Firms and Inter-generational Mobility

Bank of Spain Workshop

Caue Dobbin & Tom Zohar

CEMFI

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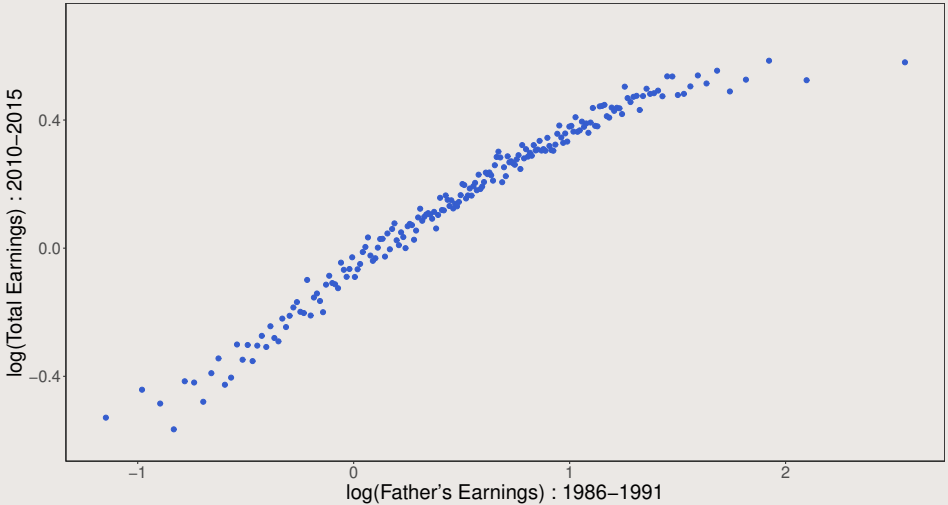
Intergenerational Elasticity of Earnings (IGE)



Source: Israeli National Insurance

Why father's earnings? Rank-Rank

What can explains the IGE?

- Earning is persistent across generations
  - Possible explanations: human capital, genetics, neighborhoods...
  - Focus of the lit. – early life conditions and human capital investments that shape essential life skills
    Heckman and Mosso (2014); Lee and Seshadri (2019)

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- Some firms pay workers with similar skills more than others
  - These differences in firm pay premiums contribute substantially to the distribution of earnings
    AKM (1999); CHK (2013); Sorkin (2017,2018); Card et al. (2018); Song et al. (2019)

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- Richer children might have better access to these higher paying firms, increasing the IGE

This paper

Research question

- How much of the observed intergenerational elasticity of earnings (IGE) can be explained by access to better paying firms?

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Empirical strategy

- Decompose child's earnings to:
  - Individual's productivity
  - Firm-specific wage-premium
- Equalize the firm wage-premium and measure the implied change in the IGE

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- Decompose child's earnings to:
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Results

- Differential access to better-paying firms explains 17% of the IGE, out of which:
  - 45% – assortative matching
  - 30% – labor-market separation of certain ethnicities

Outline

Outline

Data: Israeli National Insurance

The dataset

- Monthly level individual records of earnings
- Firms' and workers' identifiers
- Civil registry of all residents
  - Births, Deaths, Emigration
- Parent-child links
  - 95% match rate

Our sample

- Birth cohort
  - Children: 1965-1980
- Labor market outcomes
  - Children: 2010-2015 (30-50 years old)
  - Fathers: 1986-1991 (78% between 30-50 years old)

Histogram

Estimating Firm-level Earnings

We impose a log-linear structure on earnings

(AKM 1999, CHK 2013, Sorkin 2018, Song *et al.* 2019)

$$logY_{it} = \alpha_i + \psi_{J_{it}} + r_{it}$$

- $logY_{it}$ log-earnings of individual i at time t
- α_i – worker fixed effects
- $\psi_{J_{it}}$ – earnings premium of firm J_{it}
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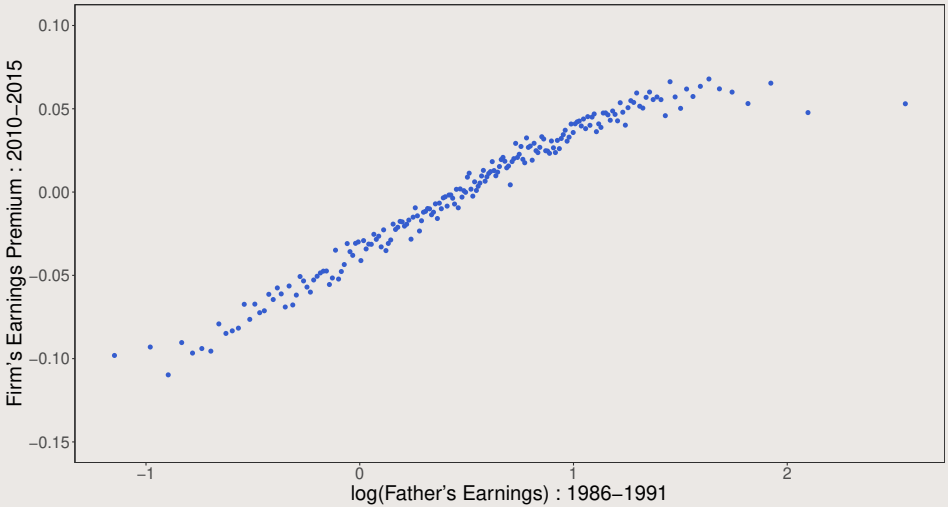
Taking averages across the sample years:

$$\overline{logY_i} = \hat{\alpha}_i + \overline{\hat{\psi}_i}$$

Specification Test

Wealthier Children Work in Higher-paying Firms



Source: Israeli National Insurance Controling for Ability

Quantifying the Role of Firms in IGM

- Intergenerational Elasticity (IGE):

$$\overline{logY_i} = \beta^{IGE} \cdot \overline{logY_{f(i)}} + \epsilon_i^{IGE}$$

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- Regressing the AKM components on fathers' earnings:

$$\hat{\alpha_i} = \beta^{\alpha} \cdot \overline{logY_{f(i)}} + \epsilon_i^{\alpha}$$
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- Therefore, we can decompose:

$$\beta^{IGE} = \beta^{\alpha} + \beta^{\psi}$$

17% of the IGE is Due to Access to Better Paying Firms

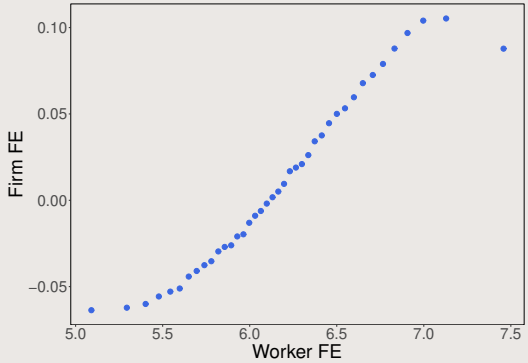
	Interpretation	Coefficient	Share
β^{IGE}		0.415	
β^{α}	Worker's Productivity	0.344	83%
β^{ψ}	Firm's Premium	0.071	17%

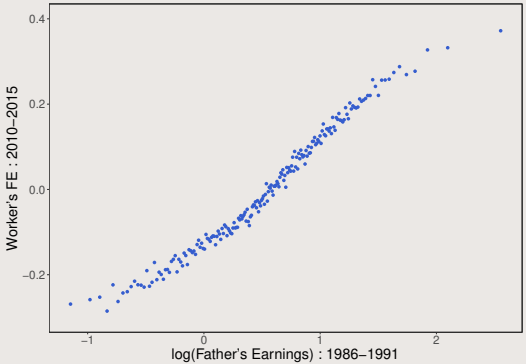
IGE | Regression Equivalent (Ability Control)

Outline

Assortative Matching

Worker FE are correlated w/ parental earnings & w/ firm wage premiums





Conclusion

Decomposing the Role of Assortative Matching in IGM

- Consider 3 regressions:
  1. Firm premiums on father's earnings:

$$\overline{\hat{\psi}_i} = \beta^{\psi} \cdot \overline{logY_{f(i)}} + \epsilon_i^{\psi}$$

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  3. Firm premium on worker FE and fathers earnings (cross-elasticites):

$$\overline{\hat{\psi}_i} = \beta_{\alpha}^{\psi} \cdot \alpha_i + \beta_{Y_f}^{\psi} \cdot \overline{logY_{f(i)}} + \eta_i^{\psi}$$

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- Using these cross-elasticities to decompose the role of firms:

$$\beta^{\psi} = \underbrace{\beta_{\alpha}^{\psi} \cdot \beta_{Y_f}^{\alpha}}_{\text{Assortative Matching Component}} + \underbrace{\beta_{Y_f}^{\psi}}_{\text{Remaining Parental Earnings Component}}$$

Cross Elasticities Estimation

	Dependent variable:	
	Child's Firm Wage-Premium	
	(1)	(2)
log(Father's Earnings)	0.071***	0.036***
	(0.0002)	(0.0002)
Worker's FE		0.088***
		(0.0001)
Observations	2,017,304	2,017,304
R^2	0.067	0.332
Note:	*p<0.1; **p<0.05; ***p<0.01	

Assortative Matching Explain 47% of the Role of Firms

$$\beta^{\psi} = \underbrace{\beta^{\psi}_{\alpha} \cdot \beta^{\alpha}_{Y_f}}_{\text{Assortative Matching Component}} + \underbrace{\beta^{\psi}_{Y_f}}_{\text{Remaining Parental Earnings Component}}$$

	Coefficient	Share
IGE (Wages)	0.415	
Firm Effects Removed	0.344	17%
Baseline (Firm Effects)	0.071	
Assortative Matching	0.034	47%
Direct Effect	0.036	53%

Other Potential Drivers

- Network effect (San 2021)
  - x3 more likely to find employment in firms where their parents have connections
- Search time
  - Richer kids can search for longer and end in 'better' firm (a la Chetty 2009)
  - We find no evidence for this channel Pr(find a job vs. parental income)
- Geographical segregation with better labor markets (or discrimination)

Outline

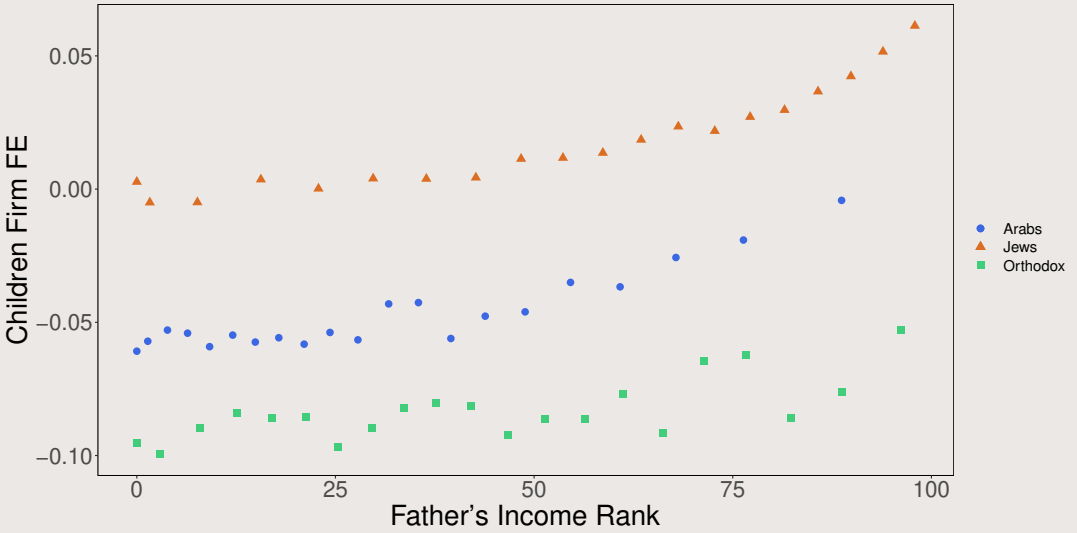
Inequality & Ethnicity in Israel

- Israel is one of the most unequal countries in the OECD, second only to the United States in terms of disposable income inequality

- This high inequality is commonly attributed to the SES disadvantages and high unemployment rates experienced by two segregated communities:
  - Israeli-Arab
  - Ultra-Orthodox Jews

Conclusion

Firm Wage Premiums and Parental Earnings (by Ethnicity)



Firm vs. Individual FE by Ethnicity

Decomposing the Role of Firms in IGM

- Consider an alternative cross-elasticity:
  1. Firm premiums on father's earnings:

$$\overline{\hat{\psi}_i} = \beta^{\psi} \cdot \overline{logY_{f(i)}} + \epsilon_i^{\psi}$$

Decomposing the Role of Firms in IGM

- Consider an alternative cross-elasticity:
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  2. Firm premium on worker FE and fathers earnings and ethnicity (cross-elasticites):

$$\overline{\hat{\psi}_i} = \beta_{\alpha}^{\psi} \cdot \alpha_i + \beta_{Y_f}^{\psi} \cdot \overline{logY_{f(i)}} + \beta_{eth(i)}^{\psi} + \eta_i^{\psi}$$

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Cross Elasticities Estimation

	Dependent variable:		
	Child's Firm FE		
	(1)	(2)	(3)
log(Father's Earnings)	0.071***	0.048***	0.022***
	(0.0002)	(0.0002)	(0.0002)
Worker's FE			0.084***
			(0.0001)
Ethnicity FE	No	Yes	Yes
Observations	2,017,304	2,017,304	2,017,304
R^2	0.067	0.140	0.371

Note: robust SE in paranthesis $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Ethnicity Explain Another 22% of Firm's Role in IGE

$$\beta^{\psi} = \underbrace{\beta^{\psi}_{\alpha} \cdot \beta^{\alpha}_{w_f}}_{\text{Assortative Matching Component}} + \underbrace{\beta^{\psi}_{eth} \cdot \beta^{eth}_{w_f}}_{\text{Ethnicity Component}} + \underbrace{\beta^{\psi}_{w_f}}_{\text{Parental Earnings Component}}$$

	Coefficient	Share
IGE (Wages)	0.415	
Firm Effects Removed	0.344	17%
Baseline (Firm Effects)	0.071	
Assortative Matching	0.032	45%
Ethnicity Component	0.015	22%
Direct Effects	0.022	31%

Outline

Conclusion

- Wealthier children work in better-paying firms
  - Differential access to better-paying firms explains 17% of the IGE

- Firms exacerbate the role of individual's productivity
  - Assortative matching explain half of the role of firms in IGE

  Incorporate Assortative Matching

- This disadvantage seems to be bigger among specific communities
  - Affirmative action policies might help mitigate this source of inequality

  Split by Ethnicity

(Potential) Follow-up Projects in Spain

- Correlation in risk (e.g. income and firm volatility) of fathers and sons
  - Sons of richer parents might have more variation in their occupational risk (variance)
- IGM and the life-cycle patterns (dynamics): diff b/t life cycle of father-son by parental inc deciles
- Observed human capital and firms
- IGM vs. cross sectional importance of firms

THE END!

Appendix

Outline

IMV Effects: The Case of the Spanish Lottery

- An existing WP by Kent and Martinez examines the town-level wealth shocks on economic activity
  - Consumption increase, economic activity decrease

- Cannot examine the effects on the individual level due to data constraints
  - E.g. employment, education, opening a small buisness
  - These are first order UBI questions that are hard to answer
  - The Spanish Lottery serves as close as possible to a RCT and can provide deep insights on UBI in the Spanish context

Outline

Data Requirements

- Employer-employee datasets (workers, firms, year, earnings)
  - Need a long time frame (from mid-late 80's will work)
- Link to census data to identify parents-child links
- Link to revenues and profits of each firm

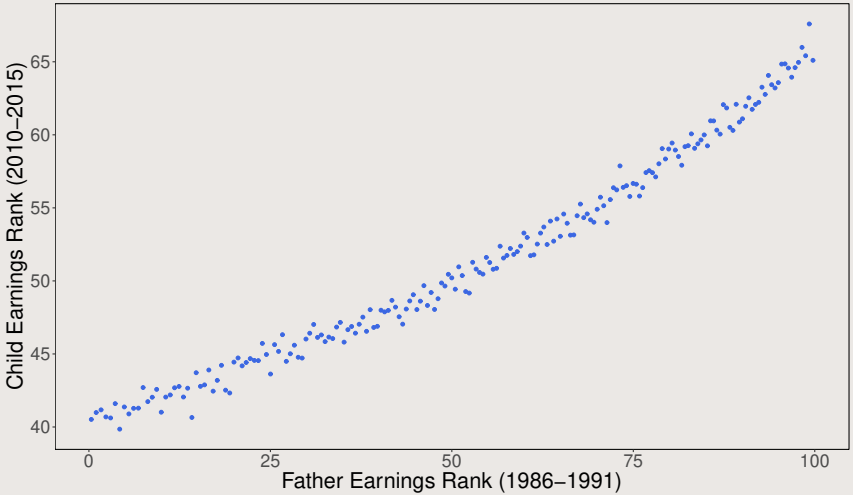
Existing Datasets

- Spanish MCVL:
  - Good: EE, benefits and unemployment (can decompose?), education, manager indicator, gender
  - Bad: Sample of workers (won't observe managers and workers together); can't do IGM (connect generations); only 8 occupation groups; no firm sales/profits
- Spanish PET: MCVL (4% of country), all workers in same firm, cannot identify worker-manager within estabilshment
- Problems:
  - We cannot estimate AKM on the existing datasets (we need the population)
  - We also cannot link parents and children

Opportunity Atlas Data

- Parents are identified from tax statement (5.4 million parents)
- 2.7M children (cohorts of 1980-1990), dependents in model 100 of the parents' 2003 income statement
- For each parental household, gross income (aggregated for parents), location and postal code are available
- From the children, 2015 income data is observed: gross and net income of the individual and household
- Individualized database of children, with location, sex and different incomes

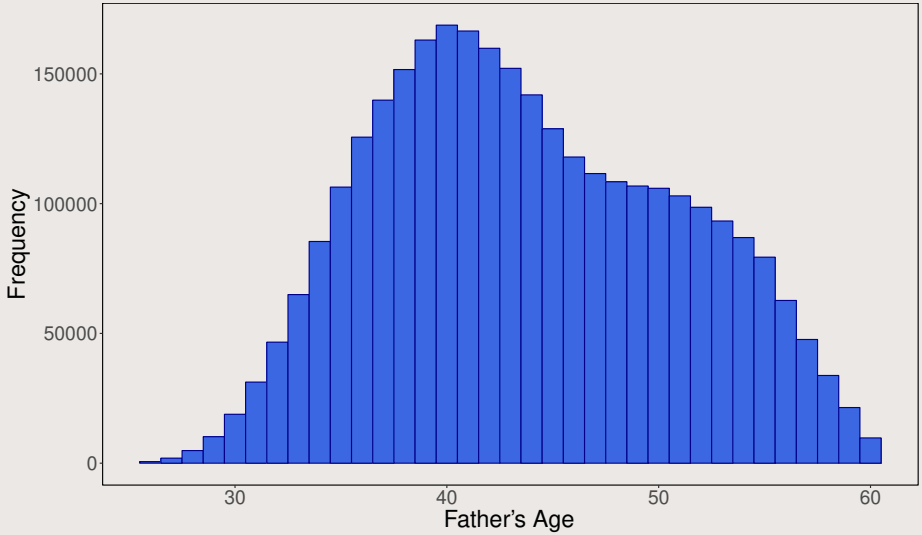
Rank-Rank IGM



Source: Israeli National Insurance

IGE

Most fathers observed between 30 and 50 years old



Persistence is driven by fathers' earnings

$$rank(family\ earnings) = \beta \cdot rank(child\ earnings)$$

	Family Earnings Measure		
	Household	Father	Mother
Coefficient	.23	.246	.093
	(.003)	(.003)	(.003)
Obs	156555	156555	156555
R^2	.049	.055	.008

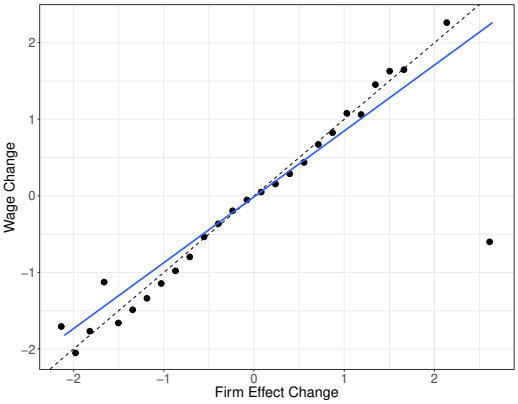
Back

AKM Specification Test

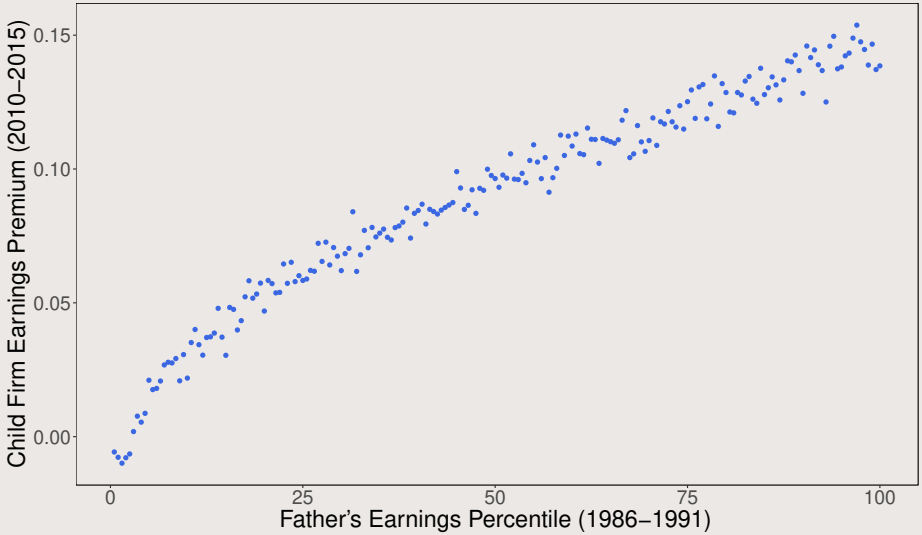
- The log-linear structure implies:

$$\mathbb{E}\left[\Delta w_{i,t} - \Delta \mathbf{X}_{i,t} \cdot \boldsymbol{\beta}\right] = \mathbb{E}\left[\Delta \psi_{J[i,t]}\right] .$$

- Taking it to the data:



Wealthier Children Work in Higher-paying Firms



Source: Israeli National Insurance

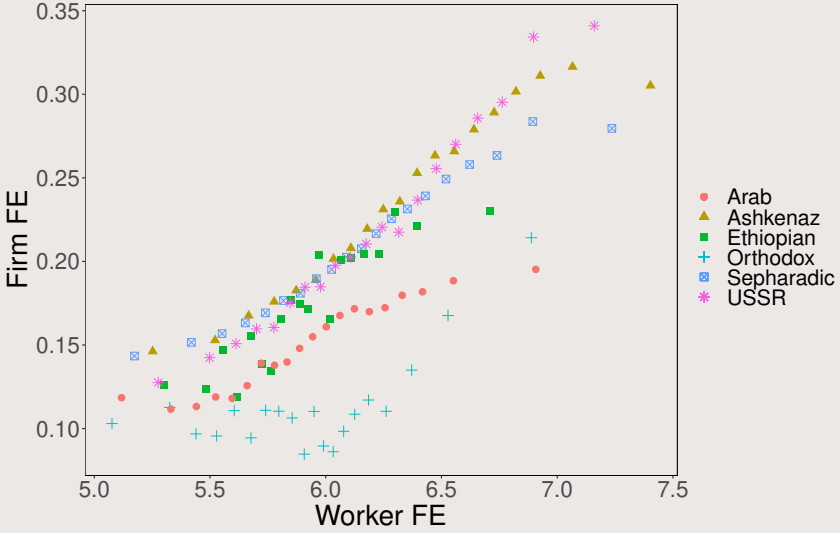
Controling for Ability

Assortative matching

	Dep. Var.: Firm Earnings Premium		
	(1)	(2)	(3)
log(Father's Earnings)	0.064		0.032
	(0.000)		(0.000)
Individual Earnings FE		0.135	0.125
		(0.001)	(0.001)
# Obs	184,431	184,431	184,431

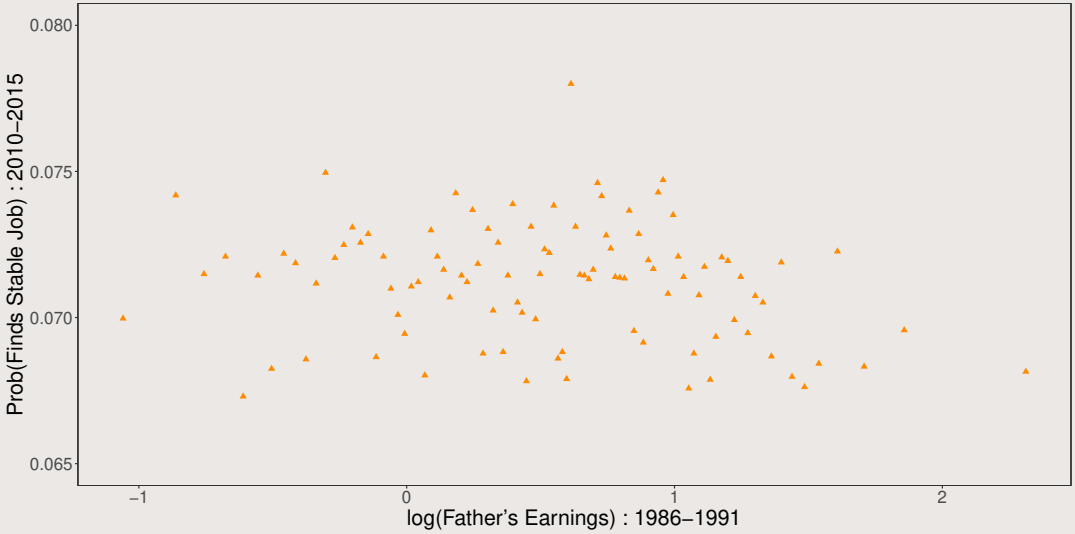
Firme FE vs. Parental Earnings Taking Stock

Firm vs Individual FE by Ethnicity



Psi vs. q by Ethnicity

No relationship b/t search time and parental income



Other Drivers

	Dependent variable:	
	Children Worker FE	
	(1)	(2)
q	0.382***	0.310***
	(0.001)	(0.001)
as.factor(demGroupName)Sepharadic		−0.120***
		(0.001)
as.factor(demGroupName)Ethiopian		−0.247***
		(0.004)
as.factor(demGroupName)USSR		−0.036***
		(0.002)
as.factor(demGroupName)Orthodox		−0.287***
		(0.002)
as.factor(demGroupName)Arabs		−0.226***
		(0.001)
Observations	2,106,055	2,106,055
R^2	0.054	0.079
Note:	*p<0.1; **p<0.05; ***p<0.01	

Correlates of future firm

- Sample: movers
- Current firm predicts future firm
- Father's earnings predicts future firm, after controlling for current firm

Dependent Variable: ψ_1

	(1)	(2)	(3)
ψ_0	0.587***		0.569***
	(0.012)		(0.013)
q		0.161***	0.078***
		(0.012)	(0.010)
Observations	157,852	157,852	157,852
R^2	0.319	0.038	0.327
Note:			*p<0.1; **p<0.05; ***p<0.01

Back

Correlates of change in earnings premium

	Dependent variable:					
	$\Delta\psi > 0$ Model: Only Pref	$\Delta\psi$ Model: Only Pref	$\Delta\psi > 0$ Model	$\Delta\psi$ Model	$\Delta\psi > 0$ Data	$\Delta\psi$ Data
	(1)	(2)	(3)	(4)	(5)	(6)
ψ_0	-1.395^{***}	-0.979^{***}	-1.369^{***}	-0.976^{***}	-0.524^{***}	-0.431^{***}
	(0.003)	(0.002)	(0.003)	(0.002)	(0.005)	(0.002)
q	-0.013^{***}	-0.009^{***}	0.153^{***}	0.114^{***}	0.136^{***}	0.078^{***}
	(0.002)	(0.001)	(0.002)	(0.001)	(0.004)	(0.002)
Constant	0.501^{***}	0.007^{***}	0.522^{***}	0.007^{***}	0.566^{***}	0.029^{***}
	(0.001)	(0.0003)	(0.001)	(0.0003)	(0.001)	(0.0005)
R^2	0.320	0.488	0.311	0.486	0.056	0.198
Note:						*p<0.1; **p<0.05; ***p<0.01