Matching Homework

Go to this webpage: <https://users.nber.org/~rdehejia/data/.nswdata2.html> and download the DW version of the experimental data:

* [nsw\_dw.dta](http://www.nber.org/~rdehejia/data/nsw_dw.dta) NSW treated and control observations (Dehejia-Wahba Sample) in Stata format

The order of the variables from left to right is: treatment indicator (1 if treated, 0 if not treated), age, education, Black (1 if black, 0 otherwise), Hispanic (1 if Hispanic, 0 otherwise), married (1 if married, 0 otherwise), nodegree (1 if no degree, 0 otherwise), RE74 (earnings in 1974), RE75 (earnings in 1975), and RE78 (earnings in 1978). The last variable is the outcome; other variables are pre-treatment

1 Compute the treatment effect (difference in RE78 between randomized treated and controls). Explain what your result means.

Now DROP the experimental controls (260 obs where treated = 0) and add in the PSID controls in the dataset [psid\_controls.dta](http://www.nber.org/~rdehejia/data/psid_controls.dta)  (the variables should be exactly the same). You should have a dataset now with 185 treated and 2490 controls.

2 Run a regression of RE78 on treat and the other covariates in the dataset. What is your estimated treatment effect here?

3 Estimate a classic dif in dif. (before is RE75, after is RE78). What is your estimated treatment effect now?

4. Using psmatch2, estimate propensity scores using the nearest neighbor and the treatment effect (restricted to the region of common support). Explain what variables you chose and why. Use psgraph [bin(20) ] to show the distribution of the ps scores for the treated and controls. What is it telling you? Use pstest to look for covariate balance. What do you find? If you do not achieve balance, go back to the functional form of your PS equation and modify until you do. Once you have balance, compute the treatment effect on the treated (psmatch2 does this for you).

5. Use ebalance to achieve covariate balance. Then run a weighted regression of RE78 on treat. What is the estimated treatment effect now? Compare it to your answers from parts 1 and 2 above.

6. Do a classic dif in dif using the weighted data and compare results to the discussion in question 5.