ECON3360 - Tutorial 6

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Problem I: Effect of Worker Compensation on Weeks Out of Work

- Data source: Bruce D. Meyer, W. Kip Viscusi, David L. Durbin., "Workers' compensation and injury duration: evidence from a natural experiment"
- Published in: The American Economic Review, 1995, Vol. 85.

Idea

- Date: On July 15, 1980, Kentucky raised the cap on weekly earnings for workers' compensation.
- Cap effect:
  - No change for low-income workers.
  - Increase for high-income workers.
- Identification:
  - Low-income workers can serve as the control group and high-income workers as the treatment group.
- Analysis framework: Difference-in-differences.
- Goal: Check if better compensation increases off-work duration.

DiD Estimation Breakdown

- Mean of `ldurat` for high earners in KY after change: 1.580352
- Mean of `ldurat` for high earners in KY before change: 1.382094
- Mean of `ldurat` for low earners in KY after change: 1.133273
- Mean of `ldurat` for low earners in KY before change: 1.125615

$$(1.580352 - 1.382094) - (1.133273 - 1.125615)$$

DiD Estimate Result:

0.139980

As Regression Analysis

```
reg ldurat afchnge highearn afhigh if ky==1, r
```

We conduct a linear regression using the `ldurat` as the dependent variable and the following as independent variables:

- `afchnge`: Indicates if there's a policy change.
- `highearn`: Denotes high earners.
- `afhigh`: An interaction term between `afchnge` and `highearn`.

The regression is limited to data where `ky` equals 1, i.e., only data from Kentucky is considered.

DiD Key Assumption: Parallel Trends

The fundamental assumption for valid DiD estimation is the **Parallel Trends Assumption**.

Definition

Both treated and control groups would have followed the same trend over time in the absence of the treatment.

- Ensures differences post-treatment are due to the treatment only.
- Violation can lead to biased estimates.
- Cannot be directly tested, but supporting evidence can be used.

Problem II: Effect of Minimum Wages on Employment

- Data source: David Card and Alan Krueger, "Minimum wages and employment: a case-study of the fast-food industry in New Jersey and Pennsylvania".
- Published in: American Economic Review, 1994, vol. 84.

Idea

- Standard theory: Downward sloping demand curves in competitive markets.
- Implication: Higher minimum wage should reduce labor demand and employment.
- However, Card and Krueger challenged this view.
- Research design: NJ raised its minimum wage in 1992, PA did not.
- Data: 65 fast-food restaurants in PA and 284 in NJ.
- Timeframe: Before and after the NJ minimum wage hike.
- Analysis framework: Difference-in-differences.

Stata Command Explanation

Panel Regression Analysis

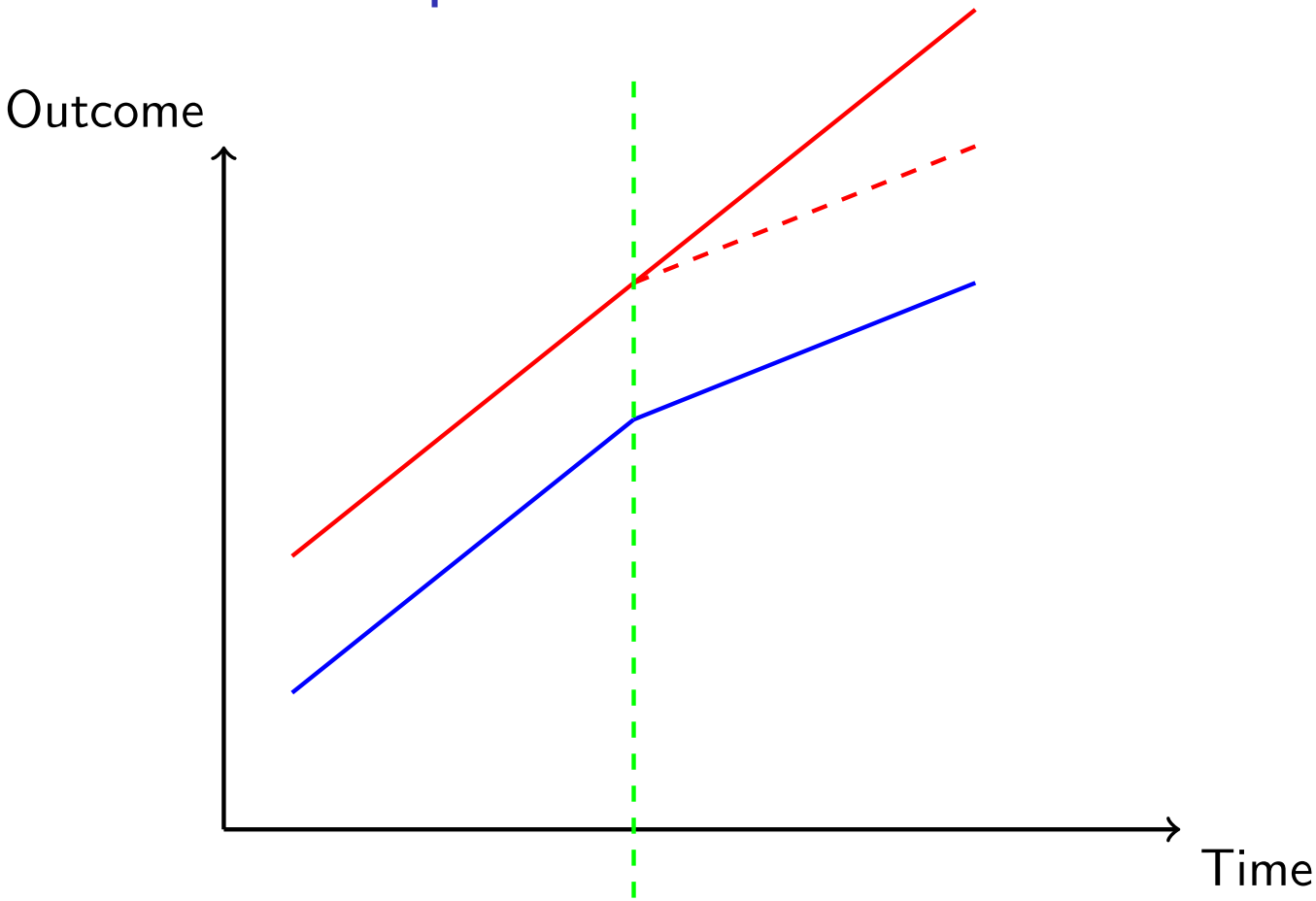
Command: `xtset sheet after`

- Sets panel data structure.
- `sheet`: Unique store ID.
- `after`: Time variable (0 before the rise, 1 after).

Command: `xtreg fte nj after njafter, fe robust`

- Conducts a fixed effects regression.
- Dependent variable: `fte` (Full-time equivalent employment).
- Independent variables: `nj` (New Jersey indicator), `after` (time indicator post-rise), and `njafter` (interaction of NJ and after).
- Uses robust standard errors.

Parallel Trends Assumption



- Blue line represents the control group.
- Red line represents the treated group.
- The trends before treatment (solid lines) are parallel.
  - Assumption: Trends were going to be parallel if there were no treatment.