

Module 4 - Instructions

Oliver Engist

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In the next assignment we want to replicate some plots from the paper “Female Socialization: How Daughters Affect Their Legislator Fathers’ Voting on Women’s Issues” (Washington, 2008). The paper explores whether having a daughter makes politicians more sensitive to women’s rights issues and how this is reflected in their voting behavior. The main identifying assumption is that after controlling for the number of children, the gender composition is random. This might be violated if families that have a preference for girls keep having children until they have a girl. In this assignment we will prepare a dataset that allows us to test whether families engage in such a “female child stopping rule”.

I encourage you to take a look at the paper, as we will come back to it later in the course.

Setup

- Load the libraries “Rio” and “tidyverse”
- Change the path of the working directory to your working directory.

```
library(rio)      # loading libraries
library(tidyverse)
library(knitr)

setwd("C:/Users/evans/OneDrive/Documents/Module_4")  # setting WD
```

- import the data sets *basic.dta* and *genold108.dta*
- create a subset of the 108th congress from the *basic* dataset
- join this subset with the *genold* dataset

```
basic <- import("basic.dta")      # importing basic
genold108 <- import("genold108.dta")  # importing genold

cong108 <- filter(basic,congress==108)  # creating a variable just for 108th congress

con_gen_108 <- left_join(cong108,genold108,by=c("district","statenam"))  # joining sets
```

Data preparation

- check table 1 in the appendix of the paper and decide which variables are necessary for the analysis (check the footnote for control variables)
- drop all other variables.
- Recode *genold* such that gender is a factor variable and missing values are coded as NAs.
- Recode *party* as a factor with 3 levels (D, R, I)
- Recode *rgroup* and *region* as factors.
- generate variables for age squared and service length squared
- create an additional variable of the number of children as factor variable

```

# From inspection of the footnote, we will keep the basic characteristic variables
# (i.e. name, state, district), the # of daughters/children variables and the joined
# gender of oldest child variable, and then the control variables listed (race, gender,
# party, age, age squared, service length, service length squared, religion, region).

con_gen_108 <- con_gen_108[,c(3:7,9,12,15:19,21,63)] # dropping useless variables

con_gen_108$genold[con_gen_108$genold==""] <- NA # replacing blanks as NAs for genold
con_gen_108$genold <- as.factor(con_gen_108$genold) # recoding genold as factor

con_gen_108$party[con_gen_108$party==1] <- "D" # replacing 1,2,3 with D,R,I for party
con_gen_108$party[con_gen_108$party==2] <- "R"
con_gen_108$party[con_gen_108$party==3] <- "I"

con_gen_108$party <- as.factor(con_gen_108$party) # recoding party as factor

con_gen_108$rgroup <- as.factor(con_gen_108$rgroup) # recoding region/religion as factor
con_gen_108$region <- as.factor(con_gen_108$region)

con_gen_108 <- con_gen_108 %>% # generating age squared and srvlng squared variables
  mutate(agesq = age^2)

con_gen_108 <- con_gen_108 %>%
  mutate(srvlngsq = srvlng^2)

con_gen_108 <- con_gen_108 %>%
  mutate(totchi_fac = as.factor(totchi)) # generating totchi as a factor variable

```

Replicating Table 1 from the Appendix

We haven't covered regressions in R yet. Use the function `lm()`. The function takes the regression model (formula) and the data as an input. The model is written as $y \sim x$, where x stands for any linear combination of regressors. Use the help file to understand the function.

- Run the regression $total.children = \beta_0 + \beta_1 gender.oldest + \gamma'X$ where γ stands for a vector of coefficients and X is a matrix that contains all columns that are control variables.¹
- Save the main coefficient of interest (β_1)
- Run the same regression separately for Democrats (including Bernie) and Republicans. Save the coefficient and standard error of *genold*
- Collect all the *genold* coefficients from the six regressions, including their standard errors and arrange them in a table as in the paper.
- print the table

```

# regressing totchi on genold and controls
regression <- lm(totchi ~ genold + white + female + repub + age + agesq + srvlng +
  srvlngsq + rgroup + region, con_gen_108)

# saving the coefficient and SE
beta_totchi <- round(summary(regression)$coefficients[2,1], digits=2)
beta_totchi_se <- round(summary(regression)$coefficients[2,2], digits=2)

```

¹This is just a short notation instead of writing the full model with all control variables $totchi = \beta_0 + \beta_1 genold + \gamma_1 age + \gamma_2 age^2 + \gamma_3 Democrat + \dots + \epsilon$ which quickly gets out of hand for large models.

```

# regressing ngirls on genold and controls
regression <- lm(ngirls ~ genold + white + female + repub + age + agesq + srvlng +
  srlvngsq + rgroup + region + totchi_fac, con_gen_108)

# saving the coefficient and SE
beta_ngirls <- round(summary(regression)$coefficients[2,1], digits=2)
beta_ngirls_se <- round(summary(regression)$coefficients[2,2], digits=2)

# regressing totchi on genold and controls for dems and bernie
regression <- lm(totchi ~ genold + white + female + repub + age + agesq + srvlng +
  srlvngsq + rgroup + region, con_gen_108,
  subset = (party=="D" | party=="I"))

# saving the coefficient and SE
beta_totchi_dems <- round(summary(regression)$coefficients[2,1], digits=2)
beta_totchi_dems_se <- round(summary(regression)$coefficients[2,2], digits=2)

# regressing ngirls on genold and controls for dems and bernie
regression <- lm(ngirls ~ genold + white + female + repub + age + agesq + srvlng +
  srlvngsq + rgroup + region + totchi_fac, con_gen_108,
  subset = (party=="D" | party=="I"))

# saving the coefficient and SE
beta_ngirls_dems <- round(summary(regression)$coefficients[2,1], digits=2)
beta_ngirls_dems_se <- round(summary(regression)$coefficients[2,2], digits=2)

# regressing totchi on genold and controls for reps
regression <- lm(totchi ~ genold + white + female + repub + age + agesq + srvlng +
  srlvngsq + rgroup + region, con_gen_108,
  subset = (party=="R"))

# saving the coefficient and SE
beta_totchi_reps <- round(summary(regression)$coefficients[2,1], digits=2)
beta_totchi_reps_se <- round(summary(regression)$coefficients[2,2], digits=2)

# regressing ngirls on genold and controls for reps
regression <- lm(ngirls ~ genold + white + female + repub + age + agesq + srvlng +
  srlvngsq + rgroup + region + totchi_fac, con_gen_108,
  subset = (party=="R"))

# saving the coefficient and SE
beta_ngirls_reps <- round(summary(regression)$coefficients[2,1], digits=2)
beta_ngirls_reps_se <- round(summary(regression)$coefficients[2,2], digits=2)

table1 <- matrix(NA, 2, 6) # creating a blank matrix

# renaming the columns to match the paper
colnames(table1) <- c("# Girls", "# Kids", "# Girls (D)", "# Kids (D)",
  "# Daughters (R)", "# Kids (R)")

# renaming the rows to match the paper
rownames(table1) <- c("First girl", "SE")

```

```

# filling in the values
table1[1,1:6] <- c(beta_ngirls,beta_totchi,beta_ngirls_dems,beta_totchi_dems,
                  beta_ngirls_reps,beta_totchi_reps)
table1[2,1:6] <- c(beta_ngirls_se,beta_totchi_se,beta_ngirls_dems_se,
                  beta_totchi_dems_se,beta_ngirls_reps_se,beta_totchi_reps_se)

print(table1)

```

```

##           # Girls # Kids # Girls (D) # Kids (D) # Daughters (R) # Kids (R)
## First girl   1.36 -0.09      1.39      0.07      1.23      -0.28
## SE          0.08  0.15      0.11      0.18      0.11      0.23

```