

ECON742: Exercise 2

Randomized experiments

1. In this exercise, we will evaluate the project STAR, a randomized experiment on the impact of class size on student academic performance. Visit the website:

http://wps.aw.com/aw_stockwatsn_economtrcs_1/0,7018,291498-,00.html

for more informations on the database and to dowload the data. This program lasted for 4 years in Tennessee. Each participating school had at least one control classroom and one treated classroom.

Use the reduced version of the database.

- (a) Regress the test score in kindergarten on the class size in kindergarten (we will ignore first the second aspect of the project which consisted in offering aide to certain classes). Interpret the coefficient. Show that this coefficient is the difference of the averages of scores between the control and treated groups.
- (b) Estimate the same regression with robust standard errors. Does the coefficient change? Why does the standard error change?
- (c) Calculate the average of the score in the control group, and in the treatment group. Calculate the variances of these sample means. (hint: use an option of the command tab). Calculate the difference in these means, and the standard error of this difference. How do these results compare to the results from the regression?
- (d) Add other control variables, such as boy, freelunk, totexpk, and a set of dummies for each school. (hint: use another option of tab). How does the coefficient and the standard error of the coefficient change?
- (e) Heterogeneity in the treatment effects.
Generate the interactions between the treated group and boy, freelunk, totexpk. Estimate the regression without the school dummies, but with these interactions. Interpret the coefficients.
Calculate the treatment effect for each individual. (hint: it is now the sum of the treatment effect, and the 3 interactions).
Calculate the mean of this variable. Is this close to what you obtained before?