Research on Tax Data in the United States

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The **IRS Databank**: A Population Panel Dataset for Tax Policy Research

(In collaboration with Statistics of Income at IRS)
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John N. Friedman, Harvard and NBER
Nathaniel Hilger, Harvard and Brown
Emmanuel Saez, UC Berkeley and NBER
Danny Yagan, Harvard and UC Berkeley

- Balanced panel of everyone in the U.S. between 1996-2010
- Approximately 6.7 billion rows
- 90% of working-age adults file individual tax returns in a given year
- Many variables observed for non-filers via third-party reports
- Data on earnings, income, savings, social insurance, college, housing, geography, family ties, corporate balance sheets
Does Parental Income Affect College Enrollment?  
Evidence from Timing of Parental Layoffs

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Introduction

- Children in top income quartile **five times** more likely to graduate from college than children in bottom quartile, and gap is growing (Bailey & Dynarski 2011)

- Why don’t more low-income children go to college?

- Three competing explanations (Becker 1964, Carneiro & Heckman 2002)

  1. Current income (e.g., to pay for college)
  2. Earlier income (e.g., to pay for pre-school, health care)
  3. Other factors (beliefs, preferences, abilities)
Introduction

1. Current income (e.g., to pay for college)

   • Theoretical motivation: human capital markets lack collateral
   • Policy motivation: US government transfers ~$150B or ~5% of federal budget to parents each year
     • Child Tax Credit, Dependent Exemption, EITC, others
     • Many parents with older children, higher incomes
   • Empirical challenge: parental income endogenous
   • Two innovations:
     • Administrative data
     • Quasi-experimental research design: timing of parental layoffs
Experience treatment event at age 17
Experience treatment event at age 19

Illustration: Outcome Variable at Age 18
Experience control event at age 17
Experience control event at age 19

Illustration: Outcome Variable at Age 18
Illustration: Outcome Variable at Age 18

\[ \gamma = \text{Selection} \neq 0 \]

\[ \beta_{DD} = \beta - \gamma \]
Data

- Focus on layoffs of fathers
  - Easier to compare with prior work on layoffs
  - Larger shocks for more families

- Layoff fathers: “treatment event”
  - “Layoff at T” = Positive UI at T, zero UI at T-1

- Survivor fathers: “control event”
  - “Survival at T” = Zero UI at T, zero UI at T-1, positive earnings at T-1 in a firm with >0 layoffs at T
  - Propensity-score reweight to match Layoff fathers
Effects of Layoffs on Parents

• Permanent **earnings** -15%

• Permanent **income** -10% (NPV wealth loss of $50,000-100,000)

• Permanent **consumption** decline: mortgage interest ≈ -9%

• Food consumption in PSID: -10% (Gruber 1997, Stephens 2001, 2004)

• Basic lifecycle model: permanent, unanticipated income shock reduces consumption one-for-one at typical asset levels

• Expect flexible expenditures to fall by more in short-run
\[ \gamma = \text{Selection} \neq 0 \]

\[ \beta = \beta_{DD} + \gamma \]

(a) Annual Enrollment Ages 18-22
(b) Annual Enrollment Ages 18-22, Treatment - Control

\[ \beta_{DD} = \beta - \gamma \]
\[ = -0.43 \text{ [SE = 0.094] pp} \]

\[ \gamma = \text{Selection} \neq 0 \]
Effects of Layoffs on Children

• This effect is small considering $50,000-$100,000 wealth loss

• ~1% of base enrollment and years enrolled 18-22

• ~13% of cross-sectional corr(income, college)

• NPV lifetime child earnings loss ≈ $1,000-3,000

• ~1 SD teacher quality in one grade (Chetty, Friedman, Rockoff 2012)

• Effects on other outcomes also small and precisely estimated

• College quality (-), cost of college (-), earnings (+)
Effects of Layoffs on Children

- Why do layoffs have such small impacts on college choices?

\[
\frac{\text{COLLEGE}}{\text{LAYOFF}} = \frac{\text{INCOME}}{\text{LAYOFF}} \quad \frac{\text{CONTRIBUTIONS}}{\text{INCOME}} \quad \frac{\text{COLLEGE}}{\text{CONTRIBUTIONS}}
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Effects of Layoffs on Children

• Results so far have exploited all parent layoffs

• Recent work on layoffs has restricted to firm closures (e.g., Oreopoulos, Page and Stevens 2008, Bratberg, Nilson and Vaage 2008, Rege, Telle and Votruba 2008)
  • Eliminates within-firm selection into layoff
  • Concern: between-firm selection

• Construct universe of firm closures in US
  • Large precision loss: Closure sample <1% as large as Layoffs
\[ \gamma = \text{Selection} \neq 0 \]

\[ \beta = \beta_{DD} + \gamma \]

\[ \beta_{DD} = \beta - \gamma \]

= 0.29 [SE = 0.61] pp
Effects of Layoffs on Children

- Closures make selection problem **worse**: Survivors are better controls for Layoffs than Non-Closures are for Closures

- Large $\beta$ estimate driven entirely by selection: $\beta \approx \gamma$

- Noisy zero: consistent with estimate on full sample
Child Outcomes: Mechanisms

- Which families are most adversely affected by layoffs?
  - High-income or low-income?
Child Outcomes: Mechanisms

- U-shape: parental income affects children most at middle incomes

- Lower-income children don’t rely on parents to finance college
  - More financial aid, loans, own earnings, own consumption

- For very high-income parents, college is small share of budget
  - College bears smaller share of absolute income losses
  - E.g. college spending a “necessity” not a “luxury”
Policies to Increase College Enrollment

- Financial aid likely \(~100-1,000\) times more effective per dollar

- Budget-neutral policy exercise:
  - Cut $60b of income support for parents of older children
  - Add $60b financial aid for children with below median income
  - New \(~$10k/\text{year}\) financial aid for children ages 18-22
  - Result: nearly eliminate college attainment gap
Conclusions

• Causal effects of layoffs during late childhood are small
  • Suggests 10-15% of corr(current income, college) is causal

• Marginal income least effective for *lowest*-income children

• Substantial selection into closing firms on unobservables correlated with child college enrollment

• Income transfers appear much less effective than financial aid
How Does Your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR

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Summary

• 11,571 students randomized across classrooms in 1985
  • 95% linked to long-term outcomes in Databank
• Classrooms have large causal impacts on test scores
• Classrooms have large causal impacts on earnings
• Score gains translate into earnings gains, despite fade-out
• Classes appear to raise earnings through non-cognitive skills
• Subsequent work: teachers account for class effects
  (Chetty, Friedman and Rockoff 2012)
• Teacher quality creates large economic value, and test scores
  can partly detect this value