Takeaways

Linear Panel Event Studies

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Identification

- Key assumptions
    - No anticipation
    - Parallel trends
- These assumptions are *not*
    - Invariant to scale
    - Sufficient to justify TWFE

Plotting

- Make plots!
- Regression "trick" allows estimation of relative time coefficients
  - Make an explicit normalization (usually, $\delta_{-1} = 0$)
- Make plots informative
  - Uniform confidence bands
  - $p-$values for key tests

Pitfalls 1: Confounding and pre-trend testing

- Can't separate violations of "no anticipation" from violations of "parallel trends"
- Pitfalls with the conventional tests for pre-trends
    - Low power
    - Screening on passing the pre-trend test $\rightarrow$ "pre-test bias"
    - Linear violations undetectable without untreated group
- Don't emphasize pre-trends test when power is low
    - Use methods that allow for violations of parallel trends

Pitfalls 2: Heterogeneous effects

- To identify average effects need one or both of
  - Restrictions on heterogeneity or dynamics of effects
  - Untreated or not-yet-treated group
- Many good solutions for staggered adoption case
  - Fewer generic solutions outside of staggered adoption

Thank you!