Difference-in-Differences

Jose Fernandez

MSBA Data Analytics III

Difference-in-Differences

The data is about the expansion of the Earned Income Tax Credit. This is a legislation aimed at providing a tax break for low income individuals. For some background on the subject, see

Eissa, Nada, and Jeffrey B. Liebman. 1996. Labor Supply Responses to the Earned Income Tax Credit. Quarterly Journal of Economics. 111(2): 605-637.

The homework questions:

1. Describe and summarize data.
2. Calculate the sample means of all variables for (a) single women with no children, (b) single women with 1 child, and (c) single women with 2+ children.
3. Create a new variable with earnings conditional on working (missing for non-employed) and calculate the means of this by group as well.
4. Construct a variable for the "treatment" called ANYKIDS and a variable for after the expansion (called POST93-should be 1 for 1994 and later).
5. Create a graph which plots mean annual employment rates by year (1991-1996) for single women with children (treatment) and without children (control).
6. Calculate the unconditional difference-in-difference estimates of the effect of the 1993 EITC expansion on employment of single women.
7. Now run a regression to estimate the conditional difference-in-difference estimate of the effect of the EITC. Use all women with children as the treatment group.
8. Reestimate this model including demographic characteristics.
9. Add the state unemployment rate and allow its effect to vary by the presence of children.
10. Allow the treatment effect to vary by those with 1 or 2+ children.
11. Estimate a "placebo" treatment model. Take data from only the pre-reform period. Use the same treatment and control groups. Introduce a placebo policy that begins in 1992 (so 1992 and 1993 both have this fake policy).