

Topic 10: Race, Kids, and Discrimination

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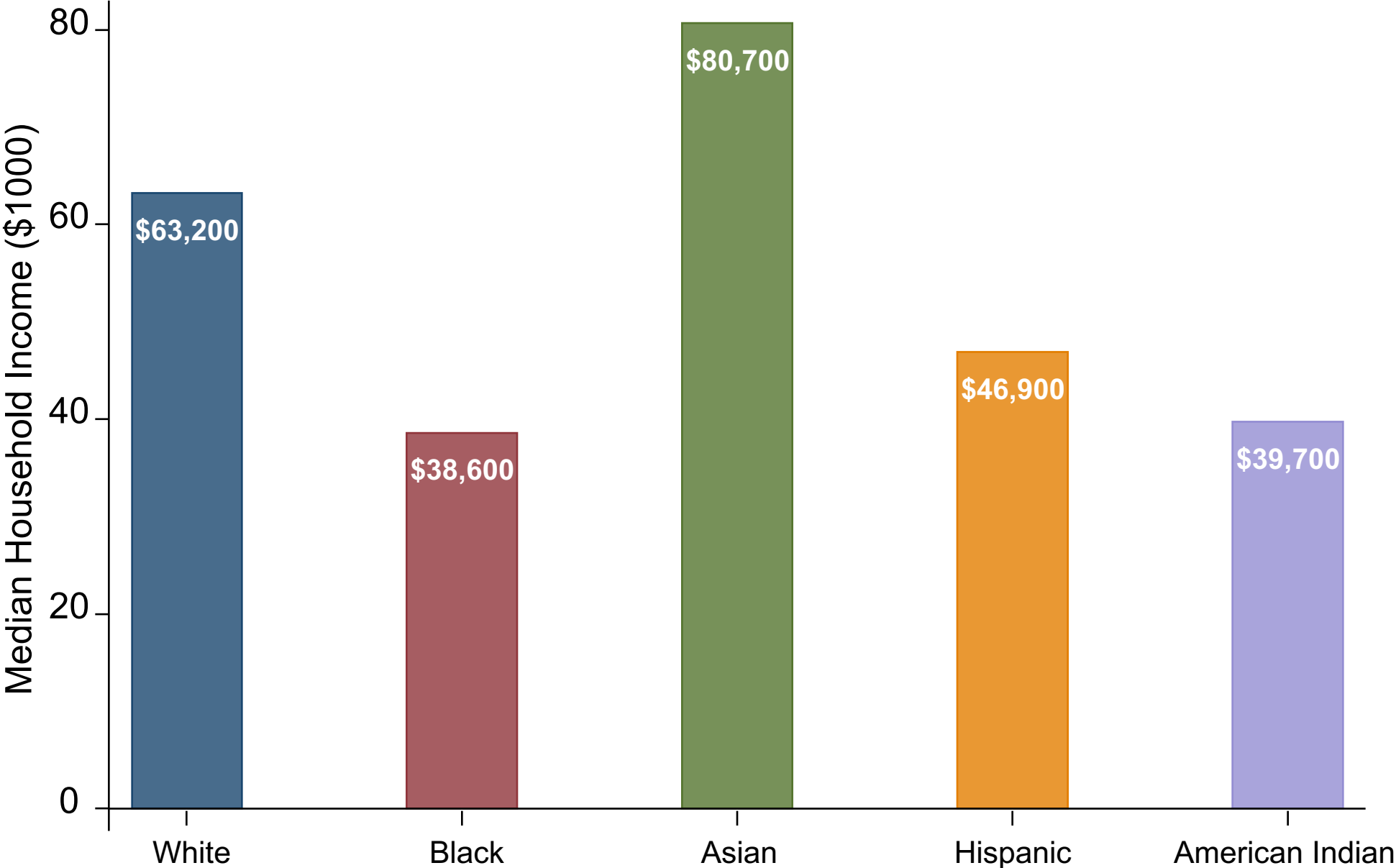
Harvard University

Fall 2018

This Lecture: Race, Kids, and Discrimination

- Large literature documenting persistent differences in outcomes by race
- Key theme in my opinion: Race gaps are endogenous.
- To what extent do these differences/gaps imply the existence of market failures?
- What does this mean for optimal government policy?

Median Household Income by Race and Ethnicity in 2016



Note: We focus here and in subsequent analyses on four non-Hispanic single-race groups (white, black, Asian, American Indian and Alaska Native) and Hispanics. Source: American Community Survey 2016.

Large Literature on Racial Disparities

Family-Level Factors

Parental Income	Magnuson & Duncan 2006; Rothstein & Wozny 2012
Parental Human Capital & Wealth	Oliver & Shapiro 1995; Orr 2003; Conley 2010
Family Structure and Stability	McAdoo 2002; Burchinal et al. 2011
Ability at Birth	Rushton & Jensen 2005 vs. Fryer & Levitt 2006

Structural Features of Environment

Segregation, Neighborhoods	Massey & Denton 1993; Wilson 1987; Sampson and Wilson 1995; Smith 2005
School Quality	Card & Krueger 1992; Jencks & Phillips 1998; Dobbie & Fryer 2011
Discrimination in the Labor Market	Donohue & Heckman 1992; Heckman 1998; Pager 2003; Bertrand & Mullainathan 2004
Discrimination in Criminal Justice	Steffensmeier, Ulmer, Kramer 1998; Eberhardt et al. 2004; Alexander 2010
Social Alienation, Stereotype Threat	Steele & Aaronson 1995; Tatum 2004; Glover, Pallais, Pariente 2017

Cultural Factors and Social Norms

Identity and Oppositional Norms	Fordham & Ogbu 1986; Noguera 2003; Carter 2005; Austen-Smith & Fryer 2005
Aspirations or Role Models	Mickelson 1990; Small, Harding, & Lamont 2010

Comprehensive course could focus exclusively on this topic

- Today, focus on four aspects of racial discrimination / endogeneity of race gaps:
 1. Experimental evidence of racial bias
 - Hiring (e.g. Pager 2003; Bertrand and Mullainathan 2004)
 - Judges (Arnold, Dobbie, and Yang 2018)
 2. Responses by minorities to discrimination (Glover, Pallais, Pariente 2017)
 3. Persistence of racial discrimination across generations, impact of place, and relation to Becker HC model (Chetty, Hendren, Jones, Porter 2018)
 - Role of gender
 4. Endogeneity of public policies to demographic changes (Derenoncourt 2018)
- **DISCLAIMER:** It would be insane to try to cover this literature in 1 lecture...And there is *amazing* work being done in this space (resume audits, judicial bias, etc.)

1. Experimental Evidence of Racial Bias

- Here, discuss two pieces of evidence of racial bias
- Labor market: Audit studies in hiring
- Judicial system: random assignment to judges

Racial Bias in Hiring, Relation to Criminal Record

- Devah Pager (2003) randomly assigns auditors to 4 categories:

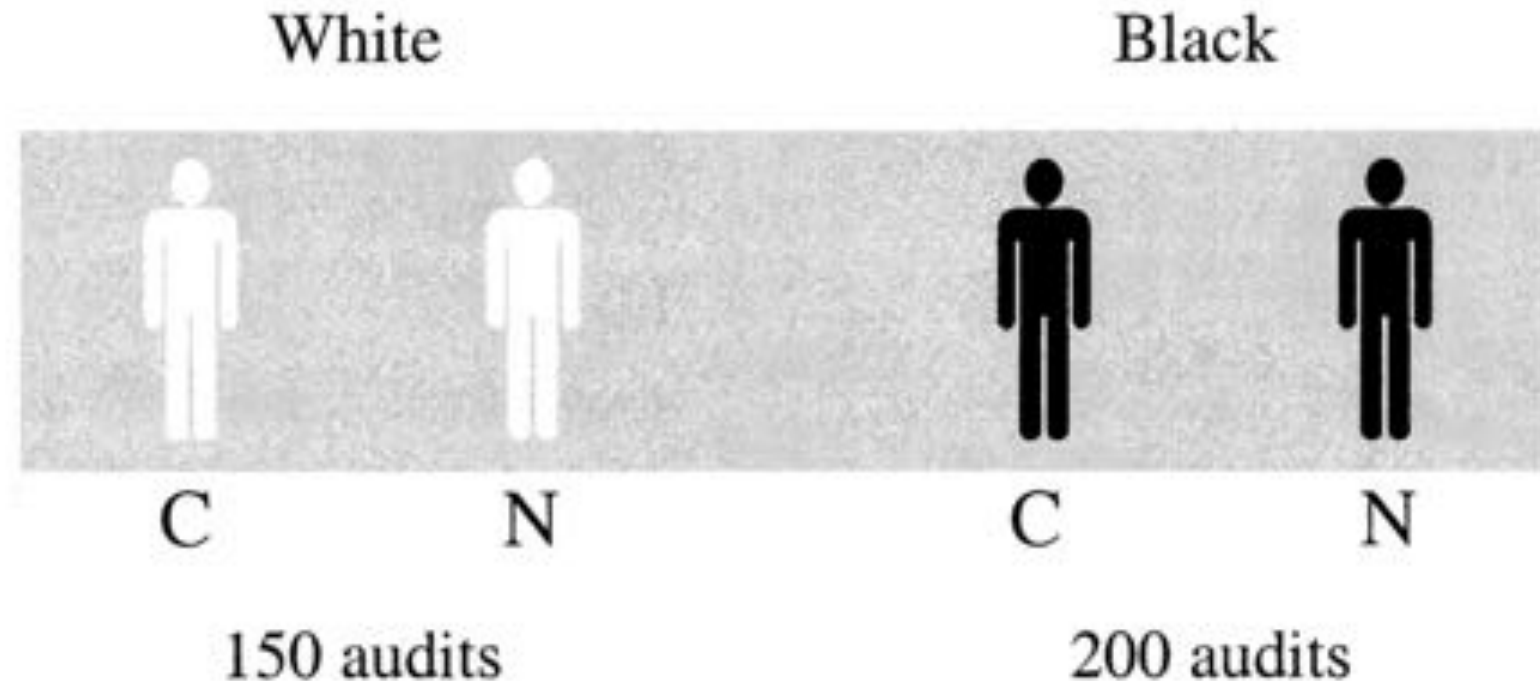


FIG. 3.—Audit design: “C” refers to criminal record; “N” refers to no criminal record

Large Negative Impact of Race and Criminal Record on Call-Backs

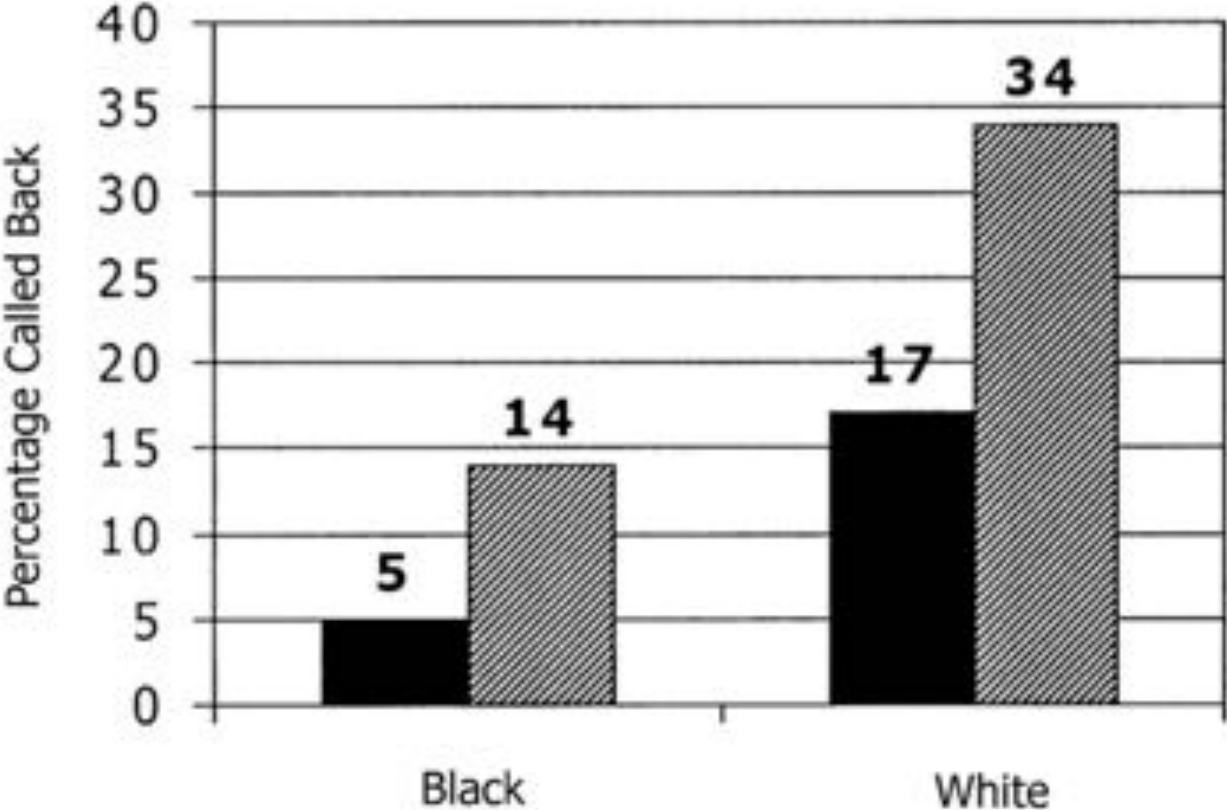


FIG. 6.—The effect of a criminal record for black and white job applicants. The main effects of race and criminal record are statically significant ($P < .01$). The interaction between the two is not significant in the full sample. Black bars represent criminal record; striped bars represent no criminal record.

Interplay between Race / Statistical Discrimination and Info

- In response to these patterns, many states “Ban the Box”, preventing employers from asking about criminal histories
- But, evidence suggests negative impacts on labor markets:
- Doleac and Hansen (2018 JOLE) use difference and difference design of state policy changes
 - BTB causes decrease in employment of 3.4pp for young low-skilled black men
- Agan and Starr (2018 QJE) Audit study pre- and post-BTB in NY and NJ
 - Before BTB white applicants 7% more likely to be called back
 - After BTB white applicants 43% more likely to be called back

Racial Bias in Bail Decisions

- Arnold, Dobbie, and Yang (QJE, Forthcoming) study racial bias in bail decisions
- Key implication of Becker discrimination model: *marginal white defendants will have higher rates of misconduct than marginal black defendants if bail judges are racially biased*
- Test this using random assignment to judges

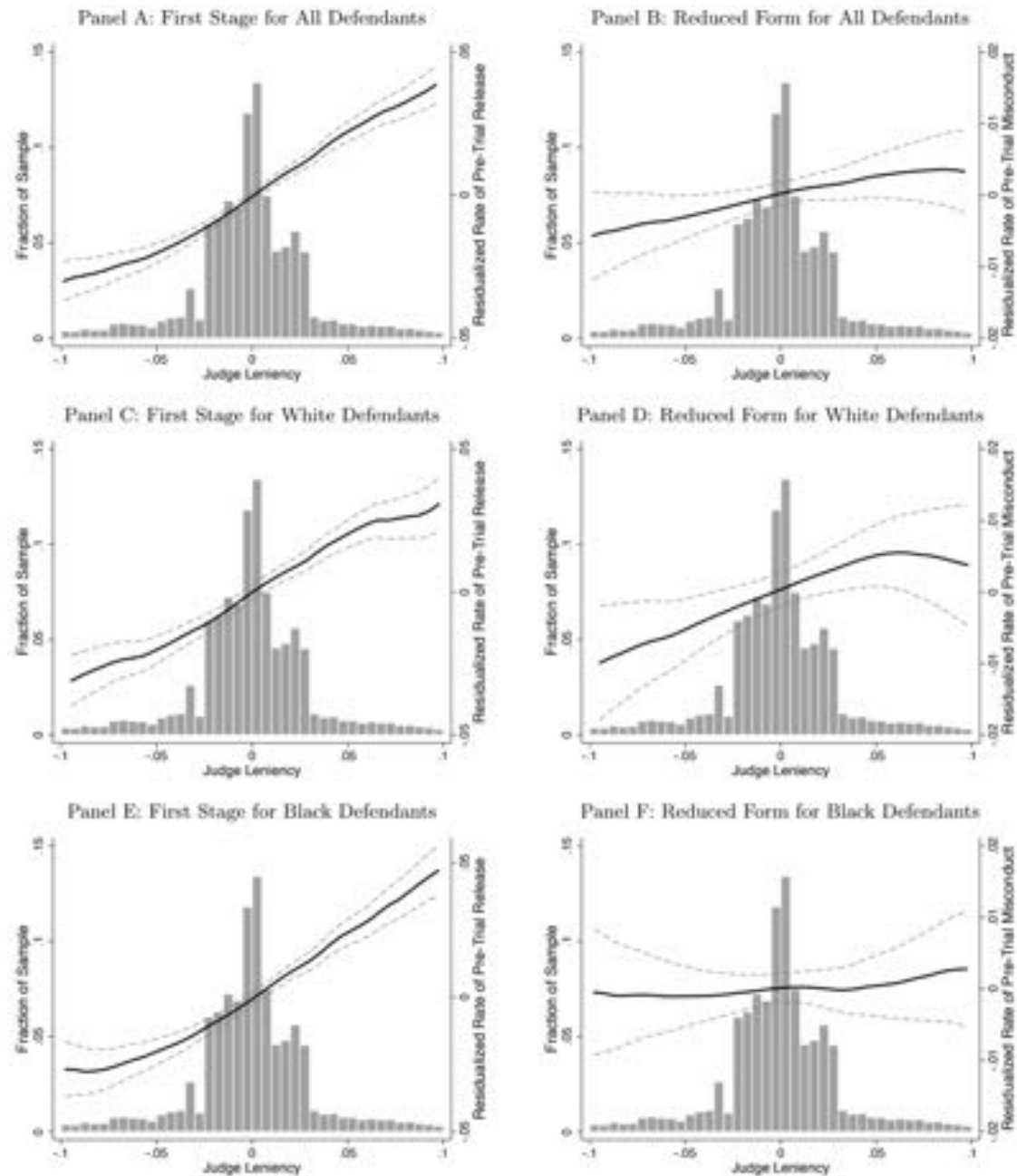


FIGURE I
First Stage and Reduced Form Results

Source: Arnold, Dobbie and Yang (2018)

Marginal Effect of Release on Pre-trial Re-arrest

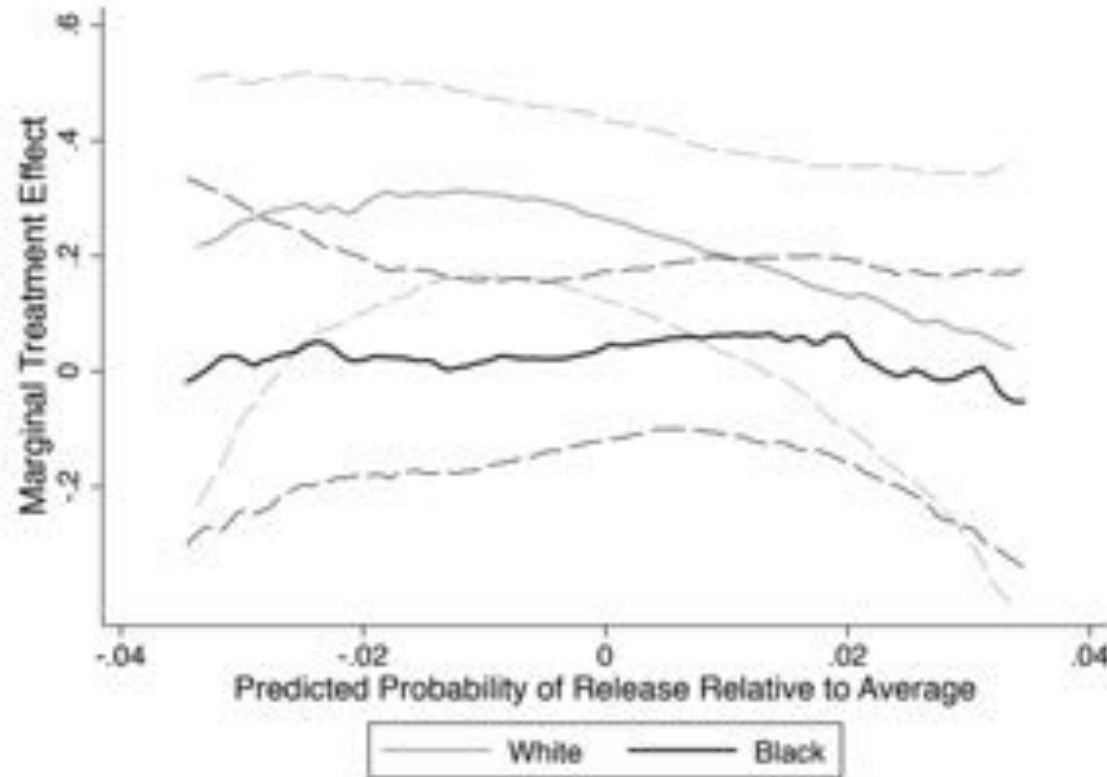


FIGURE II
Marginal Treatment Effects

This figure reports the marginal treatment effects (MTEs) of pre-trial release on pre-trial rearrest separately by race. To estimate each MTE, we first estimate the predicted probability of release using only judge leniency. We then estimate the relationship between the predicted probability of release and rearrest prior to disposition using a local quadratic estimator (bandwidth = 0.030). Finally, we use the numerical derivative of the local quadratic estimator to calculate the MTE at each point in the distribution. Standard errors are computed using 500 bootstrap replications clustered at the judge-by-shift level. See the text for additional details.

Racial Bias in Bail Decisions

- Paper shows that the marginally-released white defendants are more likely to commit a crime
- Suggests racial bias in bail decisions
- Interestingly, pattern is present for both black and white judges
- Also, racial bias is larger for part-time and inexperienced judges

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2. Identifying Theories of Discrimination

Glover, Pallais and Pariente (2017)

- Becker: “taste-based” discrimination
- Phelps (1972), Arrow (1973): imperfect information -> “statistical discrimination”
- Lundberg and Startz (1983), Coate and Loury (1993): Ex-ante investments may be lower in response to ex-post discrimination (long-run model)
- Steel and Aaronson (1995): stereotype threat -> preferences towards minority workers may inhibit work productivity
 - Reduce productivity not because of reduced investment but because of direct impact of the stereotype

Glover, Pallais and Pariente (QJE 2017)

- Evidence from 34 French grocery stores
- Workers assigned to managers
- Managers biases measured with Implicit Association Tests (IATs)
 - Speed of associating North African-sounding names with words associated with incompetence
- Workers randomly assigned to different managers on different days
- How do workers behave differently when assigned to more biased managers?

TABLE III
EFFECT OF MANAGER BIAS ON TIME SPENT AT WORK

Panel A: Dependent variable: absence indicator

Minority worker × manager bias	0.0098** (0.0039)	0.0095** (0.0040)	0.0117*** (0.0042)	0.0118*** (0.0043)
Manager bias	-0.0021 (0.0031)	-0.0021 (0.0032)	-0.0050 (0.0040)	-0.0052 (0.0042)
Minority worker × minority manager				0.0081 (0.0972)
Minority manager				-0.0057 (0.0153)
Observations	4,371	4,371	4,371	4,371
Dependent variable mean	0.0162	0.0162	0.0162	0.0162
<i>R</i> -squared	0.0005	0.0031	0.0835	0.0835

Panel B: Dependent variable: minutes worked in excess of schedule

Minority worker × manager bias	-3.295** (1.550)	-3.279** (1.588)	-3.327* (1.687)	-3.237* (1.678)
Manager bias	-0.002 (1.141)	-0.002 (1.167)	-0.005 (0.969)	-0.005 (1.009)
Minority worker × minority manager				0.349 (10.501)
Minority manager				-3.712 (4.592)
Observations	4,163	4,163	4,163	4,163
Dependent variable mean	-0.068	-0.068	-0.068	-0.068
R-squared	0.001	0.008	0.129	0.129
Individual fixed effects	Yes	Yes	Yes	Yes
Day of the week fixed effects	No	Yes	No	No
Morning/evening fixed effects	No	Yes	Yes	Yes
Date fixed effects	No	No	Yes	Yes

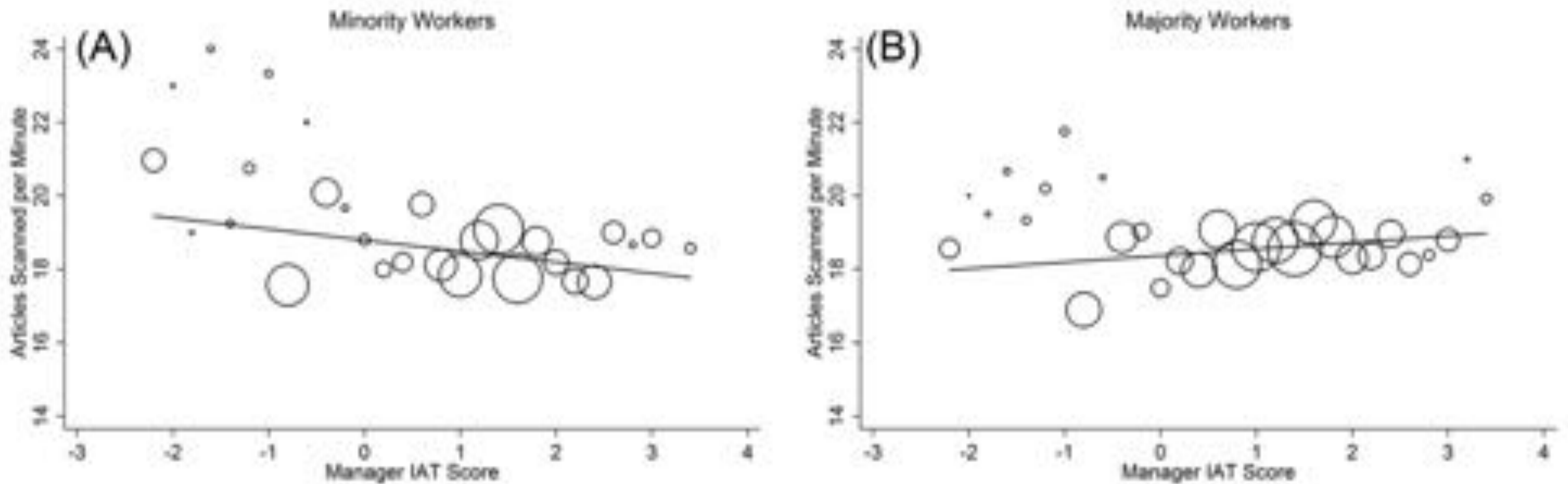


FIGURE I

Manager Bias and Worker Performance

The size of each marker indicates the number of observations in the bin.

Glover, Pallais and Pariente (2017)

- Evidence suggests endogenous responses to biased managers
- Does this suggest endogenous responses to discrimination?
- What would be the ideal experiment?
 - Analogy to “places matter” and looking at the correlates of the causal effect of place?

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3. Intergenerational Persistence of Race Gaps

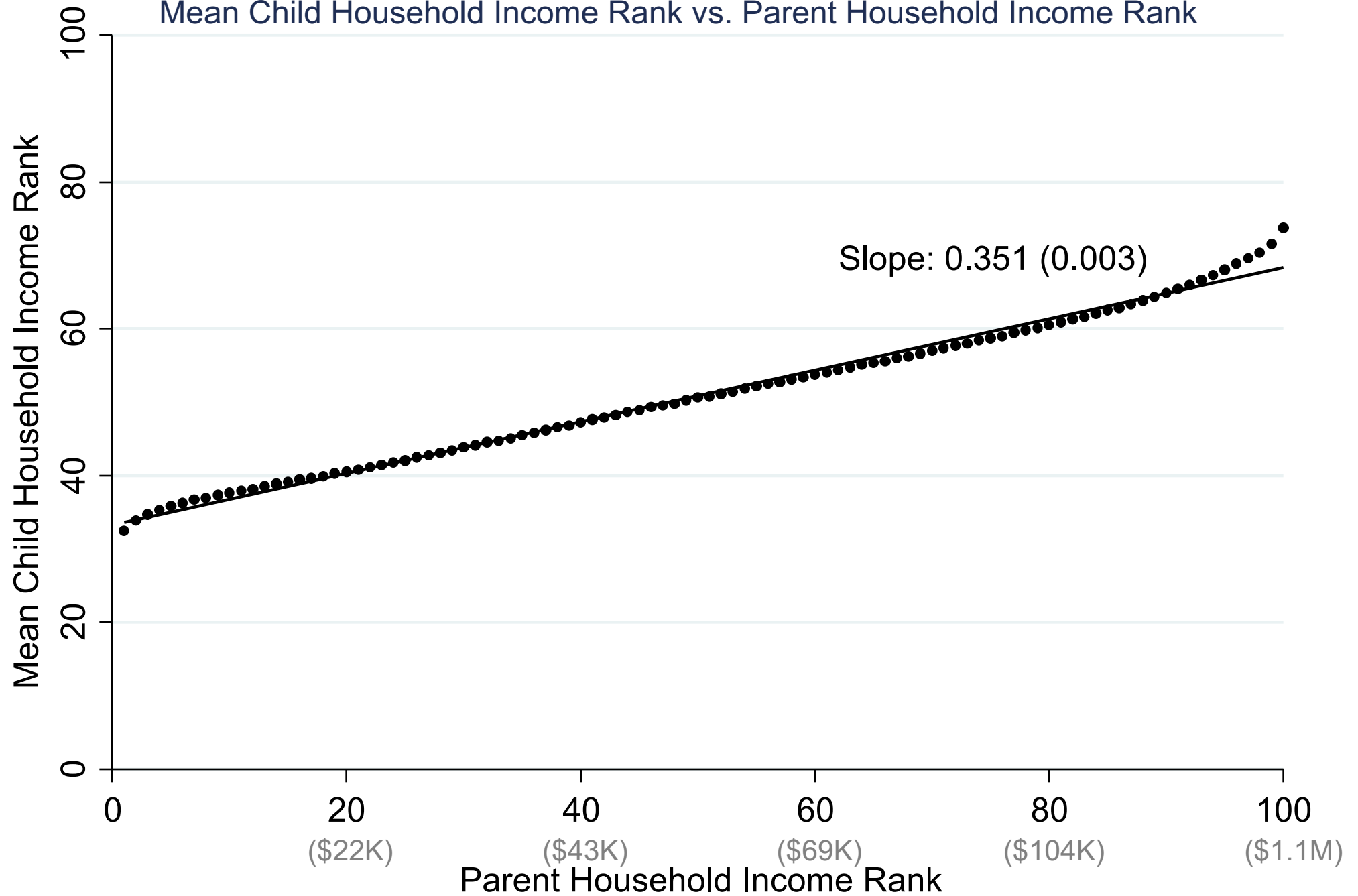
- Racial gaps in economic outcomes have been quite persistent for a century
- Yet, Becker-Tomes model of intergenerational mobility predicts quick convergence
- Becker and Tomes (1979) considers evolution of race gaps over time
 - Let i index families, t index generations, and $r(i)$ denote race of family i
 - Model child's income rank as a race-specific linear function of parent's income rank:

$$y_{it} = \alpha_r + \beta_r y_{i,t-1} + \varepsilon_{it}$$

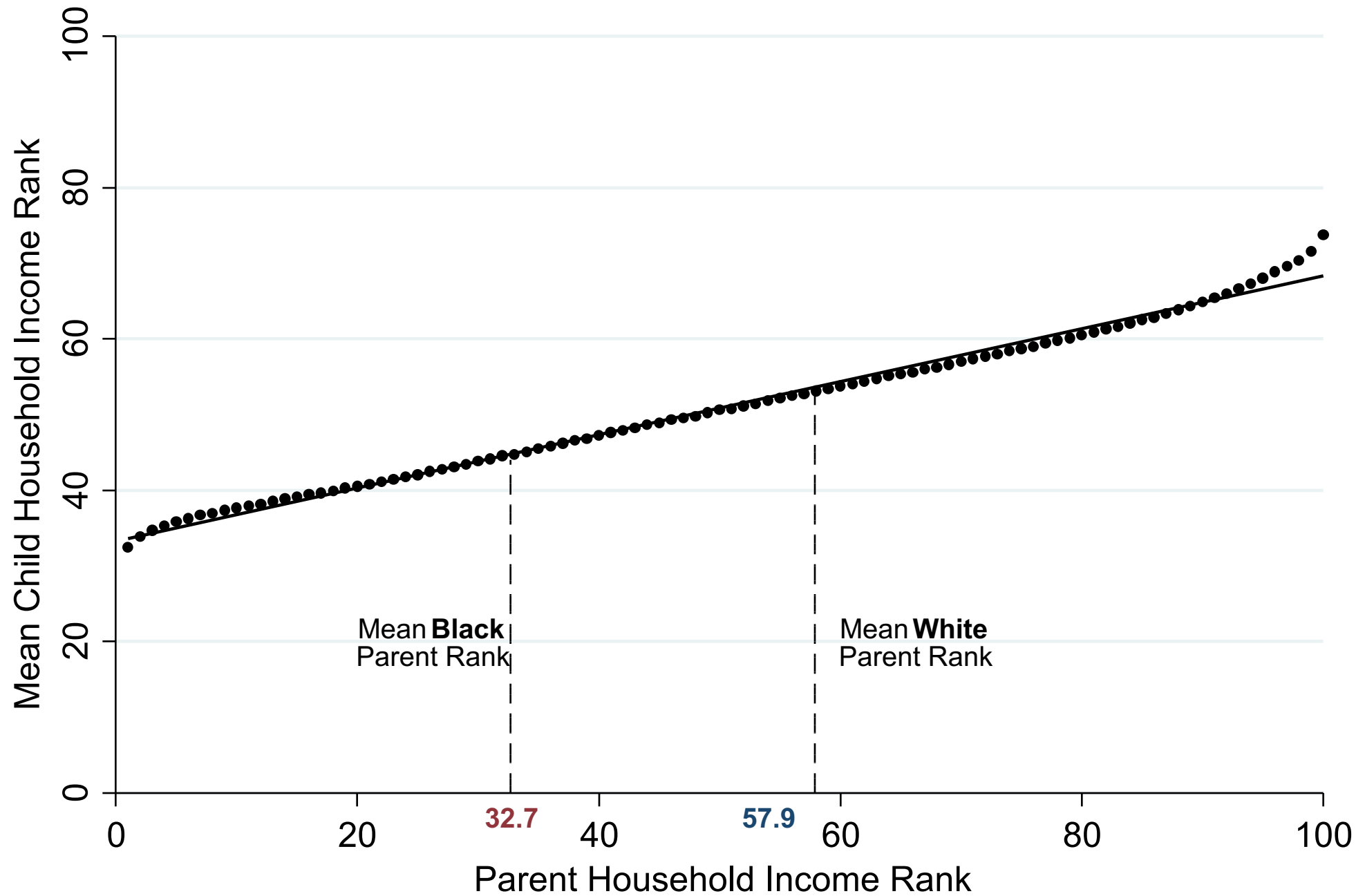
- Chetty, Friedman, Hendren, Jones, Porter (2018) estimate these using linked Census-Tax data [subsequent slides taken from CFHJP2018]

Intergenerational Mobility in the United States

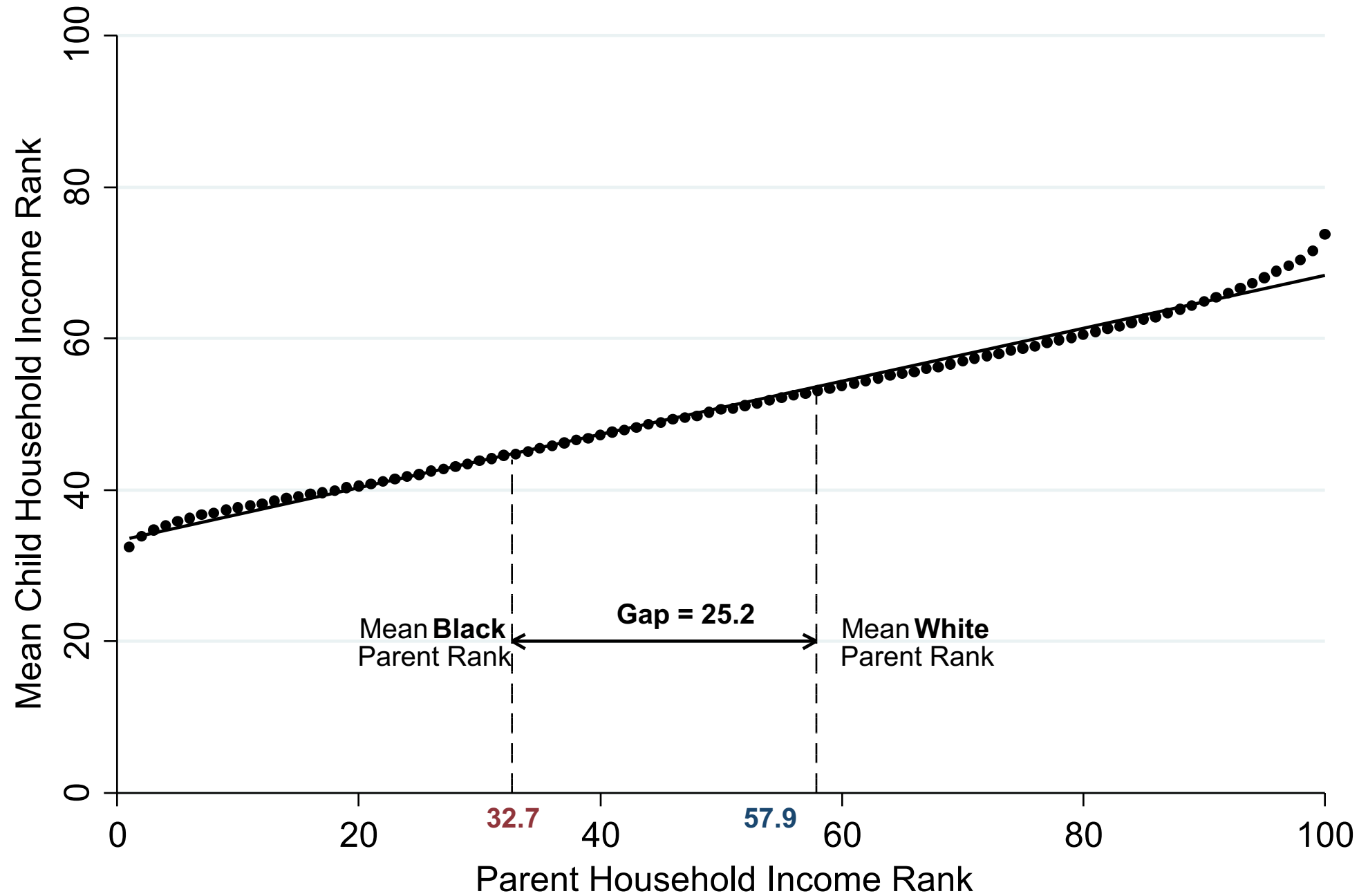
Mean Child Household Income Rank vs. Parent Household Income Rank



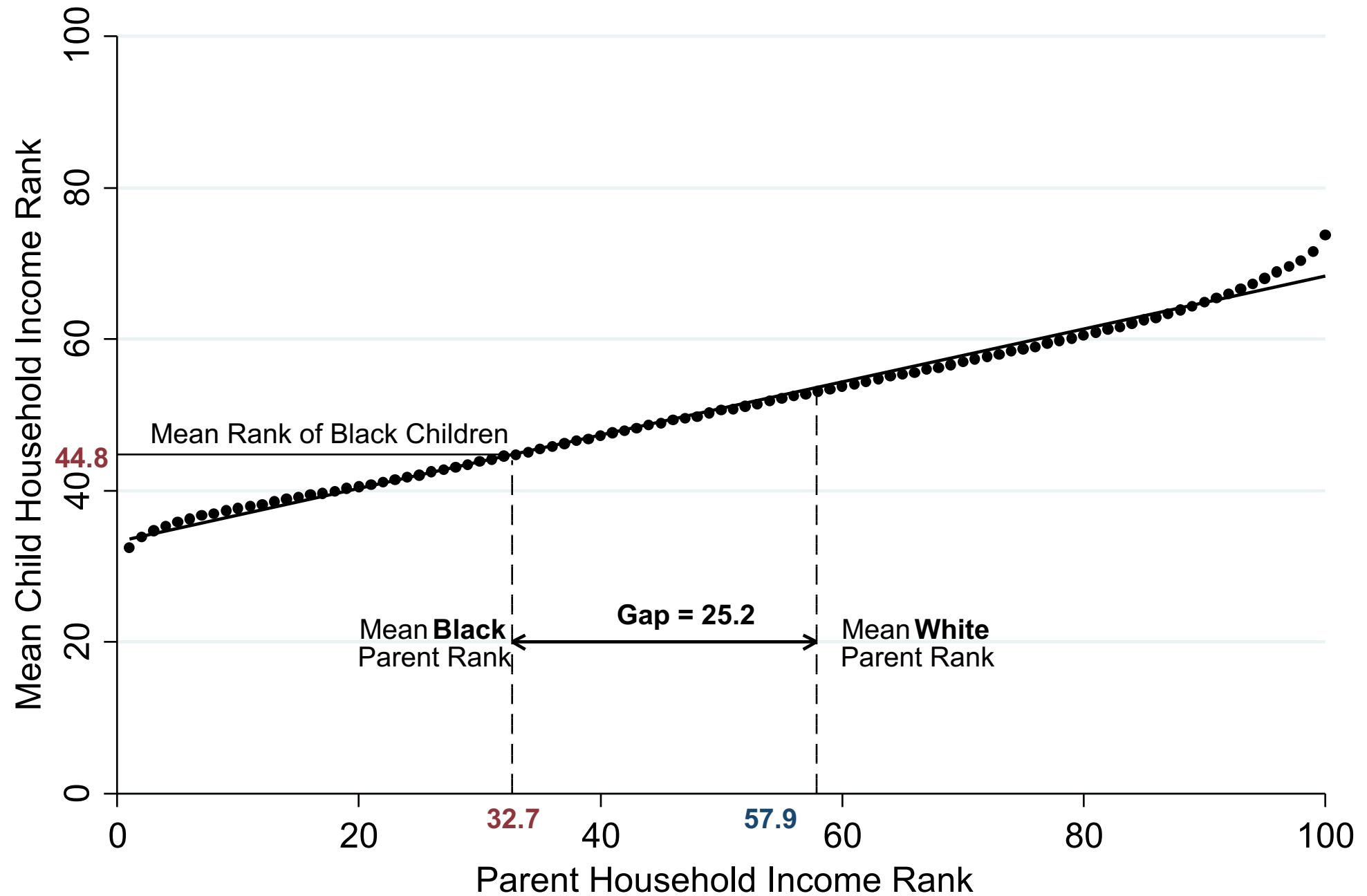
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant



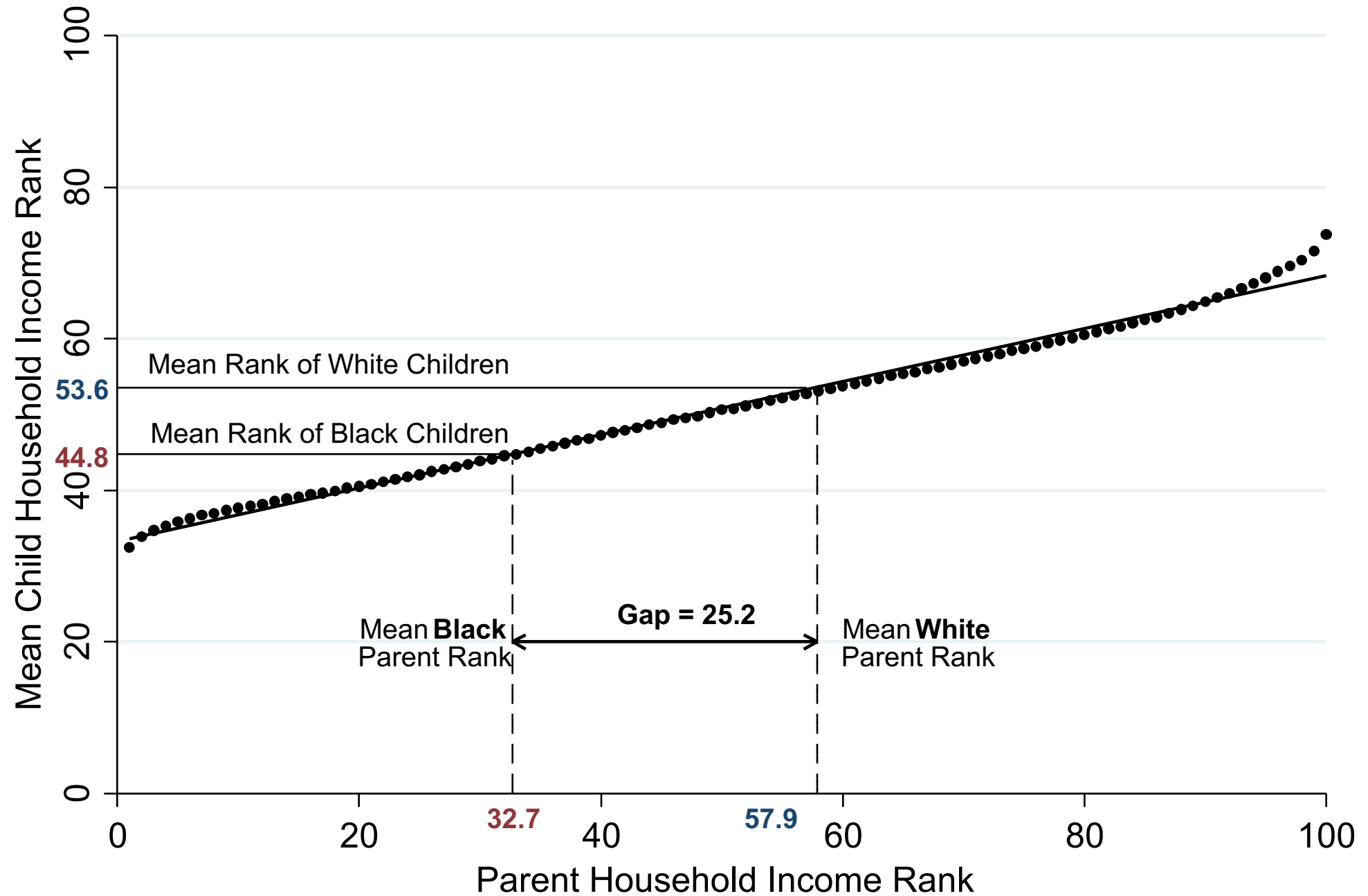
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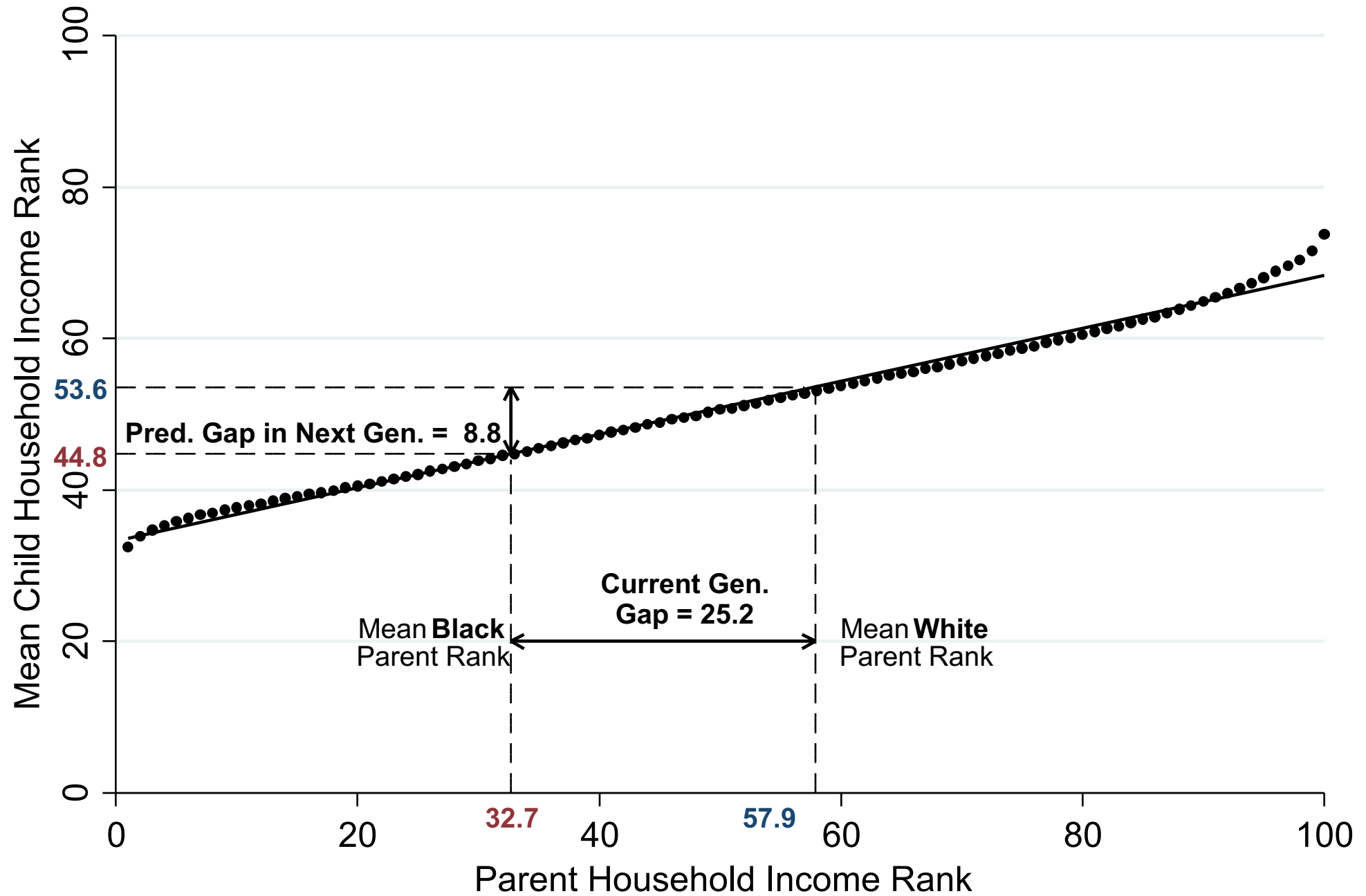
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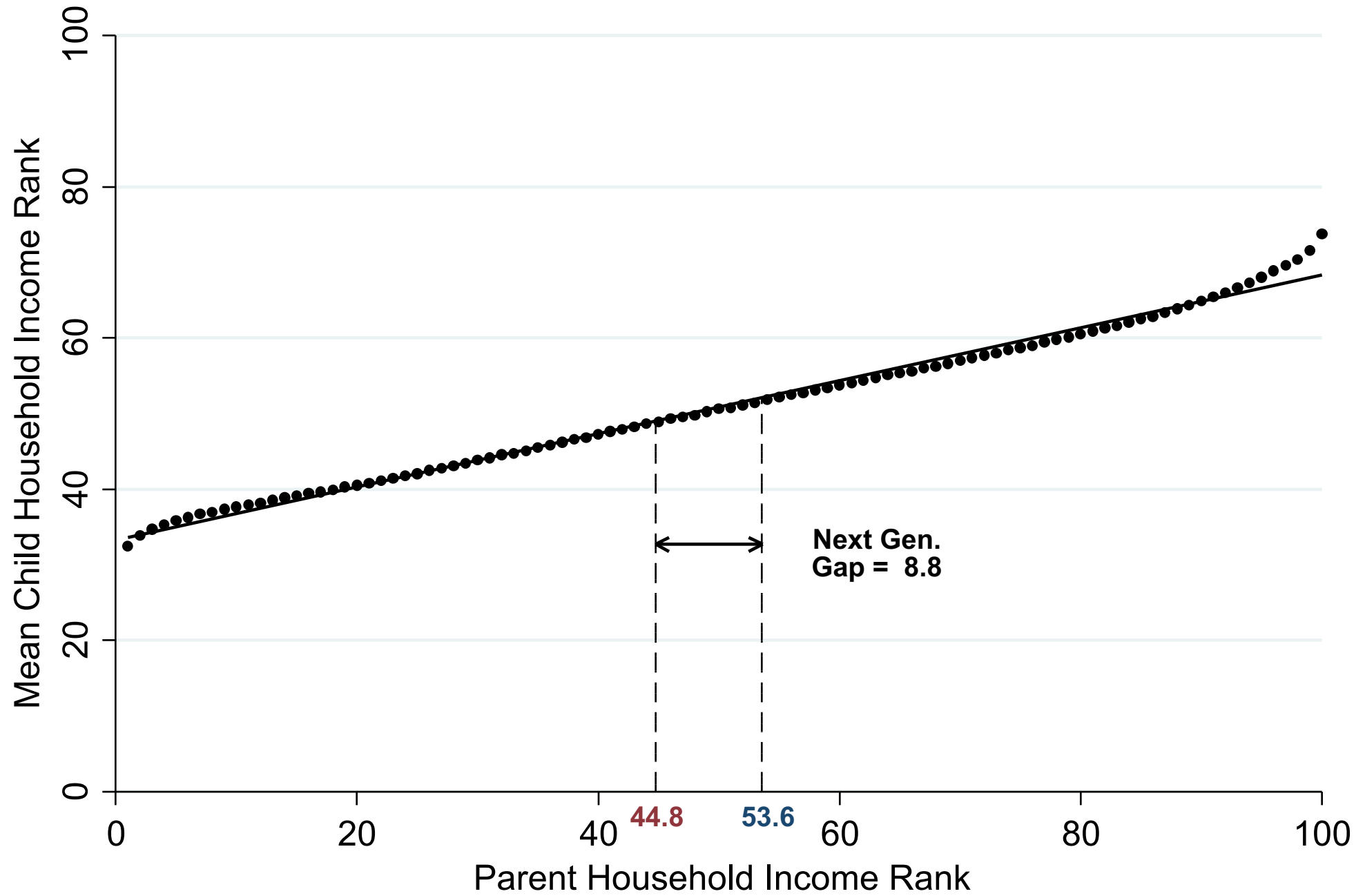
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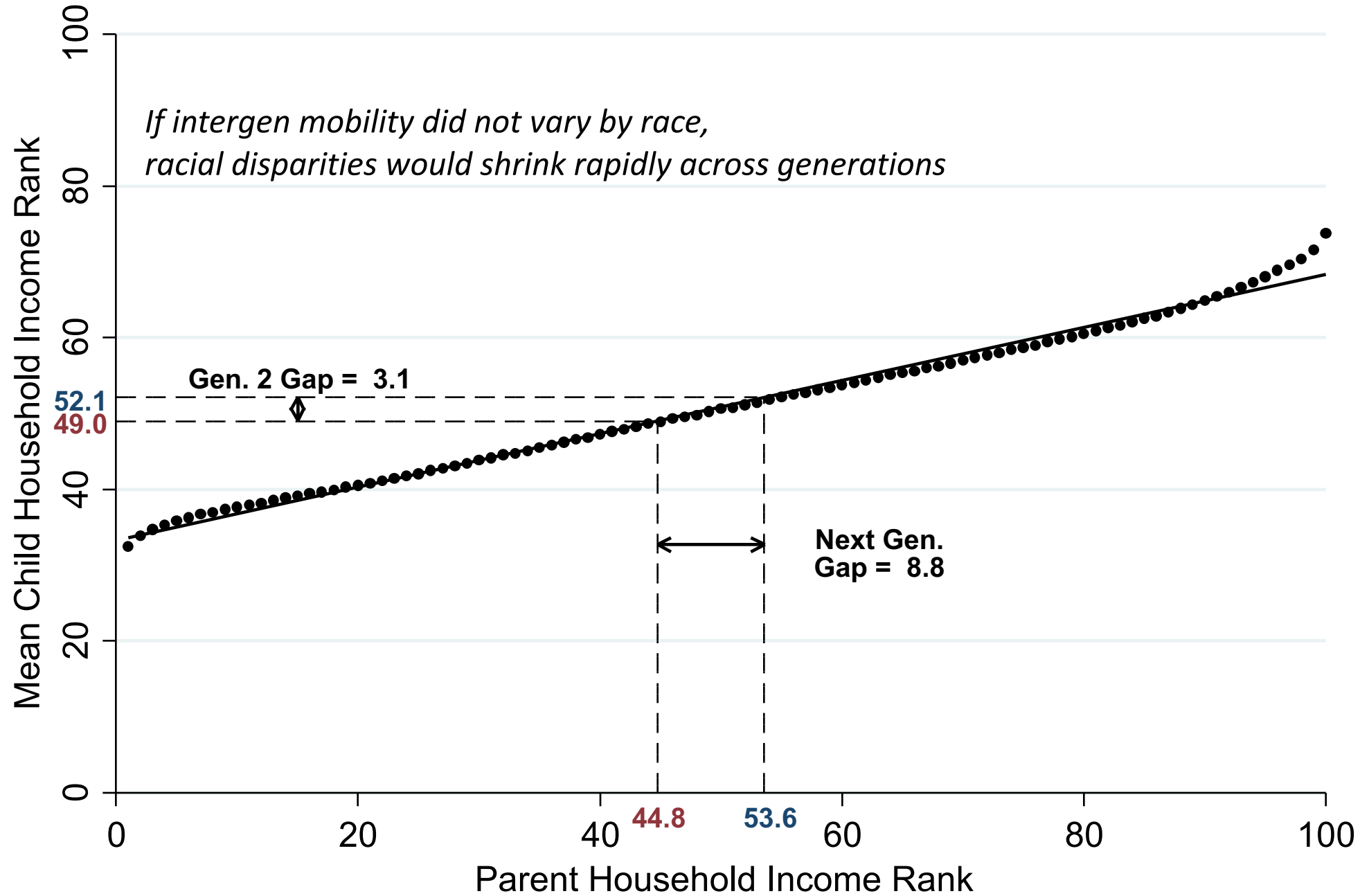
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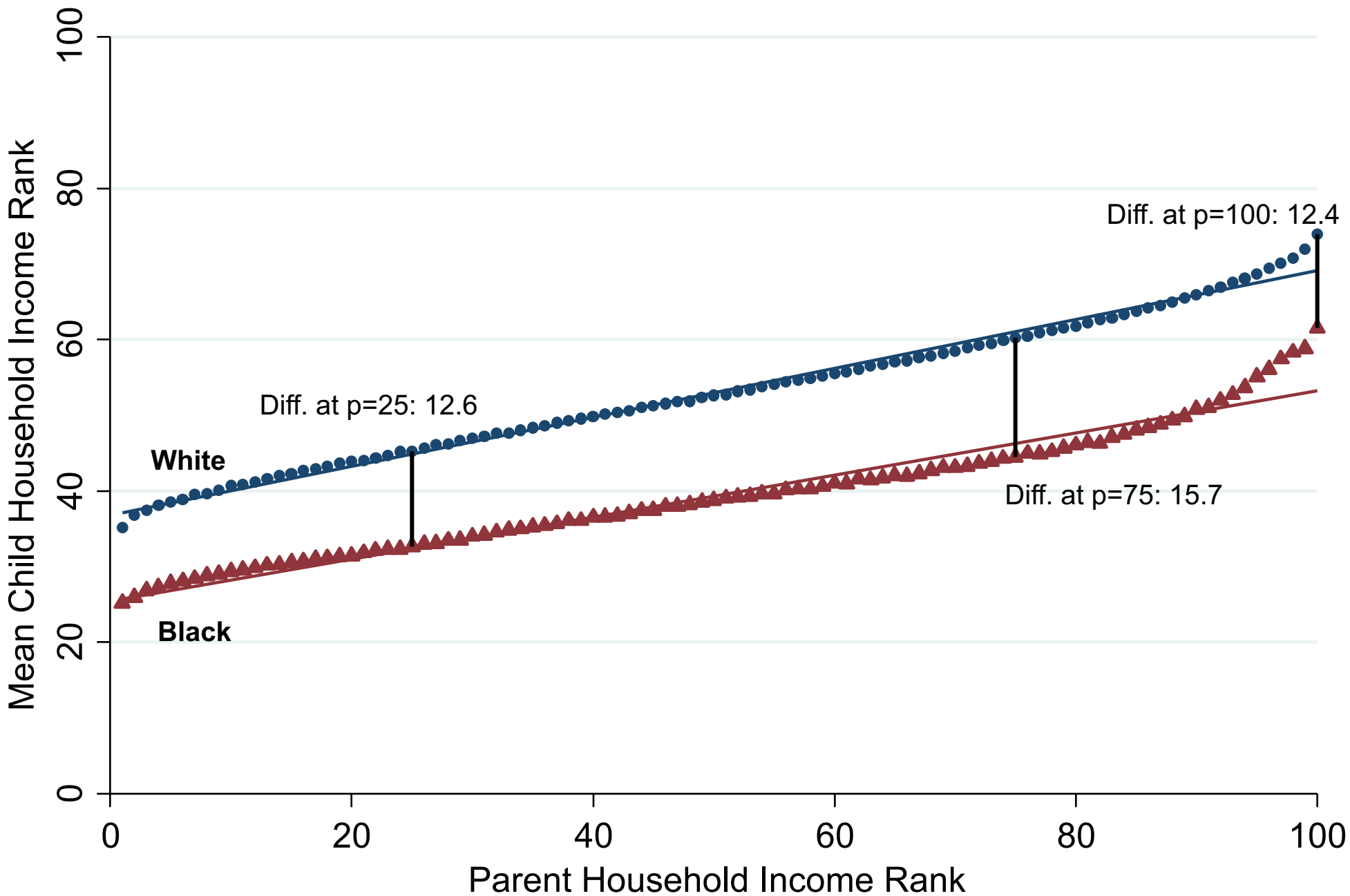
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Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

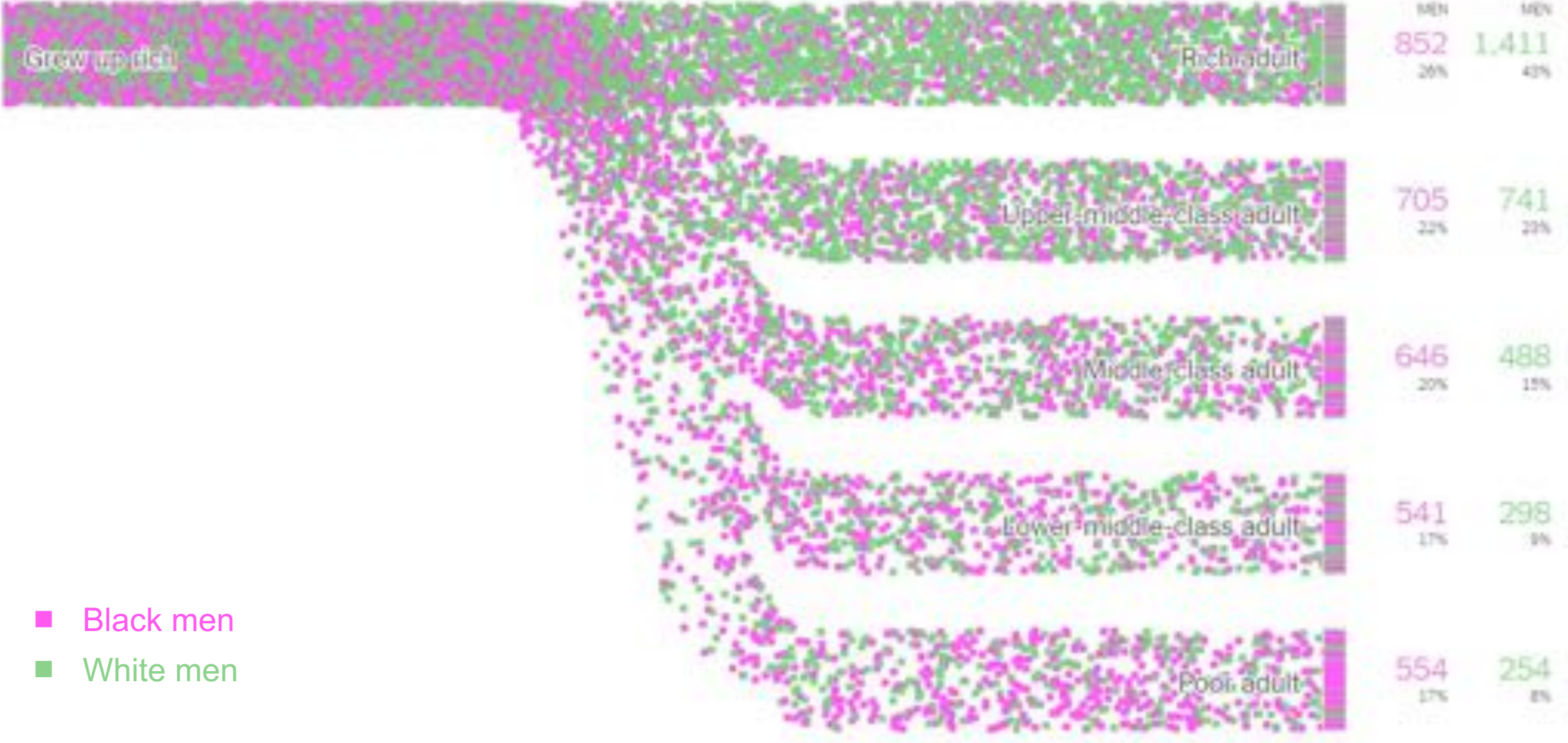


Intergenerational Mobility for White vs. Black Children



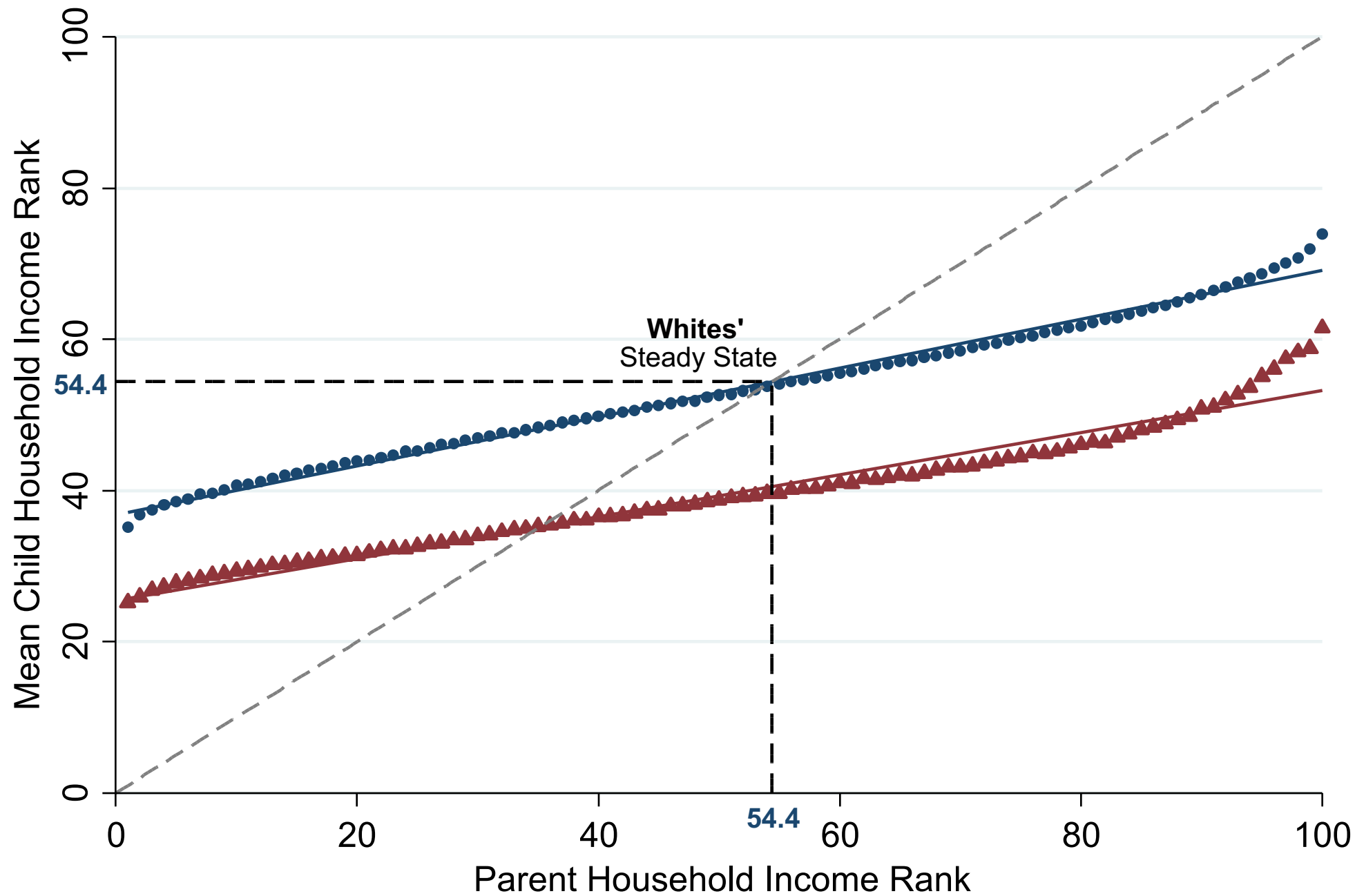
Income Mobility for Black vs. White Men Raised in High-Income Families

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

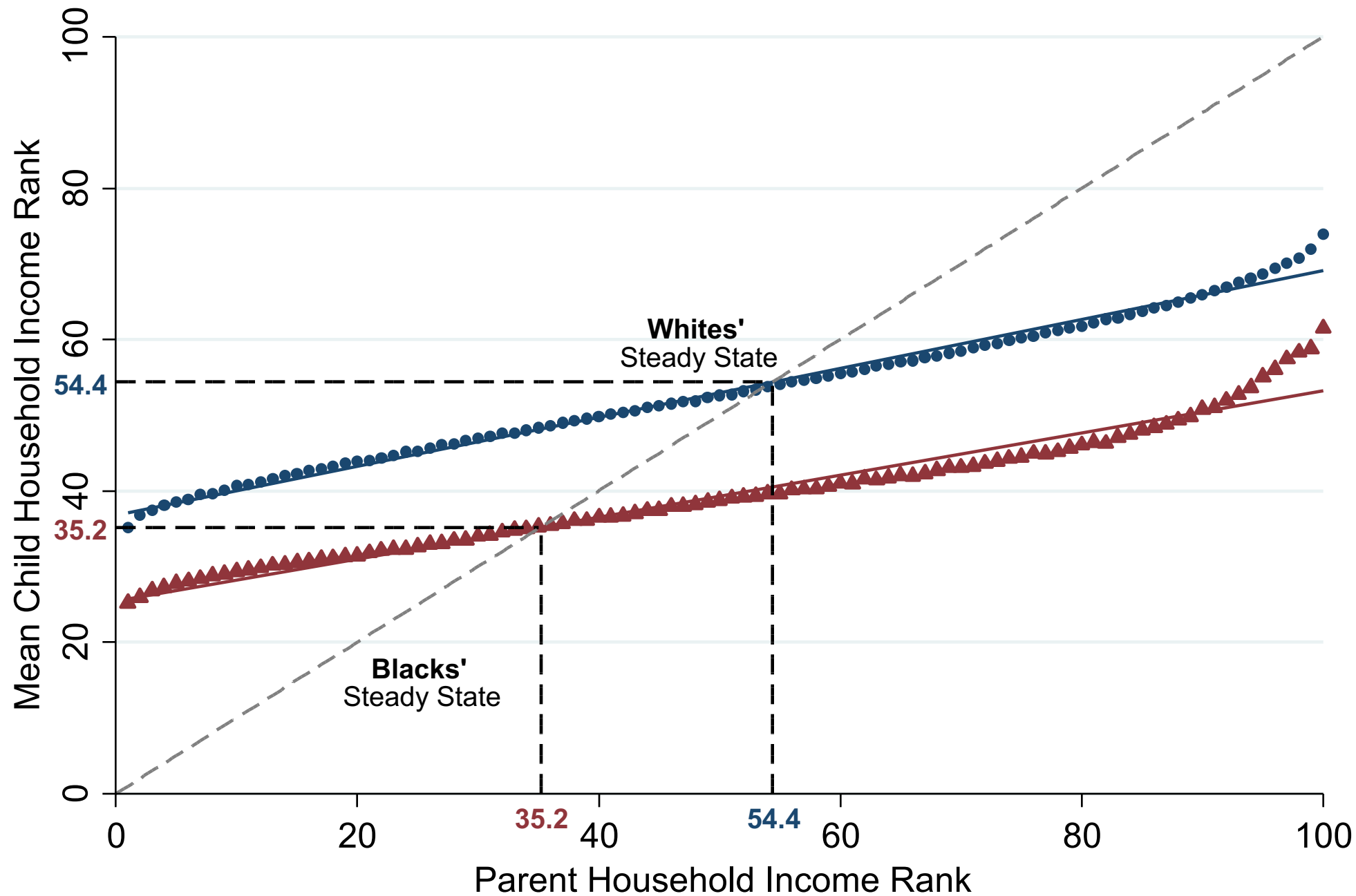


Source: Chetty, Hendren, Jones, Porter 2018; New York Times 2018

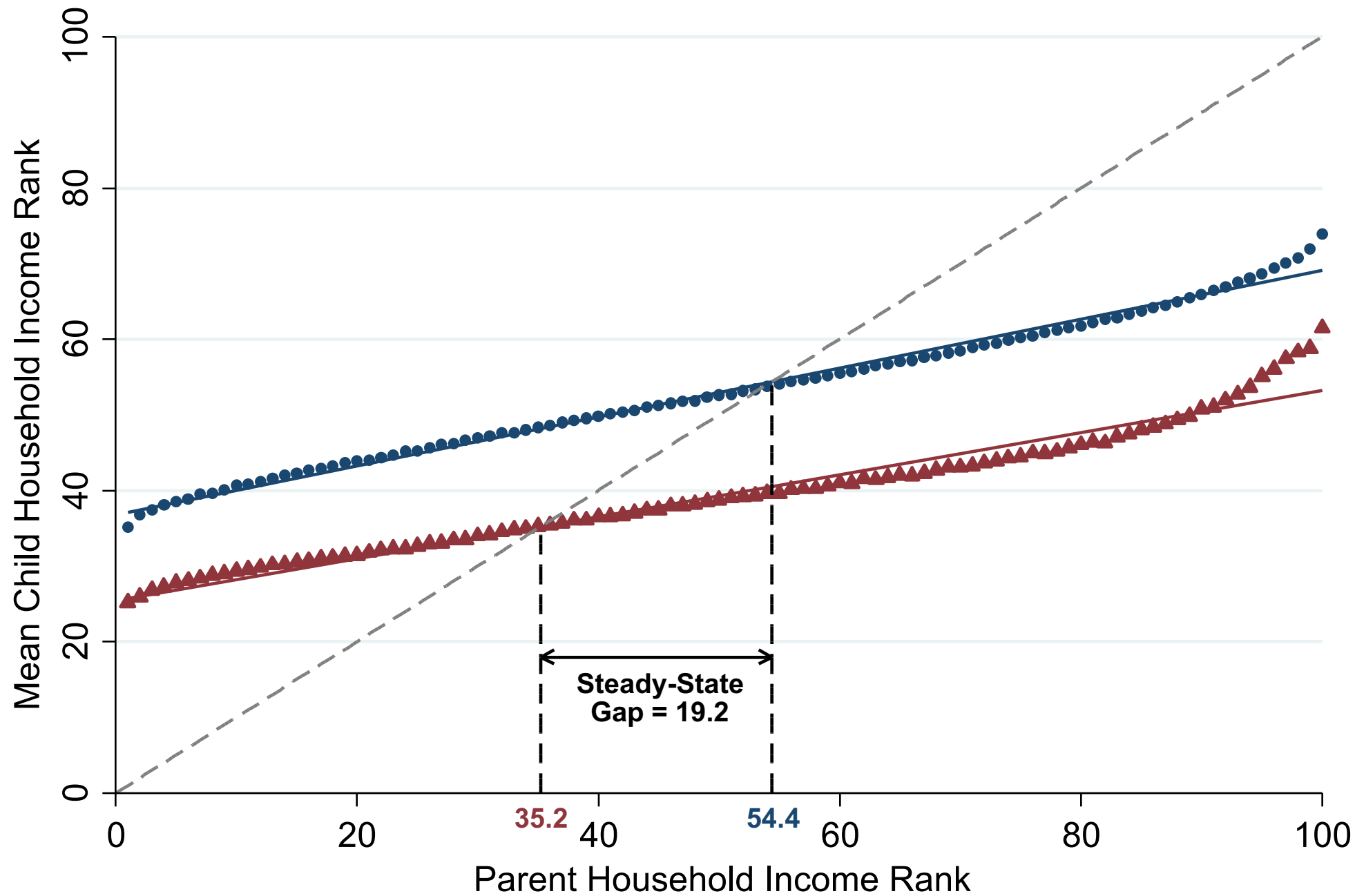
Intergenerational Mobility for White vs. Black Children



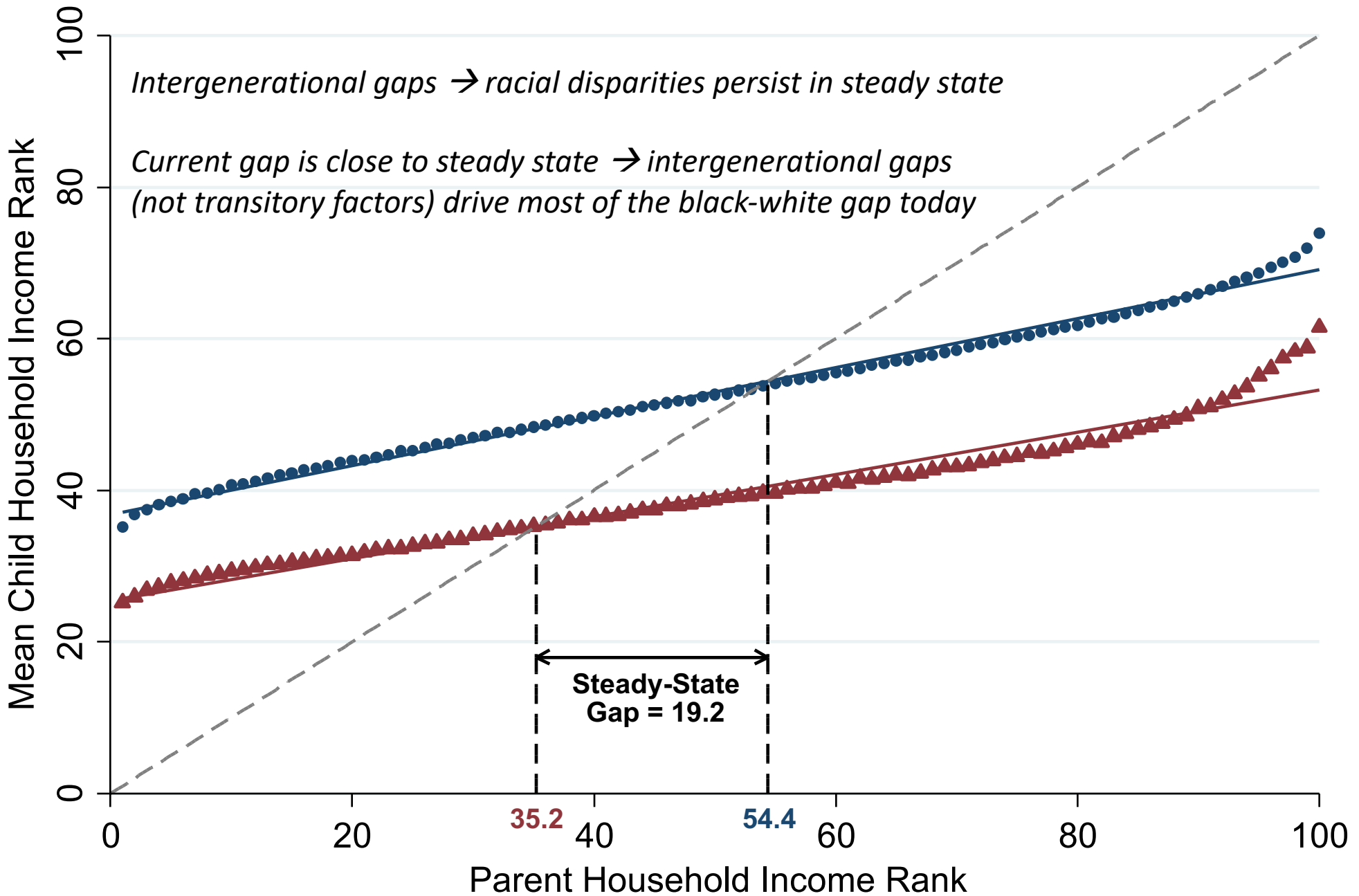
Intergenerational Mobility for White vs. Black Children



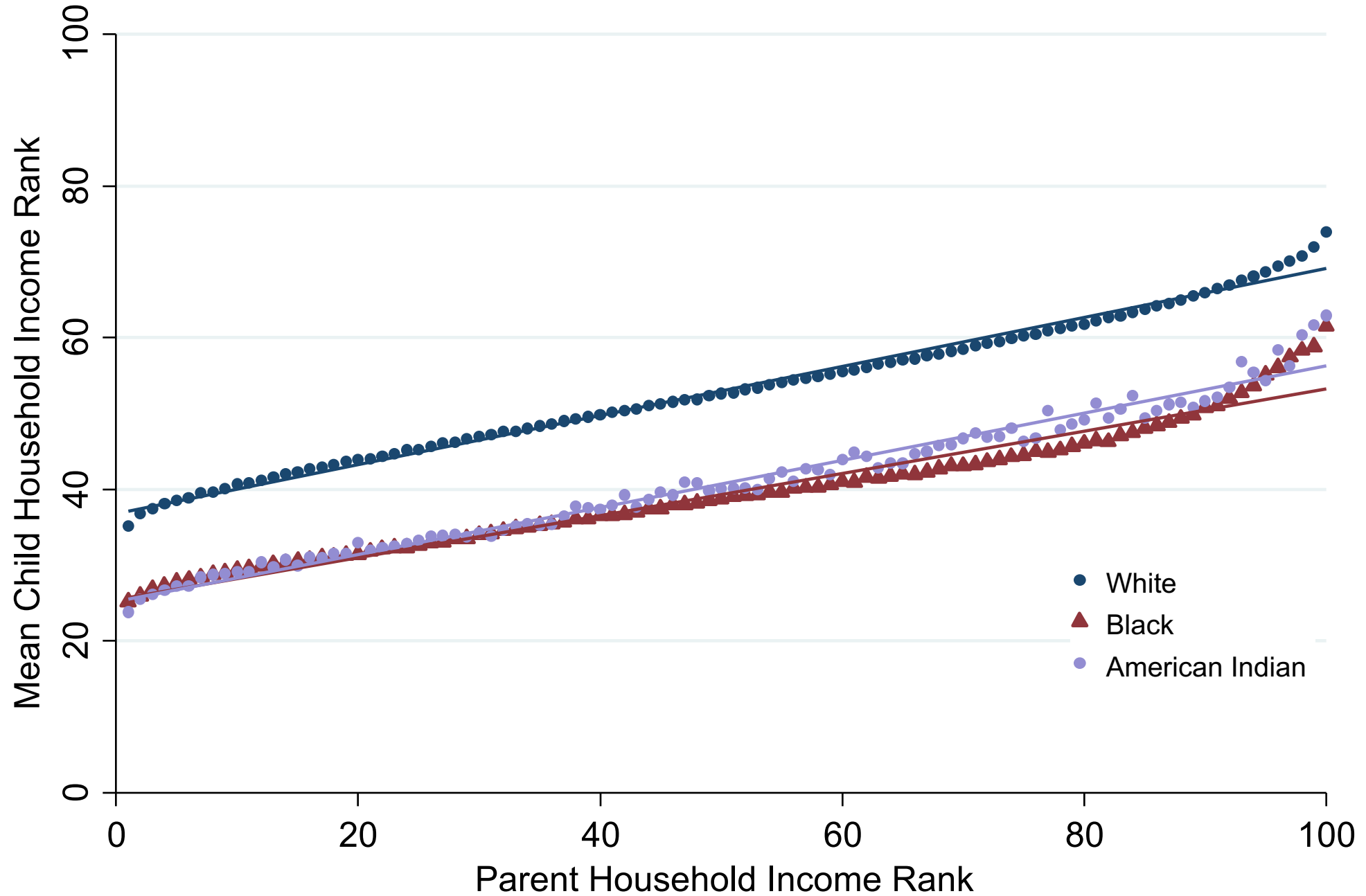
Intergenerational Mobility for White vs. Black Children



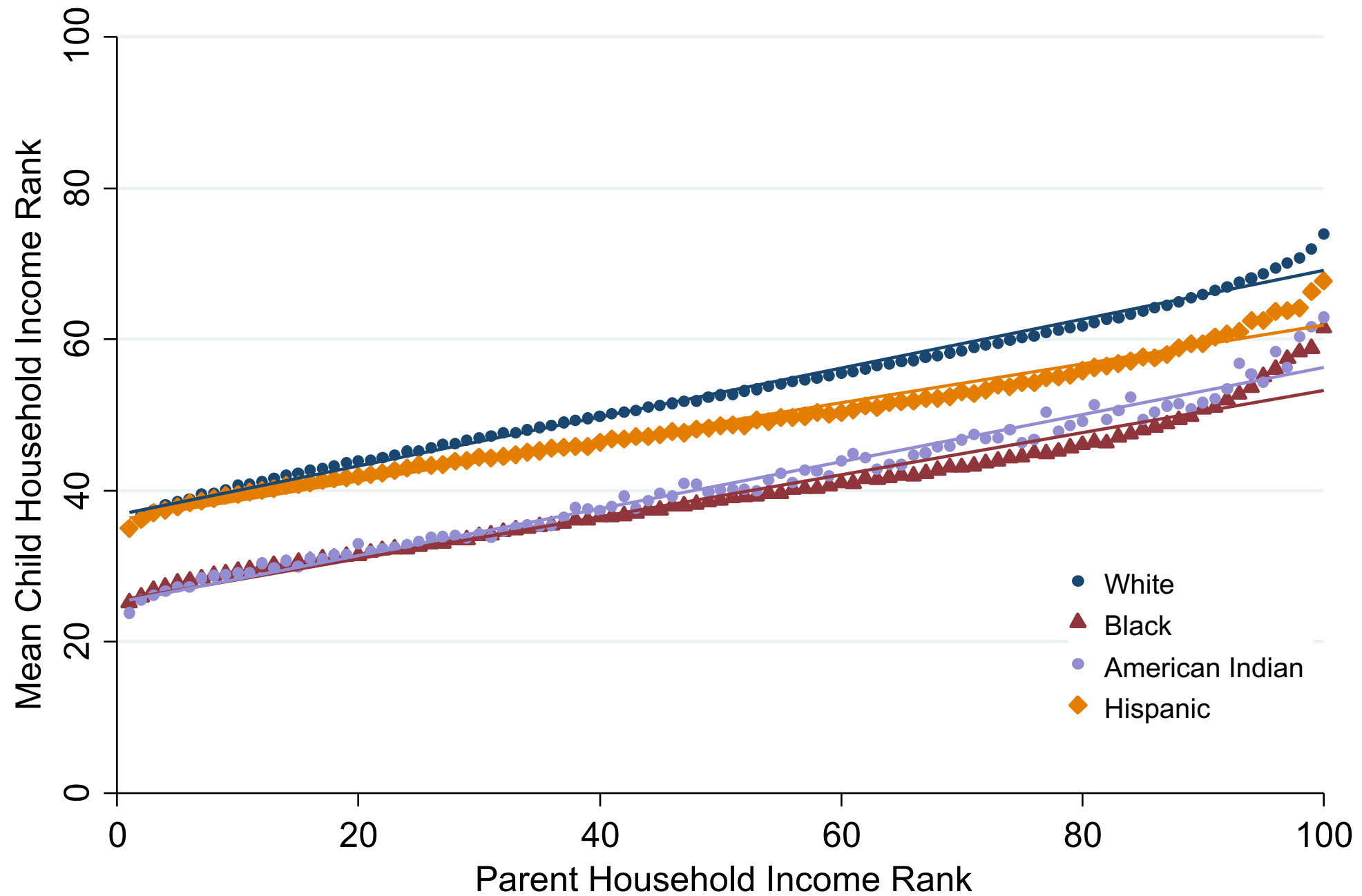
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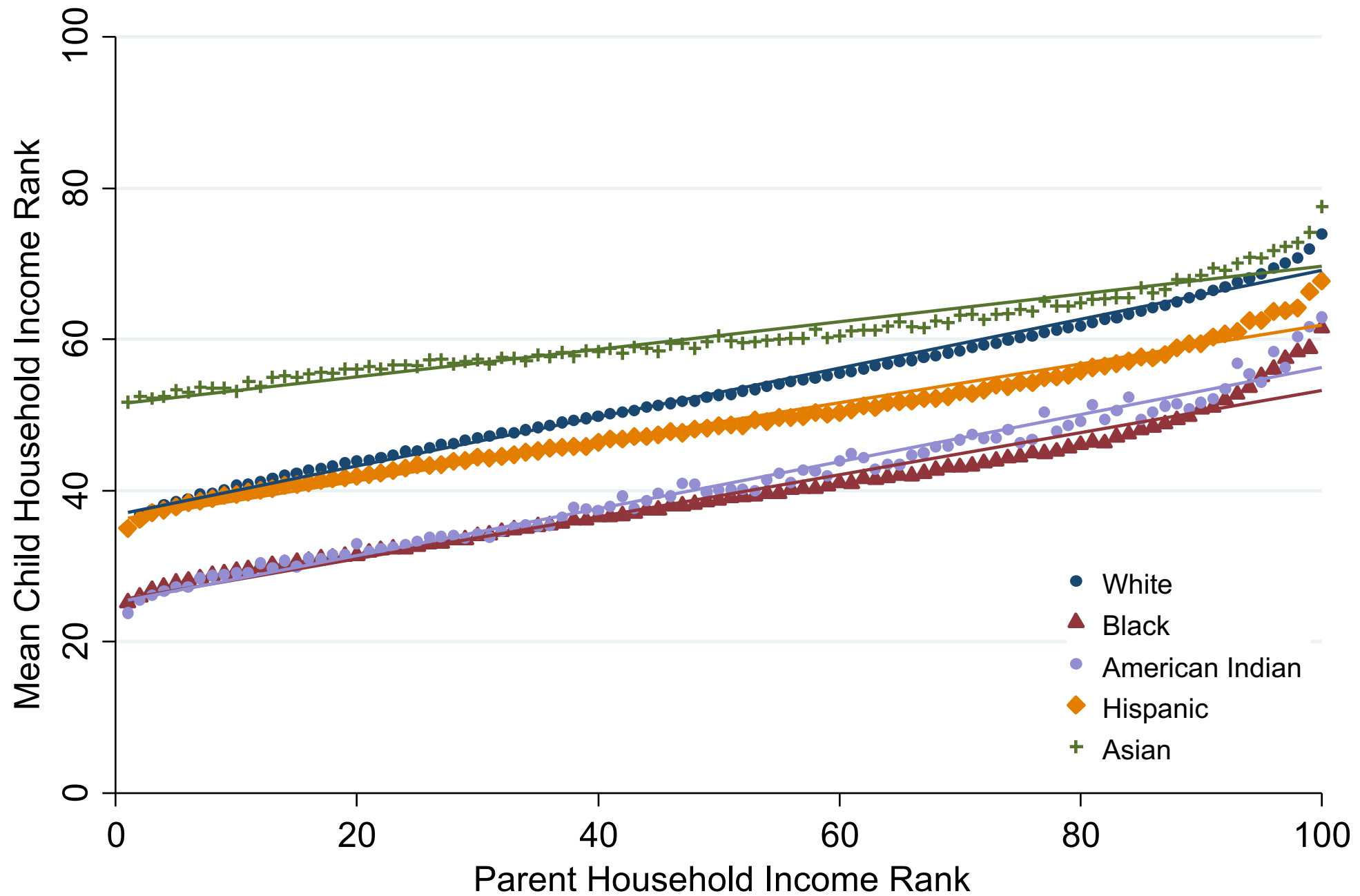
Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity



Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity

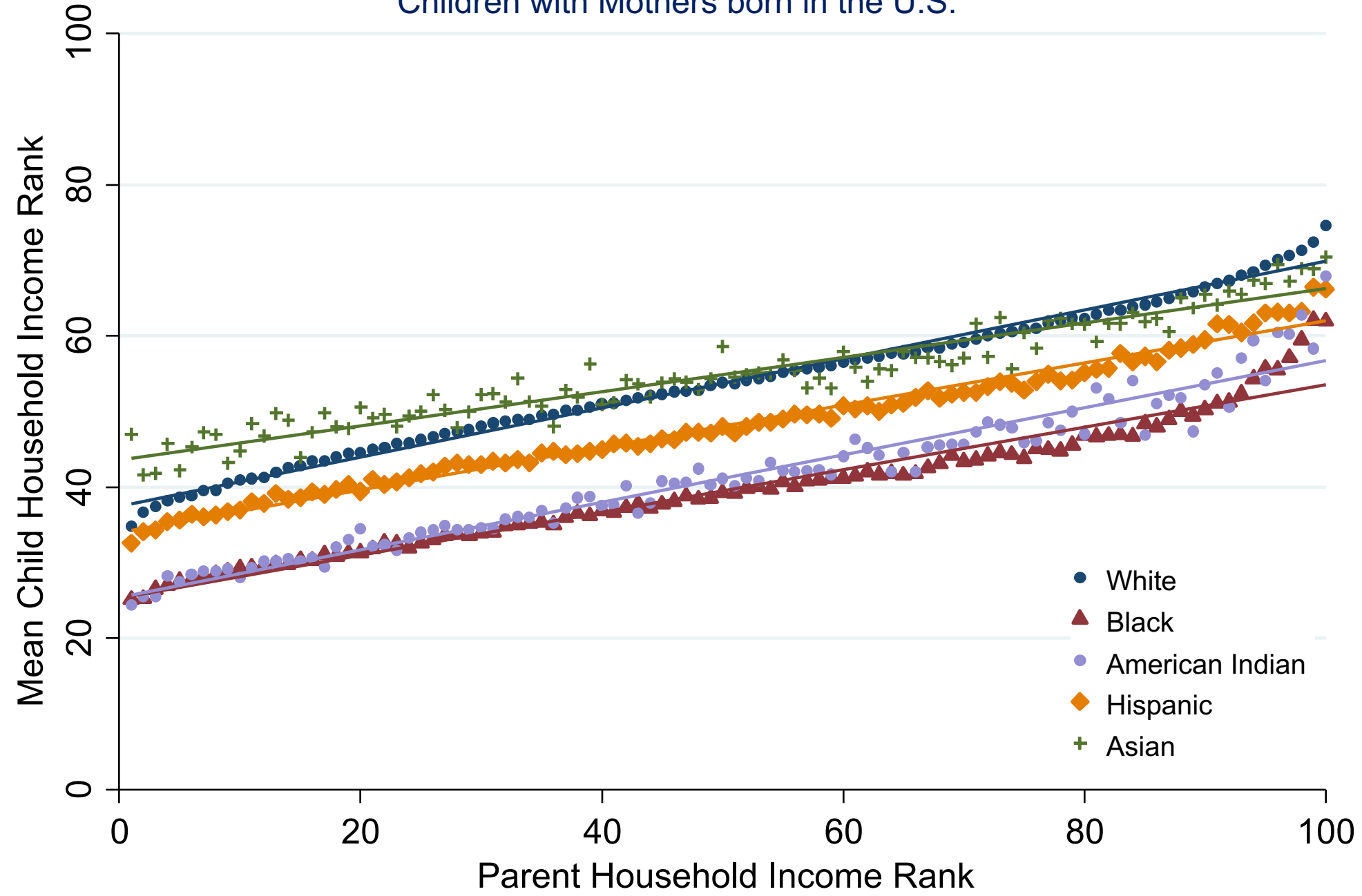


Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity

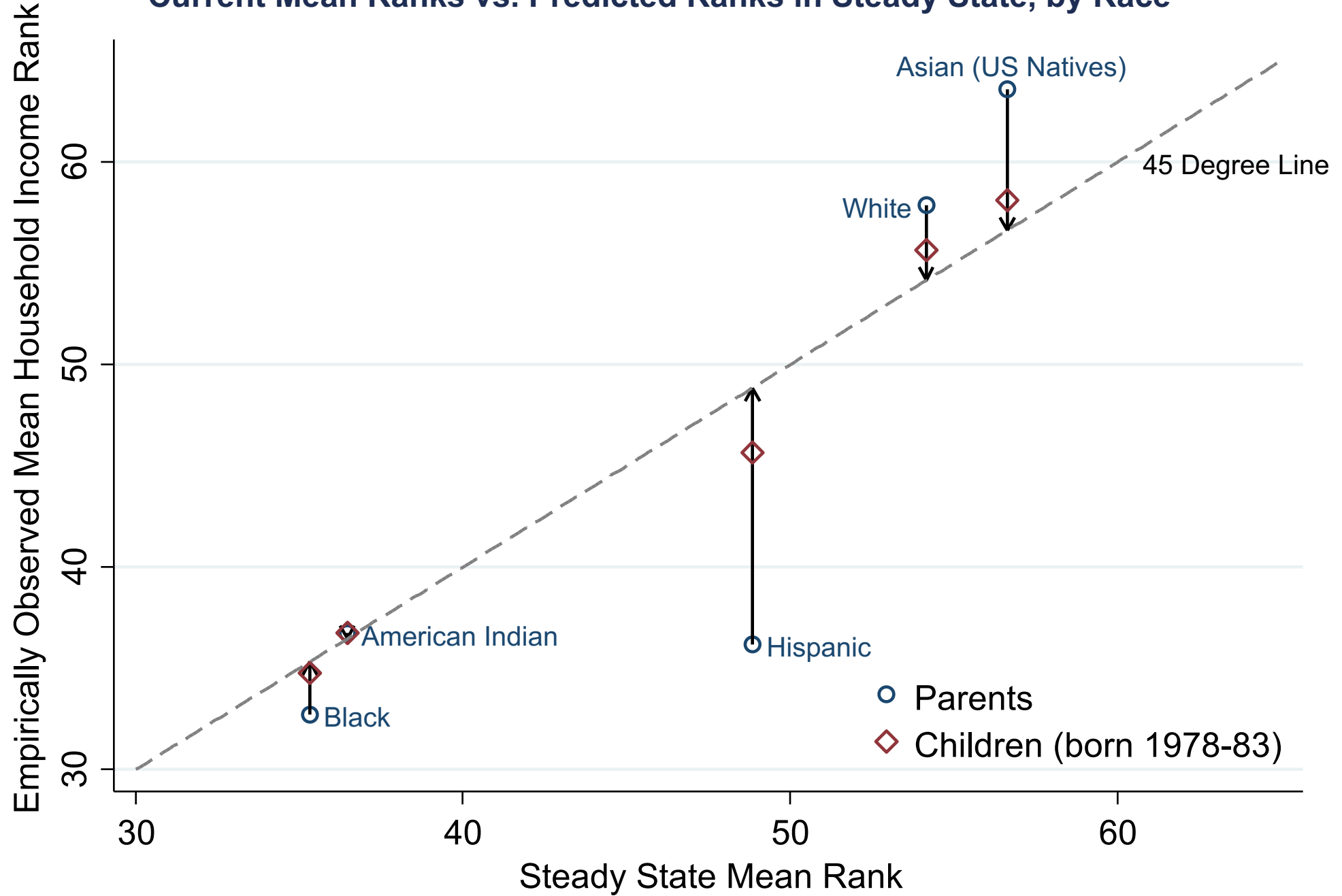


Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity

Children with Mothers born in the U.S.



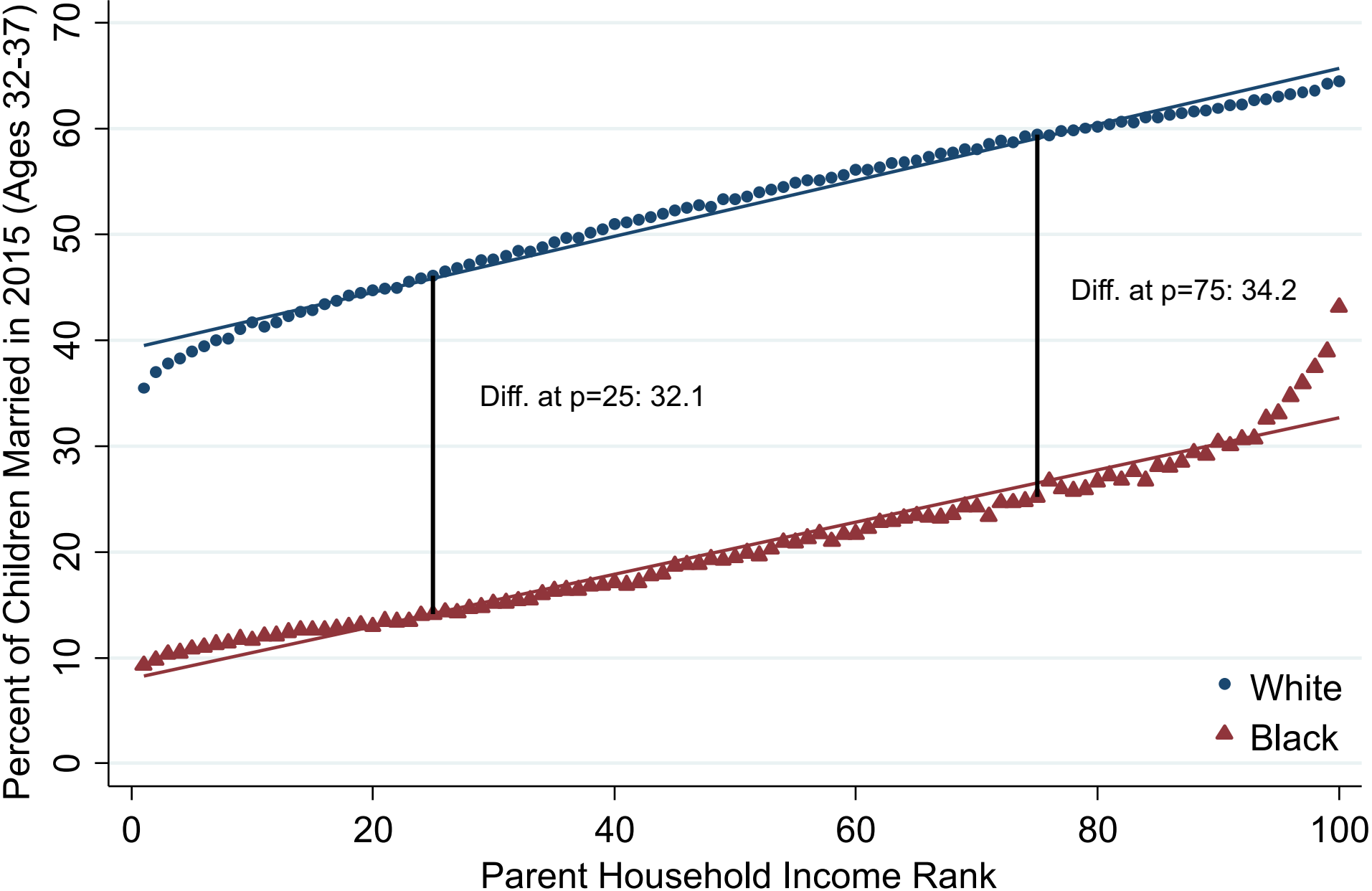
Current Mean Ranks vs. Predicted Ranks in Steady State, by Race



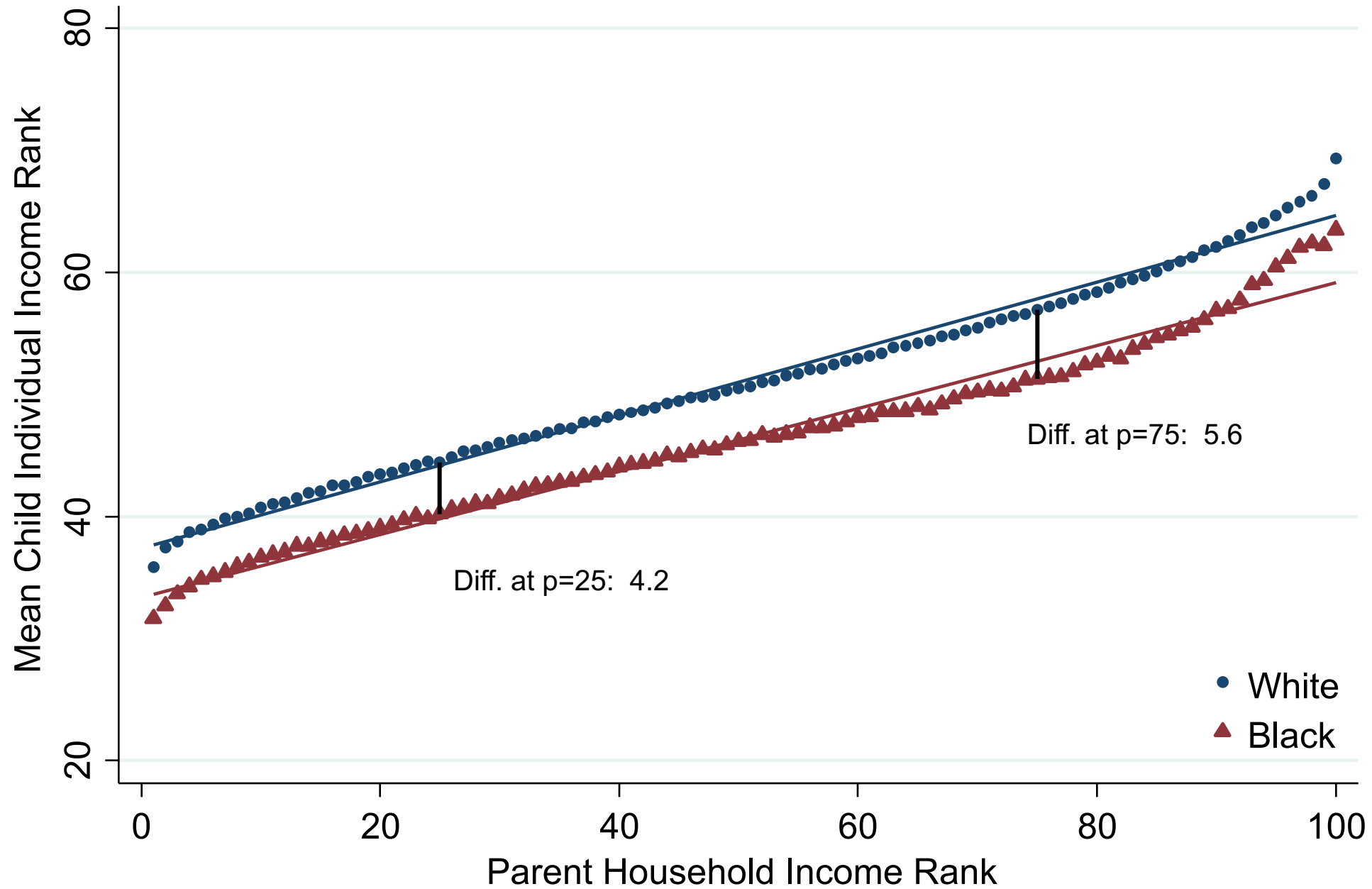
Mechanical Effects of Household Size

- Well-known that black people marry at much lower rates than white people
- Do differences in marriage rates create mechanical differences between the household incomes?

Marriage Rates vs. Parent Income, Black vs. White Children

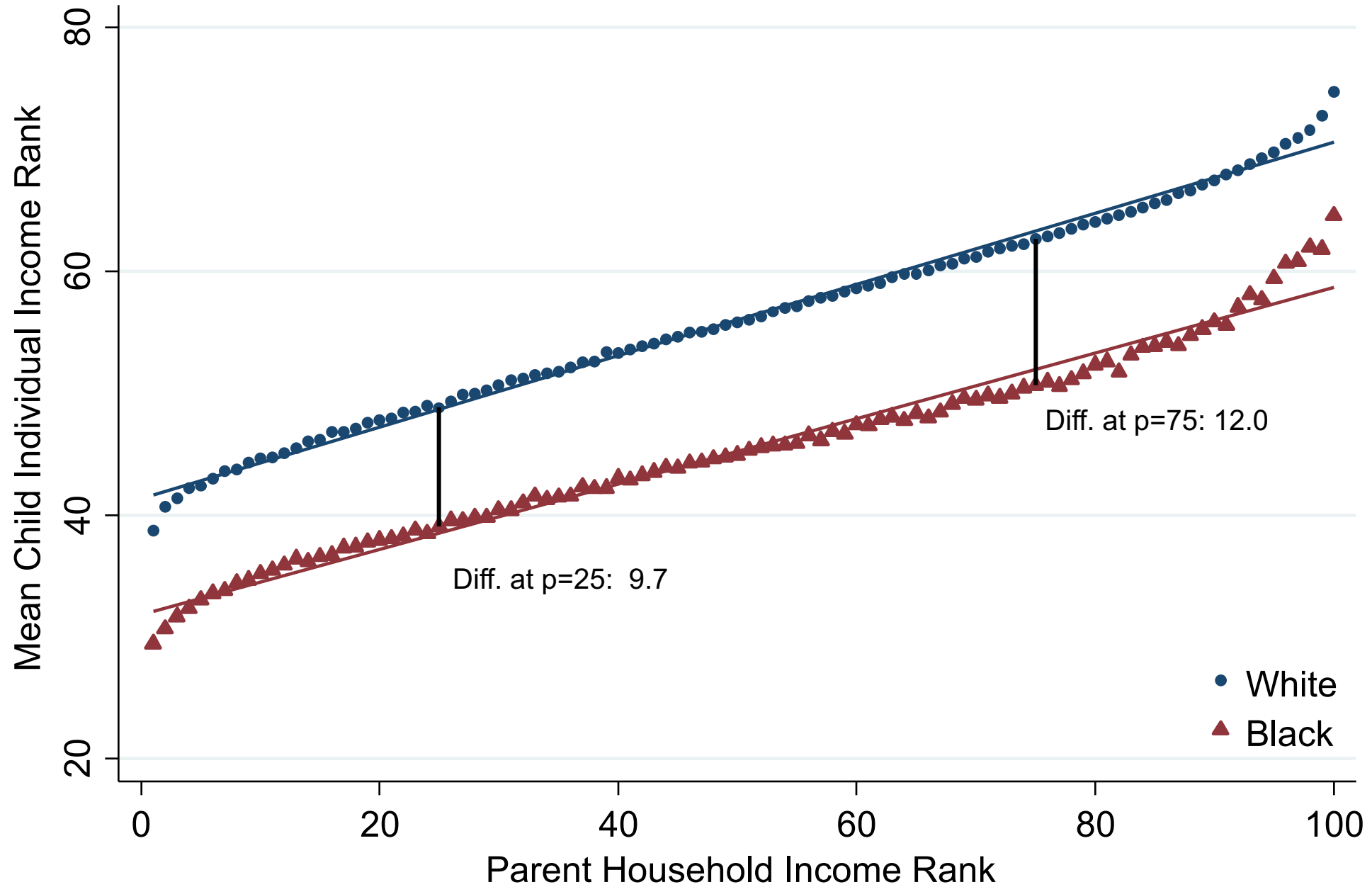


Black-White Gap in Child Individual Income Rank vs. Parent Income Rank



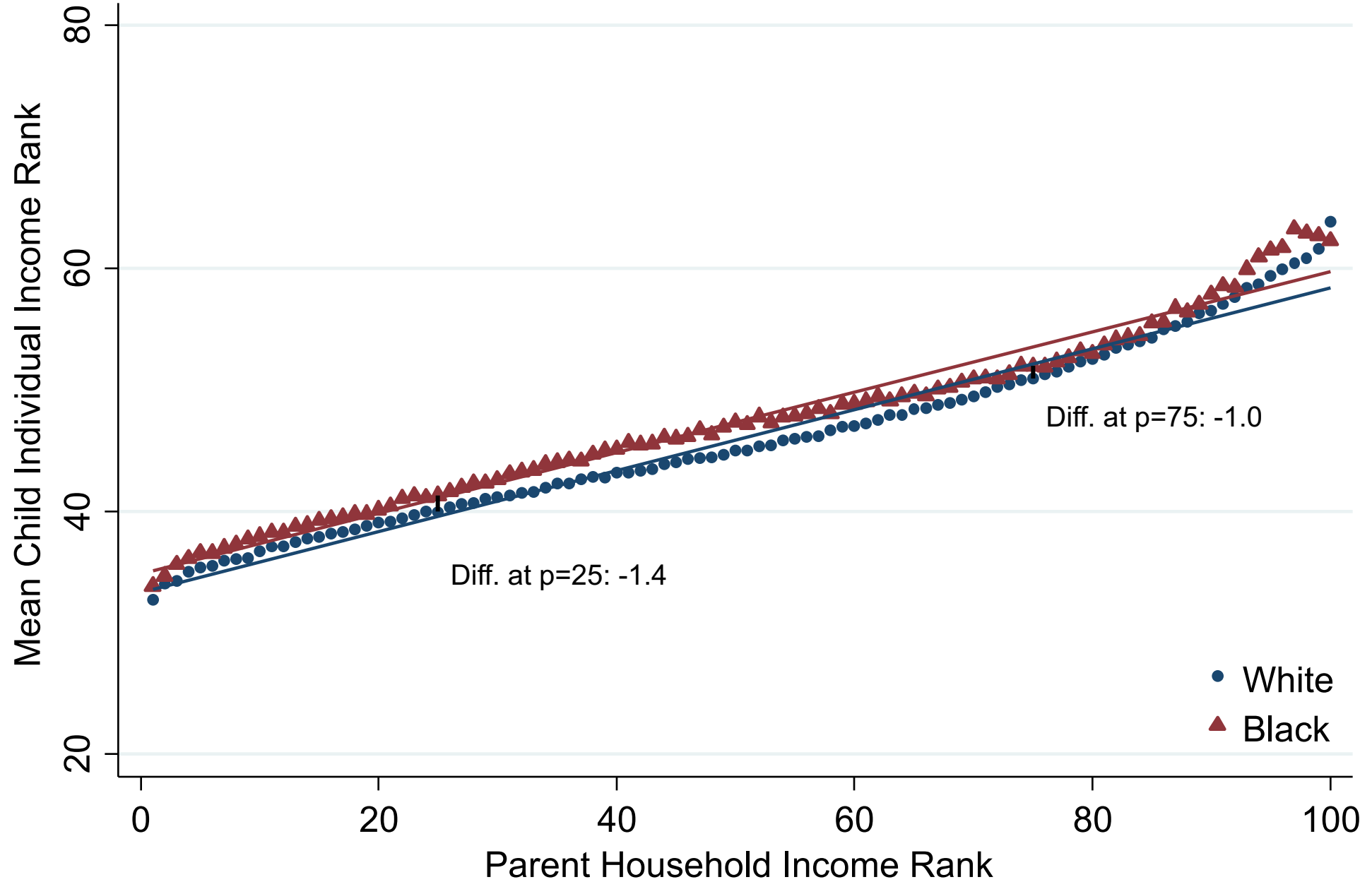
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank

Male Children



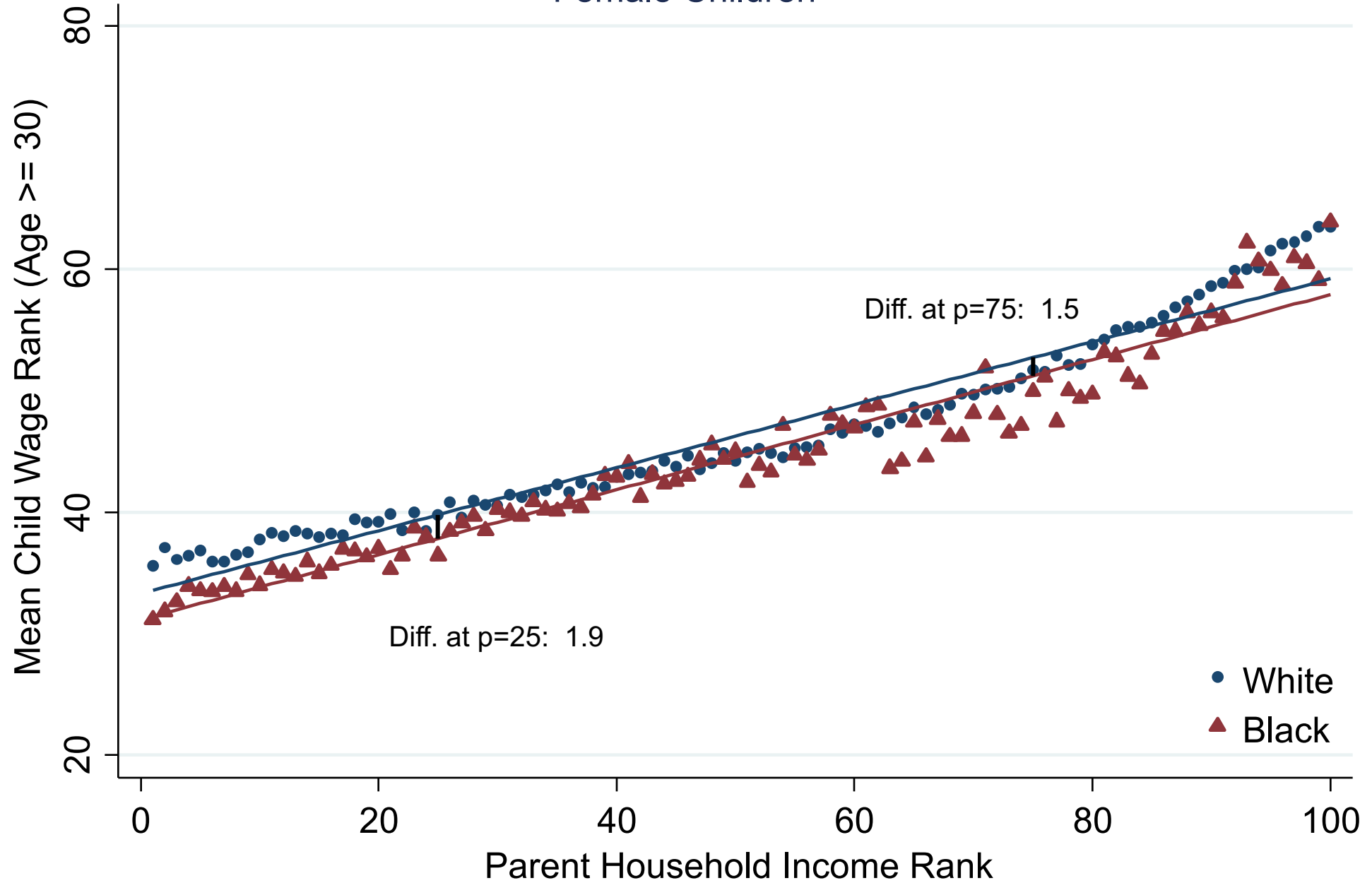
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank

Female Children



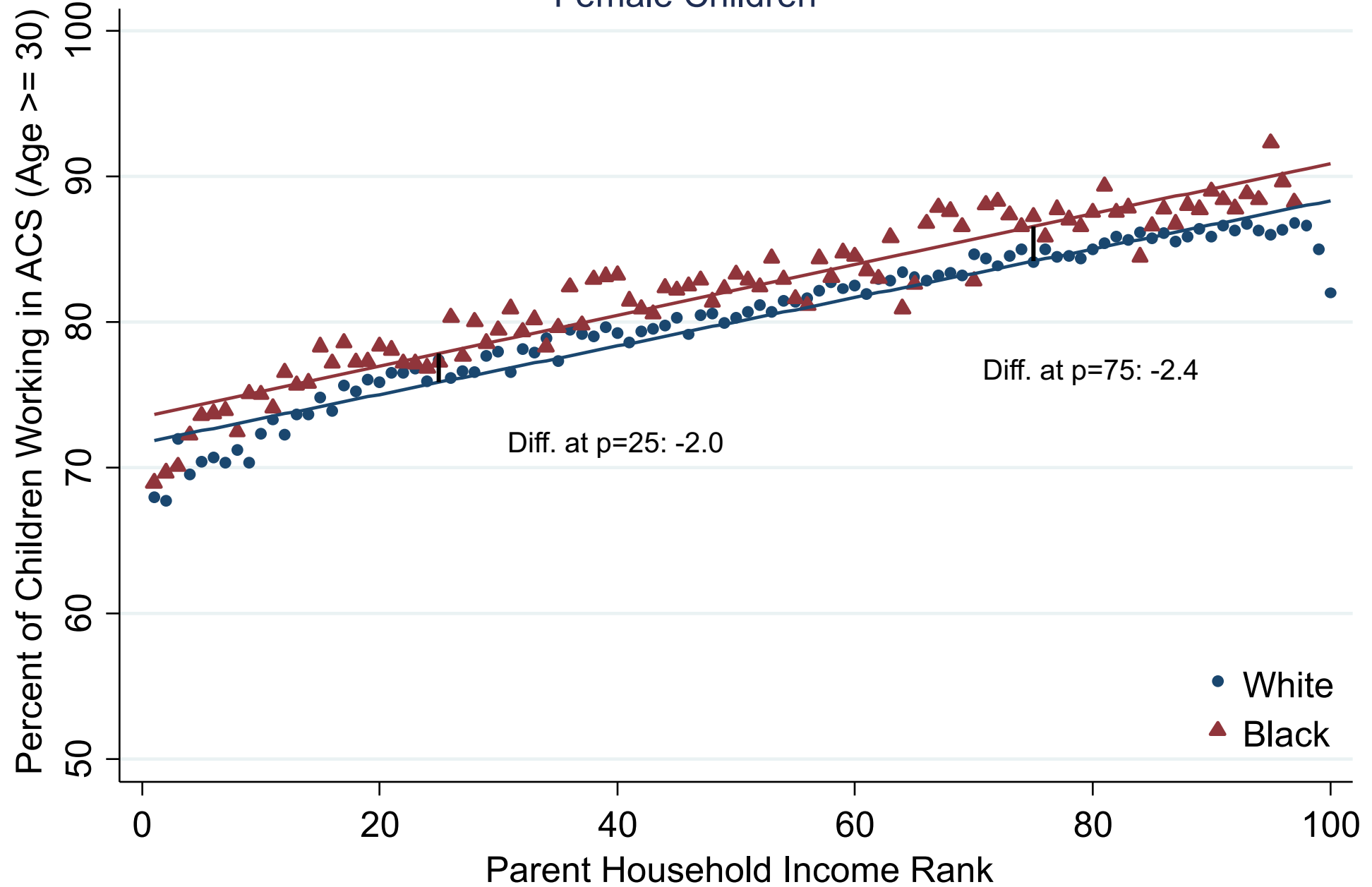
Hourly Wage Rates vs. Parent Income

Female Children



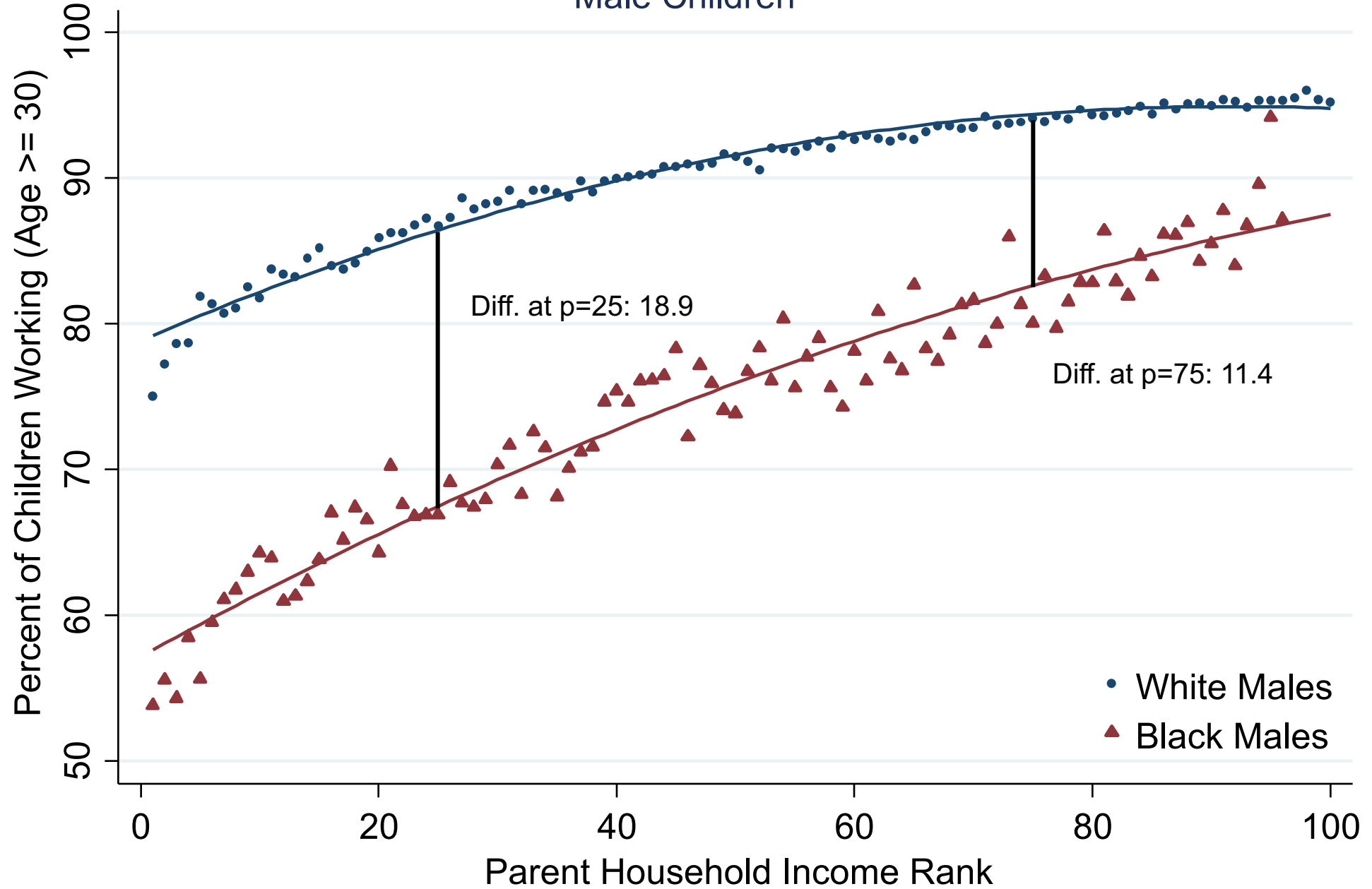
Employment Rates vs. Parent Income Rank

Female Children

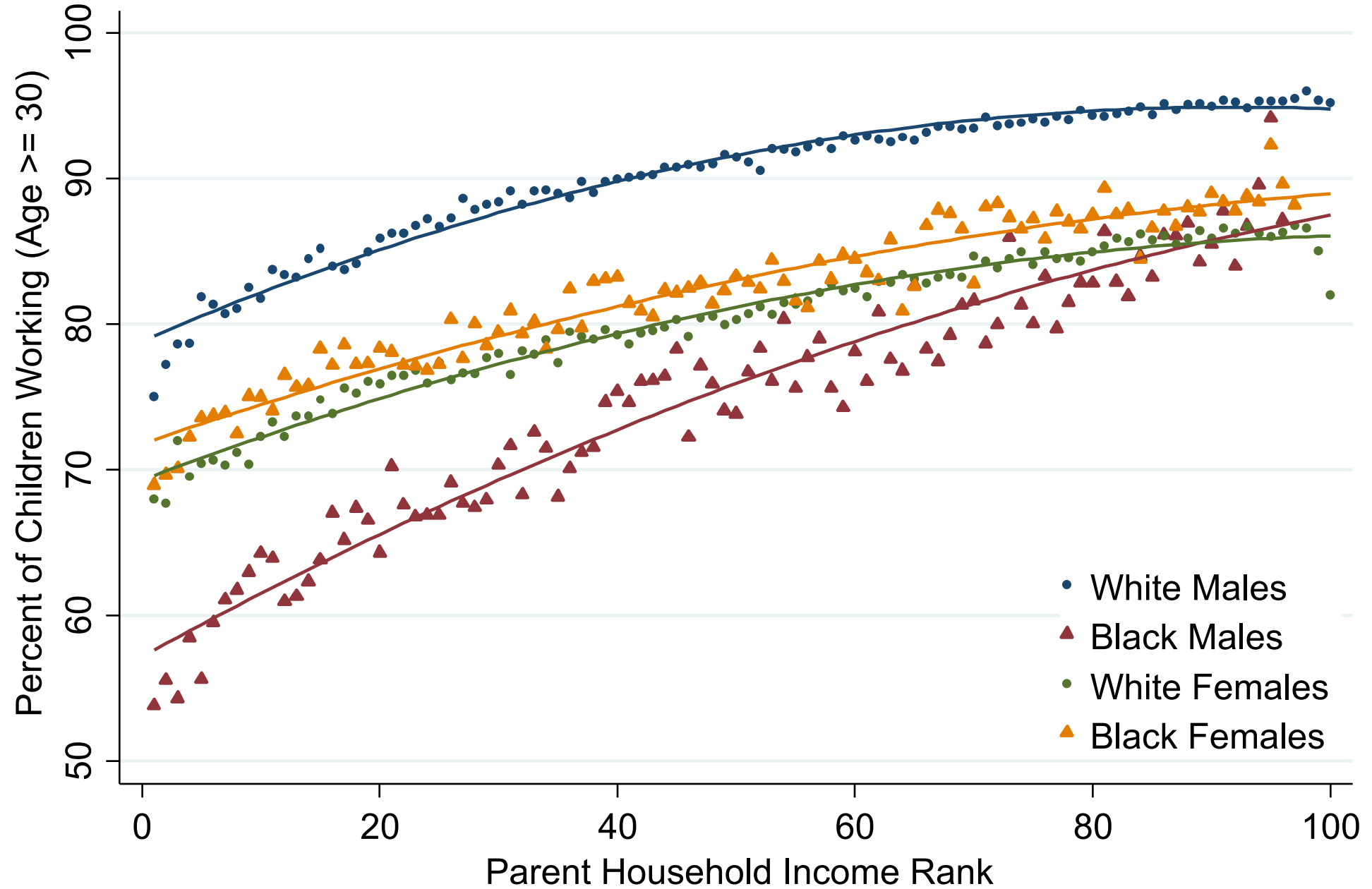


Employment Rates vs. Parent Income Rank

Male Children



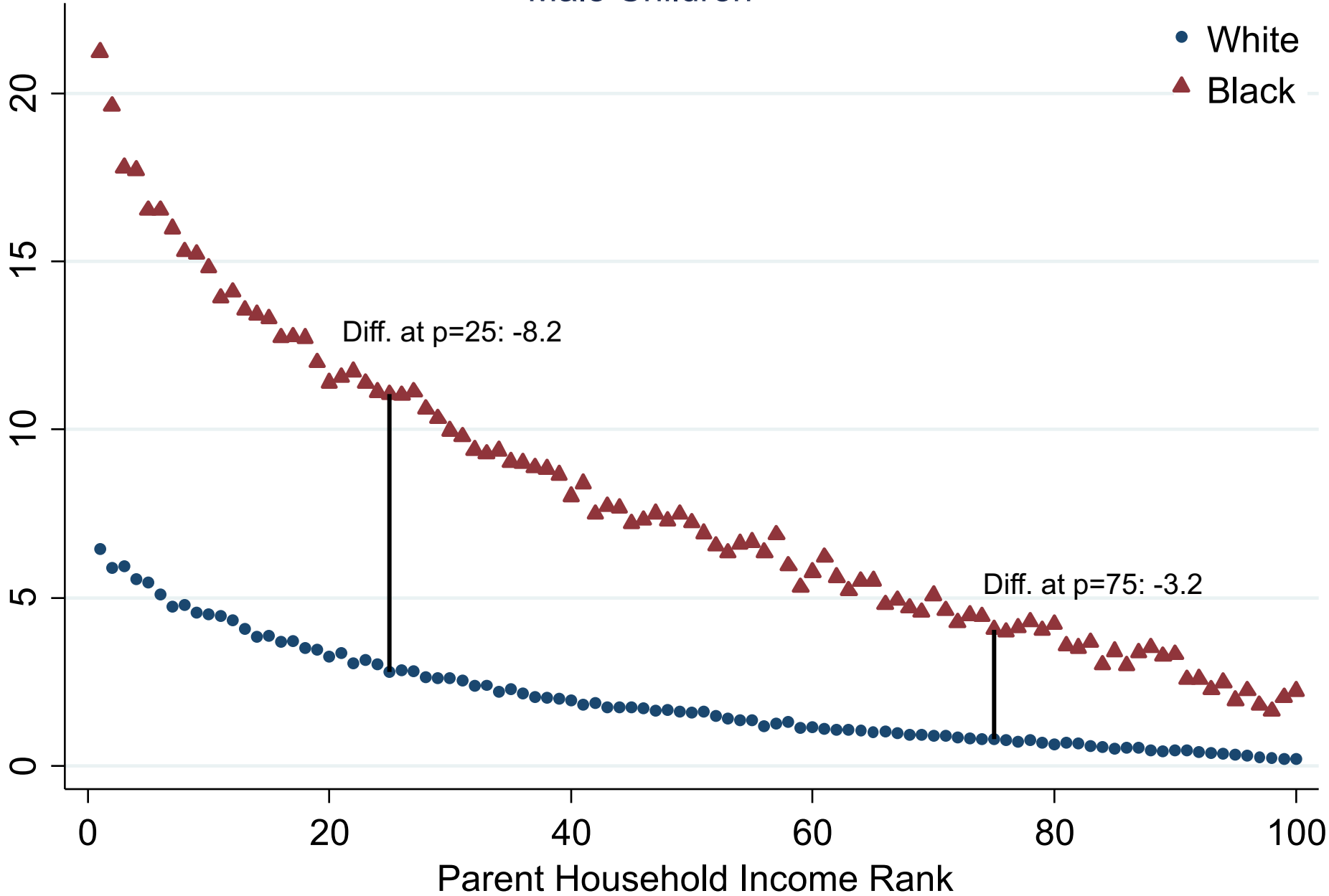
Employment Rates vs. Parent Income Rank



Incarceration Rates vs. Parent Income Rank

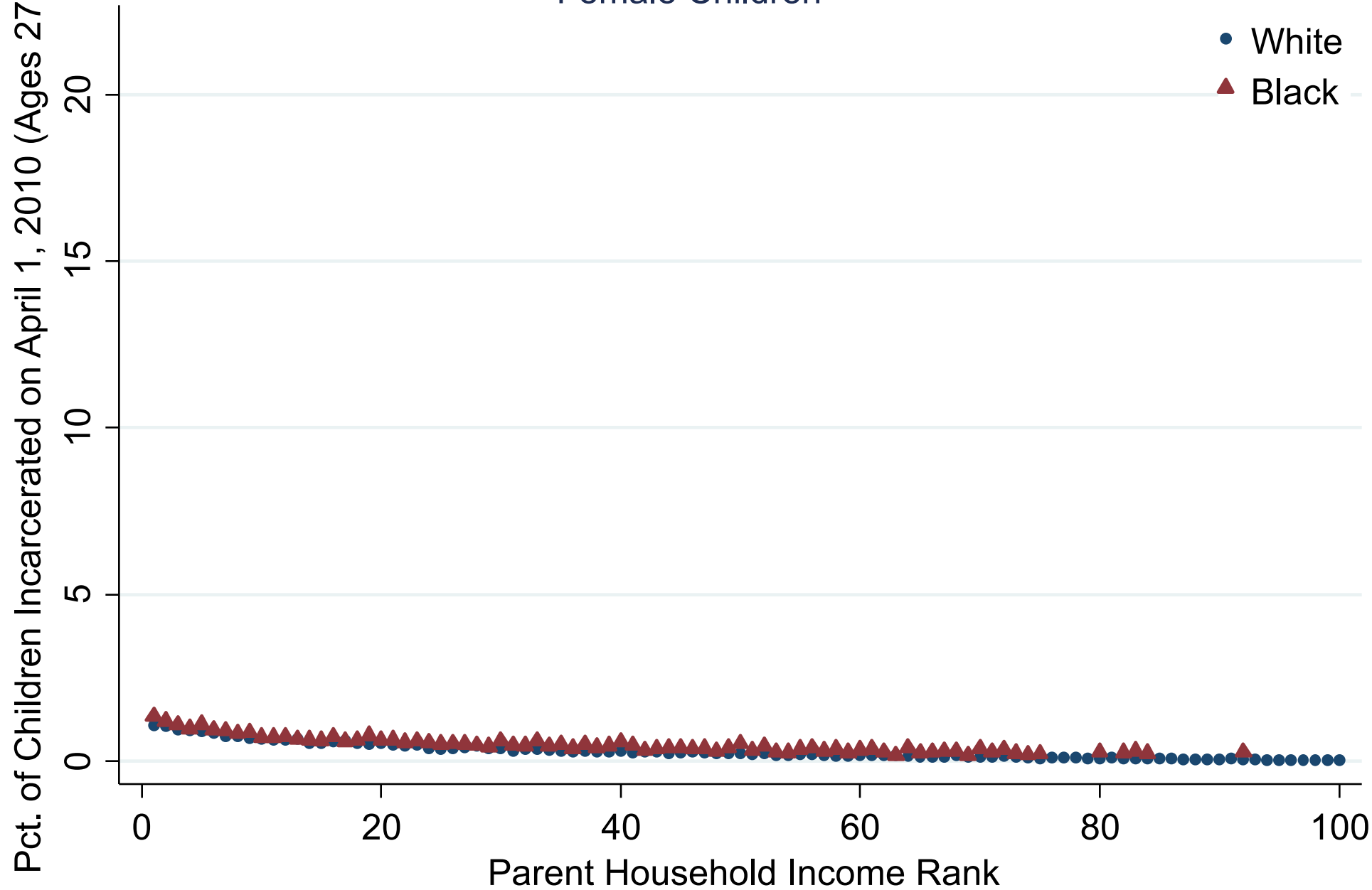
Male Children

Pct. of Children Incarcerated on April 1, 2010 (Ages 27-32)



Incarceration Rates vs. Parent Income Rank

Female Children



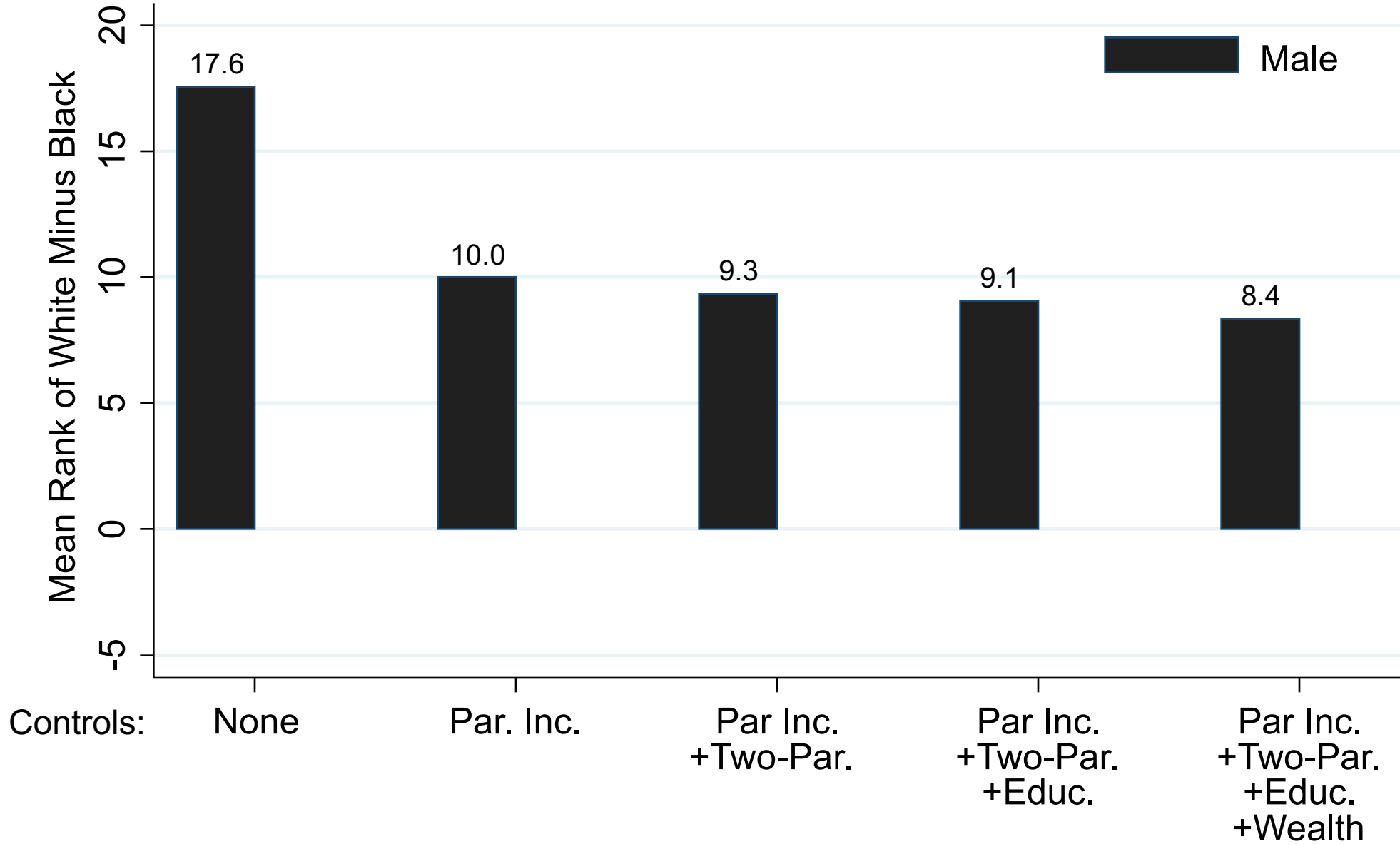
Explaining the Black-White Intergenerational Income Gap

Parental Education, Wealth, and Family Structure

- Do family-level factors (e.g., parental wealth) explain intergenerational gaps between black and white men?
- Condition on family-level characteristics to answer this question

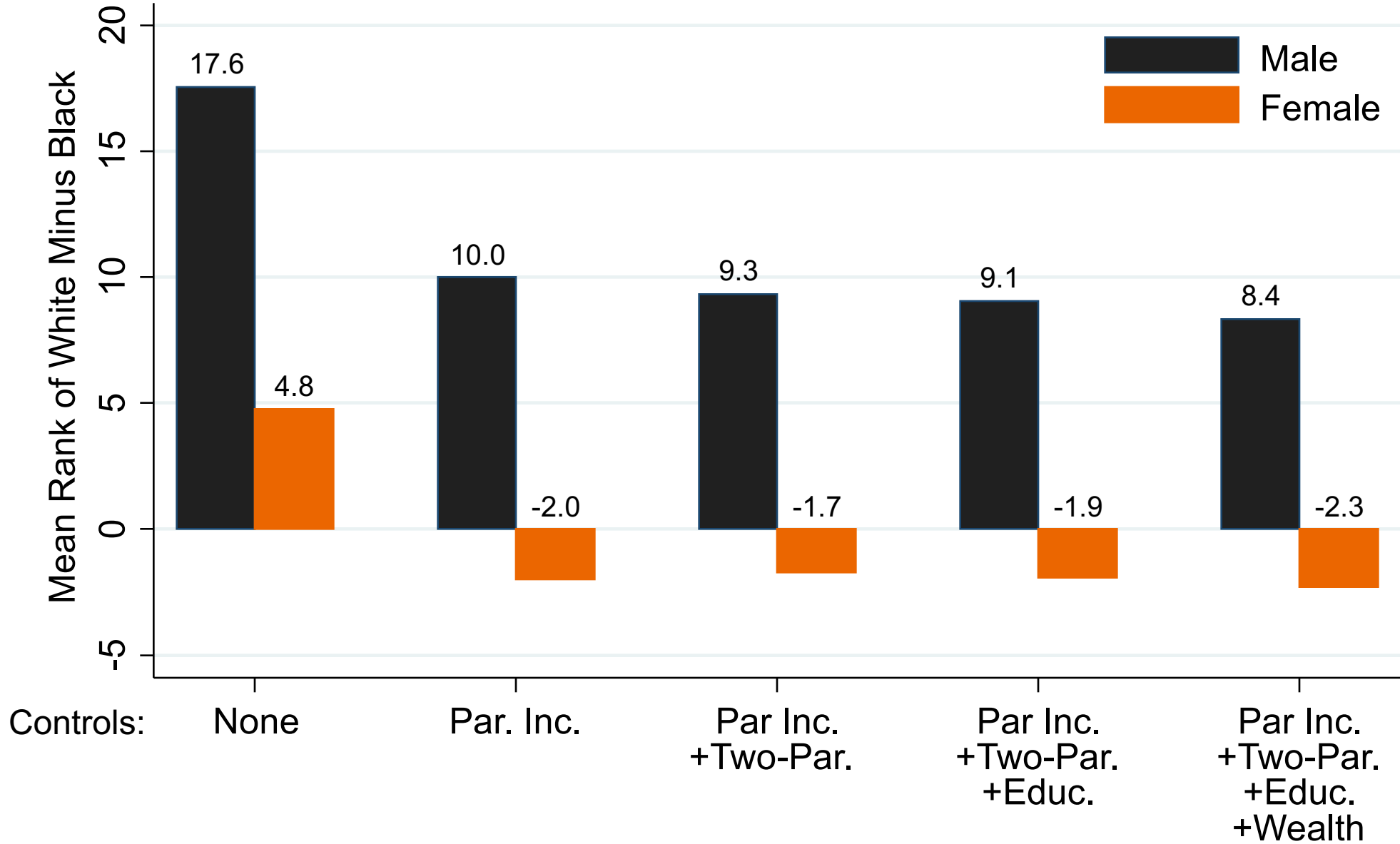
Effects of Family-Level Factors on the Black-White Income Gap

Children with Parents at 25th Percentile



Effects of Family-Level Factors on the Black-White Income Gap

Children with Parents at 25th Percentile



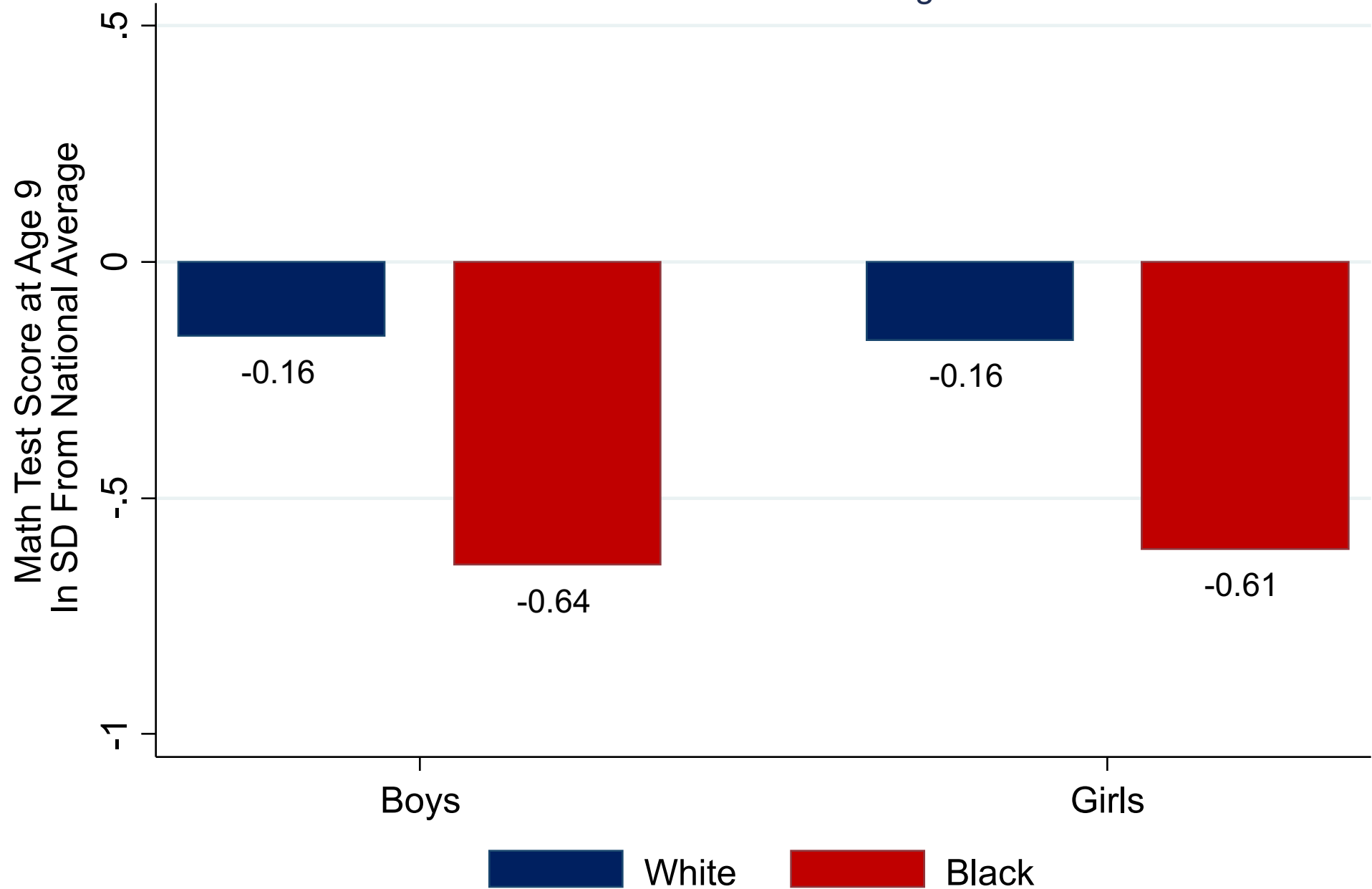
Explaining the Black-White Intergenerational Income Gap

Differences in Ability

- Ability hypothesis is inconsistent with gender heterogeneity in intergenerational gaps
 1. No ex-ante reason that racial differences in ability would produce differences in outcomes for boys but not girls
 2. Prior arguments for ability diffs. based on test score gaps, but black-white test score gaps do not vary by gender

Test Scores at Age 9 for Low-Income (Free-Lunch Eligible) Students

National Assessment of Educational Progress 2012



Explaining the Black-White Intergenerational Income Gap

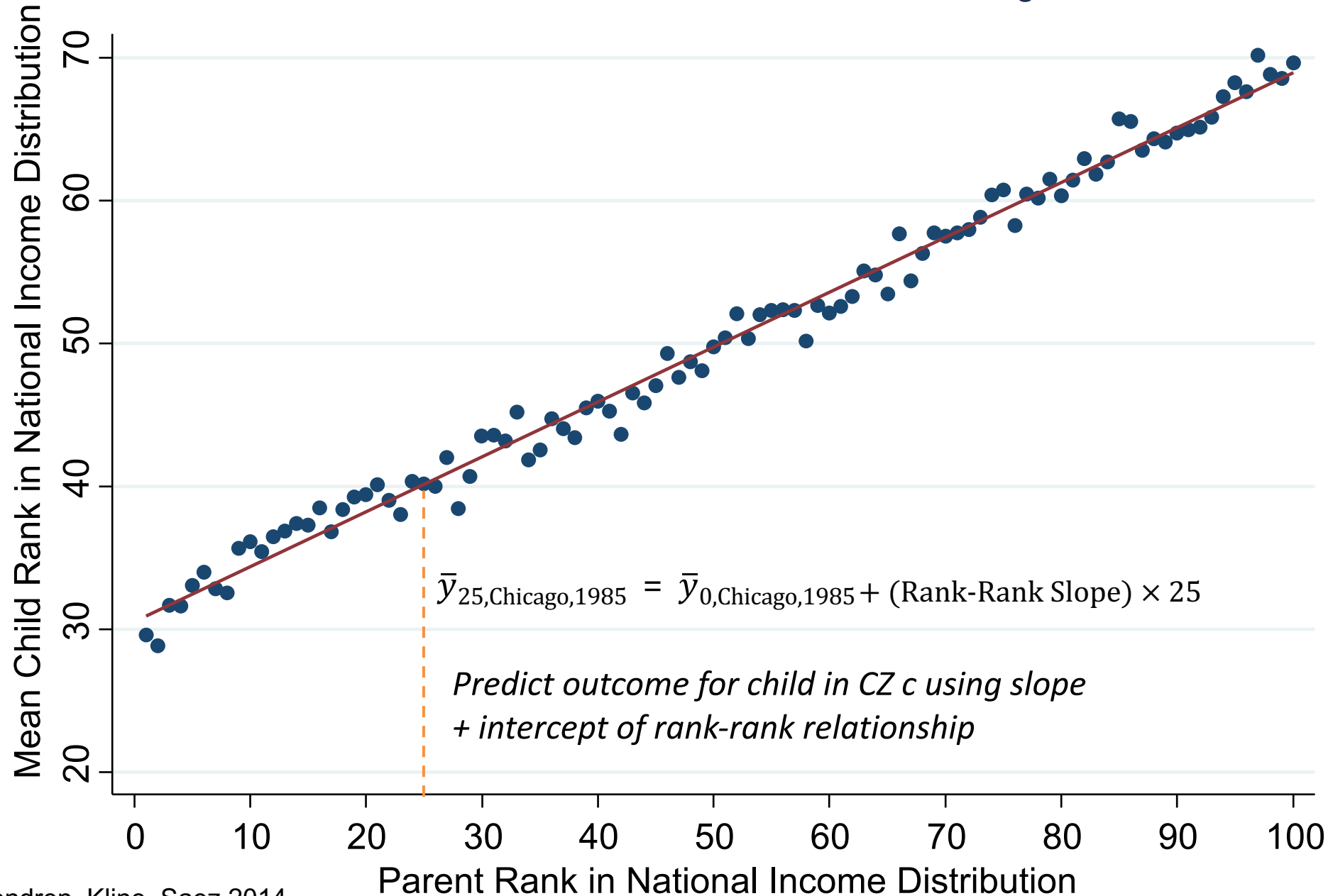
Differences in Ability

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 2. Prior arguments for ability diffs. based on test score gaps, but black-white test score gaps do not vary by gender
 - Test scores may not be an accurate measure of ability for black children, e.g. because of test bias or stereotype threat [Steele et al. 1995, Jencks et al. 1998]

Neighborhood Environments and the Black-White Gap

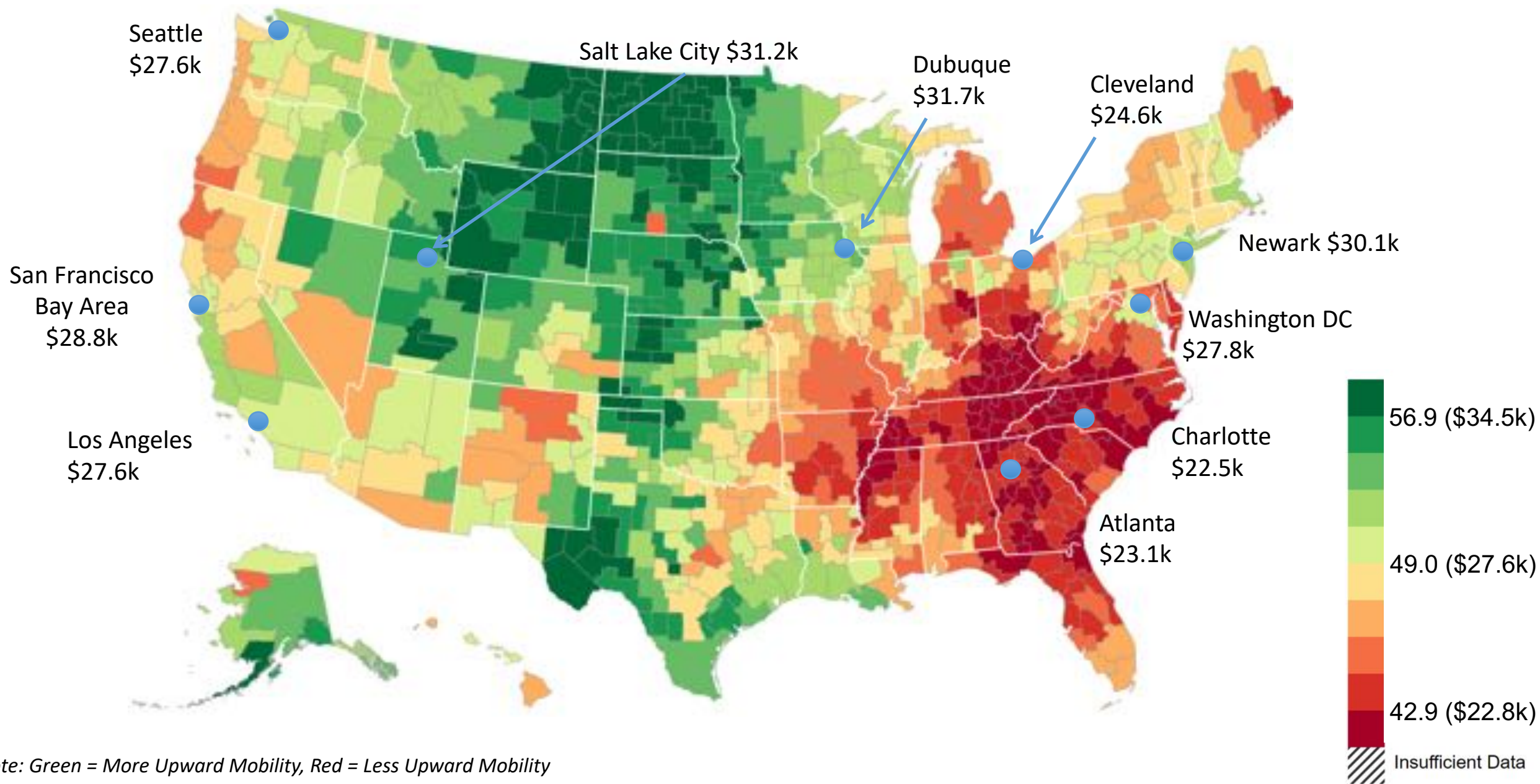
- Do blacks have worse outcomes than whites because they live in different neighborhoods?
- Begin by examining broad geographic variation across commuting zones
 - Assign children to locations in proportion to the fraction of their childhood that they spent in each CZ
- Estimate expected rank of children with parents at the 25th percentile of national income distribution using linear regression within each CZ

Mean Child Income Rank at Age 30 vs. Parent Income Rank for Children Born in 1980 and Raised in Chicago



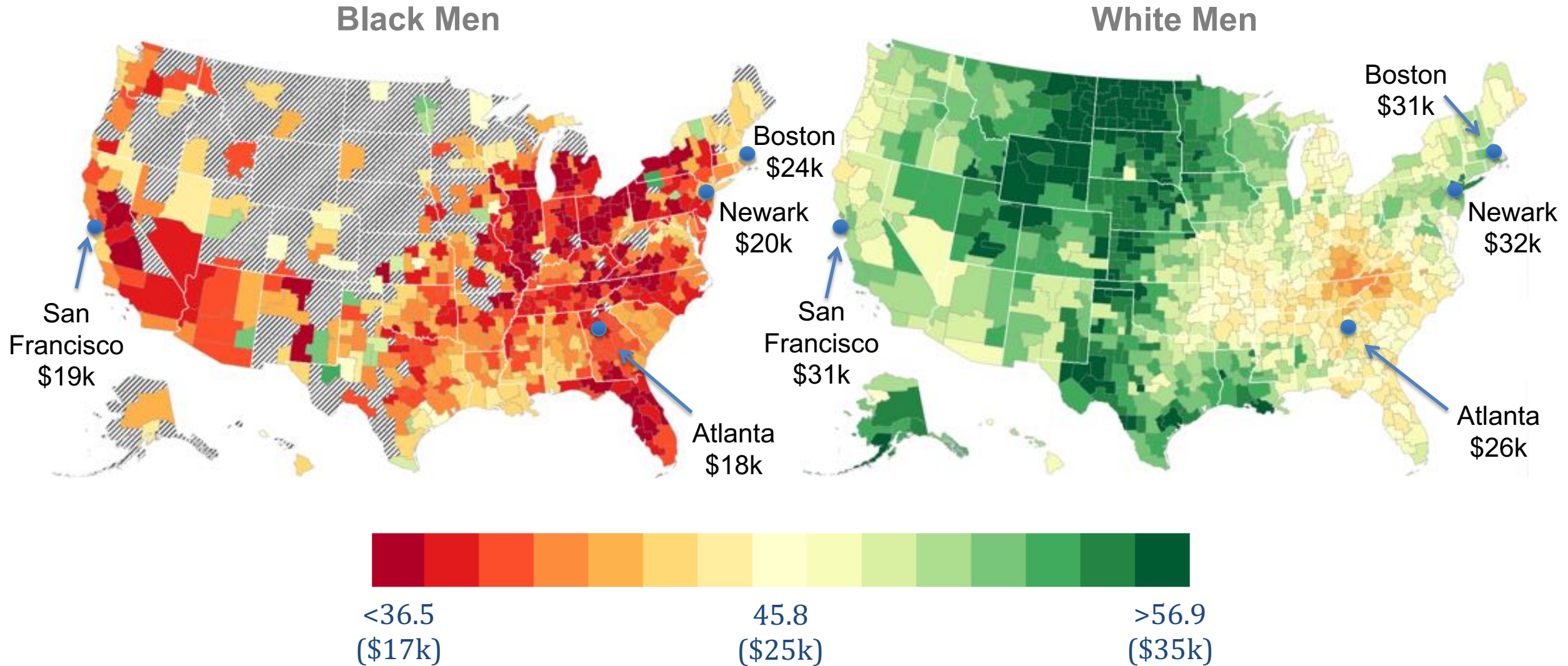
The Geography of Upward Mobility in the United States

Average Individual Income for Males with Parents Earning \$25,000 (25th percentile)



Two Americas: The Geography of Upward Mobility by Race

Average Individual Income for Boys with Parents Earning \$25,000 (25th percentile)



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

Neighborhood Environments and the Black-White Gap

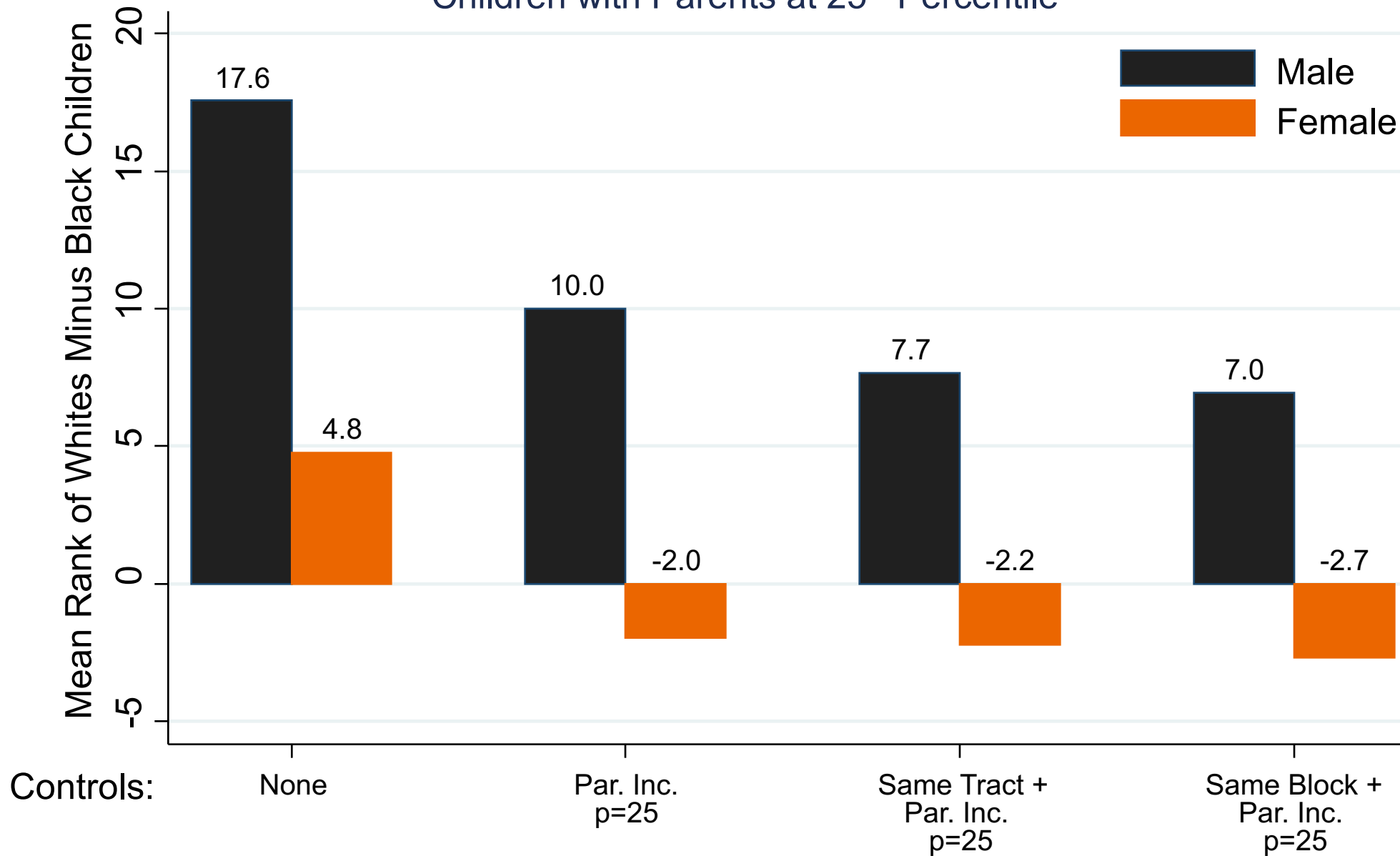
- Commuting-zone level variation illuminates broad regional patterns but does not directly test for “neighborhood” effects
- Black children live in different neighborhoods from white children within CZs
- Zoom in to examine variation across Census tracts in the rest of the talk
 - 70,000 Census tracts with about 4,250 people per tract in the U.S.

Variation in the Black-White Gap Across Tracts

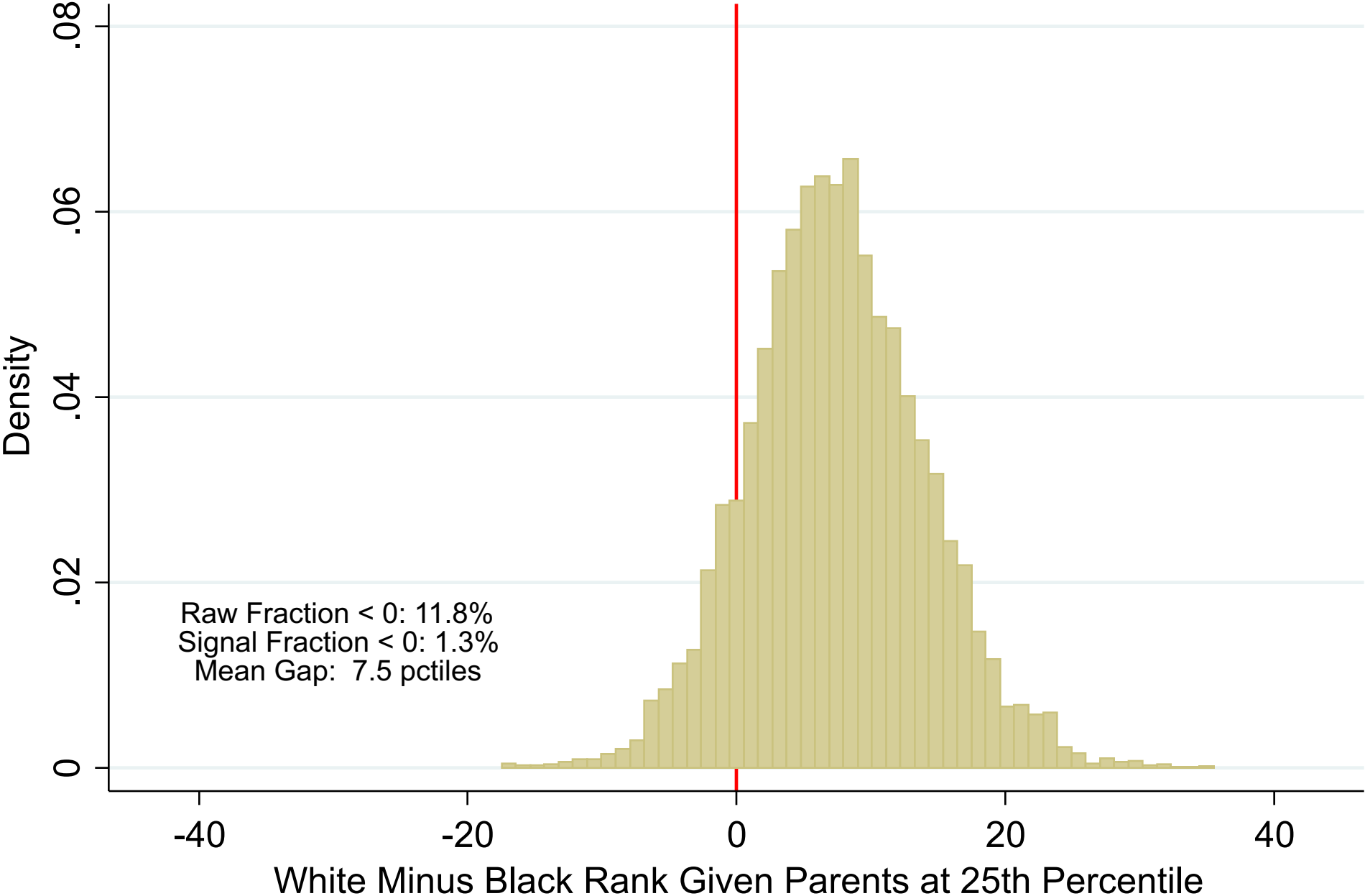
- Four results:
 1. Black boys have lower earnings than white boys in 99% of Census tracts in America, controlling for parental income

Black-White Gaps within Neighborhoods by Gender

Children with Parents at 25th Percentile



Distribution of Black – White Gap in Individual Ranks Across Tracts for Men

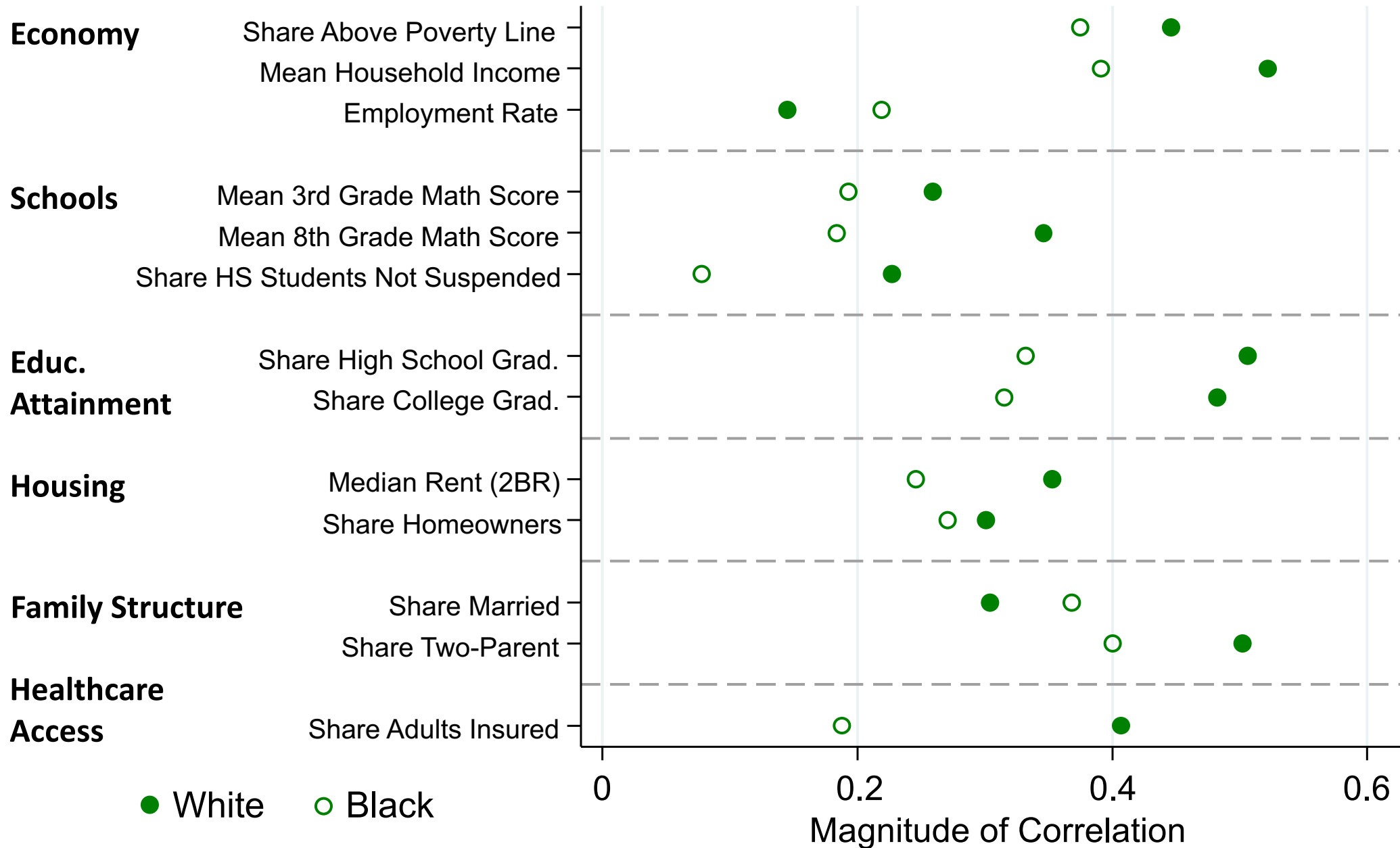


Variation in the Black-White Earnings Gap Across Tracts

- Four results:
 1. Black boys have lower earnings than white boys in 99% of Census tracts in America, controlling for parental income
 2. Both black and white boys have better outcomes in “good” (e.g., low-poverty, higher rent) neighborhoods, but the black-white gap is *bigger* in such areas

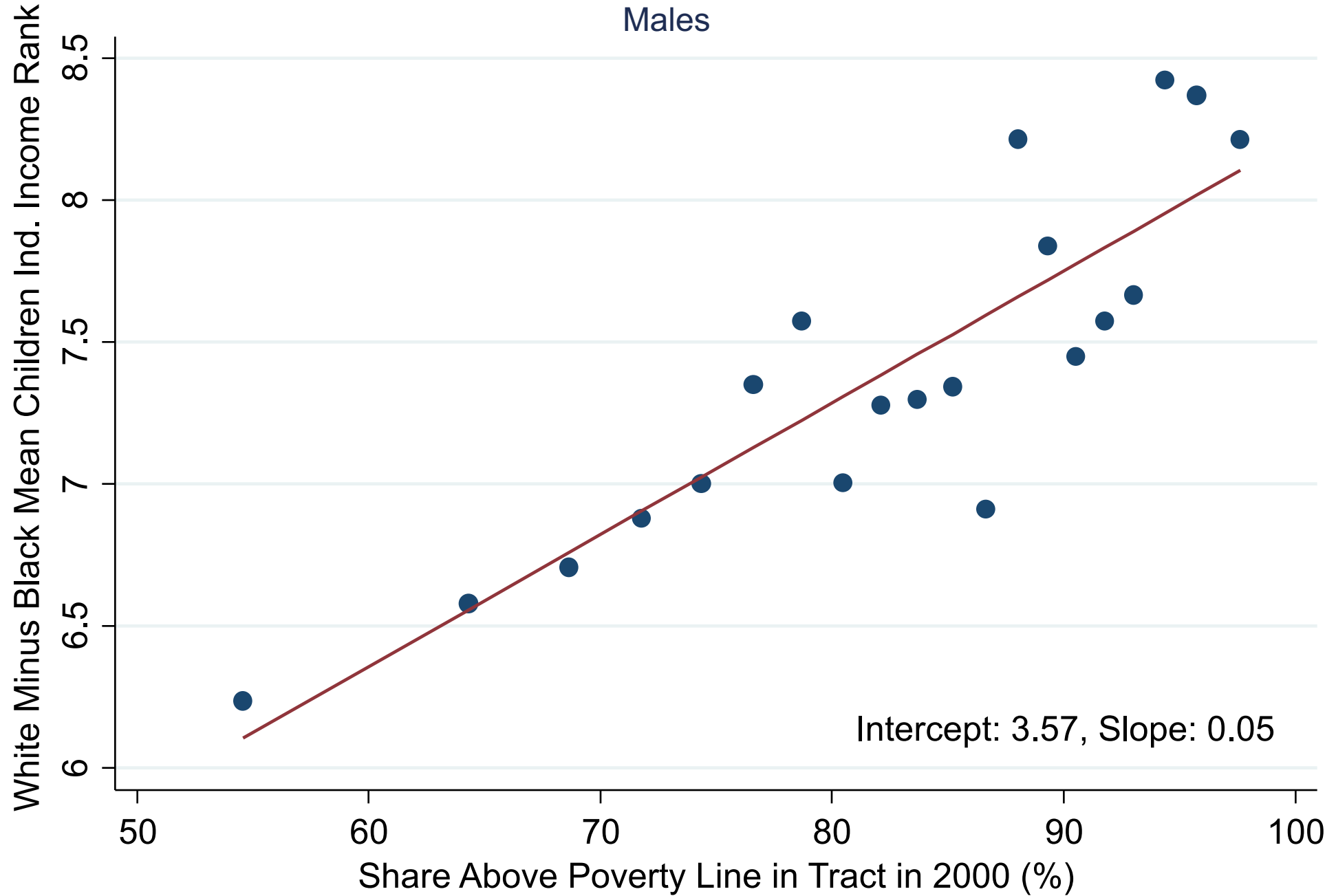
Correlations between Tract-Level Characteristics and Incomes of Black vs. White Men

Children with Parents at 25th Percentile



Black – White Gap in Individual Income Ranks vs. Share Above Poverty Line

Males



Variation in the Black-White Earnings Gap Across Tracts

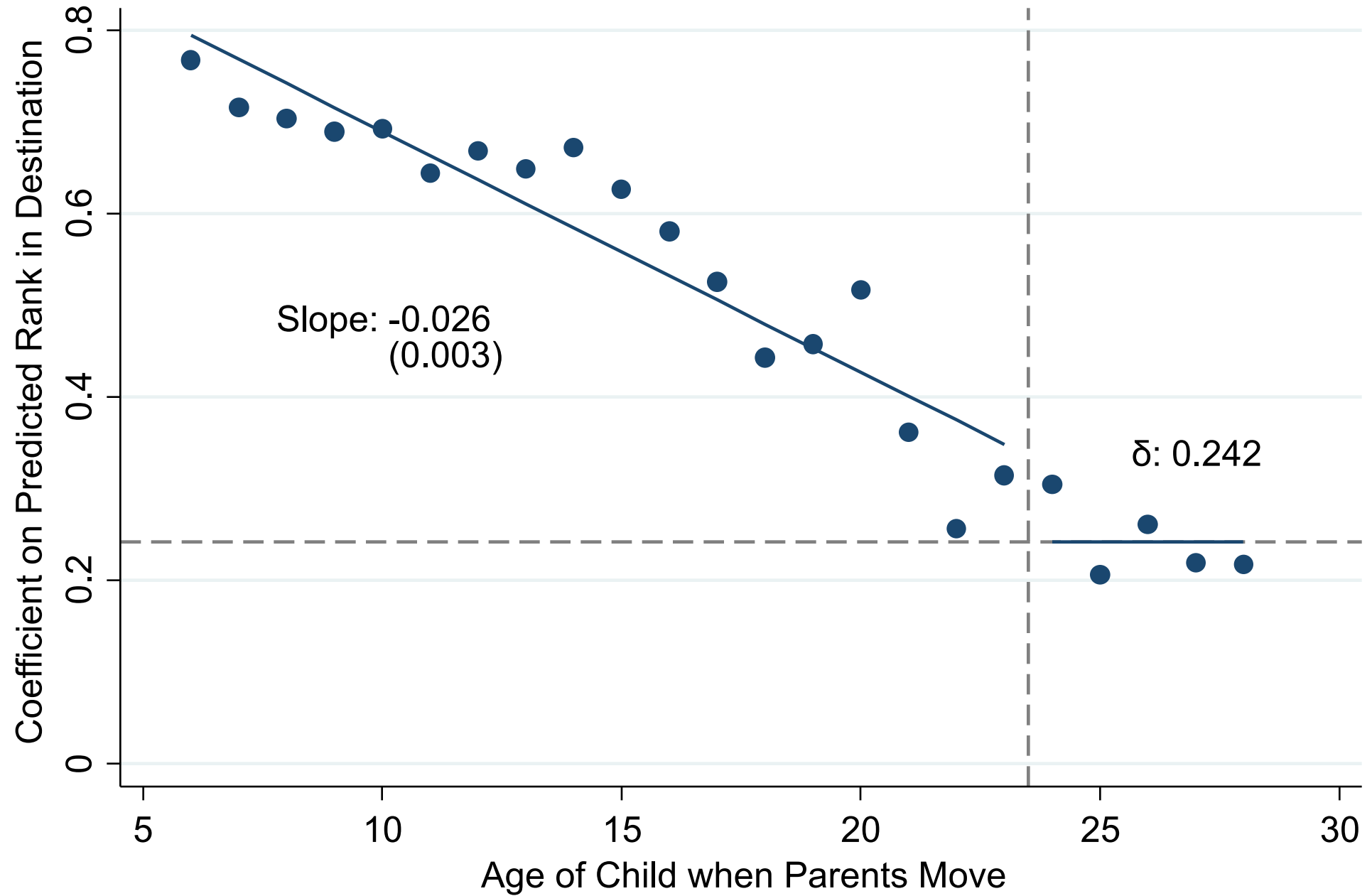
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 2. Both black and white boys have better outcomes in “good” (e.g., low-poverty, higher rent) neighborhoods, but the black-white gap is *bigger* in such areas
 3. Within low-poverty areas, there are two factors associated with better outcomes for black boys *and* smaller gaps: greater father presence and less racial bias

Variation in the Black-White Earnings Gap Across Tracts

- Four results:
 1. Black boys have lower earnings than white boys in 99% of Census tracts in America, controlling for parental income
 2. Both black and white boys have better outcomes in “good” (e.g., low-poverty, higher rent) neighborhoods, but the black-white gap is *bigger* in such areas
 3. Within low-poverty areas, there are two factors associated with better outcomes for black boys *and* smaller gaps: greater father presence and less racial bias
 4. Neighborhoods have *causal* childhood exposure effects: black boys who move to good areas at a younger age do better

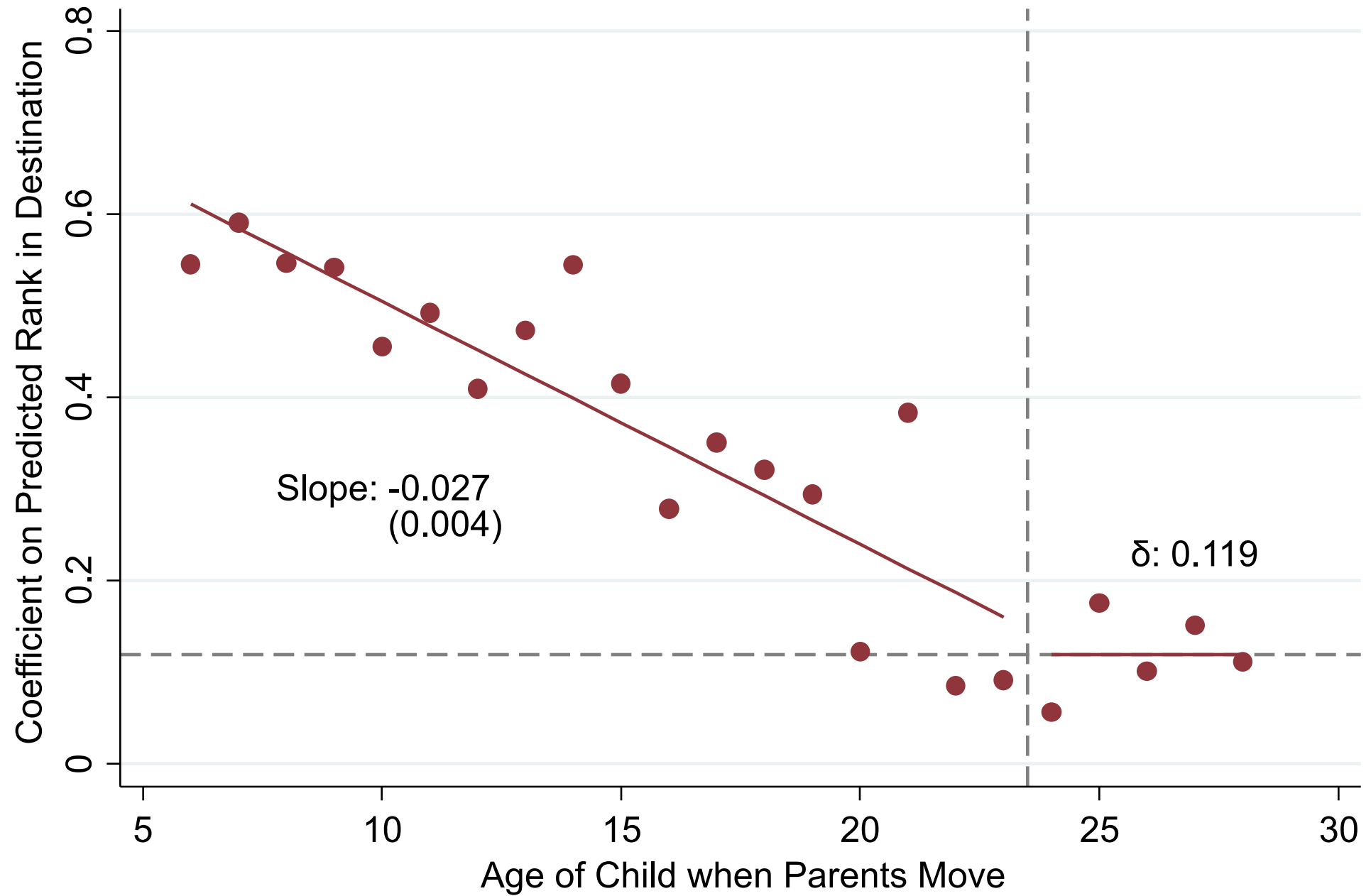
Childhood Exposure Effects on Income Rank at Age 30

White Males



Childhood Exposure Effects on Income Rank at Age 30

Black Males



Race-Specific Childhood Exposure Effects

OLS Regression Estimates

	Whites	Blacks
	(1)	(2)
Prediction for Whites	-0.023 (0.002)	0.003 (0.004)
Prediction for Blacks	-0.004 (0.001)	-0.029 (0.004)

Note: standard errors in parentheses

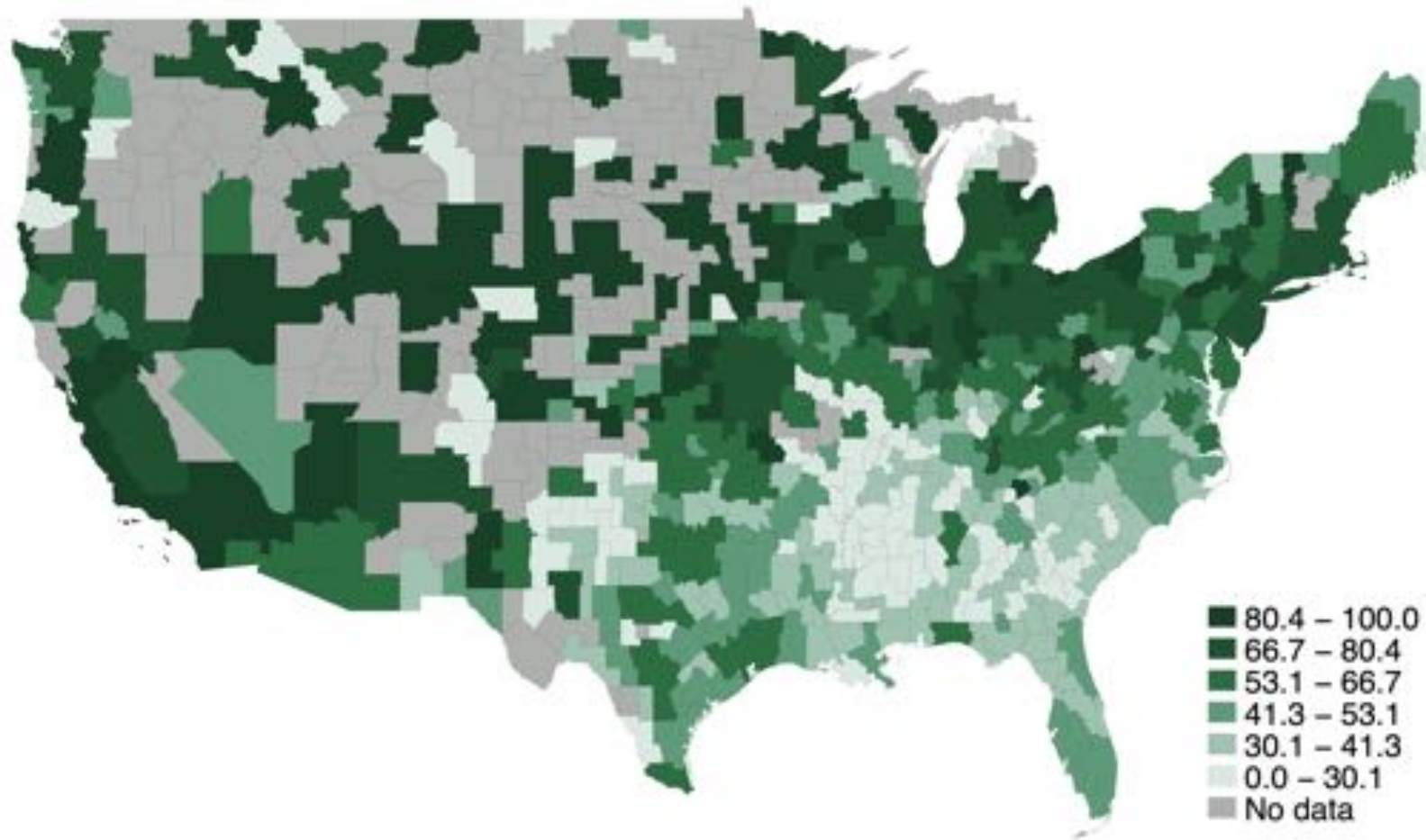
Comprehensive course could focus exclusively on this topic

- Today, focus on four aspects of racial discrimination / endogeneity of race gaps:
 1. Experimental evidence of racial bias
 - Hiring (e.g. Pager 2003; Bertrand and Mullainathan 2004)
 - Judges (Arnold, Dobbie, and Yang 2018)
 2. Responses by minorities to discrimination (Glover, Pallais, Pariente 2017)
 3. Persistence of racial discrimination across generations, impact of place, and relation to Becker HC model (Chetty, Hendren, Jones, Porter 2018)
 - Role of gender
 4. Endogeneity of public policies to demographic changes (Derenoncourt 2018)
- **DISCLAIMER:** It would be insane to try to cover this literature in 1 lecture...And there is *amazing* work being done in this space (resume audits, judicial bias, etc.)

4. Endogenous Place Effects on the Race Gap

- Results suggest places matter
- But can places change? Or are they immutable?
- Derenoncourt (2018): Local policies and mobility outcomes are endogenous to shifts in racial composition
- Exploits variation in the Great Migration
 - (And was kind enough to share her slides with me 😊)

Geography of black upward mobility: 1940

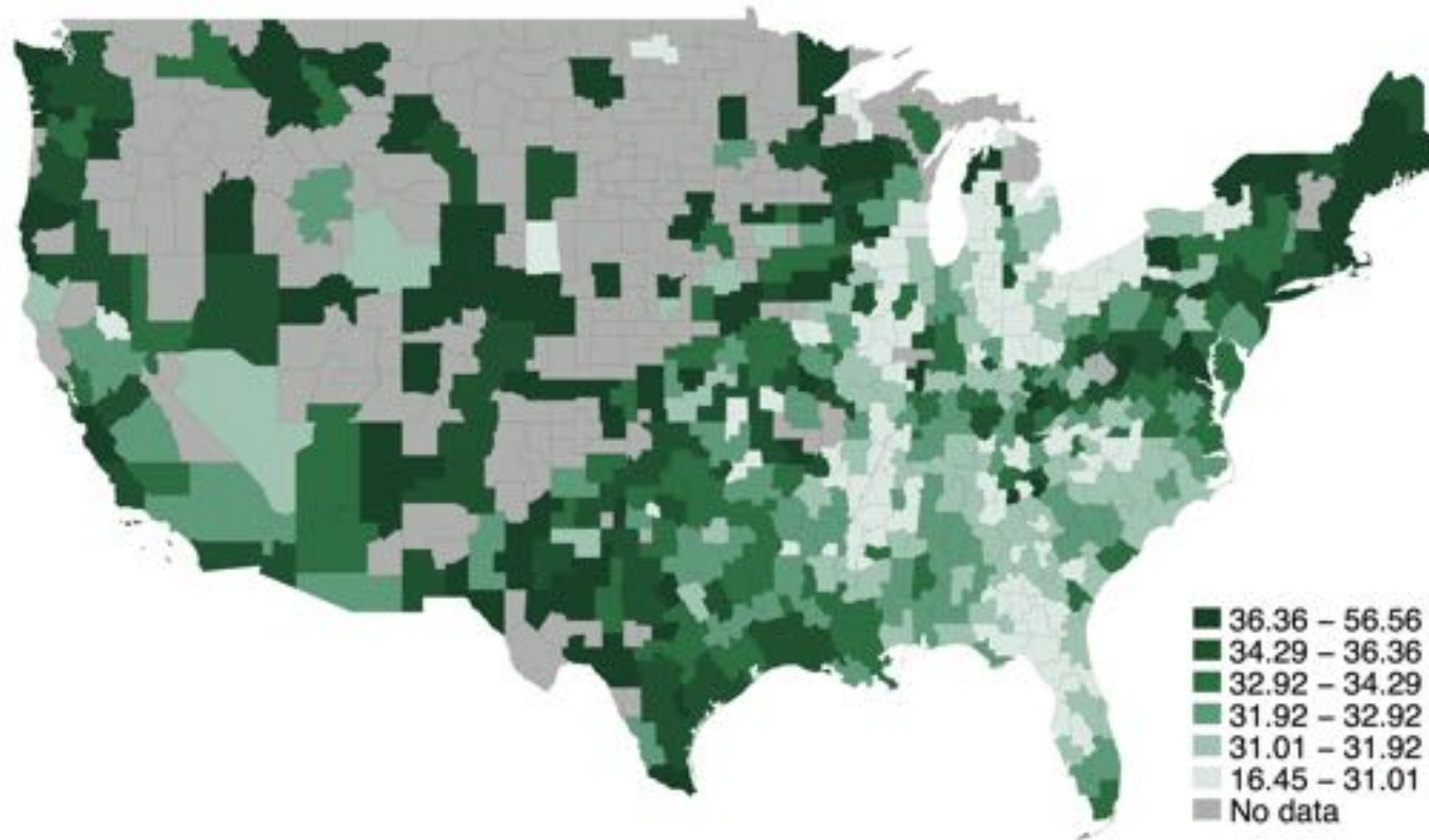


Frac. of 14-17 yo black boys and girls from median educated families (5-8 yrs schl) who have 9-plus years of schooling.

Data from IPUMS, method via Card, Domnisoru, and Taylor (2018).

Source: Derenoncourt (2018)

Geography of black upward mobility: 2015



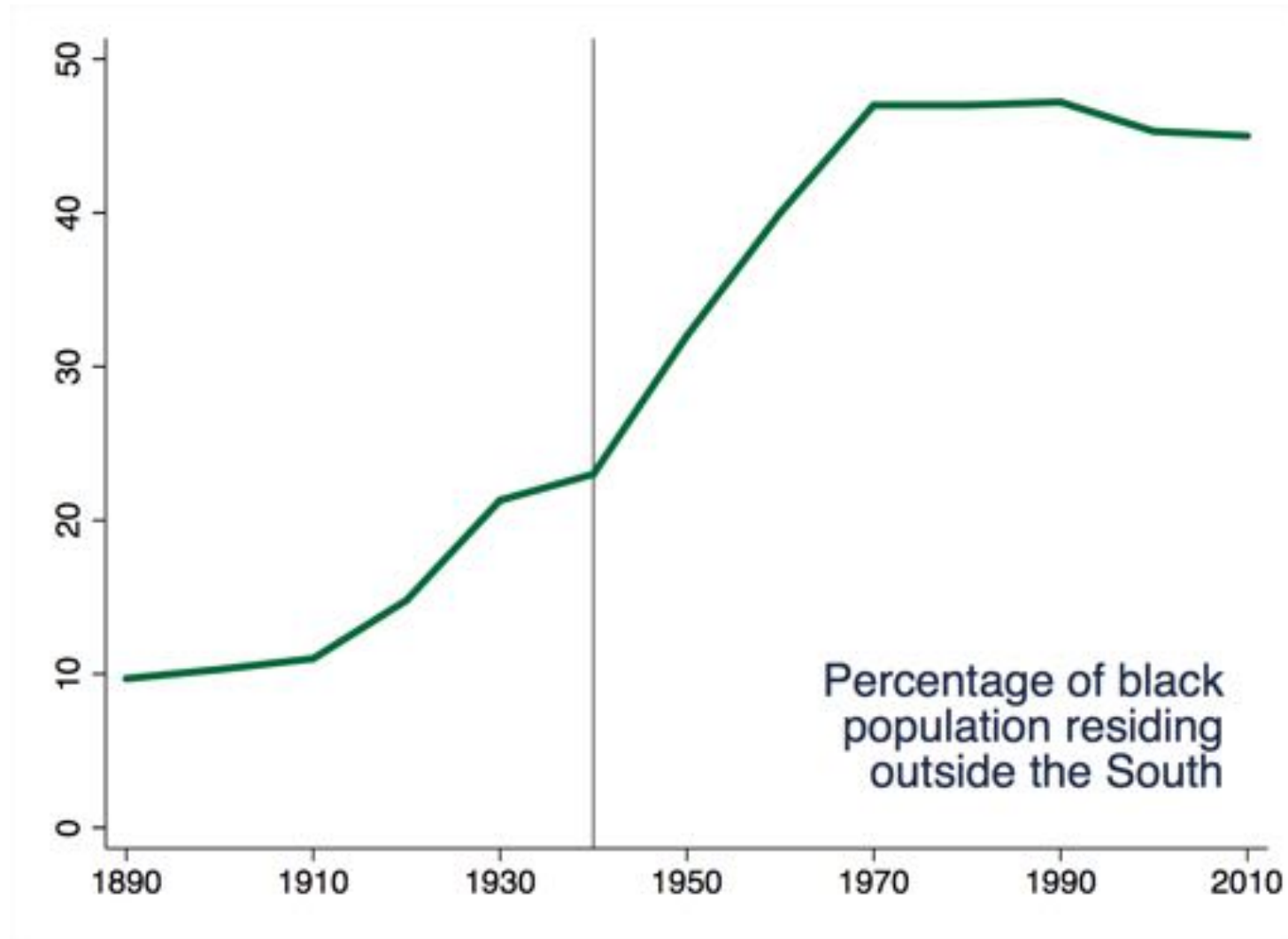
Income rank of black men and women from 1978-1983 birth cohorts with low income parents, by childhood CZ.

Data from Chetty, Hendren, Jones, and Porter (2018).

▶ High School Dropout 2000

Source: Derenoncourt (2018)

1940: A pivotal moment in Great Migration North



Data from US Census.

Source: Derenoncourt (2018)

Reactions in the North



Riot against integrated federal housing project in Detroit, '42.

Source: LOC.

Source: Derenoncourt (2018)

Question and empirical strategy

Context: Magnitude of post-1940 black inflows transformed northern cities, plausibly altering upward mobility[†] in the long run.

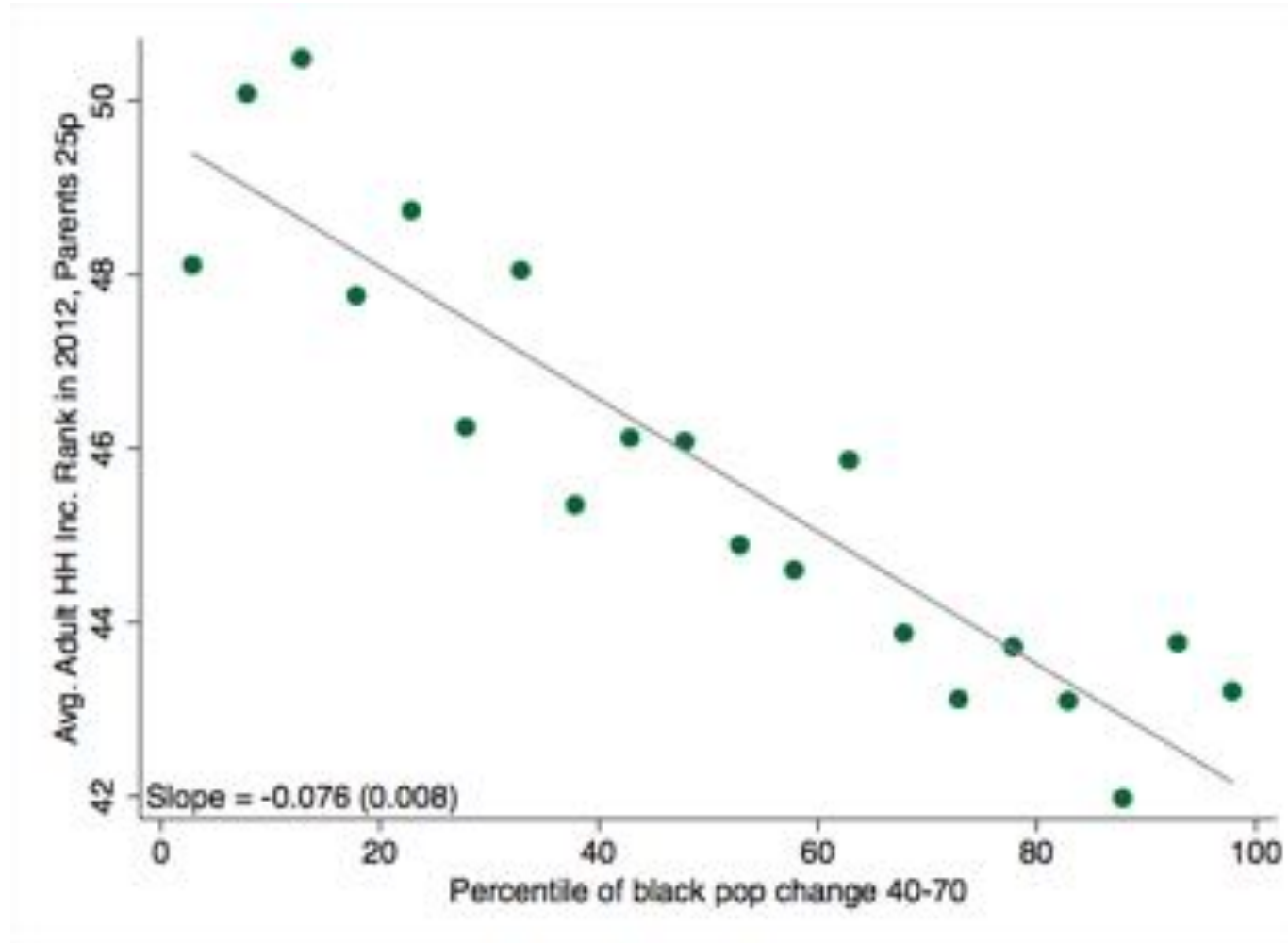
Question: Did the Great Migration reduce northern cities' ability to promote black intergenerational progress?

Empirical strategy: Use within-North variation in Great Migration. Shift-share based instrument for 1940-1970 black population changes in urban northern commuting zones:

- Pre-1940 black southern migrant location choices
- Predicted county out-migration using Post-LASSO method

[†]Adult outcomes of children conditional on parent economic status.

Black pop ↑ from 1940-1970 and upward mobility in 2012



Heuristic definition of Great Migration shift-share instrument

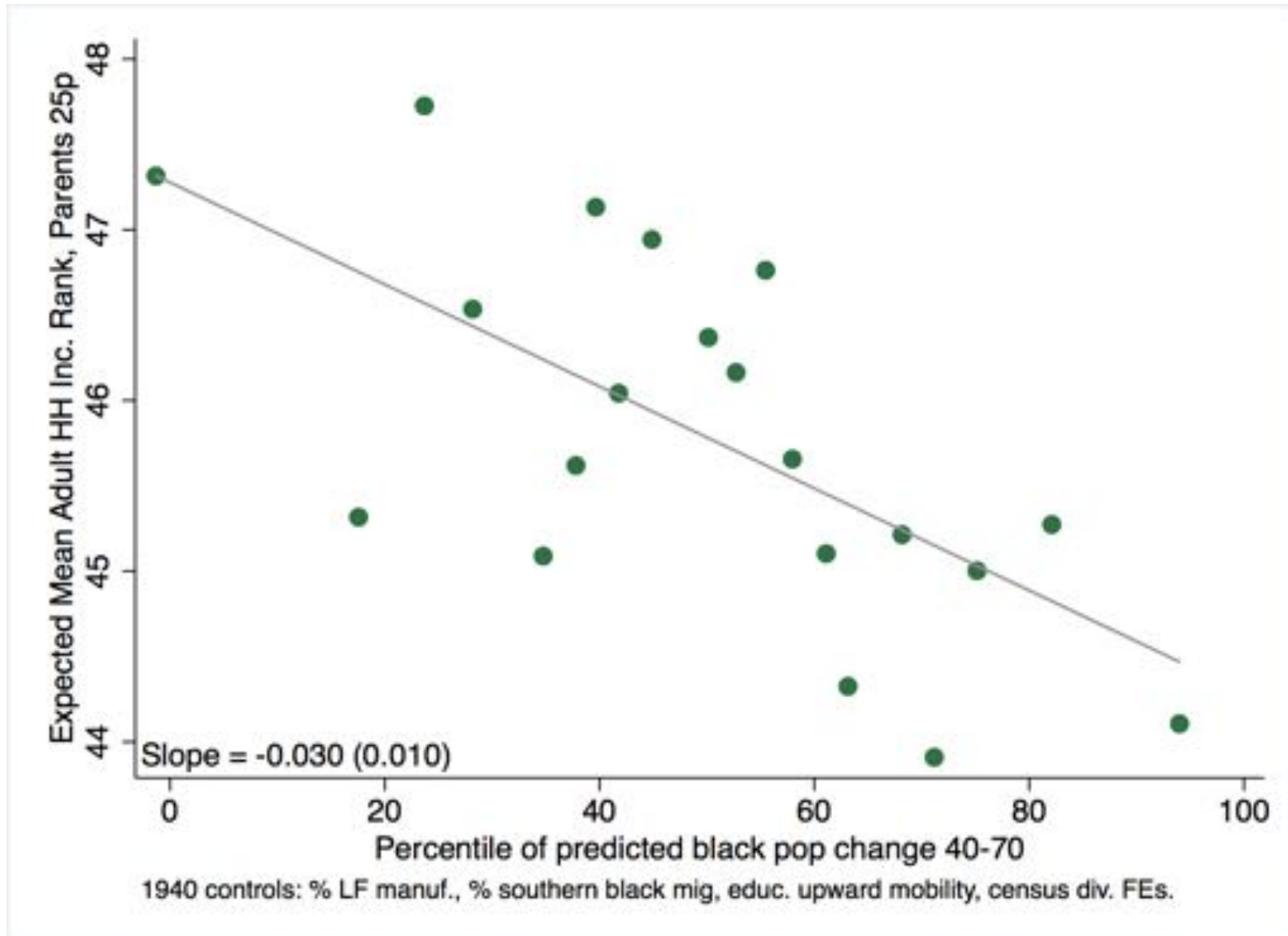
Boustan (2010) adapted shift-share instrument (Altonji and Card, 1991; Card 2001) to Great Migration context:

$$\text{Pred Black Pop } \uparrow = \overbrace{\text{Historical settlement}}^{\text{“Shares”}} \times \overbrace{\text{Predicted migration}}^{\text{“Shifters”}}$$

Instrument intuitively combines

1. Distinctive southern migrant composition in northern cities
2. Variation in southern state net-migration flows

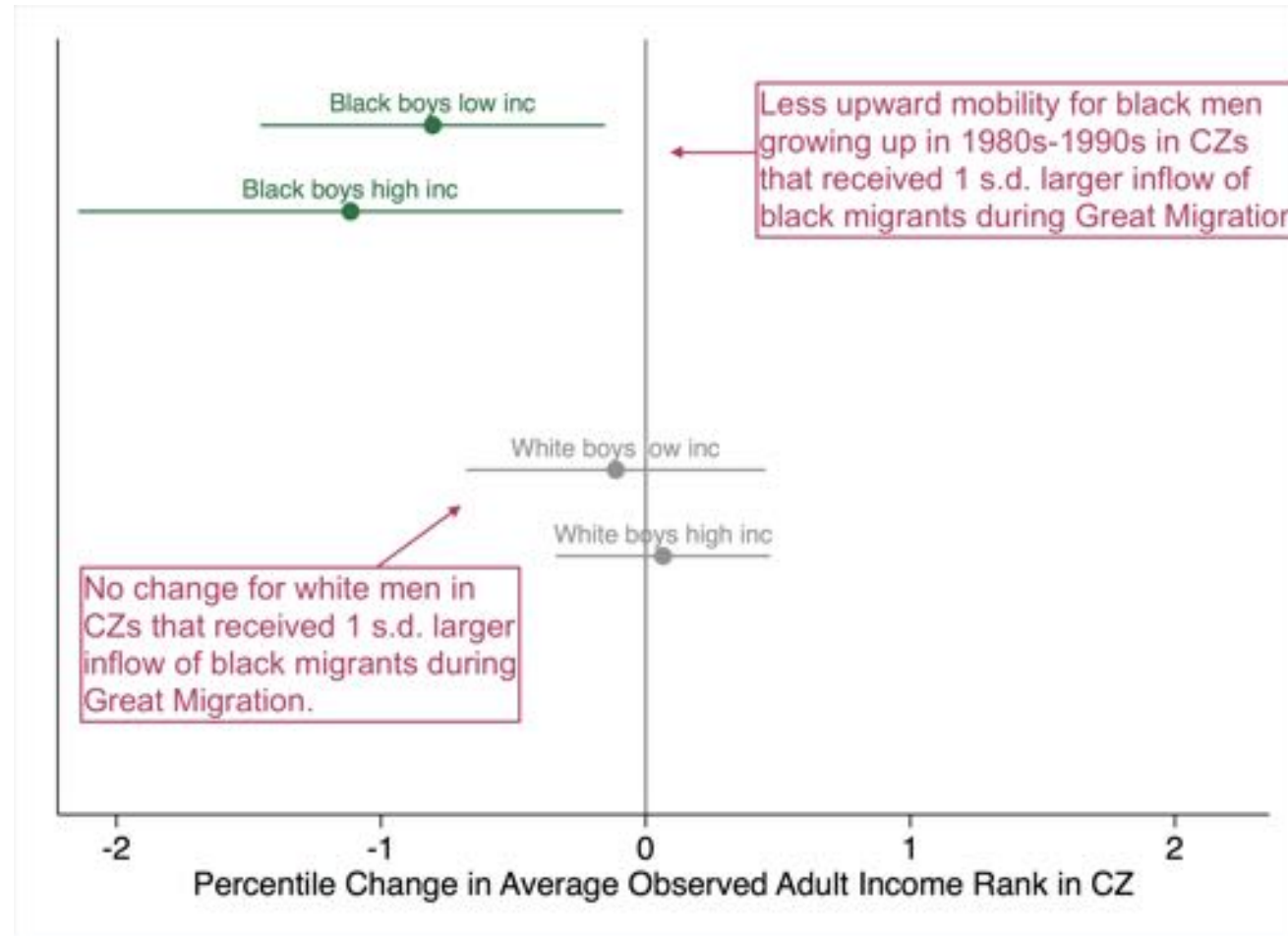
Reduced upward mobility in Great Migration destinations



Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
 - RF: 1 s.d. \uparrow lowered income rank of individuals from low income families by 1 percentile ($\sim 3.14\%$ \downarrow income)
2. Is the channel selection (Δ average child) or changes in locations (e.g., local public goods and neighborhood quality)?
 - **Race-specific results**
 - Childhood exposure effects

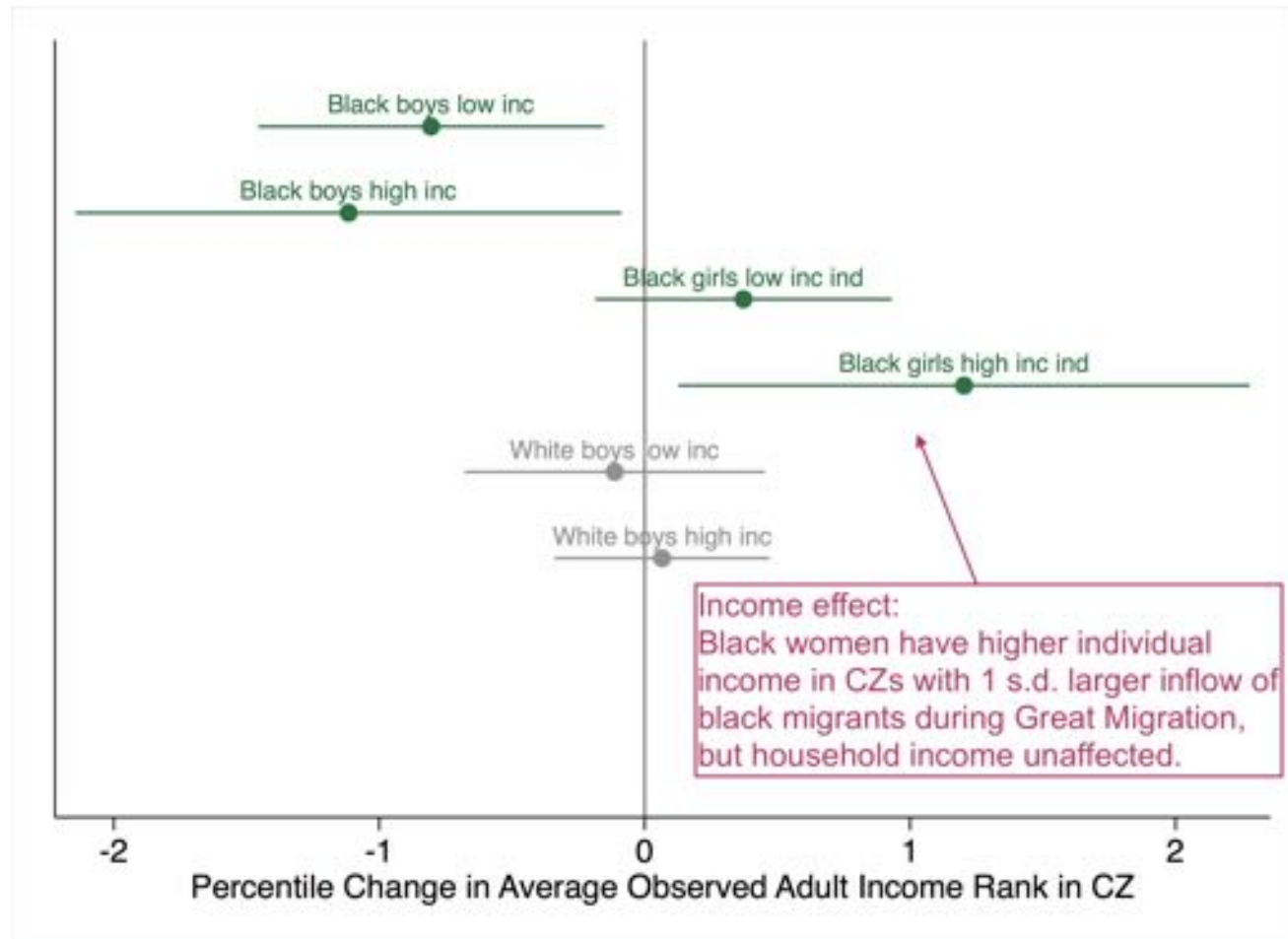
Whose upward mobility was affected by Great Migration?



Units of shock are 30 percentiles. Baseline controls included. Observations are northern commuting zones. *Data source:* Chetty-Hendren et al. (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

Source: Derenoncourt (2018)

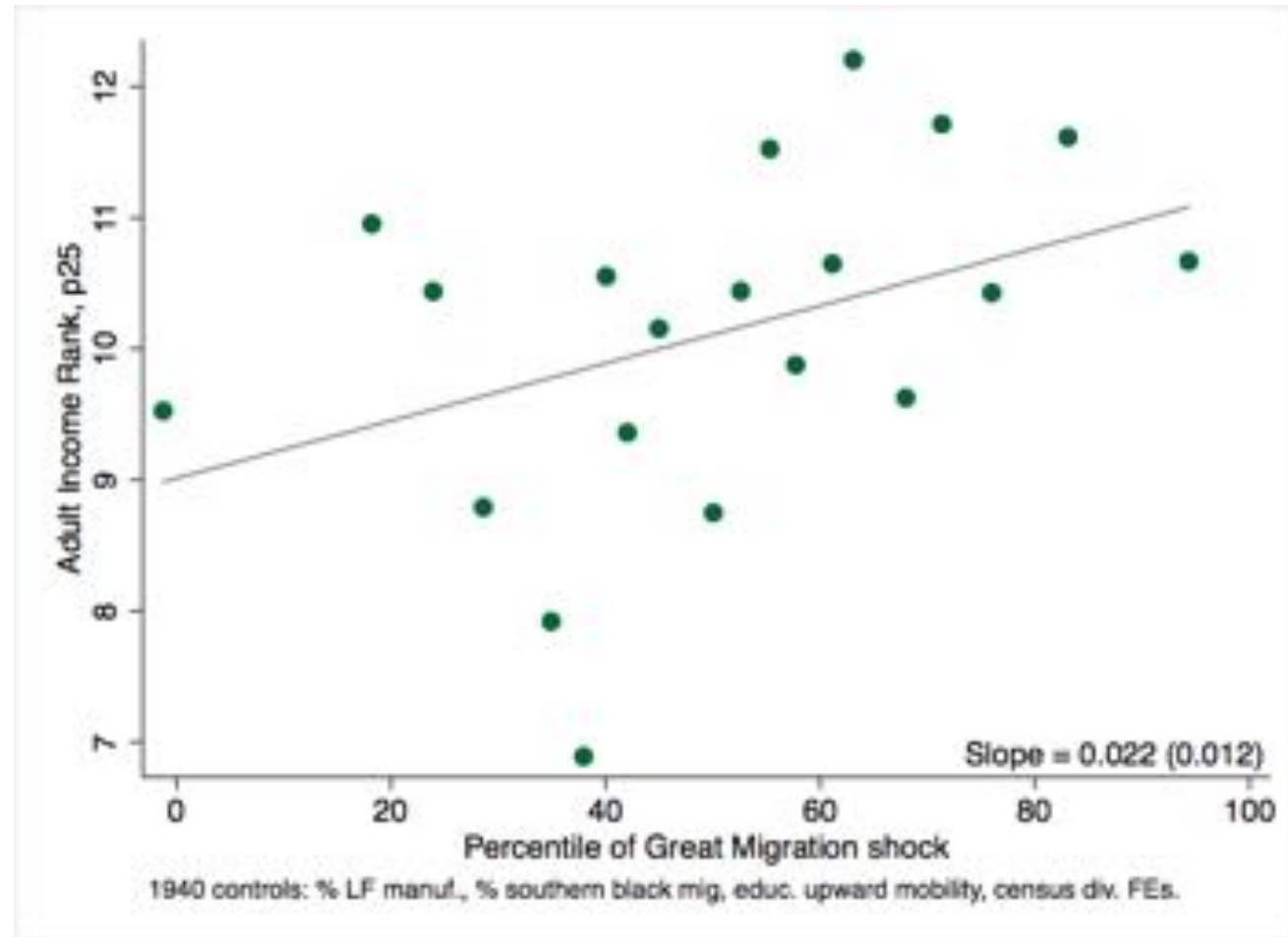
Whose upward mobility was affected by Great Migration?



Units of shock are 30 percentiles. Baseline controls included. Observations are northern commuting zones. *Data source:* Chetty-Hendren et al. (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016). [▶ Household income](#) [▶ Proxied HH income, by race](#)

Source: Derenoncourt (2018)

Great Migration and racial gap in upward mobility in 2015



Observations are northern commuting zones. Data: Chetty, Hendren, Jones, and Porter (2018); IPUMS

1940 Census; CCDB; and Boustan (2016).

[▶ Back](#)

Source: Derenoncourt (2018)

Contribution of Great Migration to racial gap among men

Question: What would the racial gap in men's upward mobility in North be without changes induced by Great Migration?

Compare average racial gap across northern CZs to counterfactual racial gap with no GM (each CZ receives 1 pctile of shock):

	Lower Parent Income	Higher Parent Income
With GM	10.46	11.03
CF w/o GM (se)	6.9 (.16)	5.0 (.24)
Pct Change	-34%	-55%

- Great Migration explains 43% of gap between black and white men from median income families.

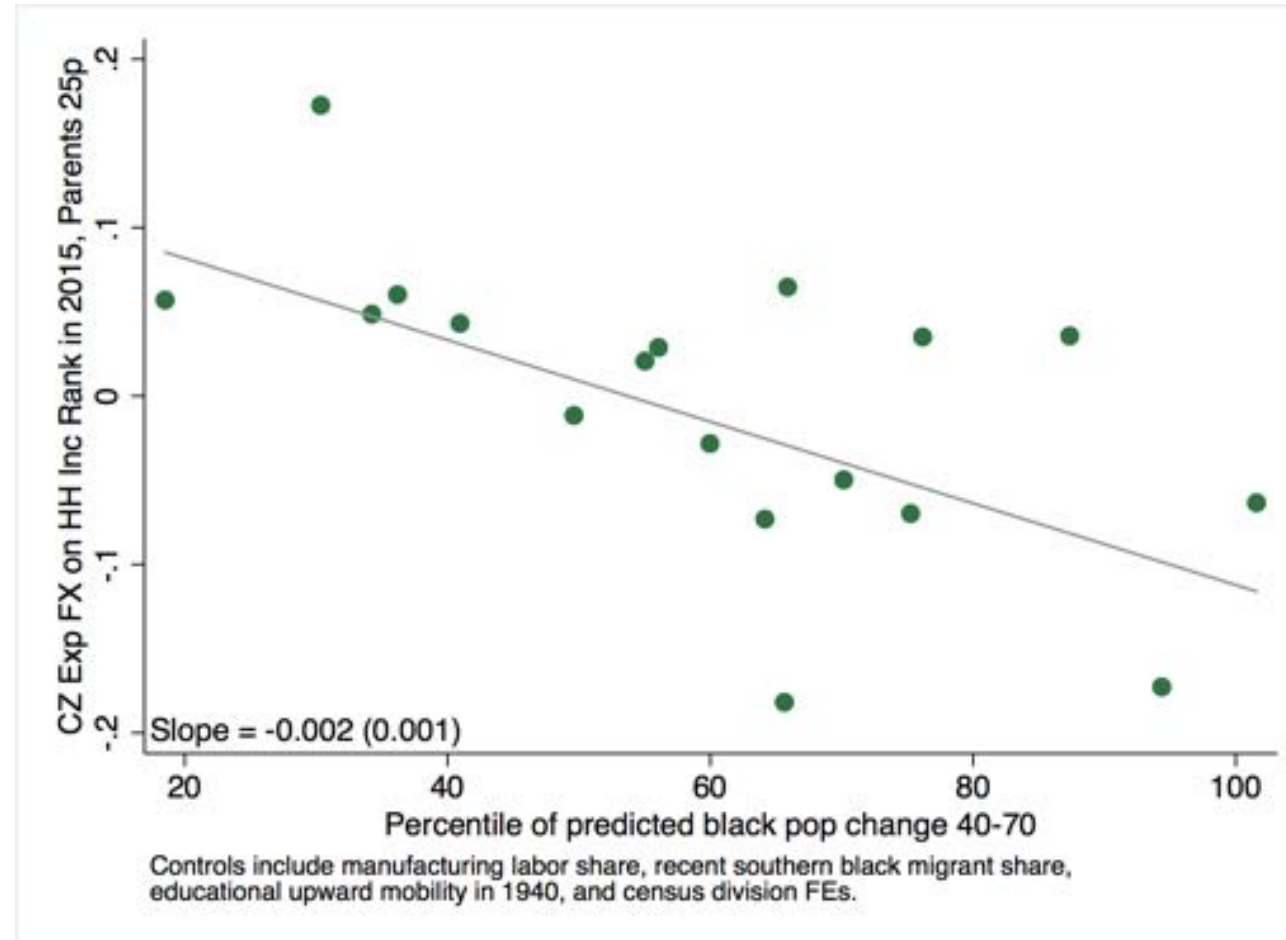
Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
 - IV: 1 s.d. \uparrow lowered income rank of individuals from low income families by 3 percentiles ($\sim 9\%$ \downarrow income)
2. Is the channel selection (Δ average child) or changes in locations (e.g., local public goods and neighborhood quality)?
 - Race-specific results: GM reduced income of black men

Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
 - IV: 1 s.d. \uparrow lowered income rank of individuals from low income families by 3 percentiles ($\sim 9\%$ \downarrow income)
2. Is the channel selection (Δ average child) or changes in locations (e.g., local public goods and neighborhood quality)?
 - Race-specific results: GM reduced income of black men
 - **Childhood exposure effects**

Reduced childhood exposure effects in Great Migration CZs



Contribution of selection vs. location-based channels

Comparing GM impact (IV) on individuals from low income parents using exposure effects vs. observed upward mobility, assuming full childhood exposure.

Multiplier	CZ exposure effects	Avg adult inc rank
20	-3.6	-3
15.52	-2.8	-3

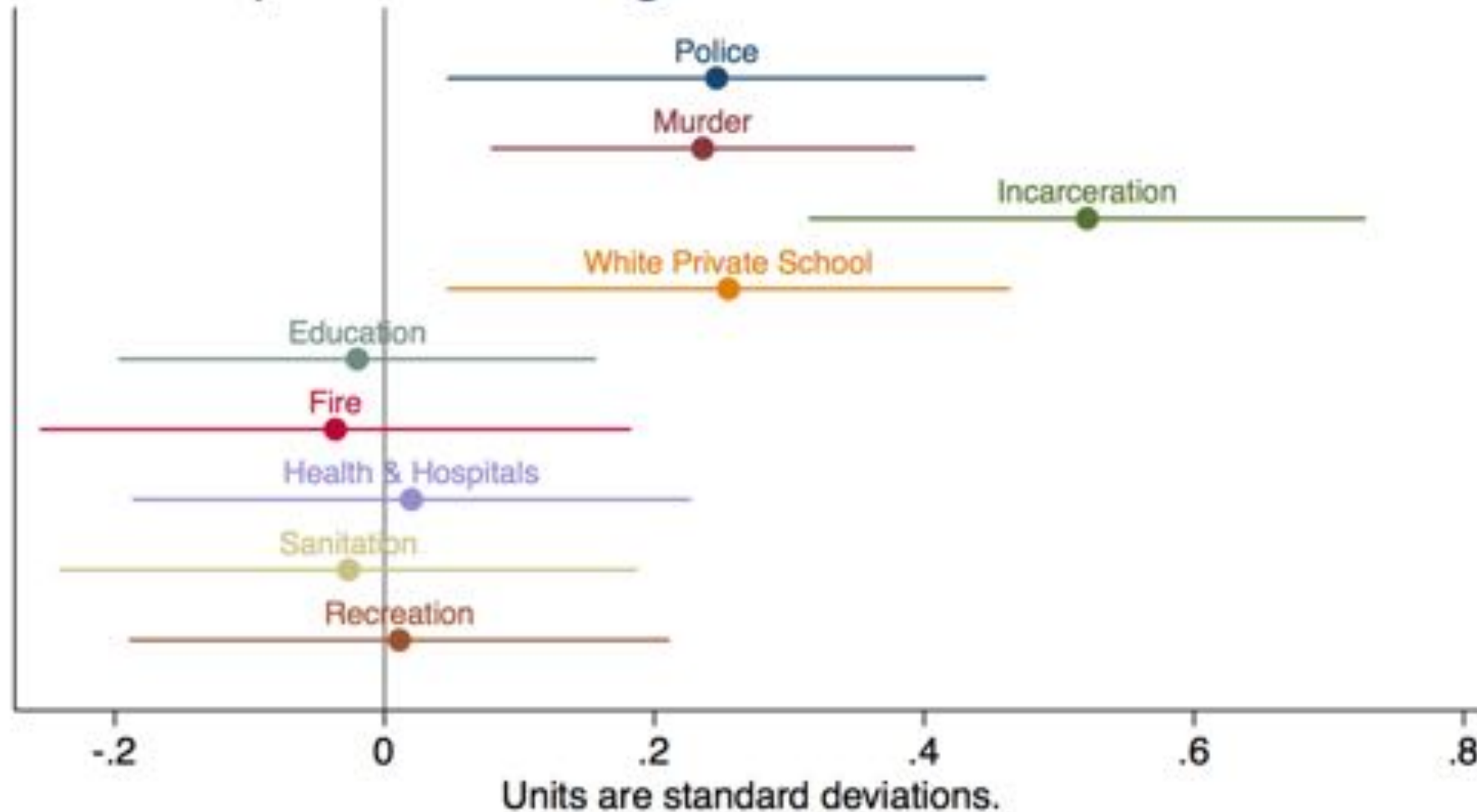
- No evidence that selection drives effect of Great Migration.
- 15.52: takes into account smaller effect of place in early years (Chetty et al., 2018) [▶ Hockey Stick](#)

–3.6 percentile points \sim 11.34% drop in income.

Local mechanisms

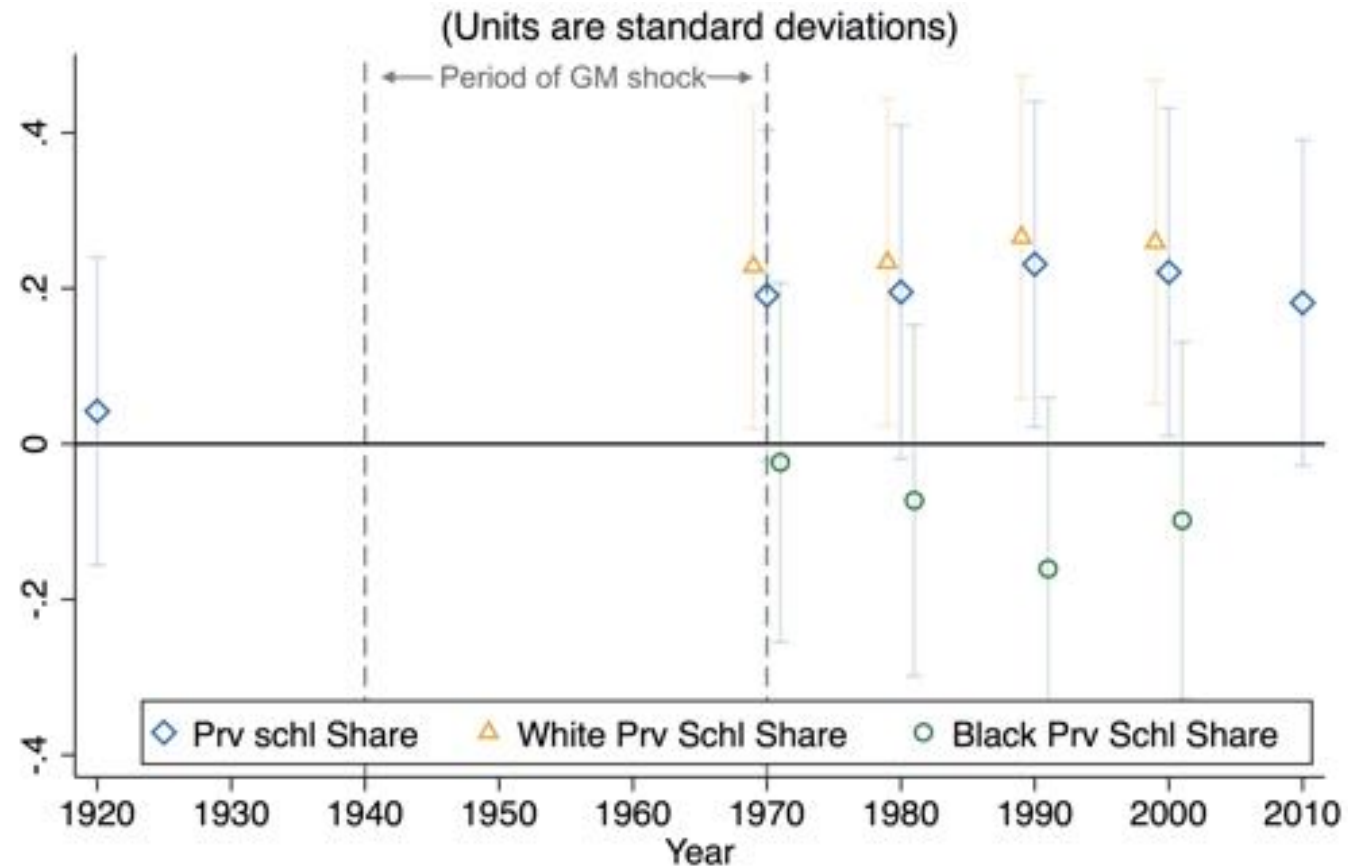
- Question: How did the northern urban environment change as a result of the Great Migration?

Impact of Great Migration on local mechanisms



Coefficient on Great Migration in regressions of Migration shock on average expenditure by government category (1972-2002), murder per 100k (1977-2002), incarcerated 15-64 y.o. per 100k (1983-2000), and white private school rates (1970-2000). Units of shock are 30 pctiles (1 sd). Baseline 1940 controls included.

Great Migration impact on private school enrollment

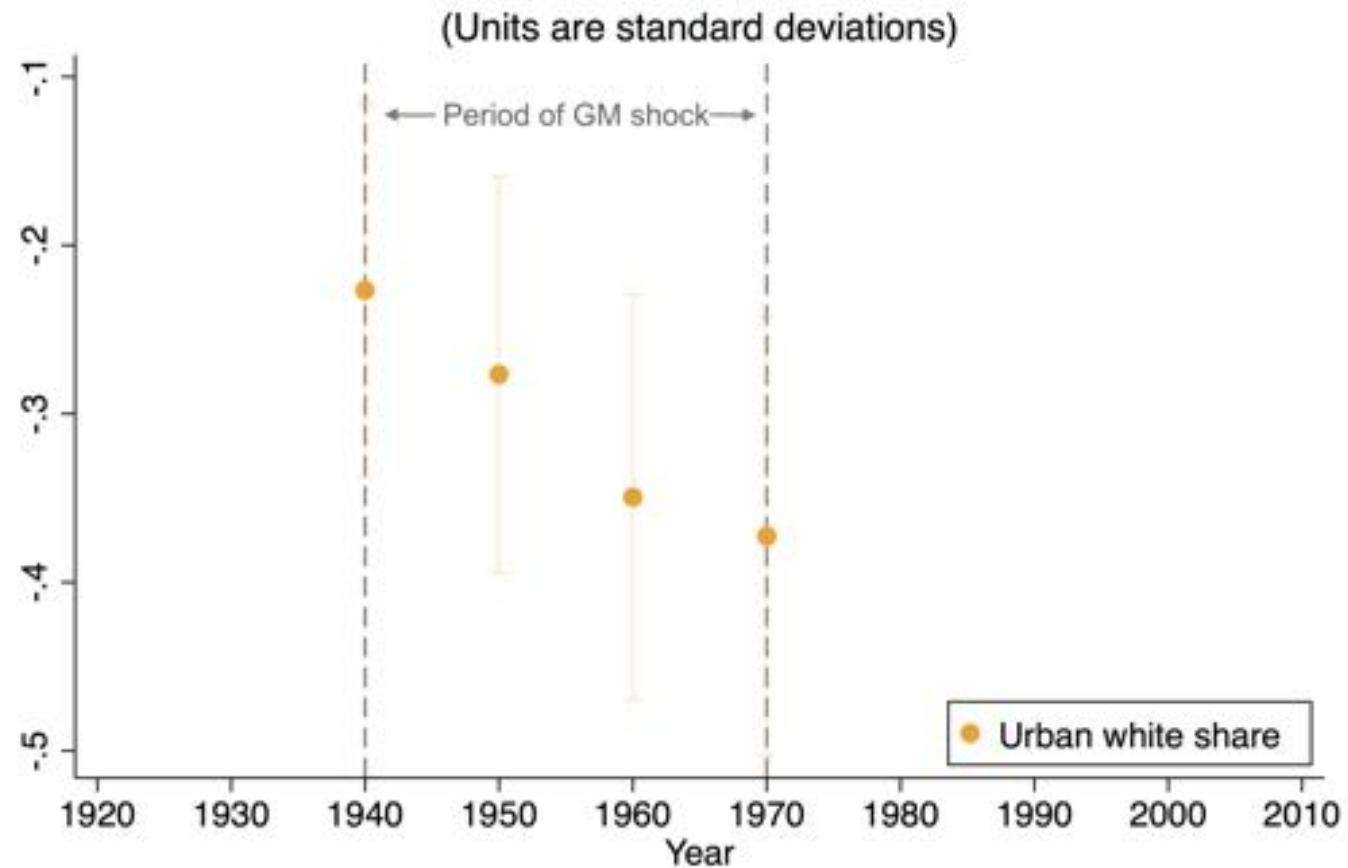


Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

Units of shock are 30 percentiles. *Data Source:* PF-NBHDS database for CZs, 1920-2015.

Source: Derenoncourt (2018)

Great Migration impact on urban white share

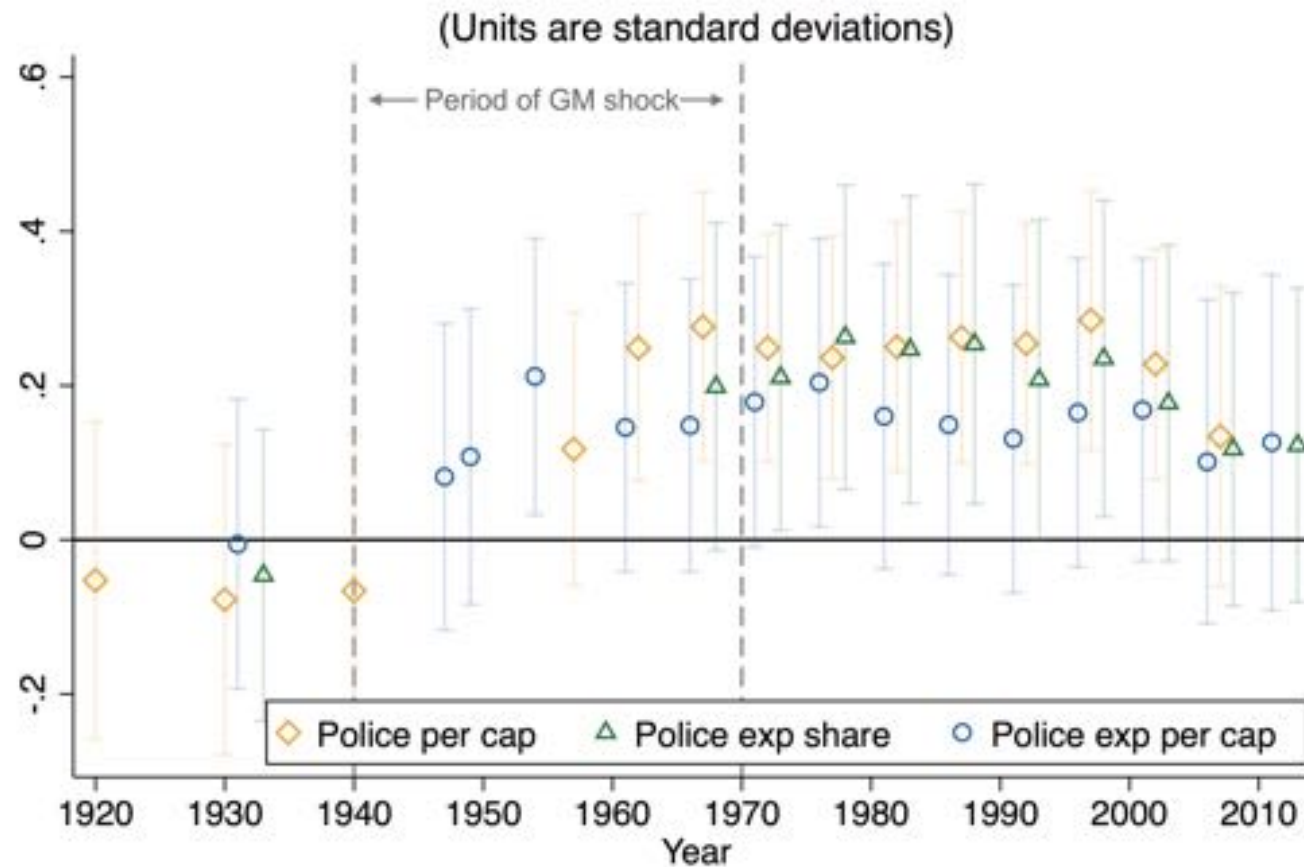


Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

Units of shock are 30 percentiles. Controls included for total 1940 CZ population. *Data Source:* City and County Data Books.

Source: Derenoncourt (2018)

Great Migration impact on police expenditures



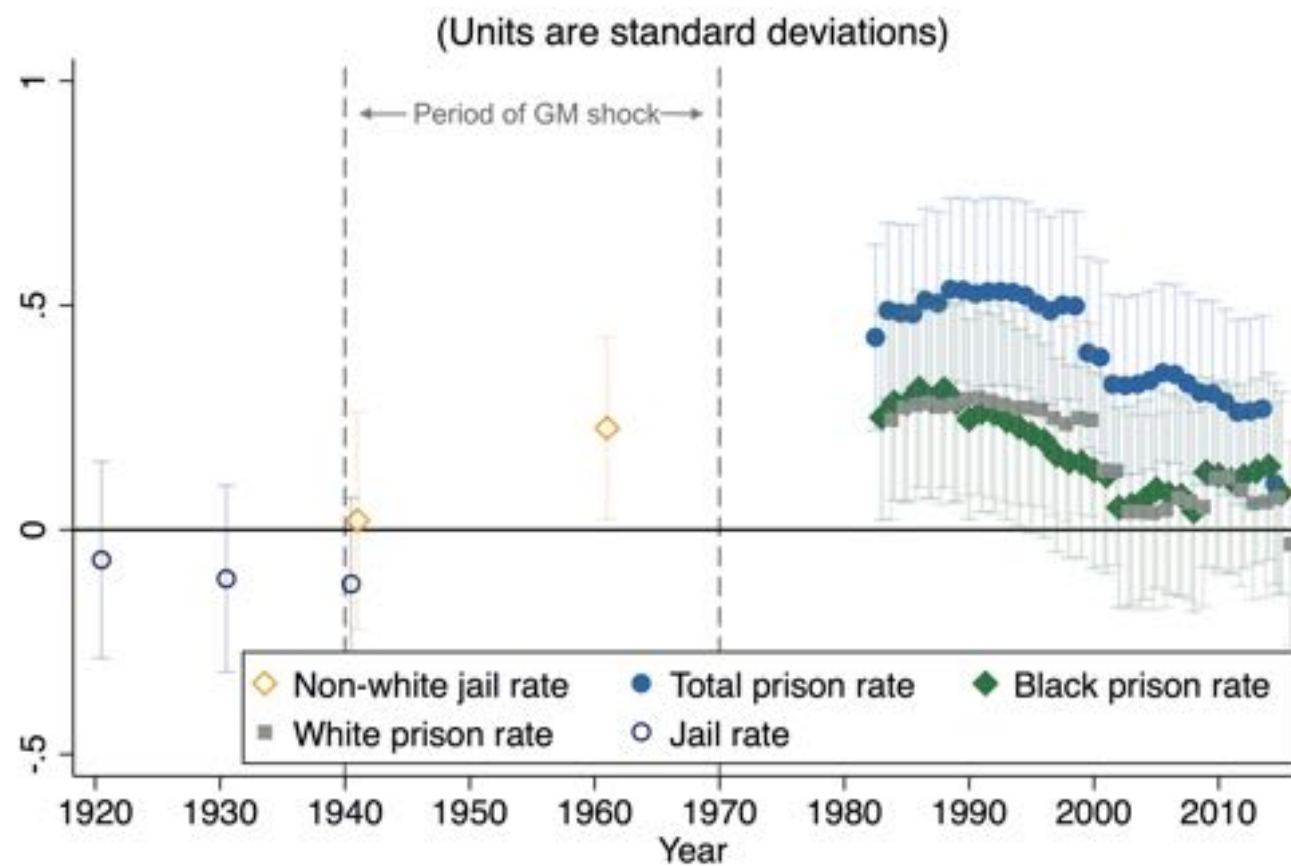
Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

Units of shock are 30 percentiles. *Data Source:* PF-NBHDS, 1920-2015.

► Fire

Source: Derenoncourt (2018)

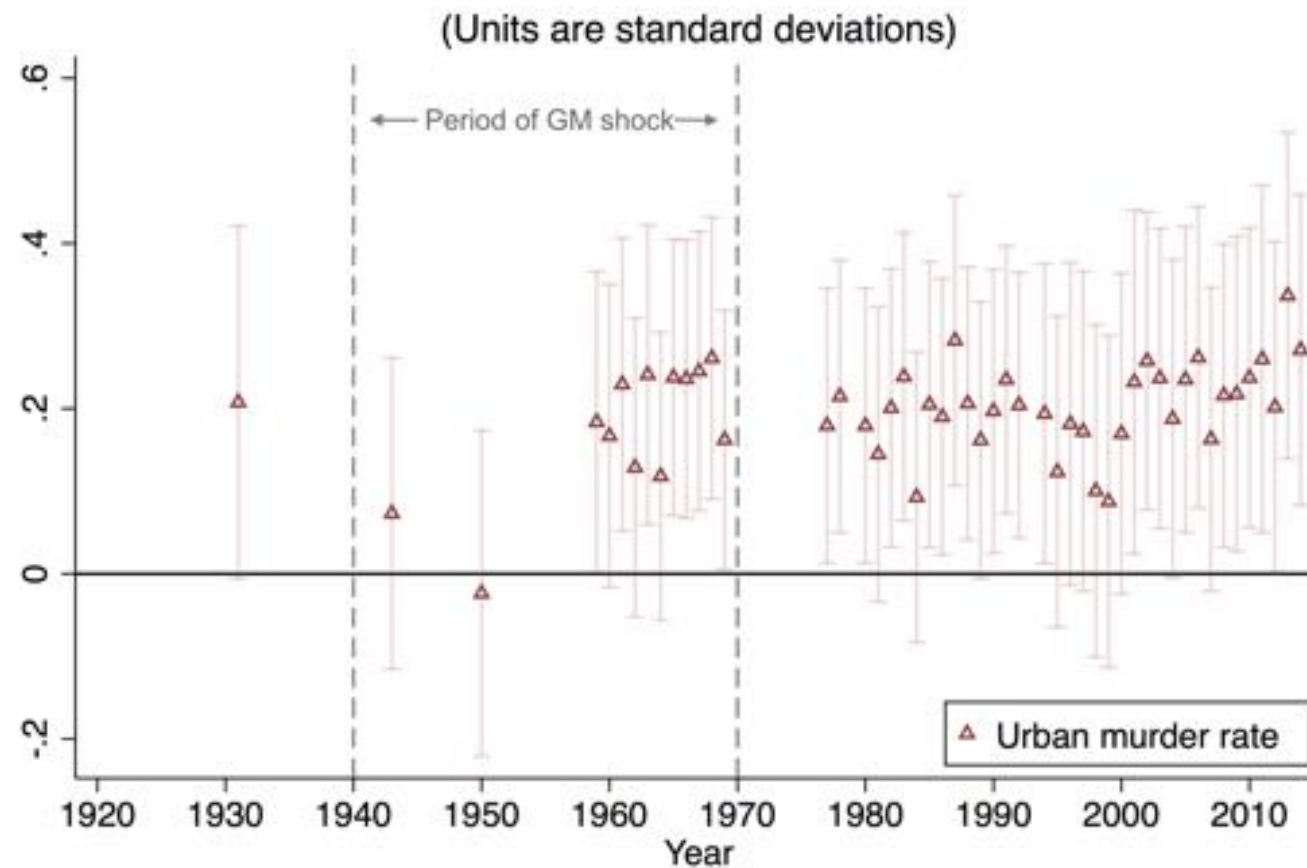
Great Migration impact on incarceration rates



Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

Units of shock are 30 percentiles. *Data Source:* PF-NBHDS, 1920-2015.

Great Migration impact on murder rates



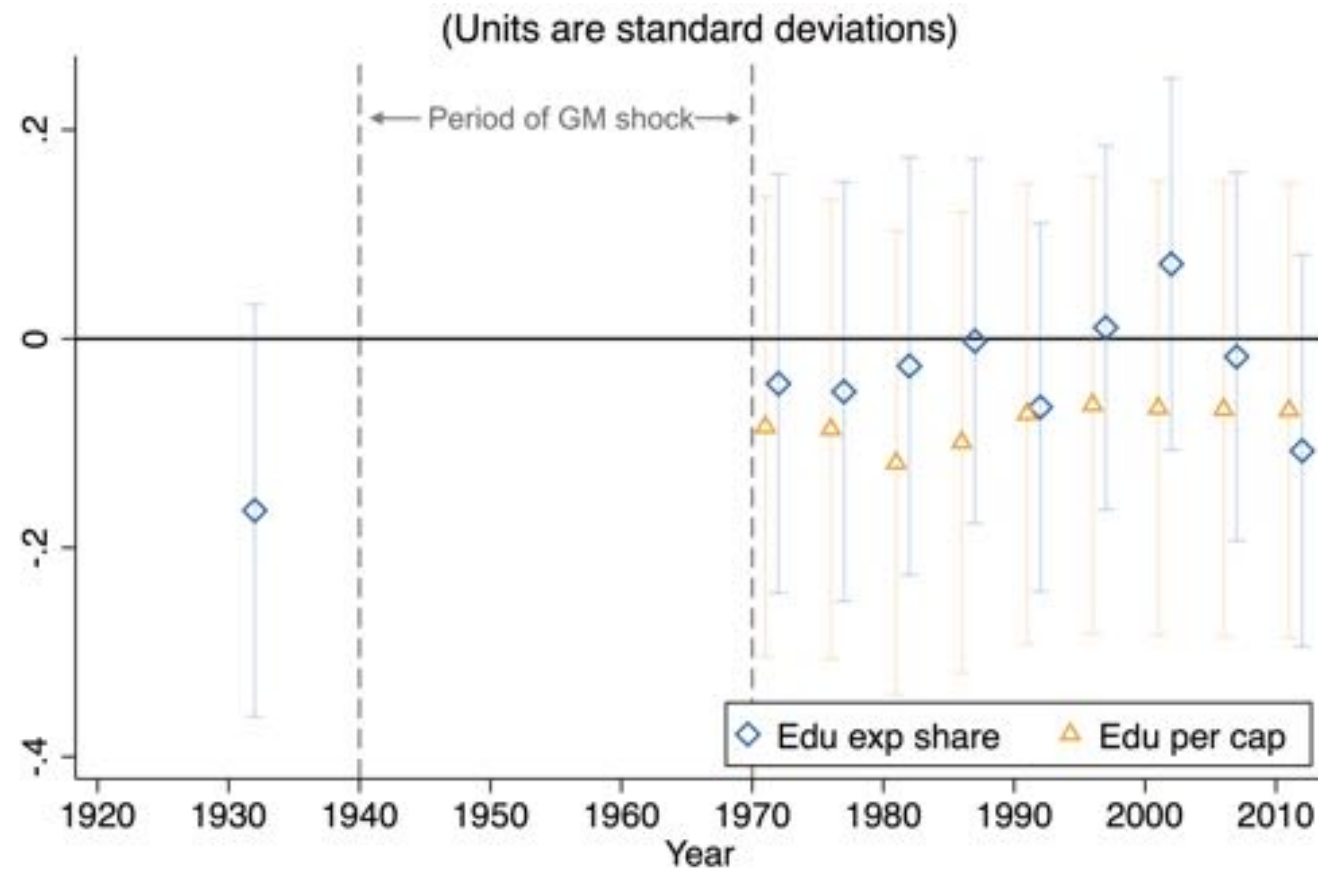
Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

Units of shock are 30 percentiles. *Data Source:* PF-NBHDS, 1920-2015.

► Riots

Source: Derenoncourt (2018)

Great Migration impact on education expenditures



Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

Units of shock are 30 percentiles. *Data Source:* PF-NBHDS, 1920-2015.

Source: Derenoncourt (2018)

Summary

- Markets have imperfect information
- Evidence of racial bias in hiring and judicial system
- Racial gaps are endogenous
 - Gaps in performance are endogenous to managers (Glover, Pallais, Pariente 2017)
 - Adult earnings/incarceration gaps are endogenous to childhood neighborhood (Chetty, Hendren, Jones, Porter 2018)
- And, the impact of places on race gaps are endogenous
- Nathan's read of the evidence: race gaps are not immutable, but are the result of policy and endogenous responses to discrimination