Lecture 12:
Panel data II

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Recap

TL;DR:

1. We like the difference-in-differences approach a lot

2. We discussed estimation with fixed effects

3. And covered the event study version

An example: Impacts of children on gender inequality

Policy issue:

- Having children potentially strongly impacts long-run earnings
- Are these effects disproportionately borne by women?

Approach:

- Use detailed Danish administrative data on kids and earnings
- Most (?) children are not randomly assigned...
- ...but conditional on individual and time FE, their arrival is arguably exogenous
- Use an event study model to estimate effects
- Heterogeneous effects for men vs. women

Estimating the effects of kids on labor

The authors will run a version of:

$$Y_{it} = \sum_{r=-S}^{R} \tau_r D_i \times \mathbf{1}[\text{periods to treatment} = r]_{it} + \alpha_i + \delta_t + \beta X_{it} + \varepsilon_{it}$$
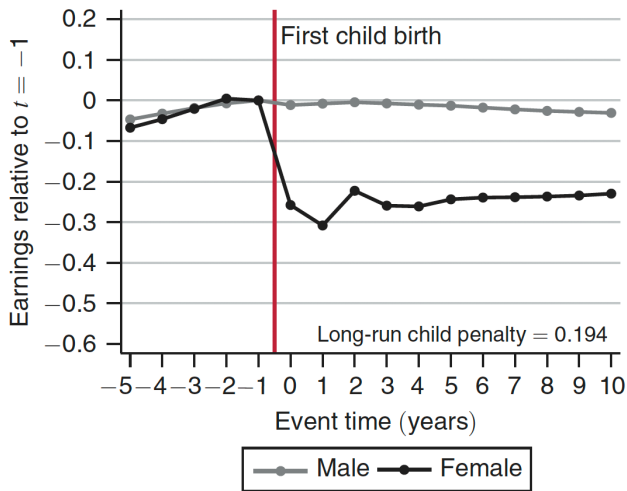
where

Y_{it} is an outcome in time t

$D_i \times \mathbf{1}[\text{periods to treatment} = r]_{it}$ are indicators for periods r after treatment
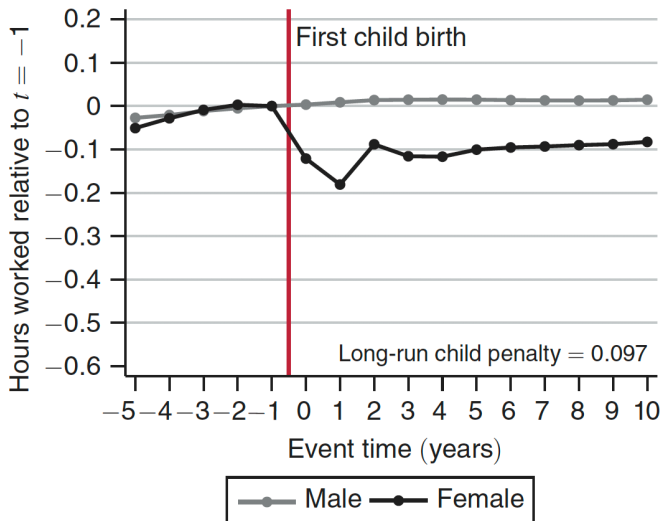
The unit of observation is the person-quarter

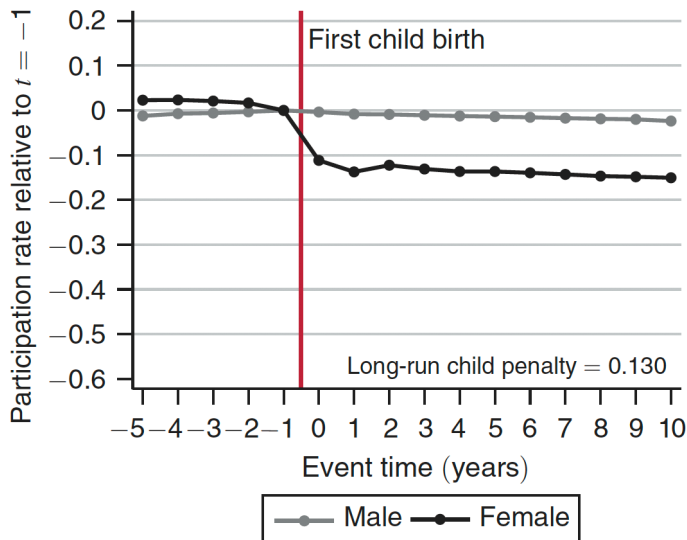# Main result: earnings

Panel A. Earnings

Main result: Hours worked

Panel B. Hours worked

First child birth

Long-run child penalty $= 0.097$

Legend: Male, Female

X-axis: Event time (years)

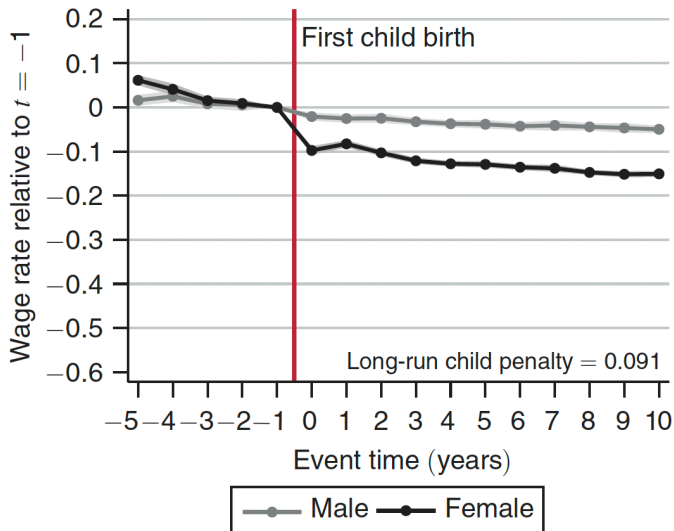Y-axis: Hours worked relative to $t = -1$

Main result: Labor market participation
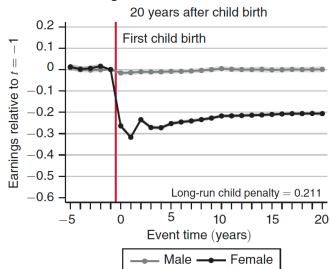

Panel C. Participation rates
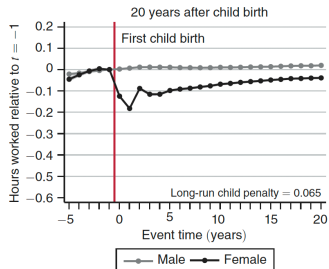
Main result: Wage rate
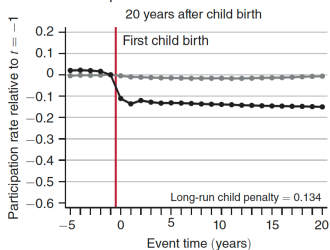

Panel D. Wage rates

Very long run effects

Panel A. Earnings
20 years after child birth

Panel B. Hours worked
20 years after child birth

Panel C. Participation rates
20 years after child birth

Panel D. Wage rates
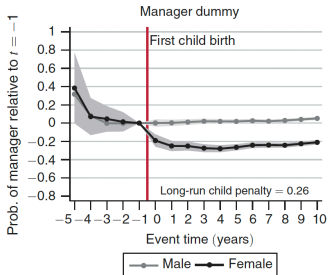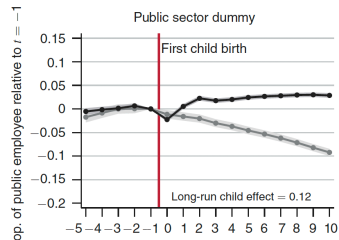20 years after child birth
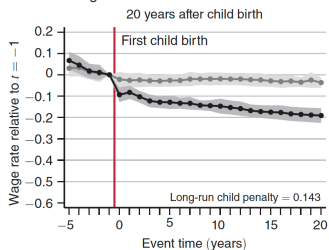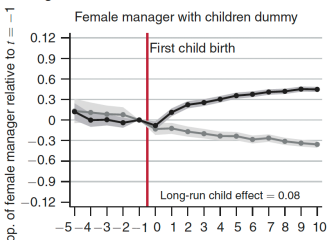
Mechanisms

Panel A. Occupational rank
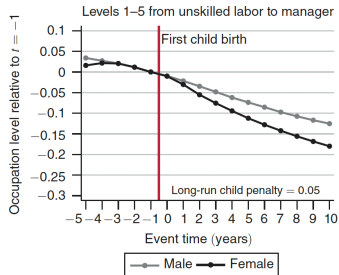
Panel B. Probability of being manager

Panel C. Probability of public sector job

Panel D. Probability of having a female manager with children

How much inequality do kids explain?

Panel A. Child-related gender inequality versus non-child gender inequality