Labor Economics

Intergenerational Mobility: Parents

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Intergenerational Mobility

Mobility

- Intergenerational mobility (IGM): the change of economic status across generations within a family
    - If parent has low-income, how likely is it that their child will be high income?

- Why do we care?
    - Equality of opportunity: your success does not depend your background

    - What is the optimal level of IGM?

Determinants of IGM

- Nature: successful parents pass on their "good" genes to their children $\rightarrow$ successful children
    - Inherent ability - not much role for policy

- Nurture: successful parents can afford investing more into their children $\rightarrow$ successful children
    - Clear policy implication: focus **human capital** investments to those who cannot afford them

Measuring IGM

- Measure IGM using **intergenerational earnings elasticity**

- Regression of income of sons ($Y_{i,t}$) on the income of their father ($Y_{i,t-1}$):
$$\ln Y_{i,t} = \alpha + \beta \ln Y_{i,t-1} + \varepsilon_i$$

  - Why look at father-son relationships?

- Coefficient β captures the intergenerational elasticity
  - The higher this is, the more predictive a parent's income is of the child's future income

  - Interpret $1 - \beta$ as a measure of IGM

IG Elasticities

Table 1: IG Elasticities

Country	Elasticity	
	Men	**Women**
Denmark	0.071 [0.064, 0.079]	0.034 [0.027, 0.041]
Finland	0.173 [0.135, 0.211]	0.080 [0.042, 0.118]
Norway	0.155 [0.137, 0.174]	0.114 [0.090, 0.137]
Sweden	0.258 [0.234, 0.281]	0.191 [0.166, 0.216]
UK	0.306 [0.242, 0.370]	0.331 [0.223, 0.440]
US	0.517 [0.444, 0.590]	0.283 [0.181, 0.385]

Source: Black and Devereux (2011), Table 1

/ Jantti et al. (2006), Table 2

Transition Matrices

- Elasticity measures can be hard to calculate/interpret
  - At what age should we measure income?

  - Elasticity can be mechanically higher if variation in income is increasing each generation

  - Heterogeneity in elasticity: upward vs downward

- Alternative intuitive measure: transition matrices
  - Divide each generation's income distribution into buckets, e.g. quintiles

  - What is the probability of a child whose parent is quintile *A* ends up in quintile *B* as an adult?

American Dream?

Table 2: Transition Matrices
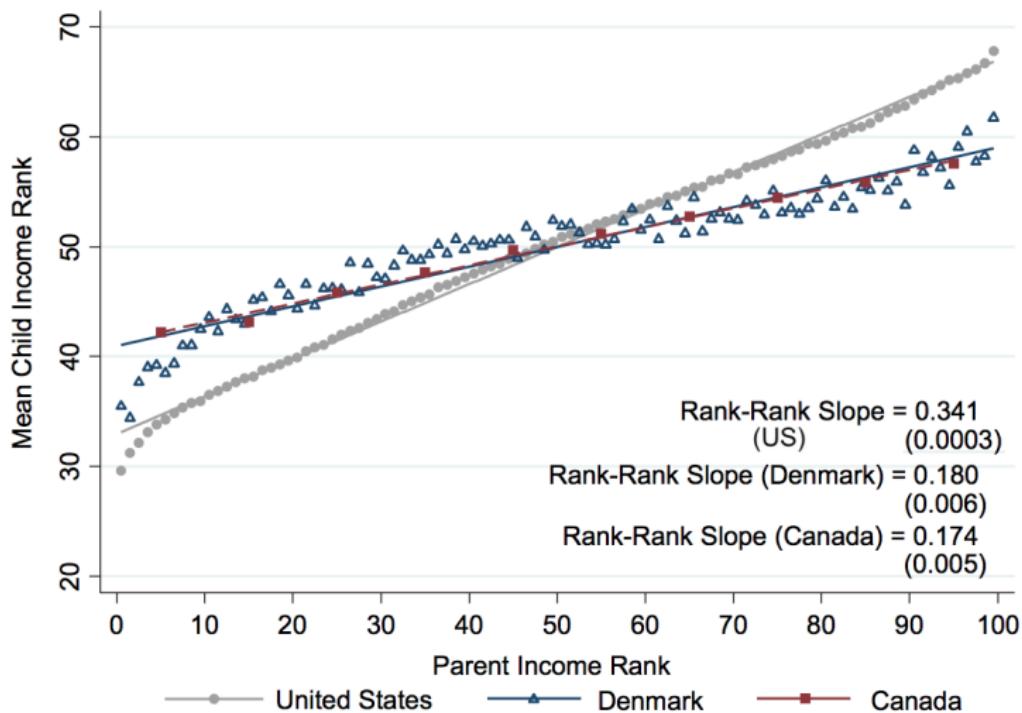
Norway (n = 26656)				
		Son		
Father	oq1	oq2	oq3	oq4	oq5
fq1	0.282	0.234	0.205	0.159	0.119
fq2	0.202	0.238	0.223	0.200	0.137
fq3	0.188	0.209	0.215	0.210	0.177
fq4	0.173	0.183	0.204	0.221	0.218
fq5	0.146	0.135	0.155	0.209	0.354

Sweden (n = 31996)				
		Son		
Father	oq1	oq2	oq3	oq4	oq5
fq1	0.258	0.243	0.215	0.176	0.109
fq2	0.209	0.225	0.237	0.195	0.133
fq3	0.183	0.211	0.219	0.223	0.164
fq4	0.175	0.177	0.196	0.218	0.234
fq5	0.163	0.140	0.134	0.193	0.371

UK (n = 2205)				
		Son		
Father	oq1	oq2	oq3	oq4	oq5
fq1	0.303	0.235	0.165	0.174	0.122
fq2	0.241	0.227	0.182	0.193	0.157
fq3	0.188	0.195	0.227	0.206	0.184
fq4	0.161	0.175	0.229	0.195	0.240
fq5	0.107	0.168	0.197	0.231	0.297

USNLSY (n = 1798)				
		Son		
Father	oq1	oq2	oq3	oq4	oq5
fq1	0.422	0.245	0.153	0.102	0.079
fq2	0.194	0.283	0.208	0.174	0.140
fq3	0.194	0.186	0.256	0.202	0.162
fq4	0.125	0.182	0.198	0.252	0.243
fq5	0.095	0.122	0.189	0.234	0.360

Source: Jantti et al. (2006), Table 12

Figure 1: Mean Child Income Rank vs Parent Income Rank

Source: Chetty et al. (2014), Figure 2 Age

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- Inequality and mobility are related, but distinct, ideas
  - Inequality: how unequal is the income distribution *now*?

  - Mobility: can the *next* generation change their income status?

- Corak (2013): "higher inequality skews opportunity and lowers intergenerational mobility"

Income Inequality, Equality of Opportunity, and Intergenerational Mobility

Miles
Corak

JEP, 2013

Discussion: Corak (2013)

- Great Gatsby Curve Fig. 1 Fig. 2 Fig. 3

- Returns to Human Capital Fig. 4 Fig. 5

- Investment in Human Capital Fig. 6 Fig. 7

- Public Policy

Take-Away

- In terms of mobility, US looks very bad in many ways
  - This is just a **correlation**, not a causal relationship

  - Still important and depressing

- As labor economists, we want to study earnings
  - These stats suggests part of your earnings profile is already determined at childhood

  - Ignoring what happens *before* you enter the labor market misses a big part of the picture

  - If high-ability children of low-income families end up with low earnings, suggests a major market inefficiency

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# Parents: Nature vs Nurture

Parents

- It seems that parents matter - but why?
  - Benefactors: endow you with particular genes

  - Managers: responsible for "managing" your human capital

- Just like in real jobs, some people are bad managers
  - In the real world, the best companies hire good managers and fire bad ones

  - Market failure: we don't get to choose our parents (missing market - imagine if we could!)

- Bad management skills could be a function of income/education of parents
  - Constraints: cognitive, time, financial

- Huge literature on this. See Black and Devereux (2011)

Ideal Experiment

- Always start by thinking what the ideal RCT would be, then find the closest real-world analogue
    - Ideal experiment: randomly assign children to parents

    - If you randomly get a rich parent, will you be more likely to end up rich?

- What in the real world closely mirrors this experiment?
    - Adoptions

    - Biological parents give you genes. Adopted parents manage your human capital.

Poor Little Rich Kids?
The Role of Nature versus Nurture in Wealth and Other Economic Outcomes and Behaviors
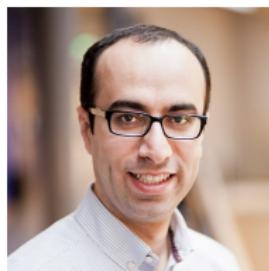
Sandra
Black

Paul
Devereux

Petter
Lundborg

Kaveh
Majlesi

NBER WP, 2015
(forthcoming in REStud)

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Motivation

- As we have seen, intergenerational mobility is an important issue to study

- Past papers have focused on intergenerational transmission of income and education

- This paper: focuses on wealth
  - Wealth is extremely important to understand (even more wealth inequality than income inequality)

  - Difference between wealth and income: stock versus flow

- Want to decompose the generational correlation in wealth
  - How much is due to biology and genetic differences (nature)?

  - How much of is because of environment and parental investments (nurture)?

Identification Strategy

- Can we just compare kids of rich parents to kids of poor parents?
  - No, definitely suffers from OVB

  - Cannot distinguish nature vs nurture (most children raised by their biological parents)

- Solution: look at adopted children
  - Do not share genetic relationship with <u>adoptive</u> parents $\rightarrow$ attribute all correlation between child and adoptive parent as *nurture*

  - Were not raised by their <u>biological</u> parents $\rightarrow$ attribute all correlation between child and biological parent as *nature*

Data

- Sounds like a good idea, but let's think about the data you would need:
  - Need to link children to both adoptive and biological parents

  - Need to have economic data on parents and children once they reach adulthood

  - Need to observe wealth (often not collected or is inaccurate due to self-reporting)

  - Need to have good coverage of population otherwise the sample will be tiny (not many adopted kids)

- Who could have such a dataset?
  - Scandinavian countries! In this paper: Sweden

- Sweden has a multigenerational register: allows for linkages between parents and children

- In 1950-1970, the government organized all adoptions (no private companies)
  - Kept records of all adoptions and parents

- Sweden had a wealth tax until 2007: authors can see wealth info from 1999-2006
  - Reported by financial institutions so not worried about accuracy

Adoptions

- Focus on adopted children born between 1950-1970
    - Restrict to all parents (adoptive and biological) alive in 1999 (at start of data)

    - Sample: 2,598 children

- Most children were adopted within first year of life

- Requirements to adopt:
    - Ex: father had steady income, mother expected to stay at home initially

    - Adoptive parents are <u>positively selected</u> relative to the general population

- **Key assumption:** children were randomly assigned to their adoptive parents

  > *"While matching of children to adoptive parents was at the discretion of the caseworkers, the evidence from that period suggests that social authorities were not able to systematically match babies to families based on family and child characteristics"*

Summary Statistics

Table 3: Comparison of Adopted and Own-Birth Children

	Own-birth children		Adopted children	
	Mean	SD	Mean	SD
	Children			
Net Wealth Rank	0.50	0.29	0.48	0.30
Net Wealth*	634,413	3,138,855	610,218	1,650,647
Age in 2006	43.96	5.59	43.48	4.74
Years of Schooling	12.57	2.38	12.19	2.23
Female	0.51	0.50	0.53	0.50
Earnings	215,490	134,889	197,700	132,695
Income	225,433	492,036	207,098	157,081
Market Participation	0.57	0.49	0.50	0.50
Risky Share	0.29	0.34	0.24	0.33
Mean Saving rate	0.06	0.583	0.07	0.496
Mean Consumption	341,786	375,149	192,713	136,602
Observations	1,219,014		2,598	

Source: Black et al. (2015), Table 1a

Table 4: Comparison of Parents

| | Own-birth children | | Adopted children | | Adopted children | |
	Mean	SD	Mean	SD	Mean	SD
	Biological parents		Biological parents		Adoptive parents	
Net Wealth Rank	0.50	0.29	0.34	0.27	0.55	0.28
Net Wealth	1,297,127	4,063,940	499,808	1,332,740	1,660,851	4,415,320
Average Age in 1999	64.16	7.46	60,04	6.69	68.94	6.43
Average Years of Schooling	10.12	2.62	9.63	2.08	10.50	2.79
Earnings, Father	235,539	112,483	189,810	75,505	264,142	134,326
Income, Father	237,750	140,266	194,663	80,754	271,755	146,856
Market Participation	0.75	0.43	0.57	0.50	0.80	0.40
Risky Share	0.40	0.35	0.27	0.33	0.45	0.35
Mean Saving rate	0.06	0.683	0.115	0.559	0.05	0.728
Mean Consumption	302,342	268,370	236,662	171,694	325,667	287,940

Source: Black et al. (2015), Table 1b

Empirical Strategy

- Recall our intergenerational mobility regression:

$$\ln Y_{i,t} = \alpha + \beta \ln Y_{i,t-1} + \varepsilon_i$$

- We essentially want to run this but now putting separate terms for adoptive and biological parents

$$\ln Y_{i,t} = \alpha + \beta^A \ln Y_{i,t-1}^A + \beta^B \ln Y_{i,t-1}^B + \varepsilon_i$$

and compare β^A to β^B

- Random assignment assumption allows us to separately estimate the two coefficients
  - Does <u>not</u> get us causal effect of wealth

  - Think back to Project STAR paper with experienced teachers

Empirical Strategy

- They run this regression for a person with biological family *i* and adoptive family *j*:

$$W_{ij} = \beta_0 + \beta_1 W_i + \beta_2 W_j + X\beta_3 + \varepsilon_{ij}$$

  - where *W* is the *rank* of net wealth and *X* are a set of demographic controls (e.g. gender dummy, region, year of birth).

  - Child wealth is how much wealth the child has in 2006. The family wealth is the total parental wealth (mother and father) in 1999.

- Don't use actual value of wealth, but the rank of the person in the wealth distribution *within* their birth cohort
  - Number between 0 to 1, where 0 = bottom and 1 = top of distribution

$$W_{ij} = \beta_0 + \beta_1 W_i + \beta_2 W_j + X\beta_3 + \varepsilon_{ij}$$
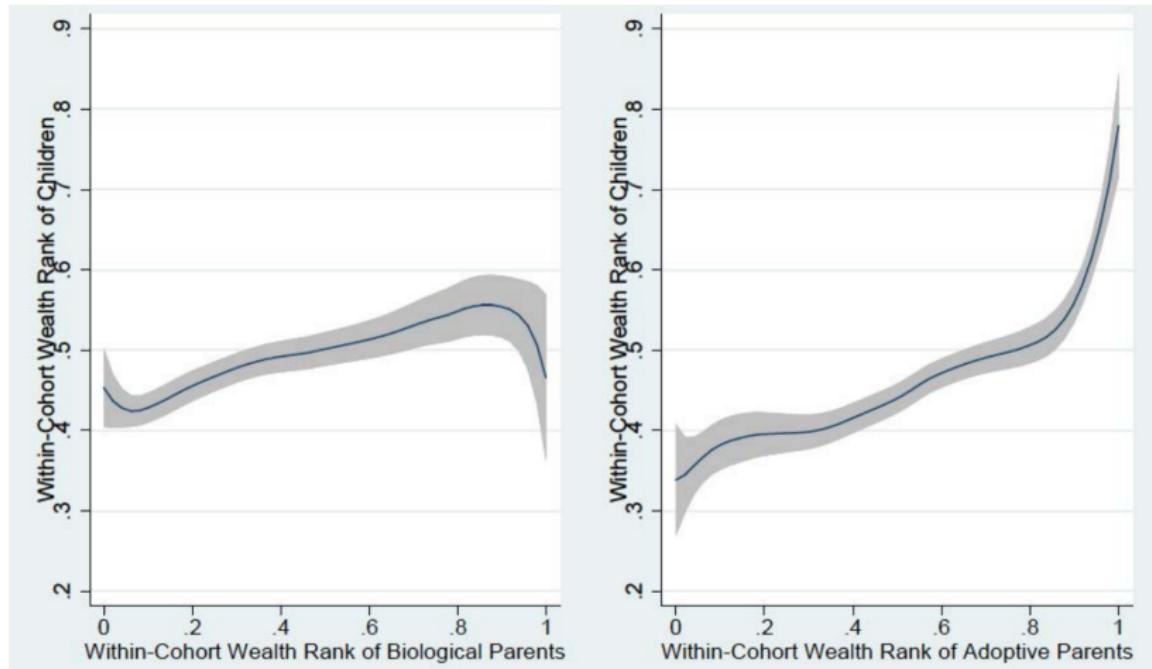
- Coefficients of interest are β_1 and β_2
    - β_1 = effect of pre-birth factors
    - β_2 = effect of post-birth factors

Limitations

- Only 50% of biological fathers are identified for adoptees

- They measure parents wealth at 1999, when the parents are around age 65. They measure the child's wealth in 2006, when the child is around age 45.
    - Wealth changes over one's lifetime, but we only see a snapshot

- Coefficients pick up pre- and post-birth factors. Not really "nature vs nurture"
    - Biological parents make investments into the child during and immediately after pregnancy

Figure 2: Within-Cohort Wealth Rank Relationship

Source: Black et al. (2015), Figure 2

Results: Wealth

Table 5: Intergenerational Wealth Relationships

	Net Wealth w/o Pensions	Net Wealth w/o Pensions Trimmed	Net Wealth with Pensions	Net Wealth with Pensions Trimmed
Own-birth Children				
Rank Parental Net Wealth	0.344 (0.001)***	0.328 (0.001)***	0.219 (0.001)***	0.191 (0.001)***
Observations	1,219,014	1,097,191	1,117,636	1,008,984
R-squared	0.152	0.124	0.100	0.083
Adopted Children				
Rank Biological Parents' Net Wealth	0.109 (0.022)***	0.130 (0.026)***	0.047 (0.024)**	0.038 (0.028)
Rank Adoptive Parents' Net Wealth	0.273 (0.021)***	0.227 (0.027)***	0.237 (0.024)***	0.192 (0.029)***
Sum Biological & Adoptive Parents	0.382 (0.028)***	0.357 (0.035)***	0.284 (0.033)***	0.230 (0.039)***
Observations	2,598	2,027	2,059	1,684
R-squared	0.128	0.112	0.116	0.107

Source: Black et al. (2015), Table 2

Results: Other Outcomes

Table 6: Intergenerational Relationships for Other Outcomes

	(1) Years of Schooling	(3) Income Rank	(6) Saving Rate Rank	(7) Consumption Rank
Own-birth Children				
Biological Parents	0.341 (0.001)***	0.193 (0.001)***	0.098 (0.001)***	0.177 (0.001)***
Observations	1,219,014	1,202,401	1,161,161	1,161,161
R-squared	0.172	0.236	0.023	0.385
Adopted Children				
Biological Parents	0.184 (0.022)***	0.064 (0.020)***	0.007 (0.030)	0.085 (0.021)***
Adoptive Parents	0.143 (0.016)***	0.108 (0.018)***	0.129 (0.023)***	0.134 (0.023)***
Sum Biological & Adoptive Parents	0.327 (0.025)***	0.172 (0.025)***	0.135 (0.038)***	0.220 (0.031)***
Observations	2598	2534	2,363	2,363
R-squared	0.138	0.179	0.070	0.405

Source: Black et al. (2015), Table 7

Take-aways

- Environment seems much more important than biology in terms of wealth
  - *"wealth transmission is not primarily because children from wealthier families are inherently more talented or more able"*

- Biology plays more important role in education (human capital)

- Children from wealth families benefit from both good genes and, more importantly, good environments

- Policy implication: improve opportunities and childhood investments to reduce intergenerational disparities

- So, parents matter: in particular, they matter a lot in terms of their ability as human capital managers
  - But, we observe parents who are bad at their "job". Why? How can we fix this?

- As economists, let's think about the market for human capital managers (parents)
  - This market experiences four distinct market failures (credit to Nate Hilger for this framing)

Market Failures

1. **Missing Market**
   - We are stuck with the parents we have (can't trade them)
2. **Moral Hazard**
   - Parents may not have your best interest in mind
3. **Liquidity Constraints**
   - Parents may not be able to afford good investments (even if they want to)
4. **Externalities**
   - Parents do not consider the wider effect of their investments (e.g. raise a good child = good for society)

Government Expenditure

- Market failures suggest a role for government

- Federal government spends 9% of budget on children (Kids Share)
    - Spend 6 times more on the elderly

    - About 50% of this is for transfers (money that goes to parents).

    - Is this effective, given the market failures?

- This was all federal, what about state and local spending?
  - Make up 65% of spending on children (mostly on public education)

  - Moreover, huge variation within the US! State Spending

  - Suggests where you live matters

- Next class: **neighborhoods**

Appendix
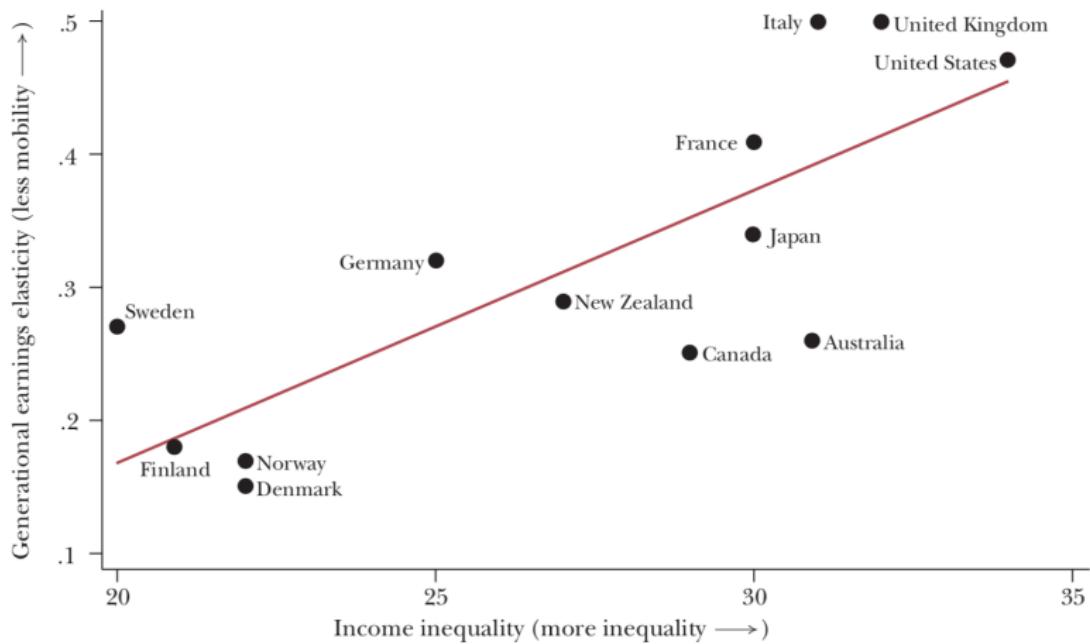
Figure A1: Elasticity Estimates by Age of Child

Source: Chetty et al. (2014), Figure A2 Back
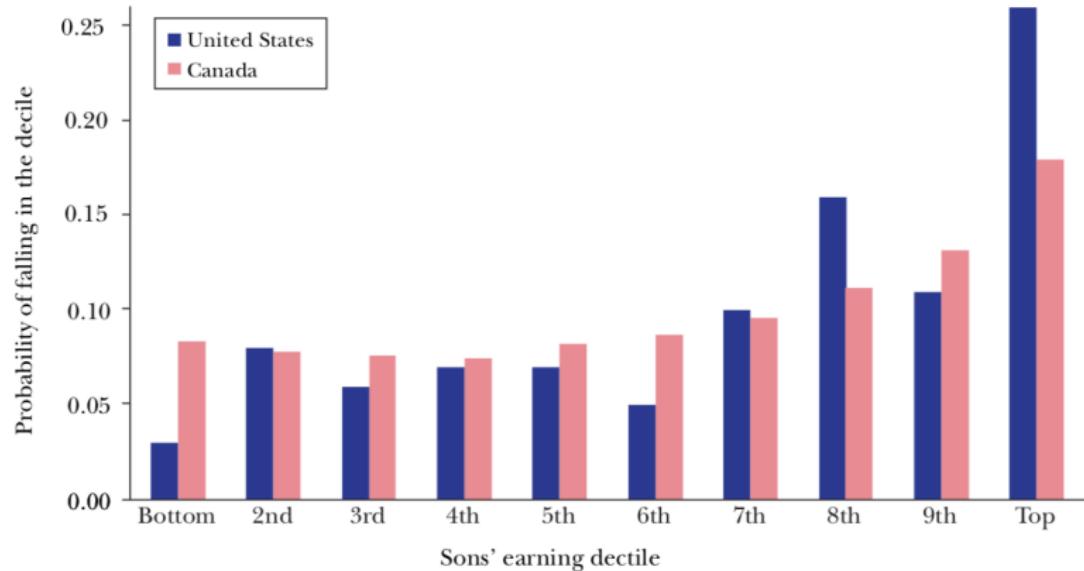
Corak (2013)

The Great Gatsby Curve: More Inequality is Associated with Less Mobility across the Generations

Source: Corak (2013), Figure 1 Back
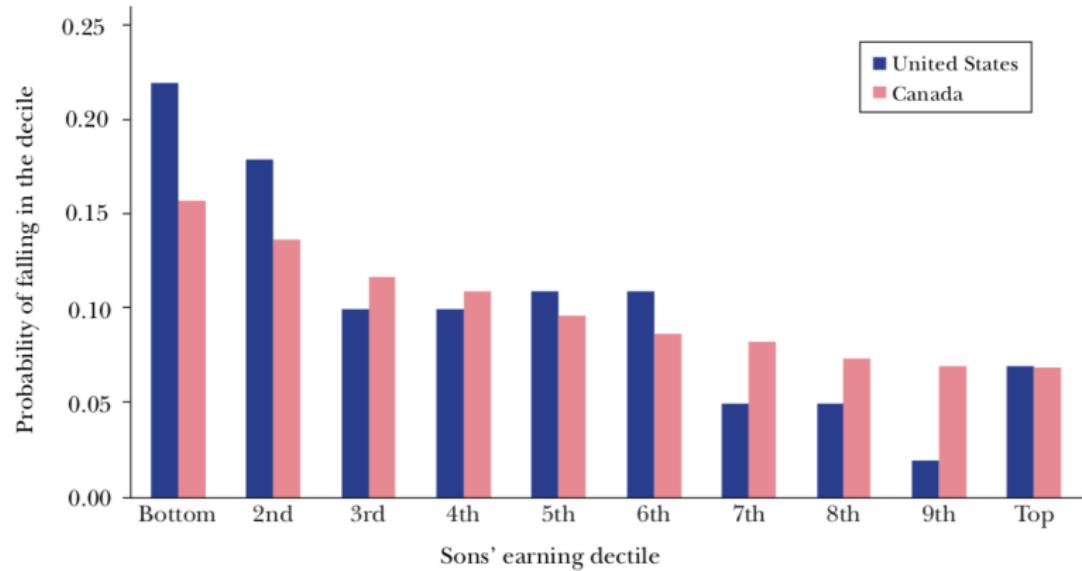
Earnings Deciles of Sons Born to Top Decile Fathers: United States and Canada


Source: Corak (2013), Figure 2 [Back]
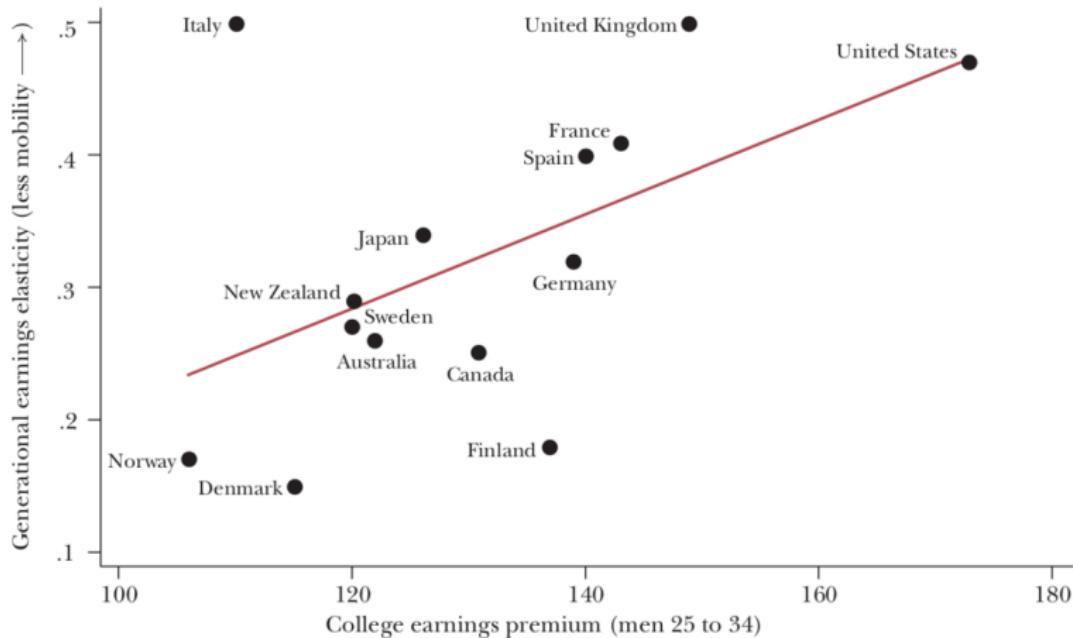
Earnings Deciles of Sons Born to Bottom Decile Fathers: United States and Canada
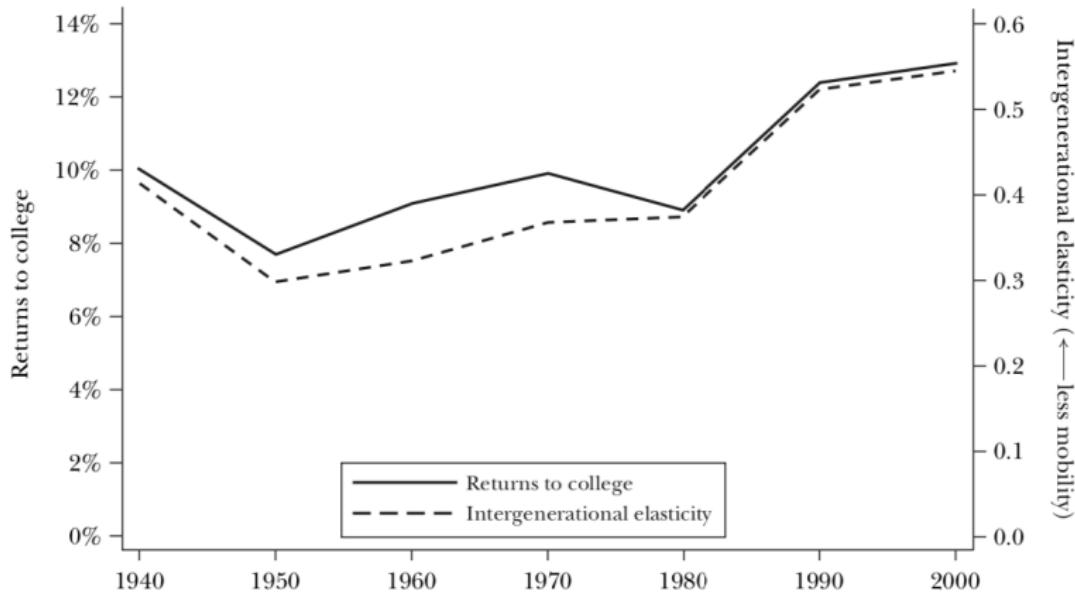
Source: Corak (2013), Figure 3 Back

Higher Returns to Schooling are Associated with Lower Intergenerational Earnings Mobility

Source: Corak (2013), Figure 4 Back
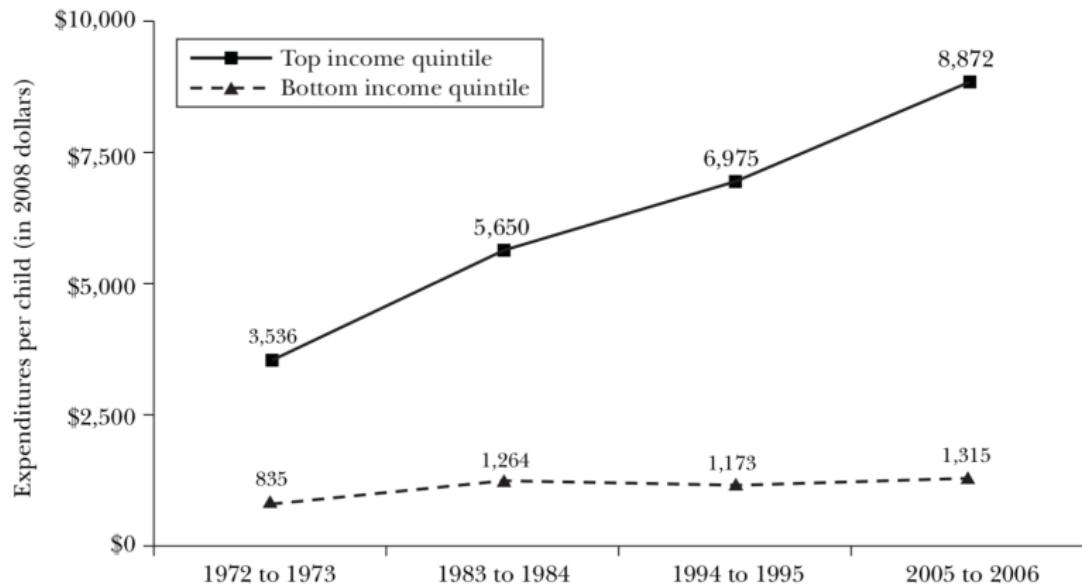
The Higher the Return to College, the Lower the Degree of Intergenerational Mobility: United States, 1940 to 2000

Source: Corak (2013), Figure 5 Back
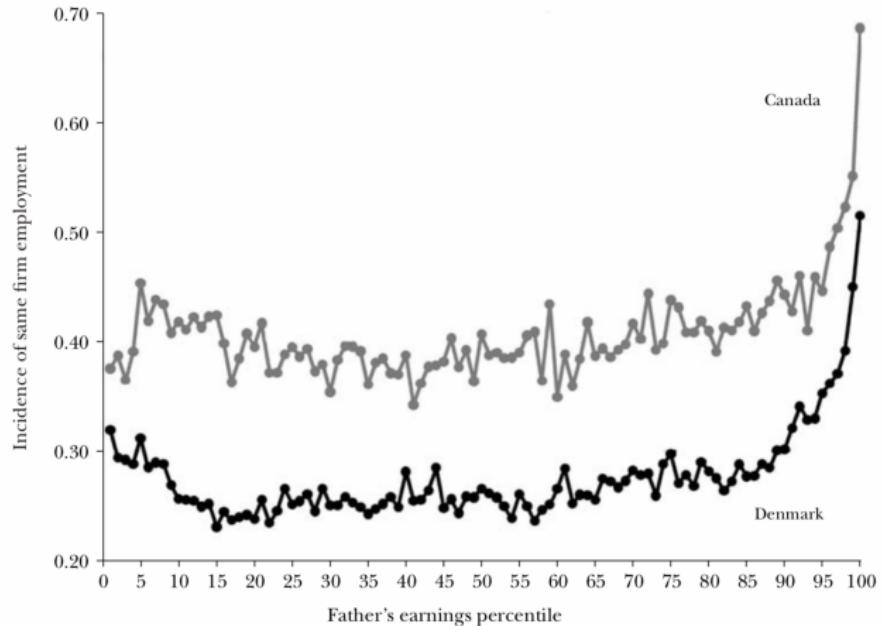
Money Matters: Higher-Income Families in the United States Have Higher Enrichment Expenditures on Their Children


Source: Corak (2013), Figure 6 `Back`
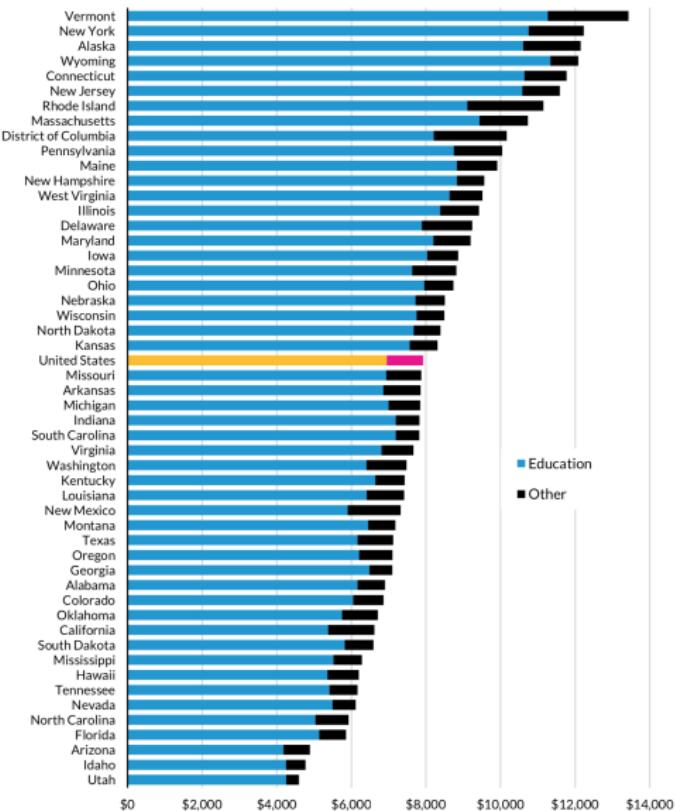
Proportion of Sons Currently Employed or Employed at Some Point with an Employer their Father had Worked for in the Past: Canada and Denmark
(by father's earnings percentile)

Source: Corak (2013), Figure 7 Back

State Per-Child Spending (2013)

Source: Urban Institute, Figure 2 [Back]

References

Black, S. E. and P. J. Devereux (2011). "Recent Developments in Intergenerational Mobility". In: *Handbook of Labour Economics*. Vol. 4B. Elsevier, pp. 1487–1541.

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