

The Intergenerational Transmission of Employers and the Earnings of Young Workers

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CBDRB-FY23-CES019-002.

Motivation

- To what extent do connections in the labor market shape intergenerational mobility?
- Majority of jobs found through social contact but earnings consequences are unclear

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My paper

- I study one type of connection: jobs obtained at a parent's employer
- 29 percent of individuals work for a parent's employer by age 30
- How would the intergenerational persistence in earnings change if firms were not allowed to hire children of employees?

I. Why do people work for their parent's employer?

II. What are the earnings consequences?

III. How do these connections shape the IGE?

I. Why do people work for their parent's employer?

- At least 80% who work for a parent's employer found their job via parental connections

II. What are the earnings consequences?

- Parental connections provide access to high-paying, blue-collar firms and increase initial earnings by 19%

III. How do these connections shape the IGE?

- Individuals with high-income parents benefit more and IGE would be 7.2% lower if no one found job using these connections

Related literature

Large but distinct literatures on

1. **Intergenerational mobility** Becker and Tomes (1979), Black et al. (2005), Chetty et al. (2020), Mogstad and Torsvik (2021)
2. **Labor market networks** Ioannides and Datcher Loury (2004), Cingano and Rosolia (2012), Hellerstein et al. (2011), Burks et al. (2015), Gee et al. (2017), Caldwell and Harmon (2019), Barwick et al. (2023)
3. **Firms and inequality** Burdett and Mortensen (1998), Abowd et al. (1999), Postel-Vinay and Robin (2002), Haltiwanger et al. (2018), Card et al. (2018), Manning (2013), Song et al. (2019)

A few papers at the intersection Dobbin and Zohar (2023), Eliason et al. (2022), San (2020), Kramarz and Skans (2014), Stinson and Wignall (2018), Corak and Piraino (2011), Magruder (2010), Schmutte (2015)

Main contribution

- Intergenerational persistence in earnings attributable, in part, to parental connections providing access to higher-paying firms
- Results raise possibility that connections to firms through social networks could be important determinant of intergenerational mobility

Outline of talk

Data

Results

I. Use of Parental Connections

II. Earnings Consequences

III. Intergenerational Persistence in Earnings

Data sources

- 2000 Decennial Census
- Longitudinal Household-Employer Dynamics (LEHD)
 - Covers 96% of private wage and salary employment between 1990-2018
 - Excludes self-employment, farm, and federal government

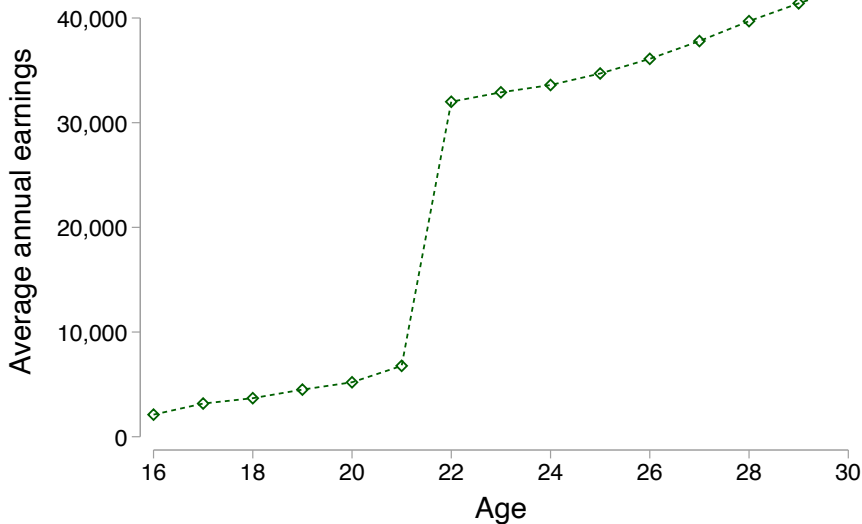
Sample

- Cohorts expected to graduate high school between 2000 and 2013
- Analysis sample includes 26M individuals
- Sample excludes the very poor (10%) and extremely rich (1%)

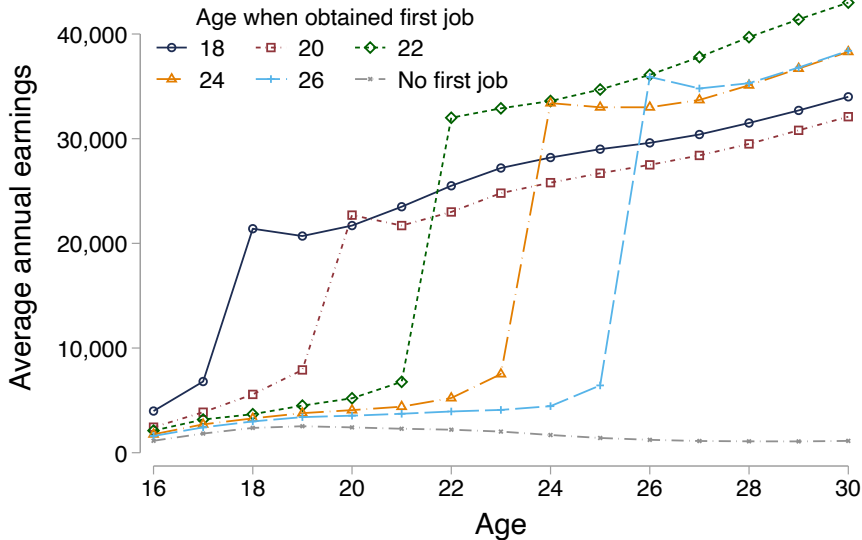
Key definitions

- *Parental earnings* measured between ages 35-55
- *Employer* is activity of firm within state and industry
- *First stable job* when earnings > \$3,300 for three quarters

Earnings before and after first stable job



Earnings before and after first stable job

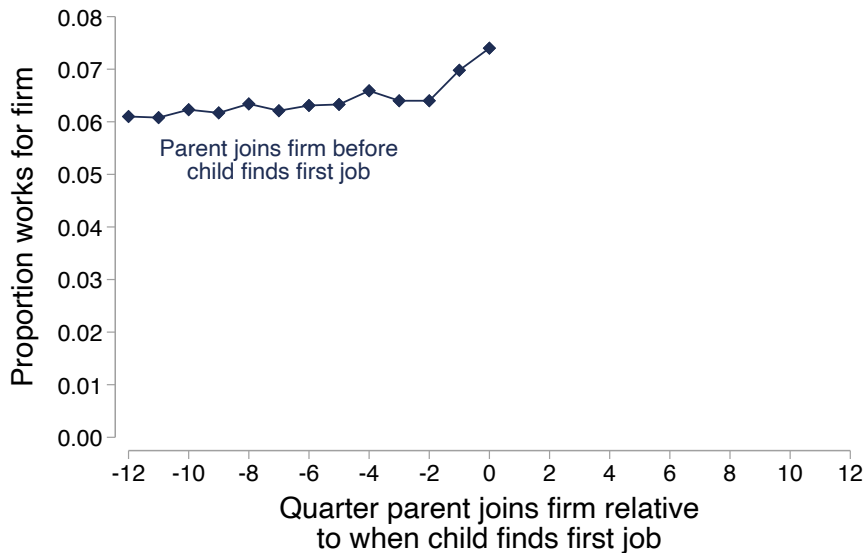


I. Use of Parental Connections

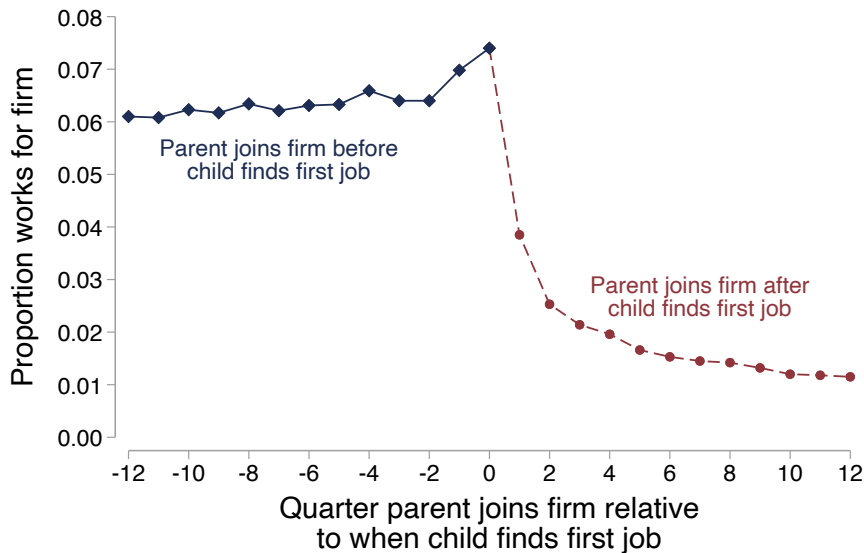
II. Earnings Consequences

III. Intergenerational Persistence in Earnings

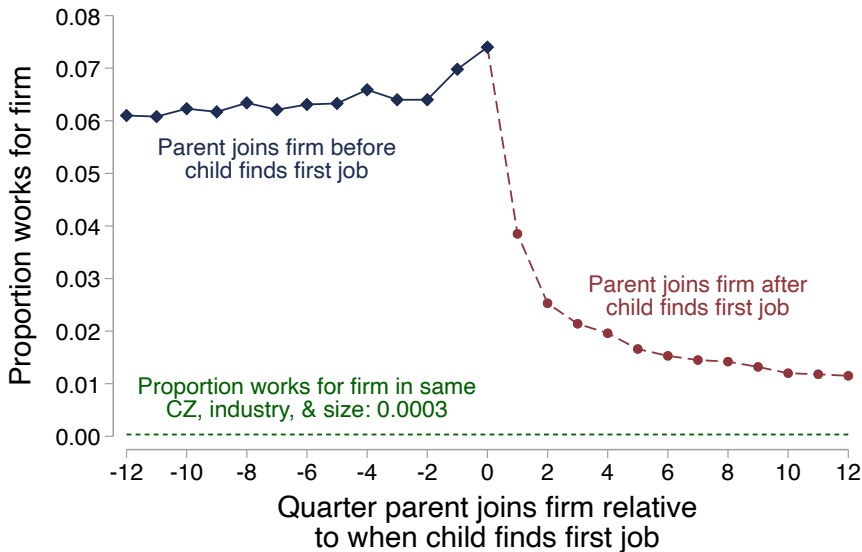
Works for firm that parent recently joined



Less likely to work for parent's future employer



Very uncommon to work for firm similar to parent's firm



I. Use of Parental Connections

II. Earnings Consequences

III. Intergenerational Persistence in Earnings

Question

- For those who work for a parent's employer, how much more do they earn relative to their next best option?

Challenge

- Individuals who work for parent's employer may be different from those who do not in unobserved ways

Ideal experiment

- Prohibit some firms from hiring children of current employees and use random assignment as instrument

Empirical specification

$$\text{Second stage: } y_i = \pi^2 + \beta D_i + v_i$$

$$\text{First stage: } D_i = \pi^1 + \gamma Z_{j(p)t} + u_i$$

- D_i equals one if works for parent's employer
- t is quarter in which individual starts first stable job
- $Z_{j(p)t}$ is hiring rate at parent's employer

Key assumption

- Hiring rate is related to earnings of the individual only through effect on probability they work for parent's employer

Concerns

- $Z_{j(p)t}$ correlated with local labor market conditions
- $Z_{j(p)t}$ correlated with characteristics of parent's employer

Instrumental variables, main specification

Empirical specification

$$\text{Second stage: } y_i = \pi^2 + \beta D_i + \delta_{j(p)}^2 + \lambda_{l(j(p),t)}^2 + v_i$$

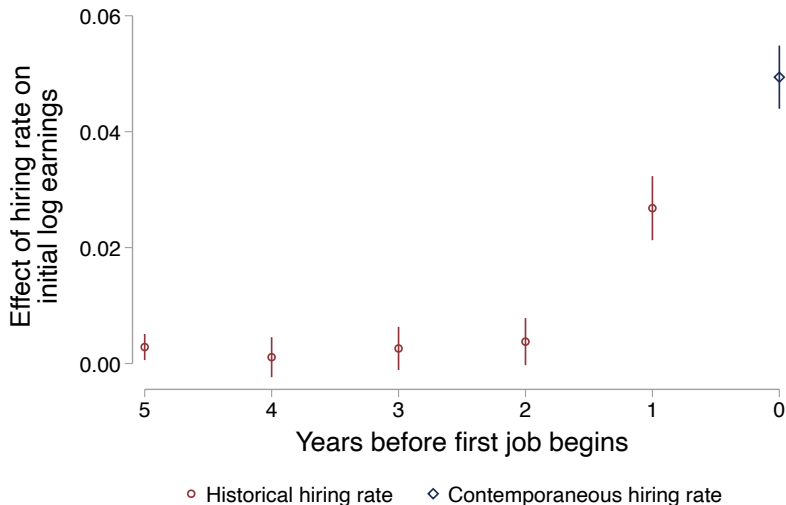
$$\text{First stage: } D_i = \pi^1 + \gamma Z_{j(p)t} + \delta_{j(p)}^1 + \lambda_{l(j(p),t)}^1 + v_i$$

- $\delta_{j(p)}$ fixed effect for parent's employer
- $\lambda_{l(j(p),t)}$ fixed effect for labor market (CZ-by-industry-by-quarter)
- Estimation sample includes parents with at least one year of tenure

Key assumption

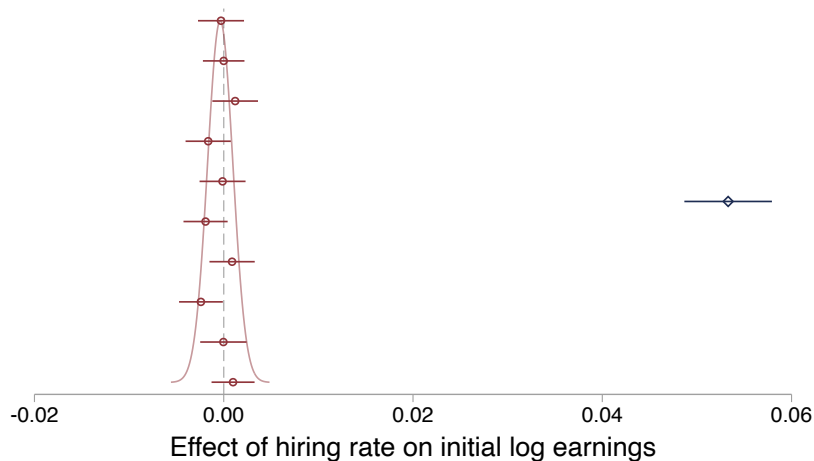
- Conditional on time-invariant characteristics of parent's employer and time-varying local labor market conditions in which that employer is located, hiring rate is related to earnings of the individual only through affect on probability they work for parent's employer

Association with hiring rate in earlier years



Reduced form: $y_i = \pi + \gamma Z_{j(p)t} + \delta_{j(p)} + \lambda_{l(j(p),t)} + v_i$

Association with hiring rate at similar firms



- Same industry, commuting zone, and size
- ◇ Parent's employer

Reduced form: $y_i = \pi + \gamma Z_{j(p)t} + \delta_{j(p)} + \lambda_{l(j(p),t)} + v_i$

Effect of working for parent's employer

	Log initial earnings	AKM firm fixed effect
	(1)	(2)
Works for parent's employer	0.17*** (0.01)	0.16*** (0.01)
First-stage F-statistic	24,300	23,900
Observations (millions)	17.81	17.69

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Quantify bias using parent's future employer

	First stage		Reduced form	
	(1)	(2)	(3)	(4)
Hiring rate at current employer	0.146*** (0.004)		0.028*** (0.005)	
Hiring rate at future employer		0.014*** (0.001)		0.0027 (0.004)
Observations (millions)	2.165	1.031	2.165	1.031

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Additional support for validity of empirical strategy

- Robust across alternative specifications [results](#)
- Robust to using household fixed effects [results](#)
- Results driven by industries where use of networks is common [results](#)
- No effect on whether individual finds first job [results](#)
- Similar results from event study specification [results](#)

Additional results

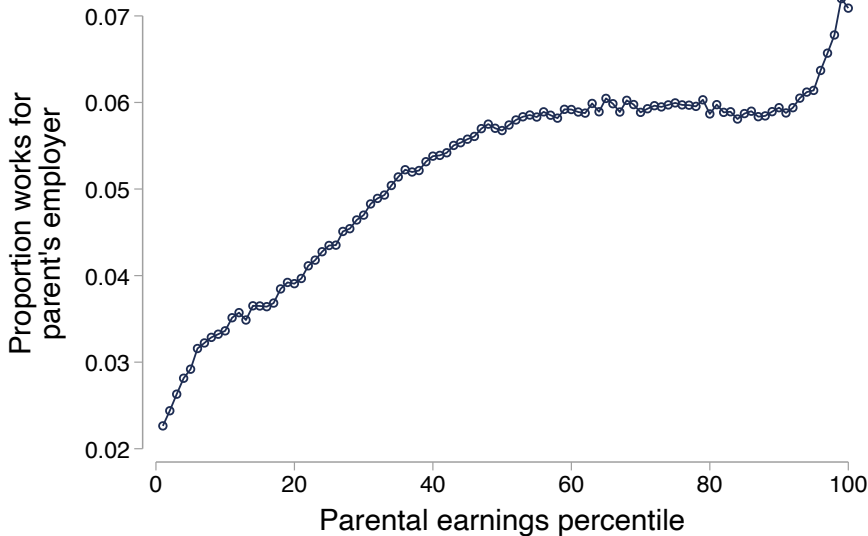
- Earnings gains persist for at least three years [results](#)
- Less likely to leave for new job [results](#)
- Access to jobs in higher-paying industries [results](#)
- Start career on higher rung of the job ladder [results](#)
- Larger gains for working for father's employer [results](#)

I. Use of Parental Connections

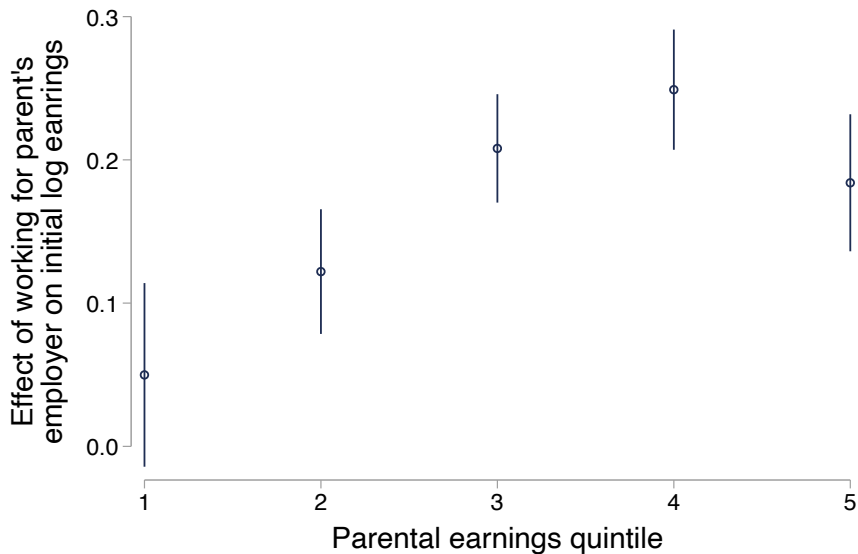
II. Earnings Consequences

III. Intergenerational Persistence in Earnings

Works for parent's employer by parental earnings



Effect on initial earnings by parental earnings



IGE is common measure of intergenerational persistence in earnings

$$\rho(y_{ij}, y_p) = \frac{\text{cov}(y_{ij}, y_p)}{\text{var}(y_p)}$$

- y_{ij} log earnings of i at first stable job at employer j
- y_p log lifetime earnings of parent
- Potential outcomes: $y_{ij} = y_{ij(0)} + D_i\beta_i$, where $\beta_i = y_{ij(1)} - y_{ij(0)}$

How would IGE change if no one worked for parent's employer?

$$\rho(y_{ij}, y_p) - \rho(y_{ij(0)}, y_p) = \frac{\text{cov}(D_i\beta_i, y_p)}{\text{var}(y_p)}$$

Approximate covariance term as function of estimable parameters

$$\begin{aligned}\text{cov}(D_i\beta_i, y_p) &= \mathbb{E}[D_i\beta_i y_p] - \mathbb{E}[D_i\beta_i]\mathbb{E}[y_p] \\ &\approx \mathbb{E}\left[\mathbb{E}[D_i|r_p] \mathbb{E}[\beta_i|D_i=1, r_p] \mathbb{E}[y_p|r_p]\right] - \mathbb{E}[D_i]\mathbb{E}[\beta_i|D_i=1]\mathbb{E}[y_p]\end{aligned}$$

By iterated expectations

$$\mathbb{E}[D_i\beta_i] = \mathbb{E}[D_i]\mathbb{E}[\beta_i|D_i=1]$$

Let r_p be percentile rank of parental earnings, then

$$\mathbb{E}[D_i\beta_i y_p | r_p = q] \approx \mathbb{E}[D_i\beta_i | r_p = q] \mathbb{E}[y_p | r_p = q]$$

How do the expected benefits vary across parental earnings distribution?

$$\mathbb{E}[D_i\beta_i | r_p] = \underbrace{\mathbb{E}[D_i | r_p]}_{\text{part I}} \underbrace{\mathbb{E}[\beta_i | r_p, D_i = 1]}_{\text{part II}}$$

Implications for IGE

- Observed IGE: 0.136
- IGE would be 10% lower if no one worked for a parent's employer (standard error of 1.9)
- Analyses of the future employers suggest 20% of people who work for their parent's employer do so for reasons unrelated to connections and 10% of 2sls estimate is attributable to bias, correcting for this implies IGE would be 7.2% lower
- These connections also amplify gender and race gaps

Takeaway

- Intergenerational persistence in earnings is attributable, in part, to parental connections providing access to higher-paying firms
- Results raise possibility that connections to firms through social networks could be important determinant of intergenerational mobility

Implications

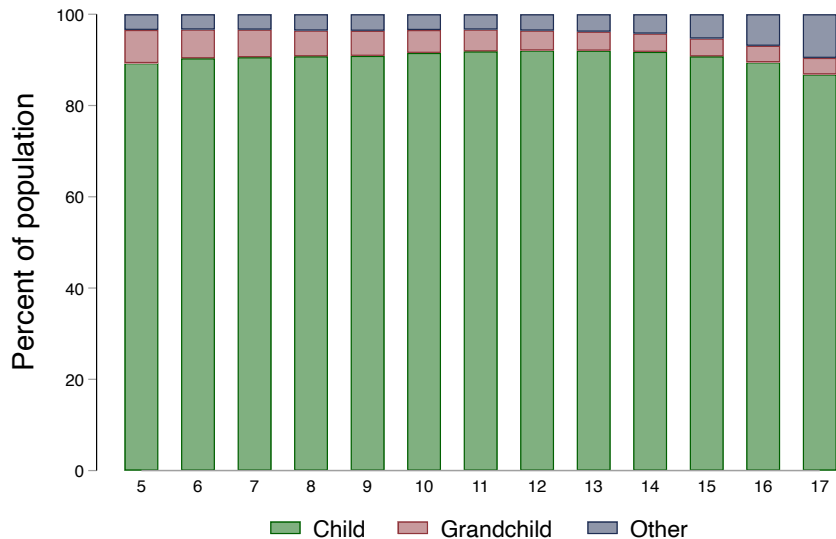
- Results raise concerns about whether economic system is fair
- Helping young workers navigate the labor market is potentially effective strategy for expanding economic opportunity

APPENDIX SLIDES

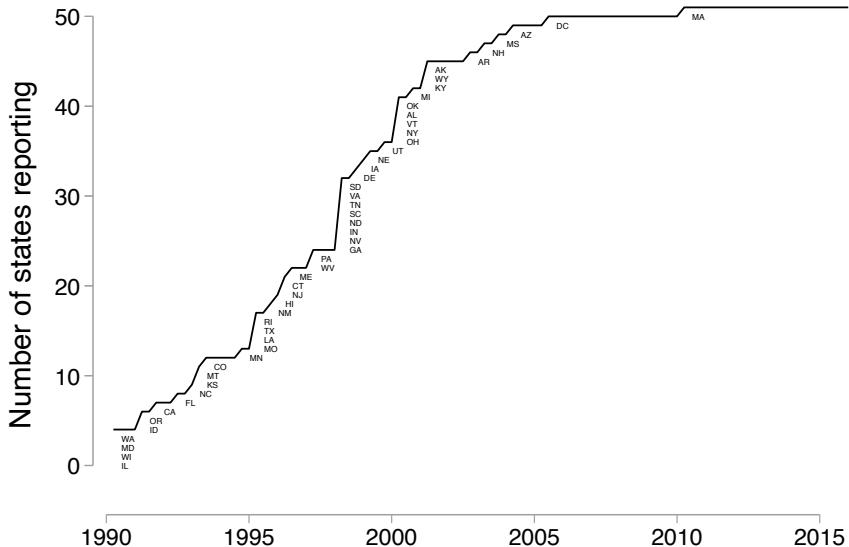
Sample restrictions

Exclusion Criteria	Observations Remaining	
	number	percent
None (sample frame with no restrictions)	47,556,000	100
Child not assigned a unique PIK	38,701,000	81
Unable to link child to parents because either parent is not assigned a unique PIK or the households contains more than 15 people	35,375,000	74
Combined earnings of the parents does not exceed 15k	31,693,000	67
The child does not find a stable job by 2018	25,860,000	54

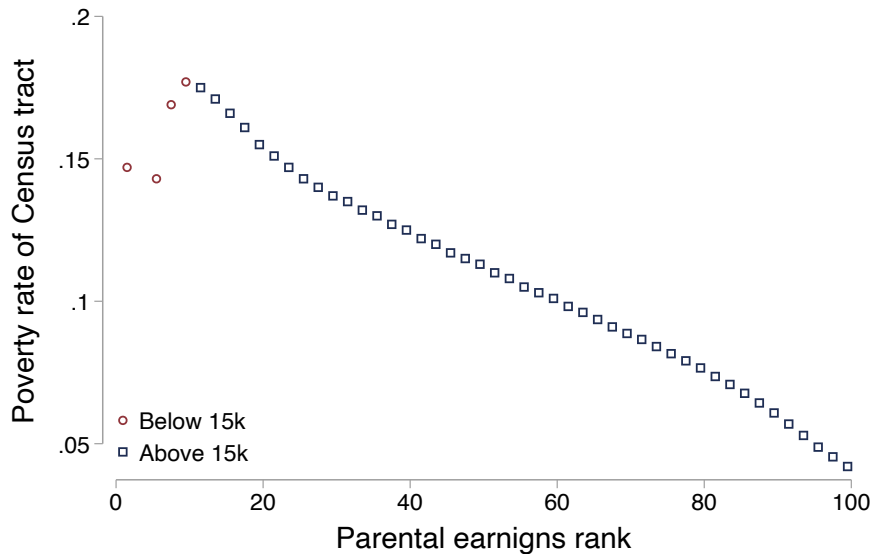
Children living with parents by age



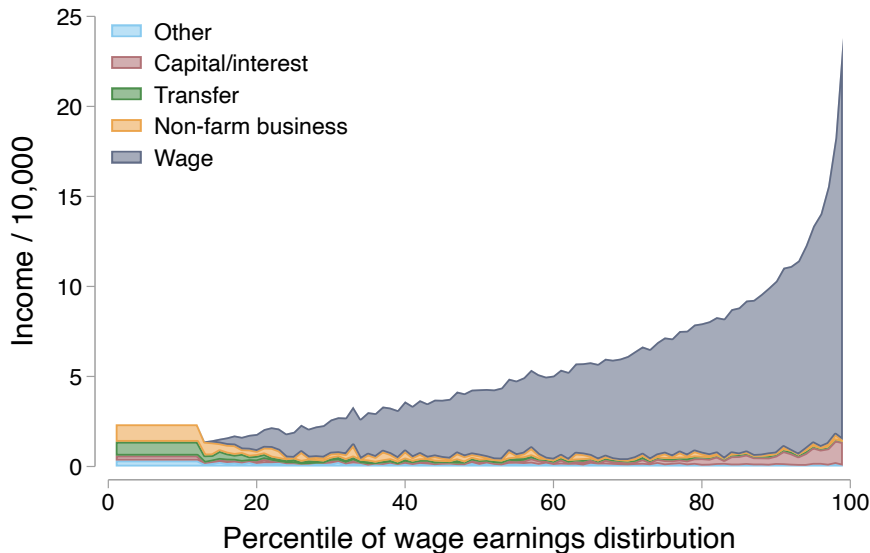
Availability of LEHD



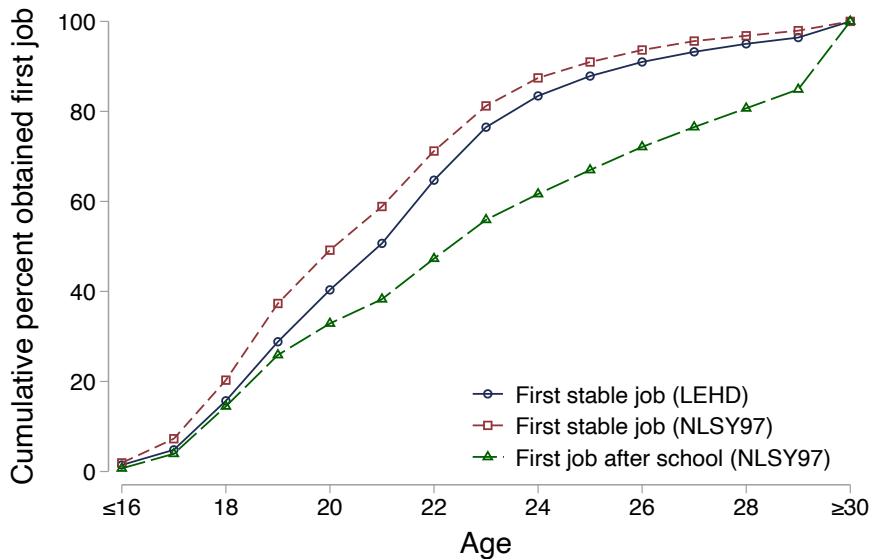
Parental earnings



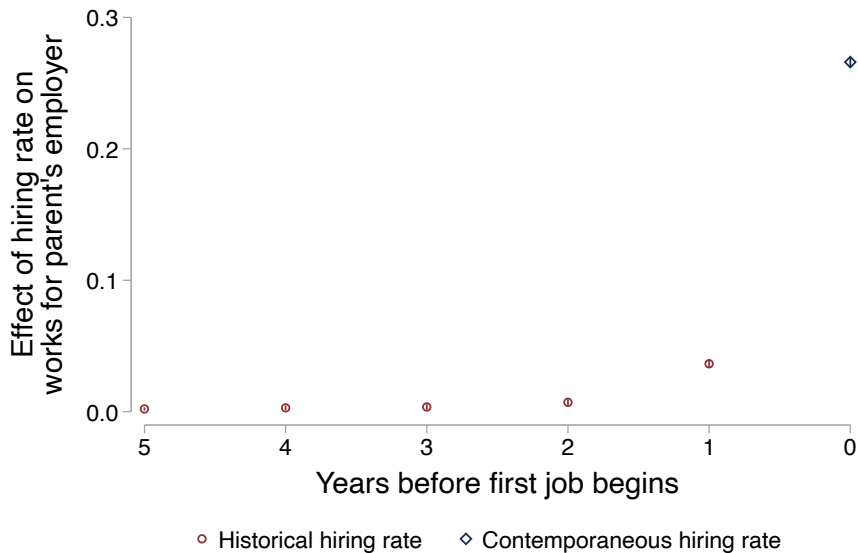
Source of income by wages



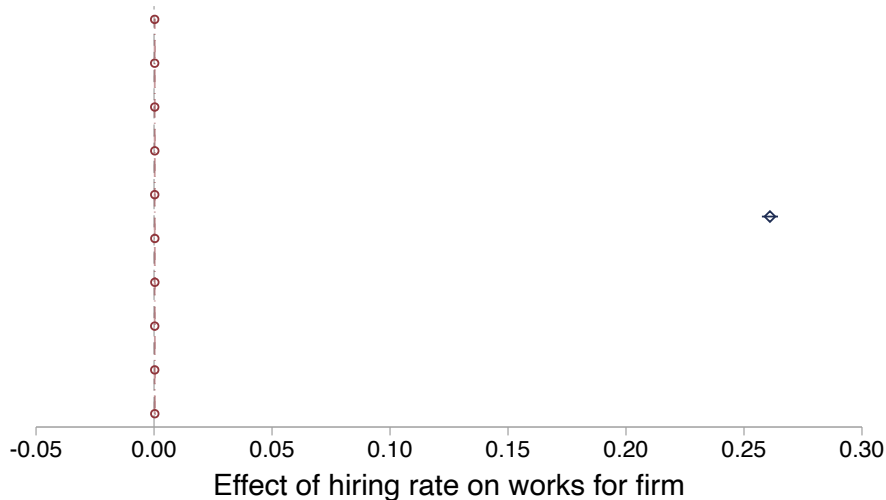
Age of entry



Association with hiring rate in earlier years



Association with hiring rate at similar firms



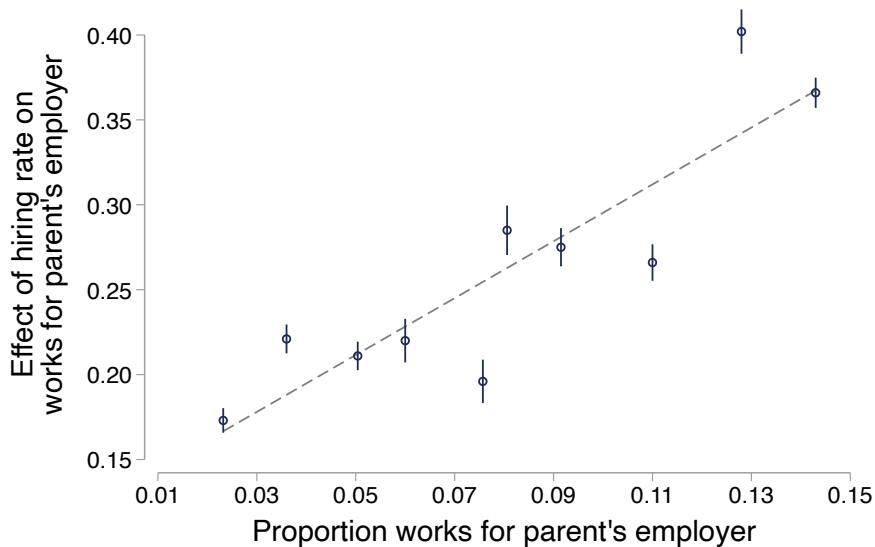
○ Same industry, commuting zone, and size ◇ Parent's employer

Household fixed effects

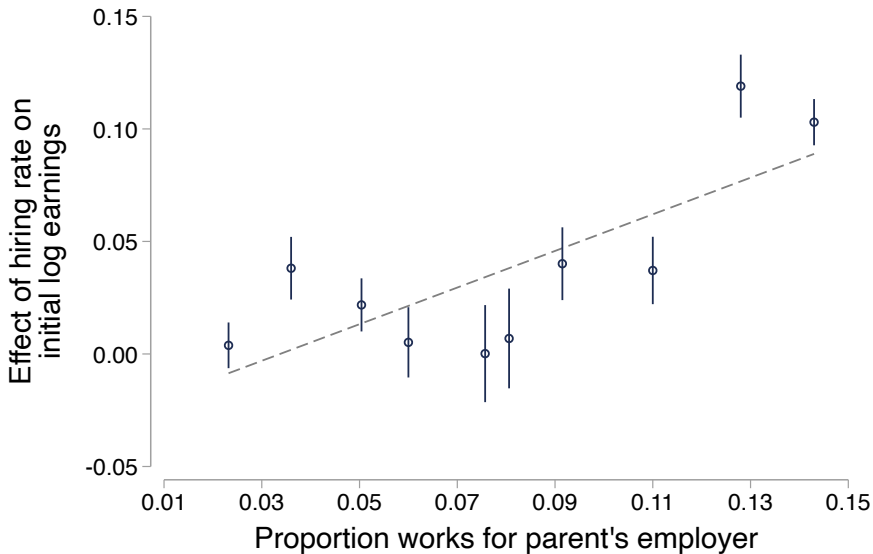
	Log initial earnings	
	(1)	(2)
Works for parent's employer	0.153*** (0.012)	0.129*** (0.015)
Sibling comparison	no	yes
First-stage F-statistic	12,300	12,300
Observations (millions)	8.29	8.29

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

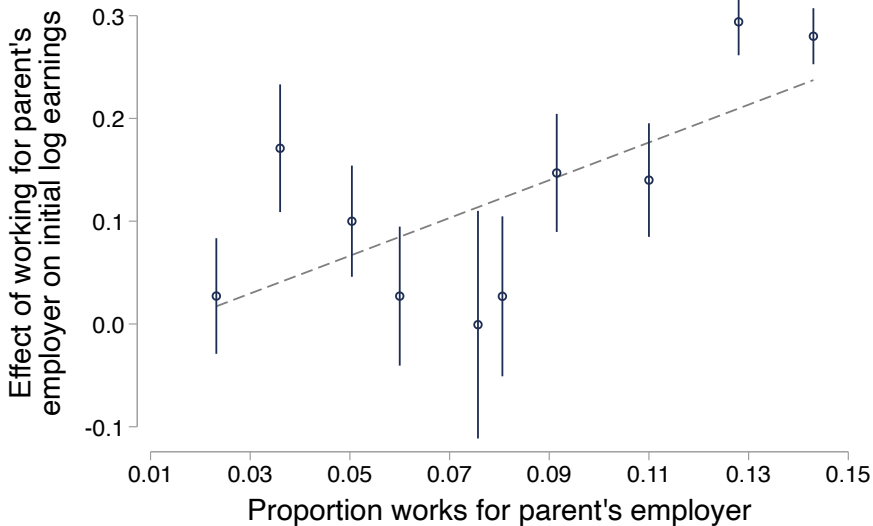
Heterogeneity by parent's industry, first stage



Heterogeneity by parent's industry, reduced form



Heterogeneity by parent's industry, second stage



Quantify bias using parent's future employer, assumptions

$$Y_i = \beta D_i + \lambda O_i + u_i$$

$$D_i = \delta Z_i + v_i$$

Where Z_i is a valid instrument for D_i but I only observe

$$Z_i^* = Z_i + O_i$$

Instrumenting for D_i using Z_i^* yields,

$$plim \hat{\beta}^{2sls} = \beta + \frac{\lambda \sigma_O^2}{\delta \sigma_Z^2}$$

If hiring rate at parent's future employer is

$$M_i^* = M_i + O_i$$

Then I can estimate and correct for bias

$$plim \frac{\hat{\Delta}^{Y|Z^*} - \hat{\Delta}^{Y|M^*}}{\hat{\Delta}^{D|Z^*}} = \beta$$

Where $\hat{\Delta}^{Y|X}$ denotes the coefficient from a regression of Y on X

Robustness across alternative specifications

	Log of initial earnings				
	(1)	(2)	(3)	(4)	(5)
Works for parent's employer	0.17*** (0.01)	0.21*** (0.01)	0.24*** (0.02)	0.17* (0.07)	0.19*** (0.01)
First-stage F-statistic	24,300	24,500	6,180	533	22,100
Time of hiring rate Covariates	first job demographic	first job none	year before demographic	age 18 demographic	first job additional
Observations (millions)	17.81	17.81	17.81	11.80	17.55

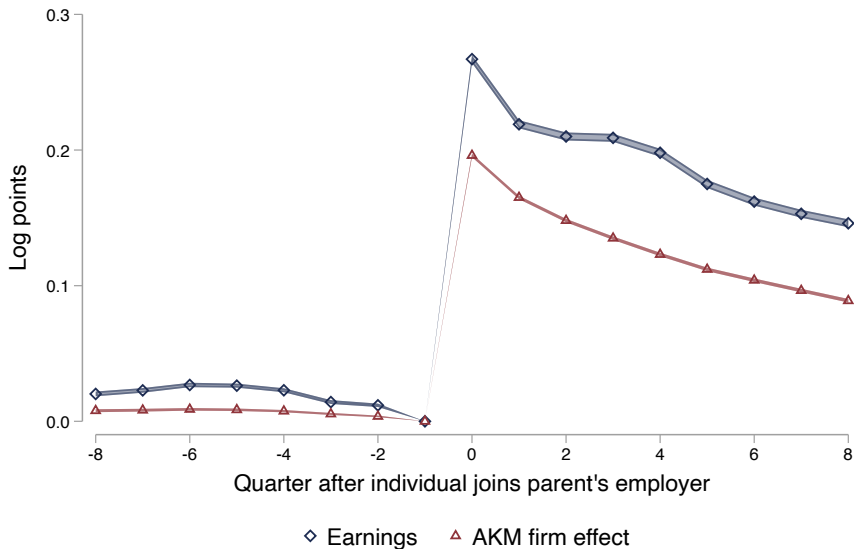
*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Effect on when and whether individual finds first job

	Quarter finds first job	Ever finds first job
	(1)	(2)
Works for parent's employer	-1.040*** (0.178)	
Hiring rate at parent's employer		0.0002 (0.0032)
First-stage F-statistic	24,300	
Observations (millions)	17.81	14.28

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Estimates from event study specification



Effect on earnings three years after entry

	Annual earnings year after		
	one (1)	two (2)	three (3)
Works for parent's employer	3,380*** (306)	2,960*** (397)	1,870*** (446)
First-stage F-statistic	21,300	21,300	21,300
Mean	26,700	26,800	28,100
Standard deviation	15,900	20,300	22,700
Observations (millions)	15.17	15.17	15.17

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Effect on job mobility three years after entry

	Job transition		
	stay (1)	j2j (2)	j2n (3)
Works for parent's employer	0.17*** (0.01)	-0.14*** (0.01)	-0.04*** (0.01)
First-stage F-statistic	21,300	21,300	21,300
Mean	0.36	0.41	0.23
Standard deviation	0.48	0.49	0.42
Observations (millions)	15.17	15.17	15.17

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Effect on characteristics of employer, industry

	Sector			Industry premium (4)
	skilled services (1)	unskilled services (2)	production (3)	
Works for parent's employer	-0.02* (0.01)	-0.31*** (0.01)	0.33*** (0.01)	0.11*** (0.00)
First-stage F-statistic	24,300	24,300	24,300	24,300
Mean	0.37	0.47	0.16	-0.13
Standard deviation	0.48	0.50	0.37	0.16
Observations (millions)	17.81	17.81	17.81	17.81

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Effect on characteristics of employer, job ladder

	AKM pay premium (1)	Firm ranking		
		log revenue per worker (2)	poaching hires (3)	average earnings (4)
Works for parent's employer	0.16*** (0.01)	2.25** (0.84)	1.94*** (0.47)	16.70*** (0.51)
First-stage F-statistic	23,900	11,800	24,300	24,300
Mean	-0.12	57.10	54.50	43.80
Standard deviation	0.34	28.30	23.30	27.00
Observations (millions)	17.69	10.54	17.81	17.81

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Heterogeneity by sex

	Father		Mother	
	(1)	(2)	(3)	(4)
Works for parent's employer	0.20*** (0.04)	0.23*** (0.01)	0.06** (0.02)	0.06* (0.03)
Sex of child	daughters	sons	daughters	sons
First-stage F-statistic	3,320	11,500	5,110	4,210
Proportion works for parent's employer	0.02	0.04	0.03	0.03
Observations (millions)	5.02	5.28	5.75	5.79

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Standard single-agent selection model (Roy 1951)

$$D_i = \mathbb{1}\{ \text{gains } (\beta_i) > \text{costs } (Z_{j(1)t-1}) \}$$

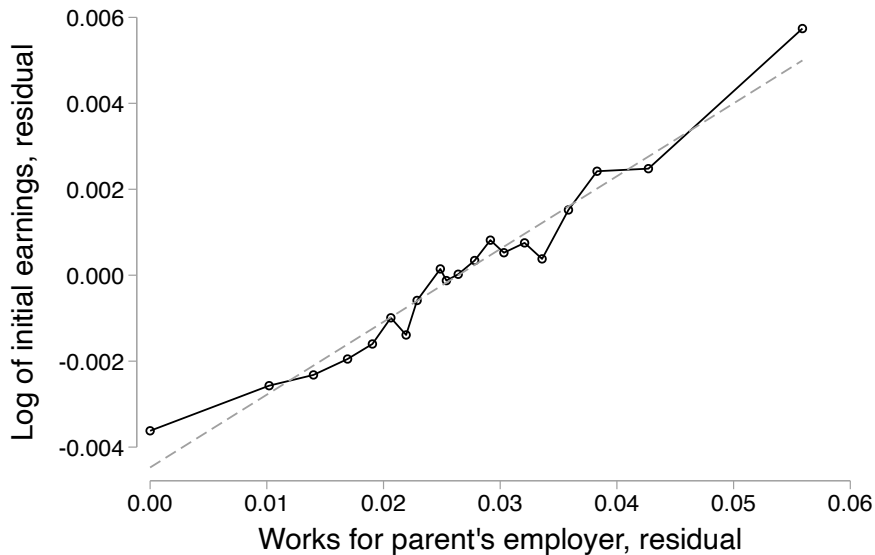
Selection driven by multiple agents: **employer** and **child**

$$D_i = \underbrace{\mathbb{1}\{ \text{employer's gains } (Z_{j(1)t-1}) > 0 \}}_{\text{employer makes offer}} \times \underbrace{\mathbb{1}\{ \text{child's gains } (\beta_i) > 0 \}}_{\text{child accepts offer}}$$

If employer's decision to make offer unrelated to child's decision to accept:

- compliers and treated are random sample who would accept
- LATE=ATT, where $\text{ATT} = \mathbb{E}[\beta_i | D_i = 1]$

Visualizing treatment effect heterogeneity



Effect on earnings using binary instrument

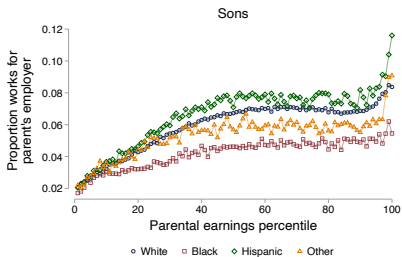
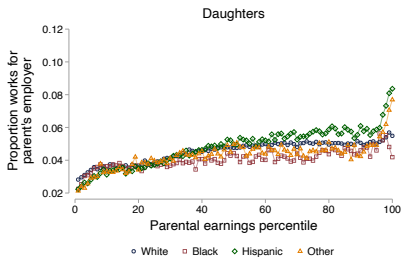
	(1)	(2)	(3)
A. Second Stage			
Works for parent's employer	0.168*** (0.010)	0.170*** (0.011)	0.169*** (0.011)
B. First Stage			
Hiring rate at parent's employer	0.025*** (0.0002)	0.020*** (0.0001)	0.023*** (0.0002)
First stage F-statistic	24,600	20,100	21,100
Hiring rate above	p25	p50	p75
Observations (millions)	17.81	17.81	17.81

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Intergenerational elasticity of earnings

	Log initial earnings	Log average earnings ages 29-31		
	(1)	(2)	(3)	(4)
Log parental earnings	0.136 (0.000)	0.482 (0.002)	0.162 (0.000)	0.491 (0.002)
Sample excludes low earners	yes	no	yes	no
Measure of parental earnings	long-run	long-run	long-run	age 16-20
Observations (millions)	25.860	7.619	5.150	7.073

Works for parent's firm by parental earnings, sex, and age



- On average, sons earn 7 log points more than daughters at their first job, this gap would be 8 percent smaller if no one worked for a parent's employer
- Conditional on parental income, Black males have lower expected income compared to White males, this gap would be 4 percent smaller if no one worked for a parent's employer

Effect on initial earnings by parental earnings and sex

