

Advanced Applied Econometrics

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In this exercise we will conduct complier analysis in Stata.

The code and example is based on the following paper (see github):

M. Marbach and D. Hangartner. 2020. Profiling Compliers and Non-compliers for Instrumental Variable Analysis. *Political Analysis* 28(3), 435-444.

Note that the Angrist/Pischke example from the lecture that looks at the relative likelihoods of compliers having certain X characteristics is limited to zero-one X-variables. This is not a real limitation since any continuous variable can be grouped into dummies, i.e. age above 30 when first child is born from the underlying variable age. But more flexible approaches exist that allow complier analysis also on continuous variables (based on re-weighting of groups). The intuition is similar.

Example: **Bloom, H. S., Orr, L. L., Bell, S. H., Cave, G., Doolittle, F., Lin, W., & Bos, J. M. (1997). The Benefits and Costs of JTPA Title II-A Programs: Key Findings from the National Job Training Partnership Act Study. *The Journal of Human Resources*, 32(3), 549–576. <https://doi.org/10.2307/146183>**

Job Training Partnership Act, 1982

The JPTA was the largest randomized job training scheme ever implemented in the US. This scheme was implemented for people who had previously been disadvantaged in the labour market (unemployed or low waged), and provided job and job-search training. The sample is roughly 20,000 individuals who were randomly assigned to treatment (training) or control (no training) groups.

- Outcome (Y): Wages 30 months after training (US\$);
- Treatment assignment (Z): Place on training course (1 if given a place);
- Treatment (D): Participation in training (1 if participated)

Compliance:

- Almost perfect one-sided non-compliance,
- About 2% of units assigned to control participated in training,
- About 40% of units assigned to treatment did not participate.
- LATE will be very close to the ATT

Results:

This suggests that the training program increased wages by \$1800 for those who were treated. Note that the LATE is:

- about 50% larger than the ITT (~\$1160)
- about 35% smaller than the naive estimate (~\$2800)

Step 1:

Open Stata and install the `ivdesc` package

Step 2:

Load the JTPA data from:

```
use "http://fmwww.bc.edu/repec/bocode/j/jtpa.dta",clear
```

Step 3:

Can you recreate the naïve, LATE and ITT estimates?

Step 4: run the IV compiler analysis:

```
ivdesc age training assignmt  
ivdesc hispanic training assignmt
```

Step 5: Plot the results:

```
matrix C = r(ivdesc)'  
coefplot matrix(C), se(C[2])
```

Interpret the results.