SESSION

Equality of Opportunity: Perspectives and Research on Economic Mobility and Inequality

Frontiers

of social innovation

INCLUSIVE MARKETS—INCLUSIVE SOCIETIES

Raj Chetty
Professor of Economics,
Stanford University

Stanford SOCIAL INNOVATION Review

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Improving Economic Opportunity in America
New Lessons from Big Data

Raj Chetty
Stanford University

Photo Credit: Florida Atlantic University

The American Dream?

- Probability that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:

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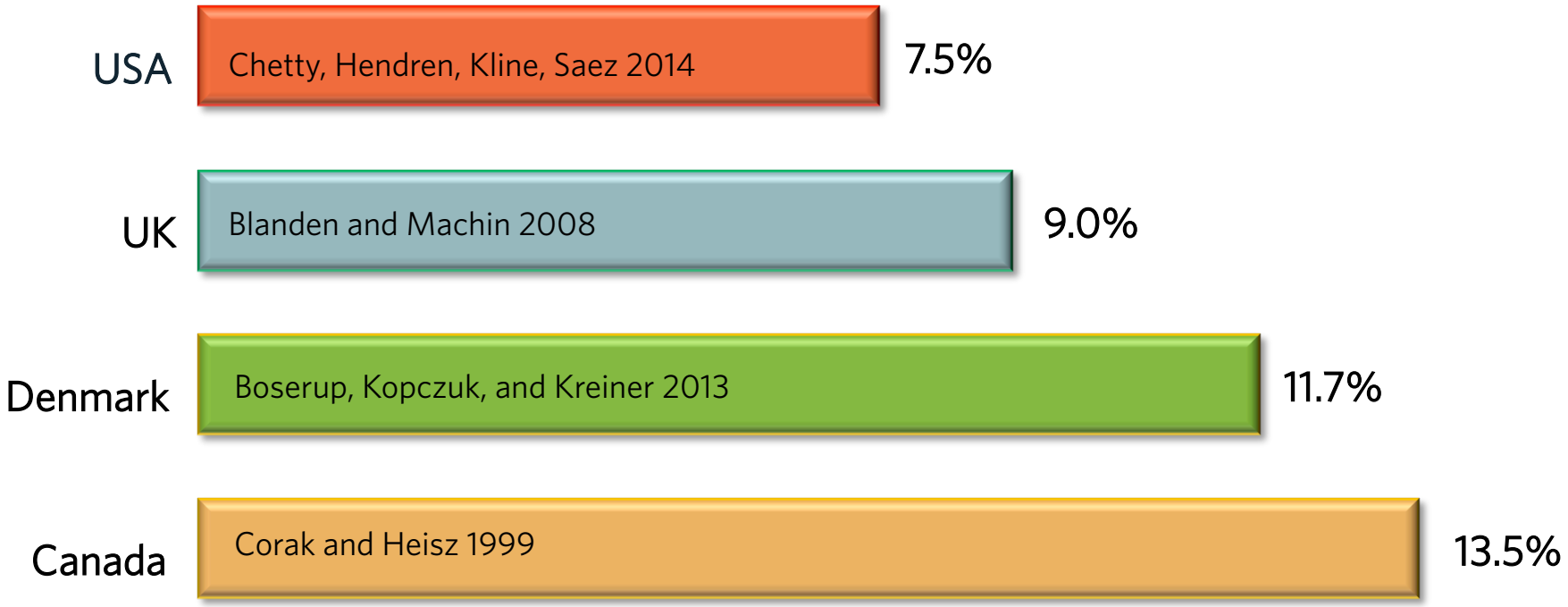

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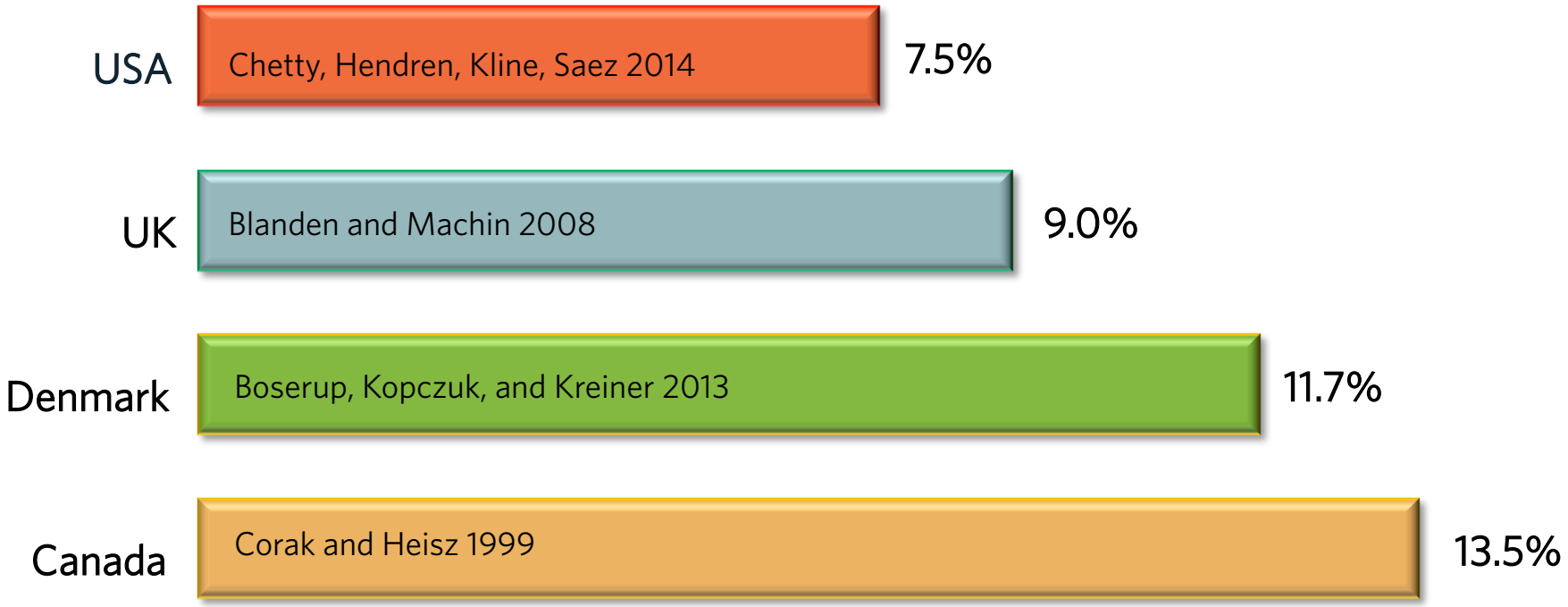

→ Chances of achieving the "American Dream" are almost two times higher in Canada than in the U.S.

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Equality of Opportunity

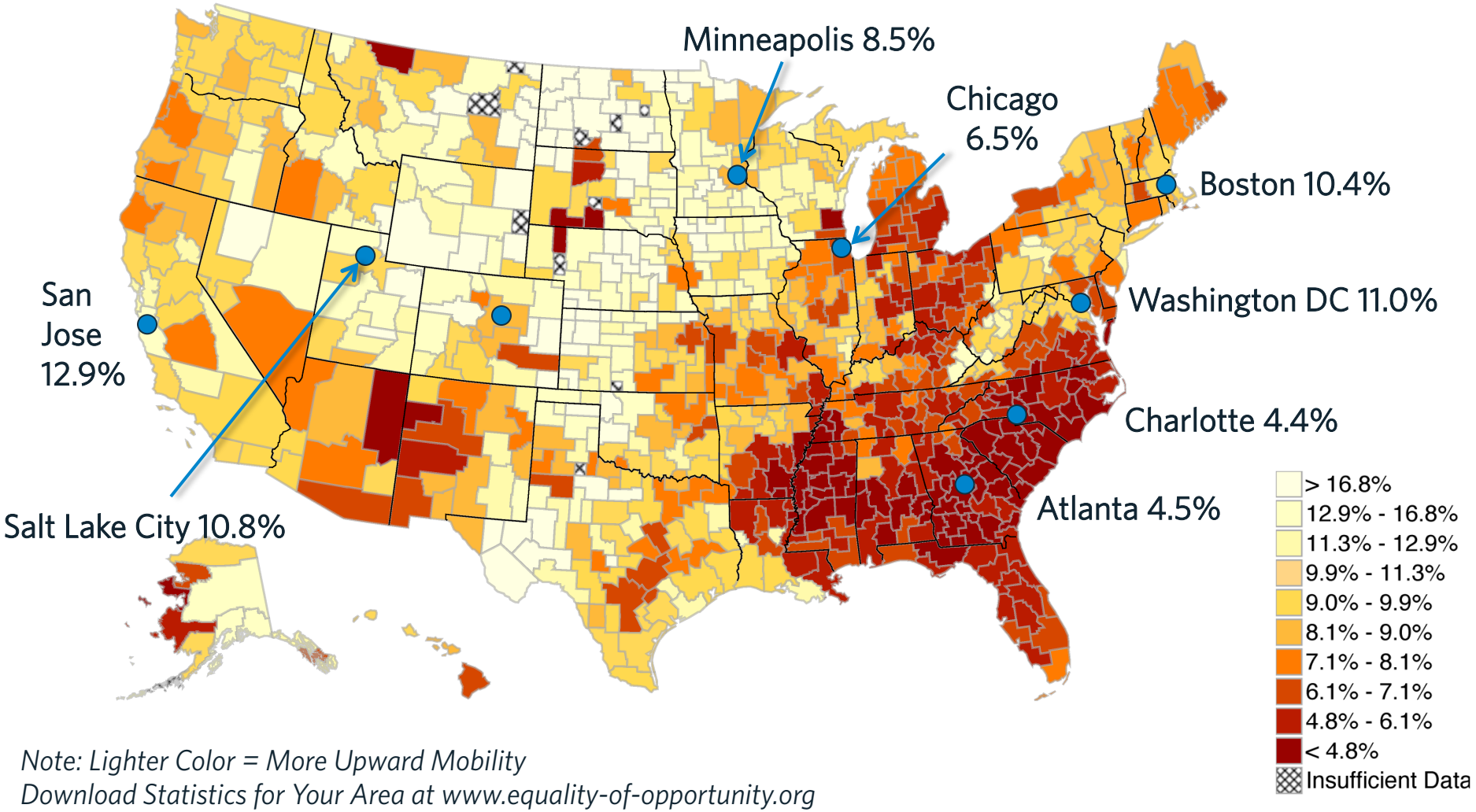
Differences in Opportunity Within the US

- Differences across countries have been the focus of policy discussion
- But upward mobility varies even more *within* the US
- We calculate upward mobility for every metro and rural area in the US
  - Use big data: anonymous earnings records on 10 million children born between 1980-1982

Source: Chetty, Hendren, Kline, Saez 2014: The Equality of Opportunity Project

The Geography of Upward Mobility in the United States

Chances of Reaching the Top Fifth Starting from the Bottom Fifth by Metro Area



Note: Lighter Color = More Upward Mobility
Download Statistics for Your Area at www.equality-of-opportunity.org

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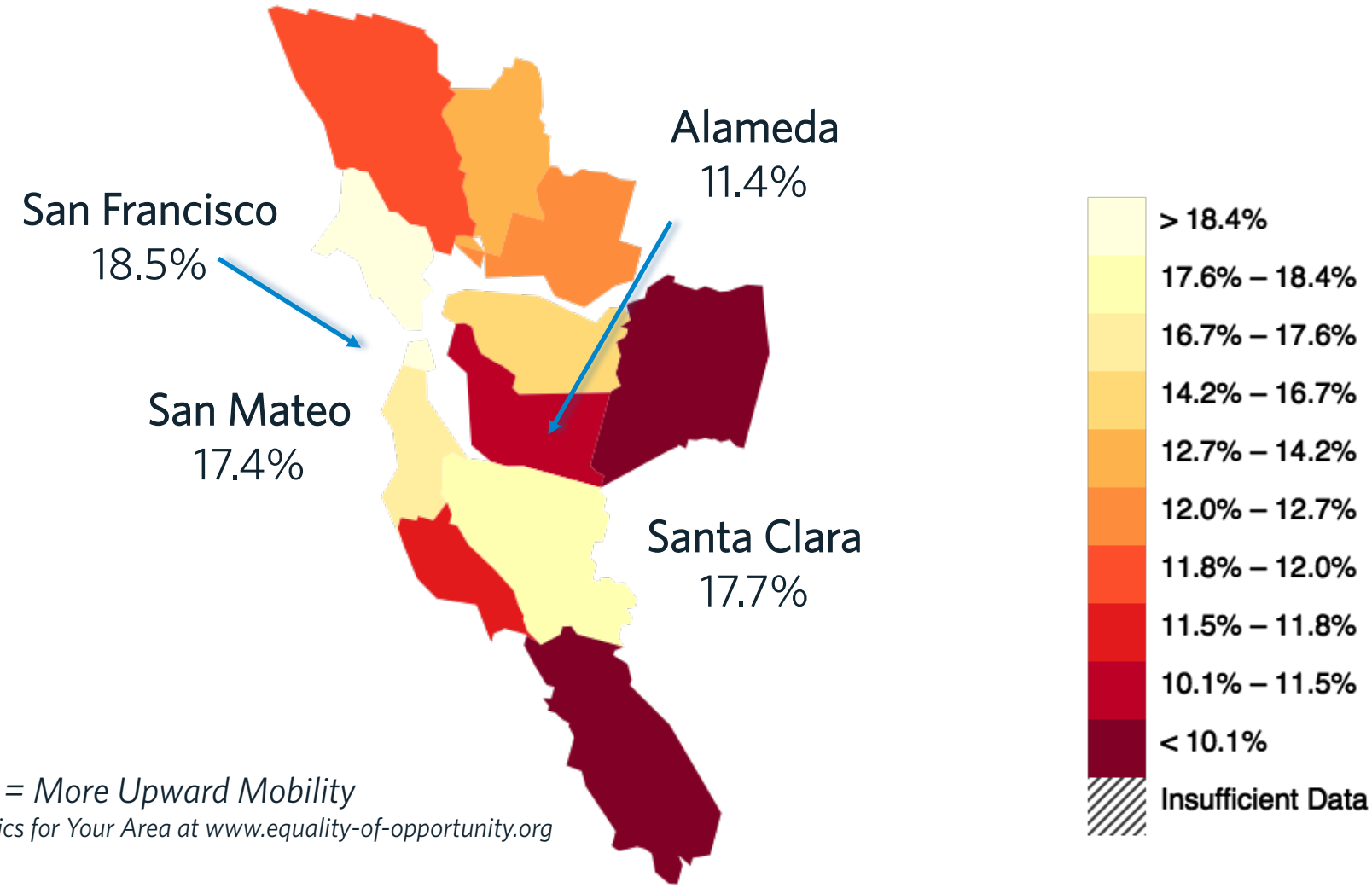
The Geography of Upward Mobility in the Bay Area

Chances of Reaching the Top Fifth Starting from the Bottom Fifth by County



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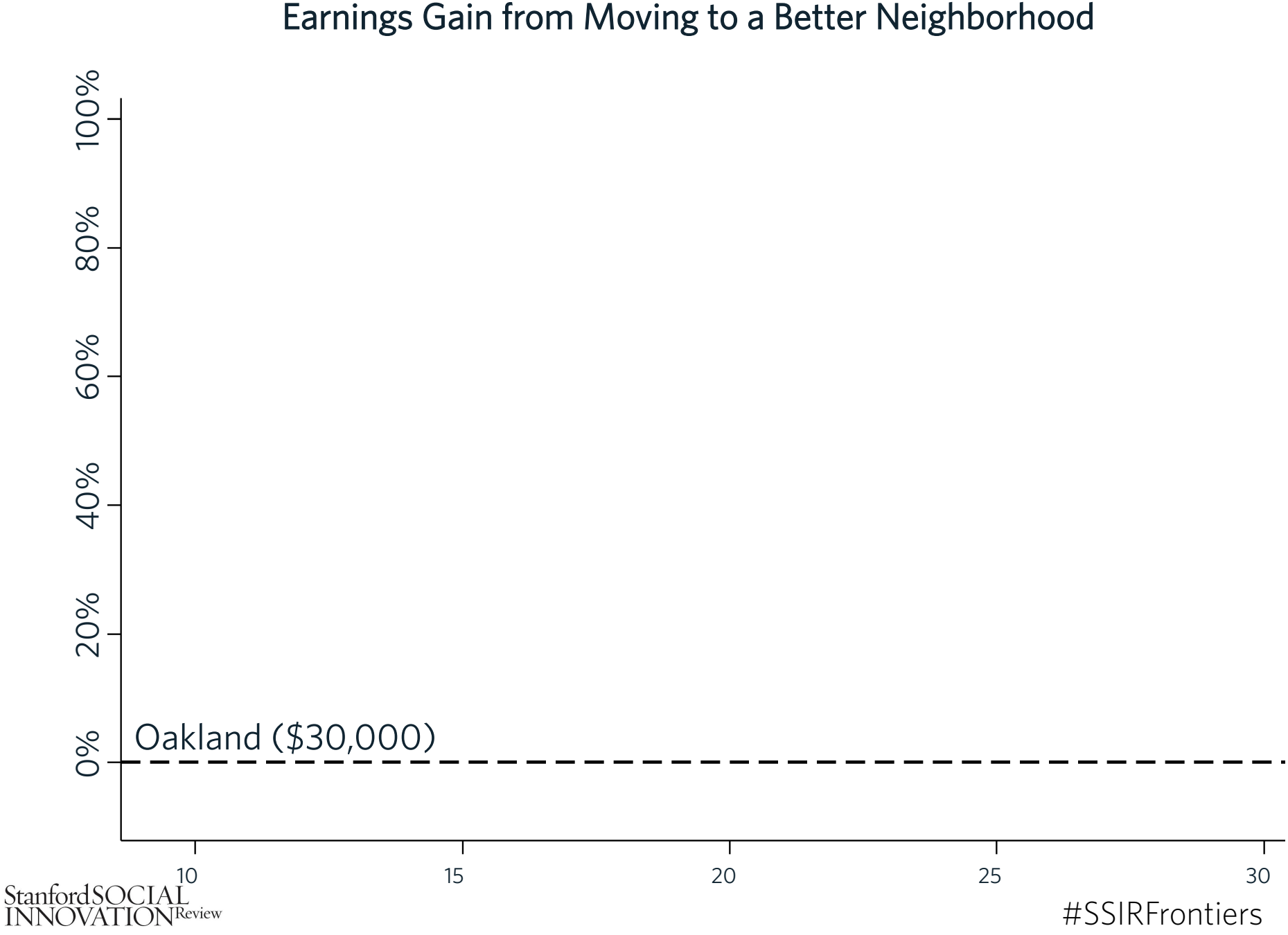
Why Does Upward Mobility Differ Across Areas? The Importance of Childhood Environment

- Most of the variation in upward mobility across areas is caused by differences in childhood environment
- Demonstrate this by studying 5 million families that move between areas in the US

Source: Chetty and Hendren 2015


Earnings Gain from Moving to a Better Neighborhood
100%
80%
60%
40%
20%
0%
Oakland ($30,000)
10
15
20
25
30
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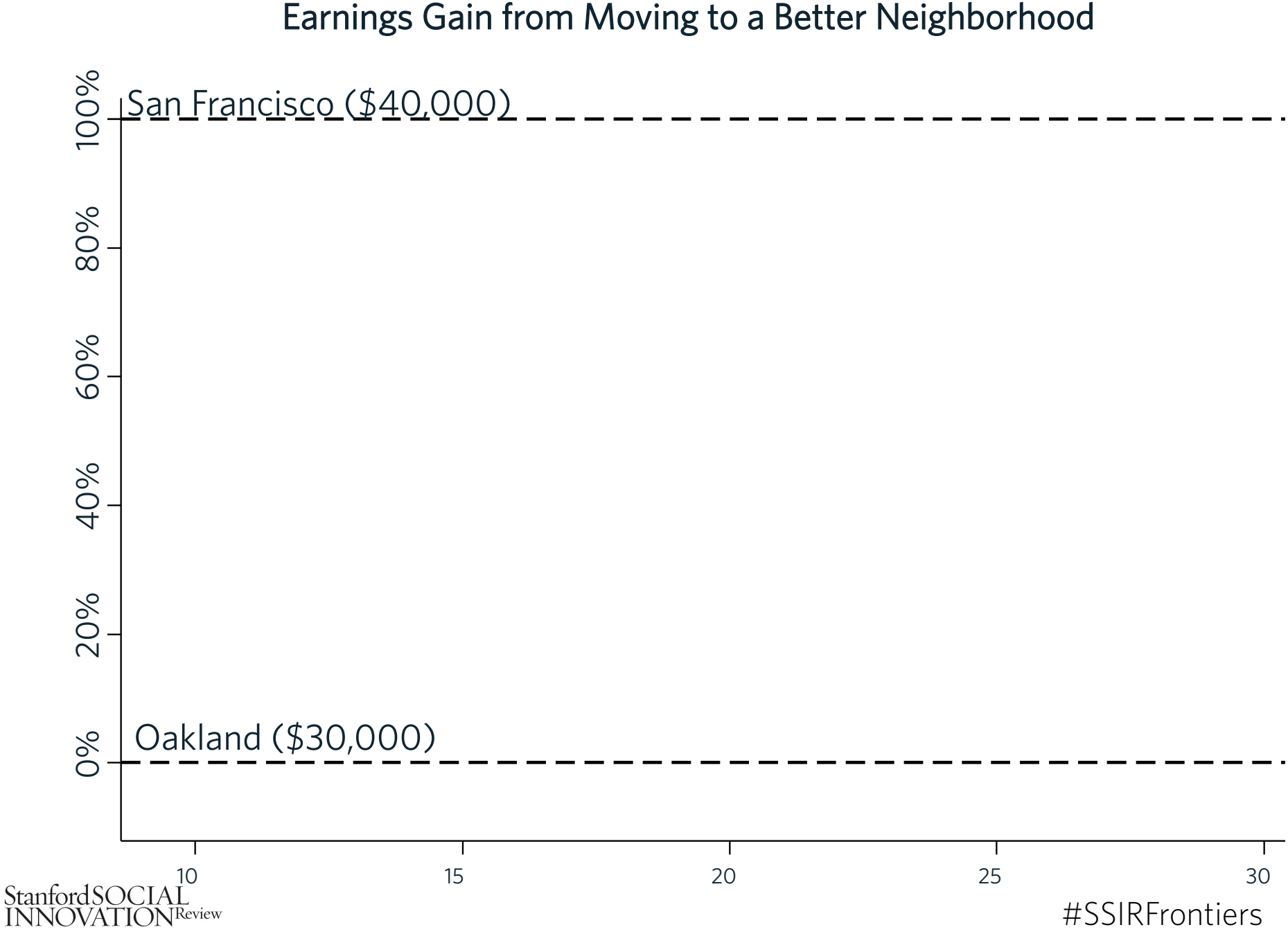
Earnings Gain from Moving to a Better Neighborhood
San Francisco ($40,000)
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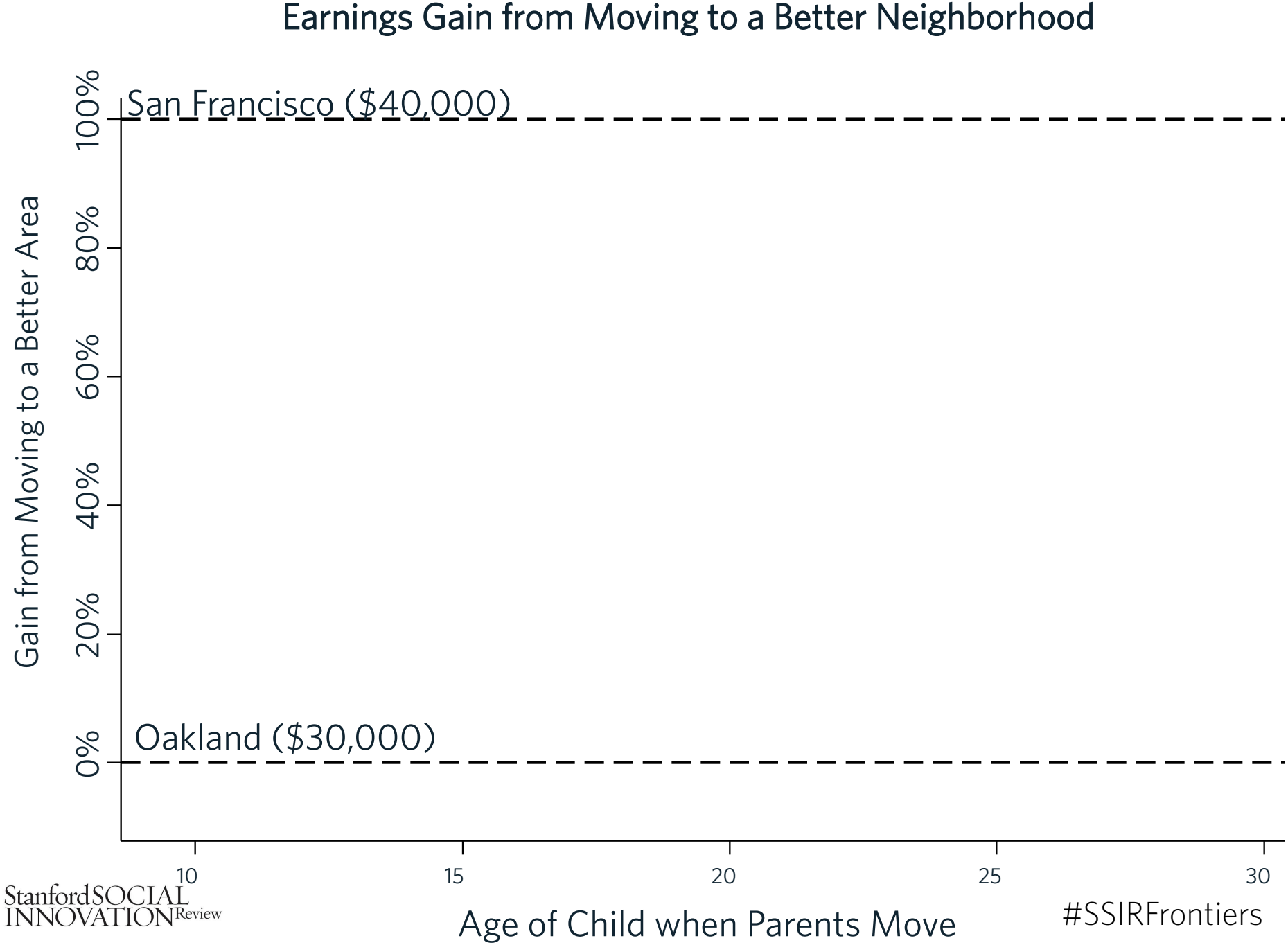

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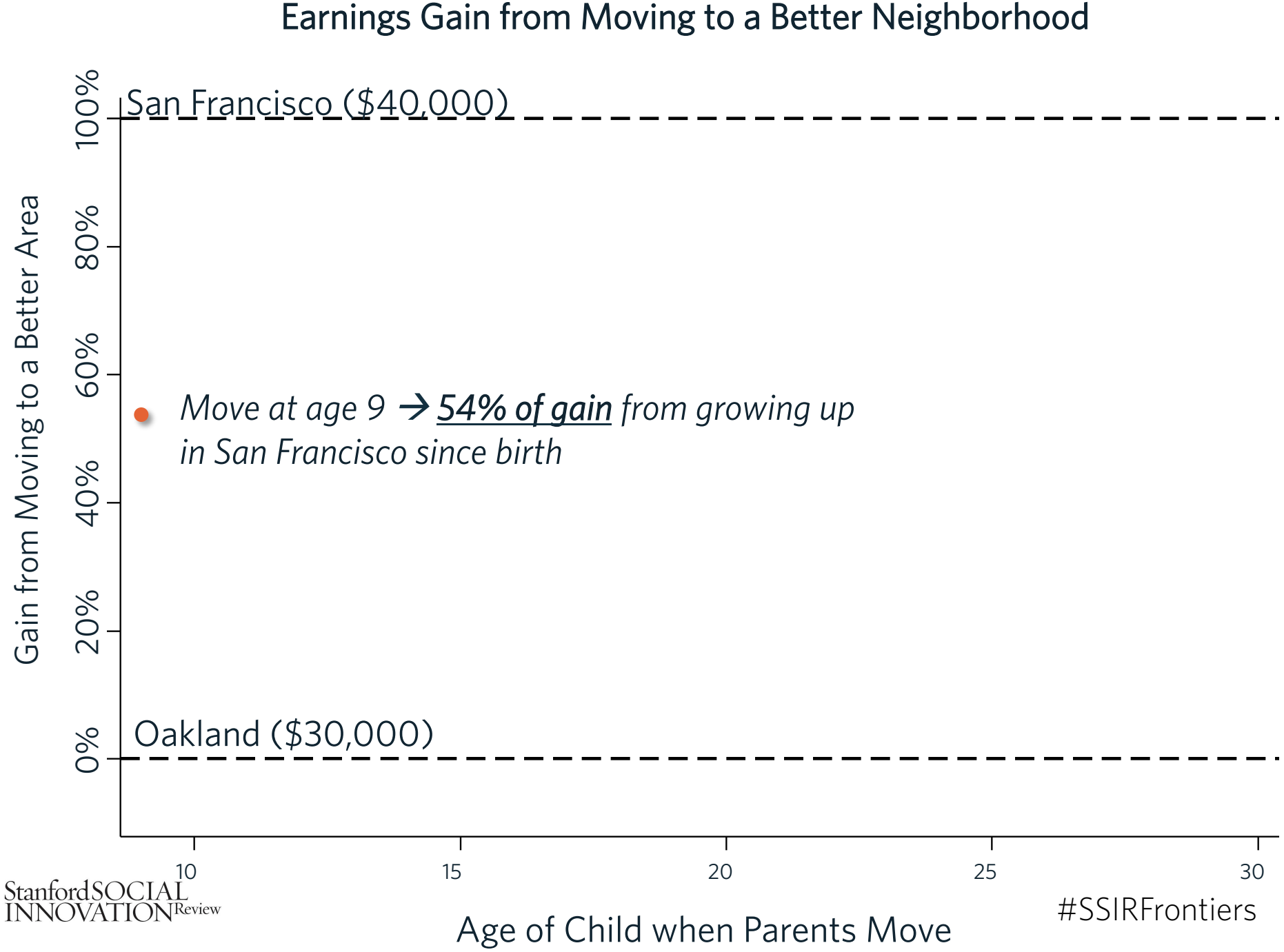
Earnings Gain from Moving to a Better Neighborhood
San Francisco ($40,000)
Oakland ($30,000)
Move at age 9 → 54% of gain from growing up in San Francisco since birth
Gain from Moving to a Better Area
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25
30
Age of Child when Parents Move
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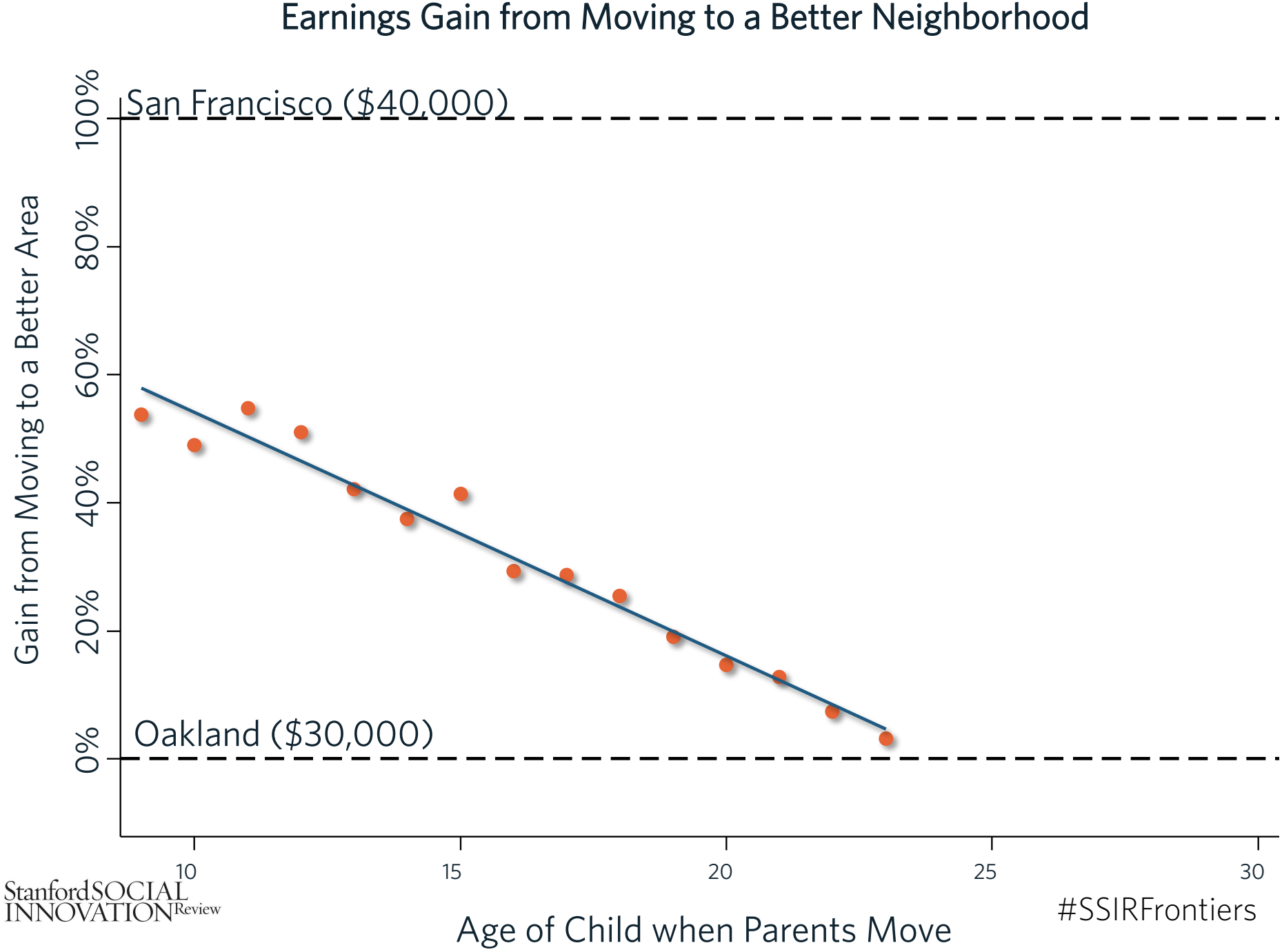
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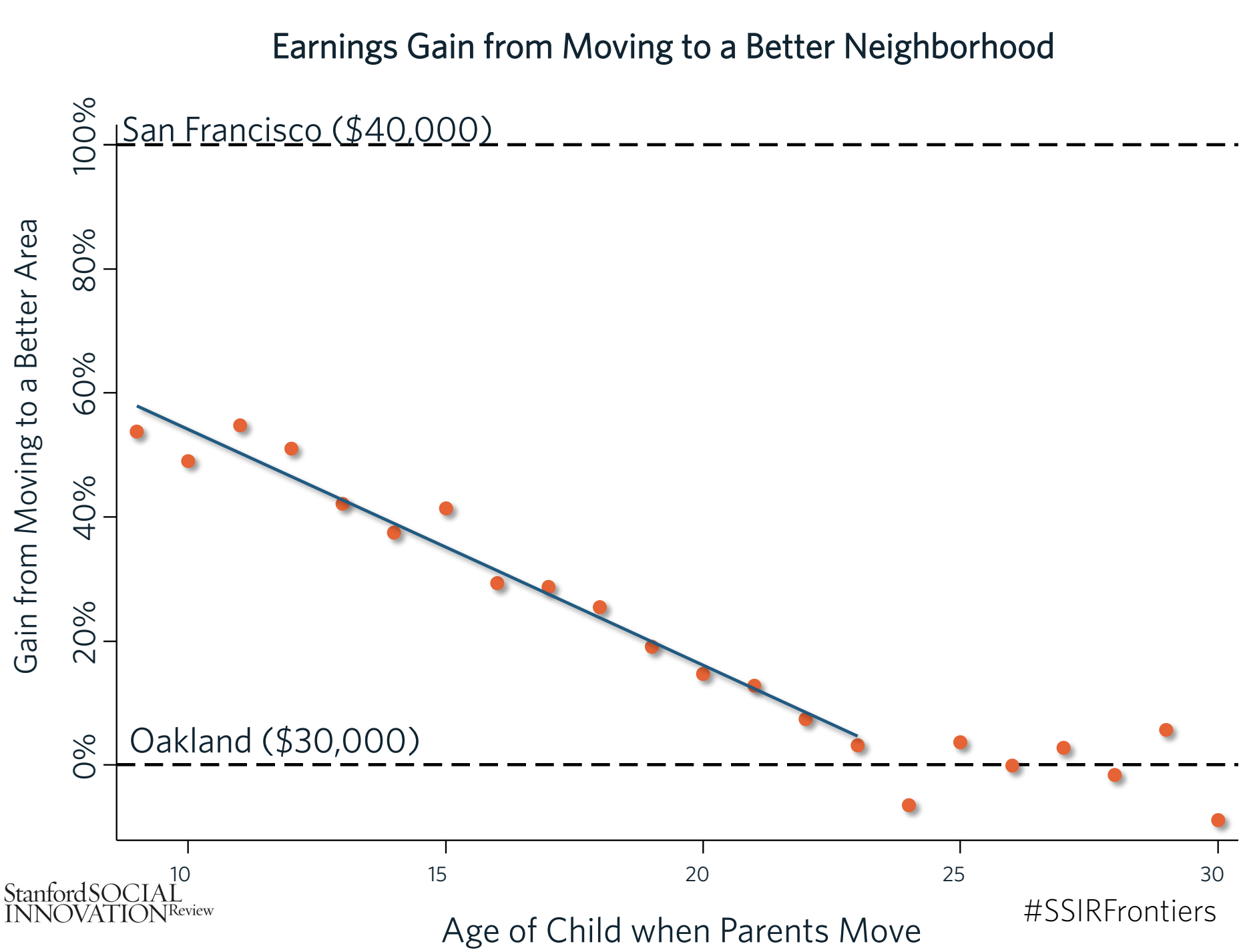
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Equality of Opportunity

Two Policy Approaches to Increasing Upward Mobility

- Importance of place for mobility motivates two types of policies:

1. Choice-based: help people move to better areas

2. Place-based: invest in low-opportunity places to replicate successes of areas with high upward mobility

Policy Approach 1: Moving to Opportunity

- One way to improve outcomes: give low income families subsidized housing vouchers to move to better areas

  -US already spends $45 bil per year on affordable housing, but most affordable housing is in low-opportunity areas

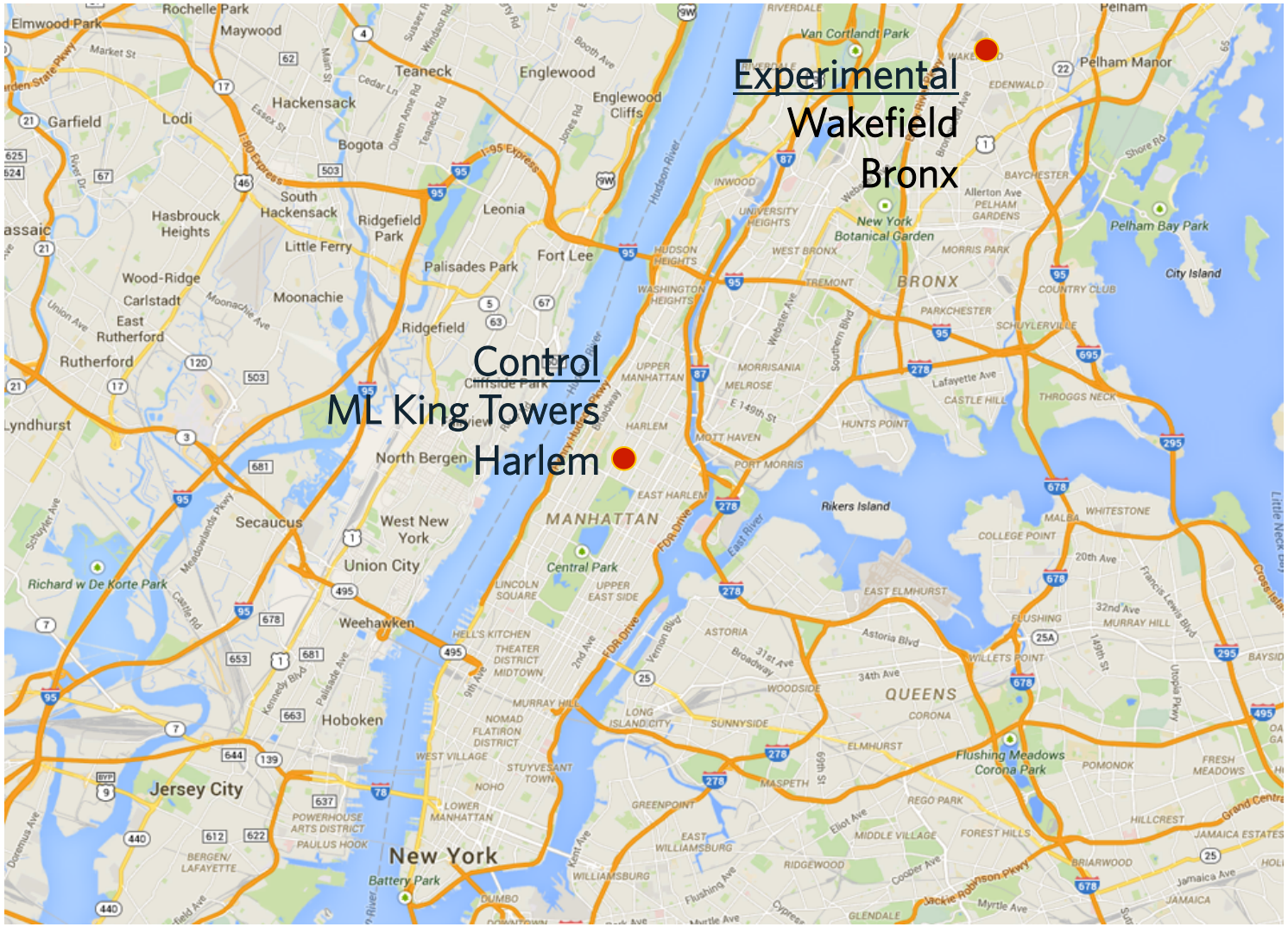
  -20% of low-income families already move houses each year

- HUD Moving to Opportunity Experiment: gave vouchers to move to better areas using a randomized lottery

  -4,600 families in Boston, New York, LA, Chicago, and Baltimore in mid 1990's

Source: Chetty, Hendren, and Katz 2015

Common MTO Residential Locations in New York



Moving to Opportunity Experiment

- Children who moved to low-poverty areas when young (e.g., below age 13) do much better as adults:

  -30% higher earnings = $100,000 gain over life in present value
  -27% more likely to attend college
  -30% less likely to become single parents

- But moving had little effect on the outcomes of children who were already teenagers

- Moving also had no effect on parents' earnings

- Shows that exposure to better neighborhood during *childhood* is what matters most

Policy Approach 2: Improving Neighborhoods

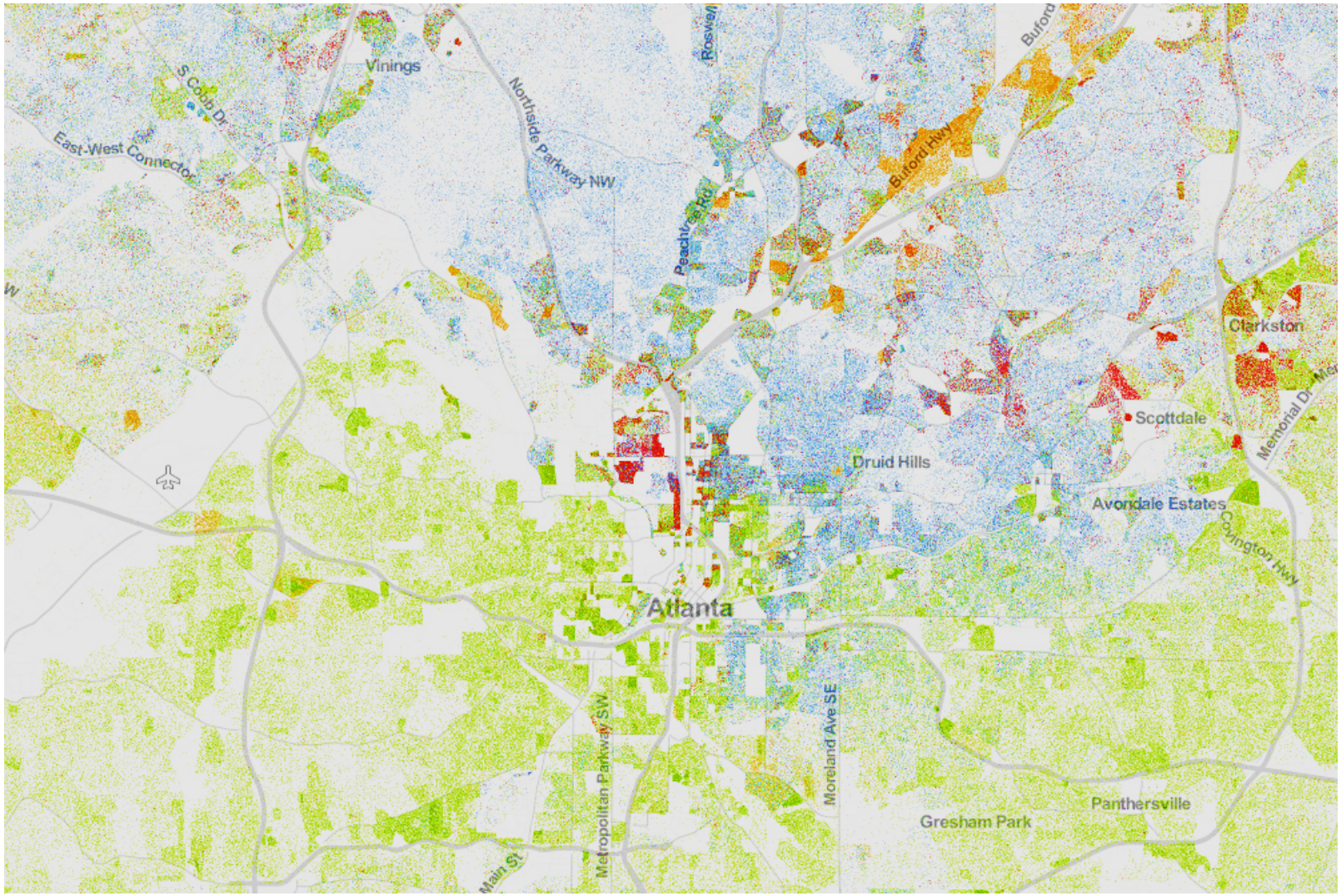
- Limits to scalability of policies that move people
  - Also need policies that improve existing neighborhoods
  - First step in identifying such policies: understand the characteristics of areas with high upward mobility

What are the Characteristics of High-Mobility Areas? Five Strongest Correlates of Upward Mobility

1. Segregation
    - -Racial and income segregation associated with less mobility

Racial Segregation in Atlanta

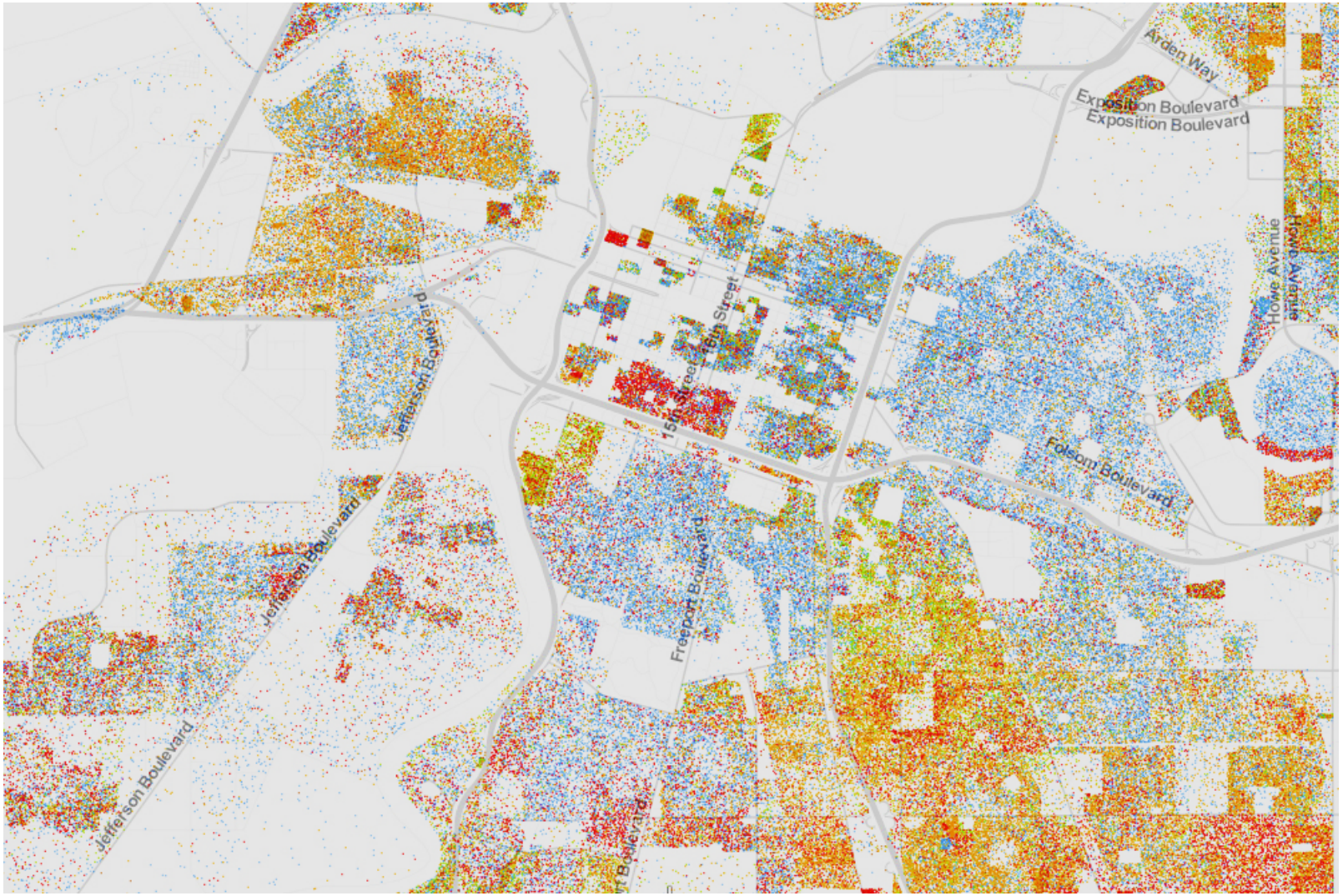
Whites (blue), Blacks (green), Asians (red), Hispanics (orange)



Source: Cable (2013) based on Census 2010 data

Racial Segregation in Sacramento

Whites (blue), Blacks (green), Asians (red), Hispanics (orange)



Source: Cable (2013) based on Census 2010 data

What are the Characteristics of High-Mobility Areas? Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality

    -Places with smaller middle class have much less mobility

What are the Characteristics of High-Mobility Areas? Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality

3. Family Structure
   - -Areas with more single parents have much lower mobility
   - -Strong correlation even for kids whose *own* parents are married

What are the Characteristics of High-Mobility Areas? Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality

3. Family Structure

4. Social Capital
   - "It takes a village to raise a child"
   - Putnam (1995): "Bowling Alone"

What are the Characteristics of High-Mobility Areas? Five Strongest Correlates of Upward Mobility

1. Segregation

2. Income Inequality

3. Family Structure

4. Social Capital

5. School Quality

   -Greater expenditure, smaller classes, higher test scores correlated with more mobility

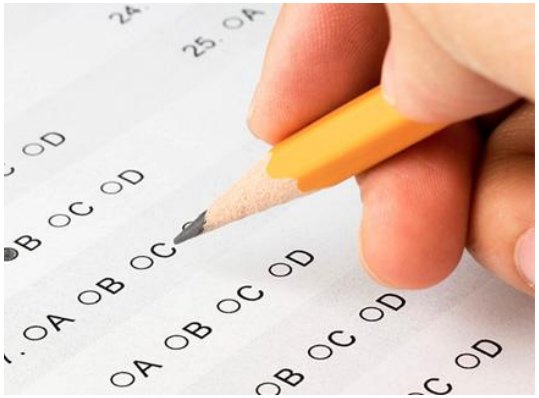
   -Clear evidence of *causal* effects here

Education Policy: Using Big Data to Study Teachers' Impacts

School district records

2.5 million children

18 million test scores



Tax records

Earnings, College Attendance, Teen Birth

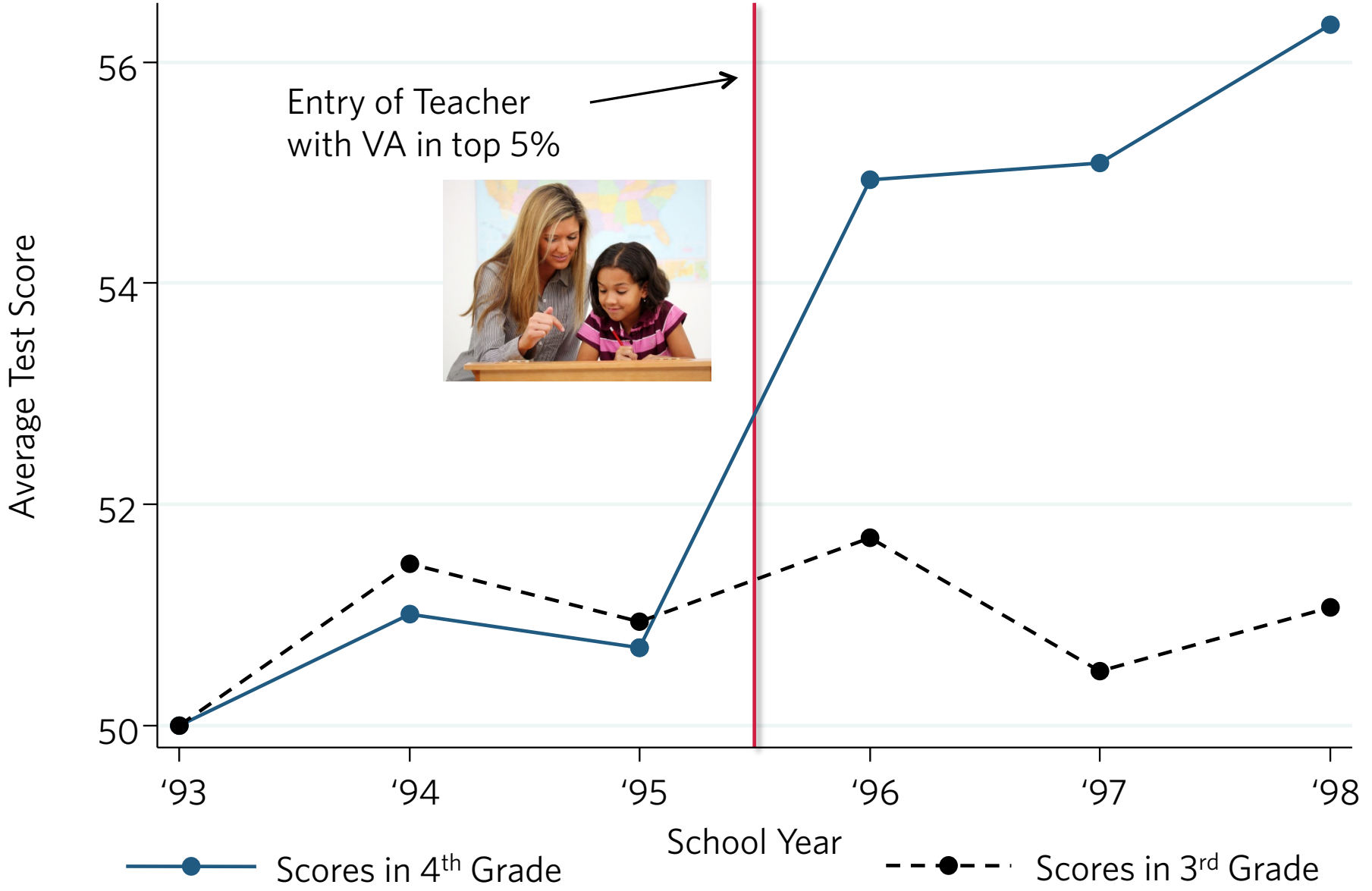
Source: Chetty, Friedman, Rockoff 2014a,b

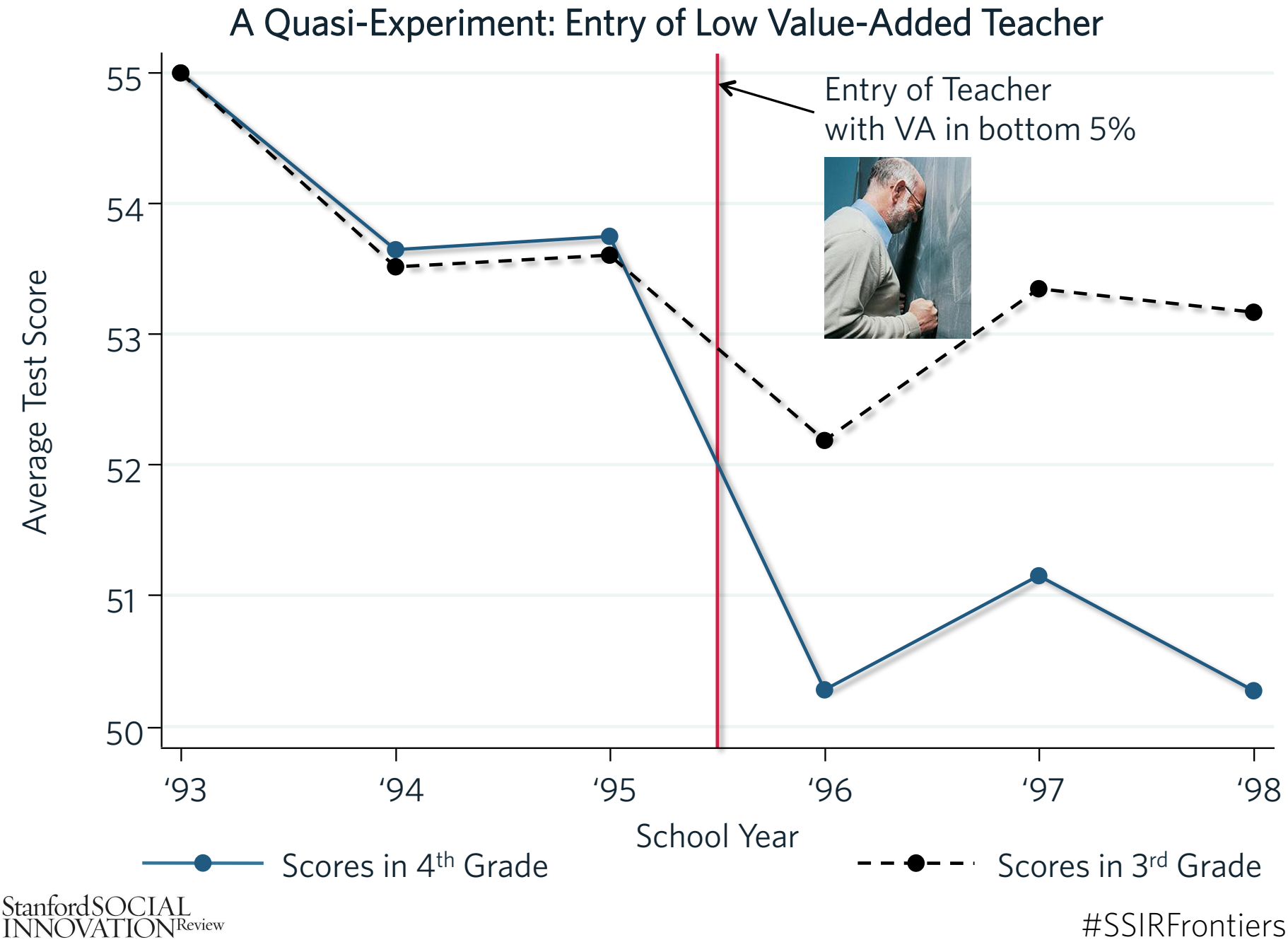
Measuring Teacher Quality: Test-Score Based Metrics

One prominent measure of teacher quality: teacher *value-added*

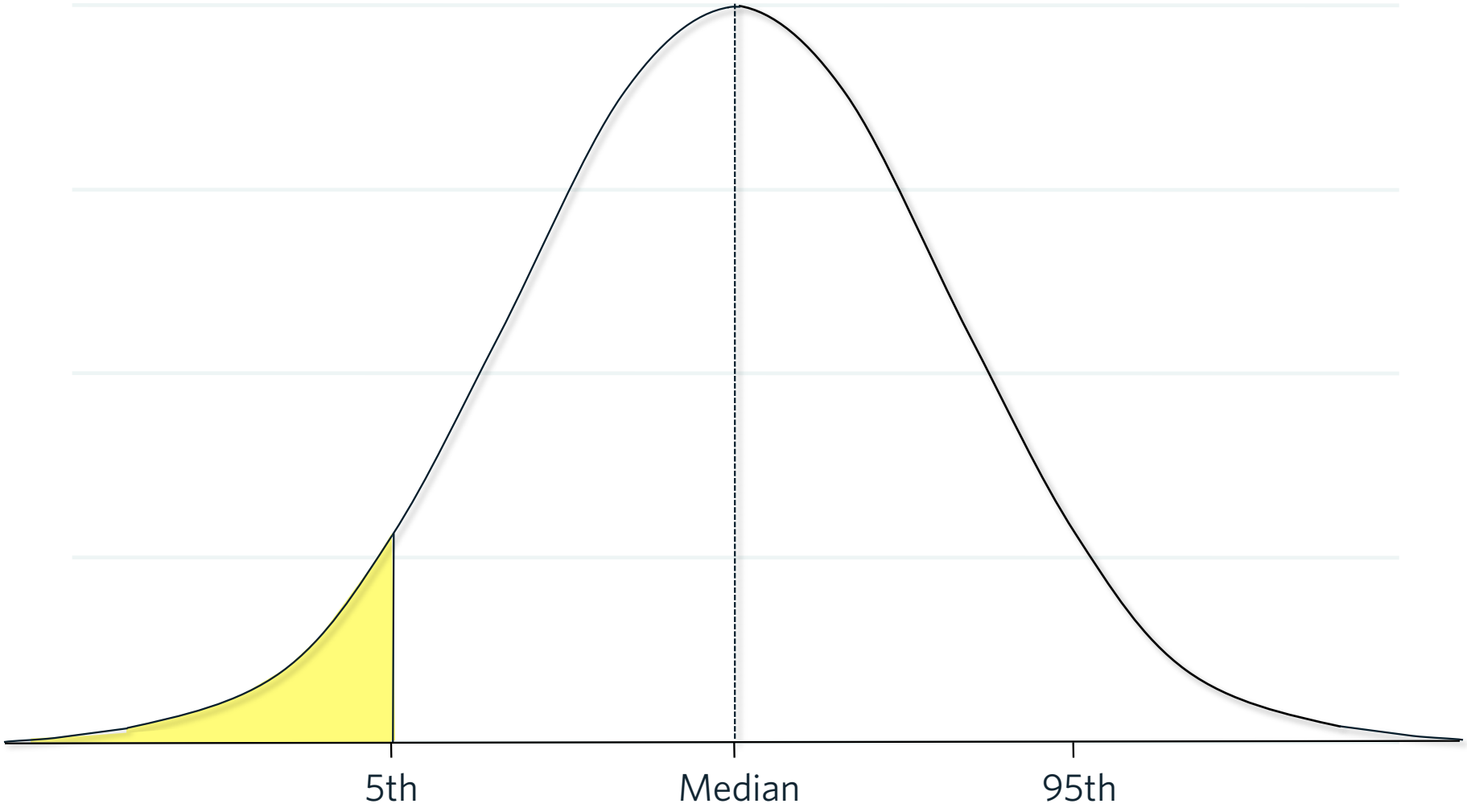
How much does a teacher raise her/his students' test scores on average?

A Quasi-Experiment: Entry of High Value-Added Teacher




A Quasi-Experiment: Entry of Low Value-Added Teacher
Entry of Teacher
with VA in bottom 5%
Average Test Score
55
54
53
52
51
50
'93
'94
'95
'96
'97
'98
School Year
Scores in 4th Grade
Scores in 3rd Grade

The Value of Improving Teacher Quality



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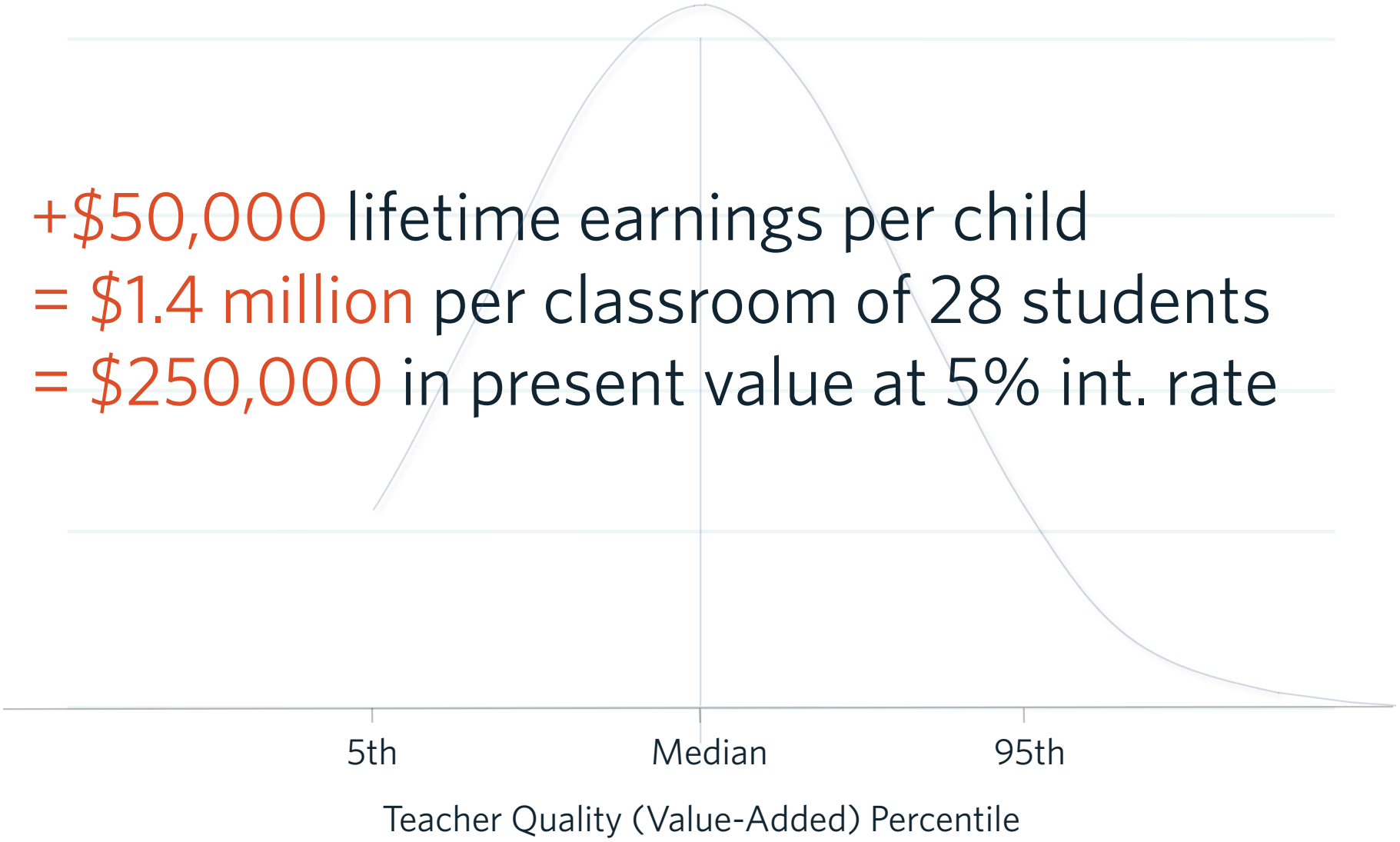

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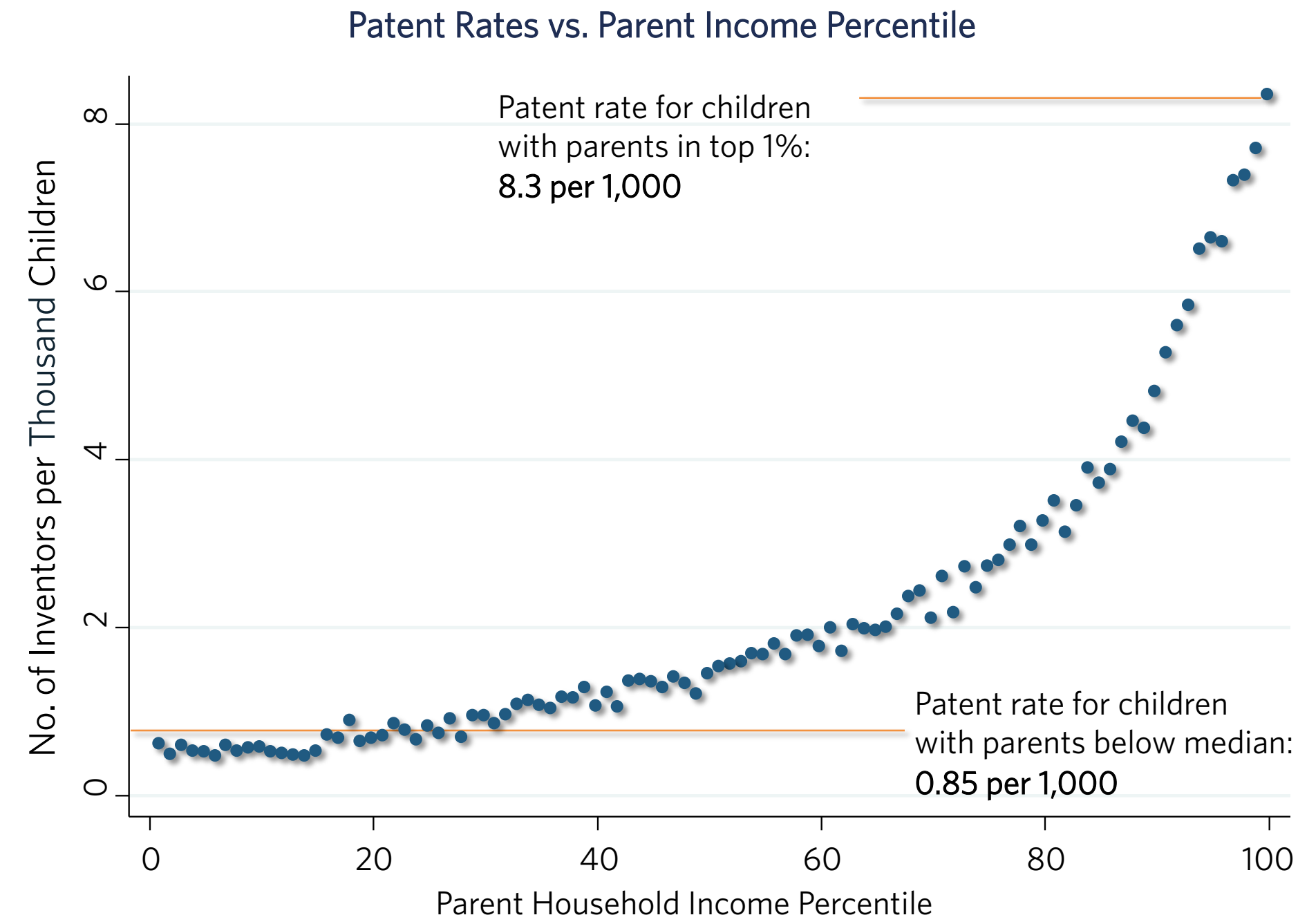
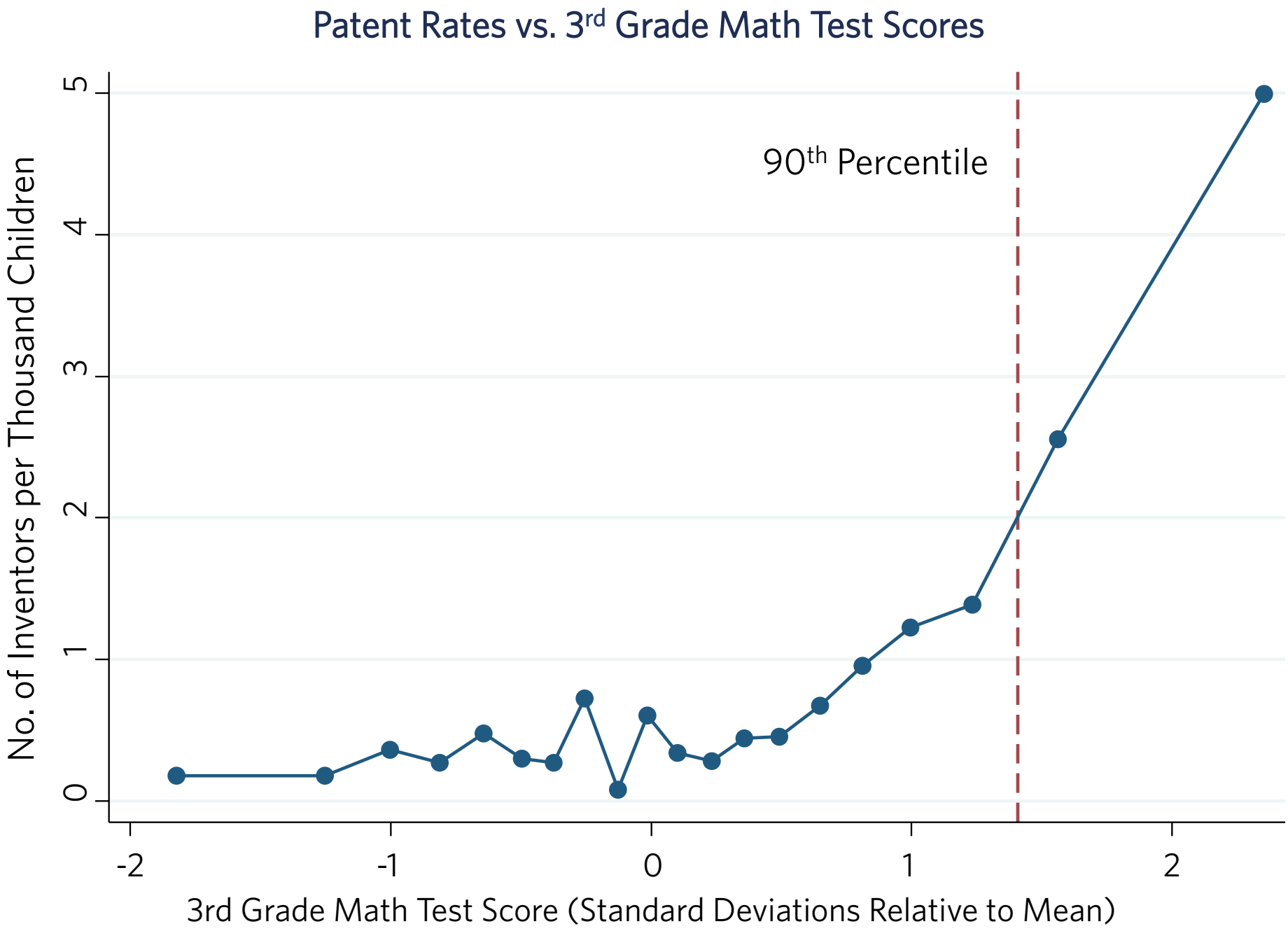
Equality of Opportunity

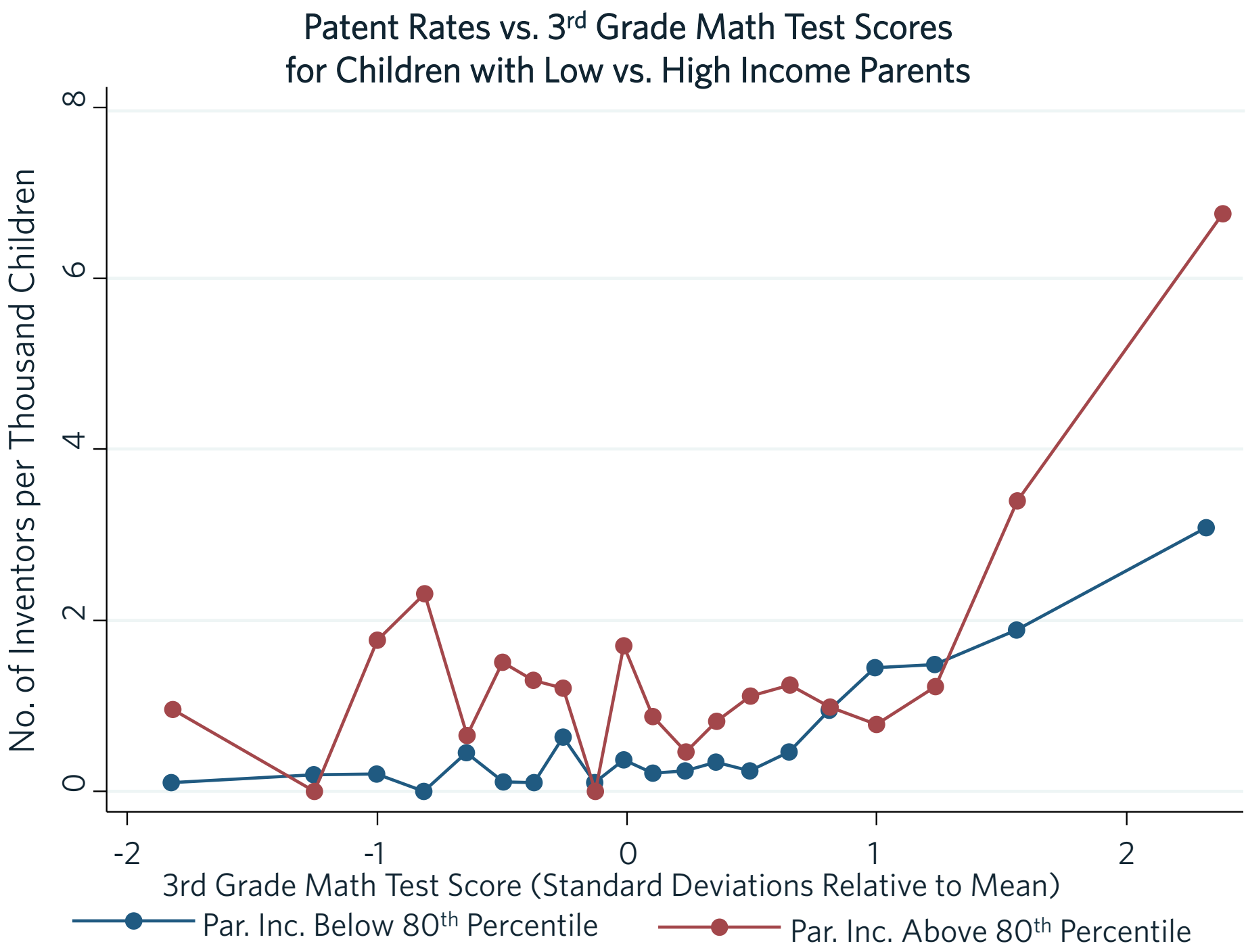
Equality of Opportunity and Economic Growth

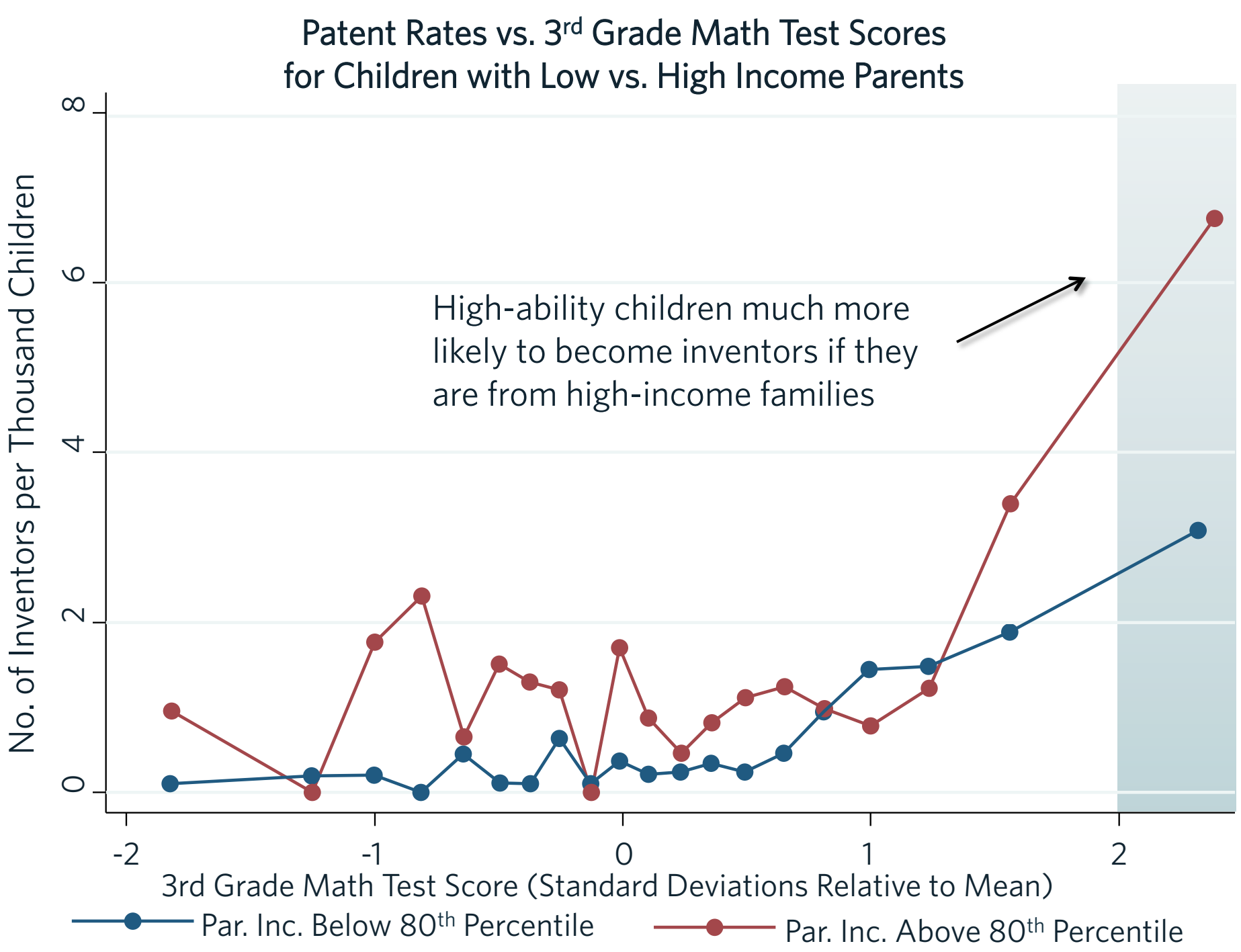
- Traditional argument for greater social mobility is based on principles of justice
- But improving opportunities for upward mobility can also increase size of the economic pie
- To illustrate, focus on innovation
  - -Study the lives of 750,000 patent holders in the US



Source: Bell, Chetty, Jaravel, Petkova, van Reenen 2015


Patent Rates vs. 3rd Grade Math Test Scores
90th Percentile
No. of Inventors per Thousand Children
0
1
2
3
4
5
-2
-1
0
1
2
3rd Grade Math Test Score (Standard Deviations Relative to Mean)


Patent Rates vs. 3rd Grade Math Test Scores
for Children with Low vs. High Income Parents
No. of Inventors per Thousand Children
0
2
4
6
8
-2
-1
0
1
2
3rd Grade Math Test Score (Standard Deviations Relative to Mean)
Par. Inc. Below 80th Percentile
Par. Inc. Above 80th Percentile


Patent Rates vs. 3rd Grade Math Test Scores
for Children with Low vs. High Income Parents
High-ability children much more
likely to become inventors if they
are from high-income families
No. of Inventors per Thousand Children
0
2
4
6
8
-2
-1
0
1
2
3rd Grade Math Test Score (Standard Deviations Relative to Mean)
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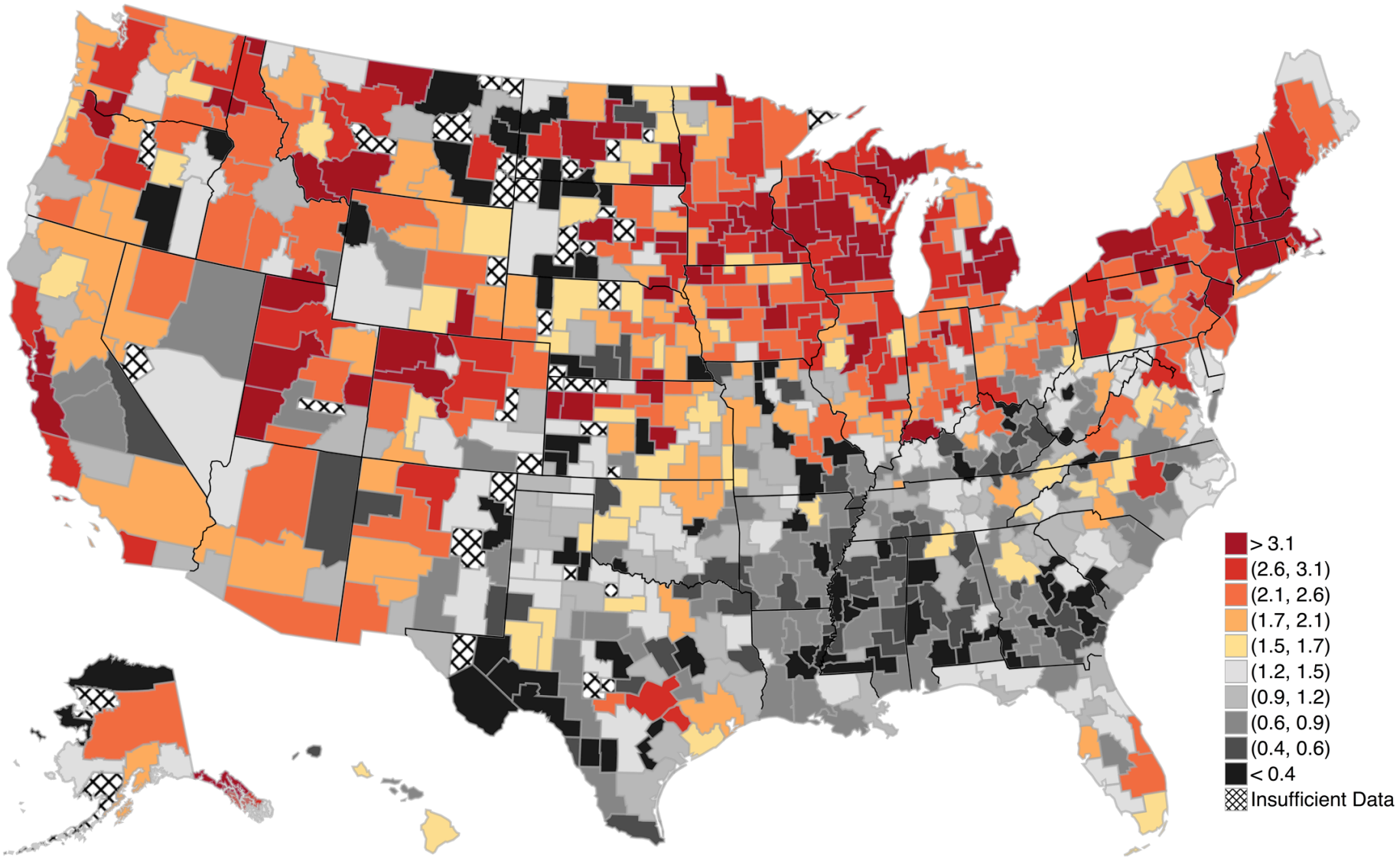
The Origins of Inventors
Patent Rates per 1000 Children by CZ where Child Grew Up



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Policy Lessons

1. Tackle upward mobility at a local, not just national level

   - Help low-income families with young children move to higher opportunity areas by targeting housing vouchers

     -80% of Section 8 housing vouchers ($20 bil./year) currently used in low-opportunity areas

   - Improve opportunity in cities such as Baltimore

   - Maintain opportunity in places like the Bay Area

The Atlantic, Feb 24, 2016

Policy Lessons

1. Tackle upward mobility at a local, not just national level

2. Improve childhood environments and primary education

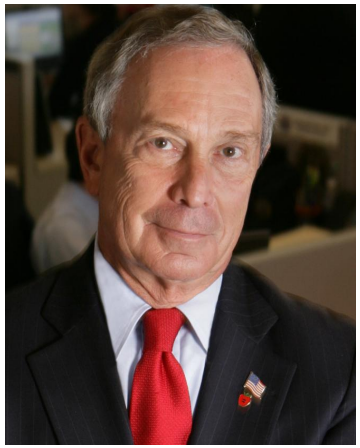
    -Not just spending more money: US already spends more on than other countries with better outcomes

    -Instead, focus on key inputs such as improving teacher quality or expanding high-performance charter schools

Policy Impacts

"We know a good teacher can increase the lifetime income of a classroom by over $250,000.... Every person in this chamber can point to a teacher who changed the trajectory of their lives"

- Barack Obama, *State of the Union*, 2012



"A recent study by Harvard and Columbia economists found that students with effective teachers are less likely to become pregnant, more likely to go to college and more likely to get higher-paying jobs....Ineffective teachers are hurting our students' futures – we can't allow that."

- Michael Bloomberg, *State of the City*, 2012

Policy Impacts

Vergara v. California | Legal Claims

Civil Rights

- Under longstanding California Supreme Court precedents, Plaintiffs have a fundamental right to equal educational opportunity.

Harm to Students

- **Teacher quality is the key determinant of educational effectiveness and has a profound impact on students' lifetime achievement.**
- **The problem is worse for students who attend schools that serve predominantly minority and lower-income populations** because those schools are staffed by a disproportionate share of grossly ineffective teachers.
- In some school districts, **students of color are two to three times more likely to have bottom-quartile teachers than their white and Asian peers.**

Policy Lessons

1. Improve childhood environments and primary education

2. Tackle social mobility at a local, not national level

3. Harness "big data" to develop a scientific evidence base for economic and social policy

    -Identify which neighborhoods are in greatest need of improvement and which policies work

    -County-level data on mobility publicly available at www.equality-of-opportunity.org

An Opportunity and a Challenge

Metro Area	Odds of Rising from Bottom to Top Fifth
Dubuque, IA	17.9%
San Jose, CA	12.9%
Washington DC	10.5%
U.S. Average	7.5%
Chicago, IL	6.5%
Memphis, TN	2.6%