

Centre for Economic Performance Lionel Robbins Memorial Lectures

# The Geography of Intergenerational Mobility

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EVENTS

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THE LONDON SCHOOL  
OF ECONOMICS AND  
POLITICAL SCIENCE

# Improving Equality of Opportunity New Lessons from Big Data

## Lecture 1: The Geography of Intergenerational Mobility

Raj Chetty

Stanford University

Photo Credit: Florida Atlantic University

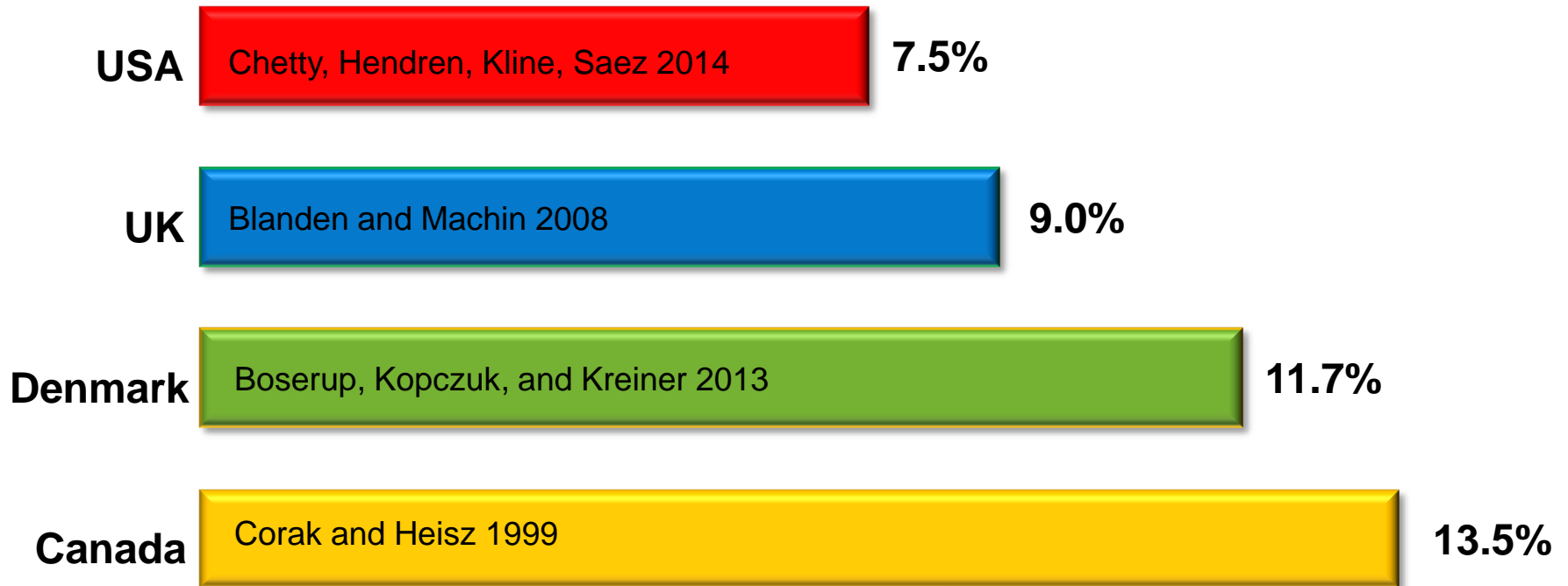


# The American Dream?

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

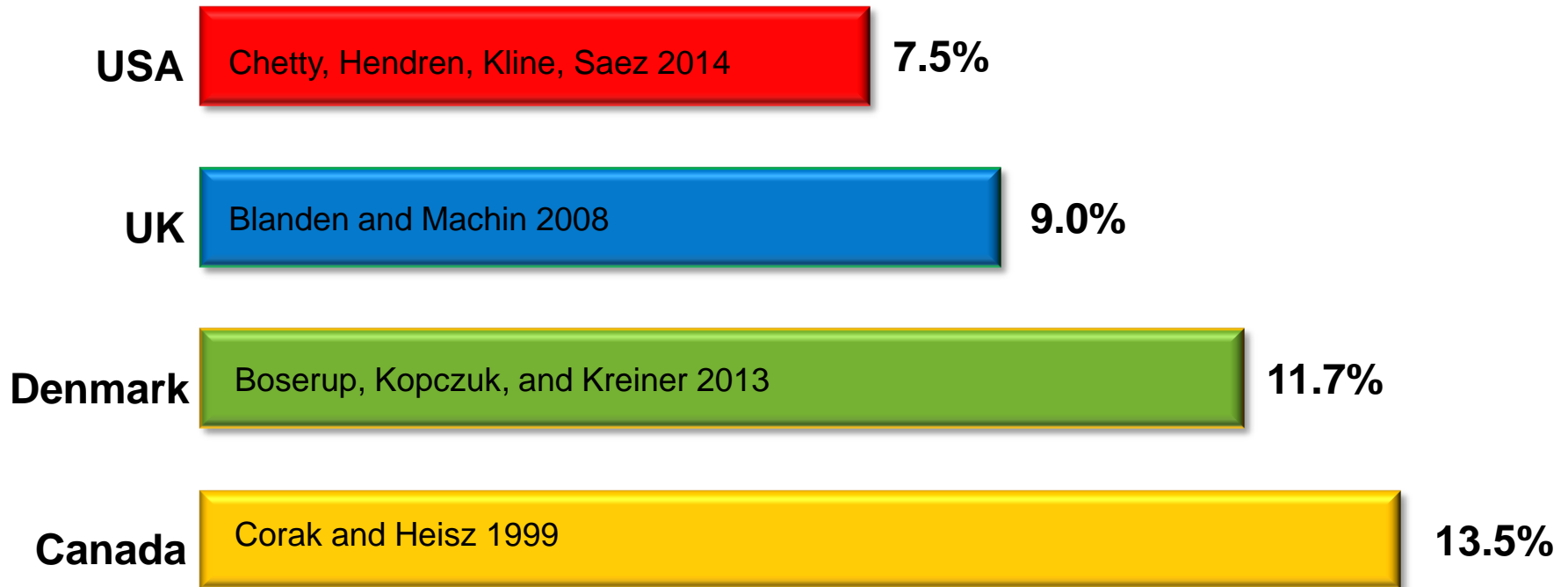
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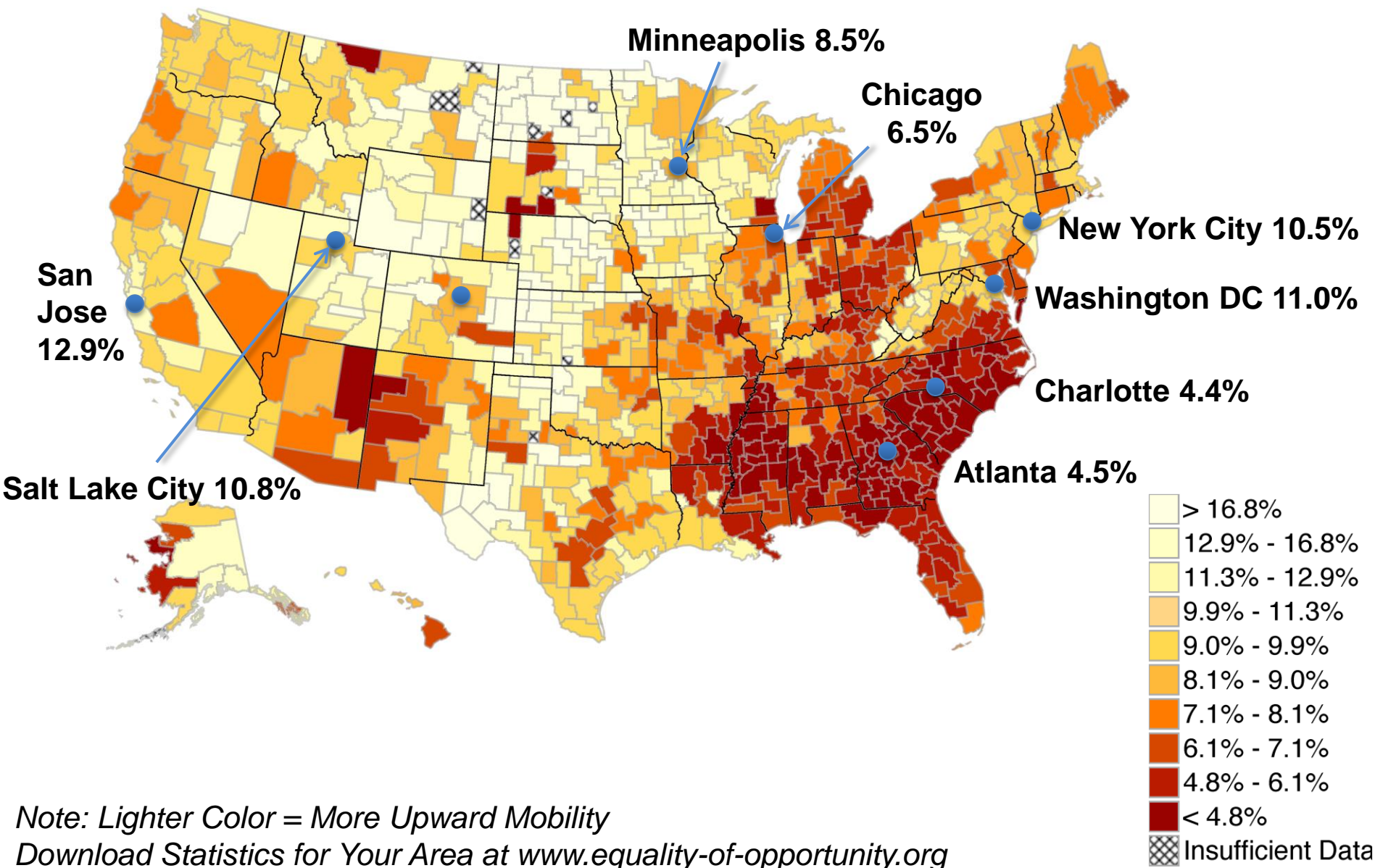
→ Chances of achieving the “American Dream” are almost two times higher in Canada than in the U.S.

# Differences in Opportunity Across Local Areas

- Differences across countries have been the focus of policy discussion
- But upward mobility varies even more *within* the U.S.
- We calculate upward mobility for every metro and rural area in the U.S.
  - Use de-identified tax records on 10 million children born between 1980-1982
  - Classify children based on where they grew up, and track them no matter where they live as adults

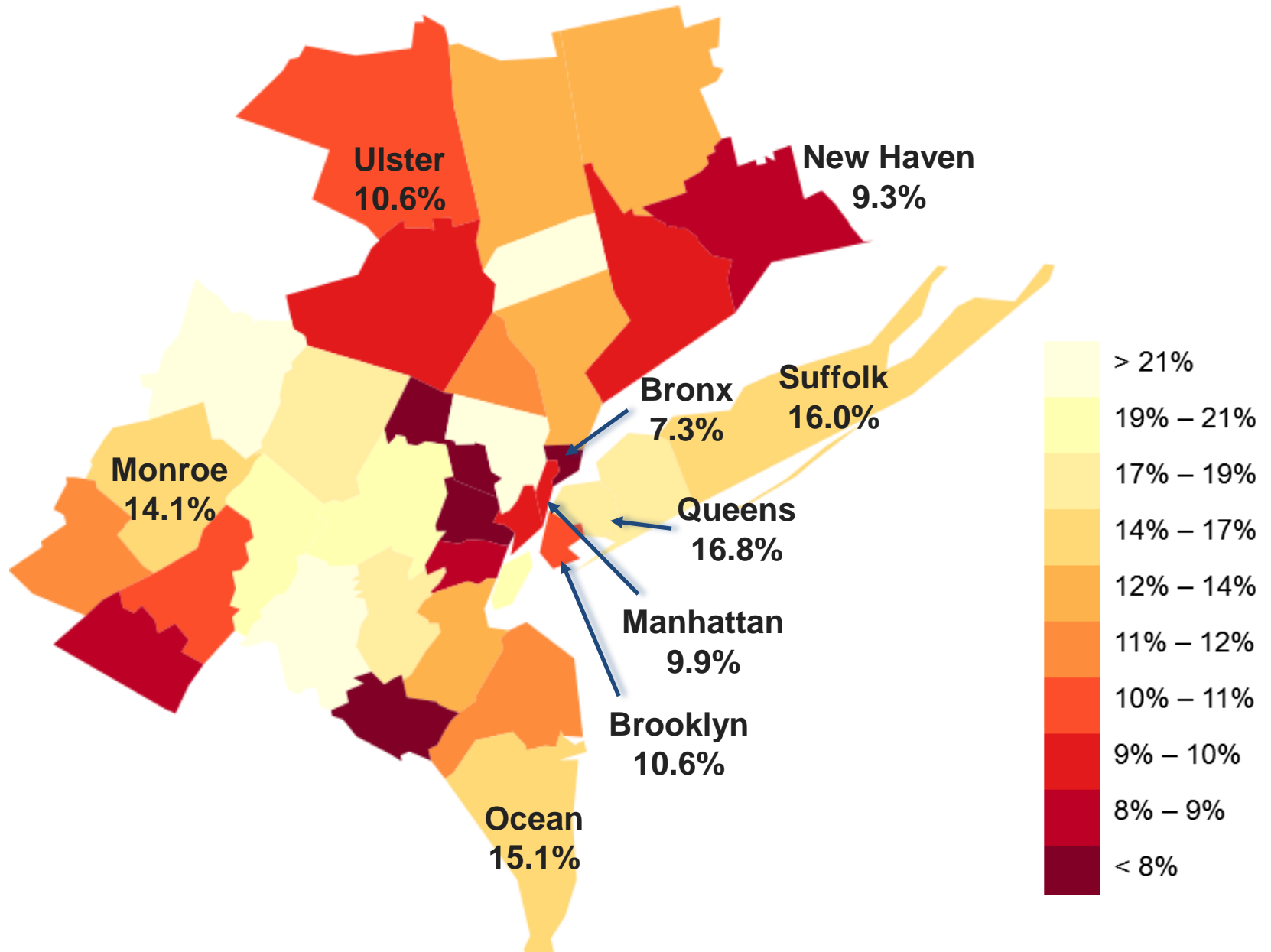
# The Geography of Upward Mobility in the United States

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



# The Geography of Upward Mobility in the New York Area

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





# Lionel Robbins Lectures: Three Questions

- Lecture 1: Why do rates of mobility vary so much across areas?
- Lecture 2: What policy changes can improve upward mobility?
- Lecture 3: How does social mobility affect economic growth?

# Lecture 1 Outline

1. Measuring Intergenerational Mobility
2. Geographical Variation: Causal Effects of Place or Sorting?
3. Characteristics of Low vs. High Mobility Areas

- Lecture 1 is based primarily on two papers:

Chetty, Hendren, Kline, Saez. “Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the U.S.” QJE 2014

Chetty and Hendren. “The Effects of Neighborhoods on Children’s Long-Term Outcomes: Childhood Exposure Effects” 2016a, b

# Part 1

## Measuring Intergenerational Mobility

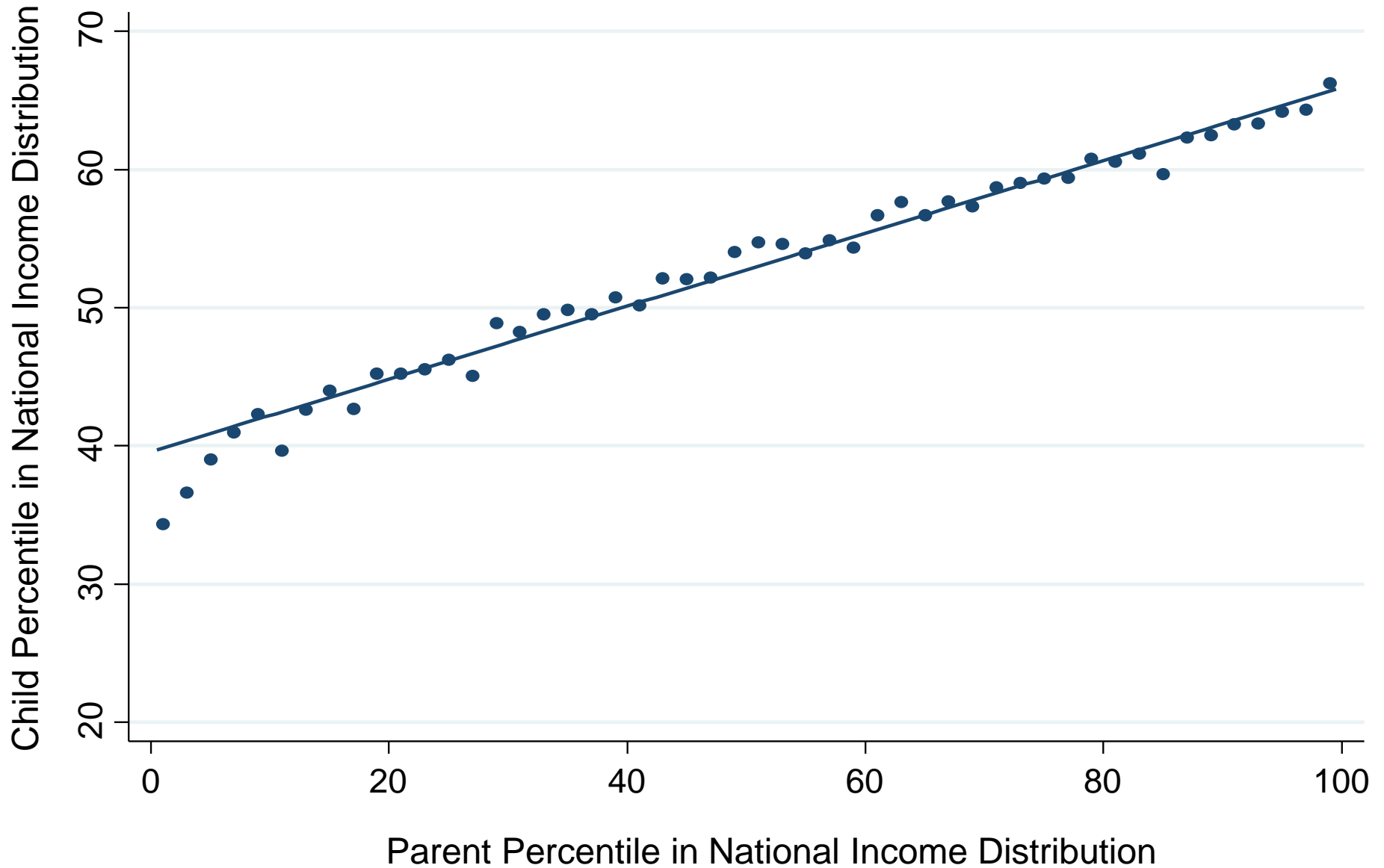
# Measuring Intergenerational Mobility

- We began with a simple measure: probability of reaching top fifth of distribution starting from bottom fifth
  - Easy to interpret, but uses only a small fraction of data
- More general measure: average percentile rank of child conditional on parent rank
  - Turns out to have very convenient statistical properties

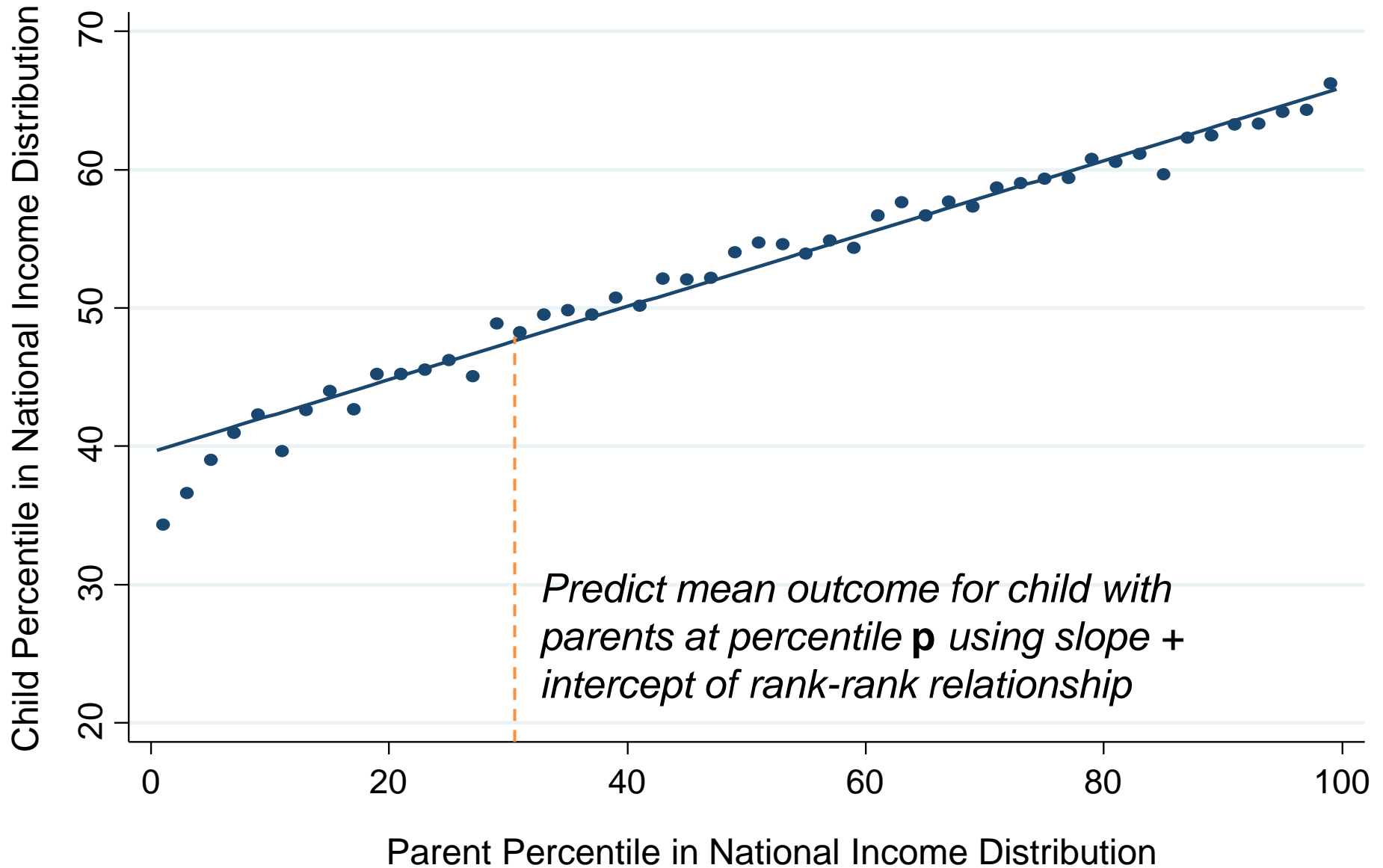
# Measuring Intergenerational Mobility

- Rank children relative to others in the same birth cohort
- Rank parents relative to other parents
- Use ranks in *national* income distribution, not local distribution

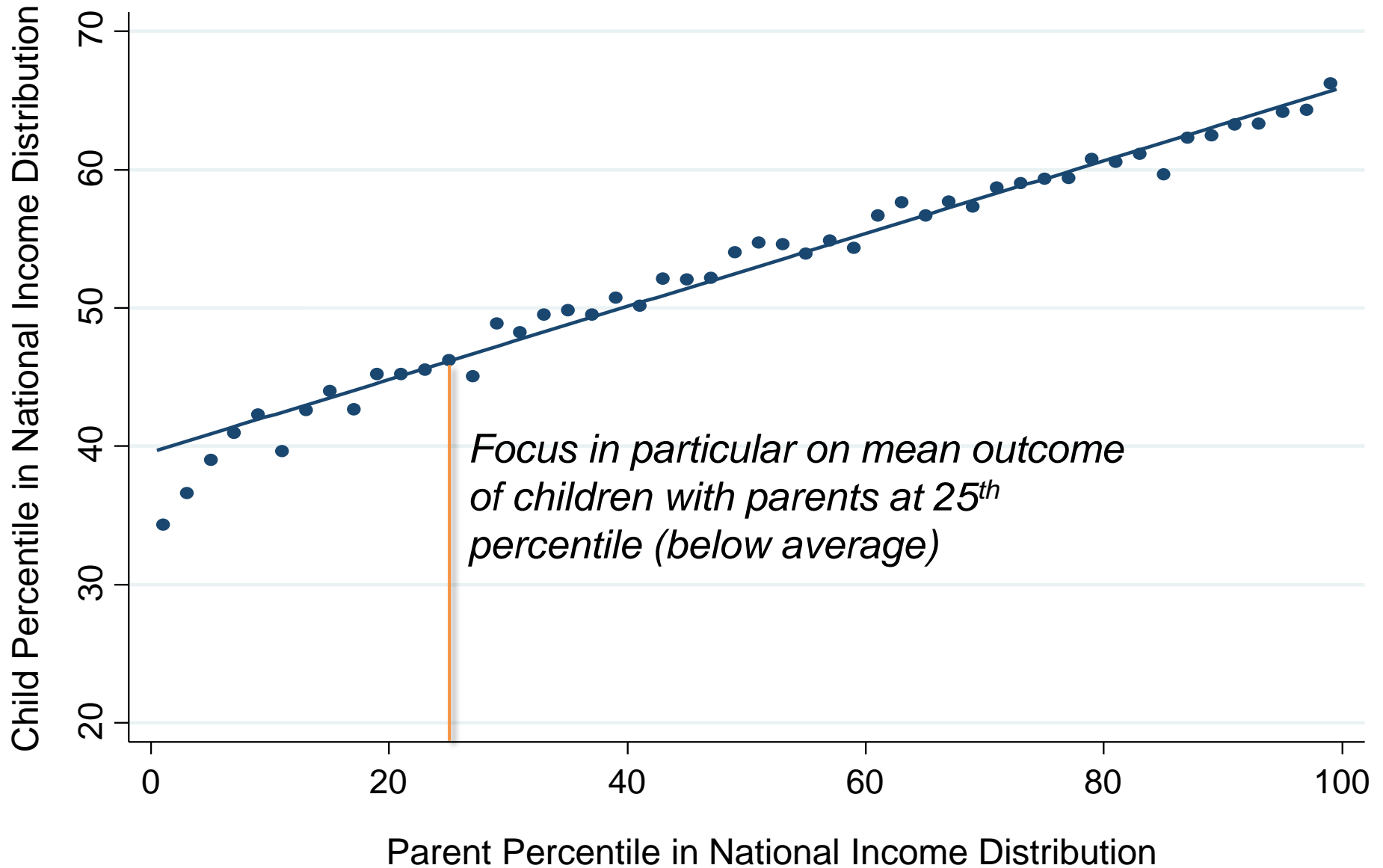
## Intergenerational Mobility in Salt Lake City



# Intergenerational Mobility in Salt Lake City

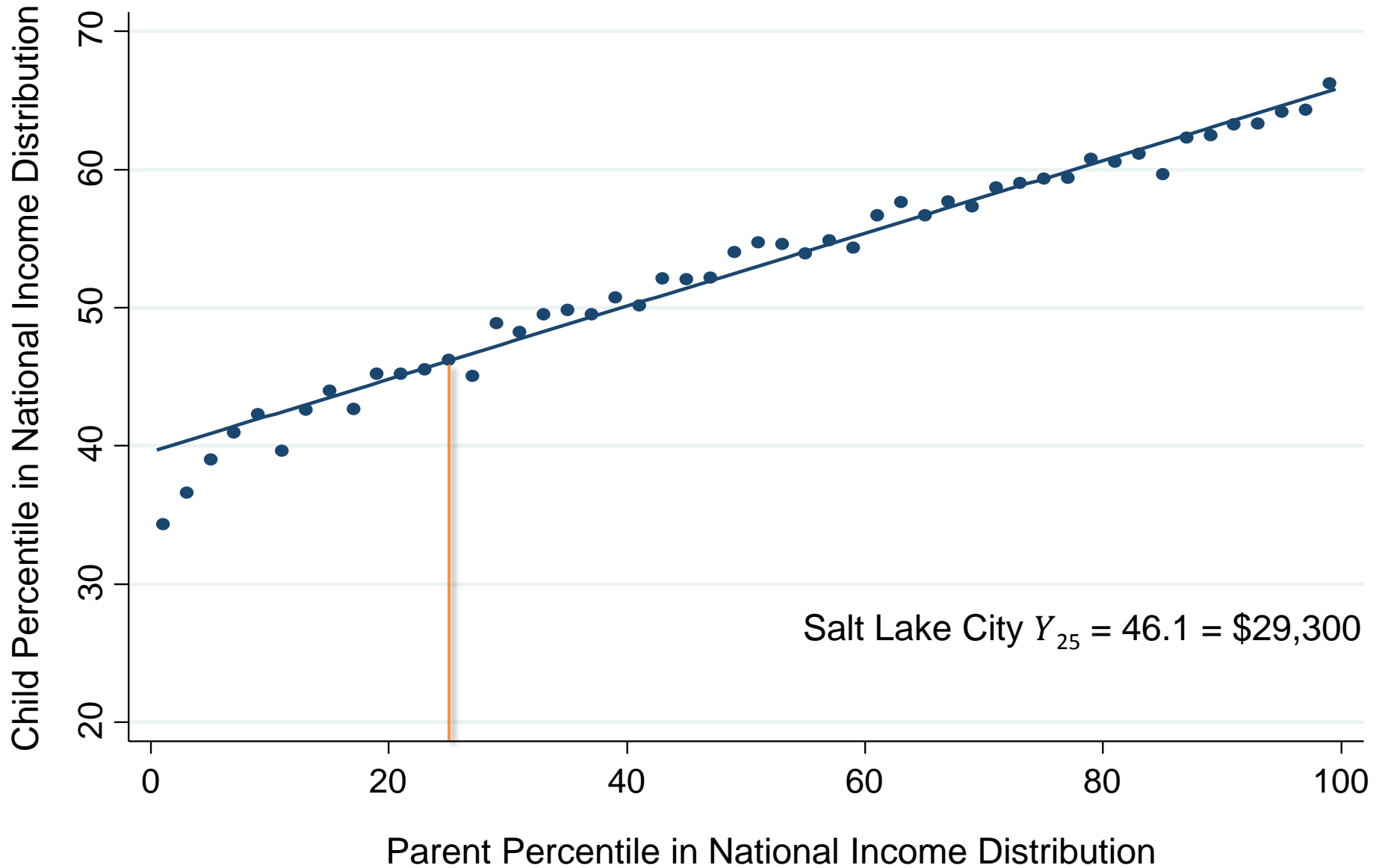


## Intergenerational Mobility in Salt Lake City

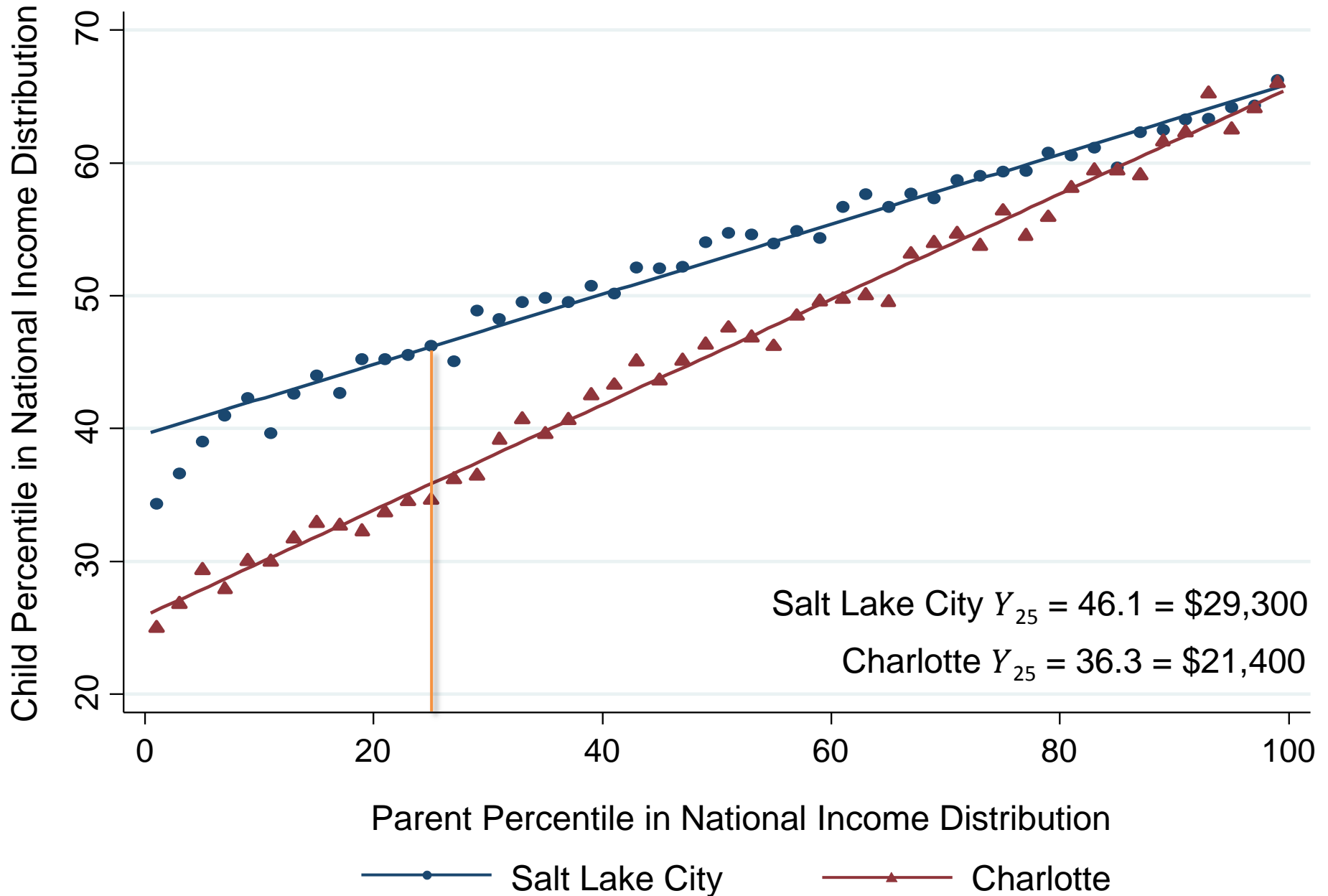




## Intergenerational Mobility in Salt Lake City

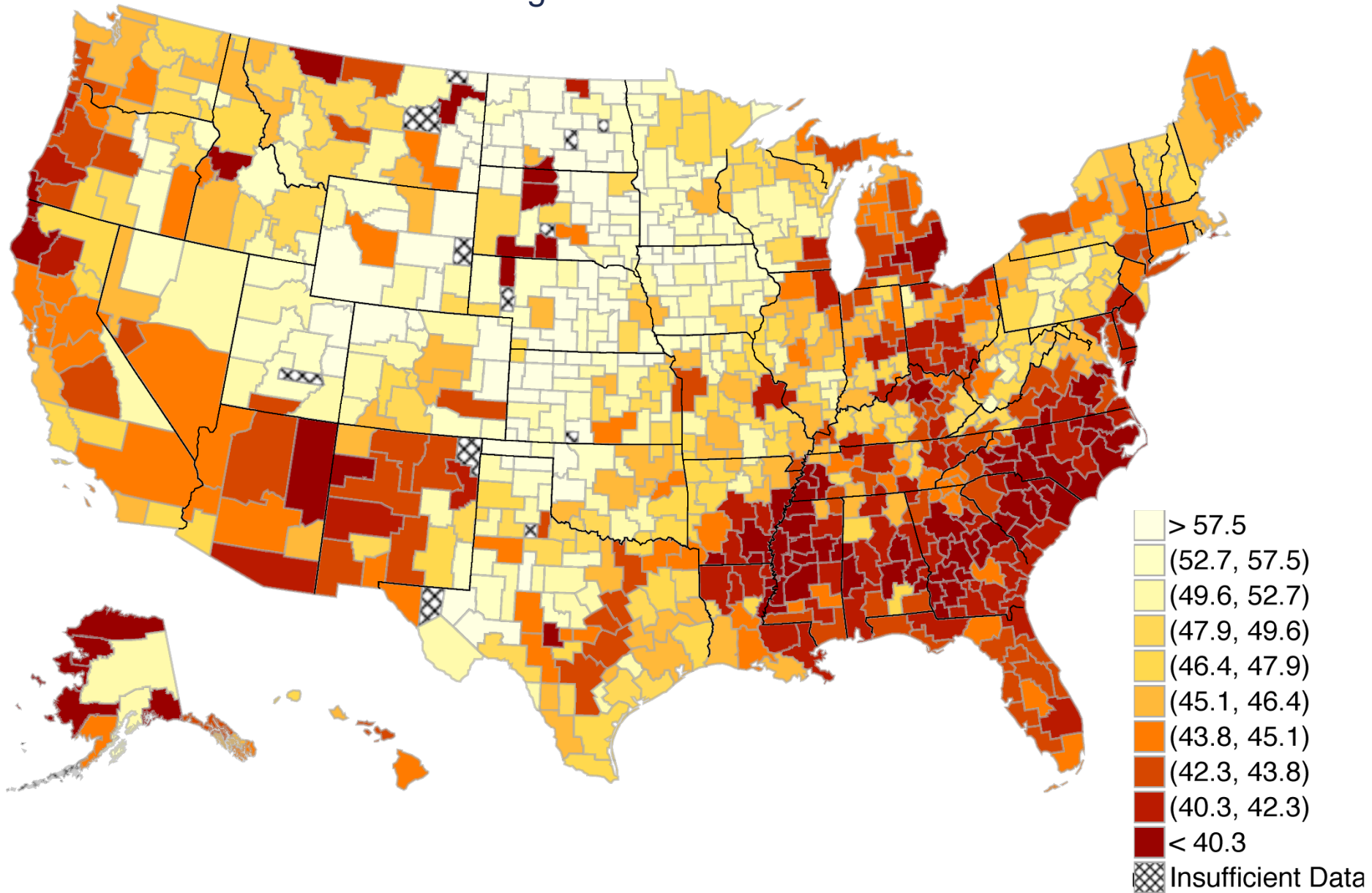


# Intergenerational Mobility in Salt Lake City vs. Charlotte



# The Geography of Intergenerational Mobility in the United States

Predicted Income Rank at Age 26 for Children with Parents at 25<sup>th</sup> Percentile



## Part 2

# Identifying Causal Effects of Neighborhoods

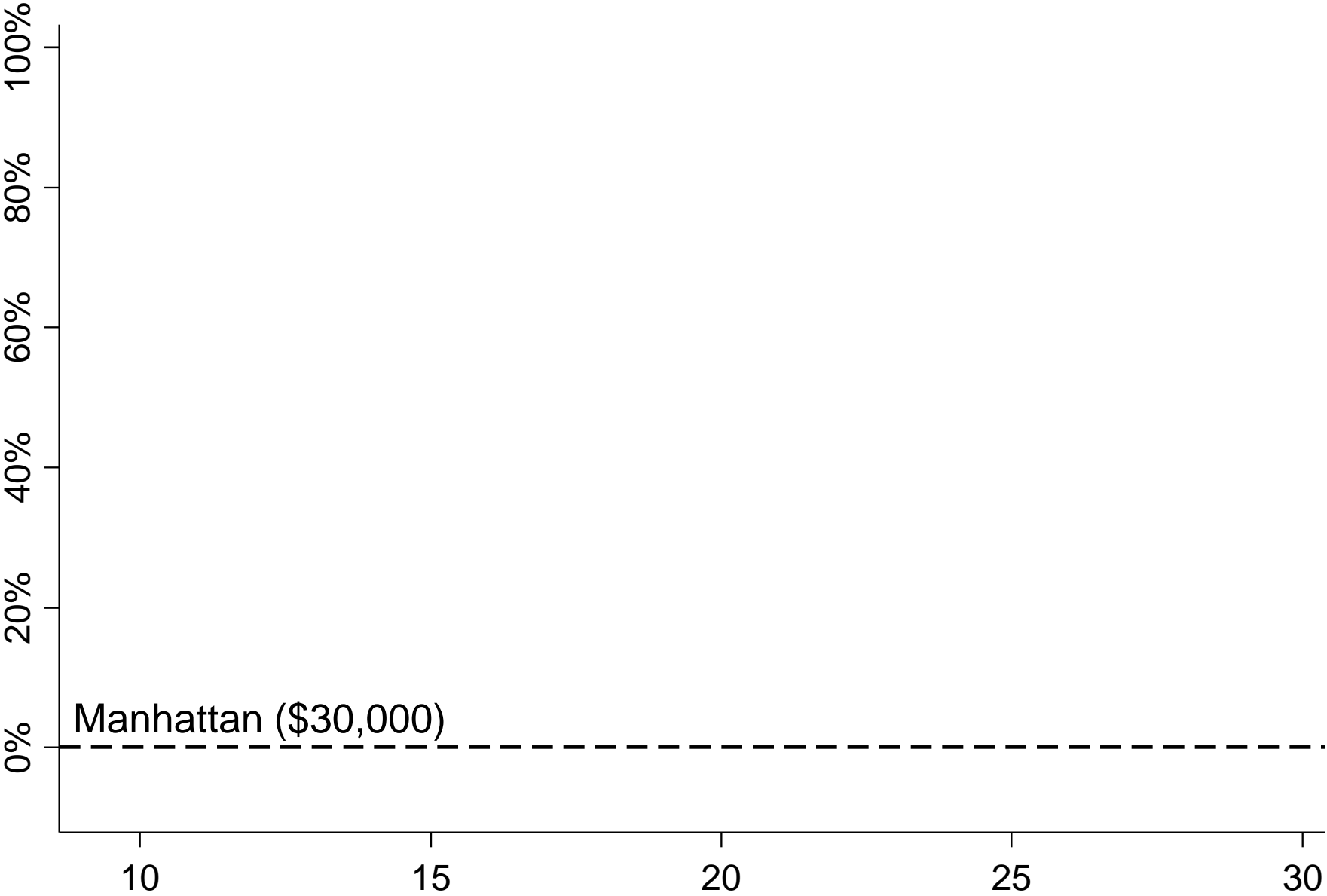
# Causal Effects of Place vs. Sorting

- Two very different explanations for variation in children's outcomes across areas:
  1. Heterogeneity: different people live in different places
  2. Neighborhood effects: places have a *causal* effect on upward mobility for a given person

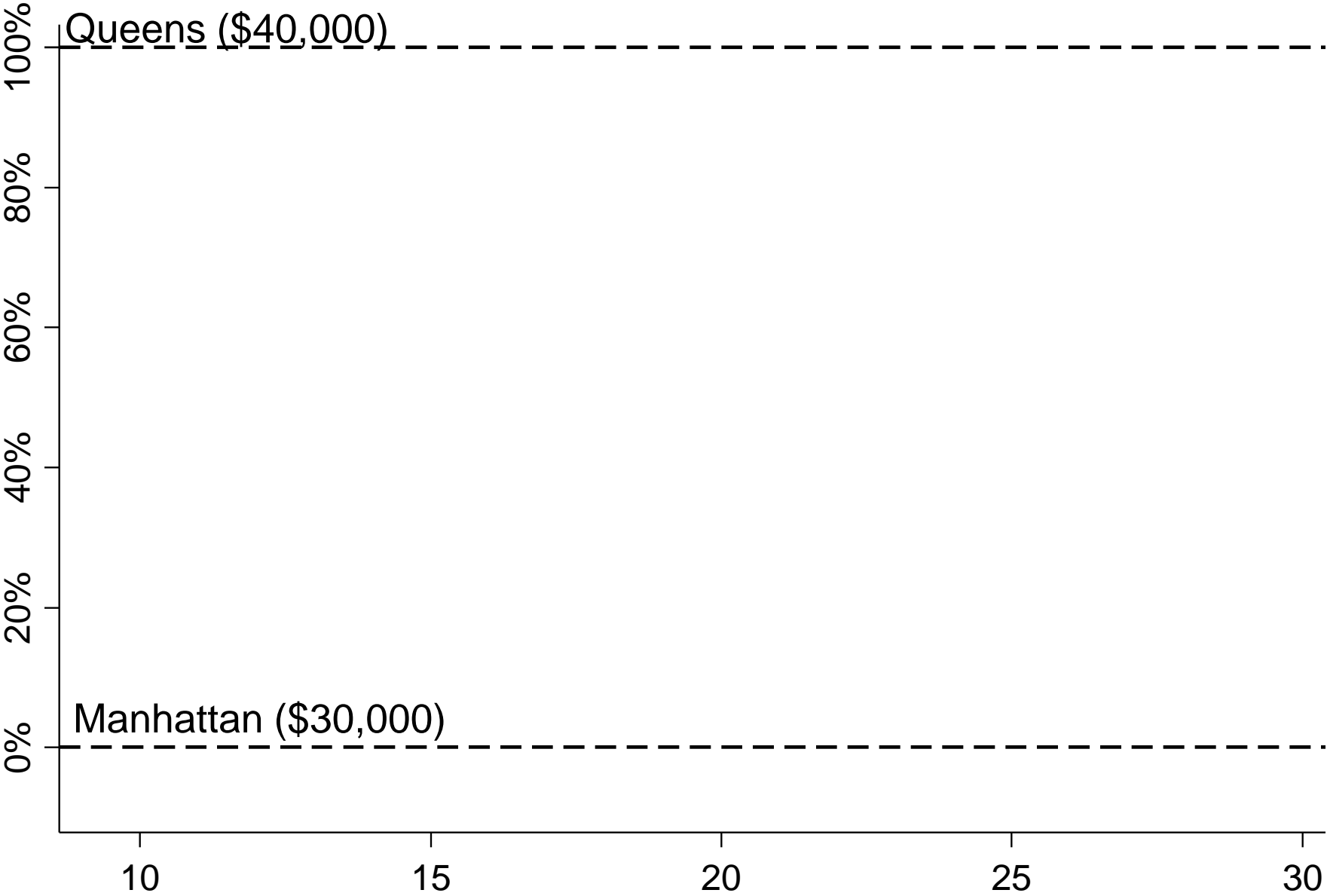
# Identifying Causal Effects of Place

- Ideal experiment: randomly assign children to neighborhoods and compare outcomes in adulthood
- We approximate this experiment using a quasi-experimental design [Chetty and Hendren 2016]
  - Study 7 million families who move across areas in observational data
  - Key idea: exploit variation in *age of child* when family moves to identify causal effects of environment

# Earnings Gain from Moving to a Better Neighborhood

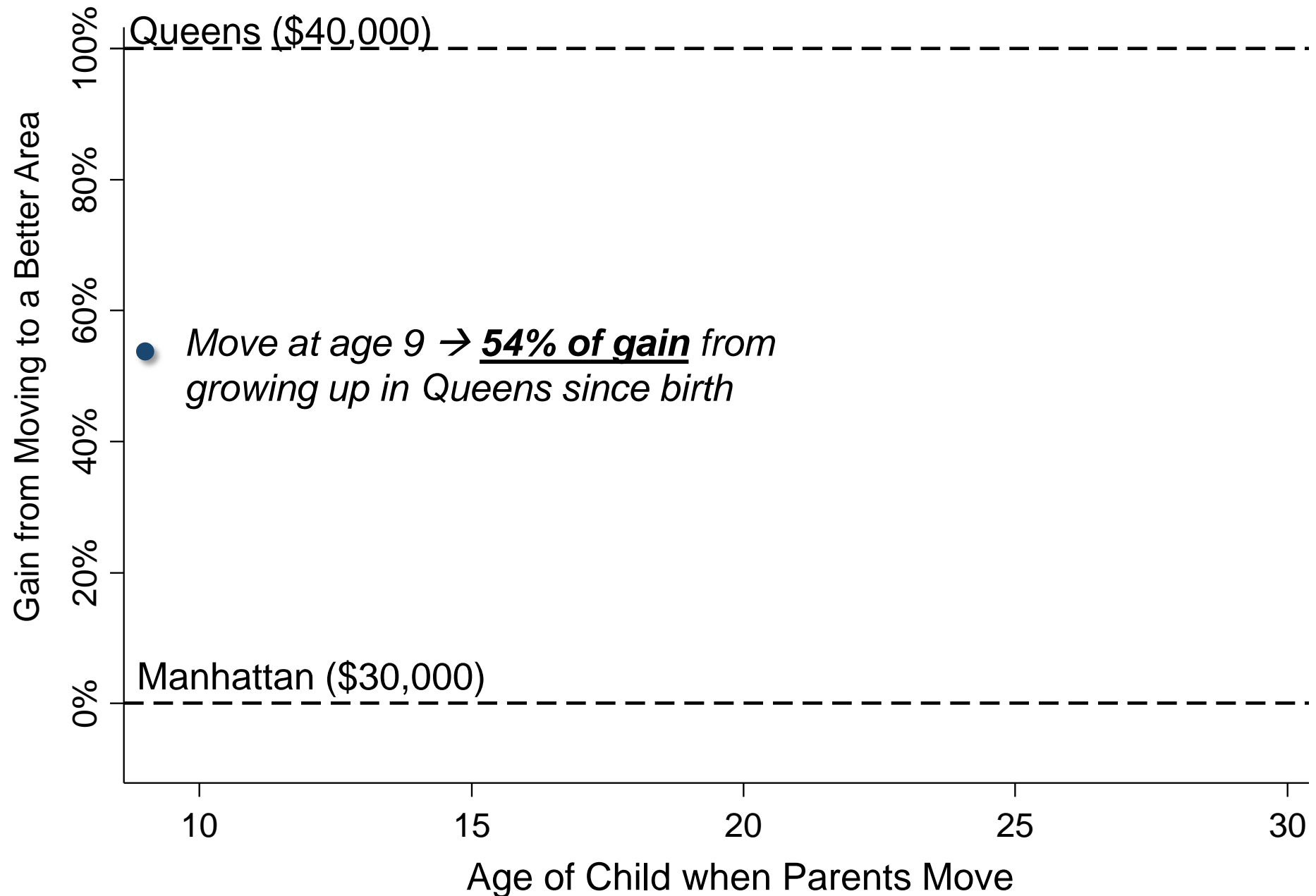


# Earnings Gain from Moving to a Better Neighborhood

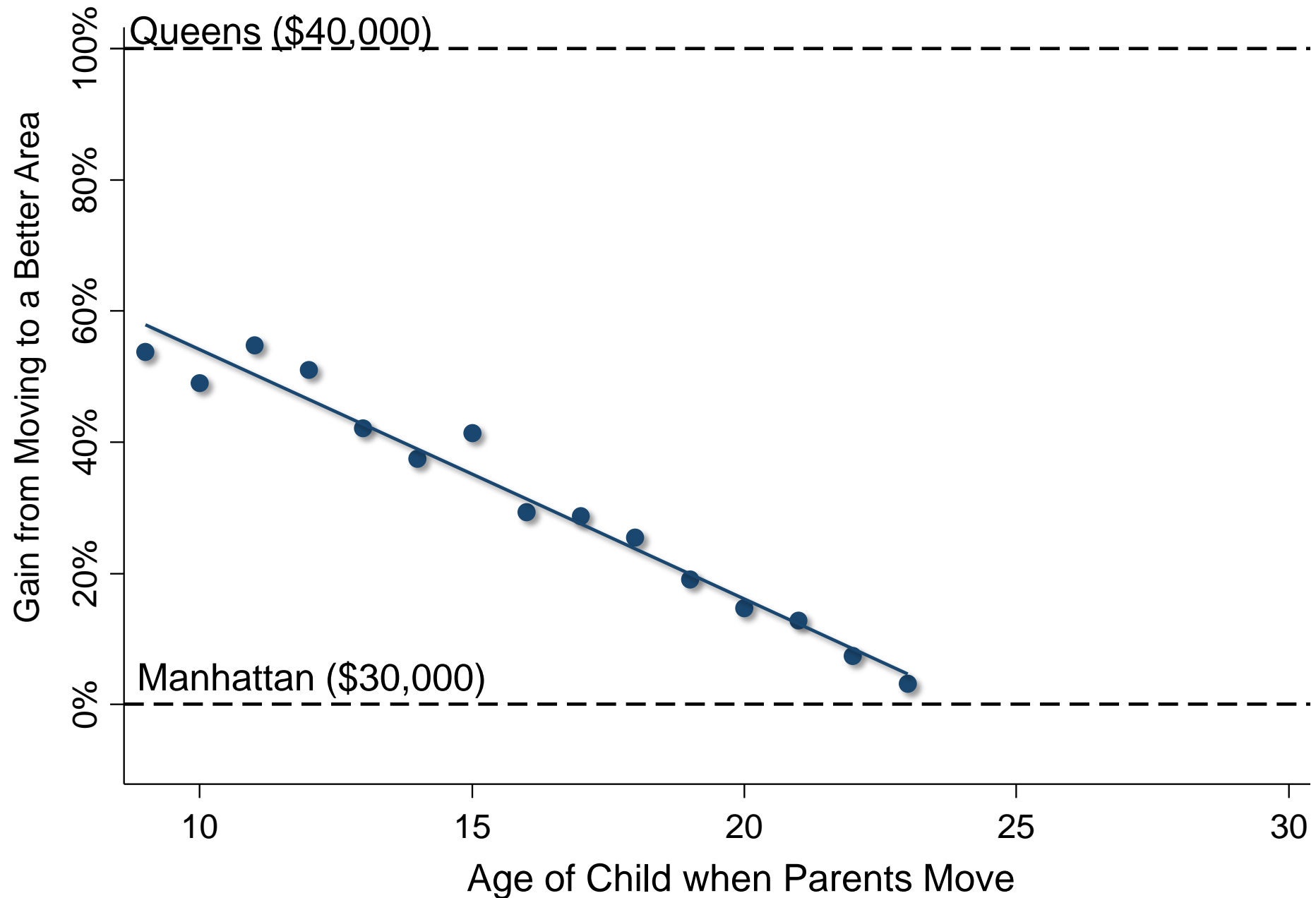




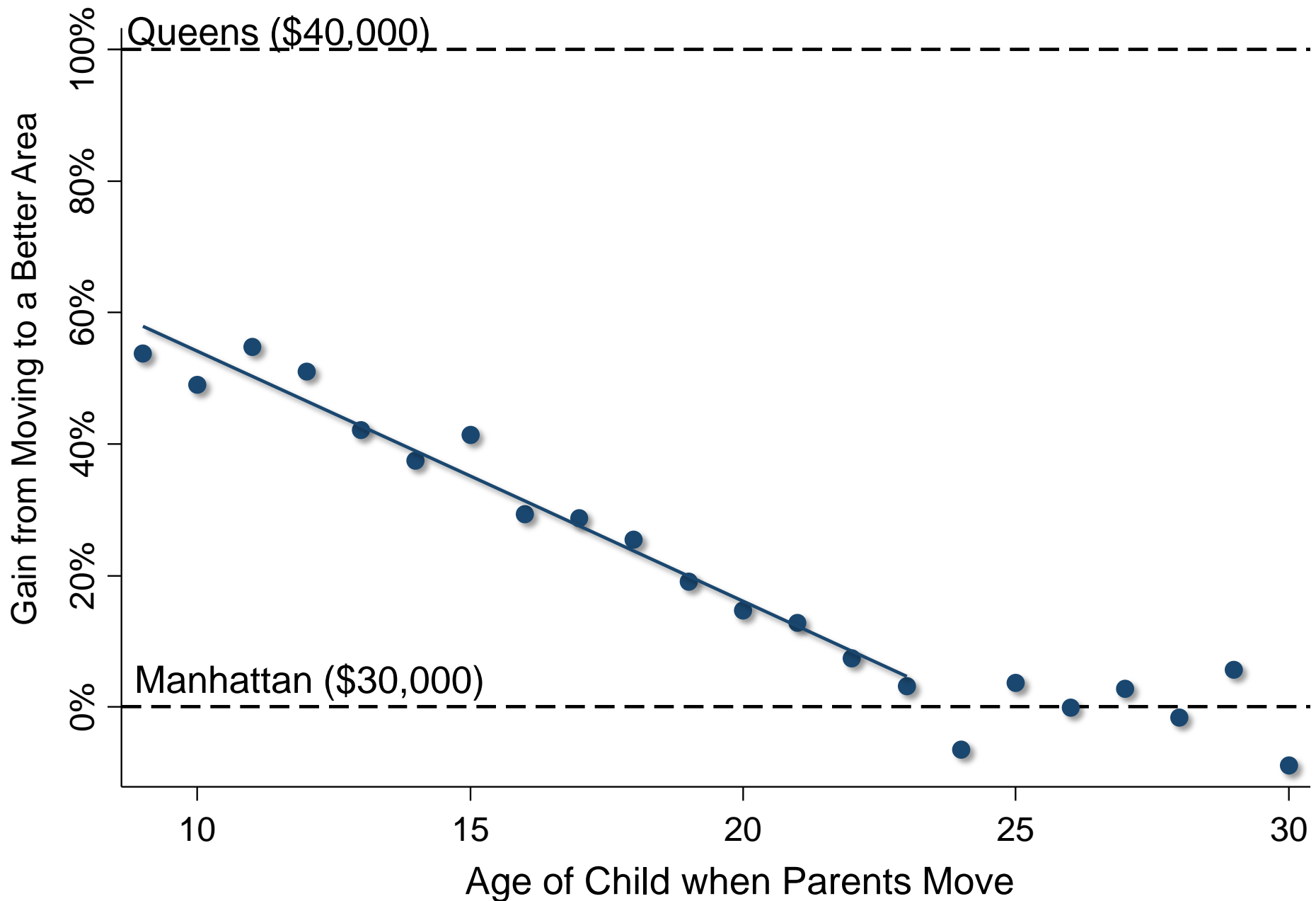
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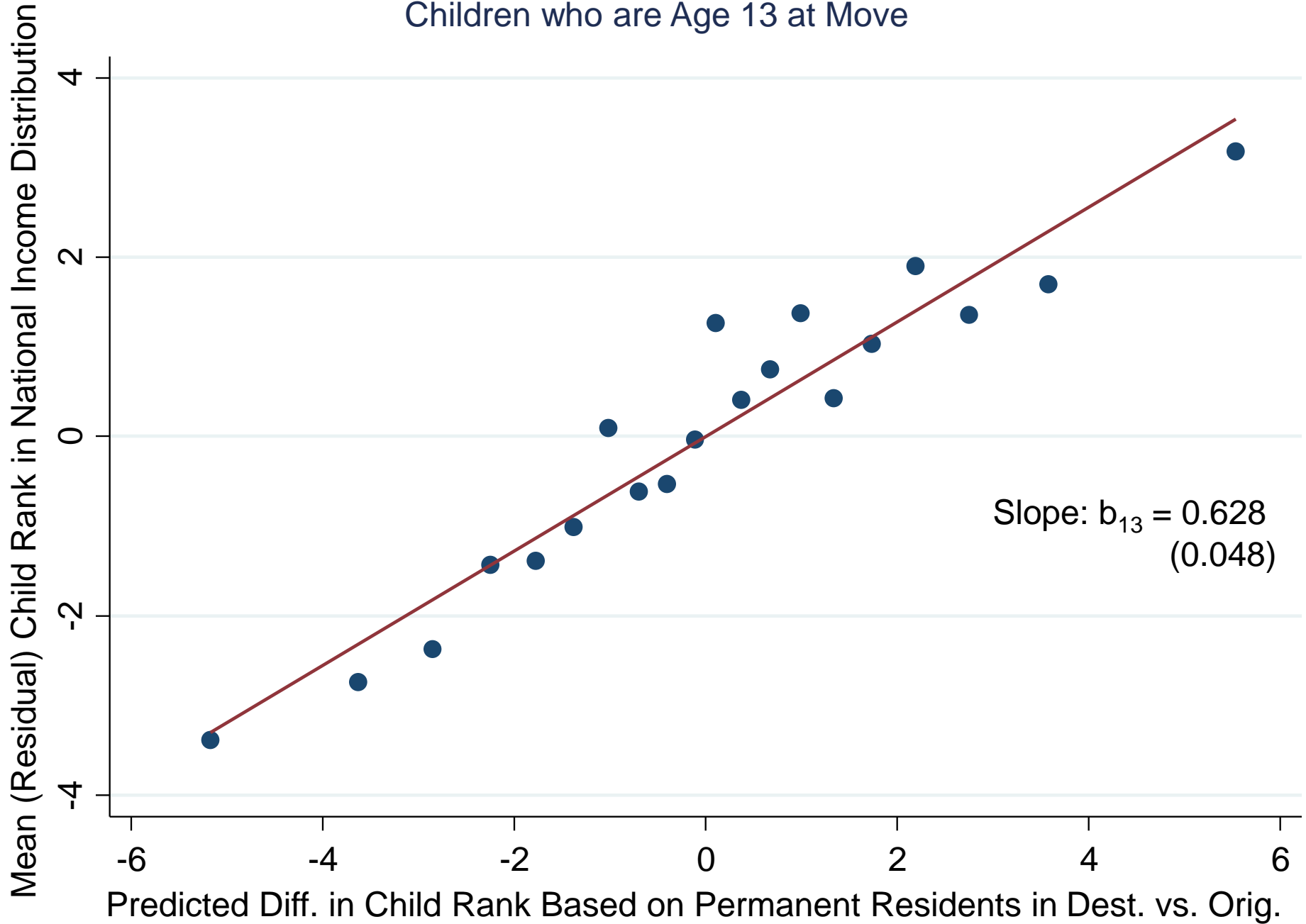


# Identifying Neighborhood Effects Using Movers

- Now present the econometric assumptions and methods underlying this result
- To begin, consider families who move with a child who is exactly 13 years old
- Compare earnings in adulthood (ages 24-30) of two children who start in the same city but move to different cities at age 13

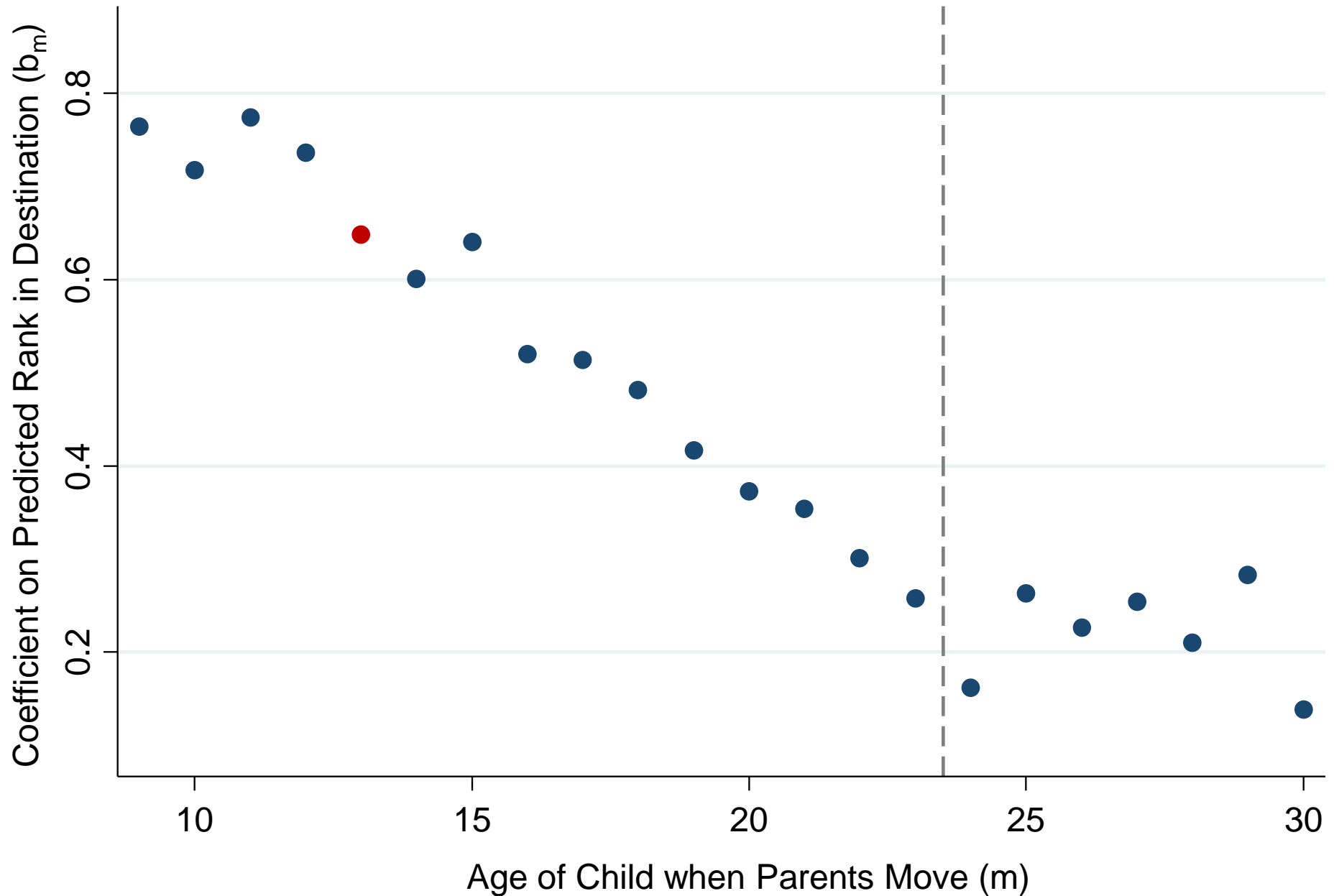
# Movers' Outcomes vs. Predicted Outcomes Based on Residents in Destination

Children who are Age 13 at Move



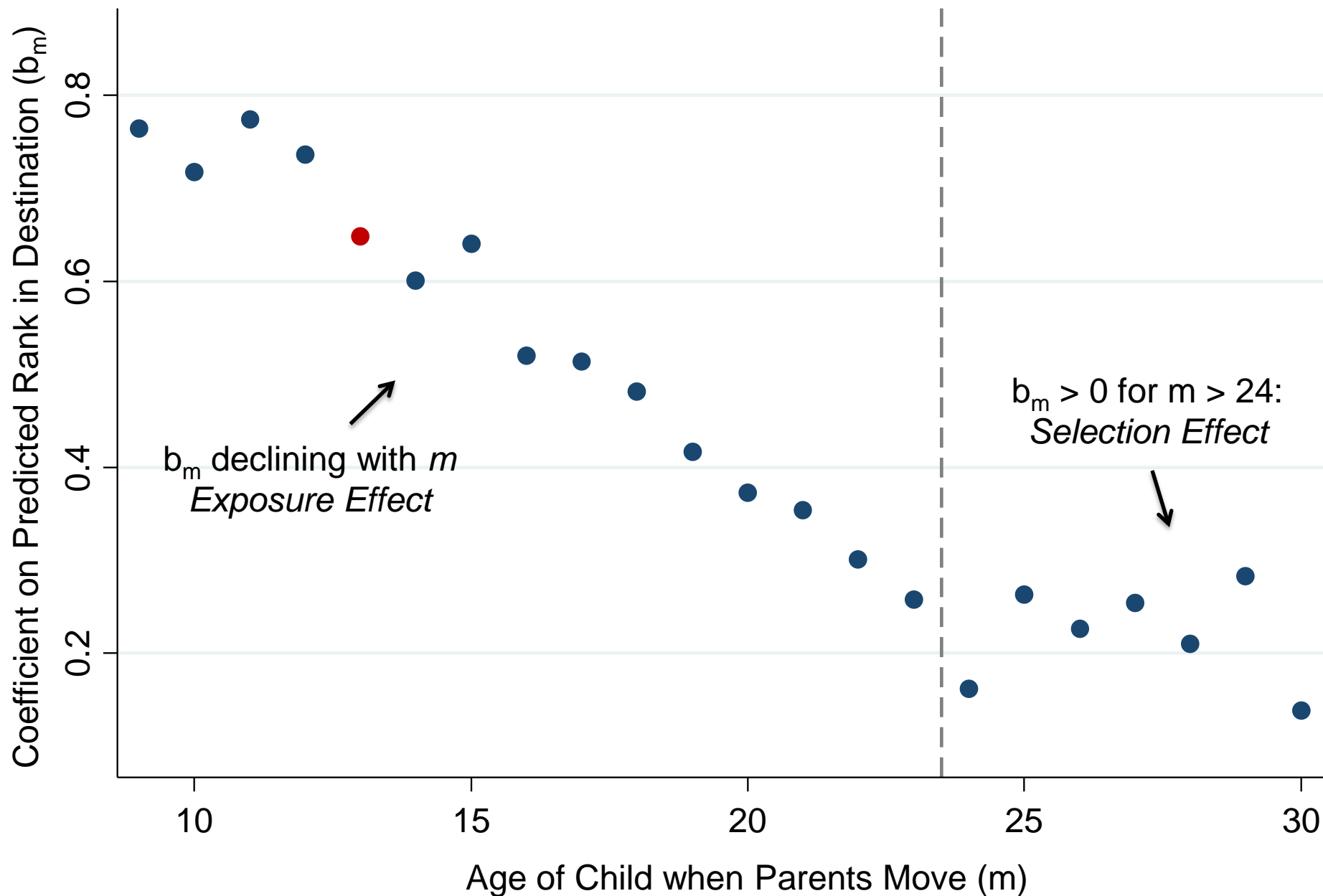
# Movers' Outcomes vs. Predicted Outcomes Based on Residents in Destination

By Child's Age at Move, Income Measured at Age = 24



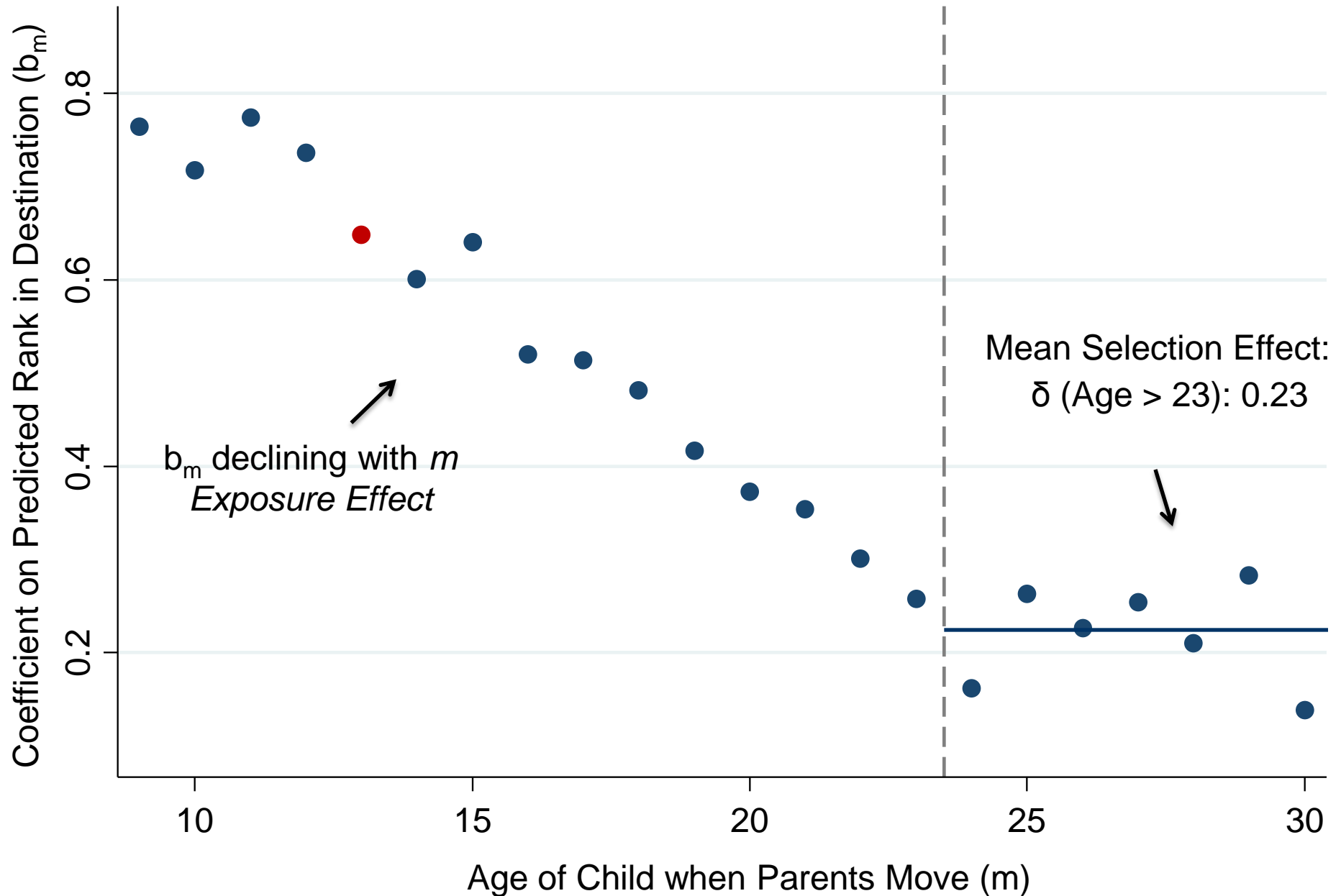
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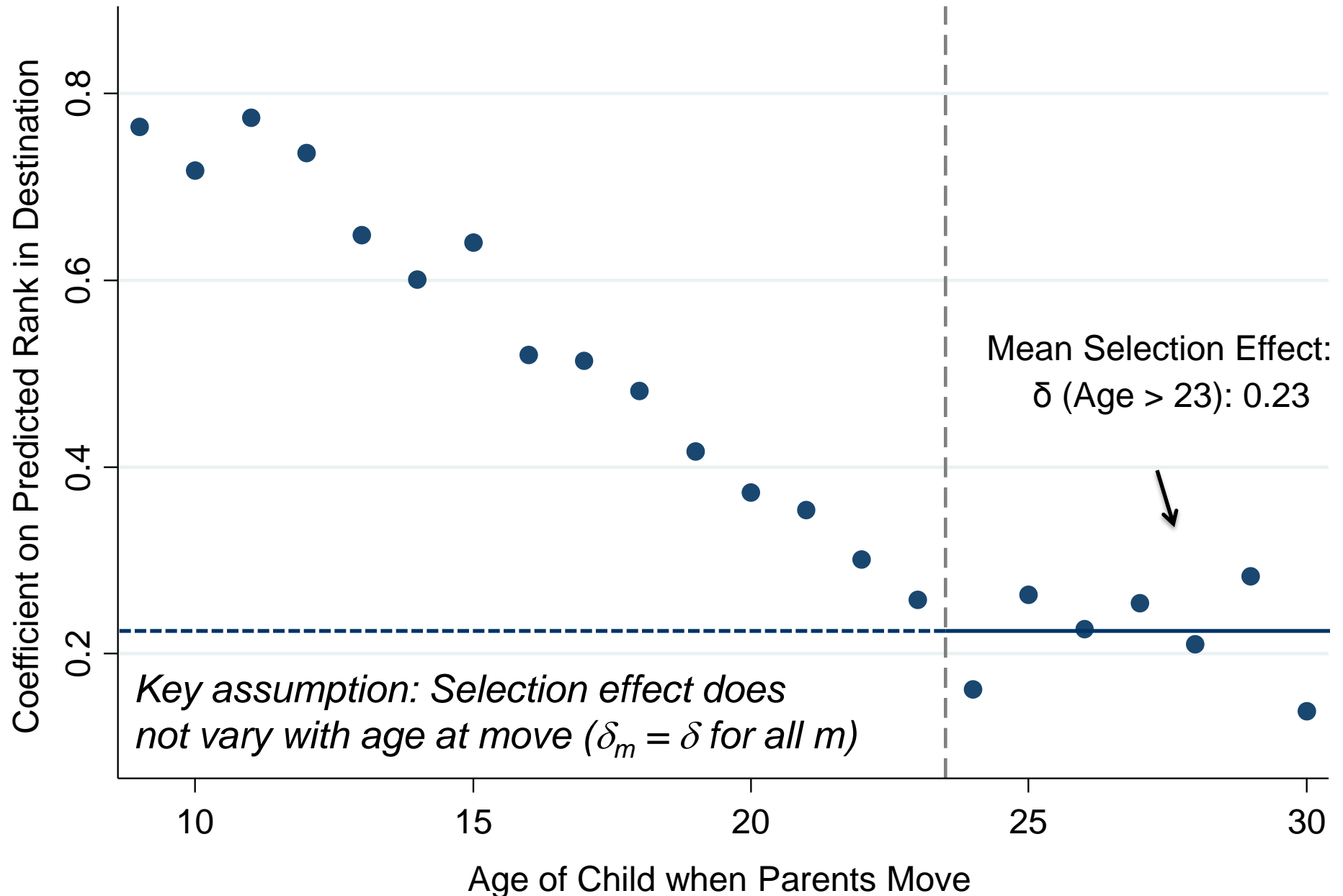
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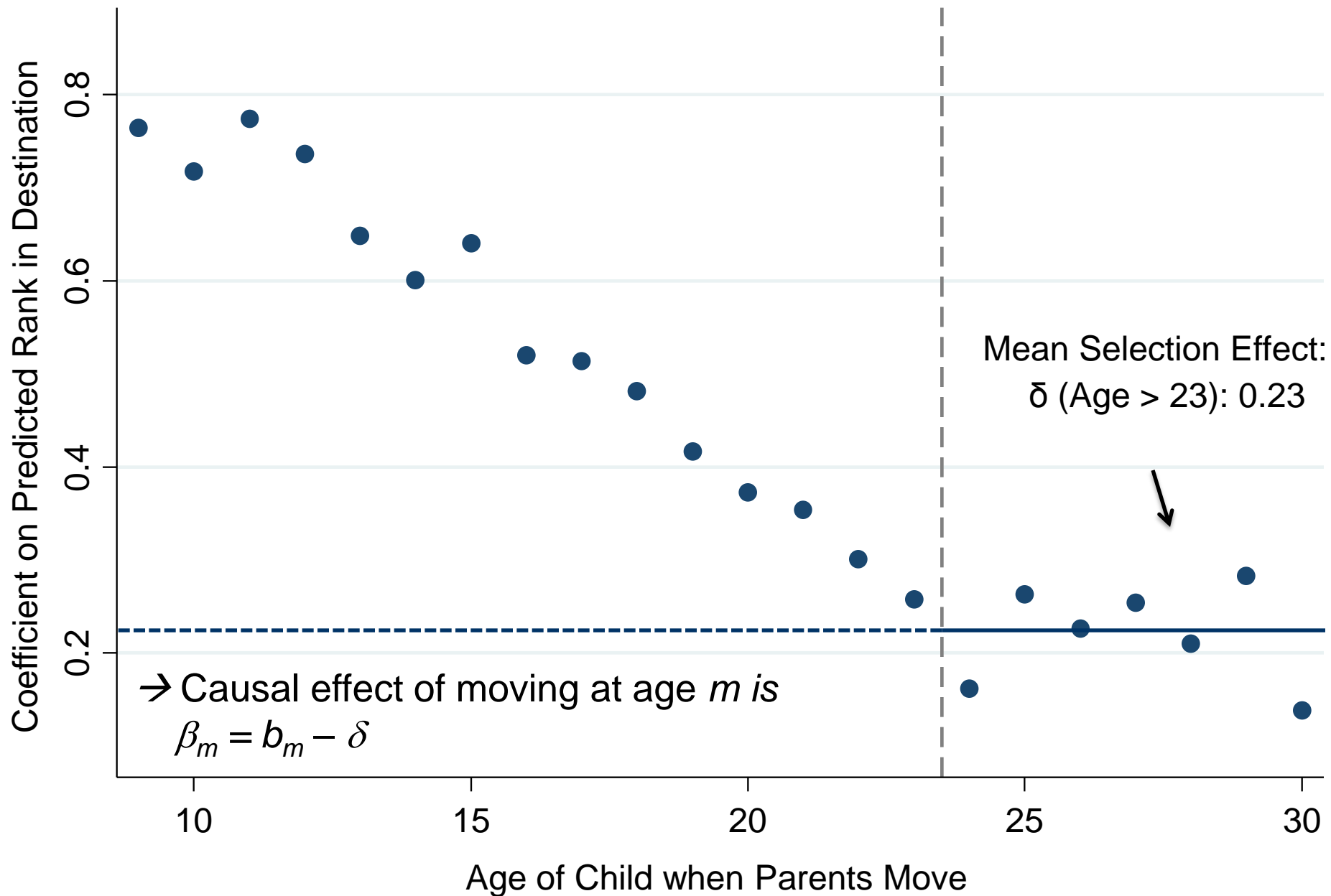
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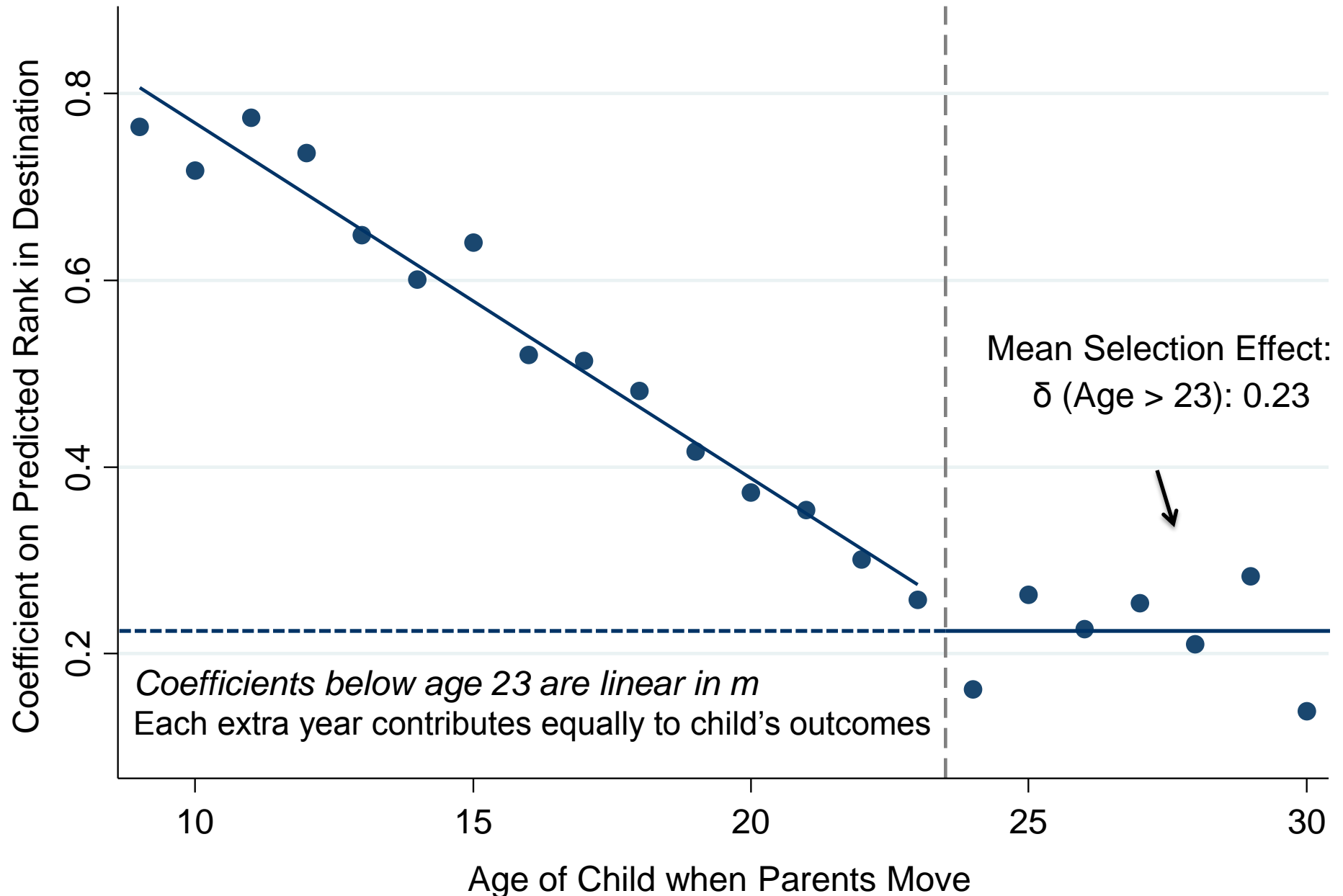
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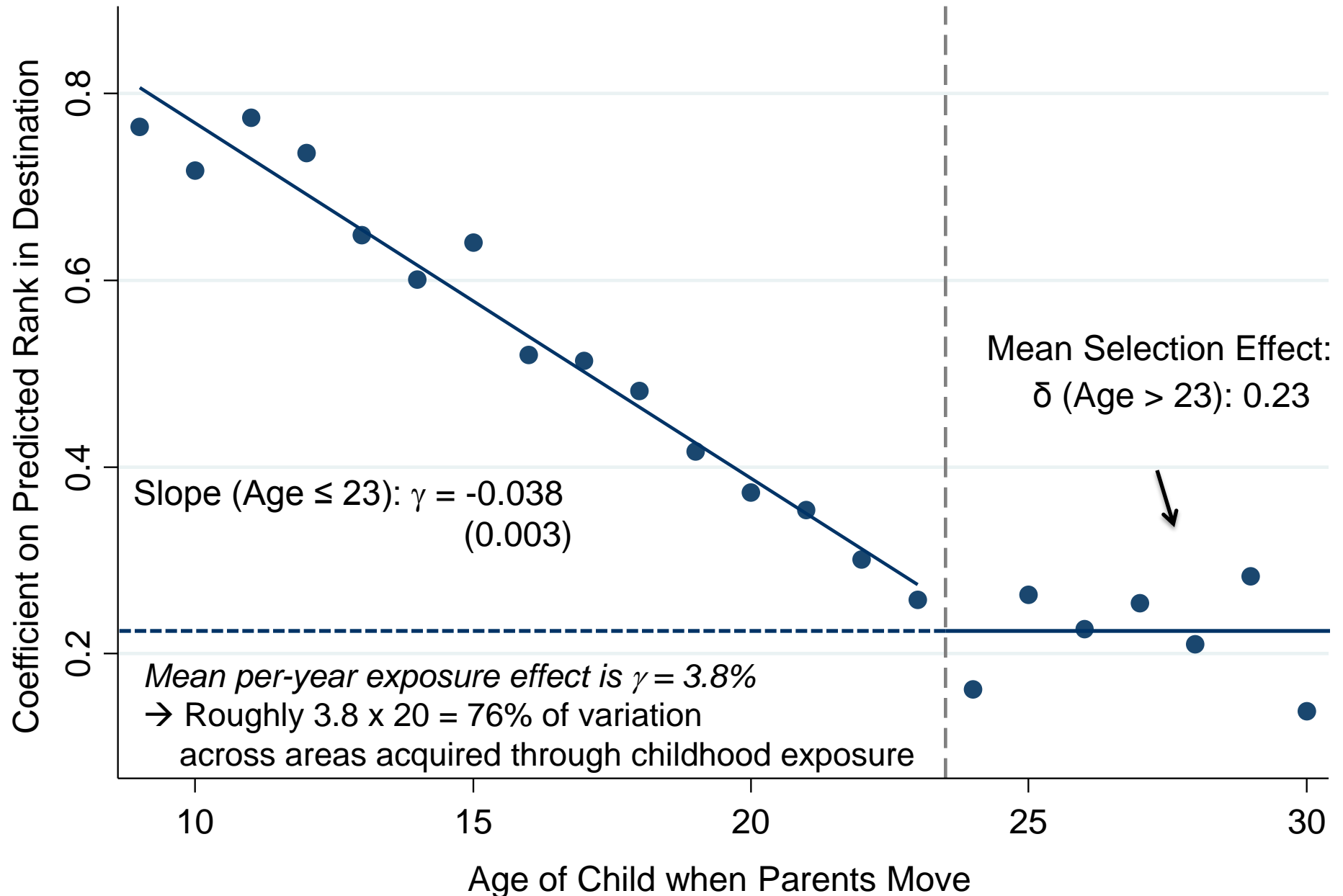
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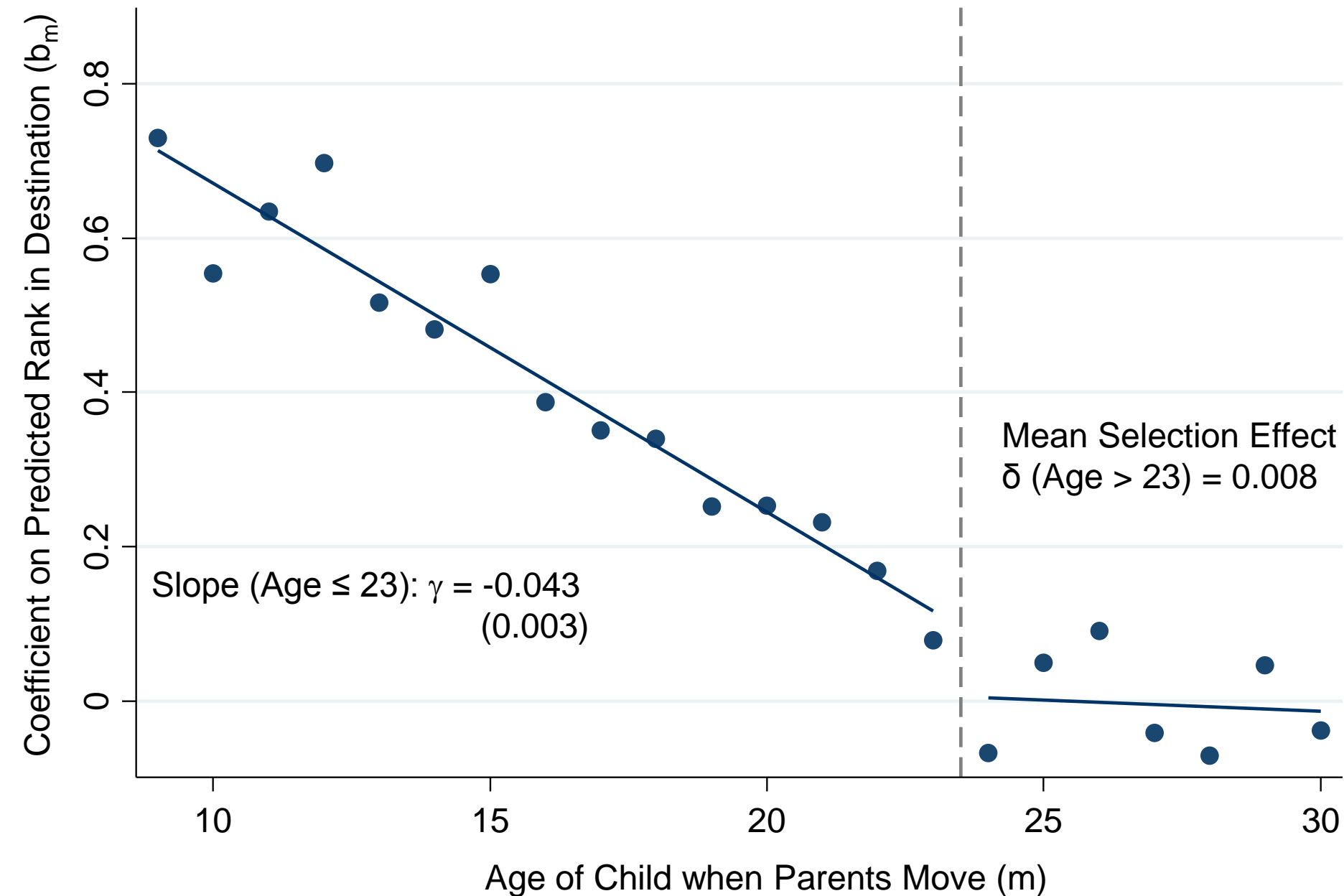
# Identifying Causal Effects of Place

- Key assumption: *timing* of moves to a better/worse area uncorrelated with child's potential outcomes
- This assumption could be violated through two channels:
  1. Parents who move to good areas when their children are young may invest more in their children in other ways
  2. Moving may be correlated with other factors (e.g. change in parent income) that affect children directly

# Identifying Causal Effects of Place

- Two approaches to evaluating validity of this assumption:
  1. Sibling comparisons to control for family fixed effects

## Family Fixed Effects: Sibling Comparisons



# Identifying Causal Effects of Place

- Two approaches to evaluating validity of this assumption:
  1. Sibling comparisons to control for family fixed effects
  2. Outcome-based placebo tests exploiting heterogeneity in place effects by gender, quantile, and birth cohort
    - Ex: some places (e.g., low-crime areas) have better outcomes for boys than girls
    - Move to a place where boys have high earnings → son improves in proportion to exposure but daughter does not



# Causal Effects of Neighborhoods: Summary

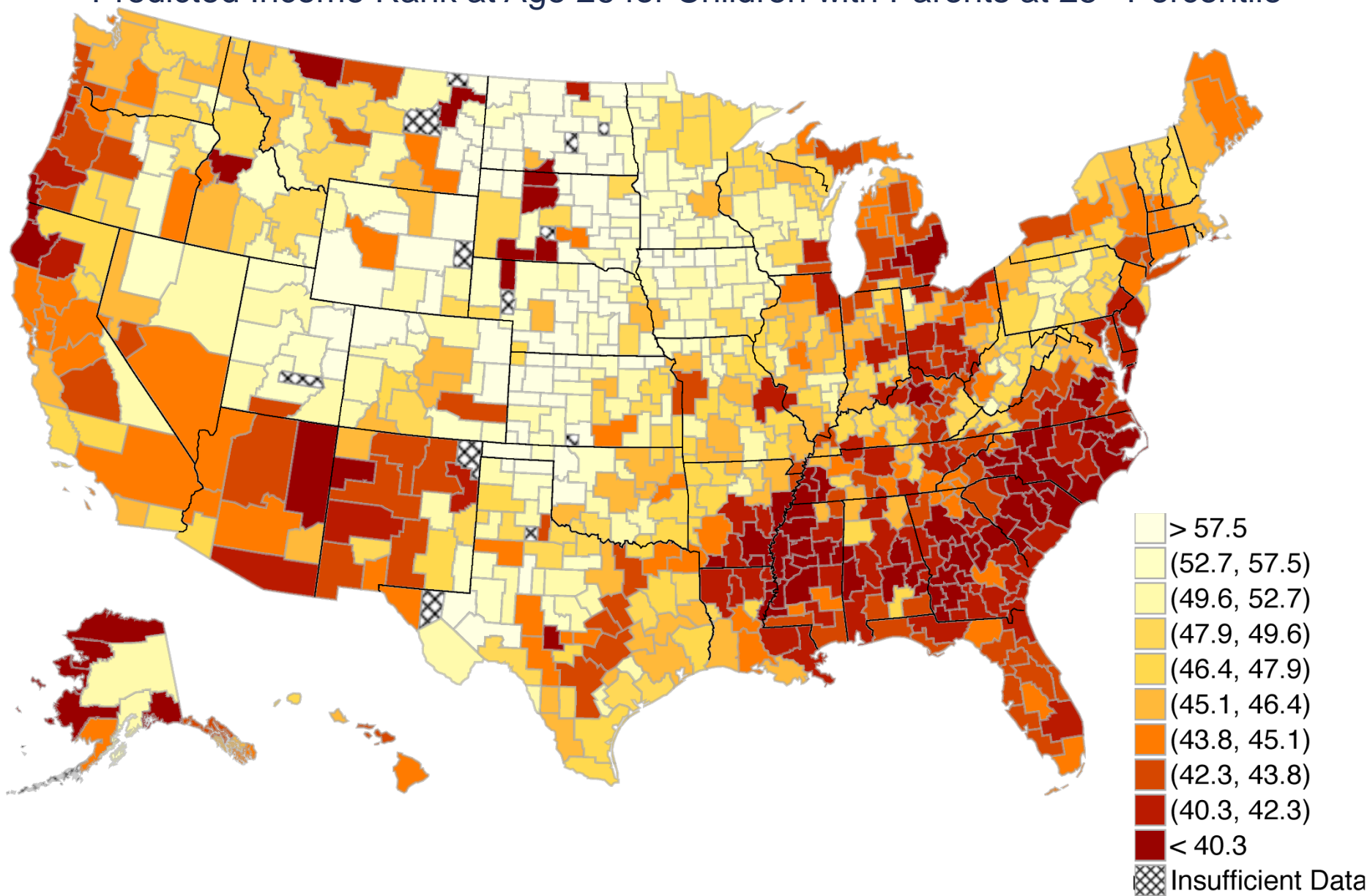
- Key lesson of this section: 70-80% of the variation in children's outcomes across areas is due to causal place effects
- Moving to a place with high rates of upward mobility improves a given child's chances of success in proportion to exposure

## Part 3

### Characteristics of High-Mobility Areas

# The Geography of Intergenerational Mobility in the United States

Predicted Income Rank at Age 26 for Children with Parents at 25<sup>th</sup> Percentile



# Why Does Upward Mobility Differ Across Areas?

- Why do some places produce much better outcomes for disadvantaged children than others?
- Begin by characterizing the features of areas with high rates of upward mobility

# Five Strongest Correlates of Upward Mobility

## 1. Segregation

- Greater racial and income segregation associated with lower levels of mobility



# Racial Segregation in Atlanta

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

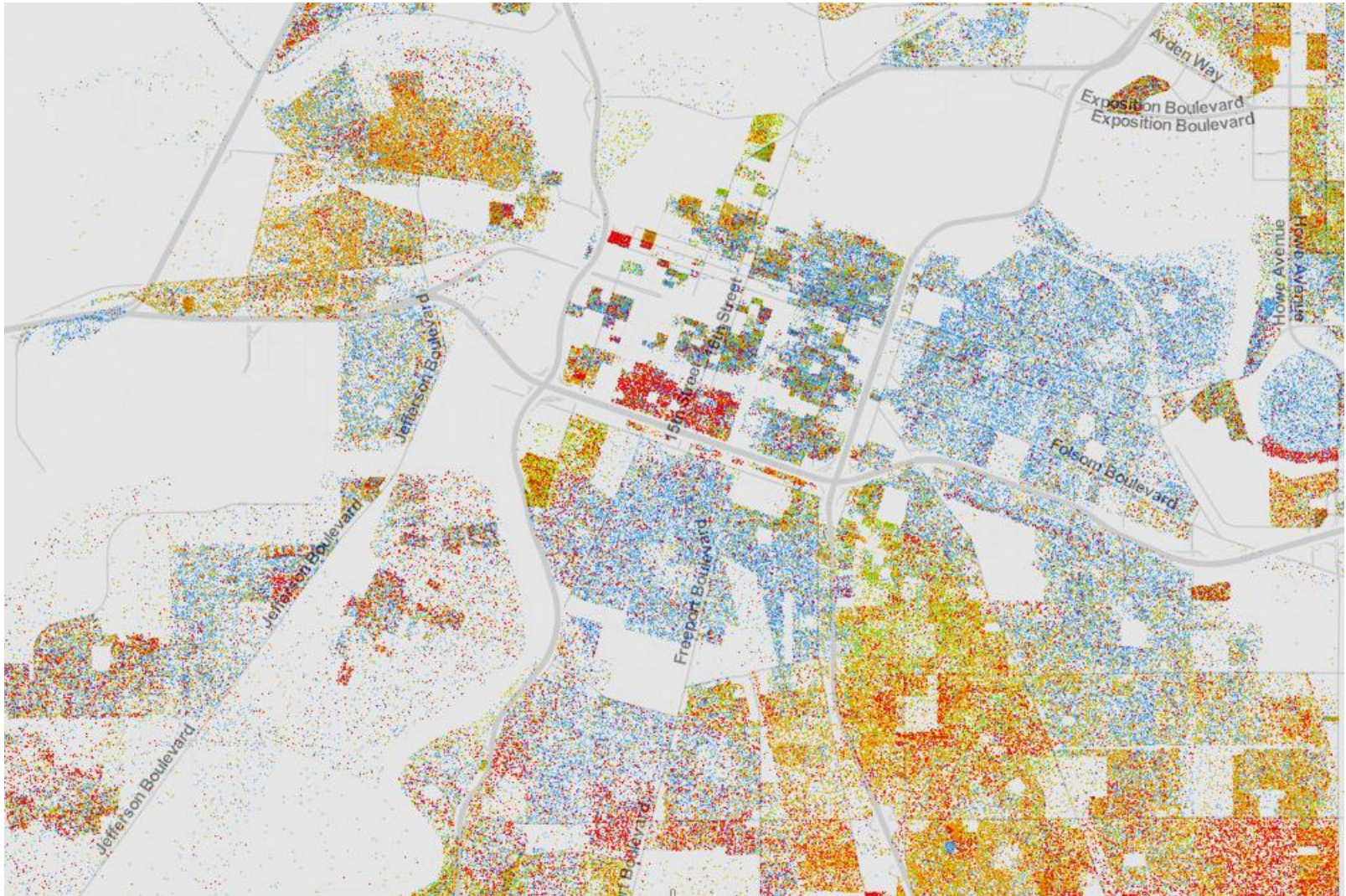


Source: Cable (2013) based on Census 2010 data



# Racial Segregation in Sacramento

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



Source: Cable (2013) based on Census 2010 data

# Five Strongest Correlates of Upward Mobility

1. Segregation
2. Income Inequality
  - Places with smaller middle class have much less mobility



# Five Strongest Correlates of Upward Mobility

1. Segregation
2. Income Inequality
3. School Quality
  - Higher expenditure, smaller classes, higher test scores correlated with more mobility

# Five Strongest Correlates of Upward Mobility

1. Segregation
2. Income Inequality
3. School Quality
4. Family Structure
  - Areas with more single parents have much lower mobility
  - Strong correlation even for kids whose *own* parents are married

# Five Strongest Correlates of Upward Mobility

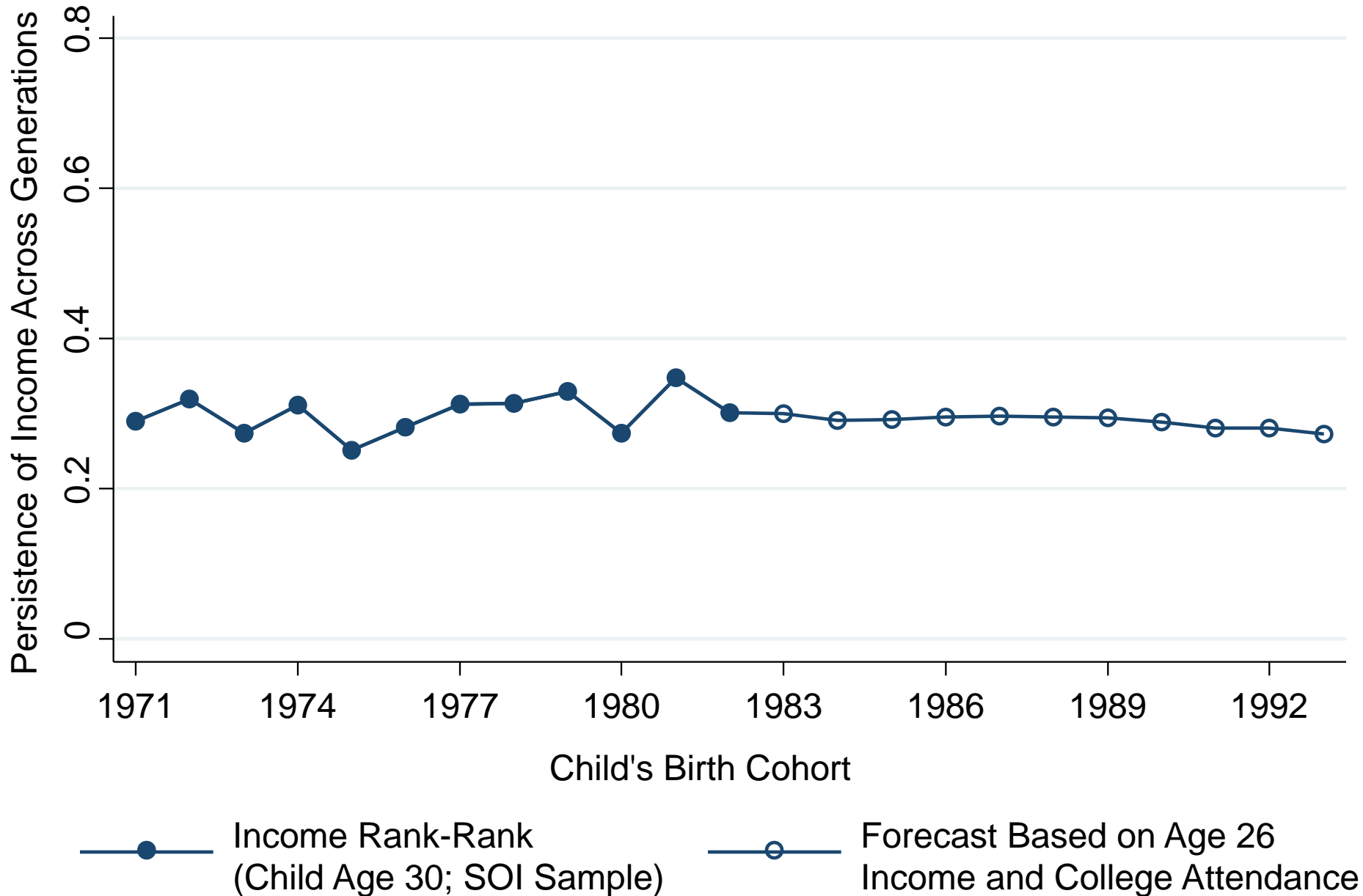
1. Segregation
2. Income Inequality
3. School Quality
4. Family Structure
5. Social Capital
  - “It takes a village to raise a child”
  - Putnam (1995): “Bowling Alone”

# Policies to Improve Upward Mobility

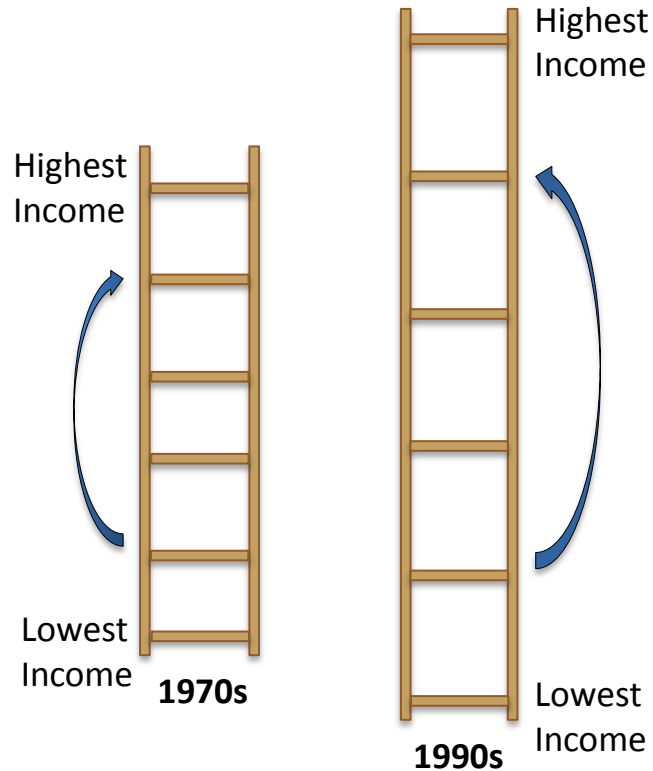
- Five factors give us hints about where to look to improve social mobility
  - But they do not identify causal mechanisms or policy tools
- Tomorrow's lecture: what policies can improve mobility?

## Appendix Slides

## Trends in Intergenerational Mobility in the U.S.: 1971-1993 Birth Cohorts



## Changes in the Income Ladder in the United States

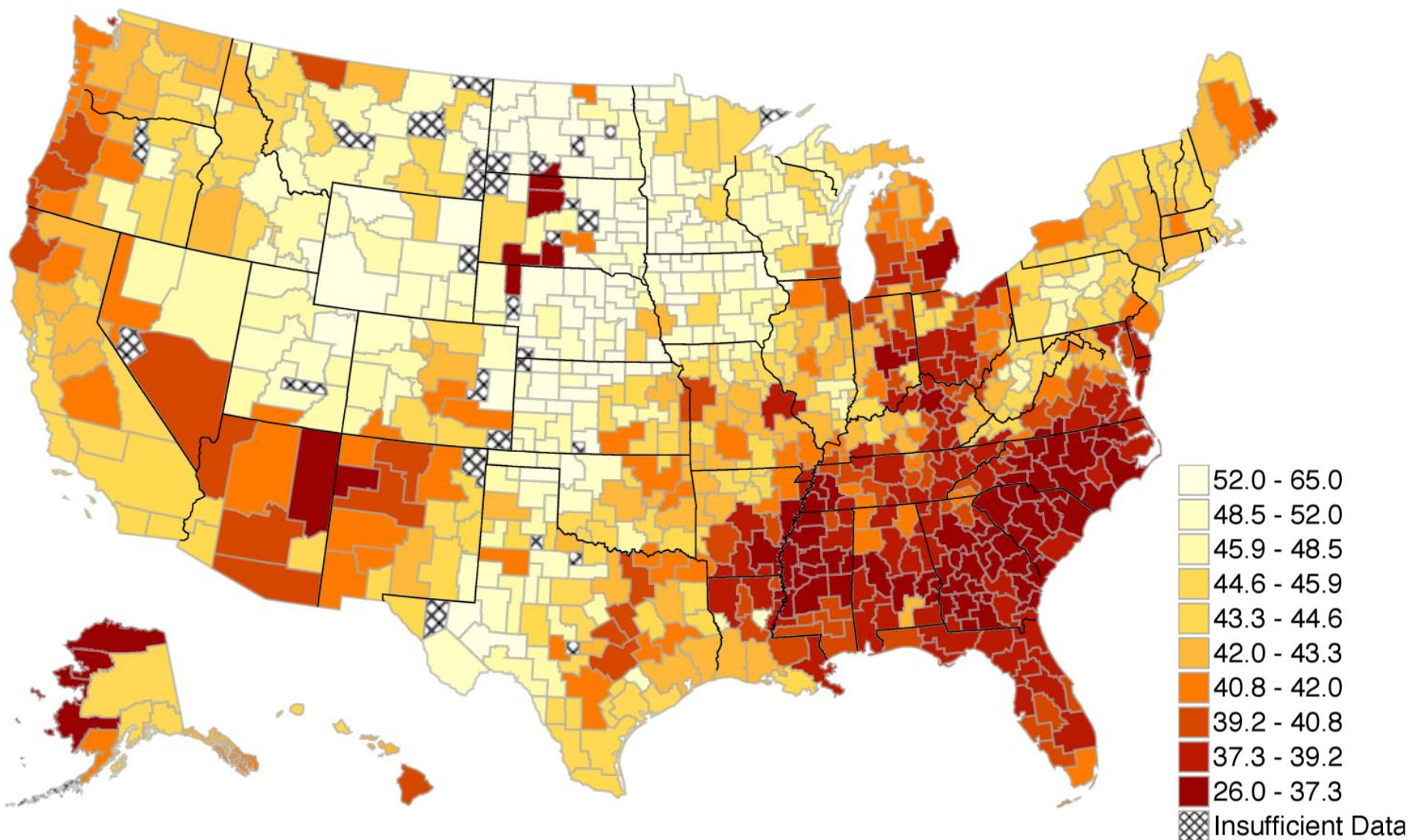


*The rungs of the income ladder have grown further apart (income inequality has increased)*

*...but children's chances of climbing from lower to higher rungs have not changed.*

# The Geography of Intergenerational Mobility in the United States

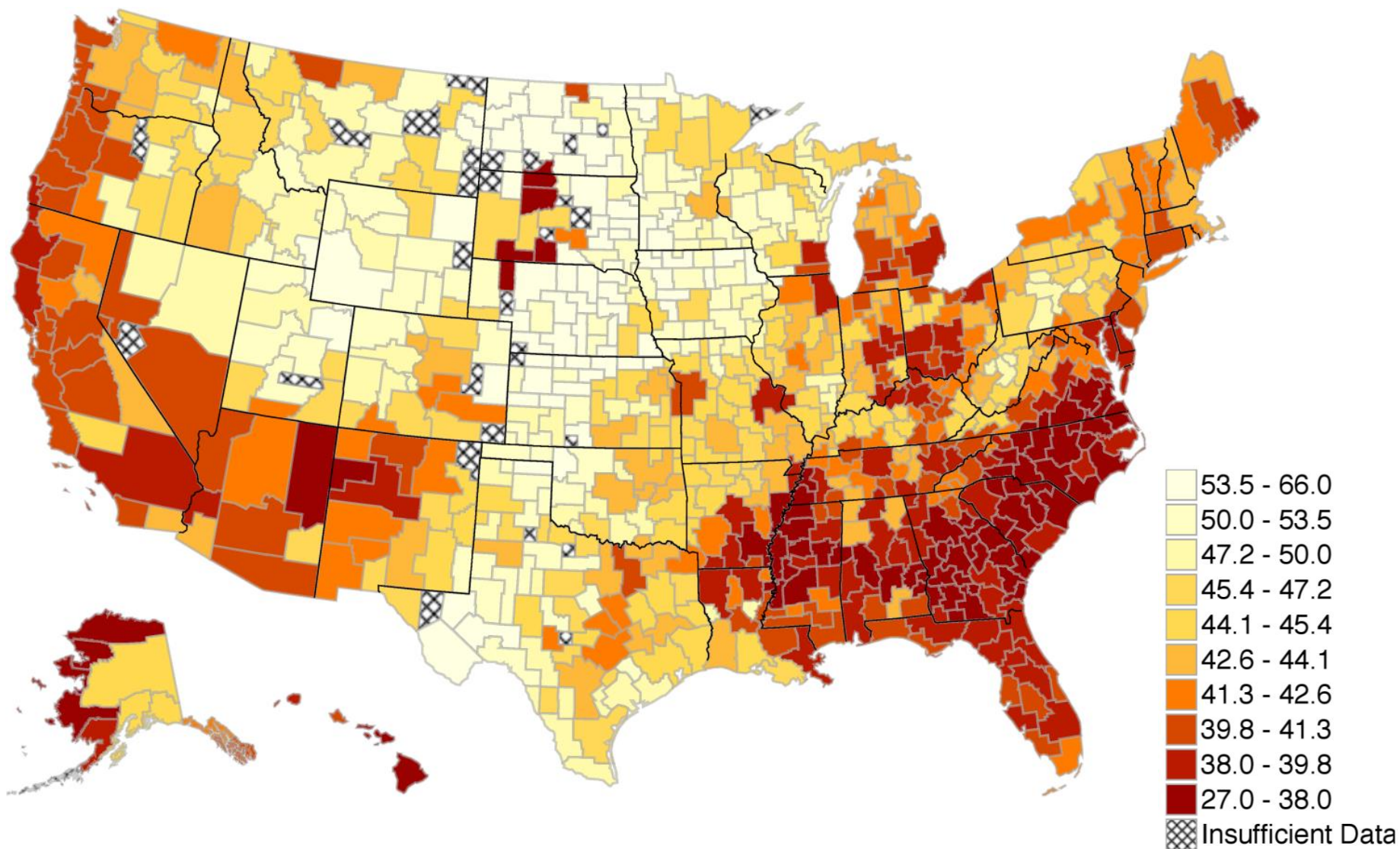
Average Child Percentile Rank for Parents at 25th Percentile



*Note: Lighter Color = More Absolute Upward Mobility*



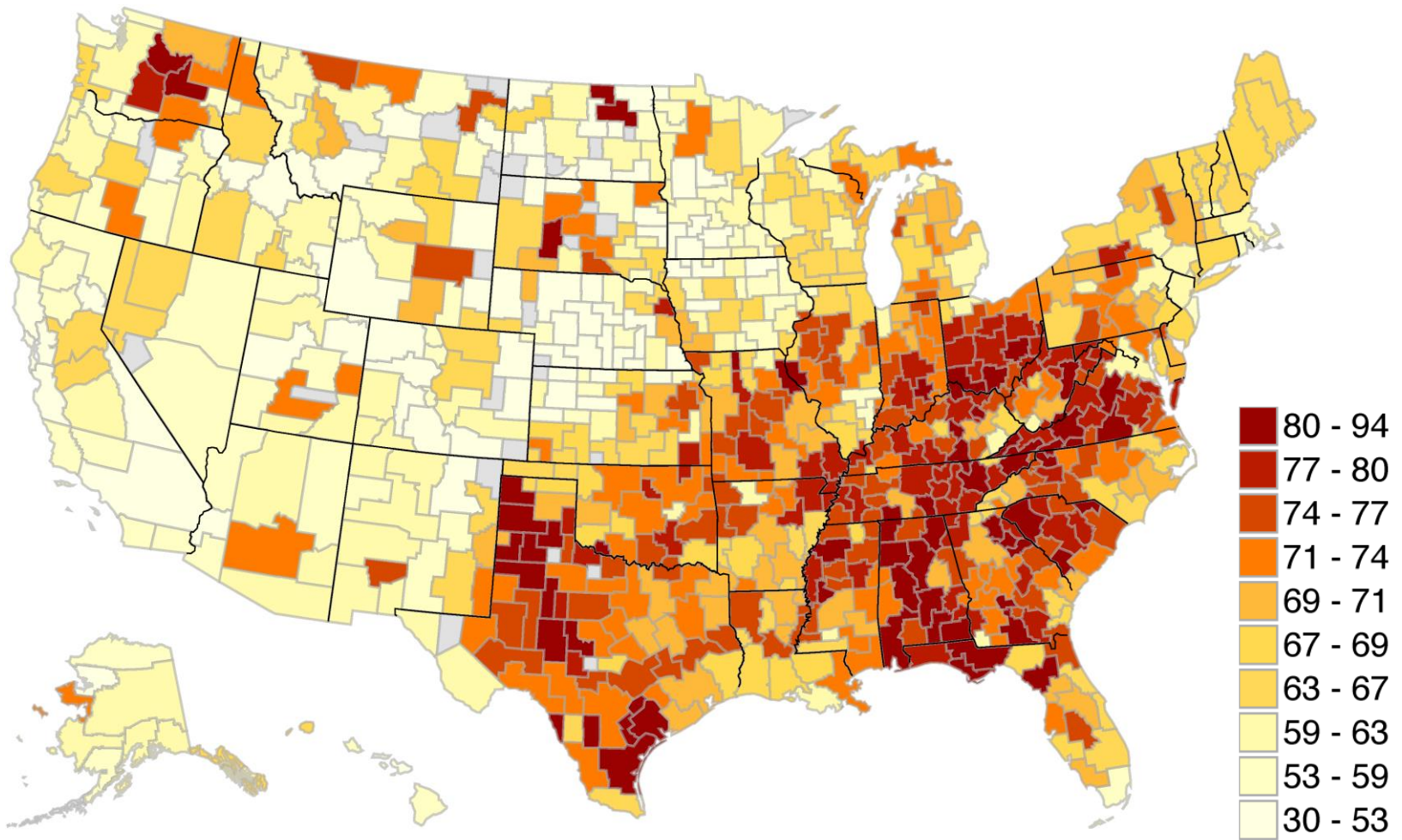
# Absolute Upward Mobility Adjusting for Cost of Living Differences



*Note: Lighter Color = More Absolute Upward Mobility*

## College Attendance Disparities by Area

Difference in Childrens' College Attendance Rates for Low vs. High Income Parents

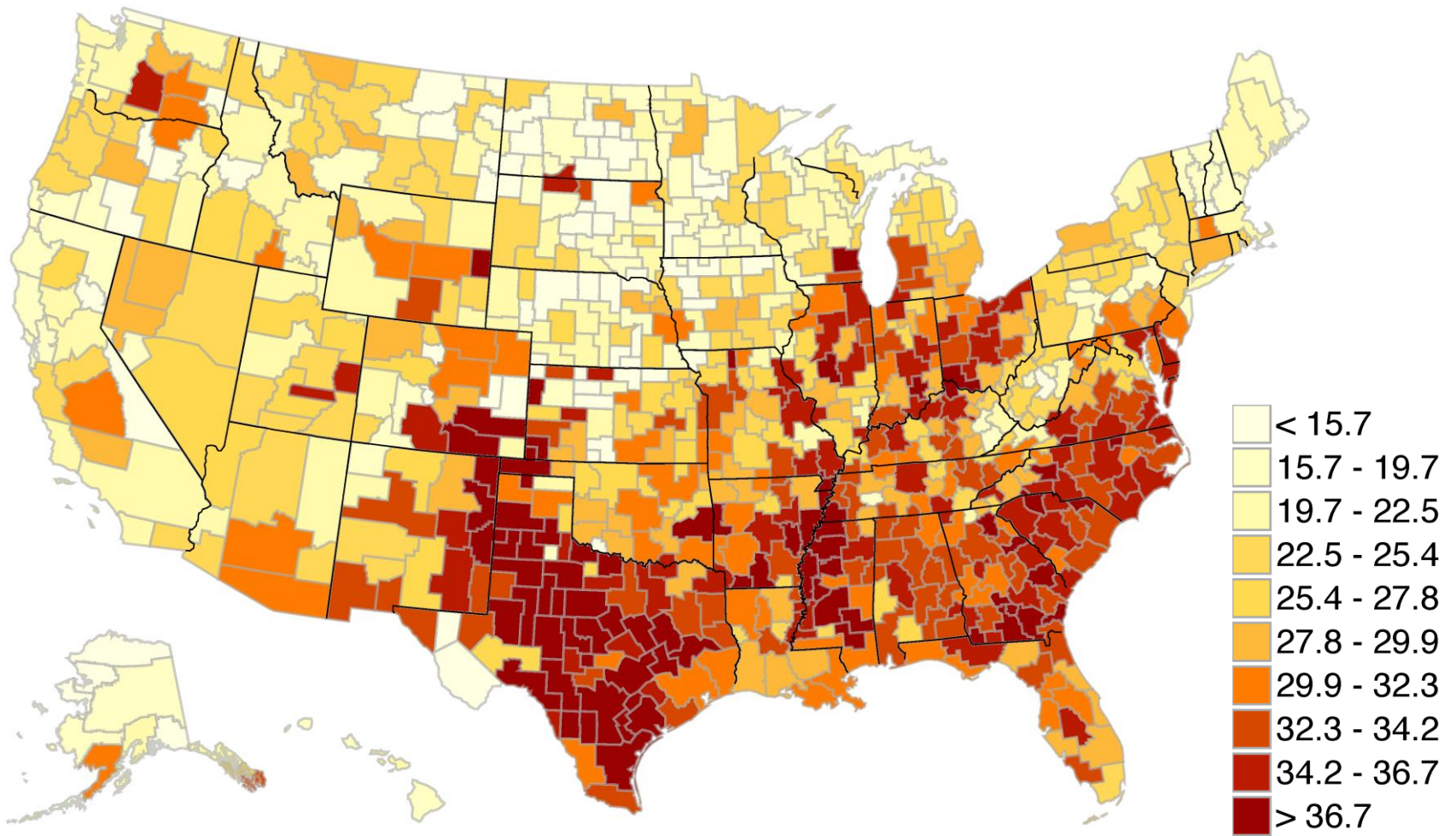


*Note: Lighter Color = Less Disparity in College Attendance Rates*



## Teenage Birth Disparities by Area

Difference in Children's Teenage Birth Rates for Low vs. High Income Parents



*Note: Lighter Color = Less Disparity in Teenage Birth Rates*

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