ECON4261 - Quasi-Experiments: The Child Penalty

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Introduction

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  - Reductions in experience
  - Effects promotions
  - Statistical discrimination
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- Paper estimates the "child penalty" - the effect of birth of the first child on earnings and employment - and uses some descriptive methods to explore potential mechanisms.

Methodology Part (1): Raw Estimates

Main specification for person of gender g at event-time t and year s

$$Y_{ist}^{g} = \sum_{j \neq -1} \alpha_j^g \mathbf{1}\{j = t\} + \sum_k \beta_k^g \mathbf{1}\{k = age_{is}\} + \sum_y \gamma_y^g \mathbf{1}\{y = s\} + \nu_{nst}^g$$

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- Convert α_t^g to a percentage effect by calculating:

$$P_t^g = \frac{\alpha_t^g}{\mathbb{E}\left[\sum_k \beta_k^g \mathbf{1}\{k = age_{is}\} + \sum_y \gamma_y^g \mathbf{1}\{y = s\}\right]}$$

Methodology Part (2): Decomposition

Allow for differences in the child penalty by year:

$$Y_{ist}^{g} = \sum_{y} \sum_{j \neq -1} \alpha_{yj}^{g} \mathbf{1}\{j = t\} \mathbf{1}\{y = s\} + \sum_{k} \beta_{k}^{g} X_{kns} + \nu_{nst}^{g}$$

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and decompose the wage gap into potential sources in year s:

$$\Delta_s = \mathbb{E}[\alpha_{st}^{m} - \alpha_{st}^{w} | s] + \sum_{k} (\beta_{k}^{m} - \beta_{k}^{f}) \mathbb{E}[X_{kns}^{m}] + \sum_{k} \beta_{k}^{w} \mathbb{E}[X_{kns}^{m} - X_{kns}^{w}]$$

Important: X_{kns} must not be anything that can be affected "downstream" causally by childbirth. Think pre-birth measures of investment such as education and initial occupation.

Results

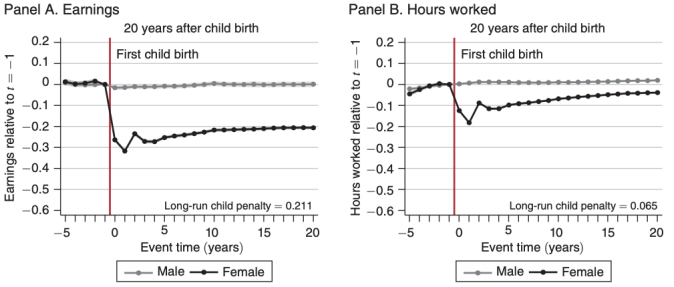

FIGURE 2. IMPACTS OF CHILDREN IN THE VERY LONG RUN

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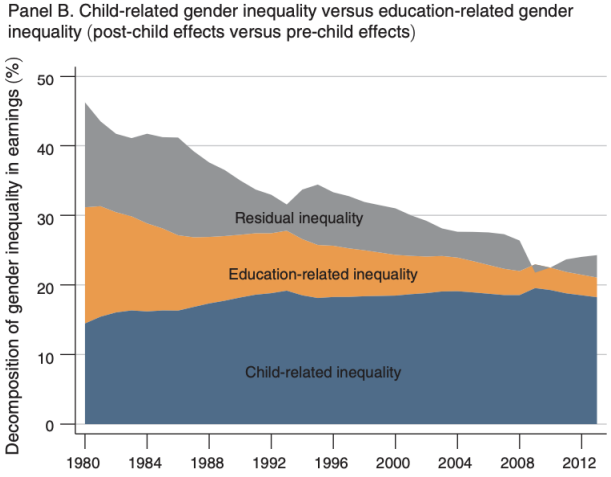

FIGURE 5. DECOMPOSING GENDER INEQUALITY IN EARNINGS

Robustness

They test their estimates of the child penalty two ways:

- Extend the data to include individuals who never have children. These are used to form a control group in a difference-in-difference estimator. Same results.

- Compare the model's estimates of the effect of birth of a third child to IV estimates of the effect using the gender ratio of the first two children as an instrument. Same results.

Last Exercise

The authors estimate penalties separately by relative work experience of maternal and paternal grandparents.

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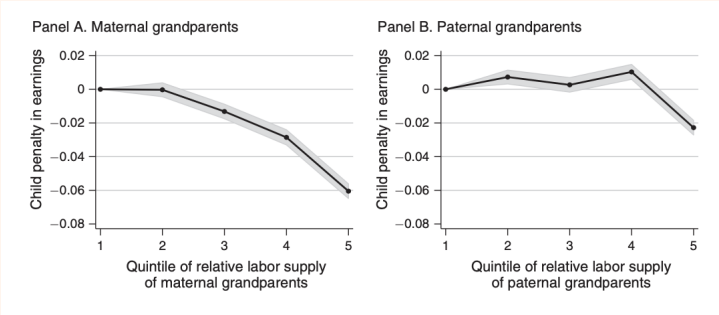

Suggests some kind of intergenerational mechanism.

Two Comments

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- Selection on timing of first birth could be driving all the results.