Econ 330: Urban Economics

Lecture 12

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06 December, 2021

Lecture 12: The Geography of Income Inequality†

† This lecture uses content from Raj Chetty's course: https://opportunityinsights.org/course/

Schedule

- **The rise of "big data"**
- **The American Dream**
- **The causal effect of neighborhoods**
- **Geography of upward mobility**

Upcoming

- **PS03 due tonight**
- **PS04 due Tuesday at 4pm**
- **Final Wednesday at 8am**

The rise of "big data"

Theoretical social science

Until very recently, social scientist were very limited by data to study these types of **policy questions**

Social science has been mostly a **theoretical field** to make policy recommendations

- Develop mathematical models (economics)
- Qualitative theories (sociology)

Problem: We were never able to test most of these theories

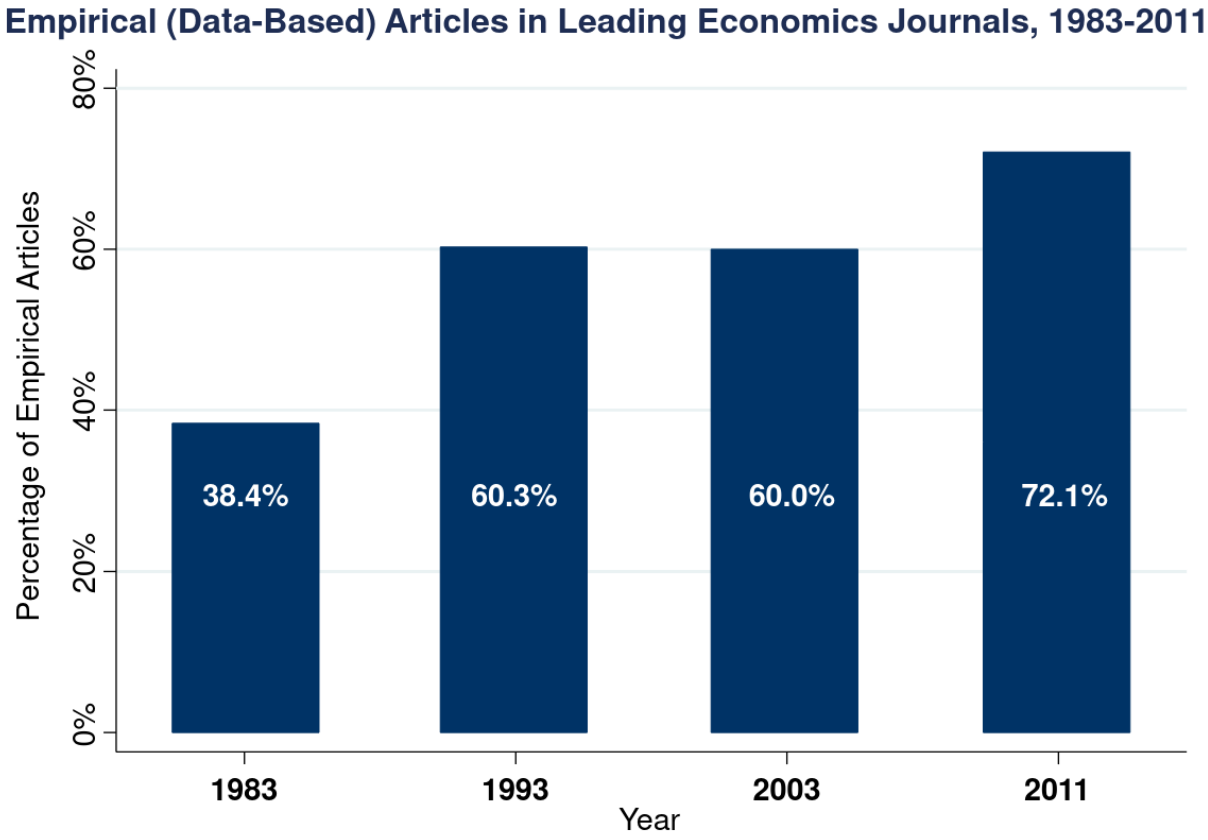
- Led to politicization of scientific questions such as

> Is Obamacare reducing job growth in America?

Big data and empirics

Social sciences are more empirical thanks to growing availability of data

- Test and improve theories using real world data



Source: Hamermesh (JEL 2013)

Big data and empirics

What is ***"Big data"***?

> Large datasets

Where did ***"Big data"*** come from?

Product of the **internet age**

- Information costs $\rightarrow 0$

Product of post-internet private sector: "Data is the new oil"†

† Whatsapp, Robinhood

Big data and empirics

Examples:

- Government data: Tax records
- Corporate data: Google etc.
- Text data: Twitter, newspapers
- Satellite imagery
- Cellphone location data
- GitHub data

Benefits:

- More reliable than surveys
- New variables (eg emotions, locations)
- Rich coverage $\Rightarrow$ study subgroups
- Large samples

"Big data" and the American Dream

The American Dream

The **American Dream** is an multi-faceted, abstract concept that may be interpreted in many ways

Is the American Dream alive and well today? How should we judge that?

How can we distill the concept of an the American Dream into a **statistic** that we can **systematically measure using big data**?

Obama (2014):

> People's frustrations are partly rooted "in the fear that their kids won't be better off than they were."

One systematic measure the American Dream: What fraction of children earn more income than their parents? **Is this a fair measure?**

How has this statistic changed over time

Measuring the American Dream

Central policy question: Why are children's chances of climbing the income ladder falling in America?

- What can we do to reverse this trend?

Difficult to answer using **historical data** and **macroeconomic trends**

Problem: We have too few data points to test all alternative explanations

- We never had the data to link parental income across generations

Measuring the American Dream

Now, economists are able to observe **tax records** over time; linking generational income

- Chetty et al. (2017)

Linking yearly reported income over time, these data can track earnings over someone's life at the **individual level**

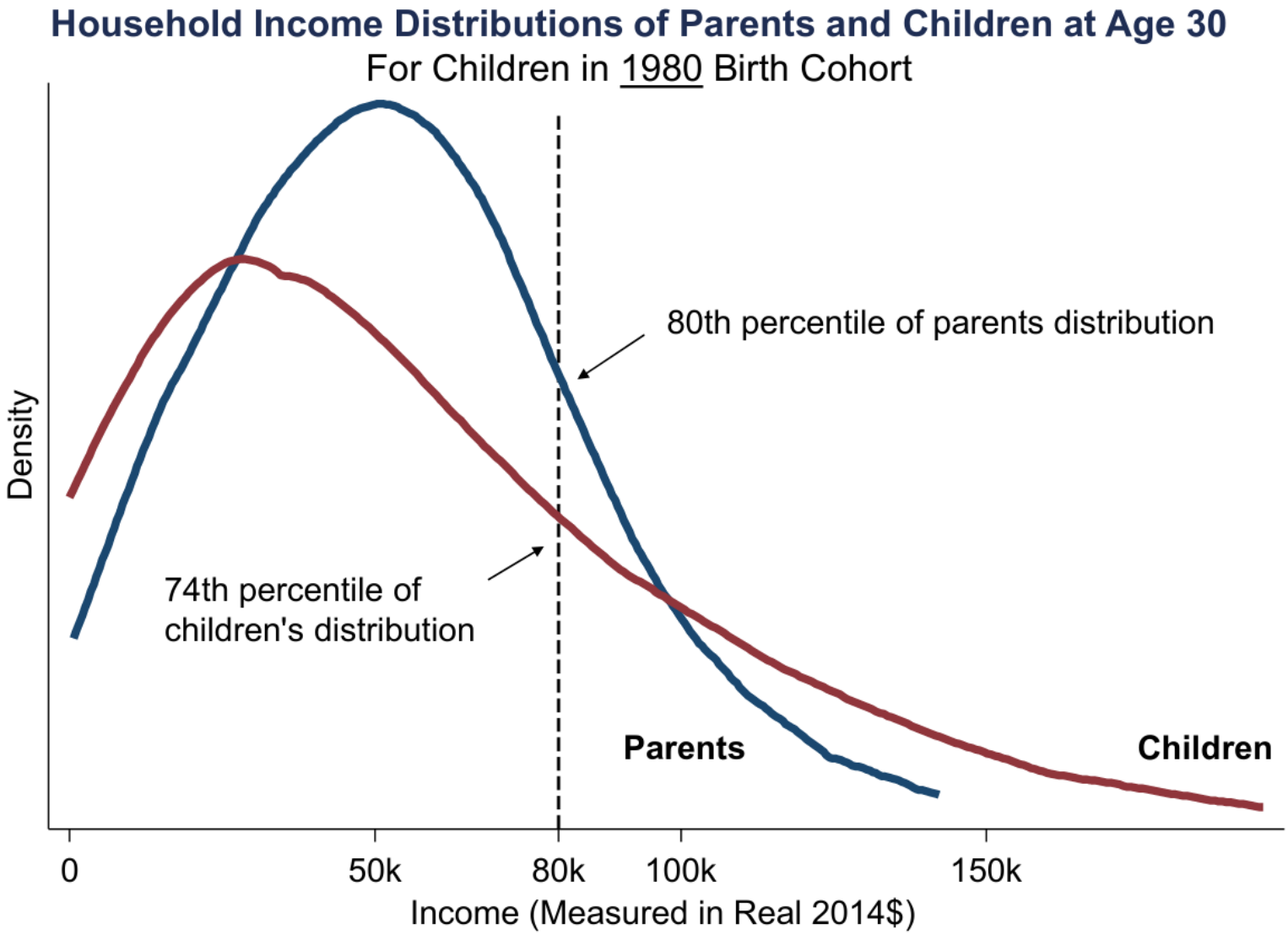
Fine **resolution** of these data provide far more information than any macro time series

Allow researchers to observe generational differences in income

The American Dream

The American Dream

The American Dream



The fading American Dream

What do these figures indicate about the American Dream?

It has become harder and harder to reach it

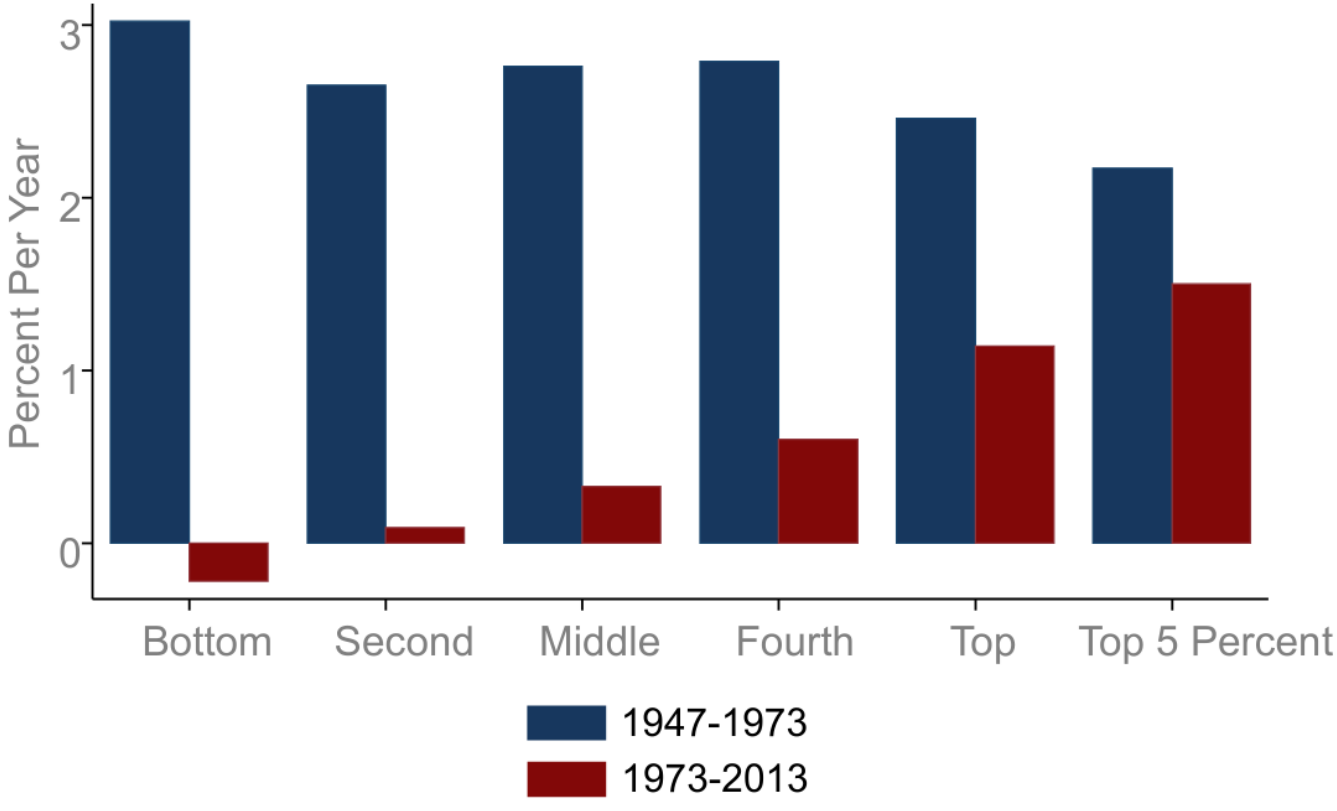
Two major changes in the American economy since the 1940s:

(i). Lower total economic growth

(ii). Less equal distribution of growth

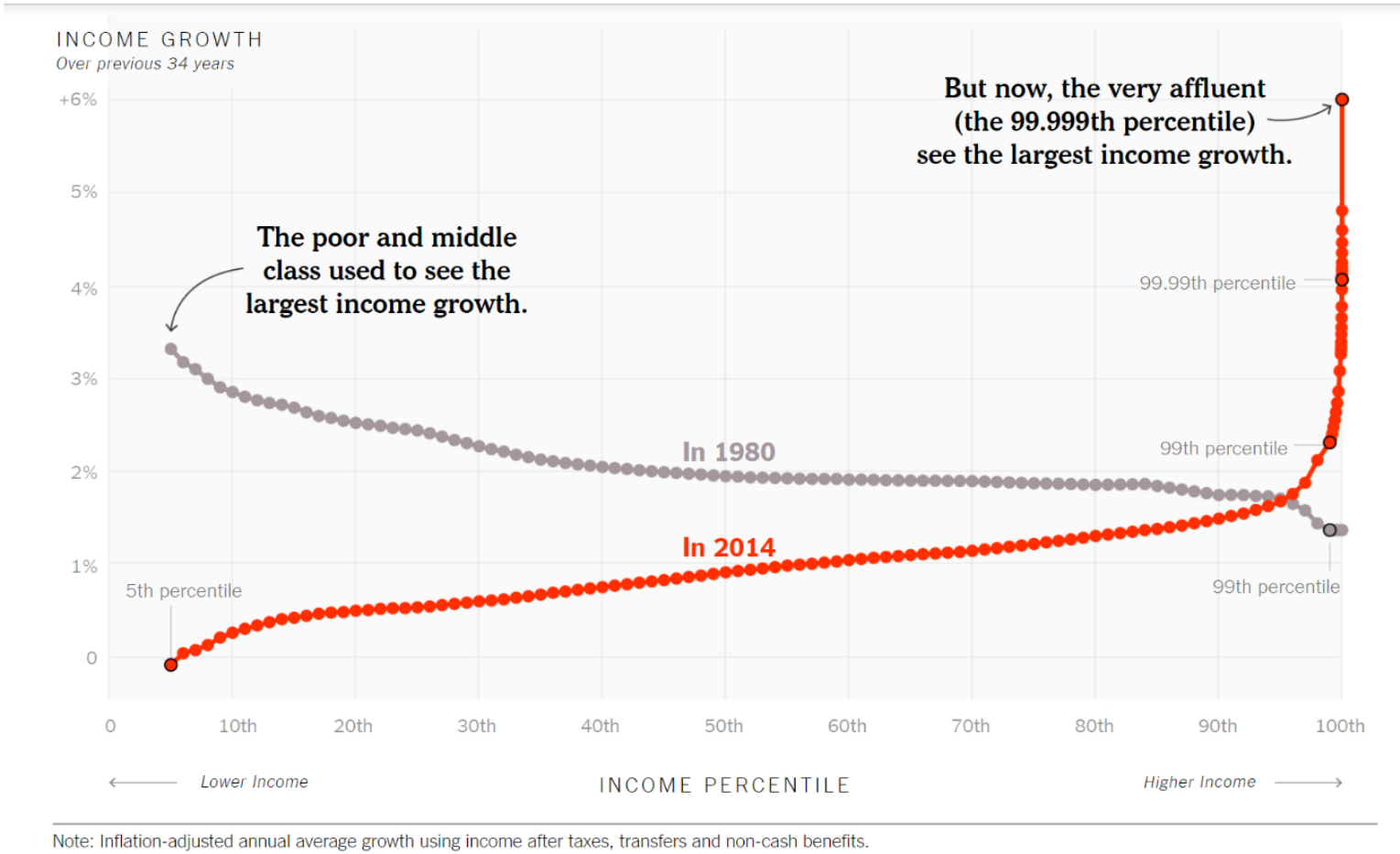
Growth in family income

The following chart compares growth in real mean family income by quintile between 1947-1973 and 1973-2013



Source: Goldin and Katz (2007)

Growth in family income



Source: Piketty, Saez, and Zucman (2017); Leonhardt (2017)

Growth in family income

Growth in family income

Two major changes in the American economy since the 1940s:

- Lower total economic growth
- Less equal distribution of growth

What policies can increase absolute mobility?

Consider two hypothetical scenarios for children born in 1980:

(i). Higher growth

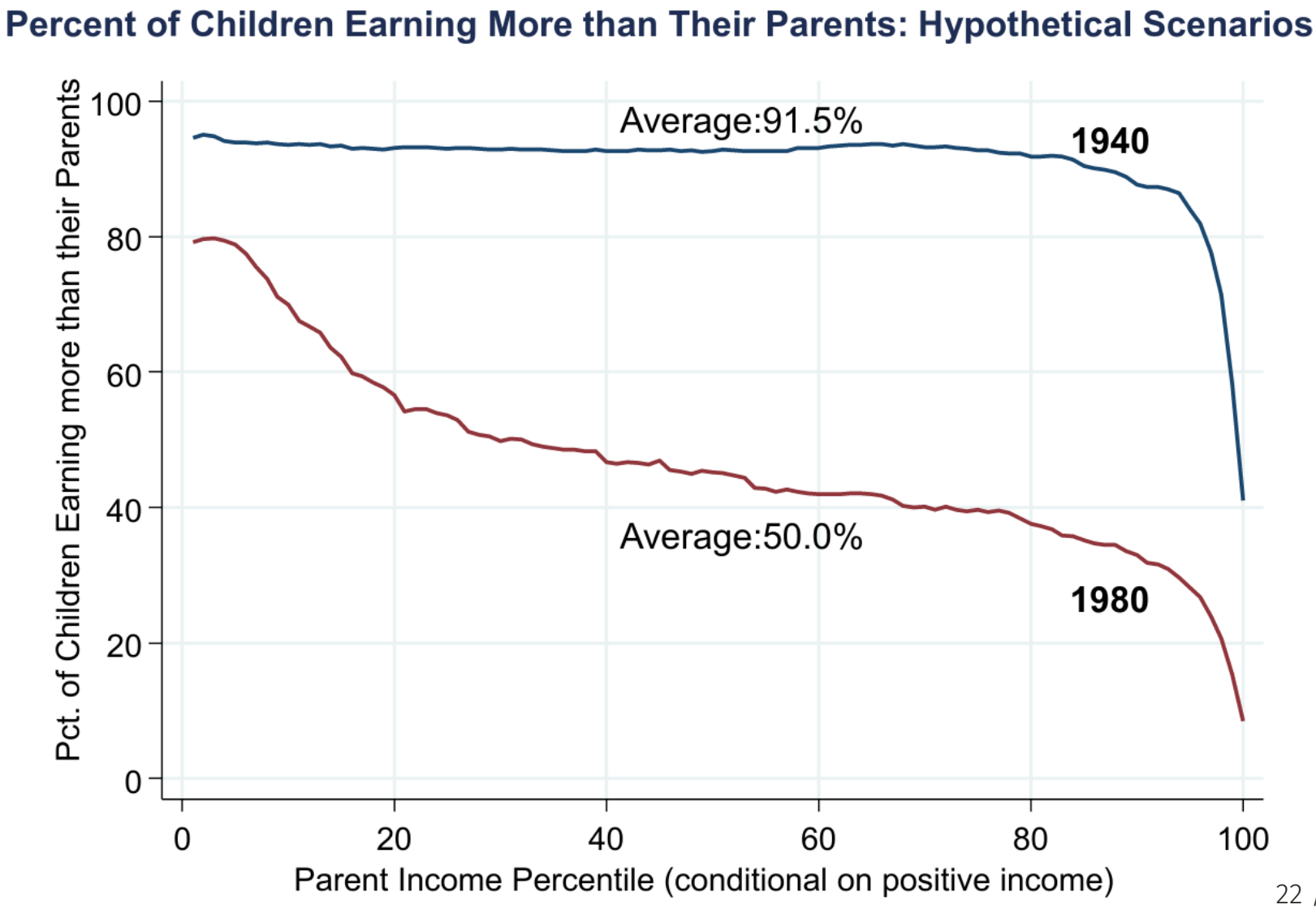
> 1940 cohort growth rate with the 1980 cohort historical distribution

(ii). More broadly shared growth

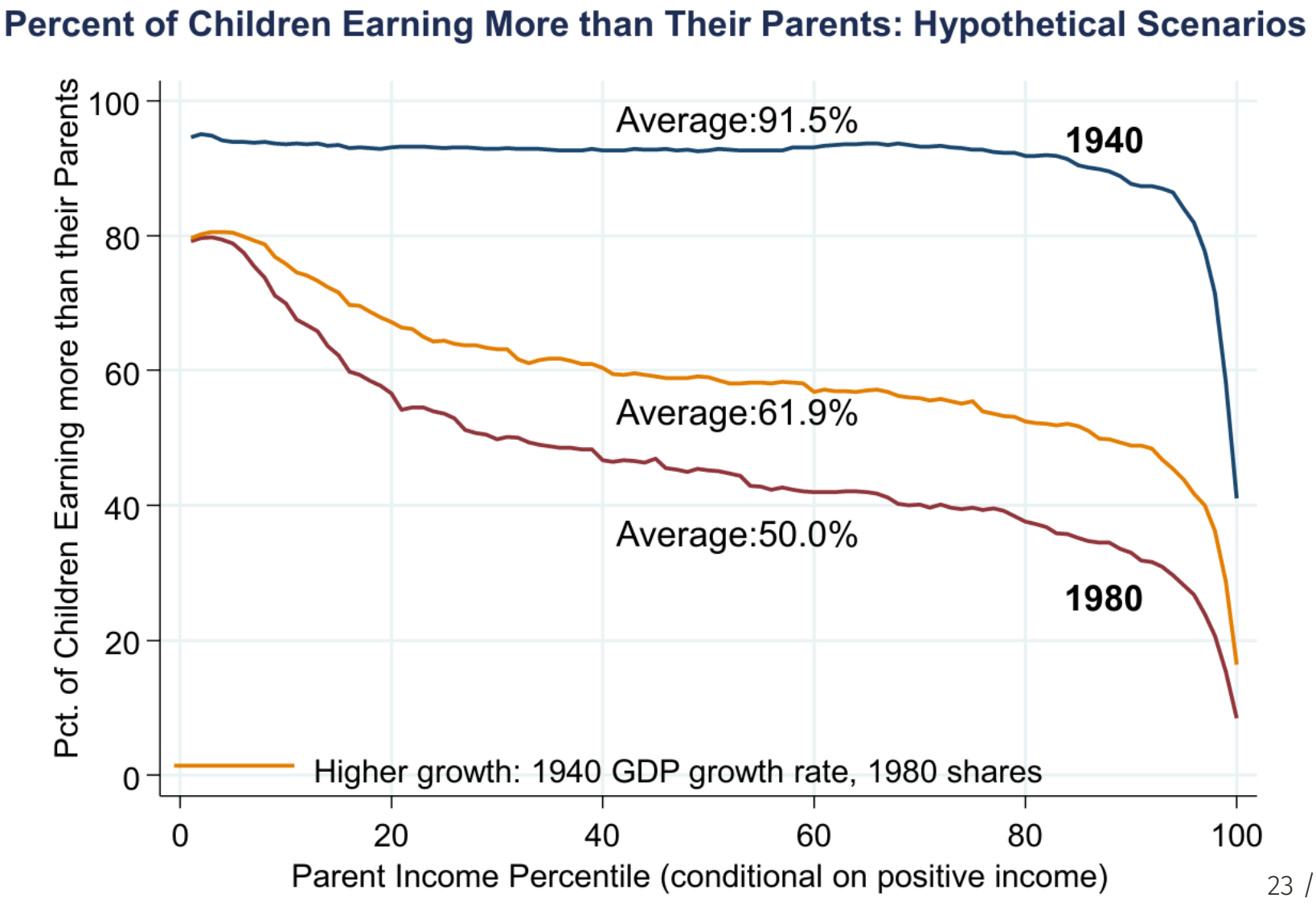
> Same 1980 cohort historical growth rates but 1940 cohort distribution across income groups

Which over these scenarios would have lead to a stronger American Dream?

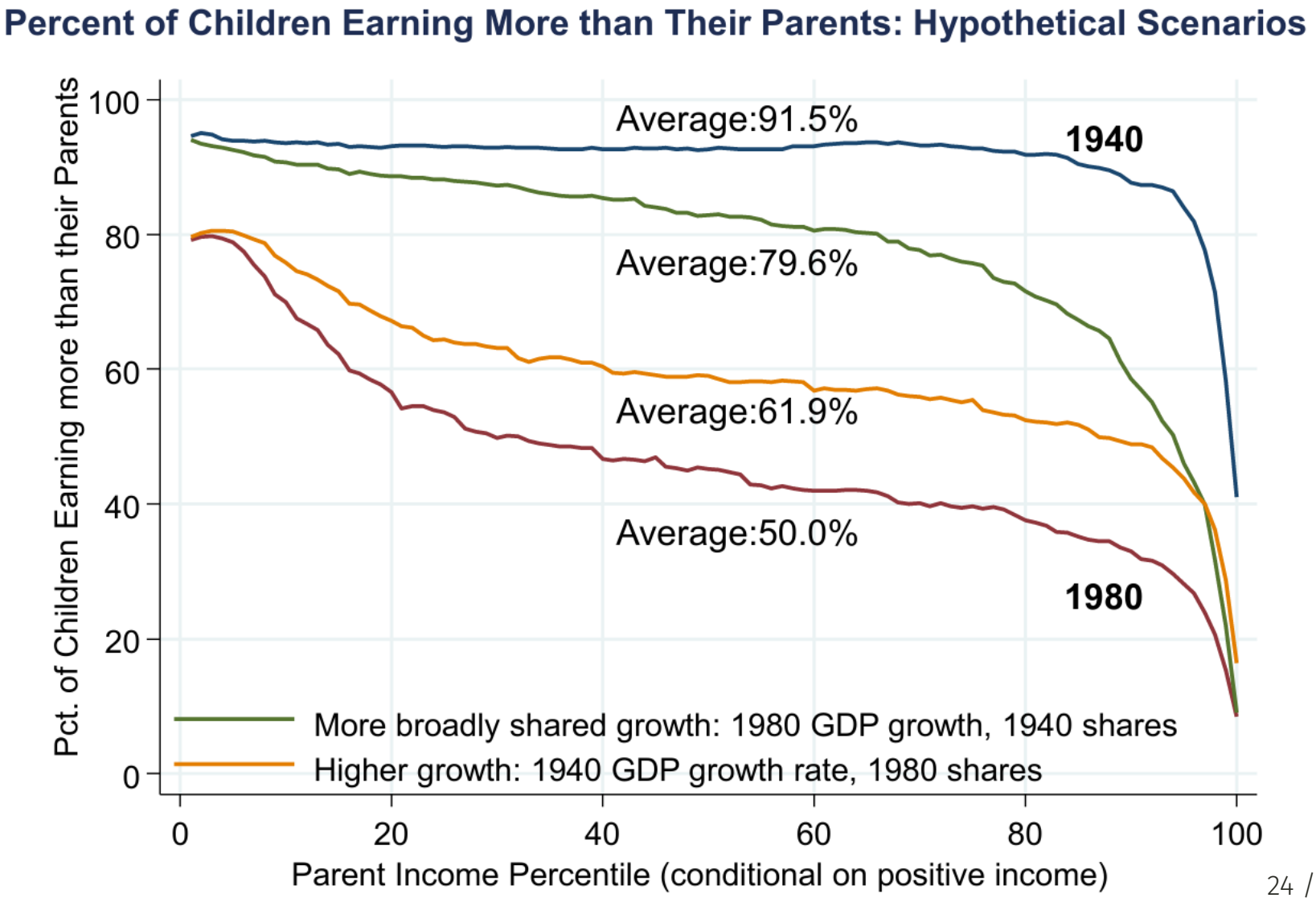
Hypothetical scenarios



Hypothetical scenarios



Hypothetical scenarios



Restoring the American Dream

Main lesson: Restoring the American Dream of high rates of upward mobility will require **more broadly shared** economic growth

- Need policies that will increase incomes throughout the distribution

Two approaches of redistribution

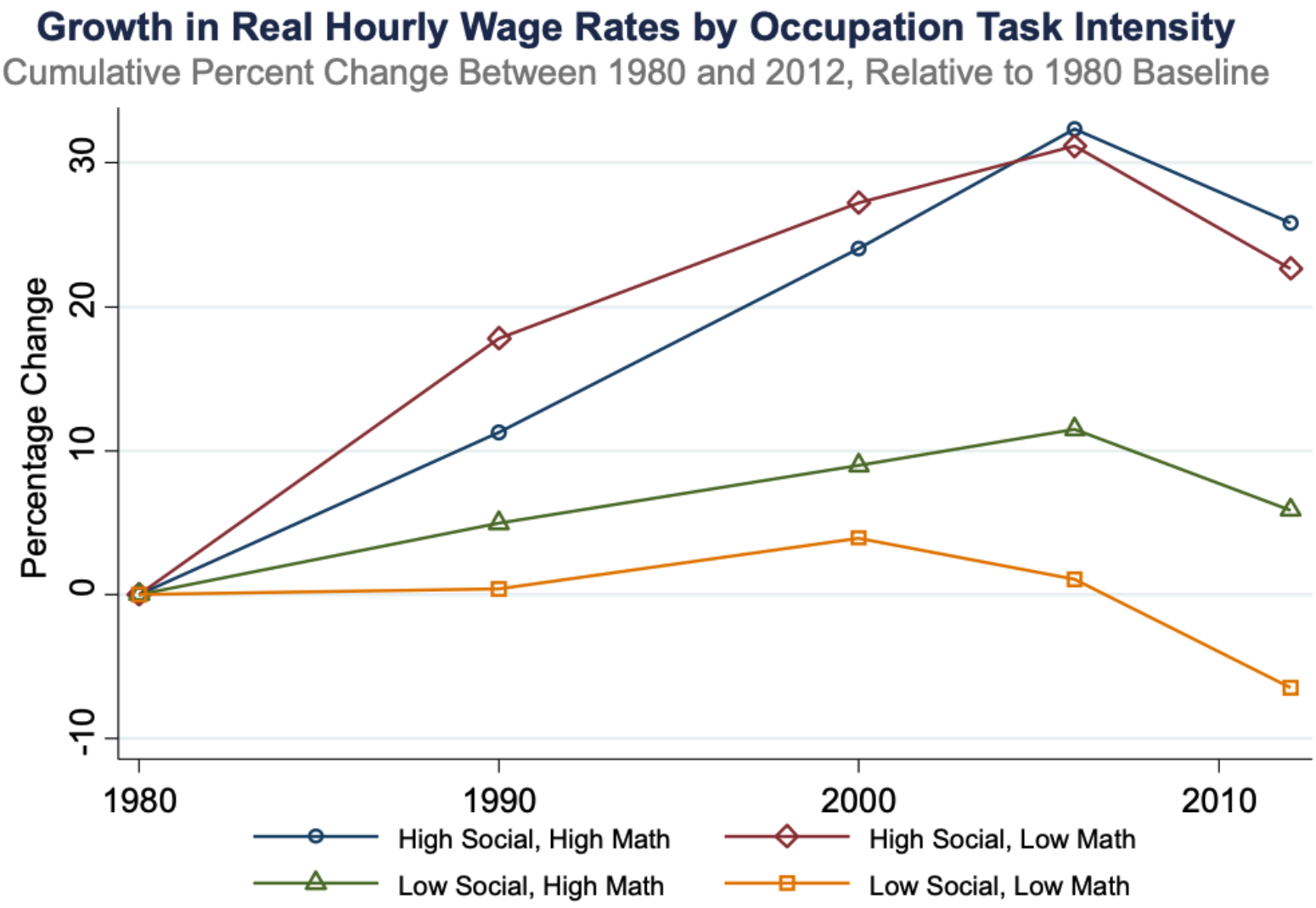
(i). Redistribution

- Piketty and Saez: Reduction in top income taxes and erosion of unions and min wage have led working-class Americans to fall behind

(ii). Human Capital Investment

- Goldin and Katz: race between education and technology – need education to keep pace with technological change to increase wage rates

Human Capital Investment



Human Capital Investment

Education is not just about technical skills; social skills matter a lot too

Implication: Policies to improve such skills could range from changes in education and training to housing voucher policies

So far we have assumed that restoring the American dream is desirable. Is it?

Should the growth be shared equally?

- e.g: Should we try to focus on policies that restore the fading American Dream?

The American Dream

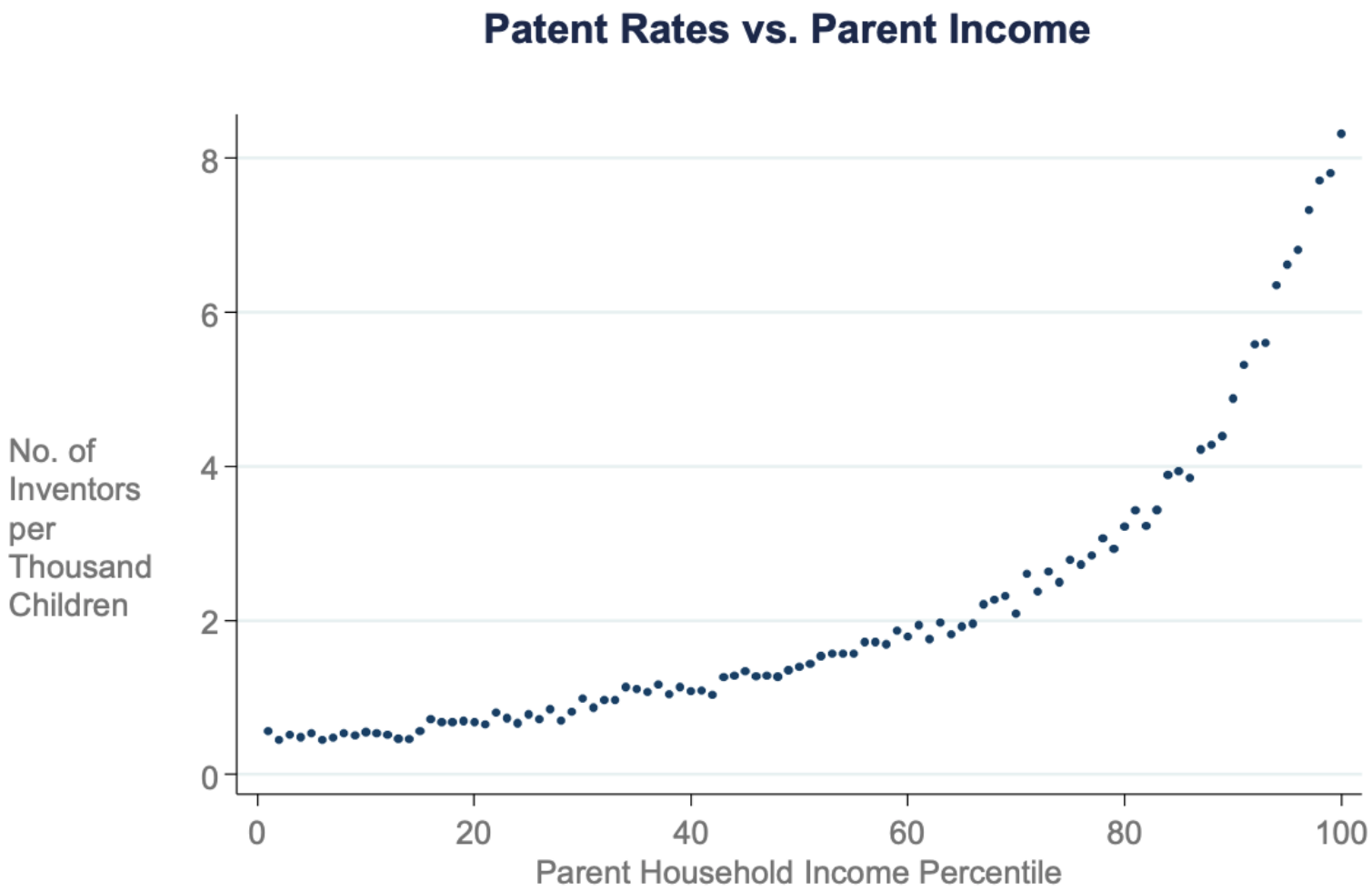
Q: How does increasing equality of opportunity impact economic growth?

- Difficult to measure effects on growth directly

Solution: Focus on a key channel that many economists believe is the primary driver of growth

innovation

Innovation


Patent Rates vs. Parent Income
No. of Inventors per Thousand Children
0
2
4
6
8
0
20
40
60
80
100
Parent Household Income Percentile

Another Question

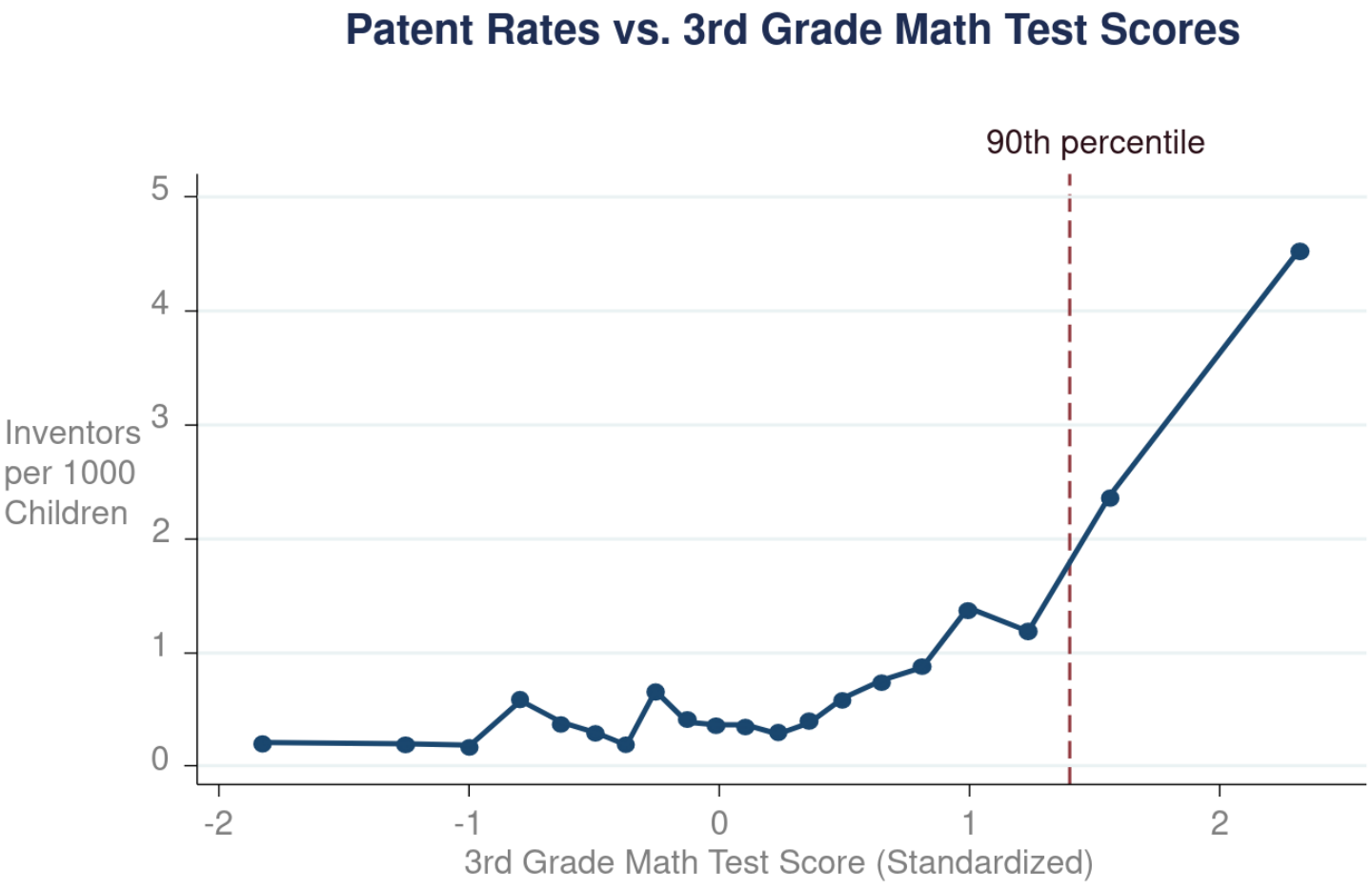
Q Why would patent rates vary with parental income?

(i). Ability: Children from high-income families have a greater ability to innovate

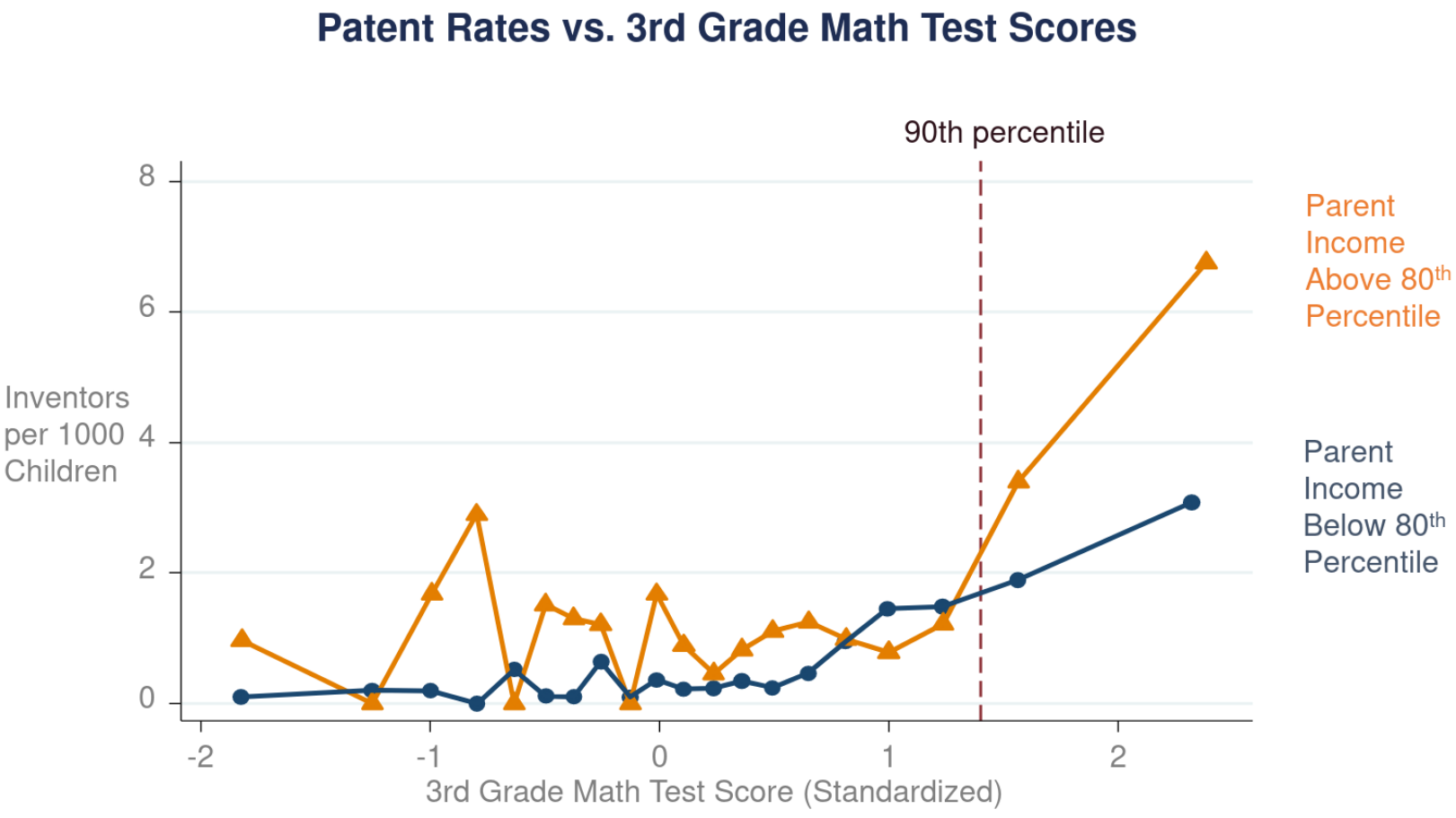
(ii). Preferences: Lower-income children prefer less risky occupations

(iii).Constraints: Lower-income children have comparable talent and preferences but lack resources and or exposure

Innovation vs Math scores



Innovation vs Math scores



Innovation vs Math scores

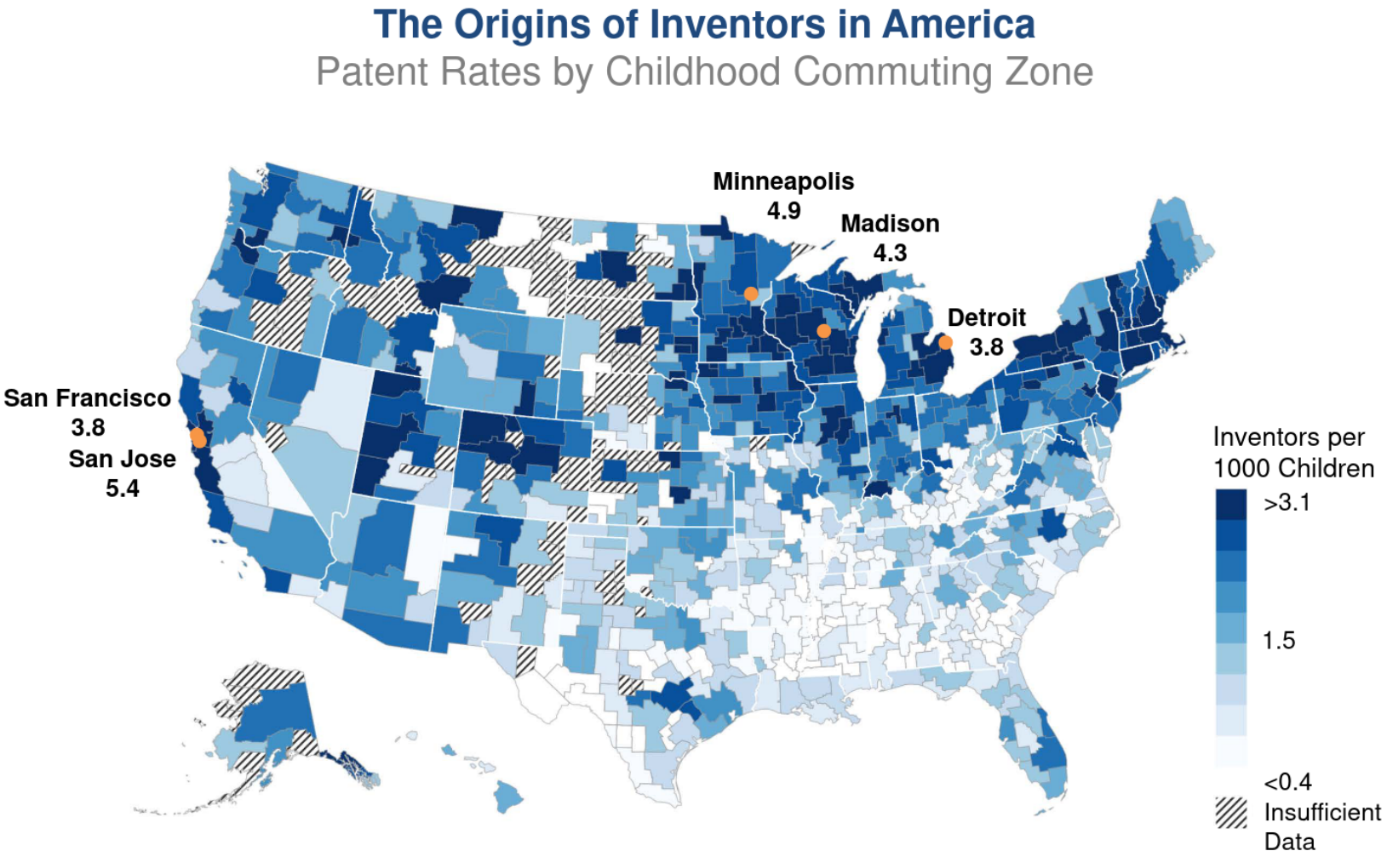
Not much of the gap is explained by ability

It seems you need three things things:

- High quantitative ability
- Rich parents
- Exposure to other innovators

Much of the gap is explained by *neighborhood effects*: e.g. what seems to matter for innovation is who you grow up around.

Map


The Origins of Inventors in America
Patent Rates by Childhood Commuting Zone
Minneapolis
4.9
Madison
4.3
Detroit
3.8
San Francisco
3.8
San Jose
5.4
Inventors per
1000 Children
>3.1
1.5
<0.4
Insufficient
Data

Neighborhood effects

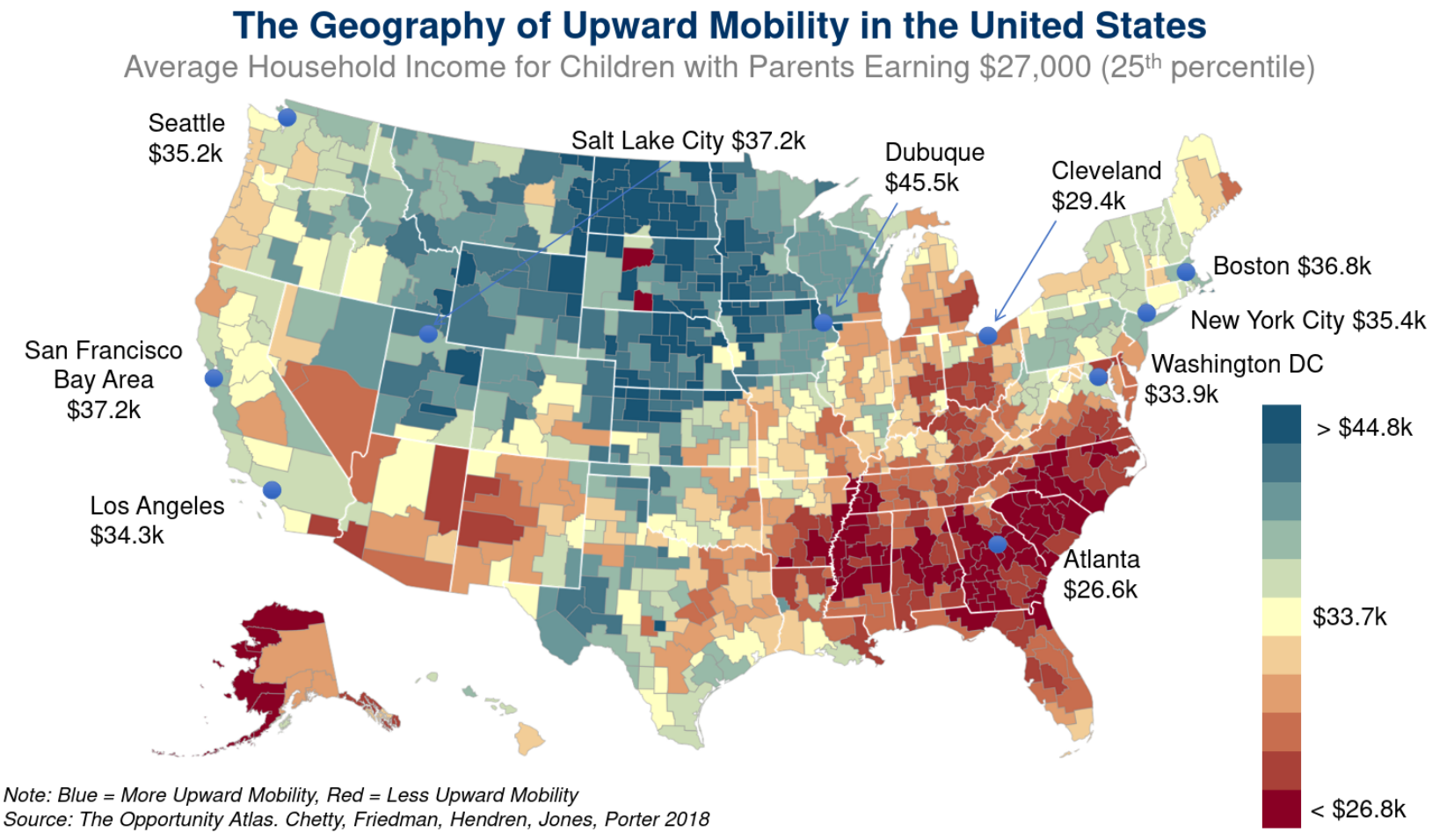
Q: How do we know that it truly is neighborhood effects (e.g who you grow up near) not driving this, and **not** just ability sorting?

- Chetty et al. isolate the causal impacts of neighborhoods by analyzing the propensity to patent by a narrow technology class

Intuition: Genetic ability (sorting of high skilled labor) is unlikely to vary significantly across similar technology classes.

Causal Effect of Neighborhoods

Geography of upward mobility: Data



Opportunity Atlas

Causal Effect of Neighborhoods

The last topic brought rise to a bigger question:

How would we think about figuring out the impact of where a child grows up on various outcomes for the child later in life?

We have two very different explanations:

(i). Sorting: Similar people live near each other (educated people live near other educated people)

(ii). Causal impacts: places have a **causal effect** on updward mobility

Causal Effect of Neighborhoods

What is the **ideal experiment**?

Randomly assign children to neighborhoods. Compare adult outcome

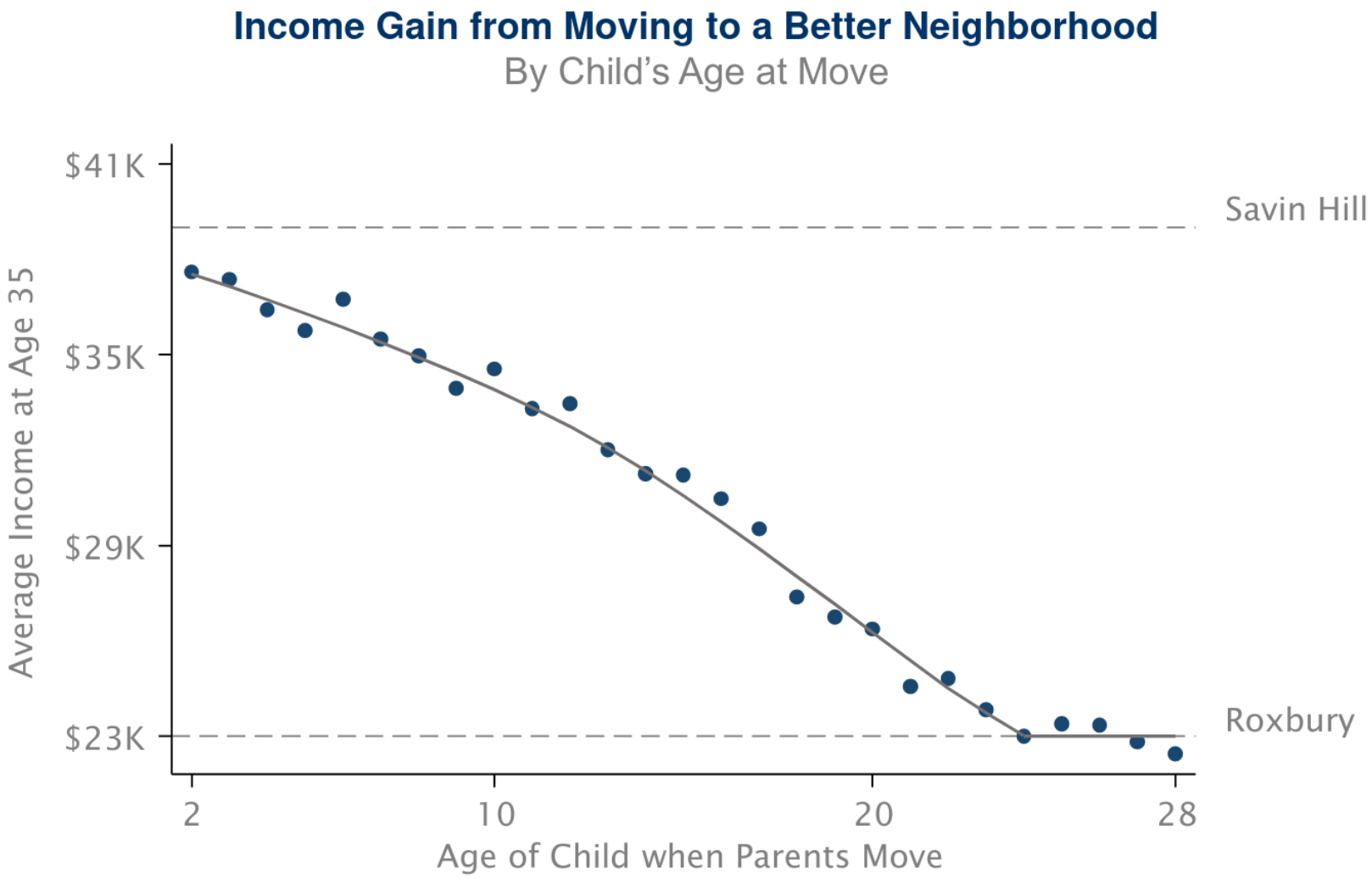
- Can't do this? So what can we do?

Chetty & Hendren (2018)

Quasi-experiment: Observe data on 7 million families that move

Key Idea Exploit variation in *age of child* when family moves to identify causal impact of neighborhood environment

Neighborhood Effects



Assumptions

To identify causal impact of neighborhoods, you need to believe that **the timing of moves to better/worse areas are unrelated to other determinants of child's outcomes**.

This assumption might not hold for two reasons:

(i). Parents who move to good areas when their children are young might be different than those who move later

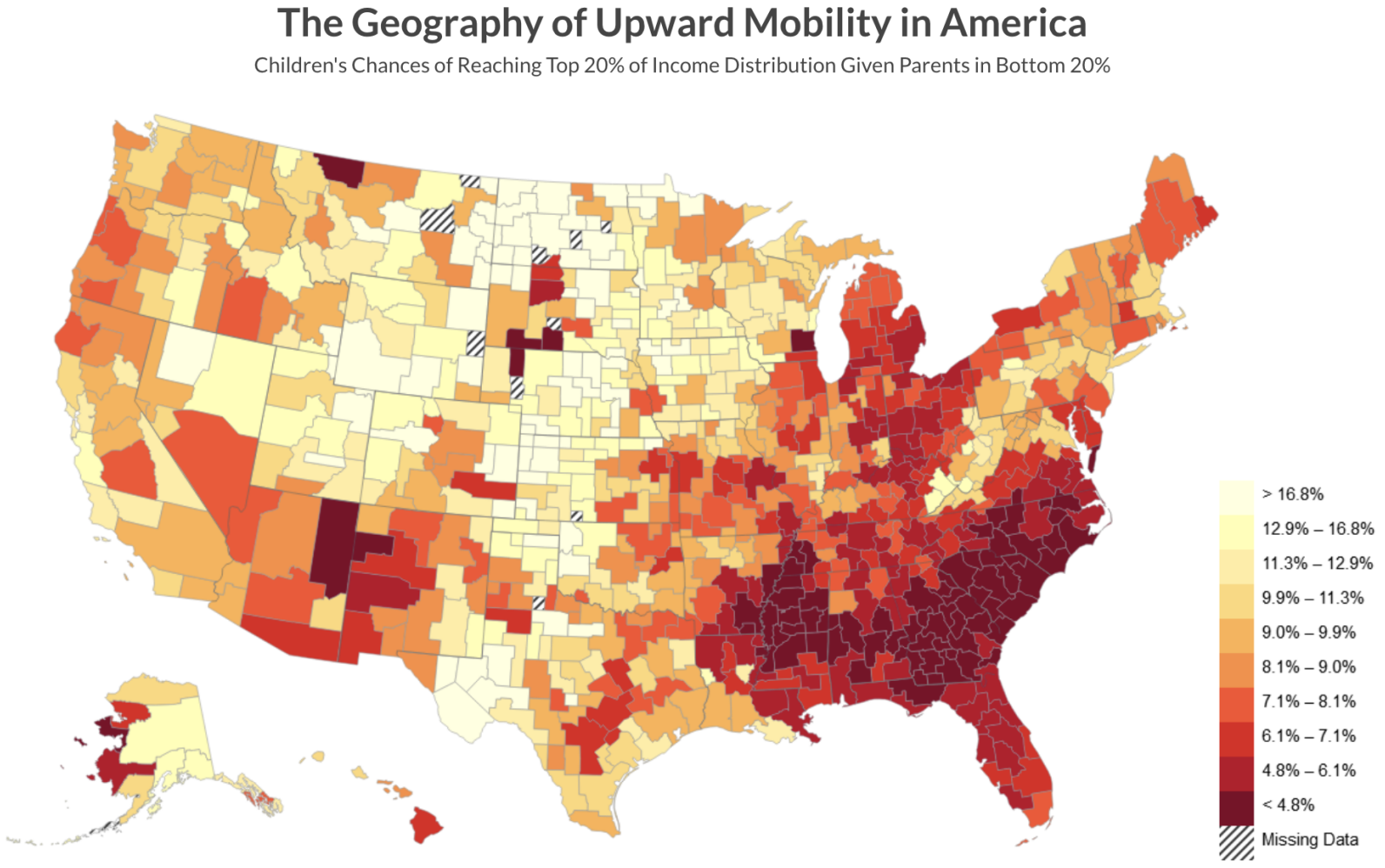
(ii). Moving may be unrelated to other factors (e.g change in parents' job) that impact children directly

Both of these concerns are addressed

- Compare across siblings

Geography of Upward Mobility

A Familiar Map

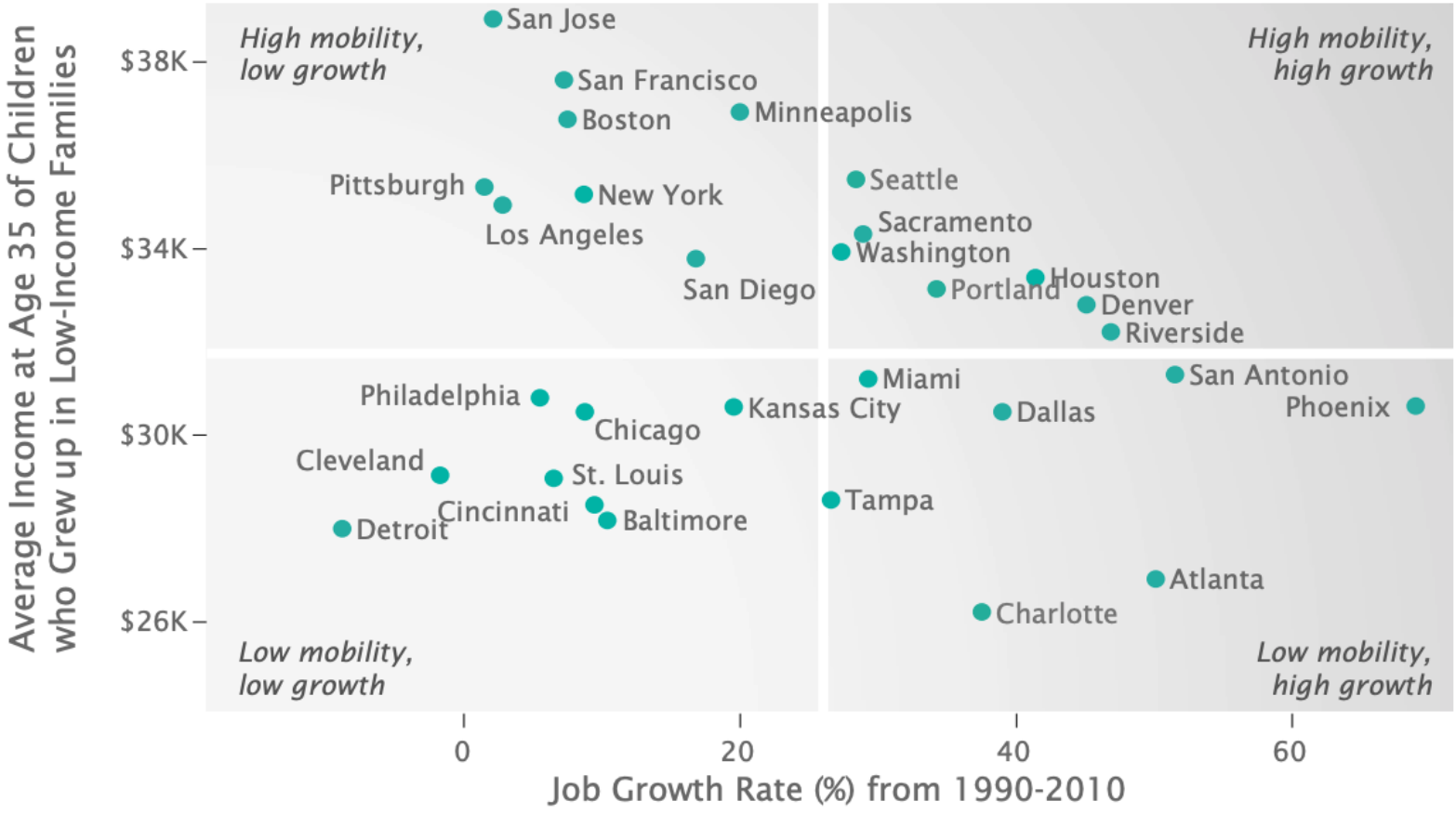


Last Q

OK, so: **neighborhoods matter for upward mobility**. Next question: *why does this vary across cities/places?*

- To answer this question, it would be good to start by comparing places with high upward mobility to low upward mobility
    - Do places with higher mobility have better schools, jobs, institutions, something else? All?

Correlations



Correlations

5 strongest correlates of upward mobility are:

(i). Segregation: Greater racial and income segregation associated with lower levels of mobility

Segregation

Correlations

5 strongest correlates of upward mobility are:

(i). Segregation: Greater racial and income segregation associated with lower levels of mobility

(ii). Income Inequality: Places with a smaller middle class have less mobility

(iii). School Quality: Higher expenditure, smaller classes, higher test scores $\implies$ more mobility

(iv). Family Structure: Areas with more single parents have much lower mobility

- Strong correlation even for kids whose *own* parents are married

(v). Social Capital: "Takes a village to raise a child"

Policies to improve upward mobility

In general, there are two policy approaches to increasing upward mobility

(i). Moving to Opportunity (MTO): Provides affordable housing in high-opportunity areas

(ii). Place-Based Investments: Increases upward mobility in low-opportunity areas

Q: Can you think of the pros and cons of each approach?

MTO

MTO Experiment:

Implemented from 1994-1998 in 5 locations: Baltimore, Boston, Chicago, LA, NY

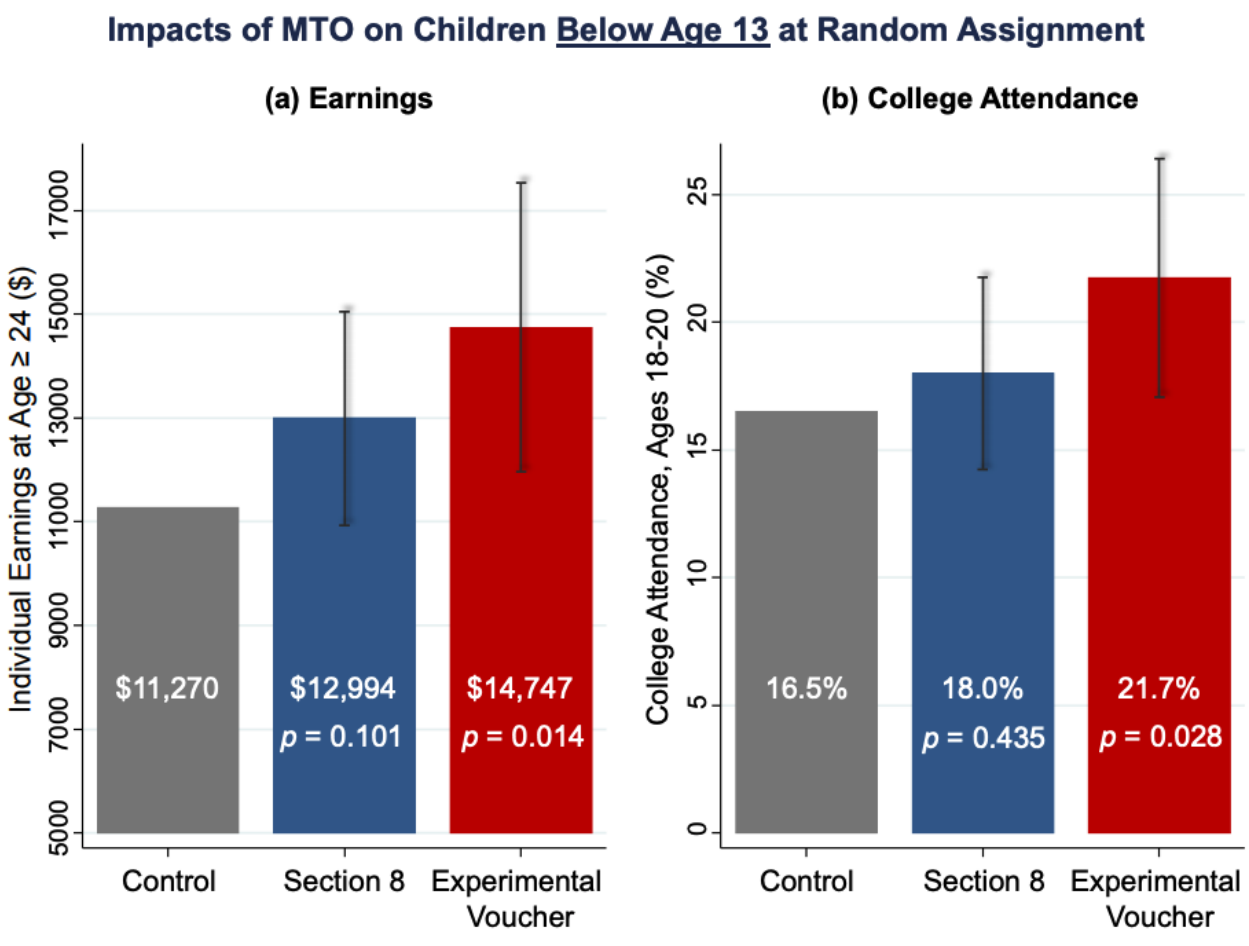
- 4,600 families randomly assigned to one of three groups:

(i). Experimental: Offered housing couchers restricted to low-poverty census tracts

(ii). Section 8: Offered conventional housing vouchers, no restrictions

(iii). Control: not offered a voucher, stayed in public housing

Results


Impacts of MTO on Children Below Age 13 at Random Assignment
(a) Earnings
Individual Earnings at Age ≥ 24 ($)
5000
7000
9000
11000
13000
15000
17000
$11,270
$12,994
p = 0.101
$14,747
p = 0.014
Control
Section 8
Experimental Voucher
(b) College Attendance
College Attendance, Ages 18-20 (%)
0
5
10
15
20
25
16.5%
18.0%
p = 0.435
21.7%
p = 0.028
Control
Section 8
Experimental Voucher

Implications

Housing vouchers can be effective -- but should be target carefully

- Vouchers should be explicitly designed to help families move to affordable, high-opportunity areas
    - In MTO experiment, unrestricted vouchers produced **smaller** gains even though families could have made same moves
    - More generally, low-income families rarely use cash transfers to move to better neighborhoods
    - 80% of 2.1 Section 8 vouchers are currently used in high-poverty, low-opportunity neighborhoods

MTO Issues

What are the concerns with experiments like MTO?

(i). Costs: how costly would it be to scale this up?

(ii). Negative spillovers: does integration hurt the wealthy (which would dampen the effect of the spillovers)?

(iii). Limits to scaling due to sorting. If you move all low-income people into a high-income neighborhood, it is no longer a high-income neighborhood.

Place-Based Approaches

A **place-based approach** would be something like:

(i). Investment in schools in high-poverty areas

(ii). Investment in infrastructure in high-poverty areas

Q: What is the main problem with place-based approaches?

- Displacement! Locational eq $\implies$ more people sort into a neighborhood if it has higher school quality
- This drives up prices and the residents that it intended to help were ultimately harmed

Review

This course: In Review

We have finished all of the material in the class!

Thank you for your time and energy. A quick recap:

1) Big, philosophical questions

- What is a city? Why do they exist?
- What makes some cities grow and others shrink?

2) Tools!

- Locational equilibrium (x2)
- Bid-rent curves
- Two labor market models

This course: In Review

3) Applications:

- Min wage & rent control
- Land use & housing policy

My **big picture** takeaways:

- Location matters! The geographic level at which we implement policy matters, too
- Differences in structure of labor/housing market can lead to vastly different outcomes from the same policy
- Public policy questions are often more nuanced than they appear on a surface level

Thank you for a great class :)