

Intergenerational Mobility over Time and Space

ECON 85600

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Lecture 7

Some messages from last day

to motivate our discussion

$$\beta = \frac{(1 - \gamma)\rho\theta + \lambda}{1 + (1 - \gamma)\rho\theta\lambda} \quad (1)$$

- 1 Labour markets, public policy, and families all have a role to play in determining the degree of intergenerational mobility
- 2 There could be considerable persistence through time depending upon how we model multi-generational influences
- 3 We have some hints on how to understand non linearities

Some questions to think about

taking us from the last lecture, through this one, and into the next

$$\beta = \frac{(1 - \gamma)\rho\theta + \lambda}{1 + (1 - \gamma)\rho\theta\lambda} \quad (2)$$

- 1 How has intergenerational mobility changed through time?
- 2 How should we interpret these changes?
- 3 How does it differ across space within the United States?
- 4 How should we think about these differences?

Major messages

- 1 Gregory Clark has a very strong message to offer in his book *The Son Also Rises*, suggesting that the degree of intergenerational mobility is a constant for all places and all times
 - his understanding of socio-economic status is something broader
 - issues with his analysis revolve around “group” effects
- 2 It is hard to discern changes in the degree of intergenerational mobility (measured as earnings mobility) in the US during the post WWII period
 - earlier periods have been examined to suggest changes: turn of the century, during the Great Recession
 - but in all of these studies the nature and quality of the data is both an important limitation and an opportunity

Some findings

Lee and Solon (2009) maximize the information available in the PSID

There are mixed messages in the empirical literature as to whether the intergenerational elasticity may have risen, fallen, or not changed at all

- partly reflecting limited sample sizes or inefficient use of the available information, discerning statistically significant trends is a challenge

Some findings

Lee and Solon (2009) maximize the information available in the PSID

Lee and Solon (2009) use the Panel Study of Income Dynamics to study cohorts born between 1952 and 1975, based on information that first began being collected in 1968 when the eldest were 16 years of age, and using adult income from the age of 25 onward

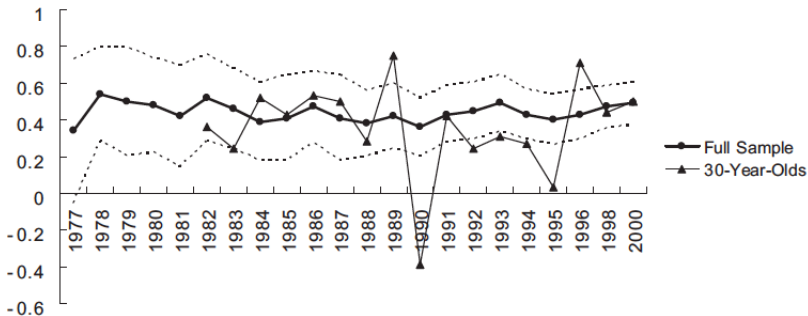
- 1977 is the first year of observed adult income for the child, and 2000 is the last, with the children ranging in age from 25 to 48
- “family income” is used in order to include daughters in the analysis
- a total of 11,230 observations on 1,228 sons, and 12,666 observations on 1,308 daughters

Some findings

Lee and Solon (2009) suggest no discernible trends for sons

For sons β is on average about 0.44, with no discernible trend between 1997 and 2000

FIGURE 1.—ESTIMATED INTERGENERATIONAL INCOME ELASTICITIES FOR SONS, 1977–2000

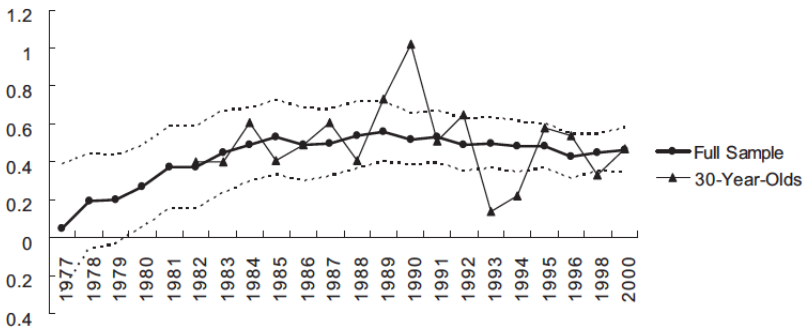


Some findings

Lee and Solon (2009) suggest a possible increase for daughters but with qualifications

For daughters β is on average about 0.43, with only a possible increase during the early years but it is hard to be certain

FIGURE 2.—ESTIMATED INTERGENERATIONAL INCOME ELASTICITIES FOR DAUGHTERS, 1977–2000



Some findings

a need for interpretation

Lee and Solon (2009, page 771) conclude:

... our results ... suggest that intergenerational income elasticities in the United States have not changed dramatically over the past two decades.

This finding may seem surprising. ... popular interest in intergenerational mobility trends has stemmed largely from a concern that mobility might have declined during the recent era of rising income inequality.

Some other findings

suggest variation in mobility that is associated with the returns to education

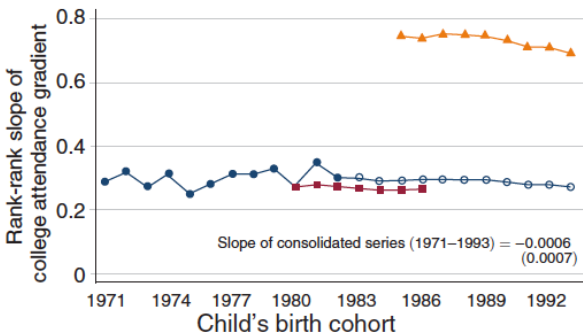
Aaronson and Mazumder (2000) look at mobility from 1940 to 2000, using Census data and different methods



Some more findings

suggest there has not been a variation in mobility in spite of higher returns to education

Chetty, Hendren, Kline, Saez, Turner (2014) use administrative data associated with income taxes and college attendance



The need for theory

We need economic theory

in order to:

- 1 appreciate the challenges of correctly interpreting trends in intergenerational mobility
- 2 understand the underlying processes determining the development of capabilities
- 3 frame a normative argument and structure empirical analysis

The need for theory

We need economic theory

in order to:

- 1 appreciate the challenges of correctly interpreting trends in intergenerational mobility
 - there are a host of factors determining intergenerational mobility and moving it in different directions
 - “comparing” steady states is not the same thing as charting “movement” between them
 - an equal opportunity policy change may lead to non-monotonic adjustment: first increasing, then decreasing intergenerational mobility

Nybom and Stuhler (2014)

Intergenerational mobility is determined by a host of factors but also by past circumstances

$$y_t = \phi_t y_{t-1} + \rho_t h_t + u_t \quad (3)$$

$$h_t = \theta_t y_{t-1} + \delta_t e_t \quad (4)$$

$$e_t = \lambda_t e_{t-1} + v_t \quad (5)$$

which implies

$$y_t = (\phi_t + \rho_t \theta_t) y_{t-1} + \rho_t \delta_t \lambda_t e_{t-1} + \varepsilon_t \quad (6)$$

$$\beta_t = \frac{\text{Cov}(y_t, y_{t-1})}{\text{Var}(y_{t-1})} = (\phi_t + \rho_t \theta_t) + \rho_t \delta_t \lambda_t \text{Cov}(e_{t-1}, y_{t-1})$$

Nybom and Stuhler (2014)

Changes between steady states can be non-monotonic

consider a move from a “plutocratic” to a “meritocratic” society

$$y_t = \phi_t y_{t-1} + \rho_t e_t + v_t \quad (7)$$

$$e_t = \lambda e_{t-1} + v_t \quad (8)$$

$$\beta = \frac{\text{Cov}(y_t, y_{t-1})}{\text{Var}(y_{t-1})} = \phi_t + \rho_t \lambda \text{Cov}(e_{t-1}, y_{t-1})$$

$$\Delta\beta_t = (\phi_2 - \phi_1) + (\rho_2 - \rho_1) \lambda \text{Cov}(e_{t-1}, y_{t-1})$$

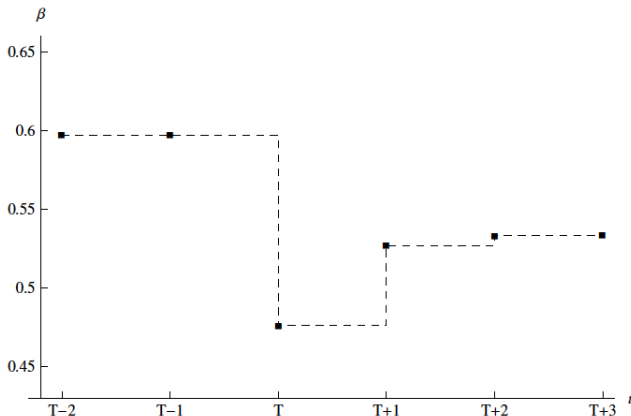
$$\Delta\beta_{t+1} = \rho_2 \lambda \left[\frac{\text{Cov}(e_t, y_t)}{\text{Var}(y_t)} - \frac{\text{Cov}(e_{t-1}, y_{t-1})}{\text{Var}(y_{t-1})} \right]$$

Nybom and Stuhler (2014)

Changes between steady states can be non-monotonic

consider a move from a “plutocratic” to a “meritocratic” society

Figure 2: A declining impact of parental income and increasing returns to skills



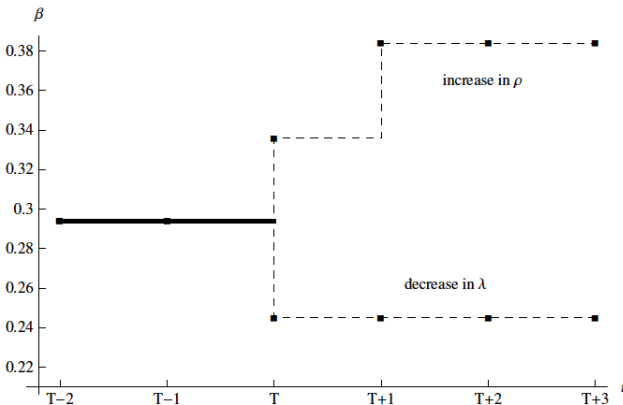
Note: Mobility trend over generations in numerical example. In generation T the impact of parental income γ declines from $\gamma_1 = 0.4$ to $\gamma_2 = 0.2$ while the returns to endowments and human capital ρ increase from $\rho_1 = 0.5$ to $\rho_2 = 0.7$ (assuming $\lambda = 0.6$).

Nybom and Stuhler (2014)

Changes between steady states

may occur more quickly when the transmission of endowments changes than when labour market returns change

Figure 1: A change in the heritability of, or returns to, endowments



Note: Mobility trend over generations in two numerical examples. Example 1a: in generation T the heritability of endowments λ decreases from $\lambda_1 = 0.6$ to $\lambda_2 = 0.5$ (assuming $\rho = 0.7$ and $\gamma = 0$). Example 1b:

Changes in Intergenerational mobility through time

may well persist for considerable periods and be difficult to interpret

- 1 a more general model may lead to even slower movement between steady states
 - income and wealth as opposed to earnings
 - direct effects of grandparents
- 2 past events may have been very large shocks
 - Great Depression
 - Industrialization and large scale migration
 - Big changes in public policy (expansion of primary and high schools, GI Bill)
- 3 focusing on cohorts born in the 1960s, 1970s, 1980s may be picking up the impact of these changes, which are just one or two generations in the past
- 4 an increase in the returns to human capital will echo more slowly into the future, than a decrease in the heritability of endowments

The use of administrative data

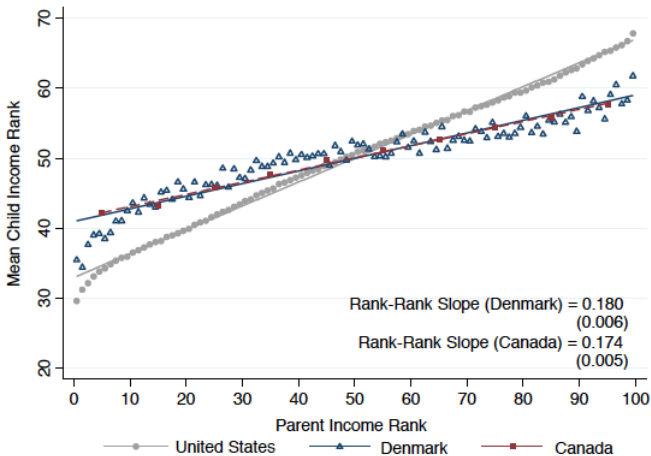
opens up new possibilities to study differences across space

Chetty, Hendren, Kline, Saez (2014). “Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States.” *Quarterly Journal of Economics*.

- a “must read” article
- uses income tax data on more than 40 million children (and their parents) between 1996 and 2012
- a focus on rank-based measures, which are found to be linear across the parental income distribution
- a sub-national portrait using small areas suggests considerable variation in mobility across the US, and highlights some of the correlates

Major findings

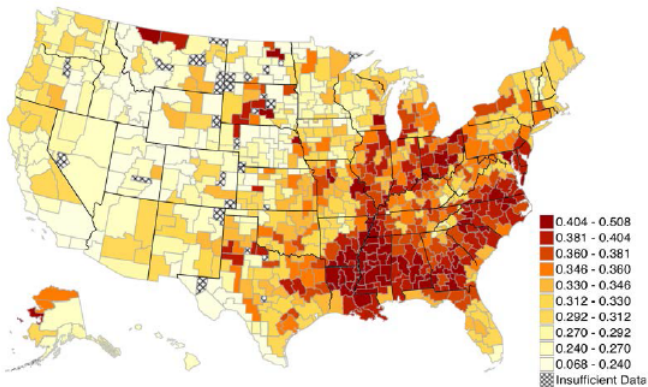
linear transmission of status in rank-based measures, with a slope of 0.34 in the US



Major findings

big variation in mobility across the United States

B. Relative Mobility: Rank-Rank Slopes $(\bar{r}_{100} - \bar{r}_0)/100$ by CZ



Corr. with baseline $\bar{r}_{25} = -0.68$ (unweighted), -0.61 (pop-weighted)

Major findings

the correlates of mobility across space

TABLE VI
CORRELATES OF INTERGENERATIONAL MOBILITY: COMPARING ALTERNATIVE HYPOTHESES

Dep. var.:	Absolute upward mobility			Relative mobility		Absolute upward mobility		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fraction short commute	0.302 (0.065)	0.227 (0.077)	0.314 (0.052)	-0.290 (0.061)	-0.325 (0.064)	0.331 (0.070)		0.319 (0.065)
Gini bottom 99%	-0.009 (0.053)	-0.017 (0.043)	0.060 (0.097)	0.006 (0.071)	0.343 (0.095)	-0.287 (0.059)		-0.021 (0.054)
High school dropout rate	-0.147 (0.055)	-0.120 (0.038)	-0.109 (0.085)	0.010 (0.064)	0.181 (0.056)	-0.288 (0.059)		-0.140 (0.055)
Social capital index	0.169 (0.047)	0.065 (0.050)	0.173 (0.060)	0.154 (0.060)	0.154 (0.070)	0.168 (0.059)		0.168 (0.045)
Fraction single mothers	-0.487 (0.062)	-0.477 (0.071)	-0.555 (0.089)	0.591 (0.049)			-0.808 (0.085)	-0.579 (0.061)
Fraction black							0.056 (0.073)	0.132 (0.051)
State fixed effects		x						
Urban areas only			x					
R-squared	0.757	0.859	0.671	0.48	0.324	0.651	0.584	0.763
Observations	709	709	325	709	709	709	709	709

Some questions to think about

taking us from the last lecture, through this one, and into the next

$$\beta = \frac{(1 - \gamma)\rho\theta + \lambda}{1 + (1 - \gamma)\rho\theta\lambda} \quad (9)$$

Families, labour markets, and public policy (community) all matter as determinants of intergenerational mobility

- 1 How has intergenerational mobility changed through time?
- 2 How should we interpret these changes?
- 3 How does it differ across space within the United States?
- 4 How should we think about these differences?



Aaronson, Daniel and Bhashkar Mazumder. 2008. "intergenerational income mobility in the U.S., 1940 to 2000." *Journal of Human Resources*. 43(1): 139-72.



Chetty, Raj, Nathaniel Hendren, Patrick Kline, Emmanuel Saez, and Nicholas Turner. 2014. "Is the United States Still the Land of Opportunity? Recent Trends in Intergenerational Mobility." *American Economic Review*. 104(5): 141-47.



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