



# Econ 330: Urban Economics

## Lecture 15

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# Lecture 15: The Geography of Income Inequality<sup>+</sup>

<sup>+</sup> 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
- PS02 due Sunday night
  - Final during class on tomorrow

# 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 politicalization of scientific questions such as
  - | Is Obamacare reducing job growth in America?

# Big data and empirics

Thanks to growing availability of data, social science is becoming more empirical

- Test and improve theories using real world data

# Big data and empirics

What is "**Big data**"?

Large datasets

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

Product of the **internet age**

- Information costs → 0

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



# Big data and empirics

## Examples:

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

## Benefits:

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

# "Big data" and the American Dream

# The American Dream

The **American Dream** has been defined as the aspiration that children should have higher standards of living than their parents

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

How can we measure the American Dream? What is a good **statistic?**

Obama (2014):

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

**One way to measure the American Dream:**

- What fraction of children earn more income than their parents?

**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

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

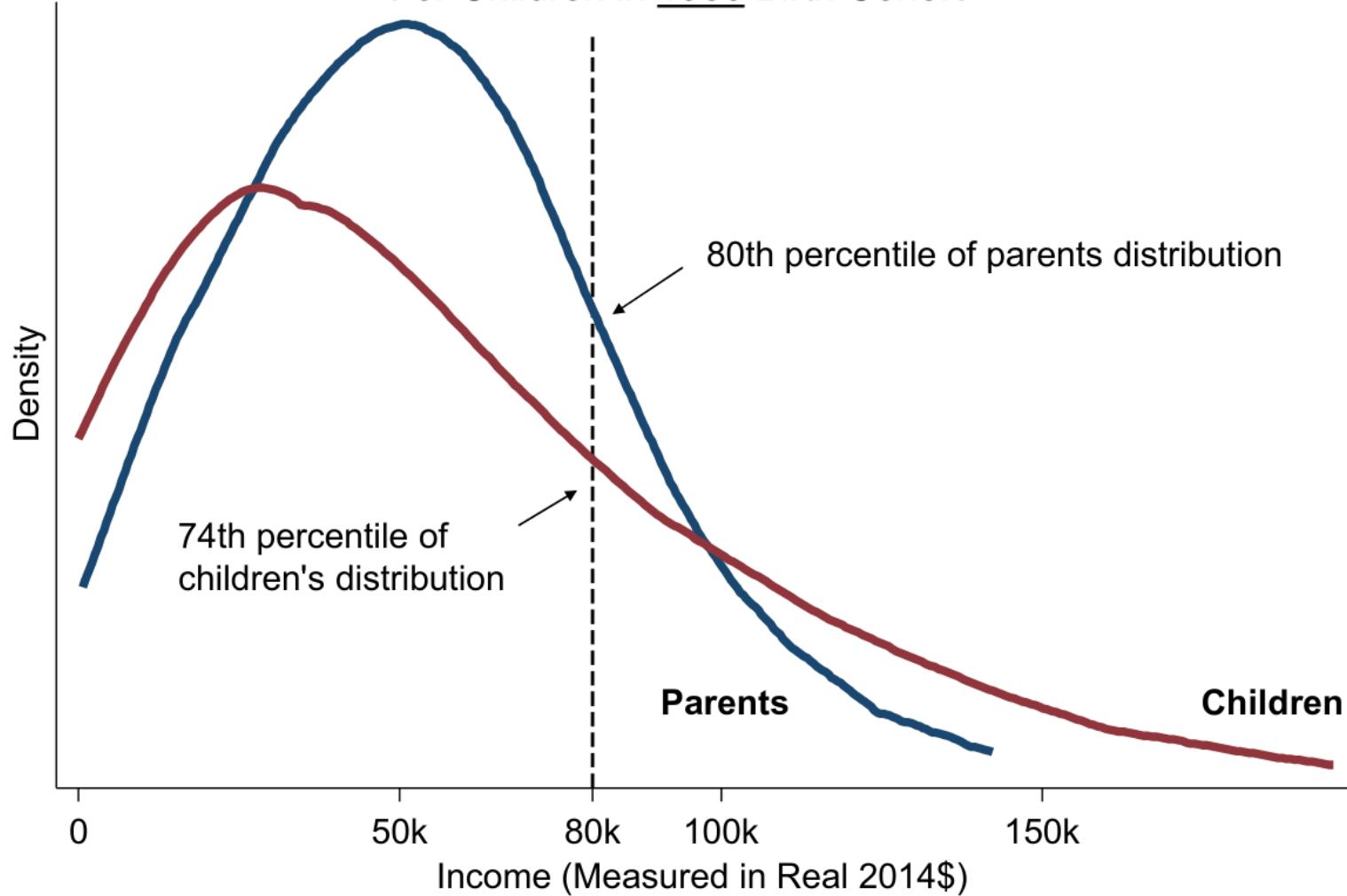
- Chetty et al. (2017)

Using **big data**, we can now observe generational differences in income

# The American Dream

# The American Dream

**Household Income Distributions of Parents and Children at Age 30**  
For Children in 1980 Birth Cohort



# The American Dream

# The fading American Dream

**What do these figures indicate about the American Dream?**

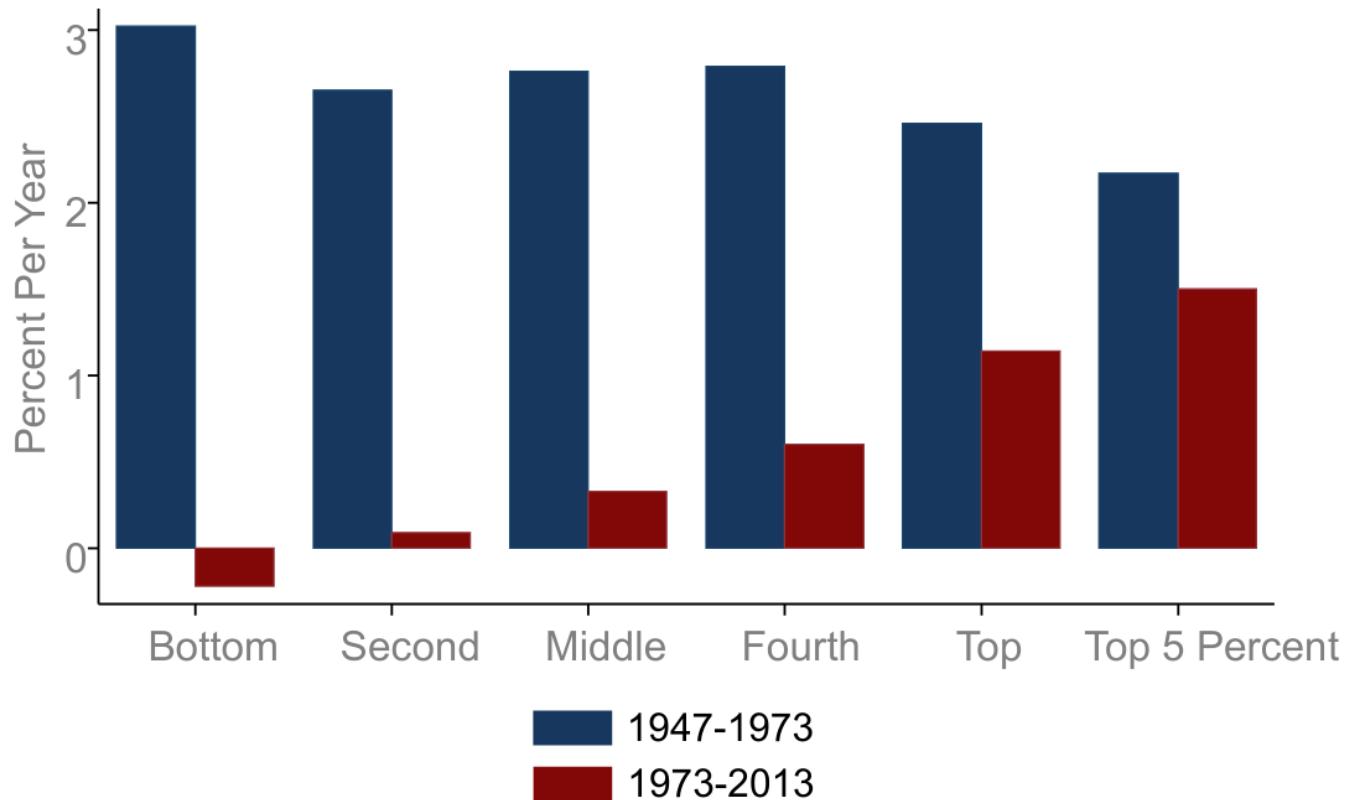
**It has become harder and harder to reach it**

**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

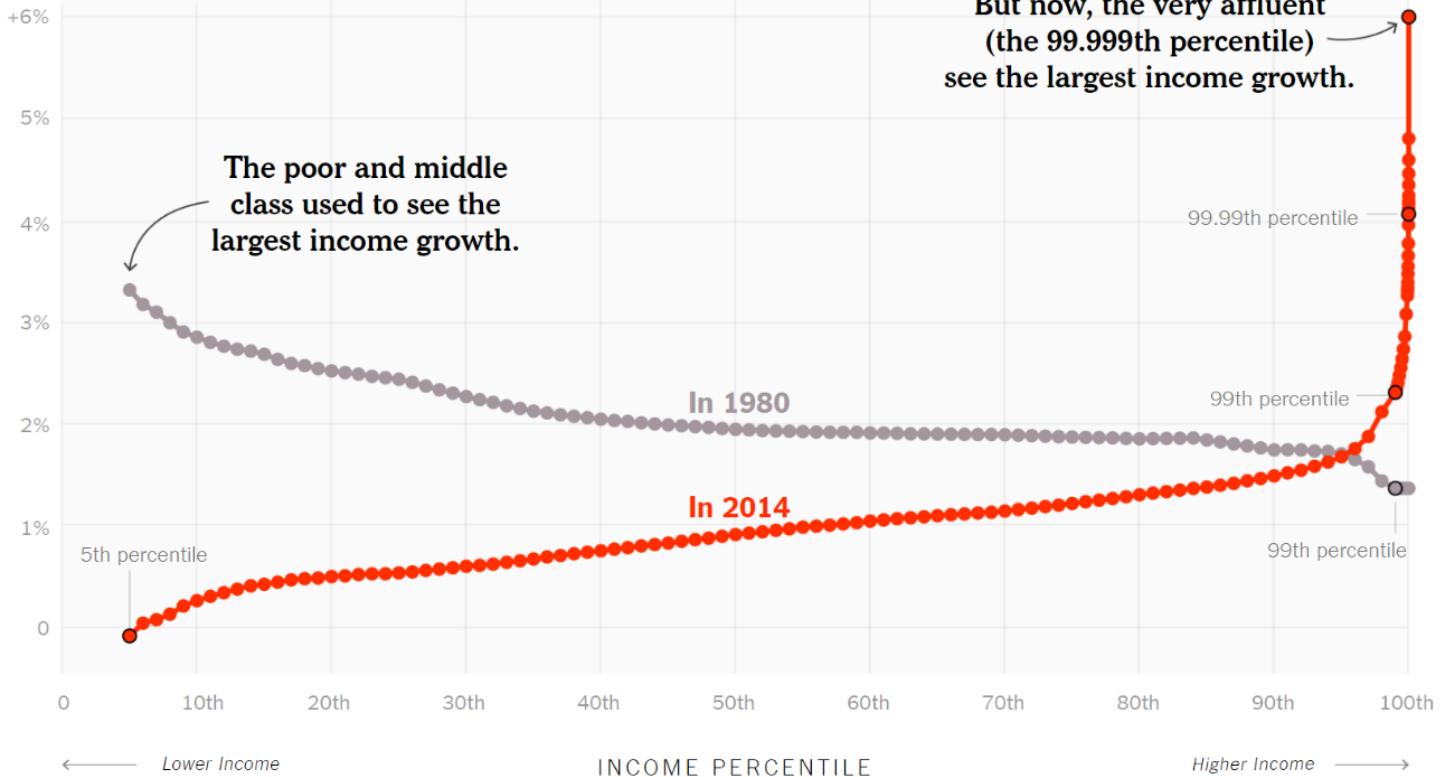
The following chart compares growth in real mean family income by quintile between 1947-1973 and 1973-2013



Source: Goldin and Katz (2007)

# Growth in family income

INCOME GROWTH  
Over previous 34 years



Note: Inflation-adjusted annual average growth using income after taxes, transfers and non-cash benefits.

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

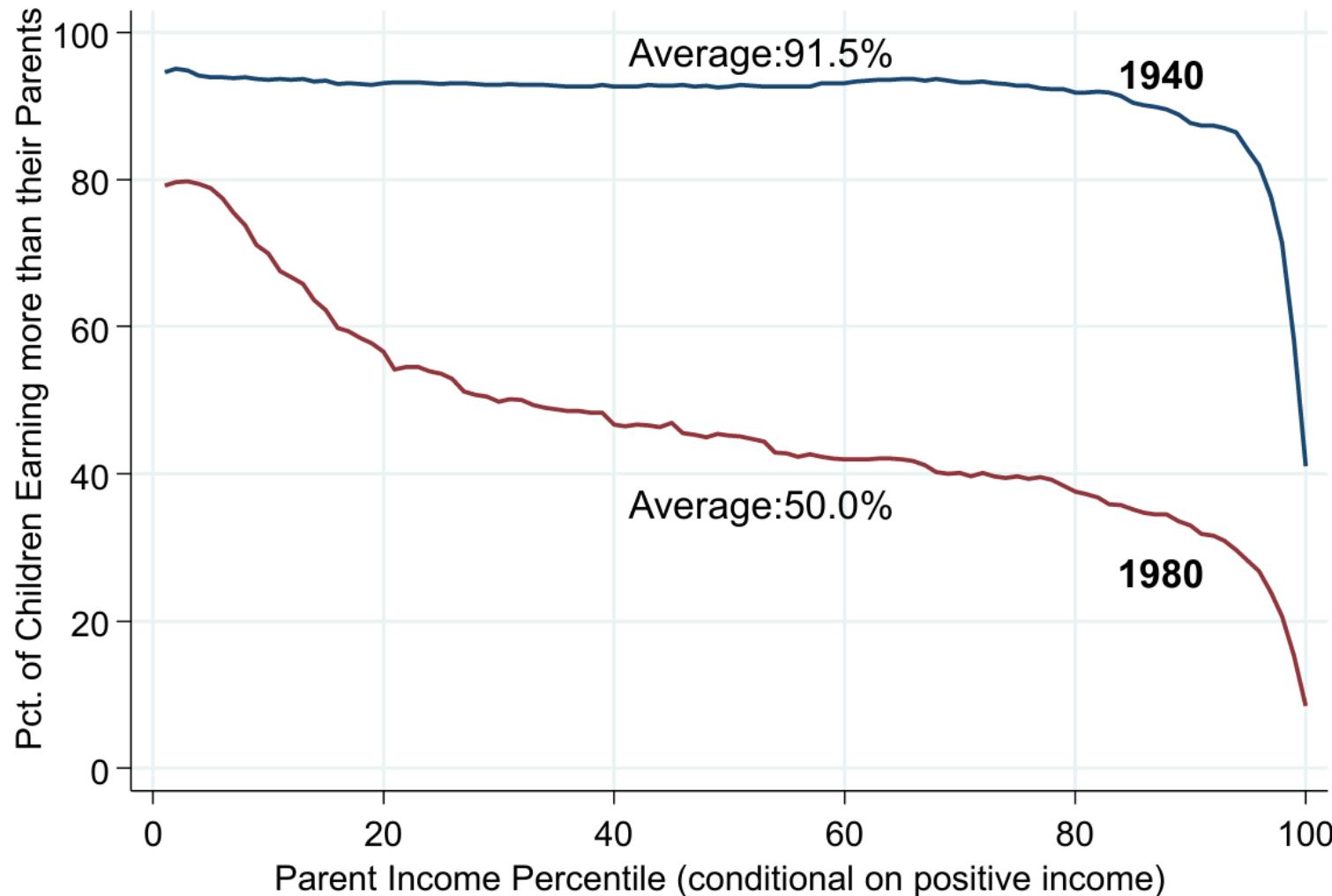
### **(ii). More broadly shared growth**

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?

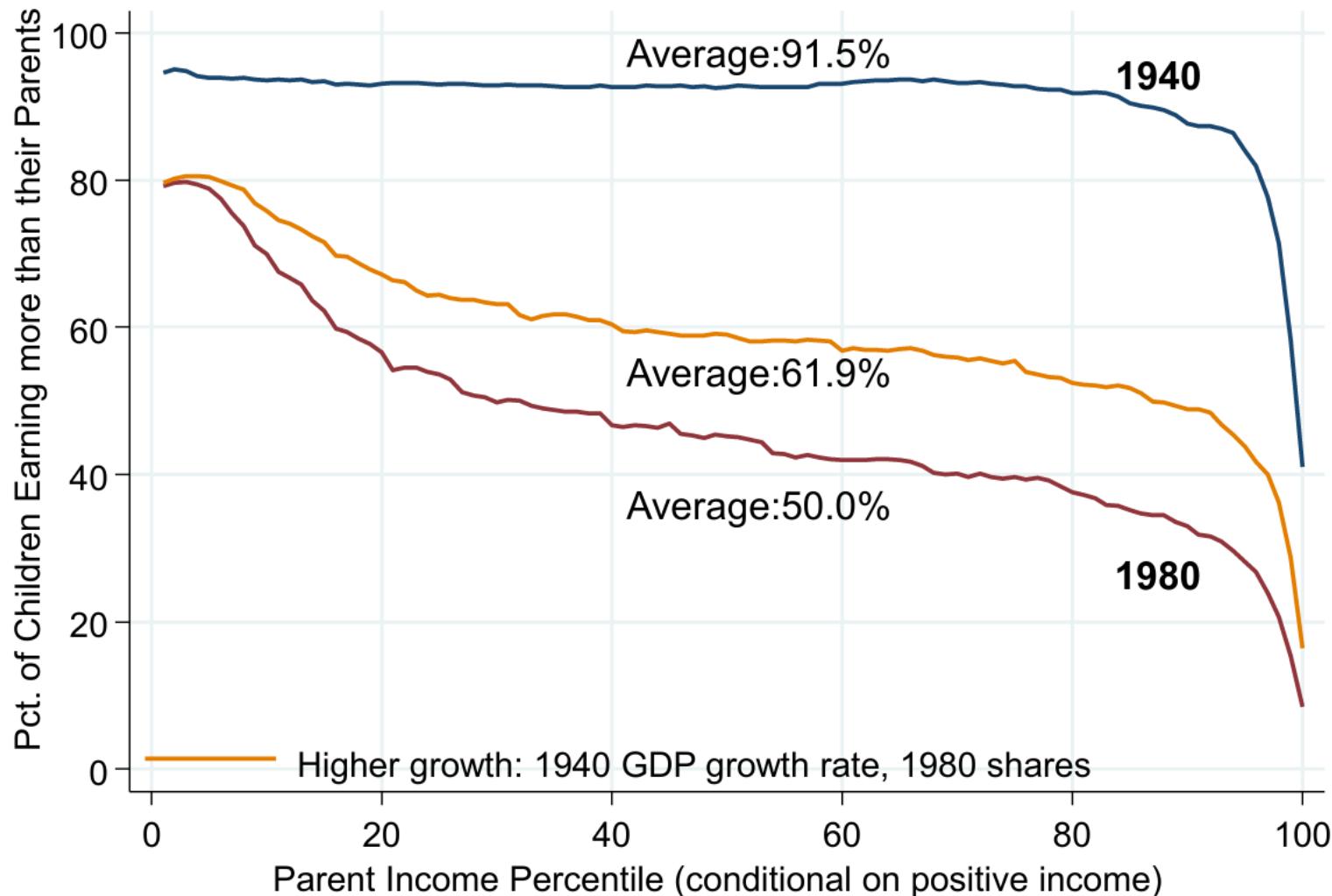
# Hypothetical scenarios

Percent of Children Earning More than Their Parents: Hypothetical Scenarios



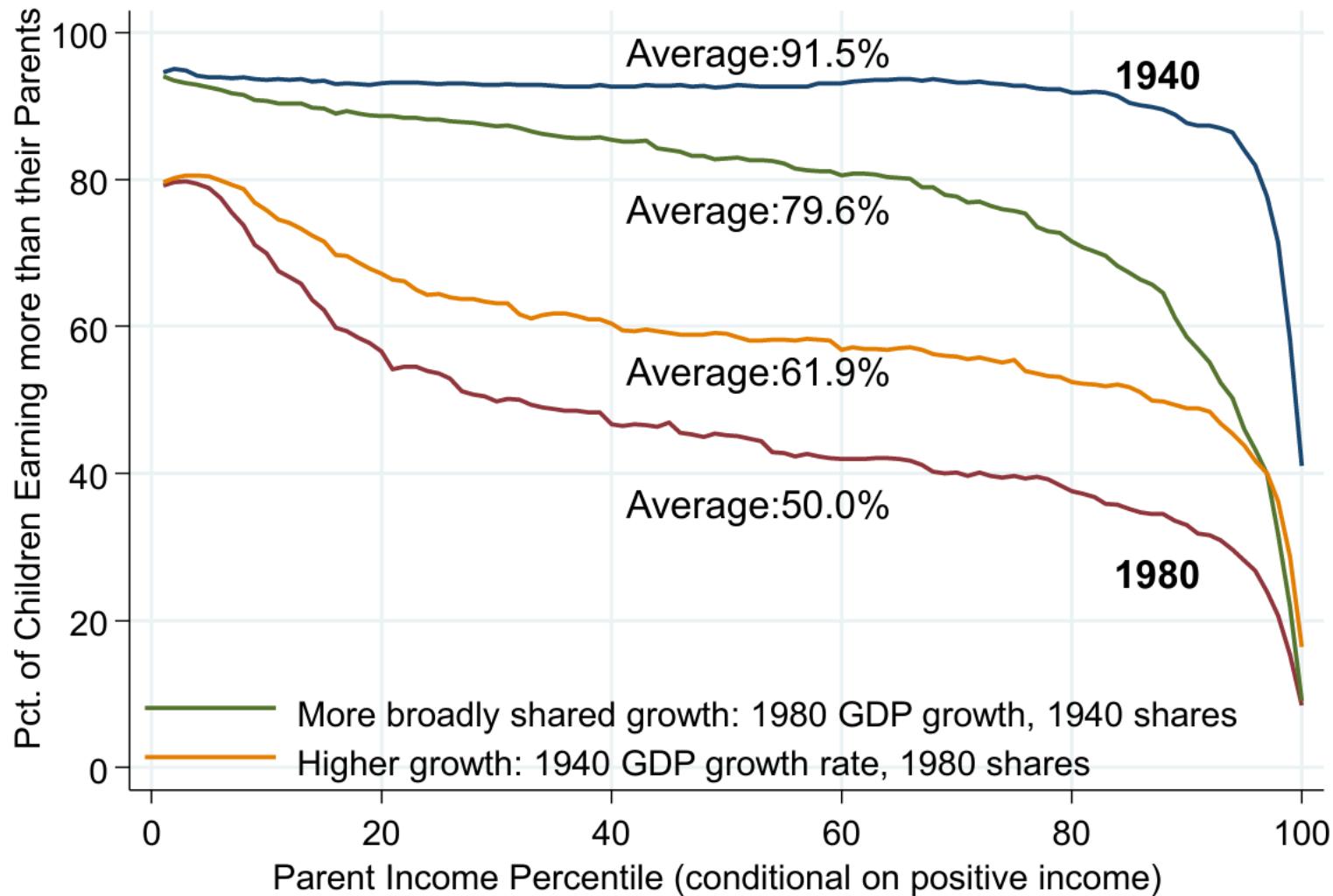
# Hypothetical scenarios

## Percent of Children Earning More than Their Parents: Hypothetical Scenarios



# Hypothetical scenarios

## Percent of Children Earning More than Their Parents: 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

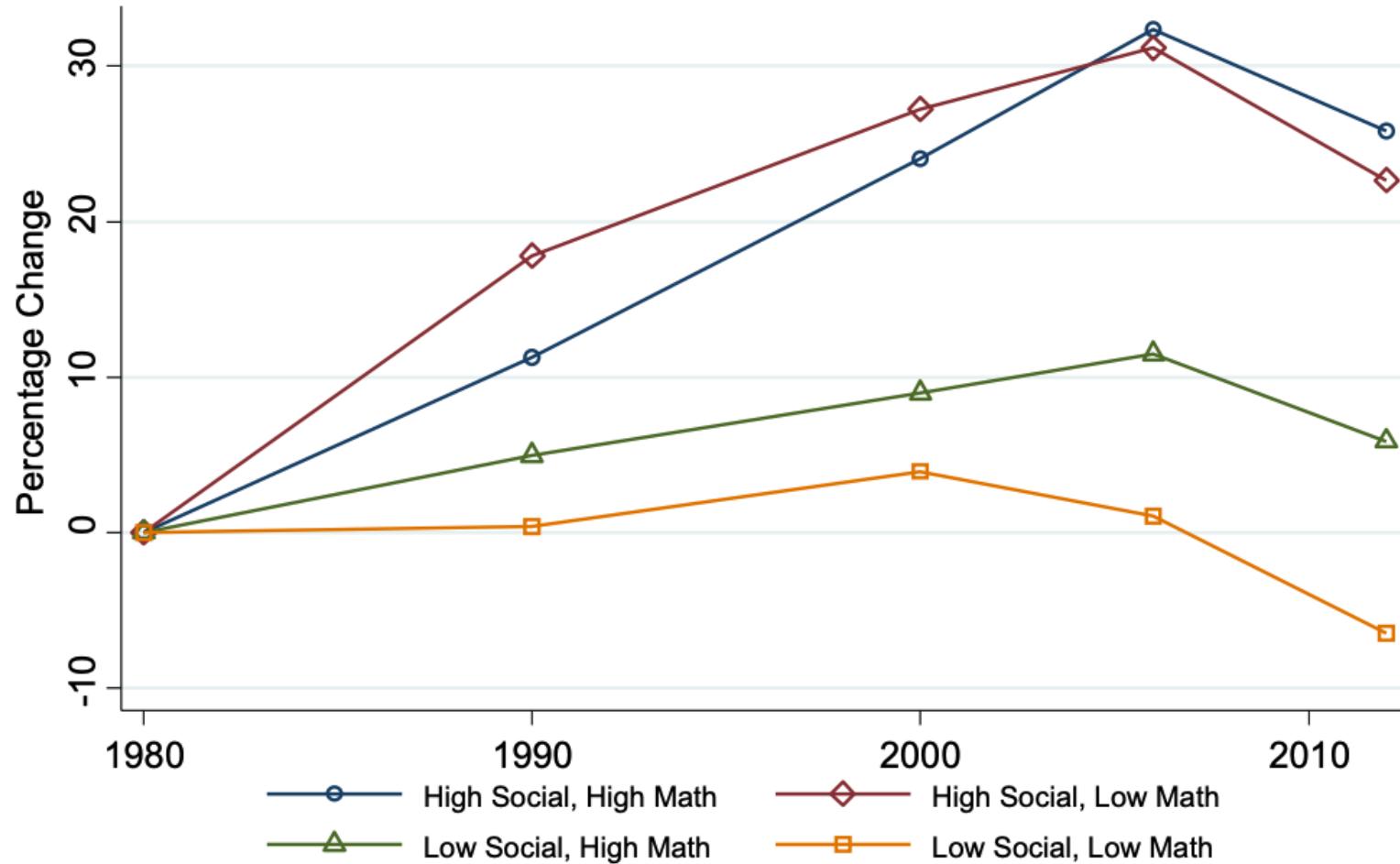
- Piketty and Saez: Reduction in top income taxes and erosion of unions and min wage have led working-class Americans to fall behind

### (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

**Growth in Real Hourly Wage Rates by Occupation Task Intensity**  
Cumulative Percent Change Between 1980 and 2012, Relative to 1980 Baseline



# 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?

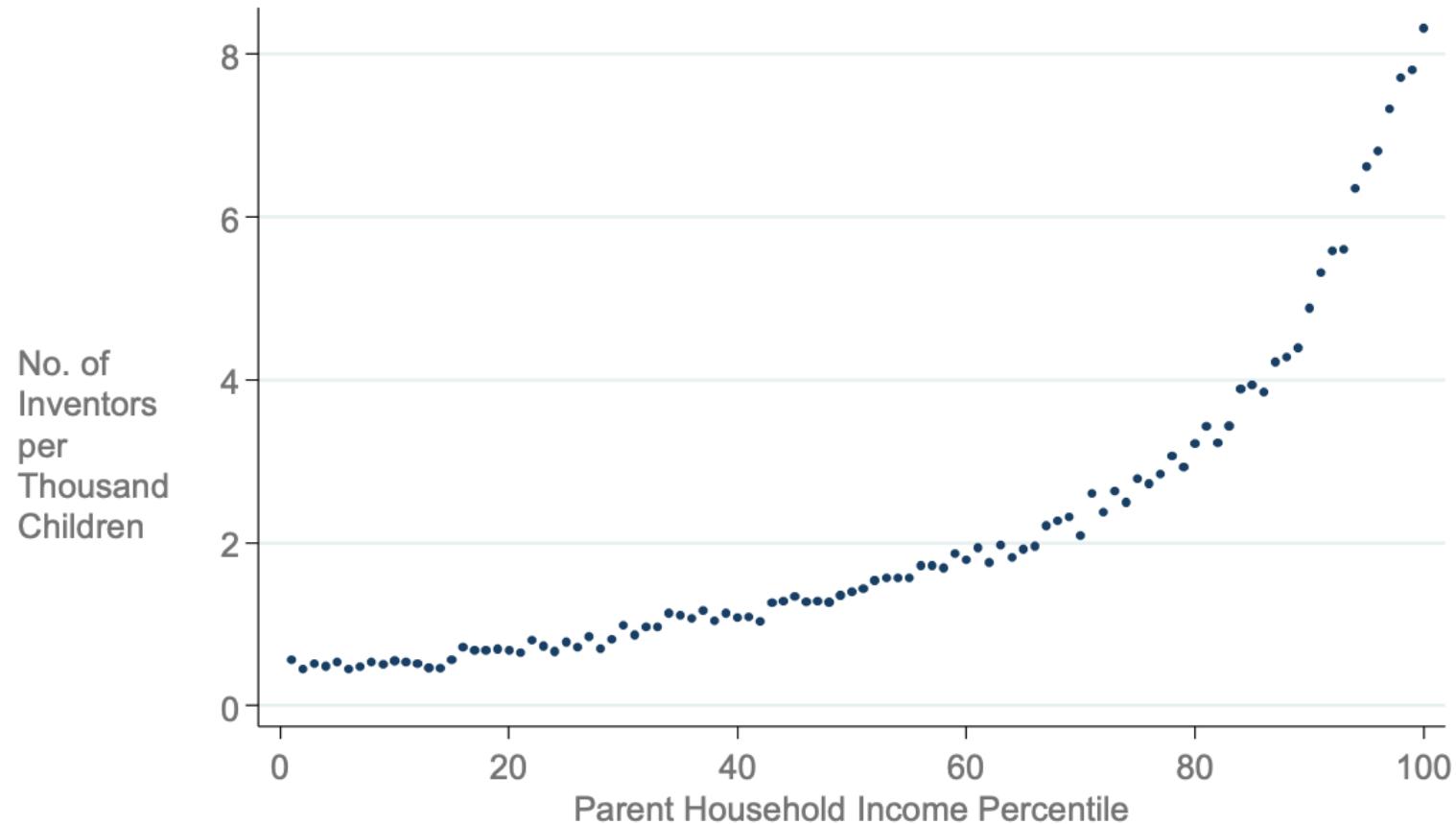
- Difficult to measure effects on growth directly

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

**innovation**

# Innovation

**Patent Rates vs. Parent Income**



# Another Question

Q Why would patent rates vary with parental income?

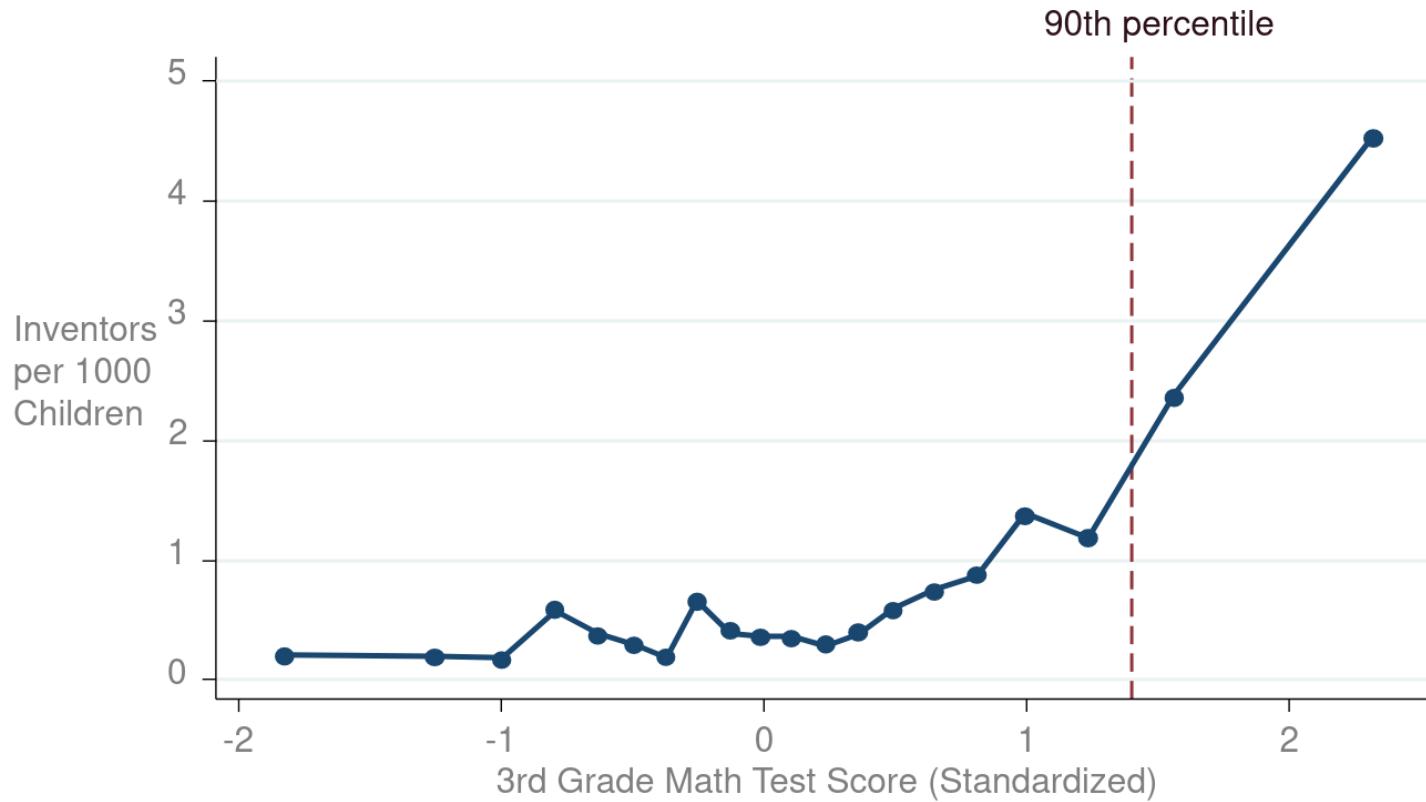
**(i). Ability:** Children from high-income families have a greater ability to innovate

**(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

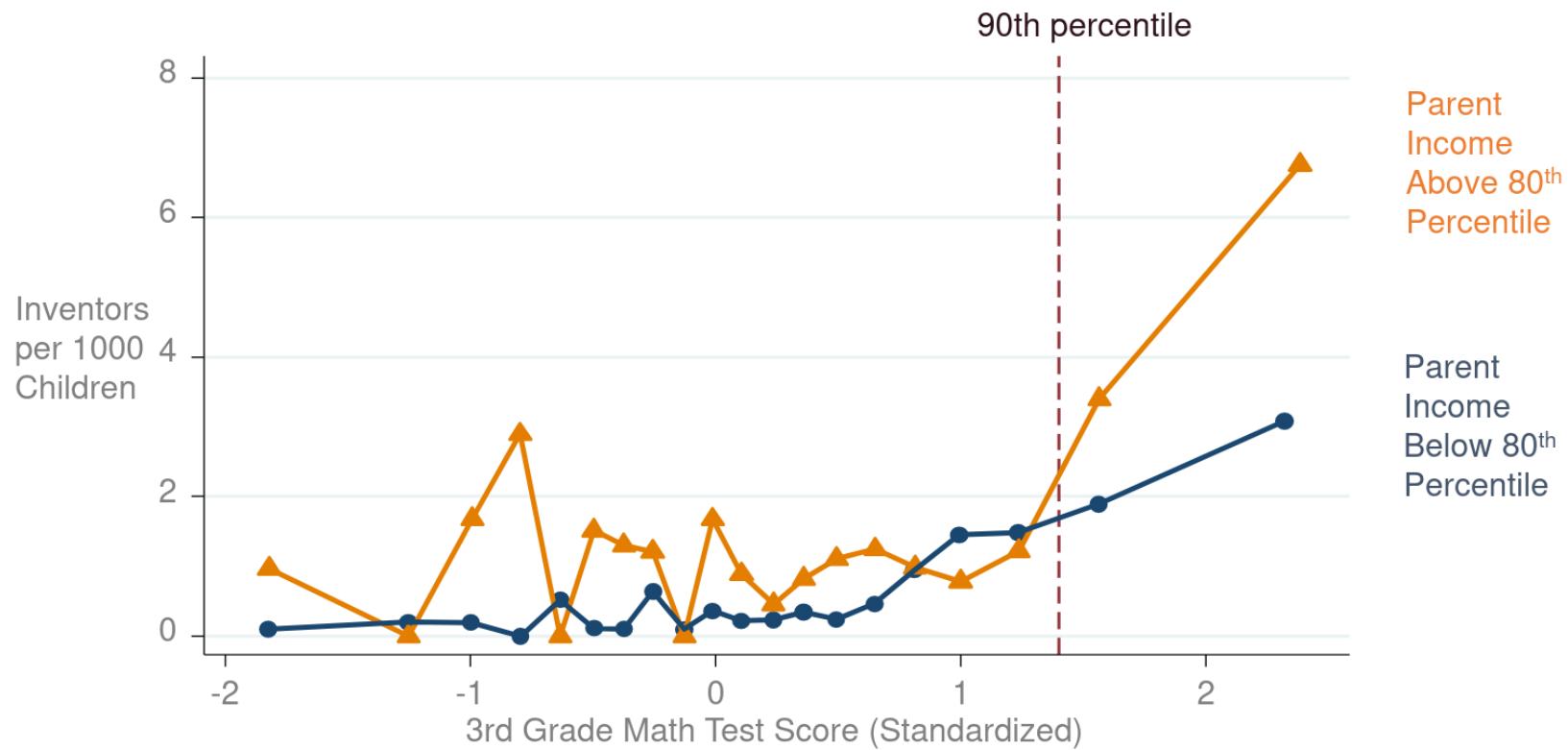
# Innovation vs Math scores

Patent Rates vs. 3rd Grade Math Test Scores



# Innovation vs Math scores

Patent Rates vs. 3rd Grade Math Test Scores



# Innovation vs Math scores

Not much of the gap is explained by ability

**It seems you need three things:**

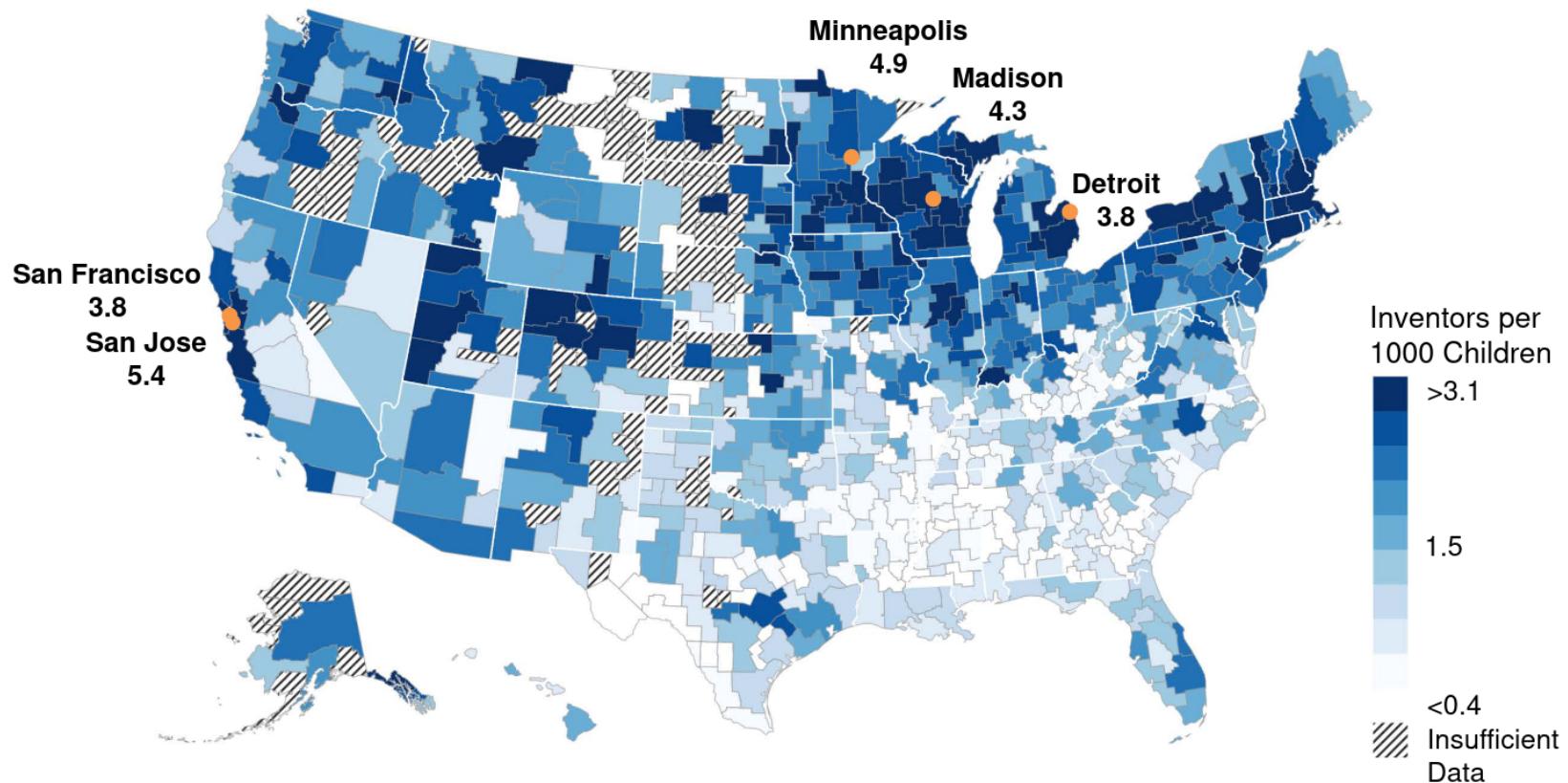
- High quantitative ability
- Rich parents
- Exposure to other innovators

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



# 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

# 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 upward mobility

# Causal Effect of Neighborhoods

What is the ideal (without godlike powers) experiment?

Randomly assign children to neighborhoods and compare outcomes in adulthood

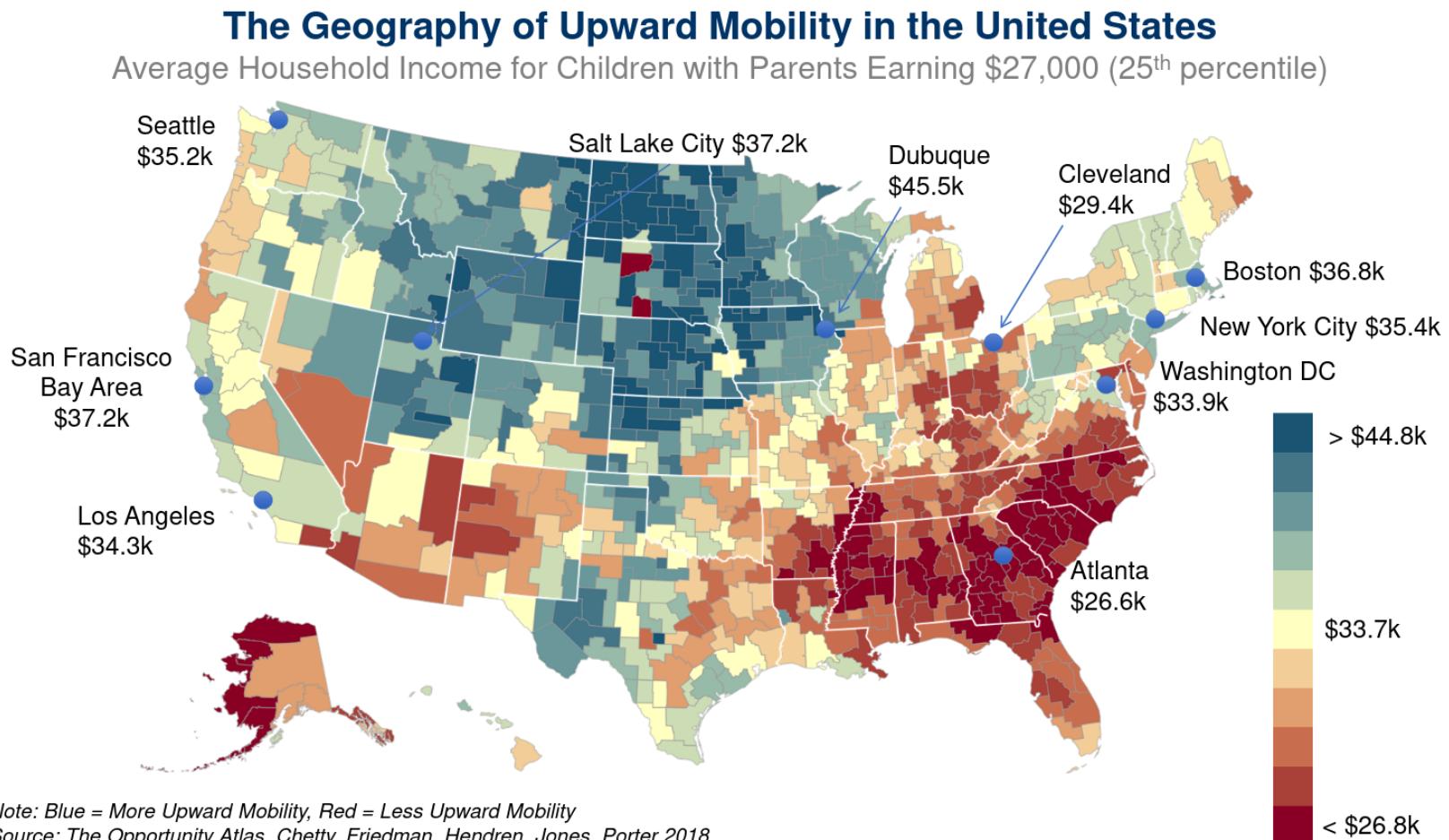
- Can't do this? So what can we do?

**(Chetty & Hendren (2018))**

**Quasi-experiment:** Use data on 3 million families that move across census tracts.

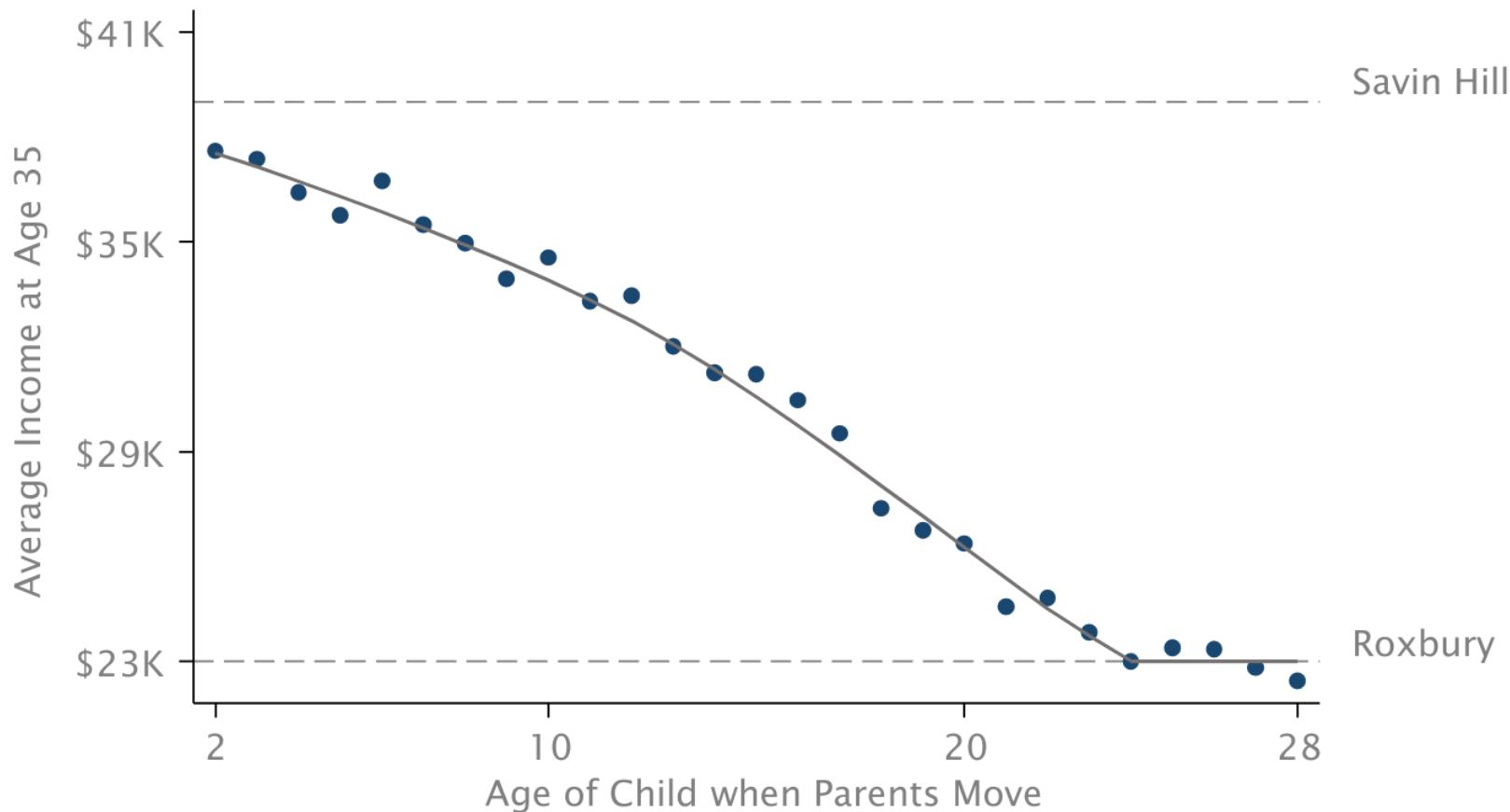
**Key Idea** Exploit variation in *age of child* when family moves to identify causal impact of neighborhood environment

# Geography of upward mobility: Data



# Neighborhood Effects

## Income Gain from Moving to a Better Neighborhood By Child's Age at Move



# 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 now 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

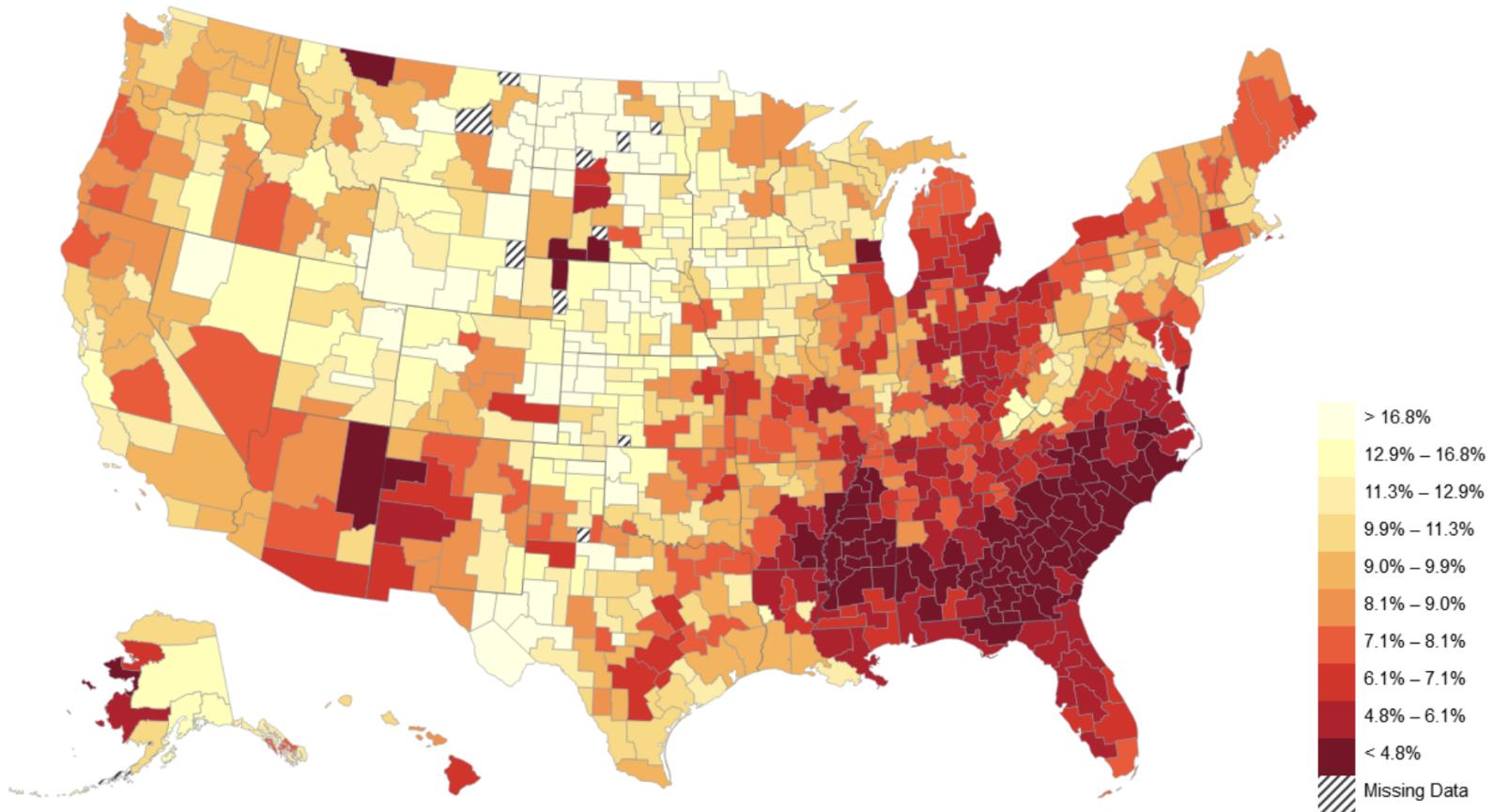
- Compare across siblings
- Placebo tests

# Geography of Upward Mobility

# A Familiar Map

## The Geography of Upward Mobility in America

Children's Chances of Reaching Top 20% of Income Distribution Given Parents in Bottom 20%

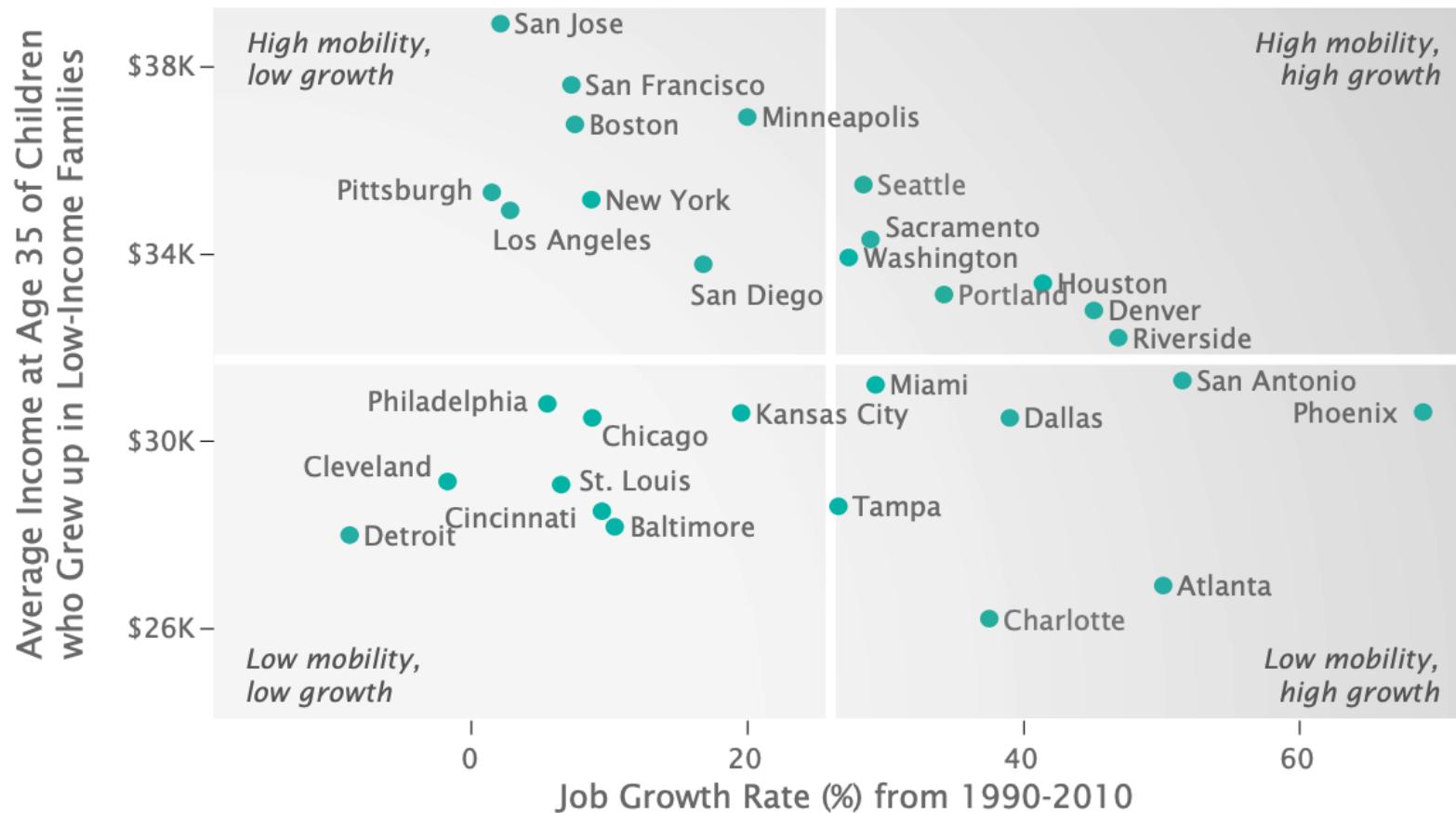


# Last Q

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



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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  
⇒ 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:

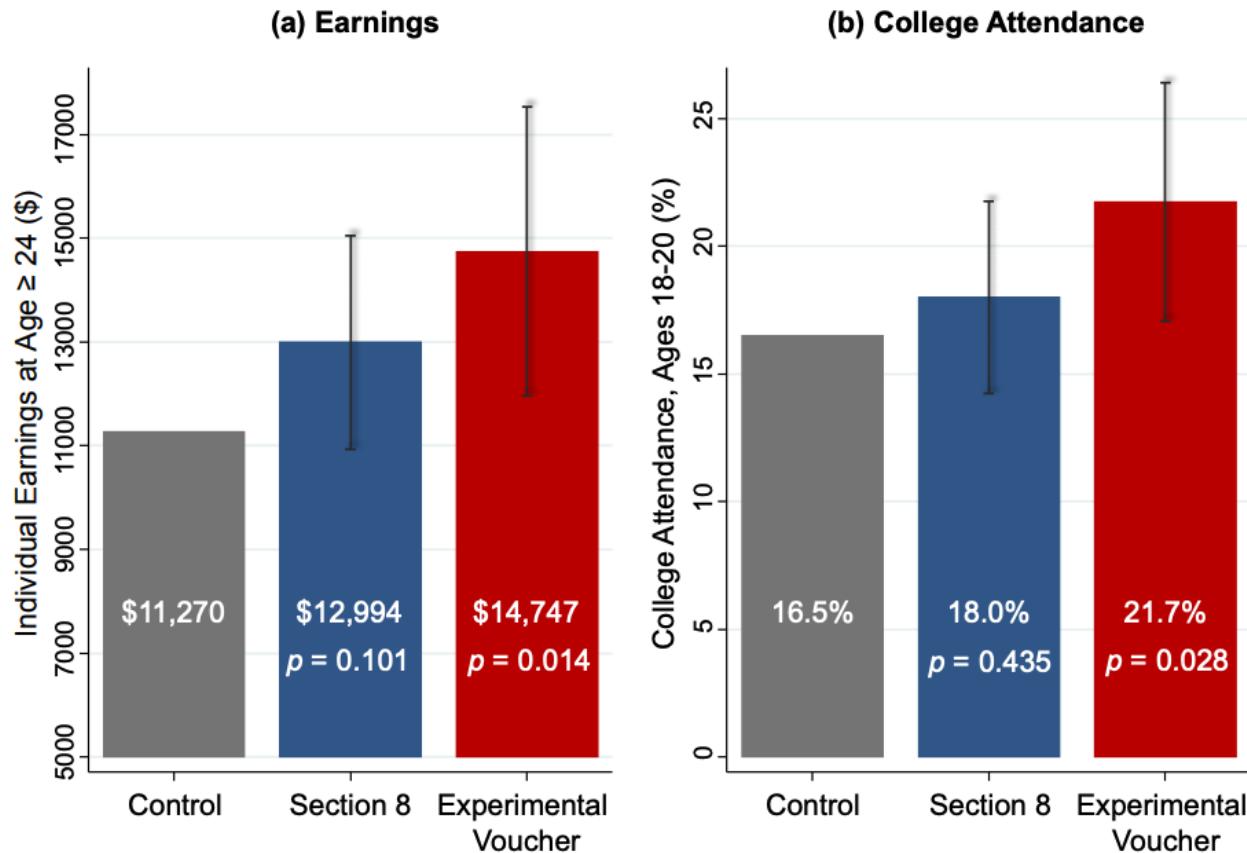
**(i). Experimental:** Offered housing couchers restricted to low-poverty census tracts

**(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



# 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
- Transportation

## 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