Homework 5

Hard copy due Monday March 8th, 2013 at 5:00pm in Jeff Marshall's mailbox in the PSC lounge (3rd floor Harkness) or by email to jeffrey.marshall@rochester.edu.

The daughters effect

In this assignment, you will use the data from Ebonya Washington's analysis of the effect of legislators having daughters on their votes on women's issues. The full citation for the paper is:

> Ebonya L. Washington. 2008. "Female Socialization: How Daughters Affect Their Legislator Fathers' Voting on Woman's Issues." *American Economic Review* 98 (1): 311–332

In this homework, you will replicate her analysis and extend it, thinking carefully about various features of the data. The idea behind the paper is that, conditional on the number of children a couple has, a couple having one (or more) girls is randomly assigned. Thus, Washington argues that the effect of daughters is identified. She then looks at the effect of having daughters on members' of Congress scores from the National Organization for Women (NOW) and the American Association of University Women (AAUW). The dataset, girls.dta, is on the course website. You can use the read.dta() function from the foreign package to load the data.

1. Read through the paper. Replicate the findings for the 105th Congress that are found in Table 2, column 2. Note equations 1 and 2 on pg 315, which describe the specification (it includes fixed effects for the total number of children).

2. Replicate the results for the 105th Congress using an imputation estimator rather than a simple regression estimator, using anygirls as the treatment variable. That is, run a separate regression model (of AAUW score on the covariates) in

two subsets of the data (treated, `anygirls == 1`, and control, `anygirls == 0`). Then use predictions from these regressions to estimate the ATE.[1] Note that you may have to subset the data to enforce *common support*, which isn't necessary with the usual regression (specifically, you will have to restrict the number of children and the religious groups). Bootstrap this whole process to get standard errors.

3. How does the imputation estimator differ from the regression estimator in this case? Why features of the treatment effect or propensity score might make these two estimators similar or different in this case?

4. Run a model for the propensity scores with `anygirls` as the treatment variable and calculate propensity score weights for each unit. Report the results of a WLS regression with those weights. Looking at the distribution of the weights, do you see any problems? Why might these problems exist in this data?

5. Look at equation 2 of the Washington paper and think about post-treatment bias. Identify any variables you deem post-treatment and re-run your analysis from part 1 above without those variables. How do your results change?

6. Identify some reason(s) why Washington may have wanted to include those post-treatment variables. Which specification do you believe more accurately represents the effect of daughters and why?

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[1]You can use the `predict()`, function to do this. The first argument is a linear model object, and the second object is a data frame of the newdata. You might want to run a large regression model using `lm` and then use `model.frame()` on that larger model to get a data frame of all the data.

Variable	Description
year	Year
congress	Congress number
party	Party 1: dem 2: rep 3:ind
district	District number
statenam	State of MC
name	Name of MC
ngirls	Number of female children
nboys	Number of male children
totchi	Total children
anygirls	Indicator for any female children
propgirls	proportion female children
rgroup	Religious groups 0-none 1-prot 2-cath/orth 3-othchr 4-jewish
statabb	MC State Abbreviation
statalph	State alph codes
region	MC district region
repub	MC a Republican?
srvlng	MC length of service
female	Gender of MC (Female = 1)
white	Race of MC (White = 1, Other = 0)
bday	Birthday of MC
age	Age of MC
demvote	Demoratic share in most recent presidential election
medinc	Median income
perf	Percent female of voting age population
perw	Percent white (total population)
perhs	Percent high school grad rate (age 25p)
percol	Percent college grad rate (age 25p)
alabort	Proportion in state who favor allowing abortion
moreserv	Proportion in state who favor more spending on services
moredef	Proportion in state who favor more spending on defense
morecrimesp	Proportion in state who favor more crime spending
protgay	Proportion in state who favor laws protecting homosexuals
dr1per	Percent Christian (in state) 2001 CUNY
dr2per	Percent Catholic (in state) 2001 CUNY
dr3per	Percent Mormon/Jehovahs (in state) 2001 CUNY
dr4per	Percent other (in state) 2001 CUNY
dr5per	Percent no religion (in state) 2001 CUNY
aauw	AAUW score
rtl	Right to Life Score