

No Kid is an Island: Intergenerational Mobility and Peer Effects

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September 9th, 2025
Ph.D. Thesis Defense

Mobilità Sociale e Peer Effects



- I redditi dei genitori predicono i redditi dei figli.

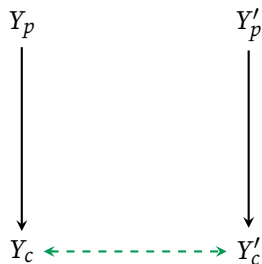
Mobilità Sociale e Peer Effects

Y_p
↓
 Y_c

Y'_p
↓
 Y'_c

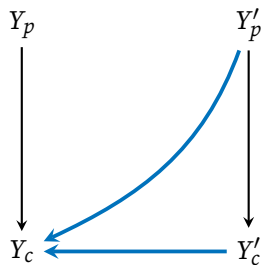
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- Tuttavia, le famiglie non sono isolate.

Mobilità Sociale e Peer Effects



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- I figli si influenzano a vicenda tramite **peer effects**.

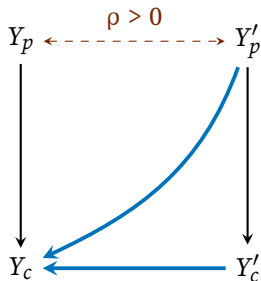
Mobilità Sociale e Peer Effects



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- Tuttavia, le famiglie non sono isolate.
- I figli si influenzano a vicenda tramite **peer effects**.

Qual è il ruolo dello **status socioeconomico dei genitori dei peers** per la mobilità sociale?

Perchè è importante?



Le famiglie si distribuiscono tra quartieri e scuole:

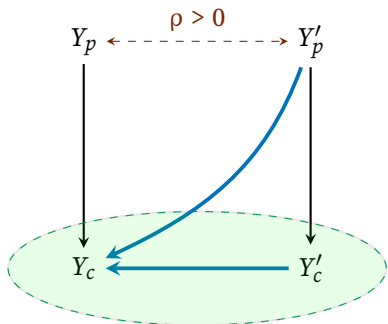
- **Correlazione nello status dei genitori tra peers** può rafforzare la persistenza di disuguaglianze da una generazione alla successiva.

I quartieri influenzano la mobilità sociale:

- Isolare il ruolo delle interazioni sociali apre a considerazioni di policy.

Literature

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Literature

1. Identificare l'Effetto dei Peers

Data and Sample Selection

Fonte dati:

- Dati amministrativi danesi (1980–2019).
- Registri familiari, scolastici, fiscali e lavorativi.

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Misure principali:

- **Redditi dei genitori:** media dei redditi di madre e padre tra 0-18 anni del bambino.
- **Redditi del bambino:** media dei redditi tra 28-32 anni.
- Misurati sia in livelli che in percentili della distribuzione nazionale.

Popolazione di studio:

- **Studenti delle scuole superiori** iscritti dal 1997 al 2007.
- Età mediana di iscrizione: 16 anni. Nati ~ **1980-1990**.

Identificazione causale: Stessa Scuola, Coorti Diverse (?)

$$Y_{i,s,c} = \beta_0 + \beta_1 X_i + \beta_2 \bar{X}_i + Z_i' \delta + \gamma_c + \epsilon_i. \quad (1)$$

$Y_{i,s,c}$: redditi del bambino i , che ha studiato alla scuola s nell'anno c ;

X_i : redditi dei genitori di i ;

\bar{X}_i : redditi dei genitori dei compagni di scuola di i (media leave-one-out);

Z_i : caratteristiche demografiche;

- *Issue*: Chi ha peers migliori potrebbe avere caratteristiche "migliori" (abilità o motivazione genitoriale).

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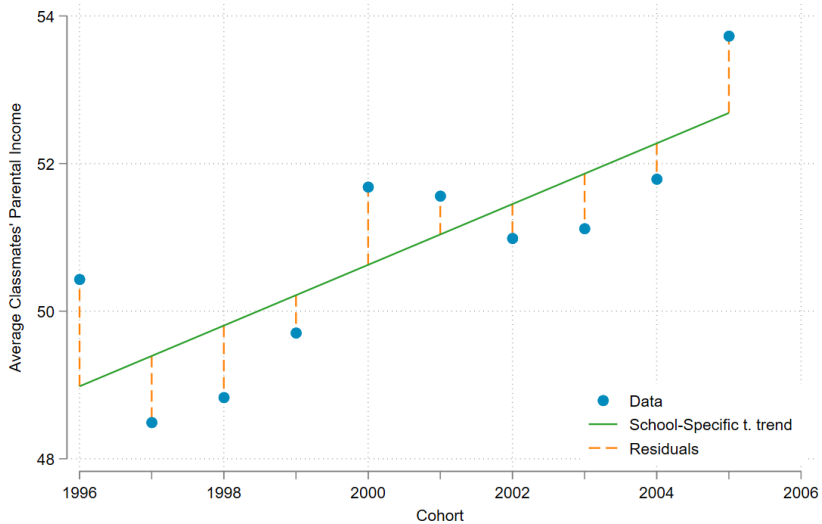
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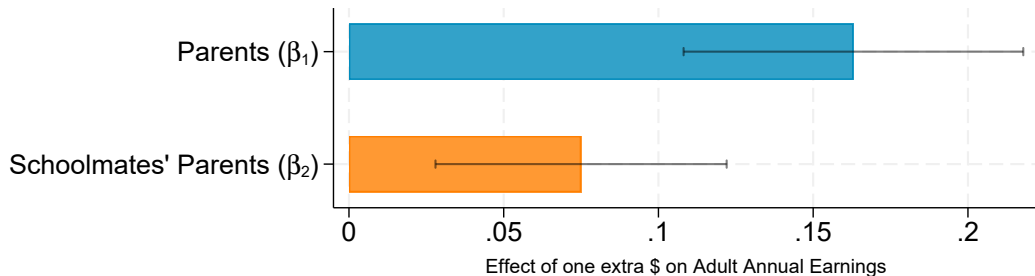
- *Issue*: Chi ha peers migliori potrebbe avere caratteristiche "migliori" (abilità o motivazione genitoriale).
- *Solution*: Confrontare gli studenti che hanno frequentato la stessa scuola in coorti diverse.
- *Intuition*: Shock imprevisti alla composizione della scuola.

Identification: Visualization



Main Results

$$Y_{i,s,c} = \beta_0 + \beta_1 X_i + \beta_2 \bar{X}_i + Z_i' \delta + \gamma_s + \tau_s \mathbf{c} + \gamma_c + \epsilon_i.$$



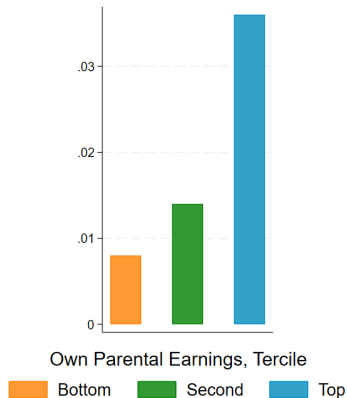
- + \$1 nel reddito medio dei genitori dei compagni di scuola \Rightarrow + \$0.08 nel reddito medio annuo da adulto.
- Influenza (dei genitori) dei compagni di scuola = $0.42 \times$ correlazione genitore-figlio.

2. Meccanismo:

Accesso all'Occupazione Tramite Reti
Sociali

Perchè i compagni di scuola sono importanti? Reti Sociali e Mercato del Lavoro

Wage Premium: Firm



- I compagni di scuola facilitano l'accesso a queste opportunità?
Weak ties (?)
- Il successo di un compagno di scuola influenza il tuo?
Outside options (?)

Genitori alto reddito \Rightarrow lavori
meglio retribuiti.

Ex Compagni di Scuola come Weak Ties: Connected Hires

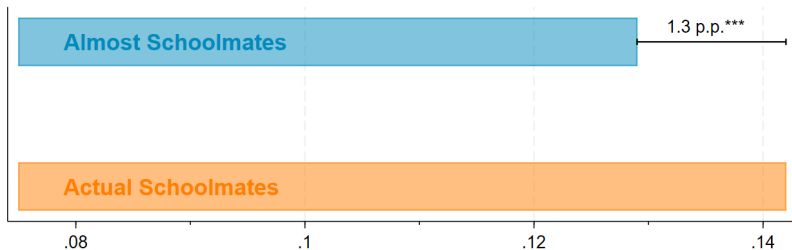
Idea teorica: ?:

Le reti sociali trasmettono informazioni che influenzano l'abbinamento tra posti di lavoro e cercatori di lavoro.

Connected Hire = cambio di posto di lavoro dovuto a una "conoscenza".

- **Challenge:** I compagni di scuola potrebbero unirsi alla stessa azienda a causa di legami sociali o caratteristiche condivise (ad es. posizione geografica).
- **Solution:** Confronta i compagni di scuola *reali* con almost-schoolmates *quasi* (cioè: stessa scuola, anno precedente/successivo).

Connected Hires



Di 100 lavoratori:

- 13 si uniscono all'azienda di un **almost schoolmate** (interazioni sociali più deboli).
 - 14 si uniscono all'azienda di un **actual schoolmate** (interazioni sociali più forti);
- ⇒ Evidenza empirica che le interazioni sociali influenzano accesso a posti di lavoro.

Ex compagni di scuola come *Weak Ties*: Outside Options

- I compagni di scuola facilitano l'accesso a posti di lavoro.
- Cambiare lavoro non è necessario per beneficiare dei propri contatti sociali.
- I compagni di scuola potrebbero fornire **outside options** nelle trattative salariali.

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Come funzionano le outside options?

- Un amico ottiene una promozione (ad esempio, manager di un'azienda);
- Ti fa un'offerta;
- Puoi andare dal tuo datore di lavoro e chiedere condizioni lavorative migliori;
- ... meccanismo principale dei modelli di ricerca di lavoro con ricerca sul lavoro (??).

Ex Compagni di Scuola come *Weak Ties*: Outside Options

- **Promozione degli ex compagni a manager come cambiamento delle outside options.**
- Confronta i gruppi nel tempo con un amico **promosso vs non ancora promosso**.
- I salari nel gruppo "promosso" crescono di più dopo la promozione? [Staggered DiD]

$$W_{sc,t} = \alpha_{sc}^{\tau} + \alpha_t^{\tau} + \sum_l \delta_l^{\tau} (M_{sc}^{\tau} \cdot \mathbb{1}\{t = \tau + l\}) + \psi_{c \times t} + e_{sc,t}. \quad (2)$$

- $W_{sc,t}$: salario medio dei membri del gruppo sc al tempo t ;
- $M_{sc}^{\tau} = 1$ se il membro di sc è stato promosso a $t = \tau$ e 0 se non lo è ancora stato;

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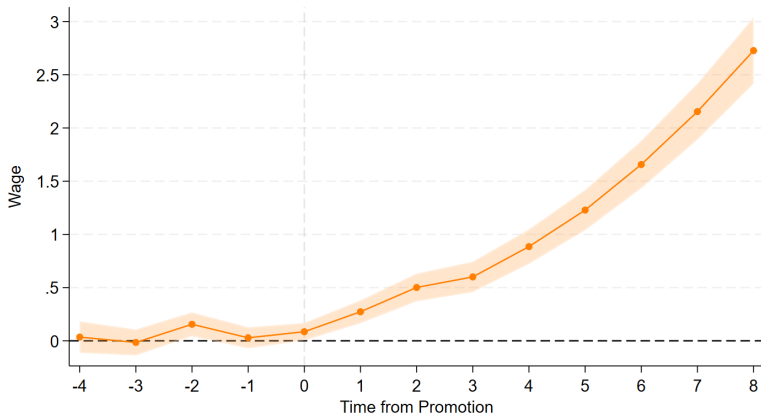
Condizione necessaria per identificazione del rapporto causale:

- Senza la promozione, i salari sarebbero cresciuti allo stesso modo.

Vantaggio principale:

- Gli effetti delle spillover di capitale umano sono assorbiti dalle differenze nel livello di salario di partenza tra gruppi.

Ex compagni di scuola come *Weak Ties*: Outside Options



- Supporto per l'interpretazione delle **outside options**: effetti più ampi all'interno del settore e per i manager promossi in aziende con salari più elevati.

[See more](#)

Conclusioni

1. Impatti a lungo termine del background familiare dei peers:
 - ▶ +1\$ reddito parentale dei peers \Rightarrow +0.08\$ reddito annuale;
 - ▶ Effetti maggiori nelle scuole con redditi più bassi.
2. Importante fattore di mobilità intergenerazionale:
 - ▶ Spiega fino all'8% della persistenza dei redditi tra genitori e figli.
3. Importanza dei Peers come Legami Sociali nel Mercato del Lavoro:
 - ▶ Facilitano l'accesso al posto di lavoro in cui sono impiegati;
 - ▶ Forniscono outside options nelle negoziazioni salariali.

Implicazioni di policy:

- La segregazione residenziale dà opportunità diverse a bambini in quartieri diversi;
- **Promuovere interazioni** tra bambini di diversi background familiari limita la persistenza delle disuguaglianze.

Thank You!

Get in touch:

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`https://pietro-campa.github.io/`

References I

Literature: Contributions and Related Works

1. The Causal Effect of Social Interactions For Intergenerational Mobility.

- Neighborhood Effects: ?; ???;
- Purposive Sorting: ???;
- Social Interactions: ???.

2. Long-term Peer Effects on Earnings.

- Peers' Characteristics (Parental Background): ?; ???;
- Peers' Outcomes (Promotion): ?; ???;

3. Former Schoolmates = Social Ties on Labor Markets.

- Social ties: ???;
- Parents: ???; ?;

Closest Papers



Literature: Closest Papers

1. ??:

- ▶ Facebook data on social network dyads.
- ▶ *Economic Connectedness* positively correlates with *Upward Mobility*.
- ▶ Cross-SES exposure in high school offsets homophily.
- ▶ SES: adult-level; parental SES for 30%; schools self-reported/imputed.

My contribution: (i) effects on individual earnings; (ii) administrative data.

2. ?:

- ▶ Norway admin data: alumni-offspring peers boost access to elite colleges.
- ▶ Larger effects for high-SES; negative effect on GPA.

My contribution: (i) parental earnings vs elite edu; (ii) labor market trajectories.

Back

Main Result, Ranks

	<i>Ranks</i>			
	(1)	(2)	(3)	(4)
Par. Earnings	0.161*** (0.003)	0.157*** (0.002)	0.145*** (0.002)	0.145*** (0.002)
Schoolmates' Par. Earnings		0.046* (0.024)	0.068*** (0.018)	0.067*** (0.021)
Observations	345834	345791	345791	345791
Cohort FE	No	No	Yes	Yes
School FE	No	No	Yes	Yes
School Time Trend	No	No	No	Yes
R^2	0.07	0.07	0.10	0.10

- Ranks are less prone to bias from lifecycle effects correlated with parental earnings (?).
- + 1 *perc.* in schoolmates' parental earnings \Rightarrow + \$0.07 *perc.* in yearly earnings.
- influence of schoolmates' parental earnings = $0.42 \times$ parent-child correlation.

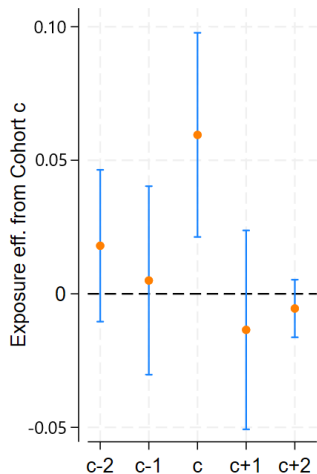
Substituting k-Schoolmates with j-Schoolmates

		-1 p.p. quartile k			
$\pi^{j,k}$		$k = 1$	$k = 2$	$k = 3$	$k = 4$
+1 p.p. quartile j	$j = 1$		-0.047*** (0.014)	-0.037*** (0.015)	-0.038*** (0.017)
	$j = 2$	0.068*** (0.014)		0.021 (0.015)	0.021 (0.018)
	$j = 3$	0.061*** (0.015)	0.005 (0.015)		0.014 (0.014)
	$j = 4$	0.061*** (0.017)	0.005 (0.018)	0.014 (0.018)	

$$Y_{i,s,c} = \pi_0 + \sum_{j \neq k} \pi_{j,k} \bar{Q}_i^j + \tilde{\gamma}_s + \tilde{\tau}_s c + \tilde{\gamma}_c + u_i \text{ for } j, k \in \{1, 2, 3, 4\}.$$

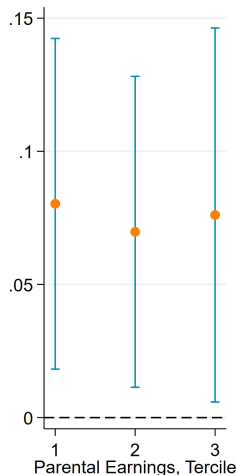
\bar{Q}_i^j : % of schoolmates with parental earnings in the j -th quartile.

No Effect from Adjacent Cohorts



- Potential Concern: Correlated Effects at the School Level.
 - Eg.: Inflow of high-SES families might shift school policies.
 - Unlikely to shift available financial resources (central redistribution).
 - We reject spillovers from adjacent cohorts.
- ⇒ Correlated shocks would have to vanish within a year, unlikely to be driving the results.

Homogeneous Effects by Parental Background



$$Y_{i,p,s,c} = \sum_{k \in \{1,2,3\}} \beta_k \bar{X}_i \cdot \mathbb{1}\{p = k\} + \gamma_{s,p} + \tau_{s,p} \mathbf{c} + \epsilon_{i,p,s,c}.$$

- $p = \{1, 2, 3\}$: i 's parental earnings, tercile.
- β_k : exposure effect for children from tercile k .
- No heterogeneity.

Results are Robust to Cohort \times Municipality FEs

	(1)	(5)
Parental earnings (Rank)	0.146*** (0.002)	0.145*** (0.002)
SM Par. earnings (Rank)	0.068*** (0.021)	0.090*** (0.021)
Observations	345801	345439
School FE	Yes	Yes
Cohort FE	Yes	Yes
School t trend (1st order)	Yes	Yes
School \times Municipality	No	Yes
R ²	0.10	0.11

- Potential Concern: Correlated Effects at the Local Level.
 - Eg.: Inflow of high-SES families might be correlated with local labor mkt (increase in demand).
 - Results are robust to municipality-by-cohort FEs.
- ⇒ Correlated shocks at the local level are unlikely to be driving the results.

Residuals are Uncorrelated over Time

	N of test with $H_0 : \beta = 0$ is rejected			N of tests
	P-value<.01	P-value<.05	P-value<.1	
None	3 (0.9%)	17 (5.1%)	14 (4.2%)	332 (100%)
Linear	3 (0.9%)	10 (3%)	15 (4.5%)	332 (100%)
Quadratic	3 (0.9%)	12 (3.6%)	12 (3.6%)	332 (100%)
Cubic	4 (1.2%)	5 (1.5%)	9 (2.7%)	332 (100%)

- The table shows the share of schools for which $\beta_s \neq 0$.

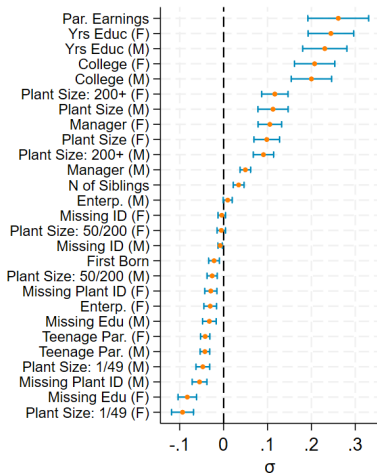
$$Y_{s,c} = \psi_s + \beta_s Y_{s,c-1} + \xi_{s,c}.$$

Residuals Orthogonal to Own Parental Earnings

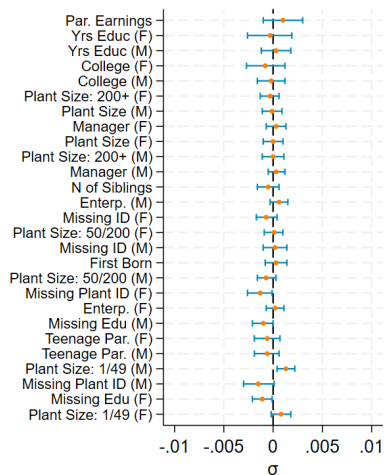
	(1)	(2)	(3)	(4)
	Par. Earnings	Par. Earnings	Par. Earnings	Par. Earnings
Schoolmates' Par. Earnings	0.044*** (0.012)	0.007 (0.011)	0.039*** (0.011)	0.006 (0.011)
Observations	350821	350821	345801	345801
School and time FE	Yes	Yes	Yes	Yes
Individual and school controls	No	No	Yes	Yes
School time trend	None	Linear	None	Linear
P-value of parental background	0	.527	0	.59

SEs in parentheses are clustered at the school level.

Balance Test



Peer's Par. Earnings on own characteristics.



Residuals on own characteristics.

[Back](#)

Nonlinear Time Trends, Moving Average

	(1)	(2)	(3)	(4)
Parental earnings (Rank)	0.146*** (0.002)	0.146*** (0.002)	0.146*** (0.002)	0.161*** (0.003)
SM Par. earnings (Rank)	0.068*** (0.021)	0.047** (0.021)	0.034 (0.023)	0.077** (0.030)
SM Par. earnings (Rank, moving average)				-0.026 (0.041)
Observations	345801	345801	345801	213168
School FE	Yes	Yes	Yes	No
Cohort FE	Yes	Yes	Yes	No
School t trend (1st order)	Yes	Yes	Yes	No
School t trend (2nd order)	No	Yes	Yes	No
School t trend (3rd order)	No	No	Yes	No
R^2	0.10	0.10	0.11	0.07

Residuals are not predicted by primary school composition

	(1)	(2)	(3)
Primary School Schoolmates' Par. Earnings	0.378*** (0.001)	0.018*** (0.000)	0.008*** (0.000)
Observations	344452	344452	344452
School FE	NO	YES	YES
School t. trend	NO	NO	YES
Within R^2	.257	.004	.001

Standard errors in parentheses

Dependent variable is leave one out average of high school schoolmates' parental earnings.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Younger siblings are not more likely to anticipate school composition

	(1)	(2)	(3)	(4)
	Par. Earnings	Par. Earnings	Par. Earnings	Par. Earnings
Schoolmates' Par. Earnings	0.010 (0.019)	-0.021 (0.025)	0.005 (0.019)	-0.023 (0.025)
Observations	78119	78119	77687	77687
Individual and school controls	No	No	Yes	Yes
School time trend	None	Linear	None	Linear
P-value of parental background	.607	.399	.792	.345

Younger siblings included. SEs in parentheses are clustered at the school level. Variables are standardized.

[Back](#)

Probability of changing/leaving HS is uncorrelated with treatment

	(1)	(2)
	Attrition	Attrition
SM Par. earnings	-0.000 (0.000)	
Tercile = 1 \times SM Par. earnings		-0.000 (0.000)
Tercile = 2 \times SM Par. earnings		-0.000 (0.000)
Tercile = 3 \times SM Par. earnings		0.000 (0.000)
Observations	345801	345800
R^2	0.37	0.38

Standard errors in parentheses. School fixed effects and school time trends included.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Schoolmates' Parents Earnings vs Years of Education

	(1)	(2)	(3)
Schoolmates' Par. Earnings	635.726*** (164.713)		513.200*** (171.788)
Schoolmates' Par. Yrs Edu		536.665*** (96.765)	502.514*** (102.291)
Observations	345801	345731	345709
R^2	0.09	0.09	0.09

SEs in parentheses are clustered at the school level.

School fixed effects and time trends included. Variables are standardized.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Effect Heterogeneity: Gender 1/2

	<i>Ranks</i>		<i>Levels</i>	
	(1)	(2)	(5)	(6)
Par. Earnings	0.138*** (0.003)	0.156*** (0.003)	0.103*** (0.010)	0.235*** (0.058)
Schoolmates' Par. Earnings	0.051** (0.025)	0.088*** (0.030)	0.037 (0.025)	0.120*** (0.040)
Observations	196997	148804	196997	148804
Cohort FE	Yes	Yes	Yes	Yes
School FE	Yes	Yes	Yes	Yes
School Time Trend	Yes	Yes	Yes	Yes
R^2	0.07	0.08	0.06	0.08
Gender	Female	Male	Female	Male

Effect Heterogeneity: Gender 2/2

	<i>Ranks</i>				<i>Levels</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Par. Earnings	0.138*** (0.003)	0.138*** (0.003)	0.156*** (0.003)	0.156*** (0.003)	0.103*** (0.010)	0.103*** (0.010)	0.235*** (0.058)	0.235*** (0.058)
Schoolmates' (same gender) Par. Earnings	0.025 (0.18)		0.059*** (0.021)		0.027 (0.020)		0.054* (0.028)	
Schoolmates' (opposite gender) Par. Earnings		0.015 (0.013)		0.029* (0.018)		0.056** (0.027)		0.056** (0.027)
Observations	196954	196975	148776	148507	196954	196975	148776	148507
Cohort FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School Time Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.07	0.07	0.08	0.08	0.06	0.06	0.08	0.08
Gender	Female	Female	Male	Male	Female	Female	Male	Male

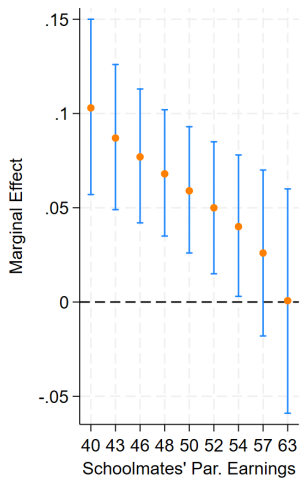
Effect Heterogeneity: School Size

	Levels		Ranks	
	(1)	(2)	(5)	(6)
Par. Earnings	0.142*** (0.003)	0.151*** (0.003)	0.137*** (0.010)	0.182*** (0.041)
Schoolmates' Par. Earnings	0.088*** (0.024)	0.017 (0.039)	0.099*** (0.029)	0.033 (0.040)
Observations	173758	172043	173758	172043
Cohort FE	Yes	Yes	Yes	Yes
School FE	Yes	Yes	Yes	Yes
School Time Trend	Yes	Yes	Yes	Yes
R ²	0.12	0.09	0.10	0.10
School Size	<150	≥ 150	<150	≥ 150

Effect Heterogeneity: School Composition

	Levels		Ranks	
	(1)	(2)	(5)	(6)
Par. Earnings	0.150*** (0.003)	0.142*** (0.003)	0.161*** (0.039)	0.174*** (0.005)
Schoolmates' Par. Earnings	0.027 (0.030)	0.091*** (0.028)	0.033 (0.034)	0.127*** (0.034)
Observations	172100	173701	172100	173701
Cohort FE	Yes	Yes	Yes	Yes
School FE	Yes	Yes	Yes	Yes
School Time Trend	Yes	Yes	Yes	Yes
R^2	0.12	0.09	0.10	0.10
School Earnings	> Median	≤ Median	> Median	≤ Median

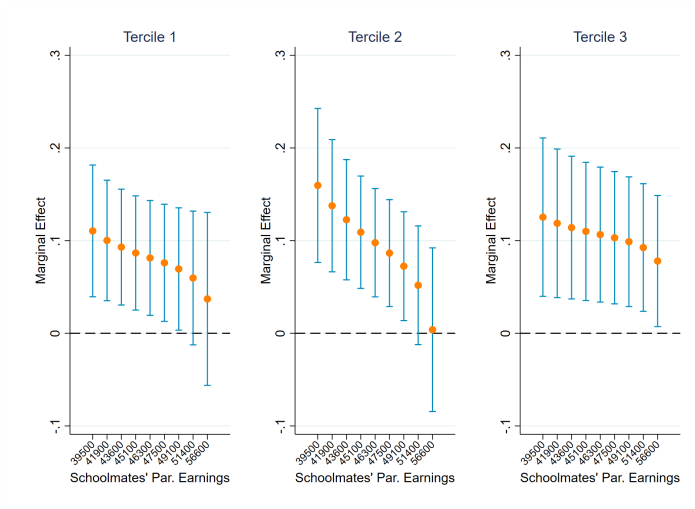
Nonlinear Effects: Decreasing Marginal Effect of Exposure



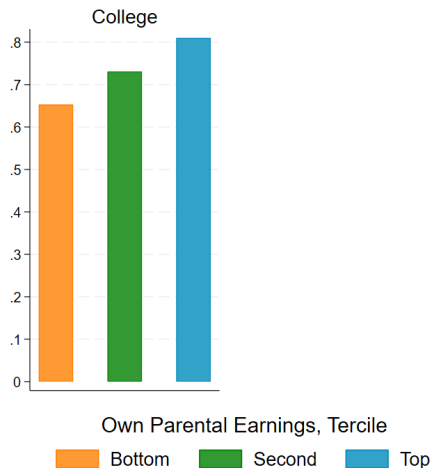
$$Y_{i,s,c} = \lambda_1 \bar{X}_i + \lambda_2 \bar{X}_i^2 + \gamma_s + \tau_s c + \epsilon_i.$$

- Effect is larger for children exposed to lower-income peers.

Decreasing Marginal Effect



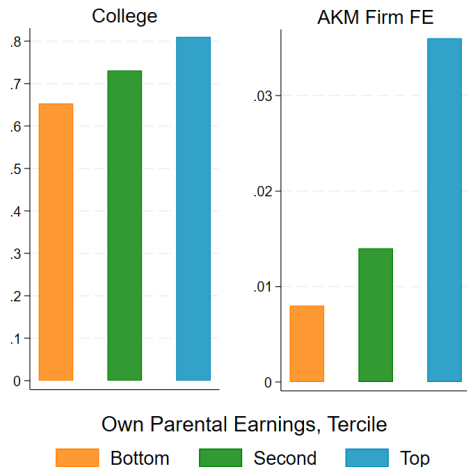
Vertical Transmission: Human Capital and Jobs



Children of higher income parents:

- More likely to have a College Degree;

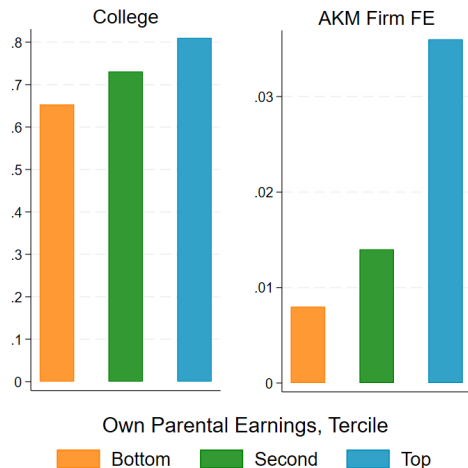
Vertical Transmission: Human Capital and Jobs



Children of higher income parents:

- More likely to have a College Degree;
- Work at plants paying higher wages;

Vertical Transmission: Human Capital and Jobs



Children of higher income parents:

- More likely to have a College Degree;
- Work at plants paying higher wages;

Which of these differences are transmitted to schoolmates?

Horizontal Transmission: Human Capital and Jobs

H_i : dummy for College Education.

F_i : firm specific wage premium (?).

$M_i = [1, X_i, Z_i, S_i] \rightarrow$ same design as in main specification.

$$H_i = \gamma_H \bar{X}_i + \pi'_H M_i + \epsilon_i^H;$$

$$F_i = \gamma_F \bar{X}_i + \pi'_F M_i + \epsilon_i^F.$$

	(1)	(2)	(3)	(4)
	College	AKM	Earnings	Earnings
\bar{X}_i	0.011*** (0.003)	0.002** (0.001)	600.801*** (187.242)	
H_i				3,920.274*** (198.054)
F_i				47,255.21*** (861.572)
Observations	258232	258232	258232	258232
R^2	0.09	0.06	0.12	0.07
Mean D.V.	0.75	0.02	50156.79	50156.79

$1\sigma \uparrow$ in peers' parental earnings: +1.1*p.p.* (1.3%) P of College; +0.2*p.p.* (10%) firm AKM.

Horizontal Transmission: Human Capital and Jobs

$$H_i = \gamma_H \bar{X}_i + \pi'_H M_i + \epsilon_i^H;$$

$$F_i = \gamma_F \bar{X}_i + \pi'_F M_i + \epsilon_i^F.$$

$$Y_i = \beta_2 \bar{X}_i + \pi' M_i + \epsilon_i.$$

	(1)	(2)	(3)	(4)
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β_2 : effect of peer exposure on earnings as in main specification.

Horizontal Transmission: Human Capital and Jobs

$$H_i = \gamma_H \bar{X}_i + \pi'_H M_i + \epsilon_i^H;$$

$$F_i = \gamma_F \bar{X}_i + \pi'_F M_i + \epsilon_i^F.$$

$$Y_i = \beta_2 \bar{X}_i + \pi'_i M_i + \epsilon_i.$$

$$Y_i = \alpha_H H_i + \alpha_F F_i + \pi'_F M_i + \eta_i.$$

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α_H and α_F : returns from education and firm AKM FE on earnings.

Horizontal Transmission: Human Capital and Jobs

$$H_i = \gamma_H \bar{X}_i + \pi'_H M_i + \epsilon_i^H;$$

$$F_i = \gamma_F \bar{X}_i + \pi'_F M_i + \epsilon_i^F.$$

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$$Y_i = \alpha_H H_i + \alpha_F F_i + \pi'_i M_i + \eta_i.$$

$$\beta_2 = \alpha_H \gamma_H + \alpha_F \gamma_F + \frac{\text{Cov}(\eta_i, \bar{X}_i)}{\text{Var}(\bar{X}_i)}.$$

	(1)	(2)	(3)	(4)
	College	AKM	Earnings	Earnings
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β_2 as a linear combination of peer effects on education and firm sorting.

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Horizontal Transmission: Human Capital and Jobs

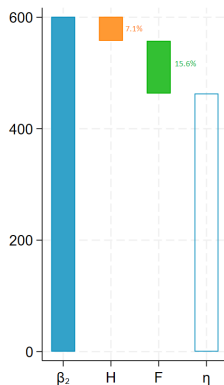
$$H_i = \gamma_H \bar{X}_i + \pi'_H M_i + \epsilon_i^H;$$

$$F_i = \gamma_F \bar{X}_i + \pi'_F M_i + \epsilon_i^F.$$

$$Y_i = \beta_2 \bar{X}_i + \pi' M_i + \epsilon_i.$$

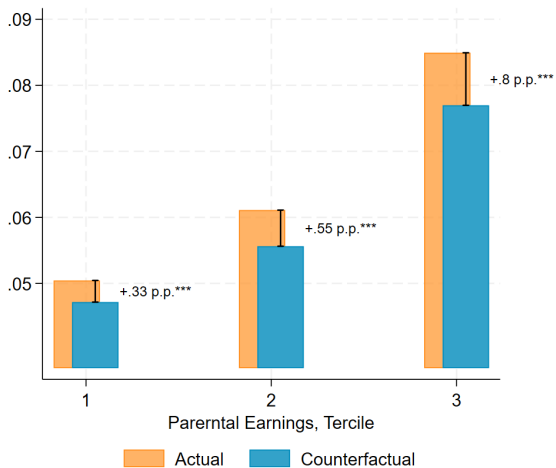
$$Y_i = \alpha_H H_i + \alpha_F F_i + \pi'_F M_i + \eta_i.$$

$$\beta_2 = \alpha_H \gamma_H + \alpha_F \gamma_F + \frac{\text{Cov}(\eta_i, \bar{X}_i)}{\text{Var}(\bar{X}_i)}.$$

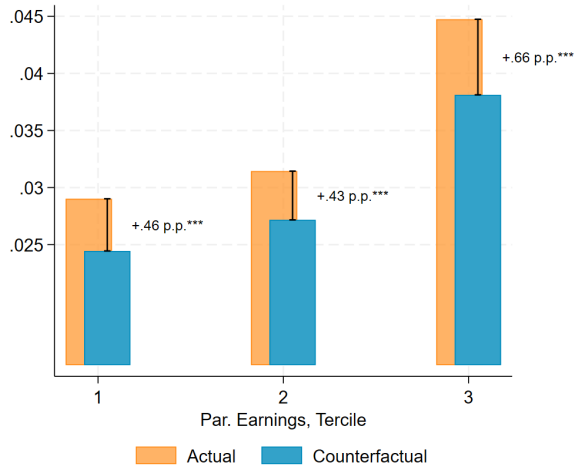


Next: identifying access to firms, separately from human capital.

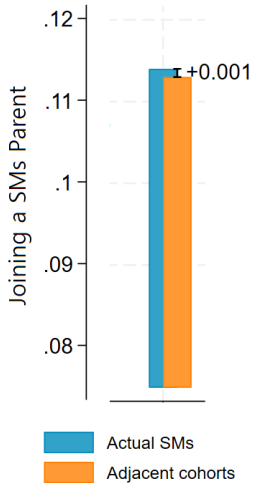
Joining a High SES Peer, by own Parental Background



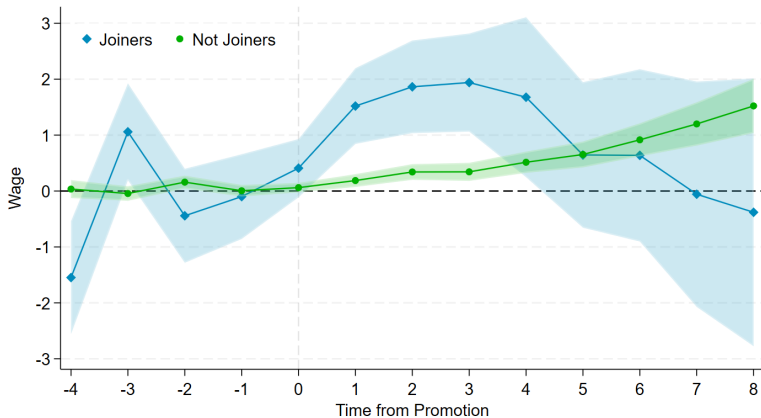
Joining a High Wage Plant, by own Parental Background



Joining a the Plant of a Peers' Parent

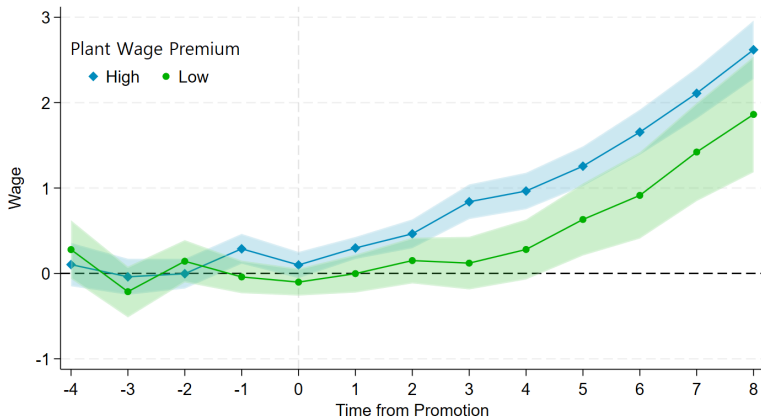


Former Schoolmates as *Weak Ties*: Outside Options



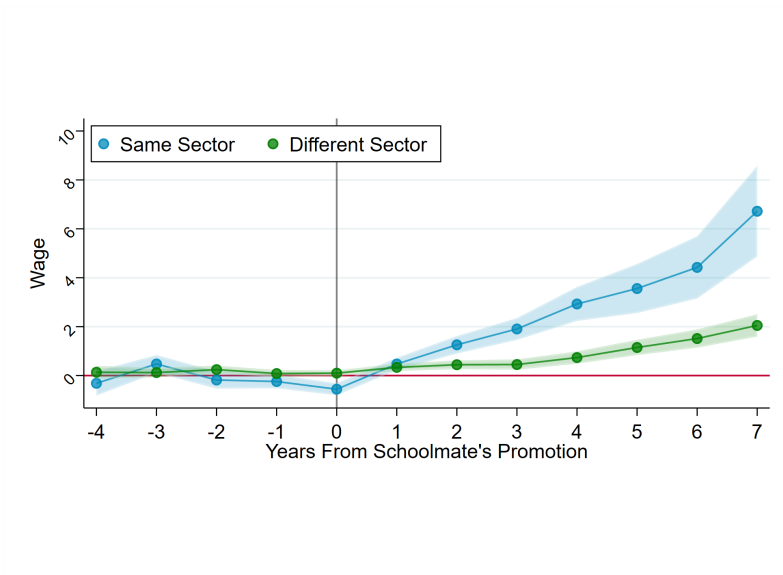
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Former Schoolmates as *Weak Ties*: Outside Options

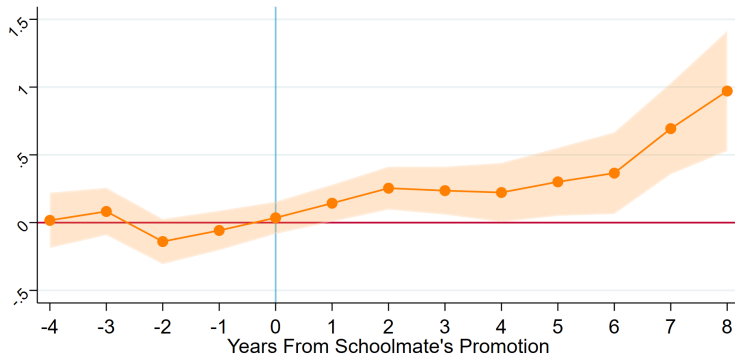


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Social Ties in the Same Sector are more impactful

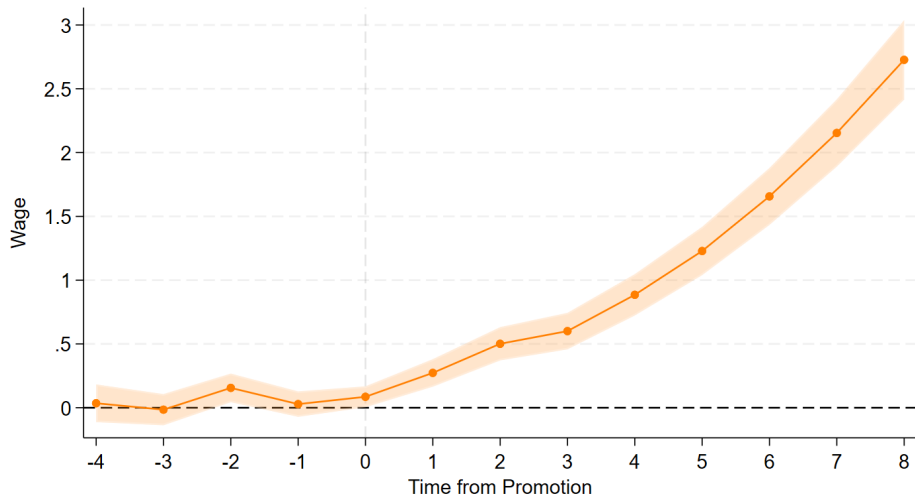


Within Firm Wage Gain

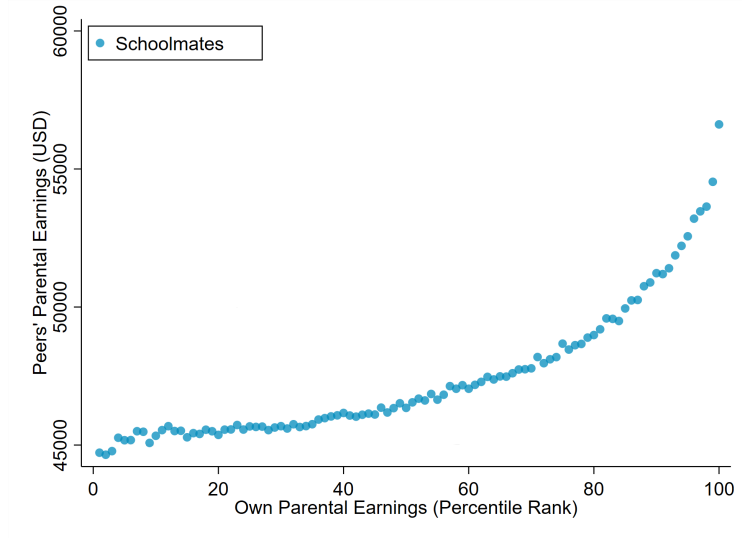


Within firm Wage differences. ATT: .358 (.092)

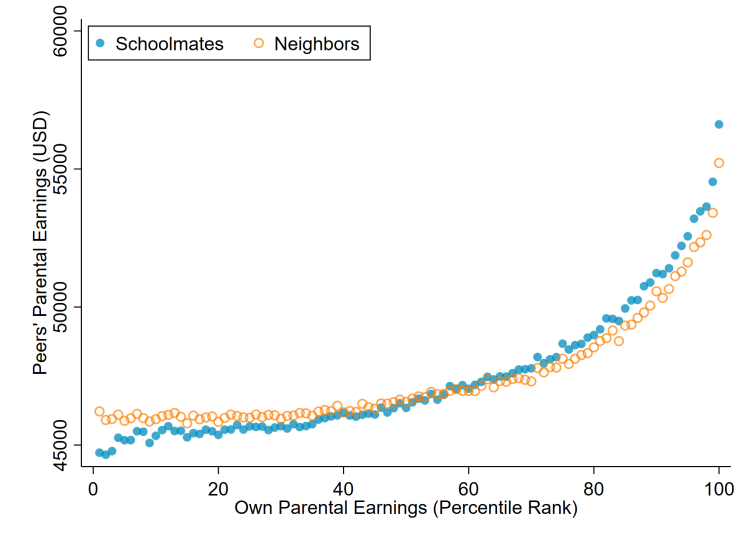
Control for Industry at Baseline



Peers' Parental Earnings are Correlated to Own Parental Earnings

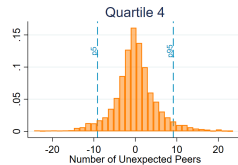
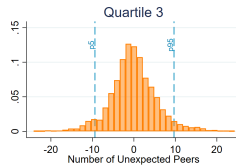
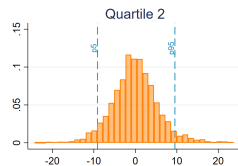
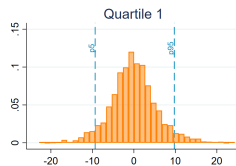
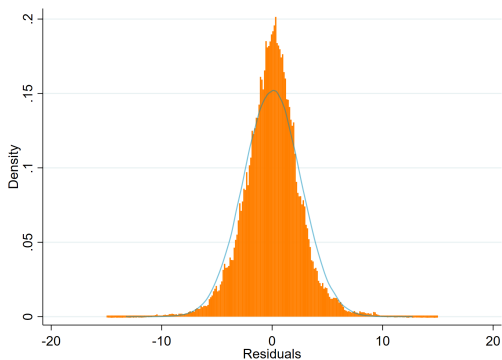


Peers' Parental Earnings are Correlated to Own Parental Earnings



Size of the Identifying Variation

	mean	sd	count
Schoolmates' Parental Earnings: \bar{X}_i	50.50	9.29	350,821
Schoolmates' Parental Earnings, residuals: $\bar{X}_i - (\gamma_s + \tau_s c)$	-0.00	2.62	350,821



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II. Peer Exposure and Intergenerational Mobility

How much of parent-child earnings correlation is due to peer exposure?

$$IGM : Y_i = \alpha_0 + \alpha_{IGM} X_i + e_i;$$

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How much of parent-child earnings correlation is due to peer exposure?

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$$PEERS : Y_i = \beta_0 + \beta_1 X_i + \beta_2 \bar{X}_{-i} + S_i' \psi + \epsilon_i;$$

$$\alpha_{IGM} = \frac{\text{Cov}(Y_i, X_i)}{\text{Var}(X_i)} = \beta_1 + \beta_2 \underbrace{\frac{\text{Cov}(\bar{X}_{-i}, X_i)}{\text{Var}(X_i)}}_{\rho} + \psi' \frac{\text{Cov}(S_i, X_i)}{\text{Var}(X_i)} + \frac{\text{Cov}(\epsilon_i, X_i)}{\text{Var}(X_i)}.$$

⇒ The importance of **peer exposure** \propto its causal effect β_2 , and its correlation with own parental background ρ .

How much of parent-child earnings correlation is due to peer exposure?

	$\hat{\theta}$	$SE(\hat{\theta})$
α_{IGM}	0.169	(0.001)
β_1	0.146	(0.002)
β_2	0.067	(0.020)
ρ	0.095	(0.000)

ρ is the OLS estimator from

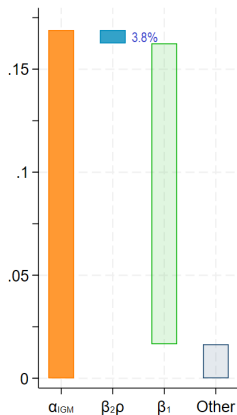
$$\bar{X}_{-i} = \rho_0 + \rho X_i + \eta_i.$$

How much of parent-child earnings correlation is due to peer exposure?

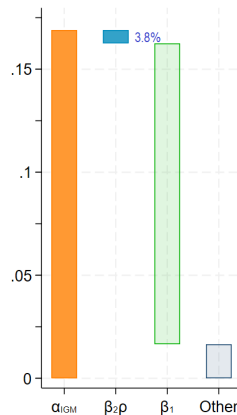
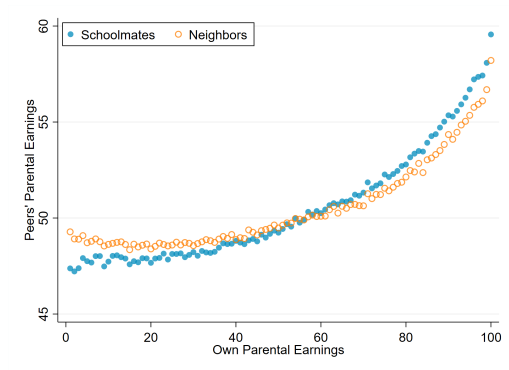
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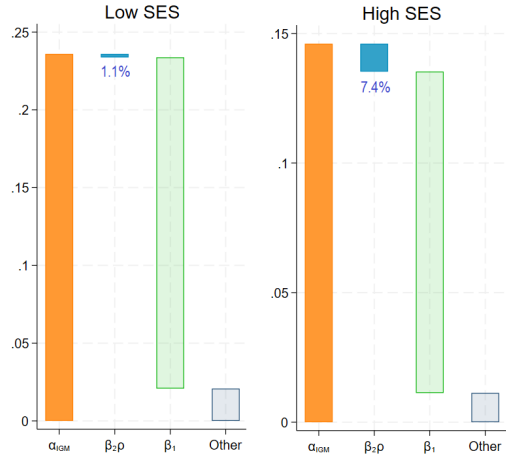
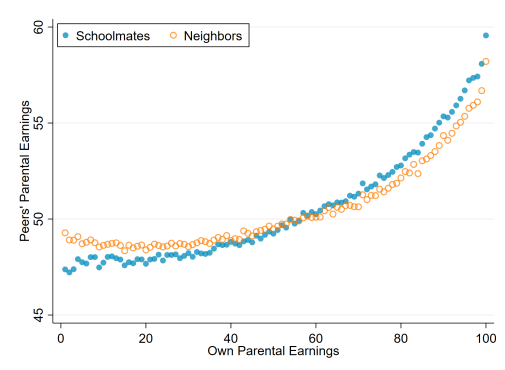
$$\bar{X}_{-i} = \rho_0 + \rho X_i + \eta_i.$$



How much of parent-child earnings correlation is due to peer exposure?



How much of parent-child earnings correlation is due to peer exposure?



Institutional Context: Danish High Schools

- After 9th grade (age 16), students choose: **high school** ($\sim 50\%$), vocational education ($\sim 25\%$) or discontinuing education.
- Four main **tracks**:
 - STX General (3 years);
 - HTX Science and IT (3 years);
 - HHX Business and Economics (3 years);
 - HF General (2 years).
- Seats are allocated centrally based on preferences and residential proximity.
- Funded centrally through national taxes, little to no tuition fees.
- Compulsory courses in fixed classes.

Peers: students enrolled in the same school in the same cohort.

Sorting

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