617 0.009210 **
## srvlng          -0.148872    0.327396   -0.455 0.649561
## srvlng2          0.004787    0.010198    0.469 0.639062
## rgroupNone      -6.868752    7.524779   -0.913 0.361890
## rgroupCatholic  -5.427944    2.080806   -2.609 0.009433 **
## rgroupOther Christian  3.994151    4.693937    0.851 0.395326
## rgroupOther religion  3.258143    3.968164    0.821 0.412096
## demvote         66.883649   10.899596    6.136 2.04e-09 ***
## factor(totchi)1   -7.511138    3.640204   -2.063 0.039722 *
## factor(totchi)2   -8.930766    3.122424   -2.860 0.004456 **
## factor(totchi)3  -14.151611    3.627164   -3.902 0.000112 ***
## factor(totchi)4  -10.728307    4.330583   -2.477 0.013650 *
## factor(totchi)5  -16.747269    5.339773   -3.136 0.001838 **
## factor(totchi)6  -24.745239    9.874297   -2.506 0.012607 *
## factor(totchi)7   -2.260512   11.045423   -0.205 0.837945
## factor(totchi)8  -24.901728   12.620584   -1.973 0.049173 *
## factor(totchi)9  -50.186900   25.165694   -1.994 0.046804 *
## factor(totchi)10 -13.952423   18.706902   -0.746 0.456201
## factor(totchi)12 -25.567094   19.619529   -1.303 0.193277
## factor(region)2   -8.455818    4.488315   -1.884 0.060297 .
## factor(region)3  -12.671290    4.518649   -2.804 0.005290 **
## factor(region)4  -11.315815    5.244358   -2.158 0.031546 *
## factor(region)5  -13.495816    4.575321   -2.950 0.003368 **
## factor(region)6  -19.896825    5.473513   -3.635 0.000314 ***
## factor(region)7  -11.433879    5.121238   -2.233 0.026127 *
## factor(region)8  -16.292120    5.393107   -3.021 0.002682 **
## factor(region)9  -10.552652    4.464164   -2.364 0.018564 *
## ngirls:female      1.259840    2.475666    0.509 0.611111
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.25 on 399 degrees of freedom
## (2 observations deleted due to missingness)
## Multiple R-squared:  0.8587, Adjusted R-squared:  0.847
## F-statistic: 73.49 on 33 and 399 DF,  p-value: < 2.2e-16
```

Ext5: Add an interaction term between “girls” and political parties.

```
lm_ext5_105 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
lm_ext5_106 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
lm_ext5_107 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv
lm_ext5_108 <-lm(aauw ~ ngirls + female + white + repub + age + age2 + srvlng + srvlng2 + rgroup + demv

summary(lm_ext5_105)
```

```
##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * repub + factor(totchi) +
##      factor(region), data = datAAUW105)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -57.893 -10.792  -0.973   8.584  72.622
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    37.304969   23.357041   1.597 0.111017
## ngirls          1.028348    1.391569    0.739 0.460349
## female          9.205513    2.903977    3.170 0.001642 **
## white           0.033590    3.668661    0.009 0.992699
## repub        -63.478158    2.918701  -21.749 < 2e-16 ***
## age             0.837190    0.858252    0.975 0.329920
## age2          -0.006245    0.008215   -0.760 0.447627
## srvlng        -0.168459    0.323832   -0.520 0.603208
## srvlng2         0.002734    0.010897    0.251 0.802050
## rgroupNone      5.841806    7.590563    0.770 0.441982
## rgroupCatholic  -4.302396    2.090226   -2.058 0.040203 *
## rgroupOther Christian  2.689449    4.982554    0.540 0.589653
## rgroupOther religion  9.815145    4.039684    2.430 0.015550 *
## demvote        63.228121   11.562032    5.469 8e-08 ***
## factor(totchi)1   -3.823671    3.735982   -1.023 0.306702
## factor(totchi)2   -4.207108    3.034487   -1.386 0.166385
## factor(totchi)3   -7.201753    3.520745   -2.046 0.041456 *
## factor(totchi)4  -11.070624    4.054882   -2.730 0.006609 **
## factor(totchi)5  -13.212178    5.084189   -2.599 0.009703 **
## factor(totchi)6  -18.723747    8.949267   -2.092 0.037048 *
## factor(totchi)7  -14.561535   10.484145   -1.389 0.165631
## factor(totchi)8  -45.665158   12.257704   -3.725 0.000223 ***
## factor(totchi)9  -21.213991   19.351897   -1.096 0.273639
## factor(totchi)10 -30.258628   18.735022   -1.615 0.107079
## factor(region)2   -9.074647    4.401133   -2.062 0.039862 *
```



```
## factor(region)3      -12.561818    4.412450   -2.847 0.004642 **
## factor(region)4      -7.532858    5.080109   -1.483 0.138909
## factor(region)5      -9.580707    4.564820   -2.099 0.036458 *
## factor(region)6     -19.180950    5.391039   -3.558 0.000419 ***
## factor(region)7     -15.027269    4.887485   -3.075 0.002252 **
## factor(region)8     -16.264252    5.440552   -2.989 0.002967 **
## factor(region)9      -8.254572    4.430259   -1.863 0.063161 .
## ngirls:repub         2.651996    1.610747    1.646 0.100457
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.4 on 401 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.841, Adjusted R-squared:  0.8284
## F-statistic: 66.3 on 32 and 401 DF, p-value: < 2.2e-16
```

```
summary(lm_ext5_106)
```

```
##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * repub + factor(totchi) +
##      factor(region), data = datAAUW106)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -68.94 -12.30  -0.12   10.75   76.26
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      8.772402   24.987066    0.351 0.725714
## ngirls            0.578002    1.419903    0.407 0.684172
## female          10.351451    2.879693    3.595 0.000365 ***
## white            2.853496    3.835247    0.744 0.457300
## repub          -58.467726    3.043504   -19.211 < 2e-16 ***
## age              2.060756    0.901210    2.287 0.022735 *
## age2            -0.018545    0.008499   -2.182 0.029695 *
## srvlng          -0.716587    0.379737   -1.887 0.059873 .
## srvlng2          0.024693    0.012851    1.921 0.055377 .
## rgroupNone       4.667211    7.801817    0.598 0.550029
## rgroupCatholic   -2.199119    2.127779   -1.034 0.301978
## rgroupOther Christian  1.524868    4.909634    0.311 0.756276
## rgroupOther religion 11.756806    4.340294    2.709 0.007042 **
## demvote         58.599385   12.040530    4.867 1.63e-06 ***
## factor(totchi)1   -5.634380    3.751900   -1.502 0.133949
## factor(totchi)2   -5.278521    3.148994   -1.676 0.094465 .
## factor(totchi)3   -6.520291    3.648157   -1.787 0.074645 .
## factor(totchi)4  -10.829988    4.336388   -2.497 0.012907 *
## factor(totchi)5  -11.520548    5.106616   -2.256 0.024607 *
## factor(totchi)6  -21.042365   10.258640   -2.051 0.040897 *
## factor(totchi)7  -11.549497   10.173450   -1.135 0.256943
## factor(totchi)8  -33.342293   13.124060   -2.541 0.011443 *
## factor(totchi)10 -16.955752   19.277838   -0.880 0.379631
## factor(region)2   -3.041205    4.481574   -0.679 0.497780
## factor(region)3  -11.983543    4.483509   -2.673 0.007828 **
```



```
## factor(region)4      -8.248678   5.213272  -1.582 0.114380
## factor(region)5      -5.918534   4.680498  -1.265 0.206780
## factor(region)6     -13.378567   5.491625  -2.436 0.015277 *
## factor(region)7     -14.991815   4.972813  -3.015 0.002735 **
## factor(region)8     -14.089924   5.640415  -2.498 0.012887 *
## factor(region)9      -4.747063   4.557081  -1.042 0.298182
## ngirls:repub         2.176050   1.673774   1.300 0.194316
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.87 on 402 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8152, Adjusted R-squared:  0.801
## F-statistic: 57.21 on 31 and 402 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext5_107)
```

```
##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * repub + factor(totchi) +
##      factor(region), data = datAAUW107)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -80.654  -7.699  -0.165   8.014  78.791
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.763e+01  2.191e+01   1.261 0.208039
## ngirls          1.600e+00  1.333e+00   1.200 0.230726
## female          7.529e+00  2.617e+00   2.876 0.004237 **
## white          -2.412e+00  3.156e+00  -0.764 0.445156
## repub          -6.521e+01  2.820e+00 -23.127 < 2e-16 ***
## age             1.292e+00  7.989e-01   1.618 0.106551
## age2            -1.147e-02  7.465e-03  -1.537 0.125177
## srvlng          -8.446e-02  3.460e-01  -0.244 0.807274
## srvlng2         -5.405e-04  1.110e-02  -0.049 0.961183
## rgroupNone       6.469e+00  7.194e+00   0.899 0.369033
## rgroupCatholic  -4.050e+00  1.987e+00  -2.039 0.042153 *
## rgroupOther Christian  1.730e+00  4.491e+00   0.385 0.700278
## rgroupOther religion  1.014e+01  3.787e+00   2.679 0.007695 **
## demvote         5.698e+01  9.119e+00   6.249 1.06e-09 ***
## factor(totchi)1    -1.752e+00  3.380e+00  -0.518 0.604596
## factor(totchi)2    -3.189e+00  2.938e+00  -1.085 0.278462
## factor(totchi)3    -6.334e+00  3.465e+00  -1.828 0.068249 .
## factor(totchi)4    -8.327e+00  4.034e+00  -2.064 0.039627 *
## factor(totchi)5    -9.690e+00  4.836e+00  -2.004 0.045765 *
## factor(totchi)6    -2.146e+01  9.433e+00  -2.275 0.023446 *
## factor(totchi)7    -3.049e-01  1.055e+01  -0.029 0.976952
## factor(totchi)8    -2.452e+01  1.246e+01  -1.968 0.049763 *
## factor(totchi)9    -3.071e+01  2.008e+01  -1.529 0.127018
## factor(totchi)10   -1.829e+01  1.795e+01  -1.019 0.308828
## factor(region)2    -4.086e+00  4.137e+00  -0.987 0.323994
## factor(region)3    -9.748e+00  4.144e+00  -2.352 0.019145 *
```

```
## factor(region)4      -3.636e+00  4.894e+00  -0.743 0.457927
## factor(region)5      -9.596e+00  4.346e+00  -2.208 0.027814 *
## factor(region)6      -1.757e+01  5.088e+00  -3.454 0.000611 ***
## factor(region)7      -8.293e+00  4.753e+00  -1.745 0.081801 .
## factor(region)8      -8.721e+00  5.195e+00  -1.679 0.093970 .
## factor(region)9      -5.379e+00  4.211e+00  -1.277 0.202244
## ngirls:repub         1.729e+00  1.613e+00   1.072 0.284277
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 16.49 on 401 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8653, Adjusted R-squared:  0.8546
## F-statistic: 80.5 on 32 and 401 DF,  p-value: < 2.2e-16
```

```
summary(lm_ext5_108)
```

```
##
## Call:
## lm(formula = aauw ~ ngirls + female + white + repub + age + age2 +
##      srvlng + srvlng2 + rgroup + demvote + ngirls * repub + factor(totchi) +
##      factor(region), data = datAAUW108)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -76.908  -9.026  -0.859   9.630  77.619
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.949470   24.078204   0.039 0.968565
## ngirls          1.321614    1.427249   0.926 0.355012
## female          6.704924    2.735861   2.451 0.014684 *
## white           1.864597    3.210623   0.581 0.561731
## repub          -65.950960    3.059475 -21.556 < 2e-16 ***
## age              2.343772    0.860755   2.723 0.006755 **
## age2            -0.021025    0.007992  -2.631 0.008850 **
## srvlng          -0.144506    0.326472  -0.443 0.658274
## srvlng2          0.004711    0.010171   0.463 0.643474
## rgroupNone      -7.561664    7.507654  -1.007 0.314452
## rgroupCatholic  -5.466903    2.076931  -2.632 0.008813 **
## rgroupOther Christian  3.911900    4.682646   0.835 0.403990
## rgroupOther religion  3.203289    3.958719   0.809 0.418898
## demvote         67.676745   10.906505   6.205 1.37e-09 ***
## factor(totchi)1    -7.448039    3.634030  -2.050 0.041064 *
## factor(totchi)2    -8.748735    3.120632  -2.804 0.005302 **
## factor(totchi)3   -13.956440    3.623447  -3.852 0.000137 ***
## factor(totchi)4   -10.901249    4.329133  -2.518 0.012189 *
## factor(totchi)5   -16.406393    5.314892  -3.087 0.002164 **
## factor(totchi)6   -25.139250    9.857464  -2.550 0.011137 *
## factor(totchi)7    -1.702474   11.044756  -0.154 0.877575
## factor(totchi)8   -29.496252   13.062473  -2.258 0.024480 *
## factor(totchi)9   -48.828303   20.982270  -2.327 0.020458 *
## factor(totchi)10  -17.317006   18.790013  -0.922 0.357291
## factor(totchi)12  -32.115642   20.202710  -1.590 0.112701
## factor(region)2    -8.502801    4.456096  -1.908 0.057092 .
```

```

## factor(region)3      -12.850420    4.482389   -2.867 0.004365 **
## factor(region)4      -11.332446    5.211865   -2.174 0.030265 *
## factor(region)5      -13.309934    4.568220   -2.914 0.003774 **
## factor(region)6      -19.799161    5.451888   -3.632 0.000318 ***
## factor(region)7      -11.418493    5.091204   -2.243 0.025459 *
## factor(region)8      -16.108202    5.380658   -2.994 0.002927 **
## factor(region)9      -10.323241    4.462399   -2.313 0.021209 *
## ngirls:repub         1.888344     1.731848    1.090 0.276211
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 17.23 on 399 degrees of freedom
## (2 observations deleted due to missingness)
## Multiple R-squared:  0.859, Adjusted R-squared:  0.8474
## F-statistic: 73.69 on 33 and 399 DF, p-value: < 2.2e-16

```