Problem Set 4

1. Use pset4Q1data.dta to solve this question. The data includes observations from one treated group and one control group. There are two time periods, pre- and post-treatment.
2. Explain an identifying assumption to use difference-in-difference research design.
3. Draw an average outcome graph by group and year. Based on a graph, explain whether you expect a positive / close to zero / negative difference-in-difference estimate.
4. Compute a difference-in-difference estimate and report its standard error clustered at the treated group level.
5. Use pset4Q2data.dta to solve this question. The data includes observations from multiple treated groups, that are treated at different timings.
6. Draw an event study plot and discuss whether the identifying assumption for two-way fixed effect research design is likely to hold. Normalize using a year before treatment year.
7. Compute a (standard) two-way fixed effect estimate and its standard error, clustered at the group level.
8. Use de Chaisemartin and D'Haultfeuille (2020) “did\_multiplegt” command and compute dynamic treatment effects pre- and post-treatment.