Visualization, Identification, and Estimation in the Linear Panel Event-Study Design

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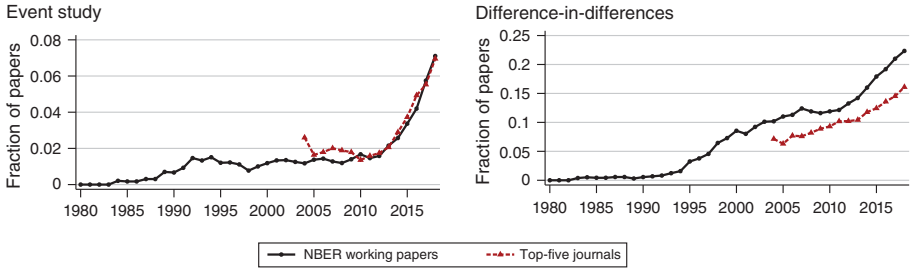
Motivation

- Event studies and related methods increasingly popular in applied micro



Source: Currie et al. (2020) Figure 4

Paper and Stata package

- The material in this video series is based on our paper:

  Visualization, Identification and Estimation in the Linear Panel Event-Study Design

- A companion Stata package `xtevent` implements most of the estimators that we will discuss
- To install, type `ssc install xtevent` in Stata's command window

Video series

1. **Introduction**
2. Estimation and Event-Study Plots
3. Improvements to Event-Study Plots
4. Identification Strategies without Proxies or Instruments
5. Identification Strategies with Proxies or Instruments
6. Performance of Different Estimators
7. Heterogeneous Policy Effects

Data

- Units $i \in \{1, ..., N\}$
- Periods $t \in \{1, ..., T\}$
- Scalar outcome y_{it}
- Scalar policy z_{it}

Linear panel model

$$y_{it} = \alpha_i + \gamma_t + q_{it}'\psi + \sum_{m=-G}^{M} \beta_m z_{i,t-m} + C_{it} + \varepsilon_{it} \qquad \text{(linear panel model)}$$

- Unit fixed effects α_i and time fixed effects γ_t
- Observed controls q_{it}
- Unobserved confound C_{it} potentially related to policy z_{it}
- Unobserved error ε_{it} unrelated to policy z_{it}
- Parameters of interest $\{\beta_m\}_{m=-G}^{M}$
  - No *ceteris paribus* effect of policy more than G periods in the past or M periods in the future

Staggered adoption

- The policy is binary: $z_{it} \in \{0, 1\}$
- All units begin without the policy: $z_{i1} = 0$ for all i
- Once the policy is adopted, it is never reversed: $z_{it'} \geq z_{it}$ for all i and $t' \geq t$

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