



OPPORTUNITY INSIGHTS

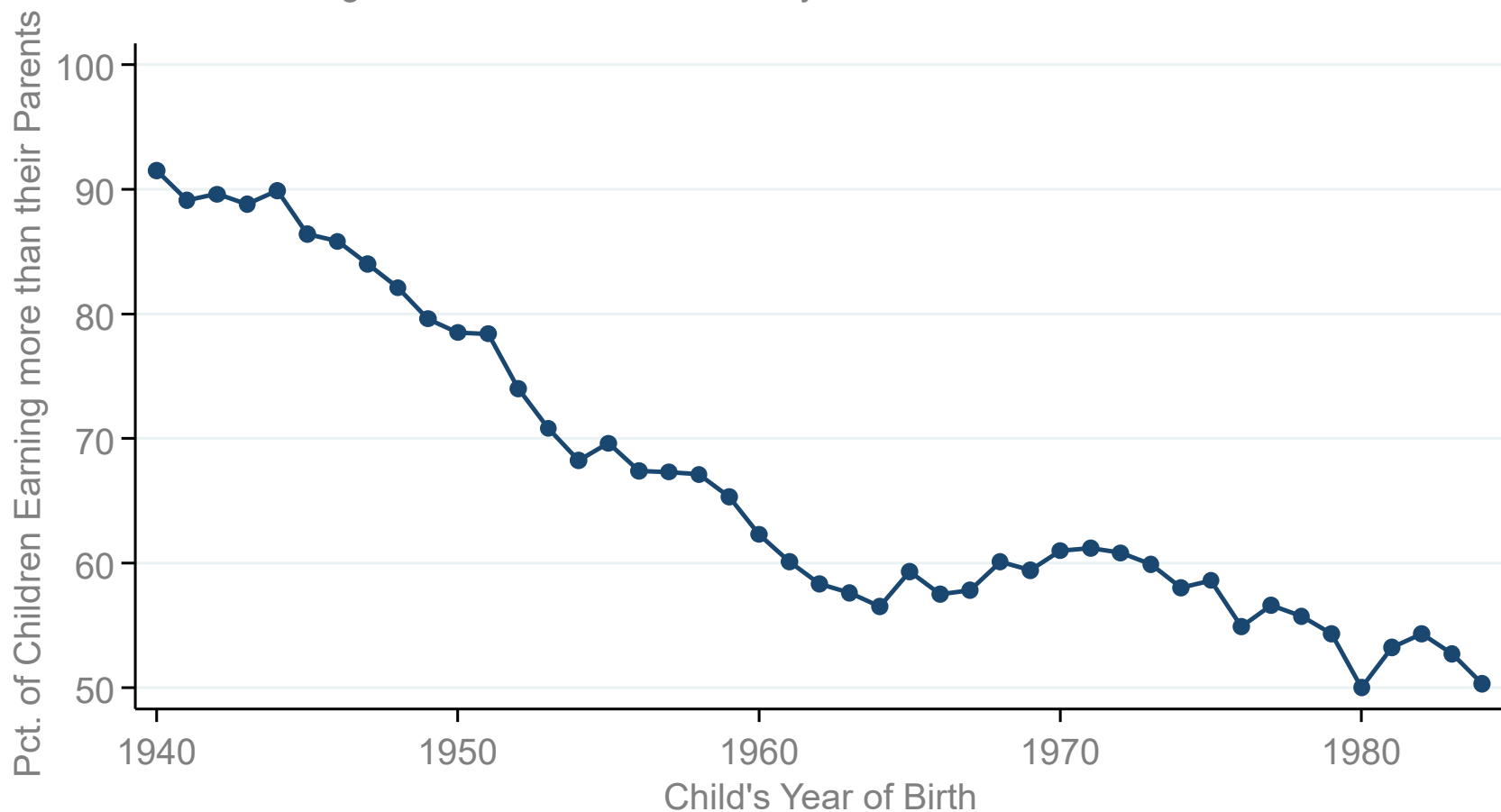


Restoring the American Dream New Insights from Big Data

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Harvard University

The Fading American Dream

Percent of Children Earning More than Their Parents, by Year of Birth



How Can We Restore the American Dream?

Opportunity Insights

- Use **big data** to study how to increase upward mobility
- Analyze a **broad range** of interventions, from childhood to adulthood
- Study roots of the problem **locally** to develop tailored solutions



A Precision-Medicine Approach to Improving Opportunity

Using Big Data to Provide Targeted Diagnoses and Advice

1. Assessment



Identify areas where opportunity is lacking

2. Policy Pilots



Work with local stakeholders on interventions

3. Evaluation



Evaluate impact and disseminate lessons

Upward Mobility



Scalable policies to increase mobility

A Precision-Medicine Approach to Improving Opportunity

Using Big Data to Provide Targeted Diagnoses and Advice

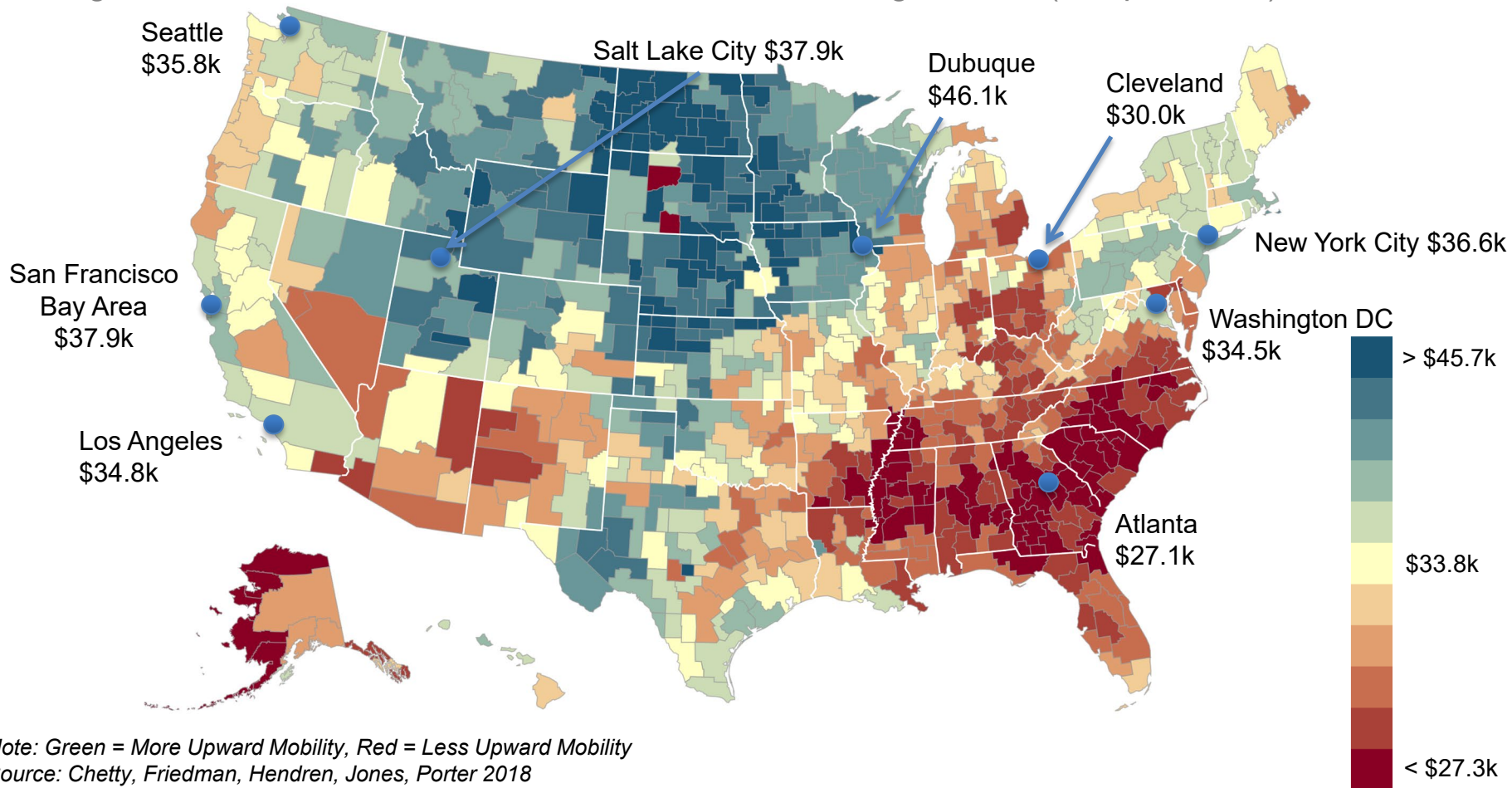


The Opportunity Atlas

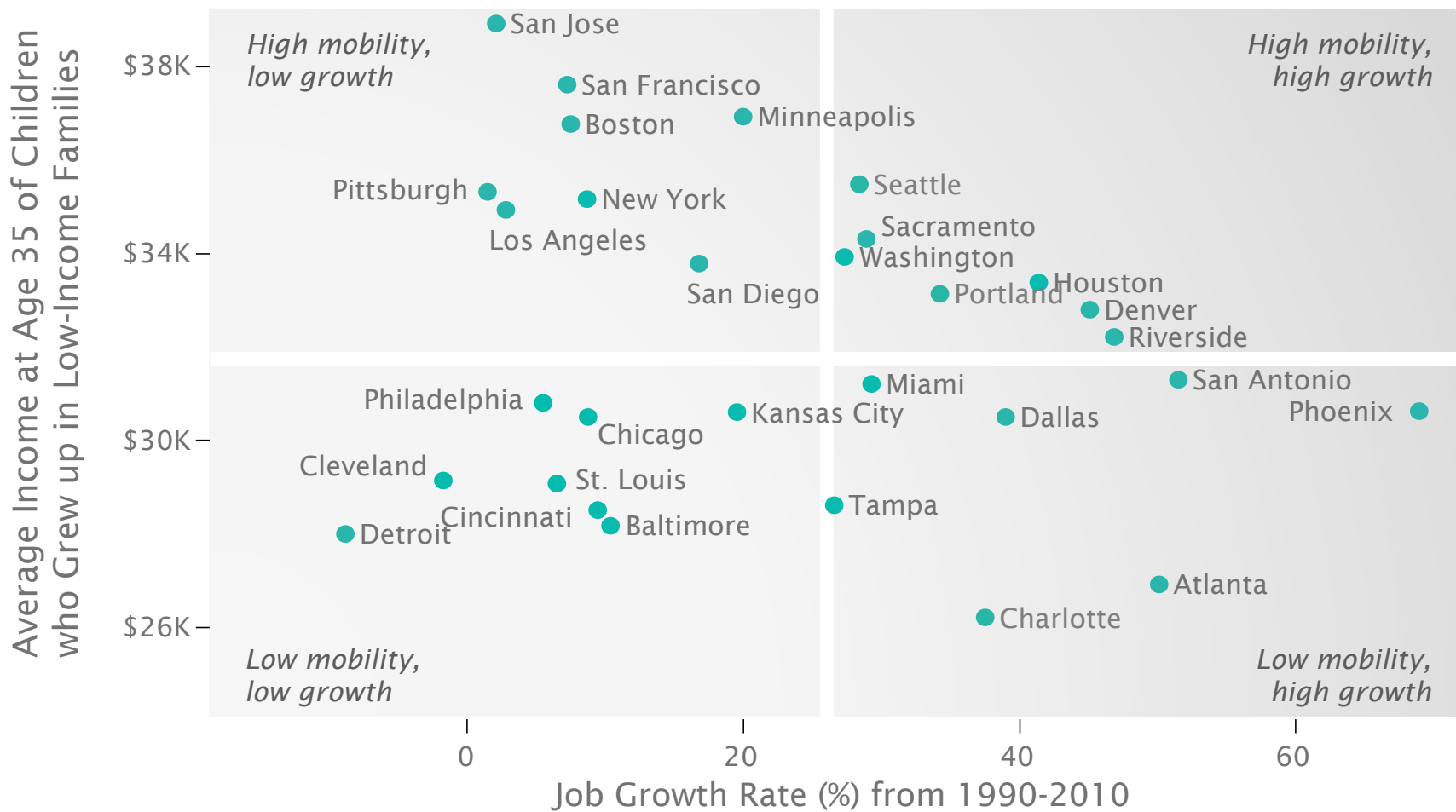
- Measure upward mobility across America using anonymized data from Census Bureau covering **20 million children** linked to their parents
- Assign children to locations where they **grew up** and measure their average incomes at age 35
- Key innovation relative to existing information: trace the **roots** of poverty and incarceration back to **childhood neighborhoods**

The Geography of Upward Mobility in the United States

Average Household Income for Children with Parents Earning \$25,000 (25th percentile)

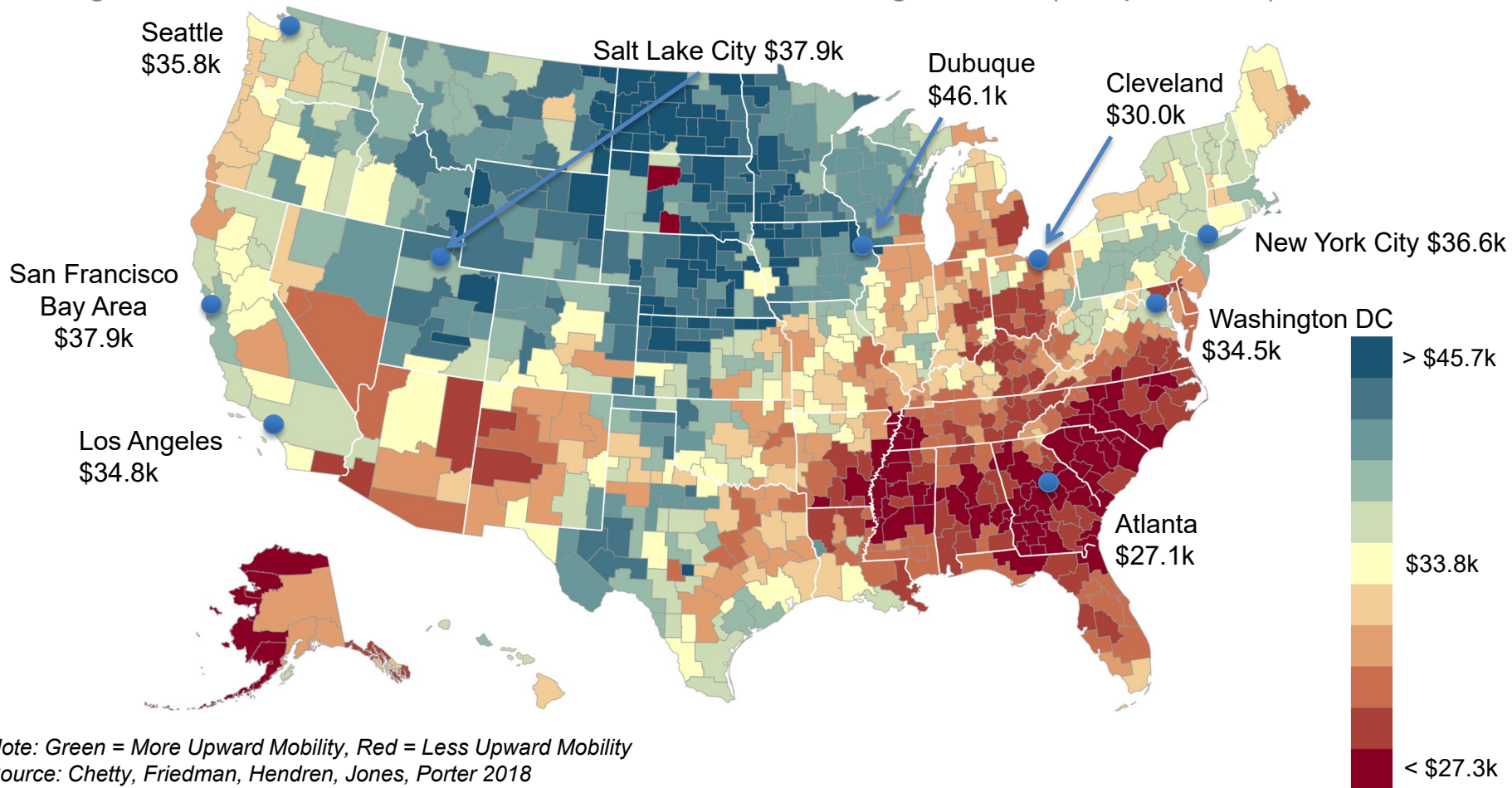


Upward Mobility vs. Job Growth in the 30 Largest Metro Areas



The Geography of Upward Mobility in the United States

Average Household Income for Children with Parents Earning \$25,000 (25th percentile)

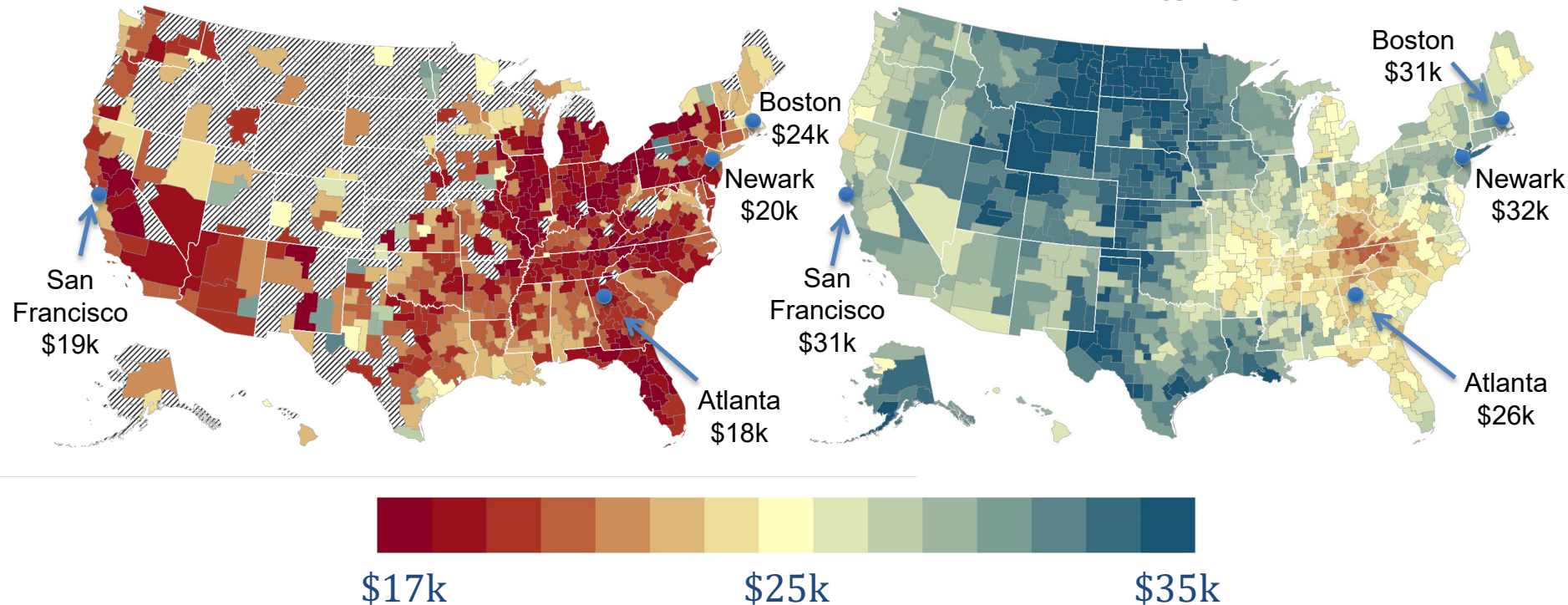


Two Americas: The Geography of Upward Mobility For Black vs. White Men

Average Earnings at Age 35 For Men Whose Parents Earned \$25,000 (25th percentile)

Black Men

White Men



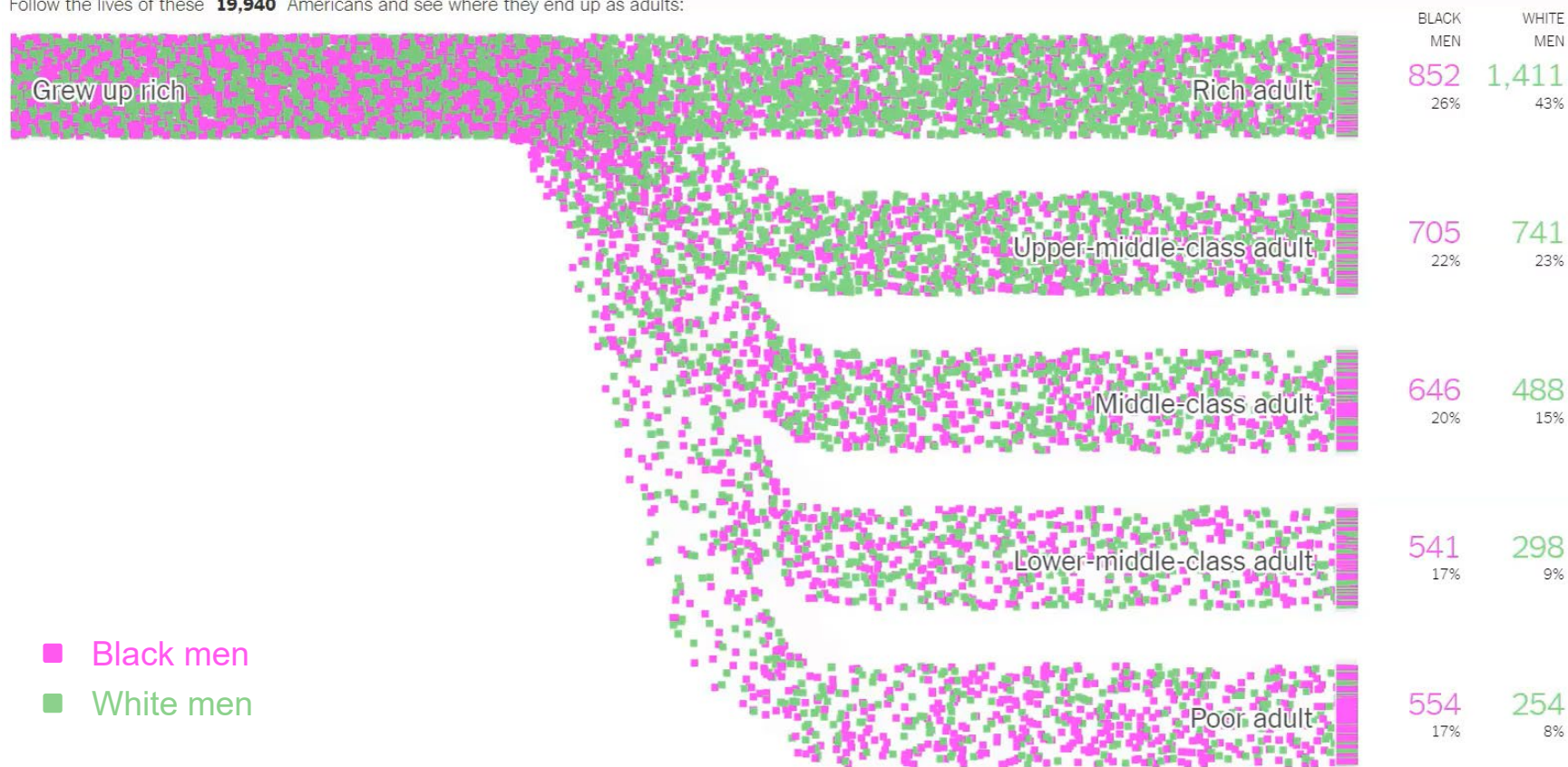
Note: Green = More Upward Mobility, Red = Less Upward Mobility; Grey = Insufficient Data

Source: Chetty, Hendren, Jones, Porter (2018)



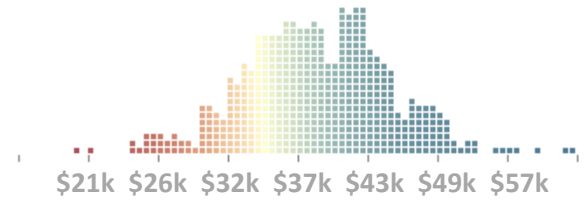
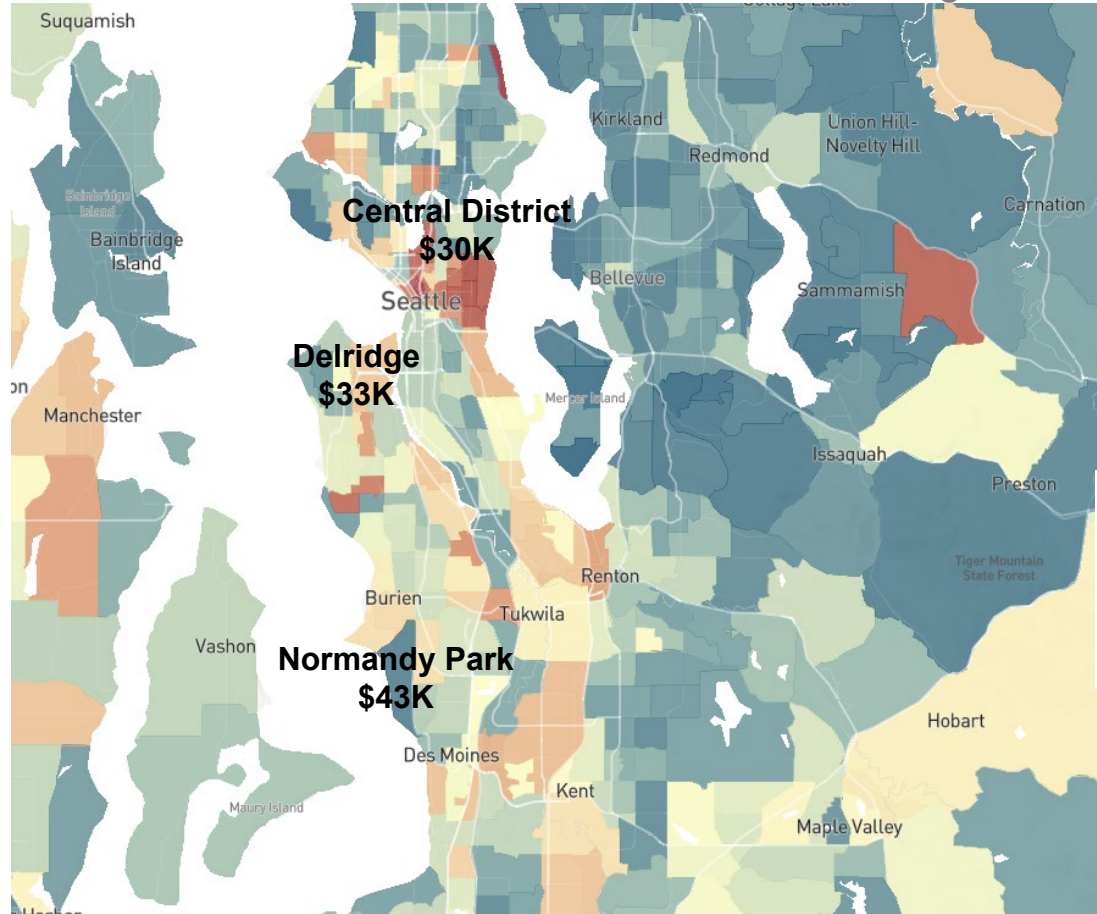
Income Mobility for Black vs. White Men Raised in High-Income Families

Follow the lives of these **19,940** Americans and see where they end up as adults:



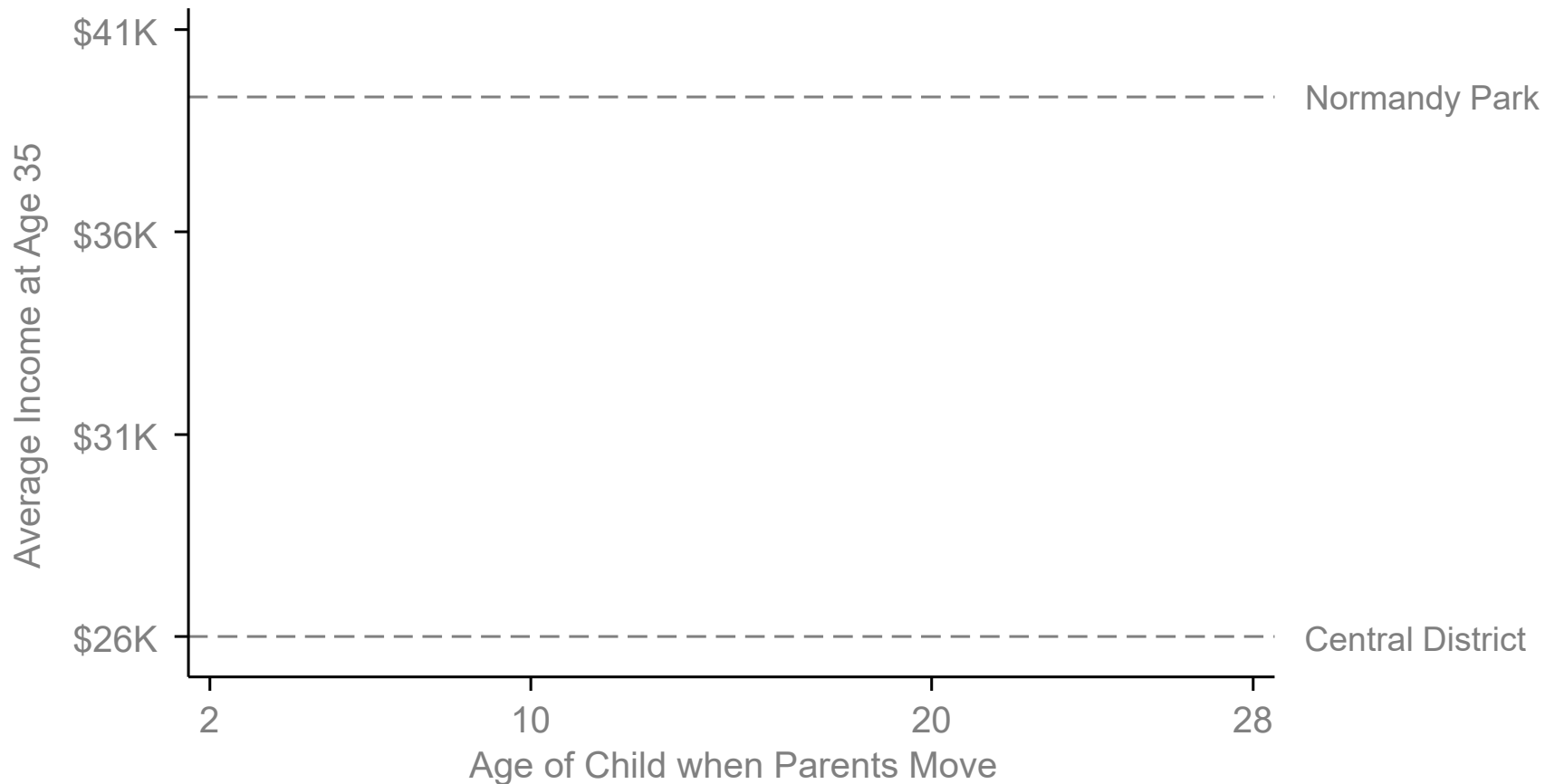
The Geography of Upward Mobility in Seattle

Average Household Income for Children with Parents Earning \$25,000 (25th percentile)

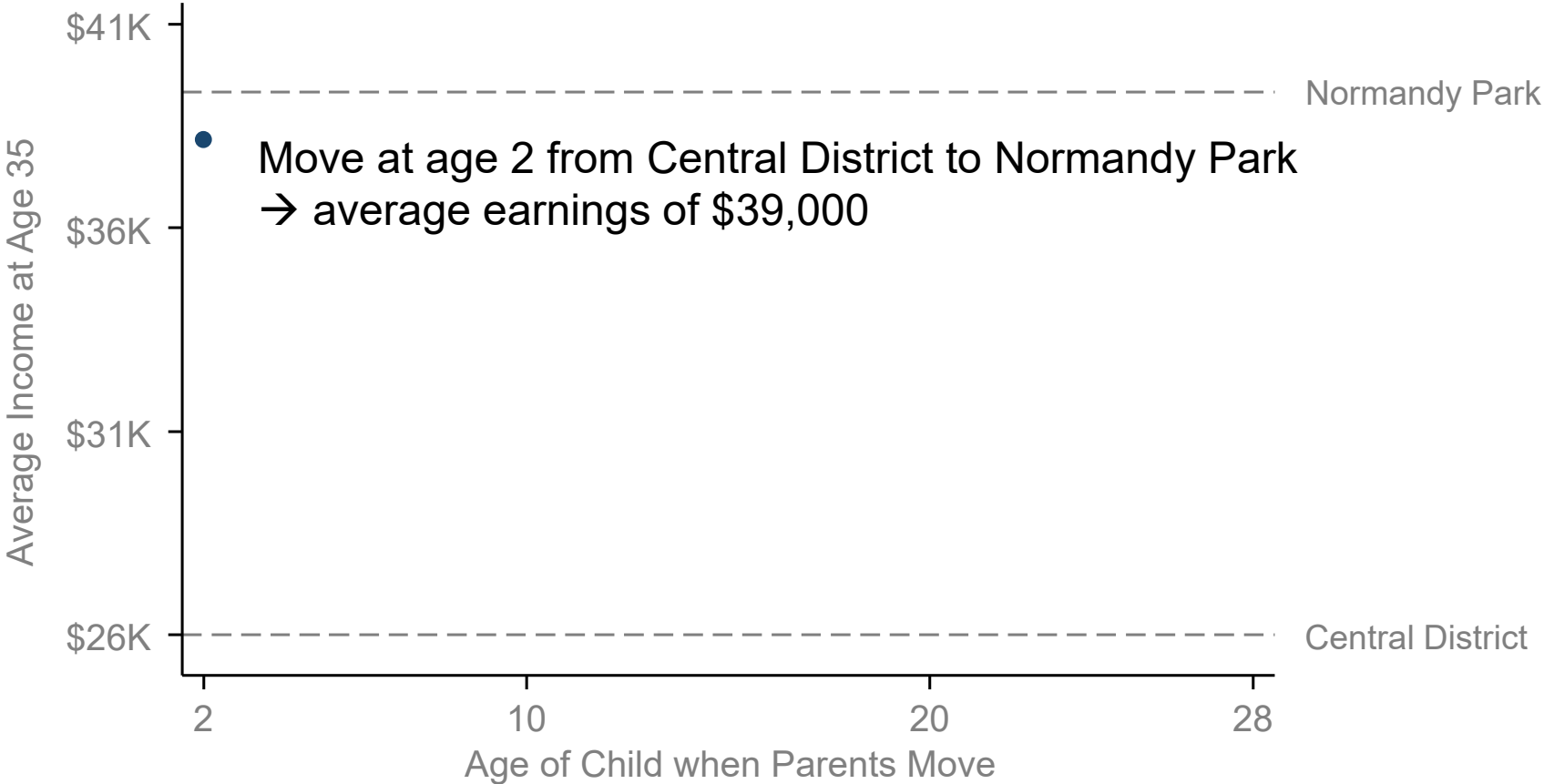




Income Gain from Moving to a Better Neighborhood, by Child's Age at Move

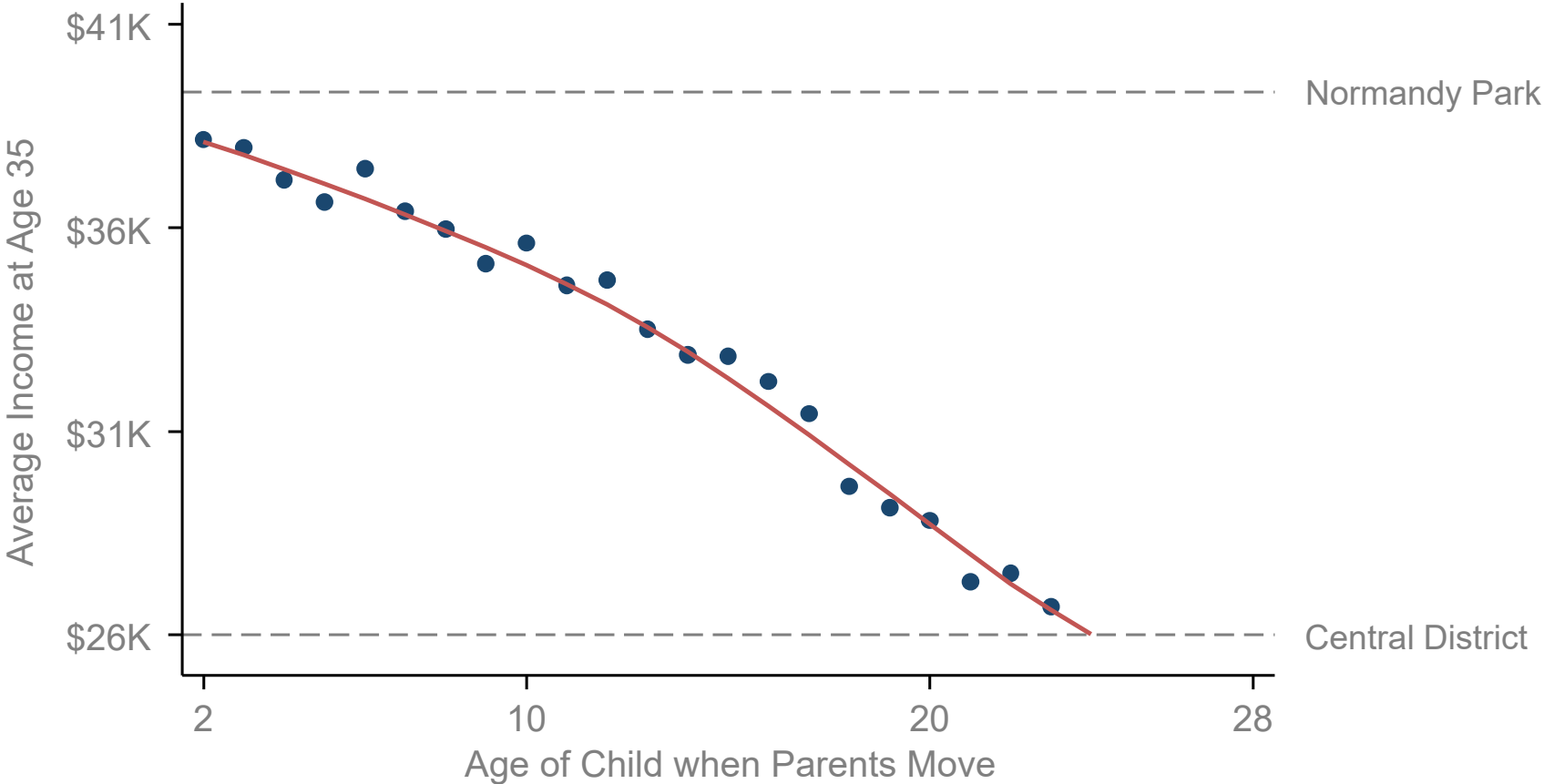


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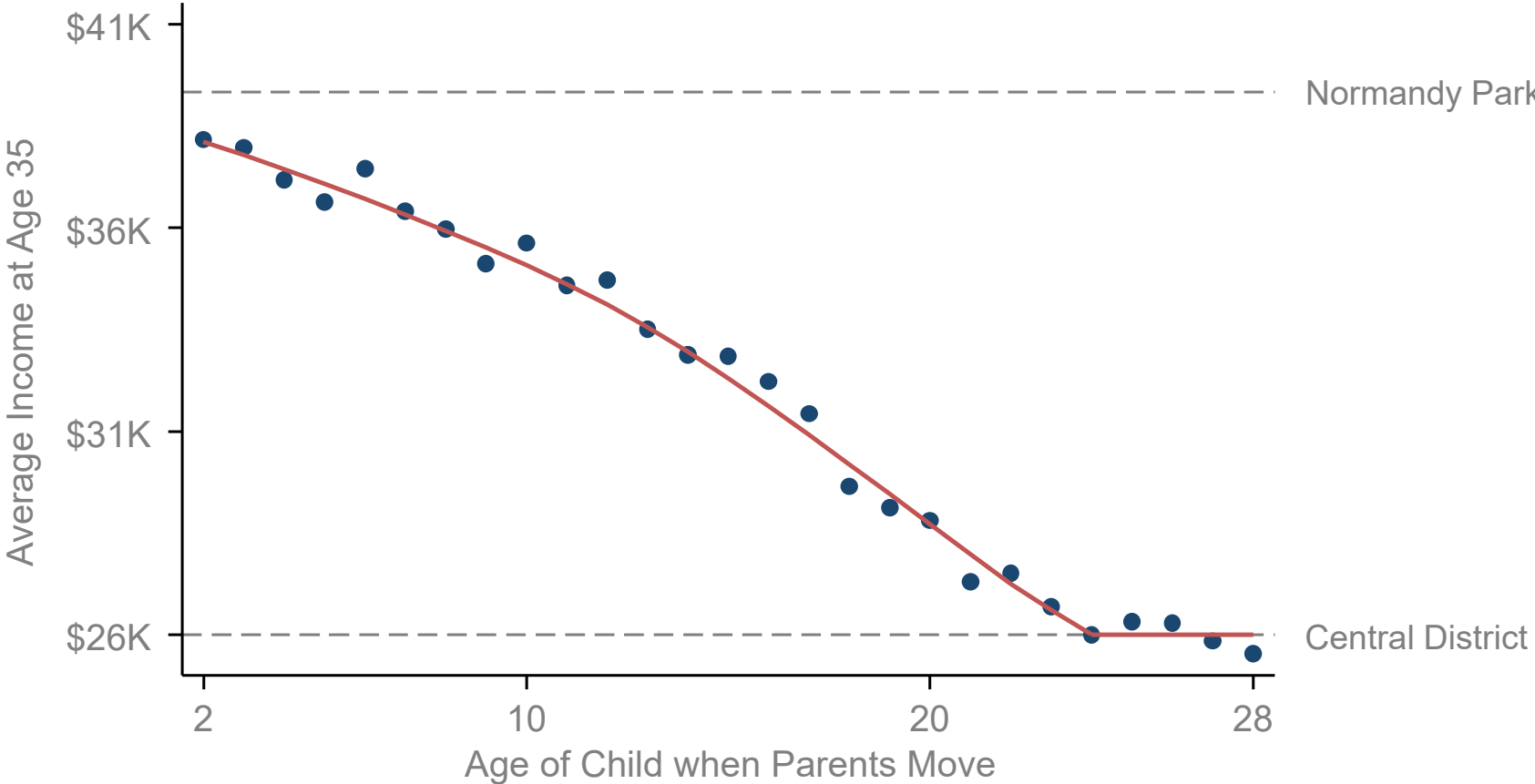
Source: Chetty, Friedman, Hendren, Jones, Porter 2018

Income Gain from Moving to a Better Neighborhood, by Child's Age at Move



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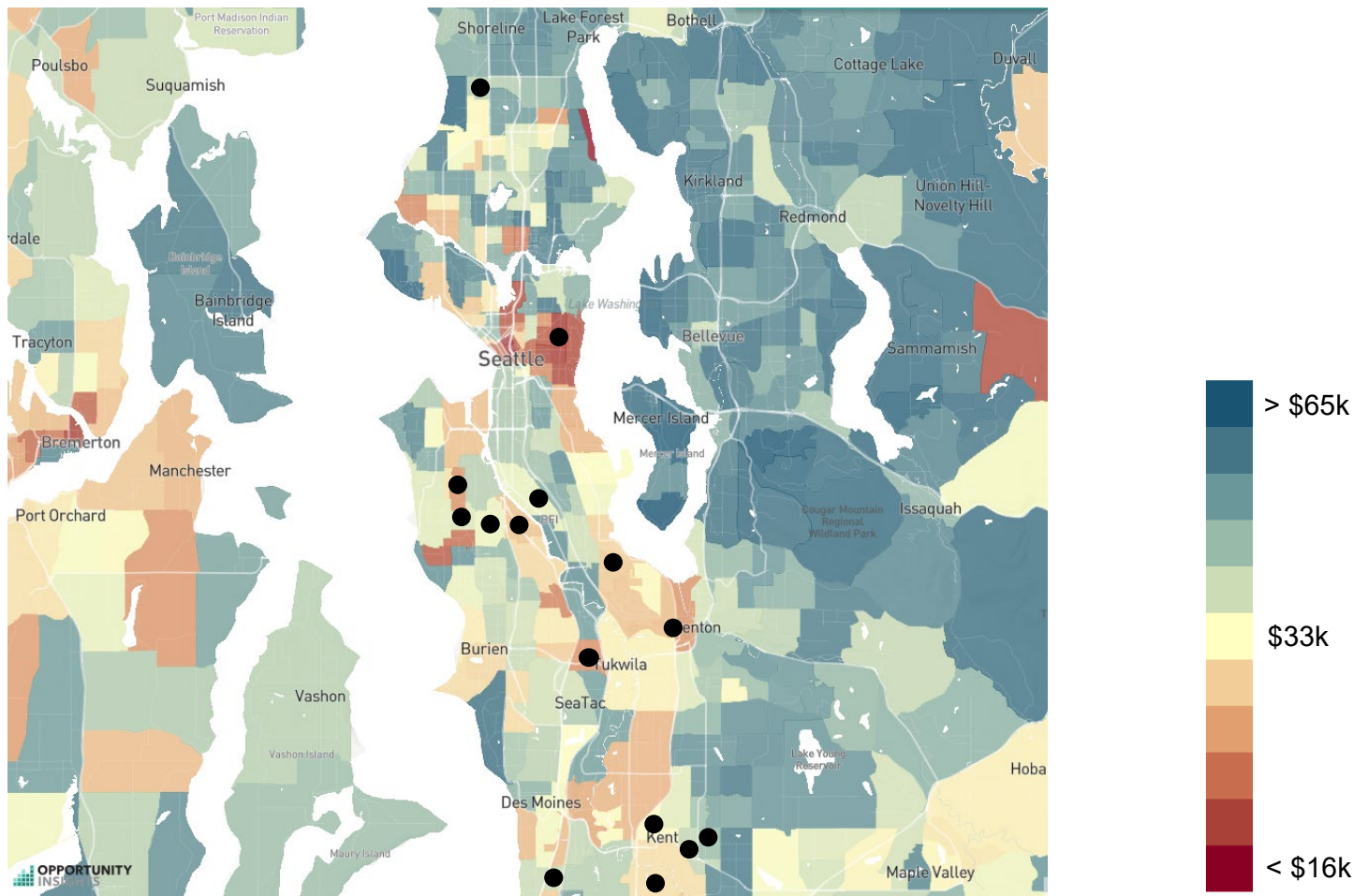
Income Gain from Moving to a Better Neighborhood, by Child's Age at Move



Source: Chetty, Friedman, Hendren, Jones, Porter 2018

Is Affordable Housing Maximizing Opportunities for Upward Mobility?

Most Common Current Locations of Families Receiving Housing Vouchers in Seattle



Creating Moves to Opportunity

Pilot study to help families with housing vouchers move to high-opportunity areas in Seattle using three approaches:

- Providing information to tenants
- Recruiting landlords
- Offering housing search assistance



Improving Lower-Opportunity Neighborhoods

- Moving to Opportunity approach has **limits to scalability**
- How can we increase upward mobility **within low-opportunity areas?**
- As a first step, learn from characteristics of high-opportunity areas

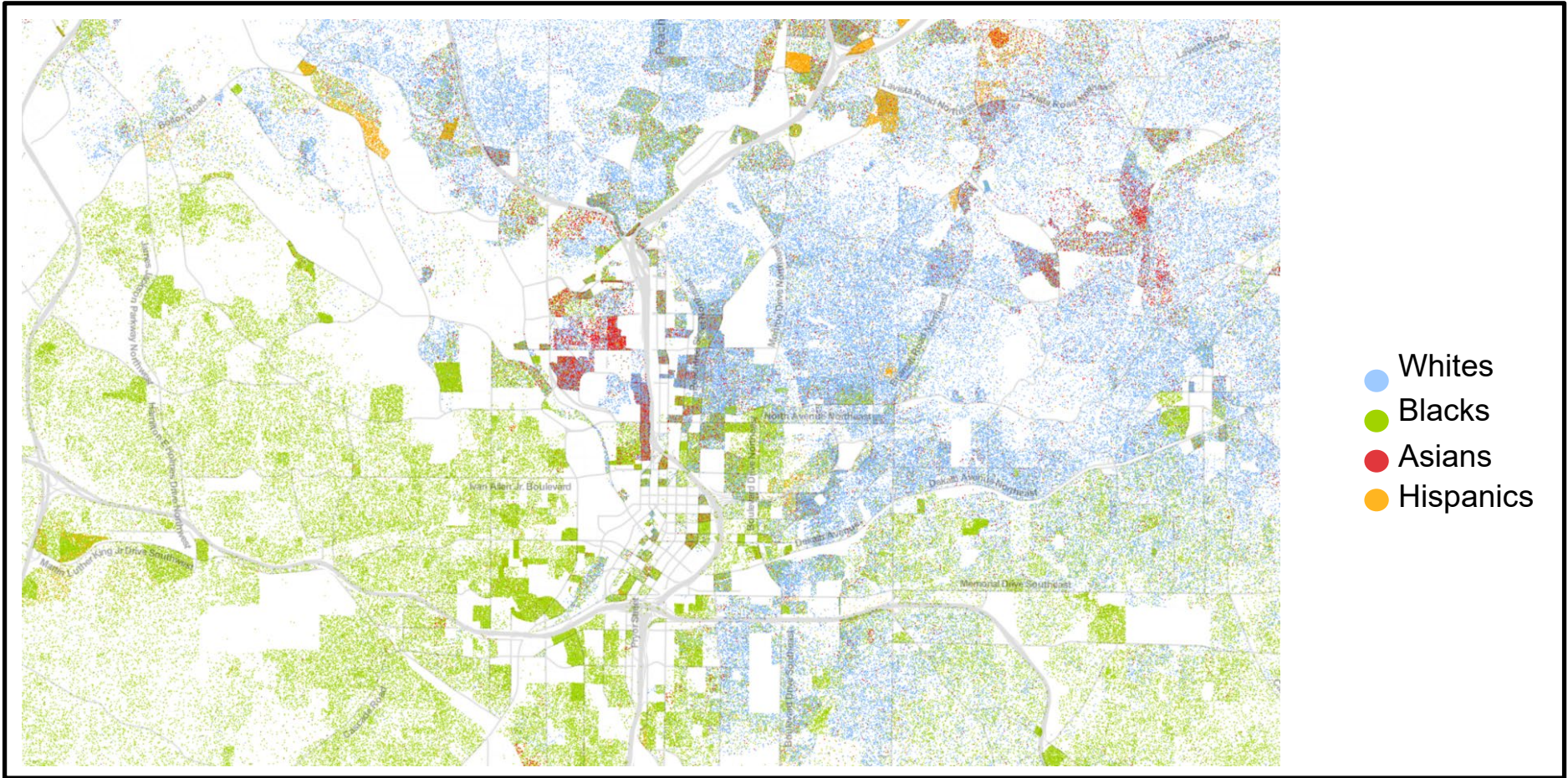


Characteristics of High Upward Mobility Areas

Less residential segregation

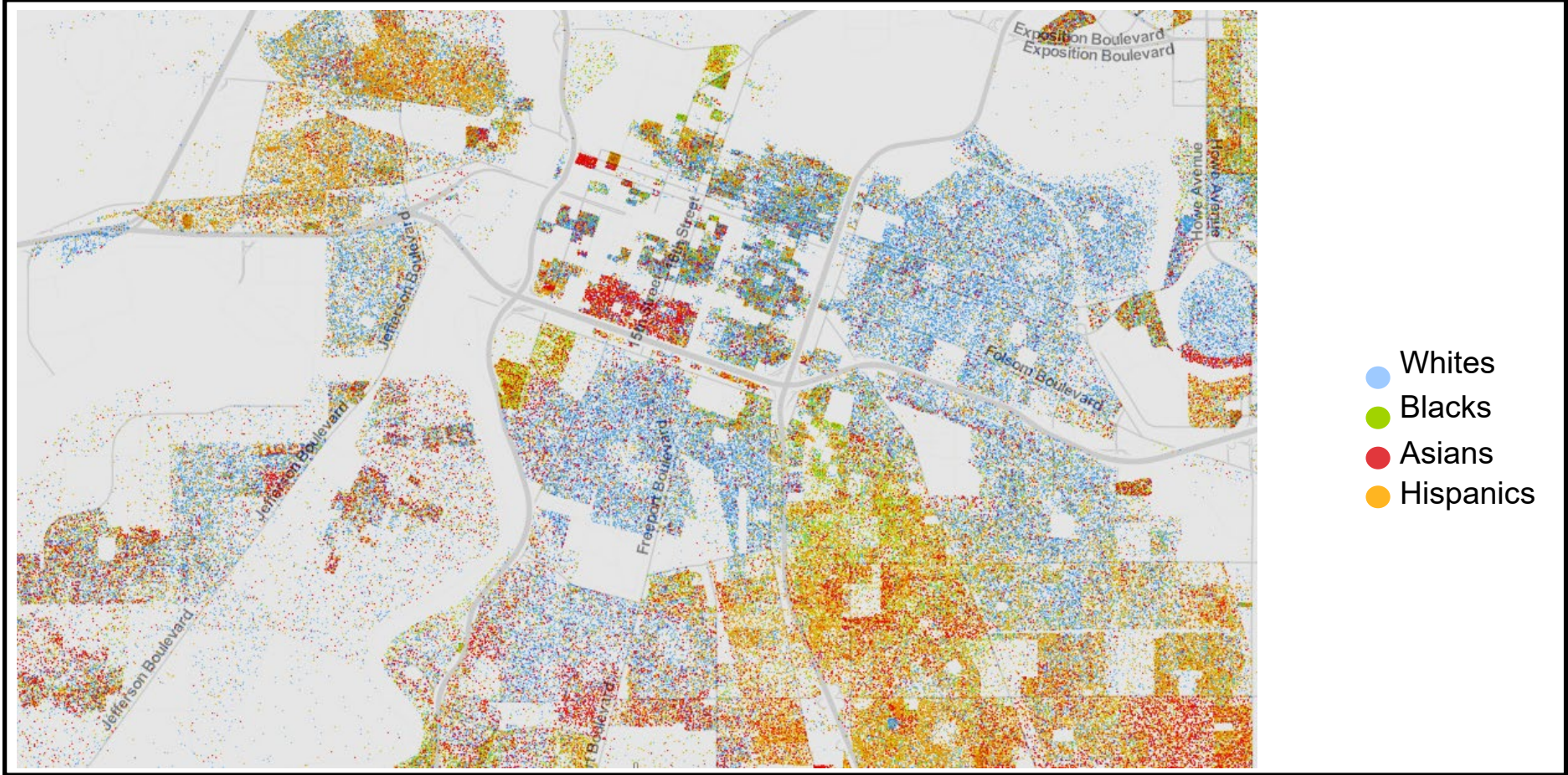


Racial Segregation in Atlanta, Georgia



Source: Cable (2013) based on Census 2010 data

Racial Segregation in Sacramento, California



Source: Cable (2013) based on Census 2010 data

Characteristics of High Upward Mobility Areas

Less residential segregation



Larger middle class



More stable family structure



Greater social capital



Higher quality education

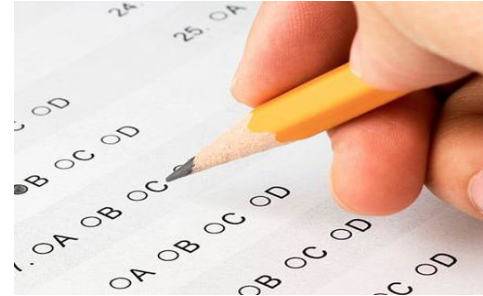


Education Policy: Using Big Data to Study Teachers' Impacts

School district records

2.5 million children

18 million test scores



Tax records

Earnings, College Attendance, Teen Birth



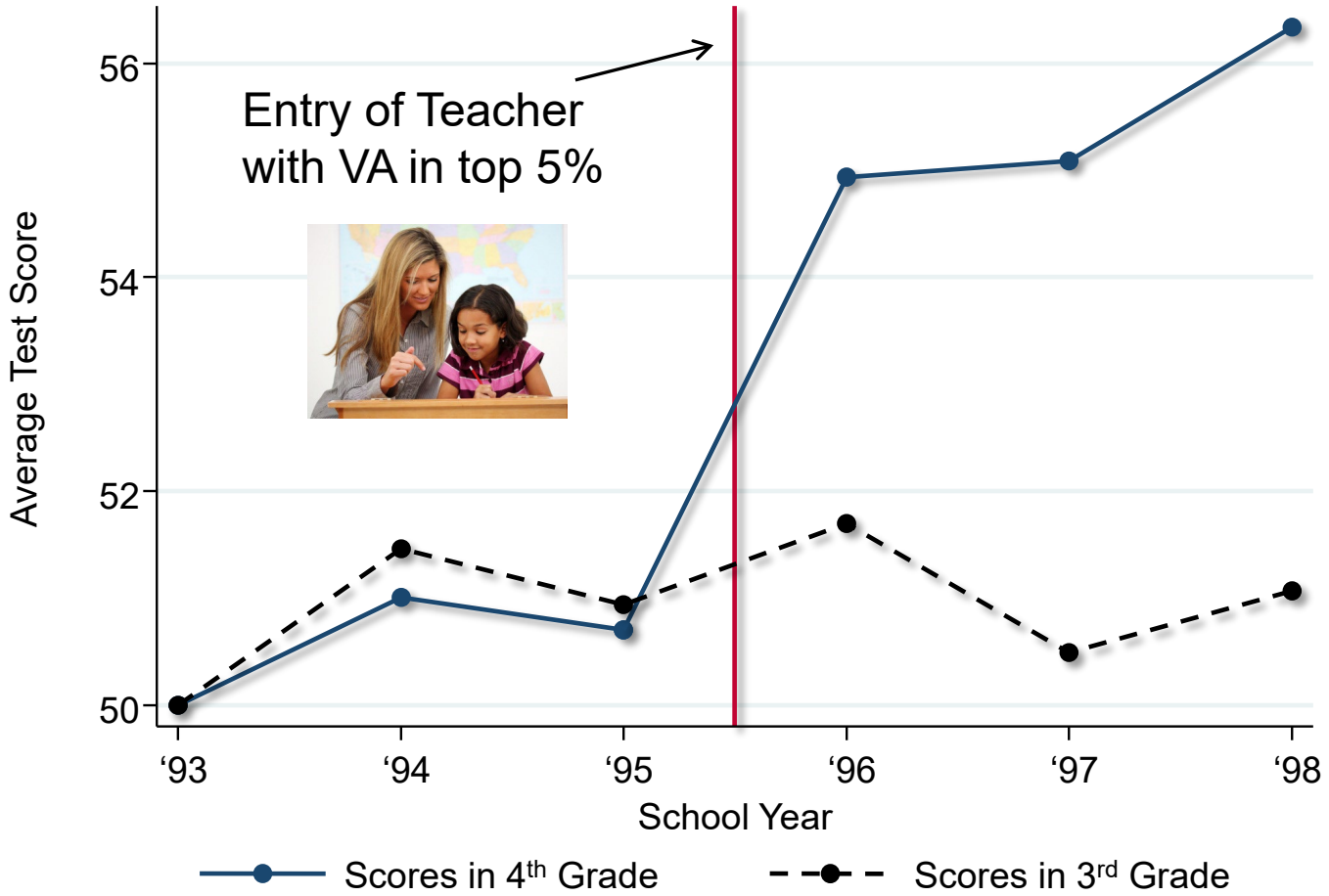
Measuring Teacher Quality: Test-Score Based Metrics

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

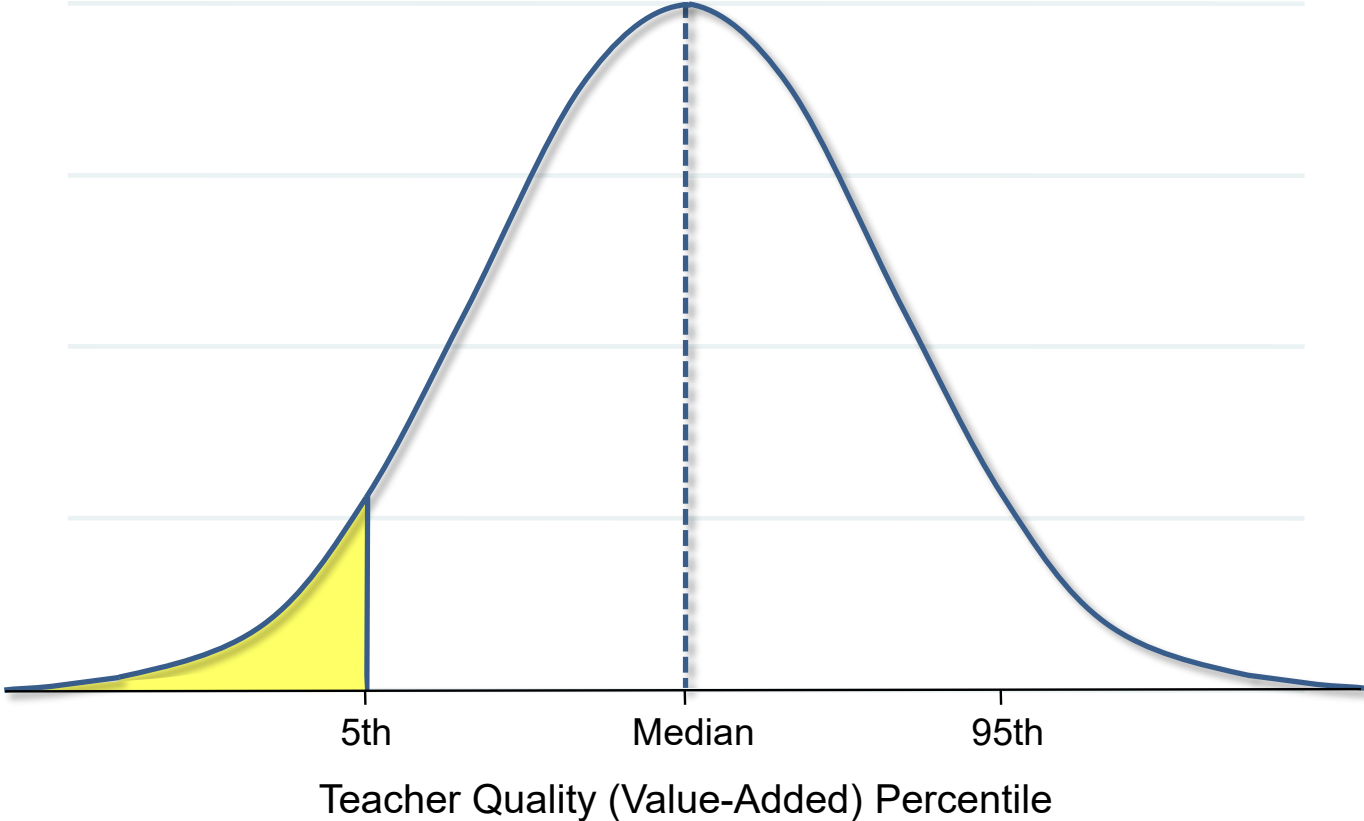
How much does a teacher raise her/his
students' test scores on average?



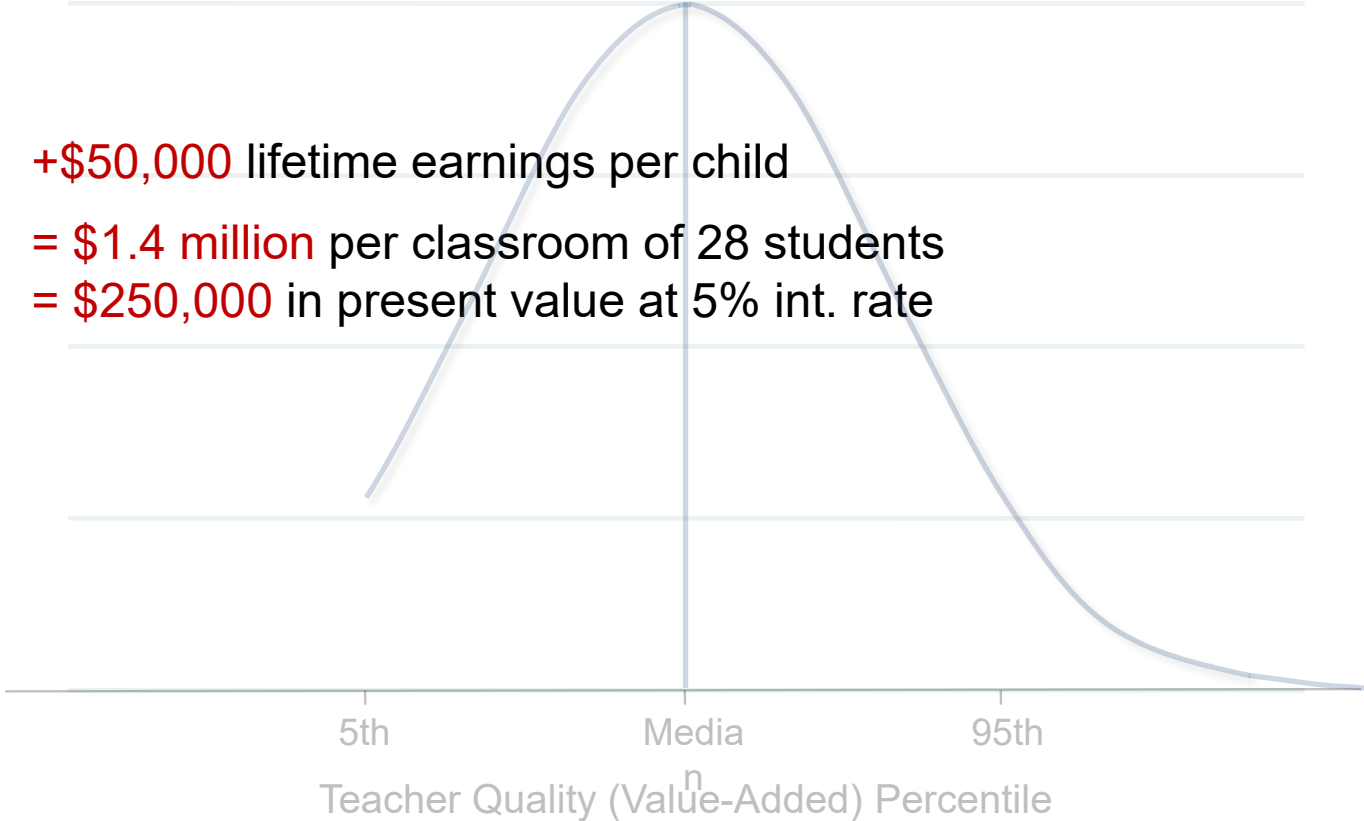
A Quasi-Experiment: Entry of High Value-Added Teacher



The Value of Improving Teacher Quality



The Value of Improving Teacher Quality

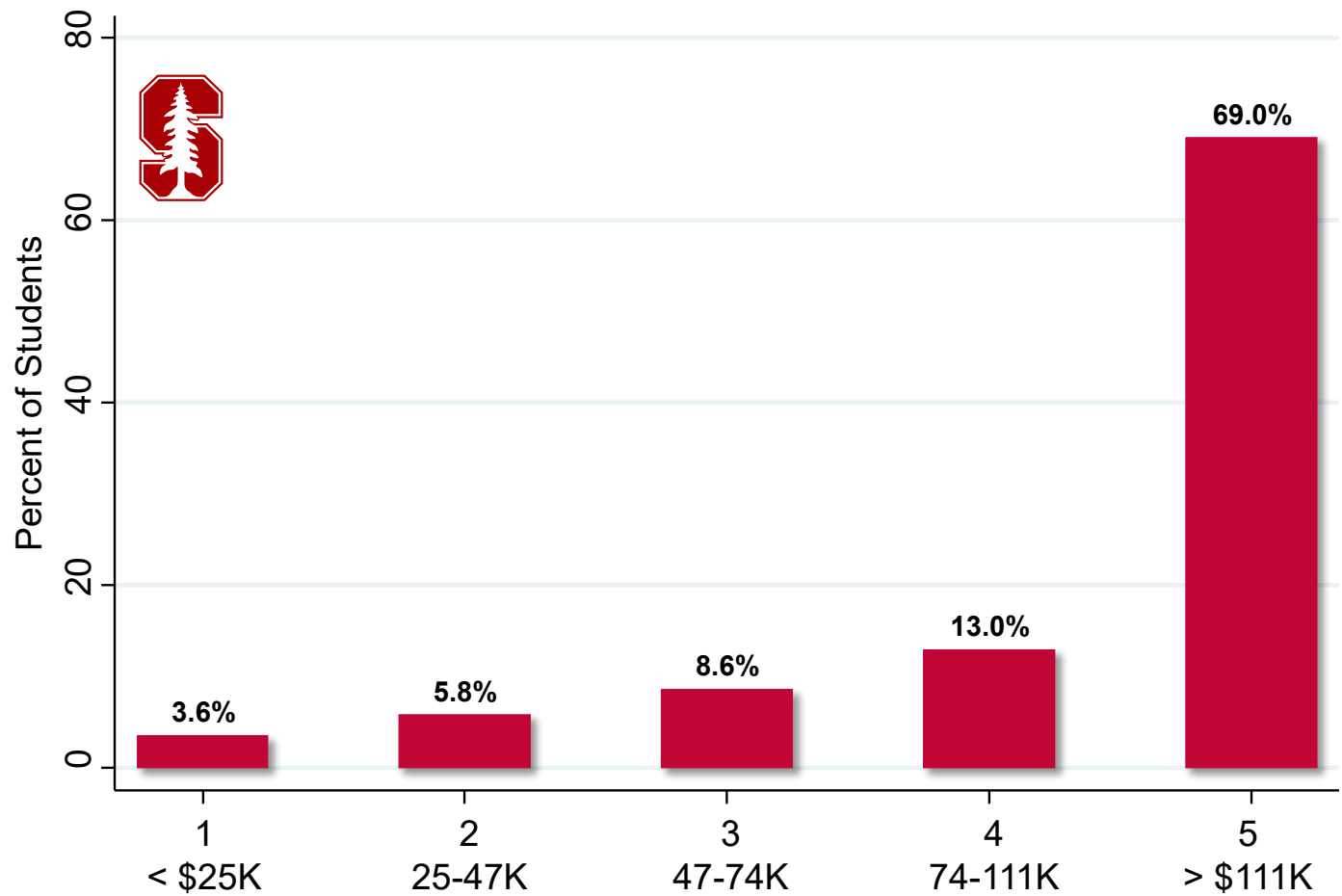


Increasing Access and Opportunity at Colleges



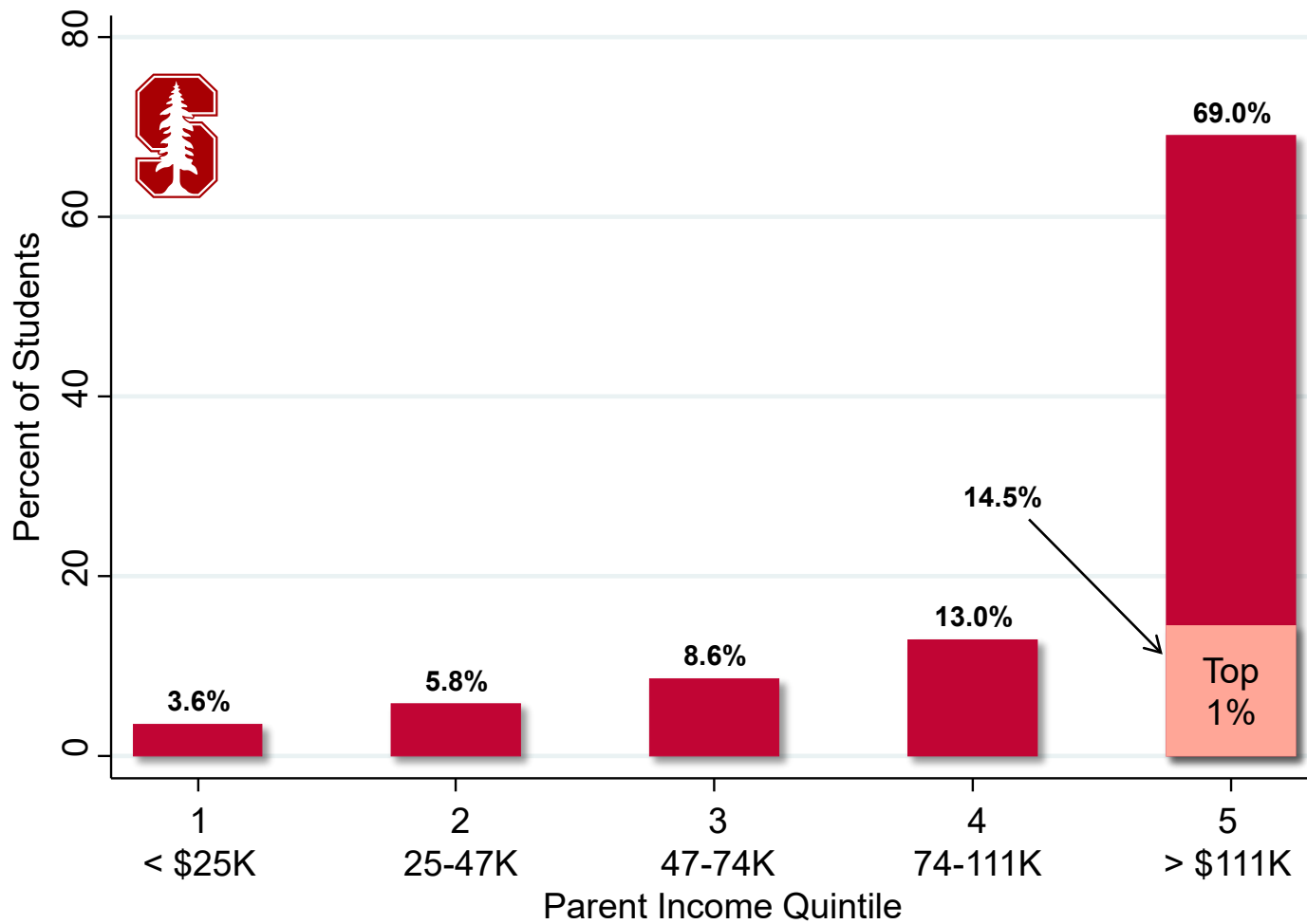
- The pipeline to upward mobility does not end when children leave home
- Big data can also help us analyze and amplify the **impacts of colleges** on upward mobility
- Use data on 30 million students from 1999-2013 to study mobility at each college in America

Parental Income Distribution of Students at Stanford

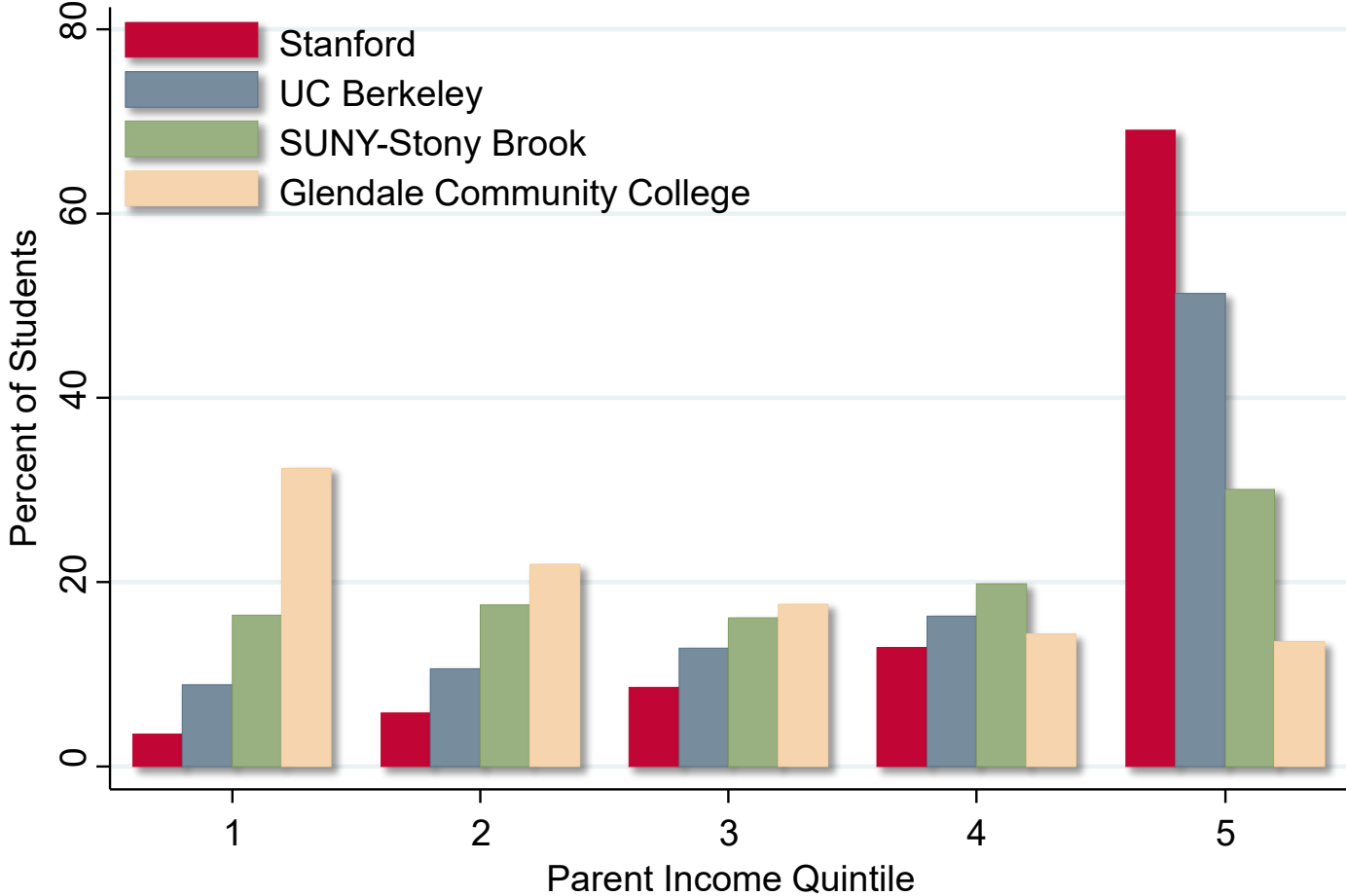


Source: Chetty, Friedman, Saez, Turner, Yagan (2017)

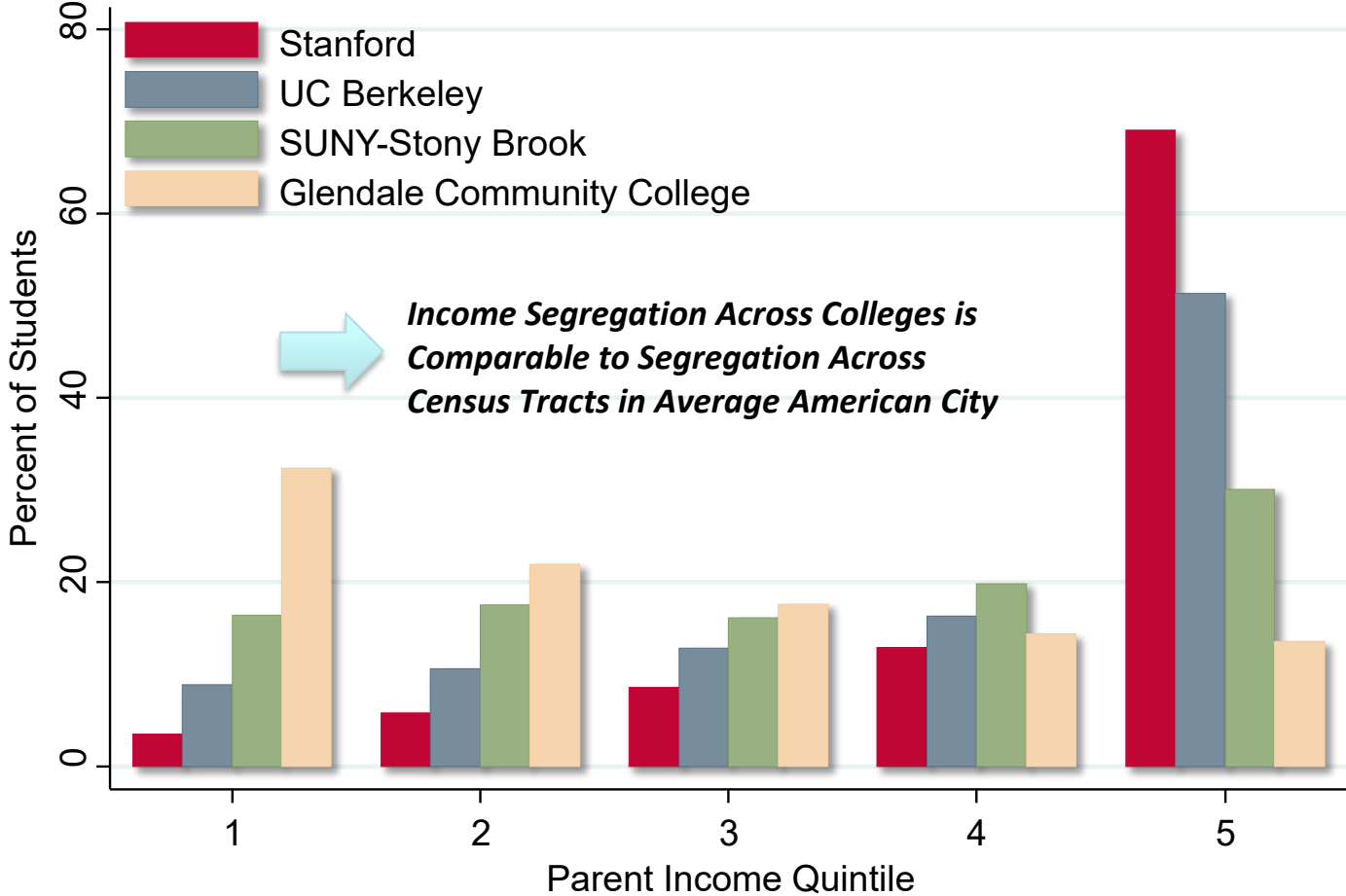
Parental Income Distribution of Students at Stanford



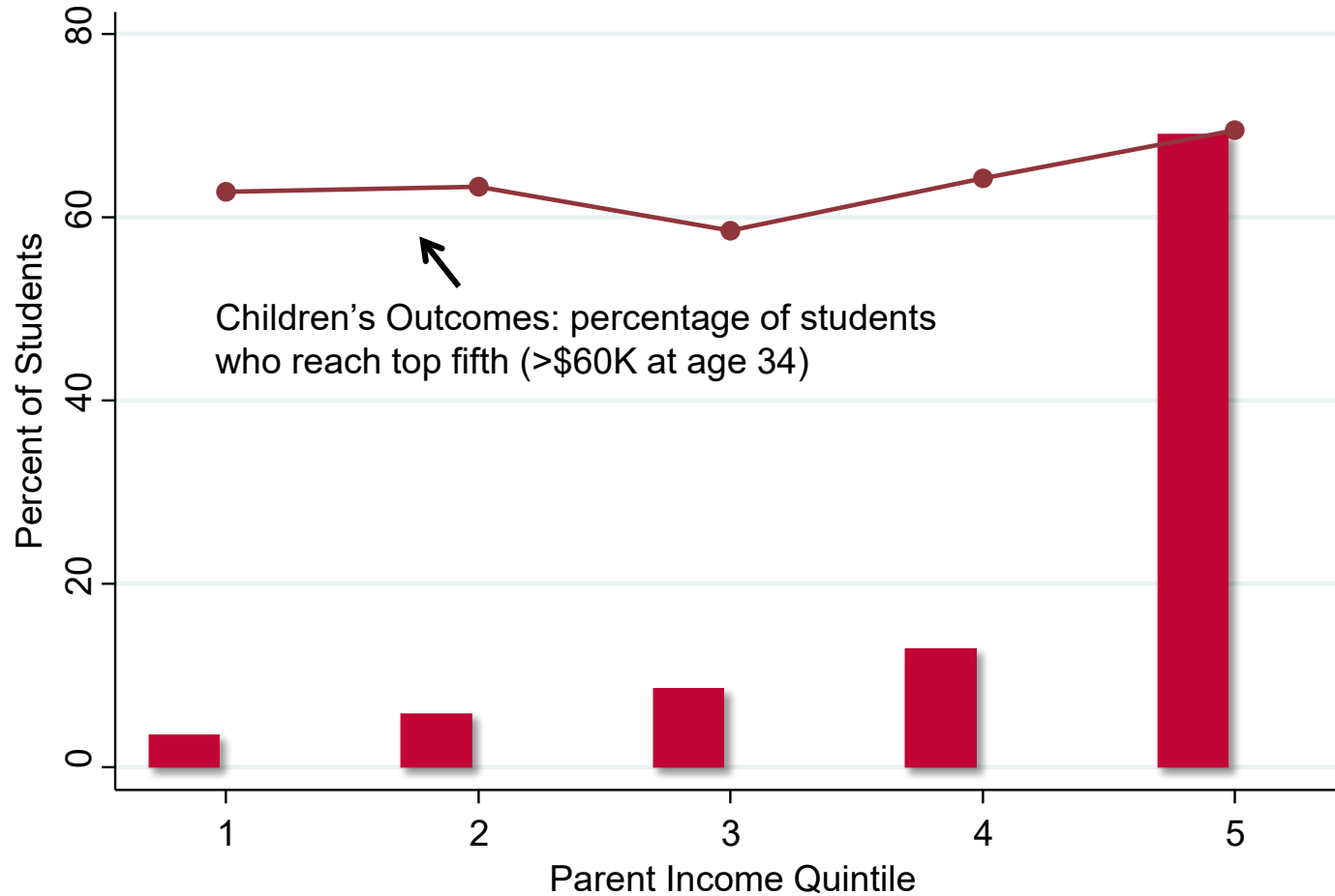
Parental Income Distribution of Students at Selected Colleges



Parental Income Distribution of Students at Selected Colleges

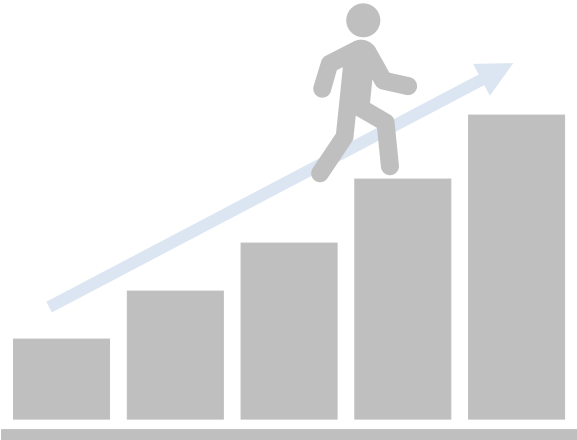


Students' Earnings Outcomes at Stanford



Mobility Rates

A college's *mobility rate* (MR) is the fraction of students who come from **bottom** quintile and end up in **top** quintile



Mobility Rate = Access x Success Rate

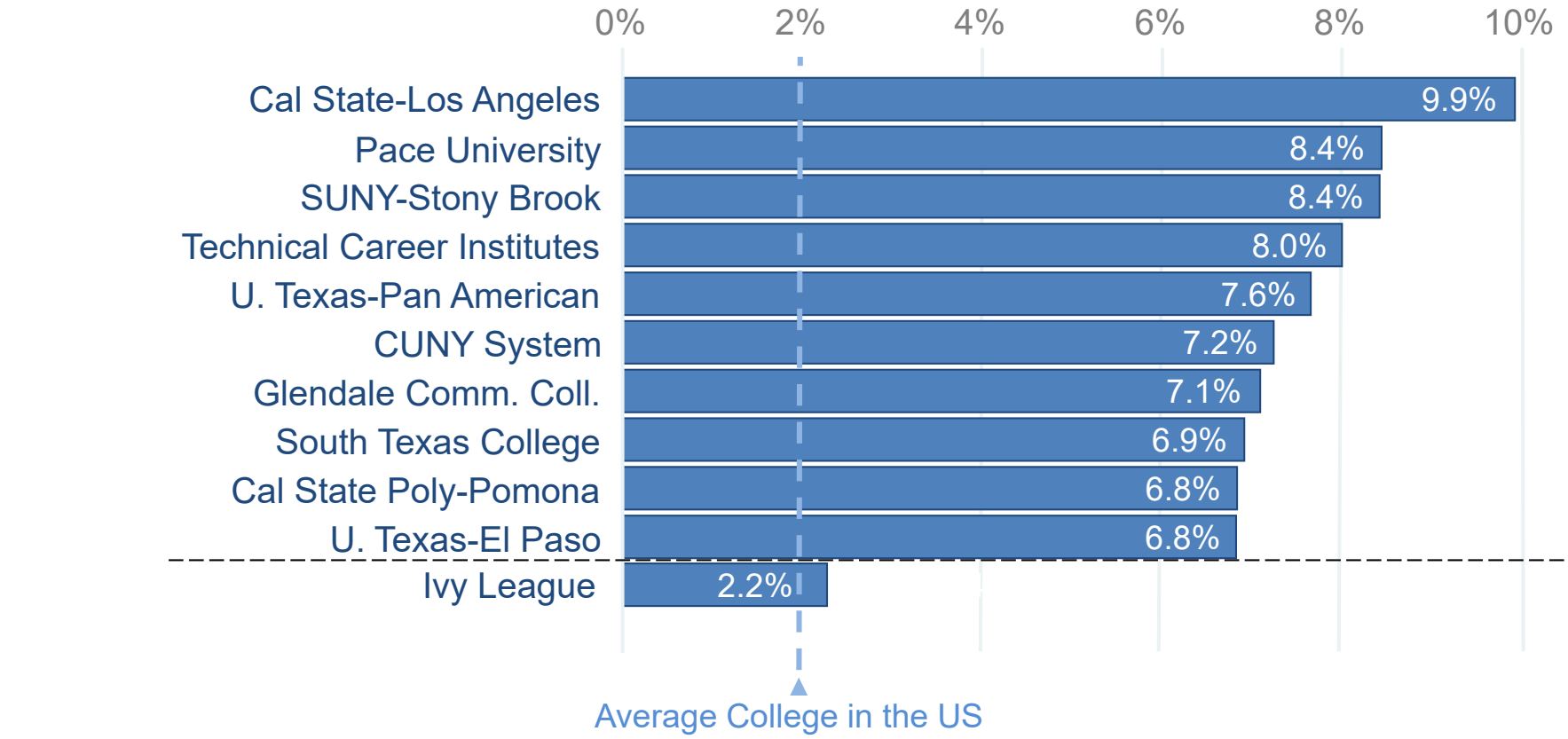
At Stanford:

- Access: 3.6%
- Success Rate: 62.7%
- **Mobility Rate: 2.2%**



Top 10 Colleges in America By Bottom-to-Top Quintile Mobility Rate

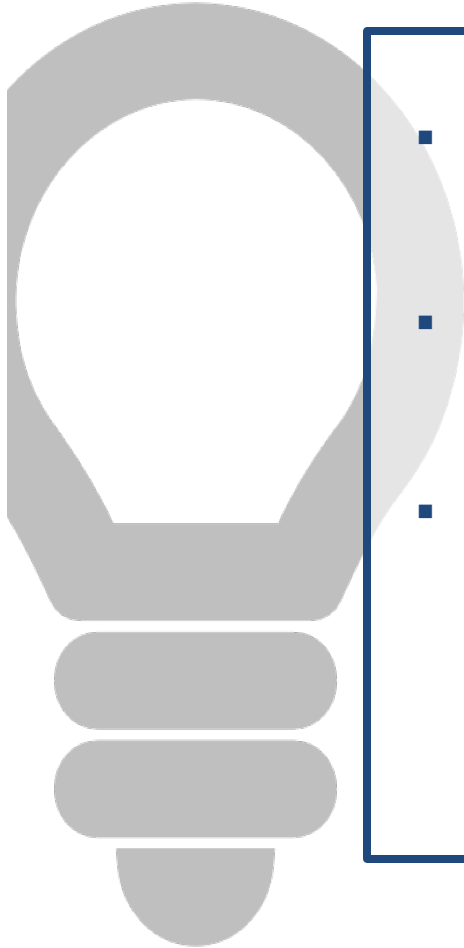
Fraction of Students who come from Bottom Fifth and End up in Top Fifth



Money Magazine 2017-18 College Rankings

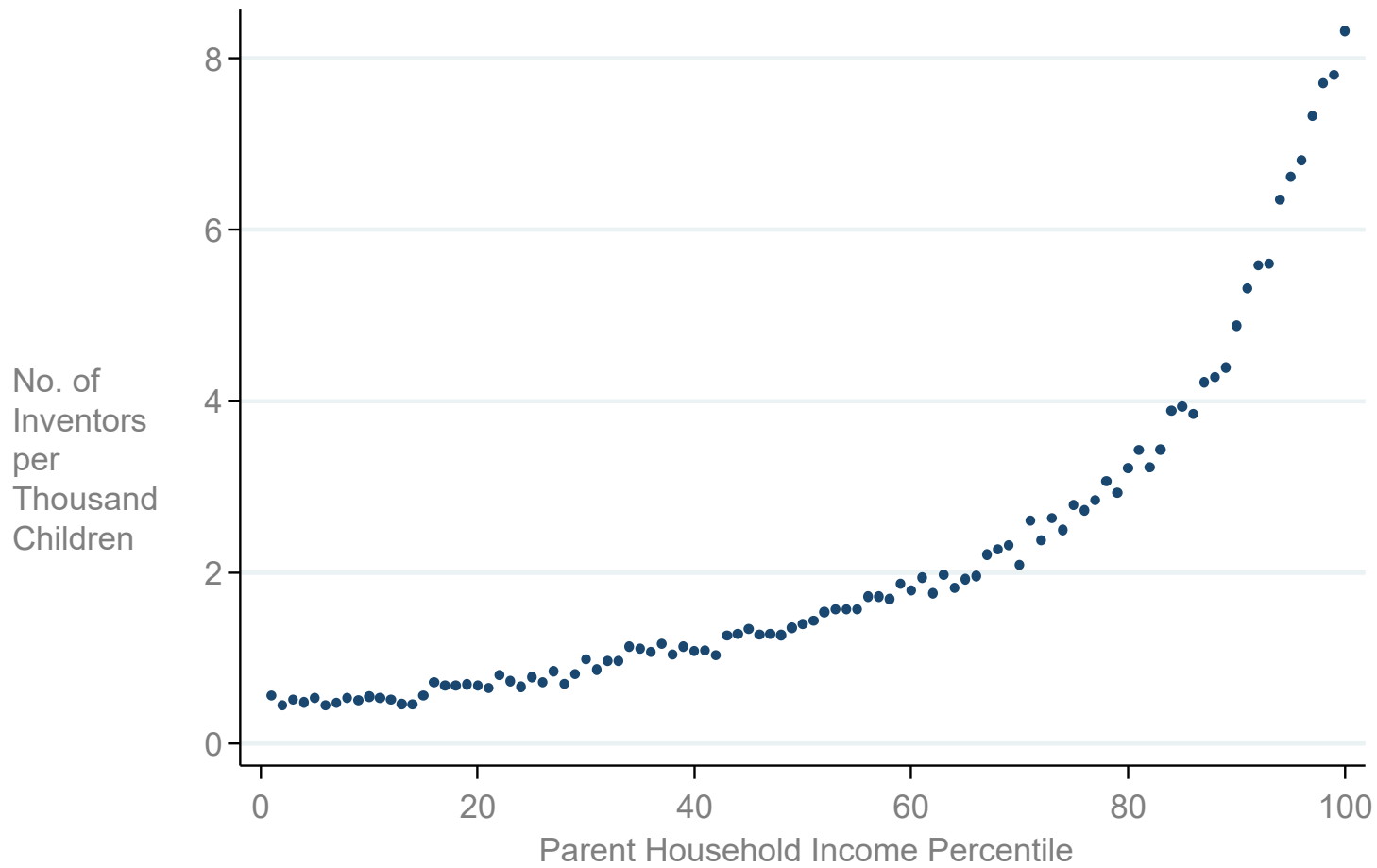
- Value-added earnings (12.5%). To see if a school is helping launch students to better-paying jobs than competitors that take in students with similar academic and economic backgrounds, we adjusted PayScale.com's earnings data for the student body's average test scores and the percentage of low-income students at each school; for early career earnings (7.5%) and mid-career earnings (5%).
- Job meaning (5%). We used the average score of each school's alumni on PayScale.com's survey question of "Does your work make the world a better place?"
- Socio-economic mobility index (20%). For the first time, we included new data provided by the [Equality of Opportunity Project](#) that reveals the percentage of students each school move from low-income backgrounds to upper-middle class jobs by the time the student is 34 years old.

Equality of Opportunity and Economic Growth

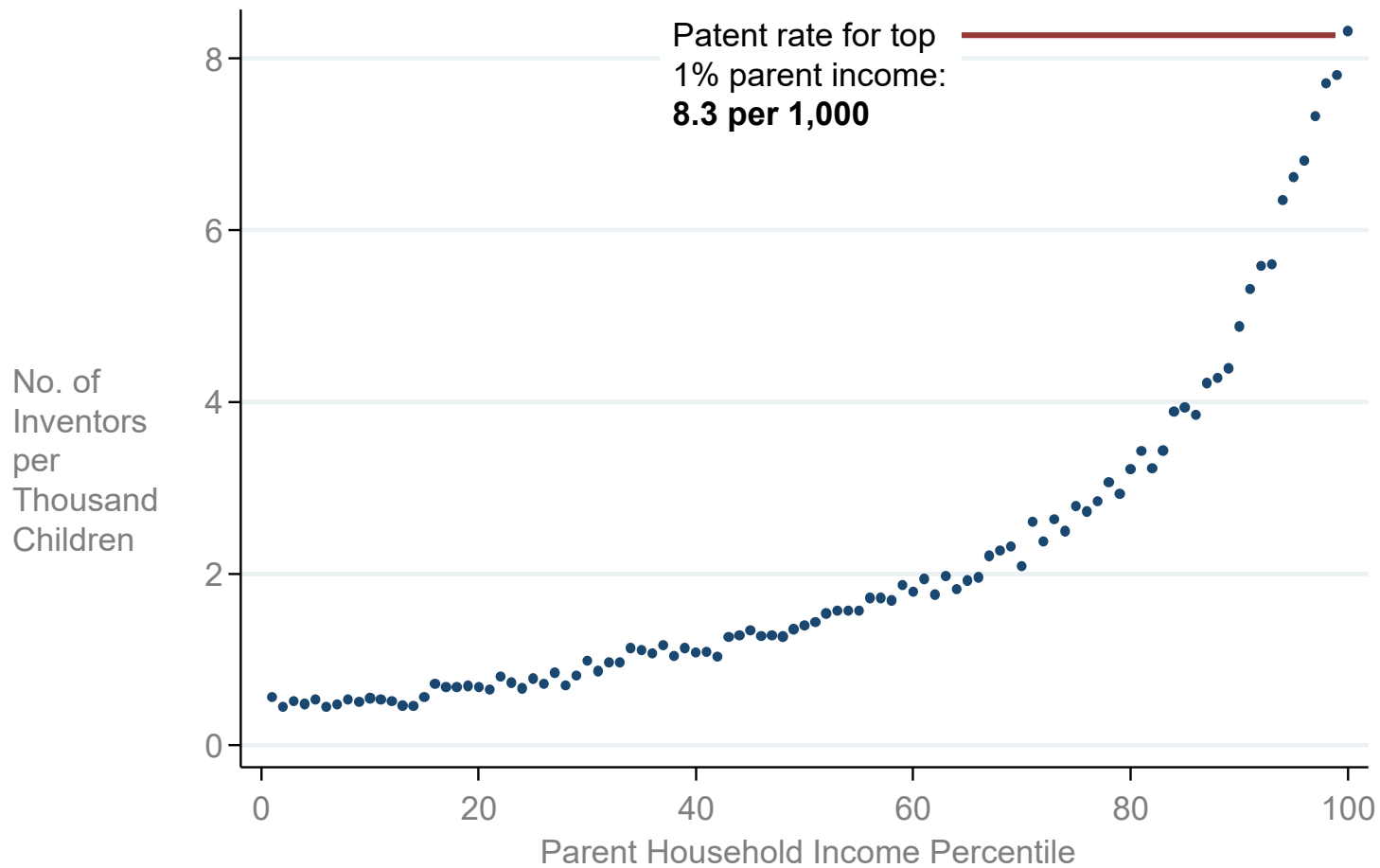


- Traditional argument for equality of opportunity is based on principles of **justice**
- But improving opportunities for upward mobility can also increase **economic growth**
- To illustrate, focus on **innovation**
 - Study the lives of 750,000 patent holders in the U.S.

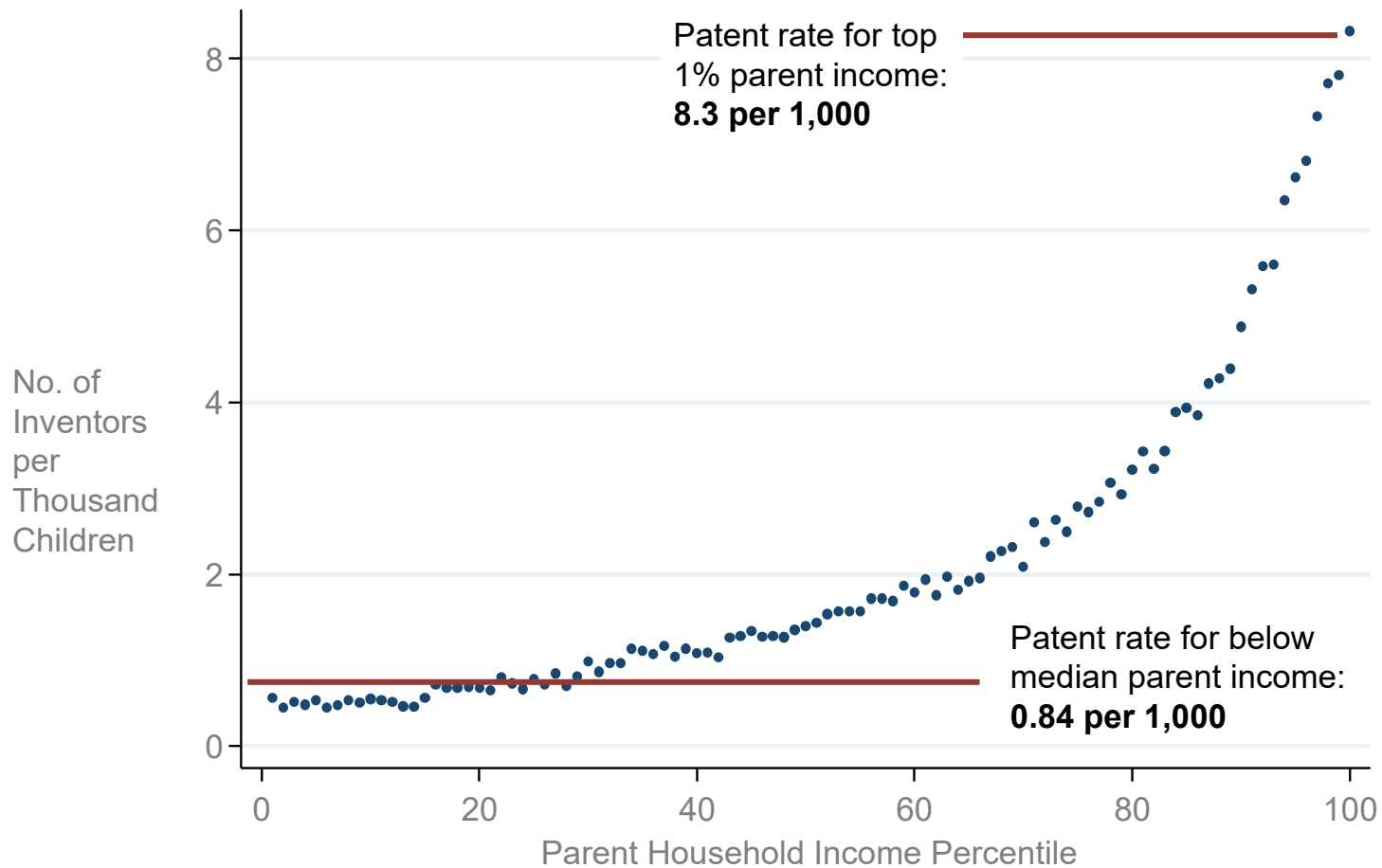
Patent Rates vs. Parent Income



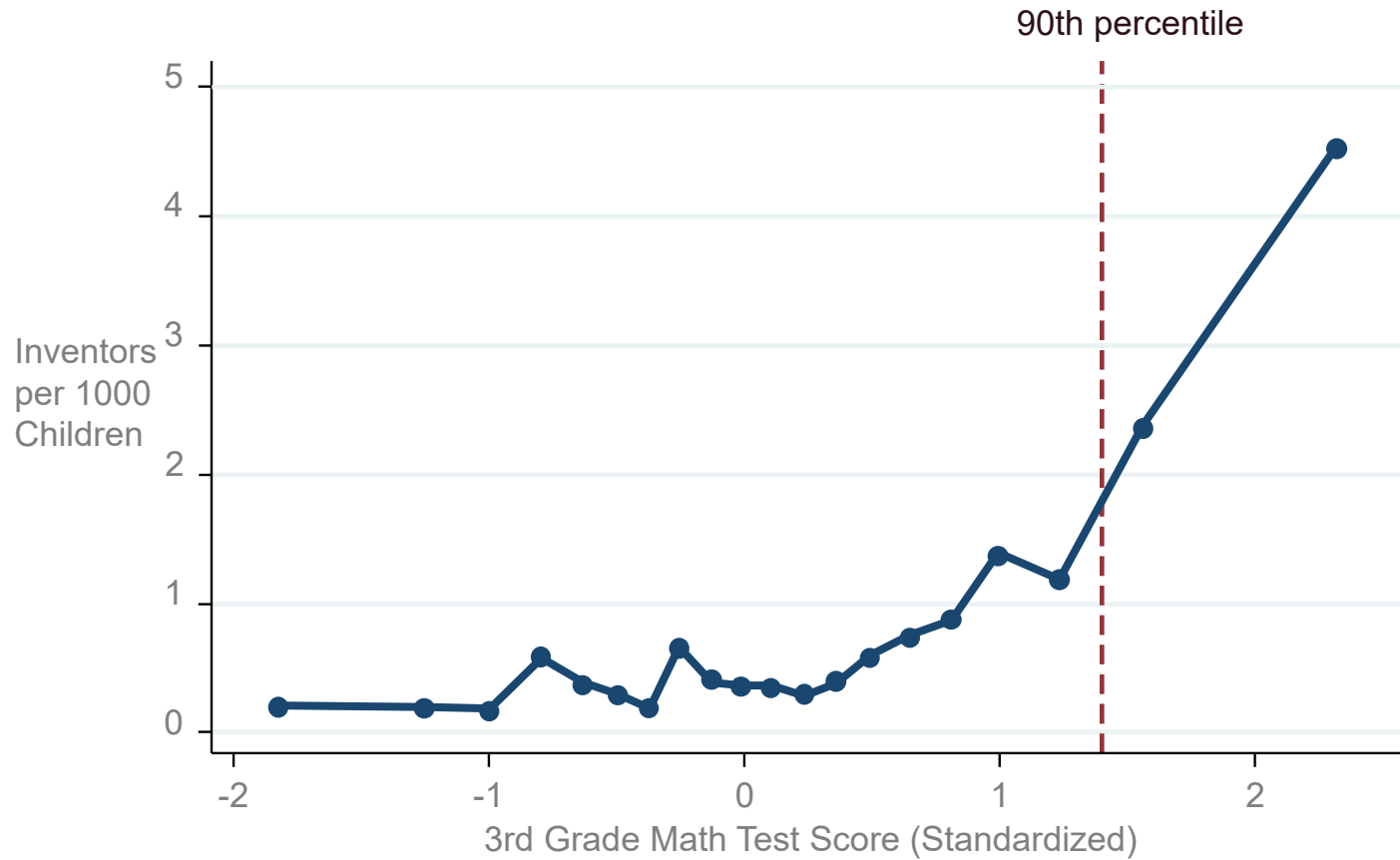
Patent Rates vs. Parent Income



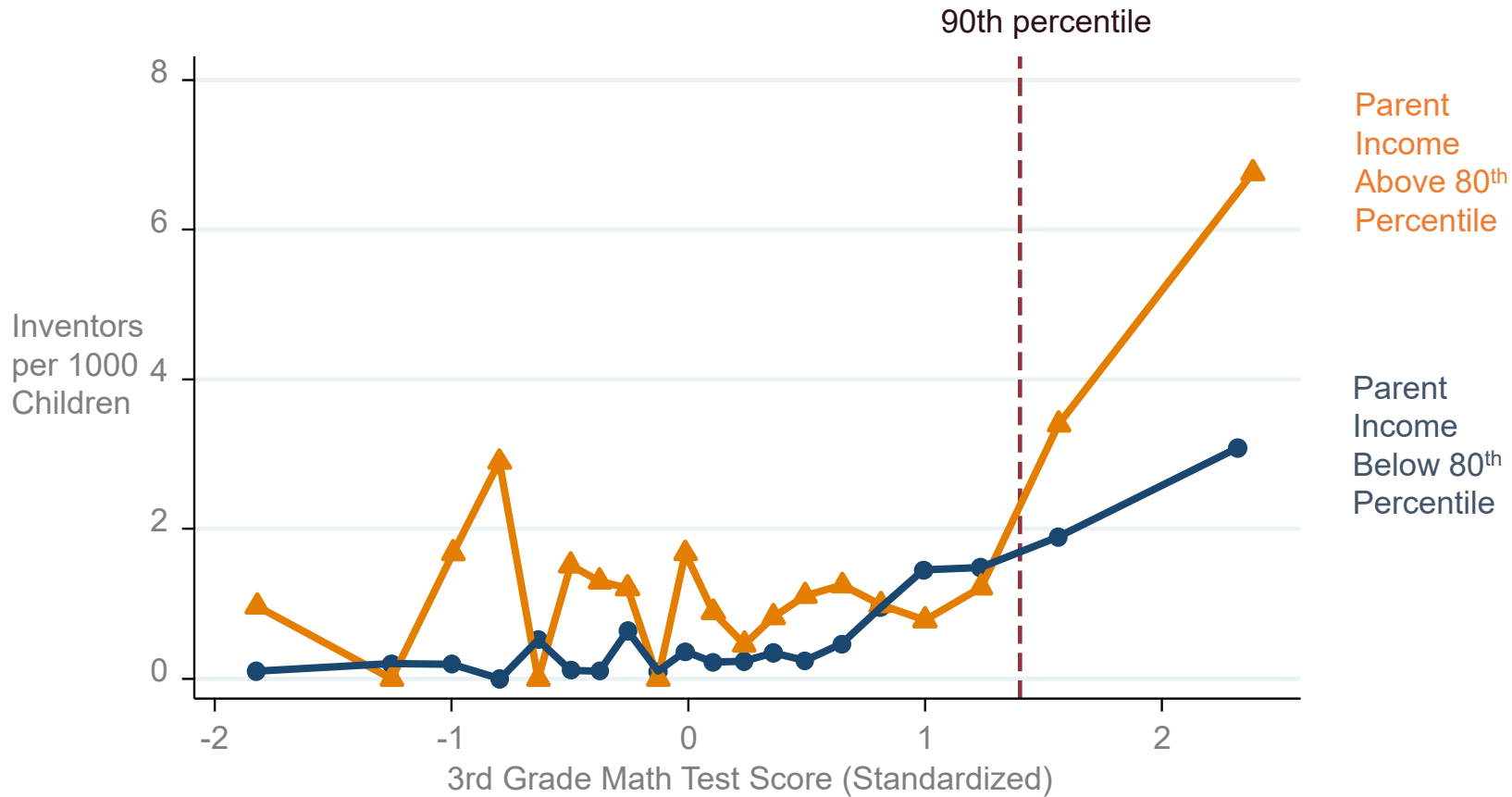
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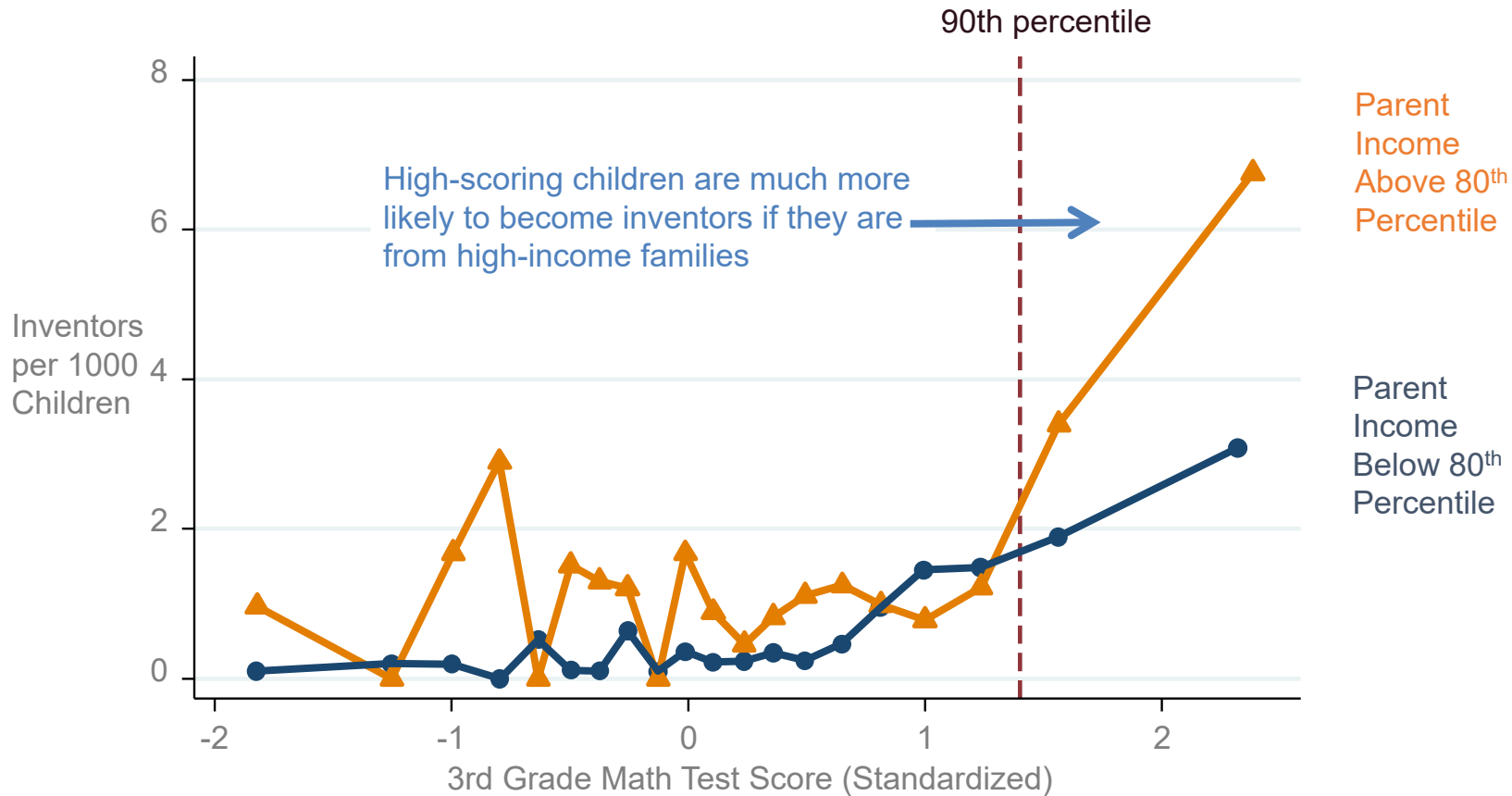
Patent Rates vs. 3rd Grade Math Test Scores



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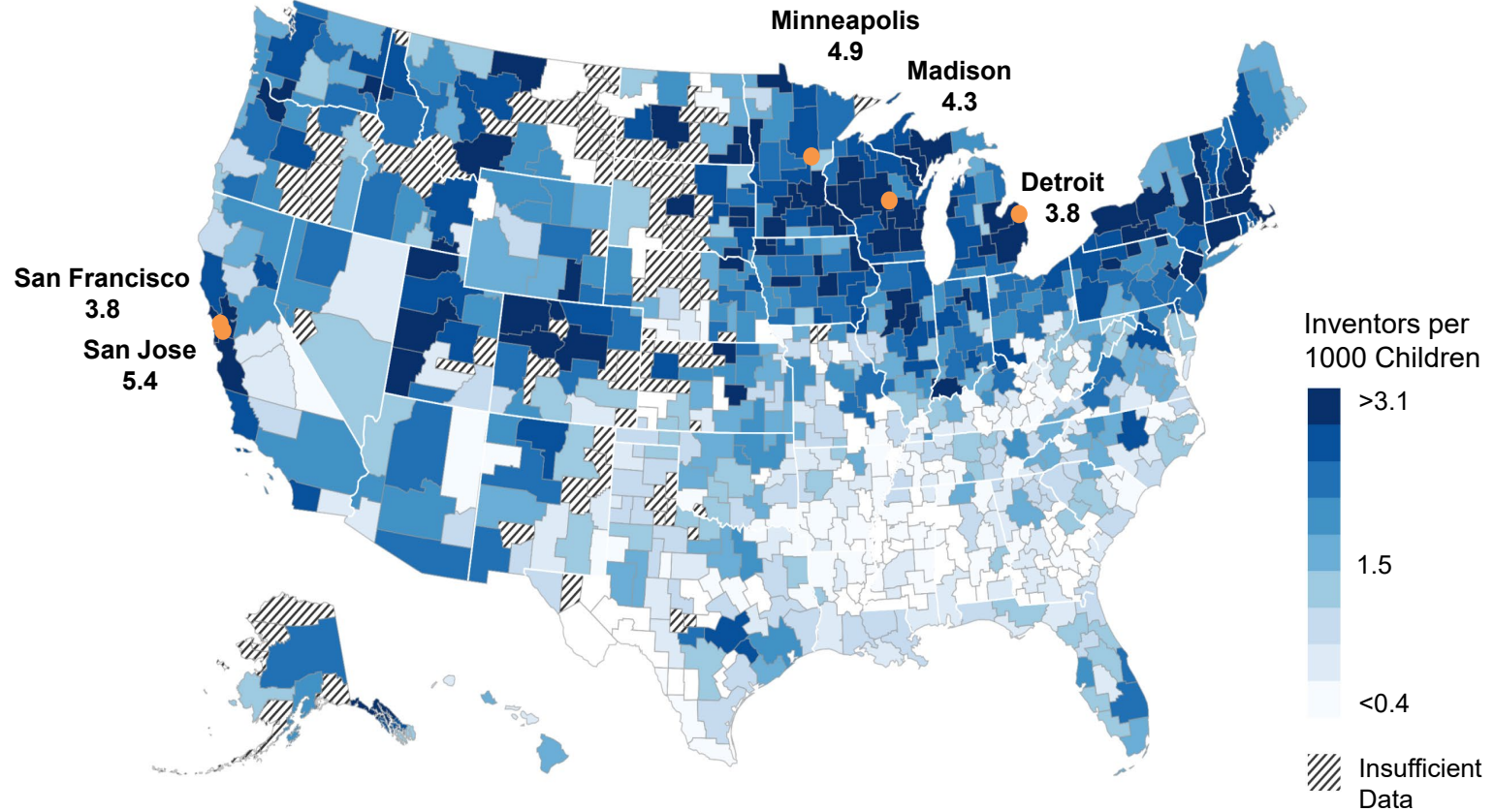


Patent Rates vs. 3rd Grade Math Test Scores



The Origins of Inventors in America

Patent Rates by Childhood Commuting Zone



Lost Einsteins



If women, minorities, and children from low-income families invent at the same rate as high-income white men, **the innovation rate in America would quadruple**

The Fading American Dream

Percent of Children Earning More than Their Parents, by Year of Birth

