Race and Economic Opportunity in the United States
An Intergenerational Perspective

Raj Chetty, Stanford
Nathaniel Hendren, Harvard
Maggie R. Jones, U.S. Census Bureau
Sonya Porter, U.S. Census Bureau

March 2018

Disclaimer: The views expressed are not necessarily those of the U.S. Census Bureau. The statistical summaries reported in these slides have been cleared by the Census Bureau's Disclosure Review Board release authorization number CBDRB-FY18-195. All values in the tables and figures that appear in this presentation have been rounded to four significant digits as part of the disclosure avoidance protocol.
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.
### Theories of Racial Disparities

<table>
<thead>
<tr>
<th>Family-Level Factors</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parental Income</td>
<td>Magnuson &amp; Duncan 2006; Rothstein &amp; Wozny 2012</td>
</tr>
<tr>
<td>Parental Human Capital &amp; Wealth</td>
<td>Oliver &amp; Shapiro 1995; Orr 2003; Conley 2010</td>
</tr>
<tr>
<td>Family Structure and Stability</td>
<td>McAdoo 2002; Burchinal et al. 2011</td>
</tr>
<tr>
<td>Ability at Birth</td>
<td>Rushton &amp; Jensen 2005 vs. Fryer &amp; Levitt 2006</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structural Features of Environment</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrimination in Criminal Justice</td>
<td>Steffensmeier, Ulmer, Kramer 1998; Eberhardt et al. 2004; Alexander 2010</td>
</tr>
<tr>
<td>Social Alienation, Stereotype Threat</td>
<td>Steele &amp; Aaronson 1995; Tatum 2004; Glover, Pallais, Pariente 2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Factors and Social Norms</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity and Oppositional Norms</td>
<td>Fordham &amp; Ogbu 1986; Noguera 2003; Carter 2005; Austen-Smith &amp; Fryer 2005</td>
</tr>
<tr>
<td>Aspirations or Role Models</td>
<td>Mickelson 1990; Small, Harding, &amp; Lamont 2010</td>
</tr>
</tbody>
</table>
This Paper: An Intergenerational Perspective

- Prior work has typically studied racial disparities within a single generation
  - Exceptions: school district data, longitudinal survey data, qualitative studies
    [e.g., Card and Rothstein 2007, Reardon et al. 2016, Mazumder 2014, Lareau 2003]

- We take an intergenerational perspective, focusing on dynamics of income across generations
  - Use new de-identified data linking parents and children covering nearly the entire U.S. population from 1989-2015

- Intergenerational approach sheds light on which disparities will persist in the long run and allows us to isolate the factors that drive persistent gaps
1. Data and Sample Definitions
2. Intergenerational Mobility by Race
3. Marriage Rates and Gender Differences
4. Family Level Explanations
5. Neighborhood Level Explanations
Data and Sample Definitions


- Intergenerational linkage: Children linked to parents who first claim them as a dependent on a tax return

- Target sample: Children in 1978-83 birth cohorts who were born in the U.S. or are authorized immigrants who came to the U.S. in childhood

- Analysis sample: 20 million children, 94% coverage rate of target sample
Income Measures

- Parents’ pre-tax household incomes: mean Adjusted Gross Income from 1994-2000, assigning non-filers zeros

- Children’s pre-tax incomes measured in 2014-15 (ages 31-37)
  - Non-filers assigned incomes based on W-2’s (available since 2005)
  - Begin with household income, then turn to individual (own) income

- Focus on percentile ranks: rank children relative to others in their birth cohort and parents relative to other parents
1. Data and Sample Definitions
2. Intergenerational Mobility by Race
3. Marriage Rates and Gender Differences
4. Family Level Explanations
5. Neighborhood Level Explanations
Intergenerational Mobility by Race

- Organize empirical analysis using a statistical model of intergenerational mobility and inequality [Becker and Tomes 1979]
  
- 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:

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

- Evolution of racial gaps and steady-state disparities in mean ranks controlled by rates of relative and absolute mobility ($a_r, b_r$)
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

Mean Black Parent Rank: 32.7

Mean White Parent Rank: 57.9
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

Mean Black Parent Rank: 32.7
Mean White Parent Rank: 57.9
Gap: 25.2
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

Mean Black Parent Rank: 32.7
Mean White Parent Rank: 57.9
Gap = 25.2

Mean Rank of Black Children: 44.8
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

Mean Black Parent Rank: 32.7
Mean White Parent Rank: 57.9

Gap = 25.2

Mean Rank of Black Children: 44.8
Mean Rank of White Children: 53.6
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

Mean Black Parent Rank = 32.7
Mean White Parent Rank = 57.9
Gap = 25.2
Pred. Gap in Next Gen. = 8.8
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

Next Gen. Gap = 8.8
Convergence in Black-White Gap if Intergenerational Mobility is Race-Invariant

If intergen mobility did not vary by race, racial disparities would shrink rapidly across generations.
Intergenerational Mobility for Whites vs. Blacks

Difference at p=25: 12.6
Difference at p=75: 15.7
Difference at p=100: 12.4
Rates of Upward and Downward Mobility: Blacks vs. Whites

Click [here](#) to view an interactive depiction of these transition rates
Intergenerational Mobility for Whites vs. Blacks

Steady State

Mean Child Household Income Rank vs. Parent Household Income Rank for Whites compared to Blacks.
Intergenerational Mobility for Whites vs. Blacks

Mean Child Household Income Rank vs. Parent Household Income Rank

Whites' Steady State

Steady State

Blacks' Steady State

Graph showing the comparison of mean child household income rank with parent household income rank for Whites and Blacks, indicating different mobility patterns between the two groups.
Intergenerational Mobility for Whites vs. Blacks

Steady-State Gap = 19.2
Intergenerational Mobility for Whites vs. Blacks

Intergenerational gaps $\rightarrow$ racial disparities persist in steady state

Current gap is close to steady state $\rightarrow$ intergenerational gaps (not transitory factors) drive most of the black-white gap today

Steady-State Gap = 19.2
Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity

- White
- Black
- American Indian
Mean Child Income Rank vs. Parent Income Rank by Race and Ethnicity
Children with Mothers born in the U.S.
Changes in Income Across Generations, by Racial Group

Mean Household Income Percentile

- **Black**: $23K
- **American Indian**: $22K
- **Hispanic**: $9K

Legend:
- Parents
- Children
- Steady-State Prediction

Mean for white children (born 1978-83)
Intergenerational Persistence of Racial Disparities: Summary

- All racial groups in the U.S. have similar rates of *relative* mobility \(\rightarrow\) will converge rapidly to steady state

- Key driver of disparities is therefore intergenerational gap in absolute mobility, e.g. between blacks and whites
  - Why do black children have lower incomes than white children *conditional* on parent income?

- Rest of the talk: test a range of explanations for black-white intergenerational gaps
Marriage Rates and Gender Differences
Mechanical Effects of Household Size

- Well-known that blacks marry at much lower rates than whites

- Do differences in marriage rates create mechanical differences between the household incomes of blacks and whites?

- Examine marriage rates and children’s *individual* incomes by parental income
Marriage Rates vs. Parent Income, Blacks vs. Whites

Percent of Children Married in 2015 (Ages 32-37)

Parent Household Income Rank

Diff. at p=25: 32.1

Diff. at p=75: 34.2

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

Diff. at p=25: 4.2

Diff. at p=75: 5.6

White

Black

Mean Child Individual Income Rank vs. Parent Household Income Rank

Diff. at p=25: 4.2

Diff. at p=75: 5.6
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank

Male Children

Mean Child Individual Income Rank vs. Parent Household Income Rank

White
Black

Diff. at p=25: 9.7
Diff. at p=75: 12.0
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank

Female Children

- Diff. at p=25: -1.4
- Diff. at p=75: -1.0

Mean Child Individual Income Rank vs. Parent Household Income Rank

White

Black
Hourly Wage Rates vs. Parent Income

Female Children

Mean Child Wage Rank (Age >= 30)

Parent Household Income Rank

Diff. at p=25: 1.9

Diff. at p=75: 1.5

White
Black
Employment Rates vs. Parent Income Rank
Female Children

- Diff. at p=25: -2.0
- Diff. at p=75: -2.4

Percent of Children Working in ACS (Age >= 30)

Parent Household Income Rank

White
Black

Female Children
Employment Rates vs. Parent Income Rank
Male Children

Percent of Children Working (Age >= 30)

Parent Household Income Rank

Diff. at p=25: 18.9

Diff. at p=75: 11.4

White Males
Black Males
College Attendance Rates vs. Parent Income Rank

College Attendance Rate for Children (%)

Parent Household Income Rank

- White Males
- Black Males
- White Females
- Black Females
Incarceration Rates vs. Parent Income Rank
Male Children

Diff. at p=25: -8.2
Diff. at p=75: -3.2

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

Incarceration Rates vs. Parent Income Rank

White

Black

Parent Household Income Rank
Incarceration and Intergenerational Gaps

- Differences in incarceration rates are substantial, but unlikely to “mechanically” explain entirety of black-white income gap for males
  - Income gaps remains substantial even among children in the highest-income families
  - Incarcerated individuals have low earnings even prior to incarceration [Looney and Turner 2018]
  - Would be useful to quantify impacts of incarceration directly using panel data on incarceration in future work

- We treat incarceration as an outcome determined by the same processes that shape labor market outcomes
Gender Differences in Racial Disparities: Summary

- Black-white gaps in earnings conditional on parental income are large for men, but small for women.

- Does not imply that black women have the same level of welfare as white women.
  - Black women have lower household income, conditional on parent income.

- Also does not mean that incomes of black women will converge to those of white women across generations.
  - Black women grow up in lower-income households in each generation.

- But does suggest that addressing the unique challenges faced by black men may ultimately raise the incomes of both black men and women.
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

Controls: None, Par. Inc., Par Inc. + Two-Par., Par Inc. + Two-Par. + Educ., Par Inc. + Two-Par. + Educ. + Wealth

Mean Rank of White Minus Black:
- None: 17.6
- Par. Inc.: 10.0
- Par Inc. + Two-Par.: 9.3
- Par Inc. + Two-Par. + Educ.: 9.1
- Par Inc. + Two-Par. + Educ. + Wealth: 8.4

Male
Effects of Family-Level Factors on the Black-White Income Gap
Children with Parents at 25th Percentile

Controls: None  Par. Inc.  Par Inc. +Two-Par.  Par Inc. +Two-Par. +Educ.  Par Inc. +Two-Par. +Educ. +Wealth

Mean Rank of White Minus Black

- Male
- Female

17.6  10.0  9.3  9.1  8.4

4.8  -2.0  -1.7  -1.9  -2.3

49
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
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 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]
1. Data and Sample Definitions
2. Intergenerational Mobility by Race
3. Marriage Rates and Gender Differences
4. Family Level Explanations
5. Neighborhood Level Explanations
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 [Chetty, Hendren, Kline, and Saez 2014]
  
  - 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

\[ \bar{y}_{25,\text{Chicago,1985}} = \bar{y}_{0,\text{Chicago,1985}} + \text{(Rank-Rank Slope)} \times 25 \]

Predict outcome for child in CZ c using slope
+ intercept of rank-rank relationship

Source: Chetty, Hendren, Kline, Saez 2014
The Geography of Upward Mobility in the United States

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

- Seattle: $27.6k
- San Francisco Bay Area: $28.8k
- Los Angeles: $27.6k
- Salt Lake City: $31.2k
- Dubuque: $31.7k
- Cleveland: $24.6k
- Newark: $30.1k
- Washington DC: $27.8k
- Charlotte: $22.5k
- Atlanta: $23.1k

Note: Green = More Upward Mobility, Red = Less Upward Mobility

Insufficient Data
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

- Blacks live in different neighborhoods from whites within CZs

- Zoom in to examine variation across Census tracts in the rest of the lecture
  - 70,000 Census tracts with about 4,250 people per tract in the U.S.
Variation in the Black-White Gap Across Tracts

Four key 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

Mean Rank of Whites Minus Black Children

Controls:
- None
- Par. Inc. p=25
- Same Tract + Par. Inc. p=25
- Same Block + Par. Inc. p=25

Male
Female

- None: 17.6
- Par. Inc. p=25: 10.0
- Same Tract + Par. Inc. p=25: 7.7
- Same Block + Par. Inc. p=25: 7.0
Black-White Gaps within Neighborhoods by Gender
Children with Parents at 75th Percentile

Controls:

- None
- Par. Inc. p=75
- Same Tract + Par. Inc. p=75
- Same Block + Par. Inc. p=75

Mean Rank of Whites Minus Black Children

<table>
<thead>
<tr>
<th>Controls</th>
<th>Mean Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>17.6</td>
</tr>
<tr>
<td>Par. Inc. p=75</td>
<td>11.7</td>
</tr>
<tr>
<td>Same Tract + Par. Inc. p=75</td>
<td>8.9</td>
</tr>
<tr>
<td>Same Block + Par. Inc. p=75</td>
<td>7.9</td>
</tr>
</tbody>
</table>
Distribution of Black – White Gap in Individual Ranks Across Tracts for Men

Density

Raw Fraction < 0: 11.8%
Signal Fraction < 0: 1.3%
Mean Gap: 7.5 pctiles

White Minus Black Rank Given Parents at 25th Percentile
Variation in the Black-White Earnings Gap Across Tracts

Four key 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

<table>
<thead>
<tr>
<th>Economy</th>
<th>Share Above Poverty Line</th>
<th>Mean Household Income</th>
<th>Employment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>Mean 3rd Grade Math Score</td>
<td>Mean 8th Grade Math Score</td>
<td>Share HS Students Not Suspended</td>
</tr>
<tr>
<td>Housing</td>
<td>Median Rent (2BR)</td>
<td>Share Homeowners</td>
<td></td>
</tr>
<tr>
<td>Family Structure</td>
<td>Share Married</td>
<td>Share Two-Parent</td>
<td></td>
</tr>
<tr>
<td>Healthcare Access</td>
<td>Share Adults Insured</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- White
- Black

Magnitude of Correlation

0  0.2  0.4  0.6
Black – White Gap in Individual Income Ranks vs. Share Above Poverty Line

Males

Intercept: 3.57, Slope: 0.05

Share Above Poverty Line in Tract in 2000 (%)
Variation in the Black-White Earnings Gap Across Tracts

- Four key 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
Association Between Tract-Level Characteristics and Black-White Gap

Tracts with Poverty Rates Below 10%

Correlation with White Minus Black Rank for Males (p25)
Association Between Tract-Level Characteristics and Black-White Gap

Tracts with Poverty Rates Below 10%

- Black Father Presence (p25)
- White Father Presence (p25)
- Share Married
- Share Black Above Poverty Line
- Mean 3rd Grade Math Score
- Employment Rate
- White Mother Presence (p25)
- Share Black Insured (18-64)
- Share Homeowners
- Share Two Parents
- Black Mother Absence (p25)
- Share Above Poverty Line
- Mean 8th Grade Math Score
- Fraction Not Suspended from School
- Share Insured (18-64)
- Median Rent (2BR)
- Share White Above Poverty Line
- Share White Insured (18-64)
- Share HS Graduate
- Median Black Home Value
- Median White Home Value
- Mean Household Income
- Share College Grad.
Black-White Gap in Individual Income Rank vs. Father Presence
Male Children with Parents at 25th Percentile - Poverty Share Less than 10%

Mean Child Individual Income Rank

Percentage of Black Children with Father Present

Diff: 9.3

Diff: 6.1

White
Black

Poverty Share Less than 10%
Black-White Gap in Employment Rates vs. Father Presence
Male Children with Parents at 25th Percentile - Poverty Share Less than 10%
Male-Female Gap in Employment Rates vs. Father Presence
Black Children with Parents at 25th Percentile - Poverty Share Less than 10%
## Association Between Father Presence and Black Boys' Outcomes: Regression Estimates

**Dependent Variable:** Mean Rank of Black Boys with Parents at 25th Percentile in Tract

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Black and White Father Presence</th>
<th>Children with Two Parents</th>
<th>Gender Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Low-Income Black Father Presence</td>
<td>0.0492 (0.0062)</td>
<td>0.0450 (0.0068)</td>
<td>0.0461 (0.0128)</td>
<td></td>
</tr>
<tr>
<td>Low-Income White Father Presence</td>
<td>0.0077 (0.0076)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-Income Black Father Presence</td>
<td></td>
<td></td>
<td>0.0387 (0.0043)</td>
<td></td>
</tr>
<tr>
<td>Low-Income Black Male Adults Per Child</td>
<td></td>
<td></td>
<td>-0.0011 (0.0011)</td>
<td></td>
</tr>
<tr>
<td>Low-Poverty Tracts</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Results from OLS regressions at the tract level. Standard errors in parentheses.
Father Presence: Additional Results

- Greater presence of *white* fathers in tract is predictive of white boys’ outcomes
  - Phenomenon is not unique to black boys; but rates of father presence are much lower for black boys

- Black father presence in *childhood* neighborhood is predictive even conditional on tract in which child lives as an adult
  - Not a mechanical consequence of black boys and their fathers being subject to the same set of environmental factors (e.g., policing)
Racial Bias and Black Children’s Outcomes

- Now turn to another set of factors that are associated with both better outcomes for black boys and smaller black-white gaps: racial bias

- Racial bias measures unavailable at the Census tract level

- Instead focus on two measures available at county and media market level:

  1. Implicit racial bias: index based on participants’ ability to match positive and negative words with black vs. white faces [Greenwald et al. 1998]

  2. Explicit racial animus: index based on frequency of Google searches for racial epithets [Stephens-Davidowitz 2014]
### Association Between Racial Bias and Black Boys' Outcomes: Regression Estimates

Dependent Variable: Mean Rank of Black Children with Parents at 25\textsuperscript{th} Percentile in Tract

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Males Baseline</th>
<th>White vs. Black IAT</th>
<th>State Fixed Effects</th>
<th>Females</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference in IAT</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td></td>
<td>-0.0081</td>
<td>-0.0060</td>
<td>-0.0082</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0024)</td>
<td>(0.0019)</td>
<td>(0.0029)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAT for Whites</td>
<td></td>
<td>-0.0080</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0023)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAT for Blacks</td>
<td></td>
<td>0.0047</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0023)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Racial Animus</td>
<td></td>
<td></td>
<td></td>
<td>-0.0263</td>
<td>-0.0191</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.0056)</td>
<td>(0.0080)</td>
<td></td>
</tr>
<tr>
<td>State FE’s</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Cells</td>
<td>340</td>
<td>340</td>
<td>340</td>
<td>325</td>
<td>28</td>
<td>27</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>492,200</td>
<td>492,200</td>
<td>492,200</td>
<td>491,700</td>
<td>386,600</td>
<td>386,600</td>
</tr>
</tbody>
</table>

Columns (1)-(4) are at the county level. Columns (5)-(6) are at the media market level. We restrict to counties (media markets) with poverty rates less than 10%.
Variation in the Black-White Earnings Gap Across Tracts

Four key 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.
Identifying the Causal Effects of Neighborhoods

- Ideal experiment: randomly assign children to neighborhoods and compare outcomes in adulthood, by race

- We approximate this experiment using quasi-experimental design developed by Chetty and Hendren (2018)
  - Study families who move across areas in observational data
  - Exploit variation in age of child when family moves to identify causal effects of neighborhoods

- Identifying assumption: potential outcomes of children are orthogonal to age at which family moves to a better/worse neighborhood
Childhood Exposure Effects on Income Rank at Age 30

White Males

Slope: -0.026 (0.003)

Coefficient on Predicted Rank in Destination

5 10 15 20 25 30

Age of Child when Parents Move

δ: 0.242
Childhood Exposure Effects on Income Rank at Age 30

Black Males

Slope: -0.027 (0.004)

\[ \delta: 0.119 \]
### Race-Specific Childhood Exposure Effects

**OLS Regression Estimates**

<table>
<thead>
<tr>
<th></th>
<th>Whites</th>
<th>Blacks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Prediction for Whites</td>
<td>-0.023</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Prediction for Blacks</td>
<td>-0.004</td>
<td>-0.029</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.004)</td>
</tr>
</tbody>
</table>

Note: standard errors in parentheses
Childhood Exposure Effects on Probability of Being Incarcerated in 2010
Black Males

Slope: -0.033 (0.004)

δ: 0.055

Coefficient on Incarceration Rate

Age of Child when Parents Move
Summary: Impacts of Neighborhood Environments on Black Men

- Main lesson: childhood environment is an important driver of black-white gaps

- But the environmental factors that matter *differ* by race
  - Neighborhood effects cannot be reduced to a common set of factors that affect both black and white boys

- Black boys do well in nbhds. with good resources (low poverty rates) *and* good race-specific factors (high father presence, less racial bias)

- The problem is that there are essentially no such neighborhoods in America
Father Presence and Poverty Rates by Tract for Blacks vs. Whites

Note: Low-Poverty: Poverty Rate < 10%; High Father Presence: >50% Father Presence Among Children of Own Race
Father Presence and Poverty Rates by Tract for Blacks vs. Whites

Note: Low-Poverty: Poverty Rate < 10%; High Father Presence: >50% Father Presence Among Children of Own Race
<table>
<thead>
<tr>
<th>New York City, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastchester / Wakefield</td>
</tr>
<tr>
<td>Queens Village / Laurelton</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Washington, DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown Silver Spring / Woodside Park / Woodside Forest</td>
</tr>
<tr>
<td>New Carrolton / College Park / Greenbelt</td>
</tr>
</tbody>
</table>
Conclusions

1. Mobility into and out of poverty is a central determinant of racial disparities

   – Hispanics have relatively high rates of upward mobility → increasing income across generations

   – Blacks have much lower rates of upward mobility → persistent gaps across generations
Conclusions

1. Mobility into and out of poverty is a central determinant of racial disparities

2. Commonly proposed policies likely to be insufficient to close black-white gap by themselves

   – Changes in transfer programs and minimum wages unlikely to have persistent effects, unless they change rates of mobility [Cameron and Heckman 2001]

   – Reducing residential or school segregation can improve the level of outcomes of both black and white children, but may not narrow gaps
Conclusions

1. Mobility into and out of poverty is a central determinant of racial disparities

2. Commonly proposed policies likely to be insufficient to close black-white gap by themselves

3. Reducing racial gaps requires policies that cut *within* neighborhoods and improves environments for specific subgroups, such as black males
   - Ex: Mentoring programs, efforts to reduce racial bias, achieving racial integration within schools, criminal justice reform [Heller et al. 2015, Devine et al. 2012]
   - Further development and evaluation of such efforts would be valuable
Supplementary Figures
Density of Parent Household Income Ranks, White and Black Children

Mean Parent Rank = 32.7
Mean Parent Rank = 57.9

Share of Parents at Given Household Income Percentile

Parent Household Income Rank

White
Black

Mean Parent Rank = 32.7
Mean Parent Rank = 57.9
Hours Worked vs. Parent Income Rank
Male Children

Weekly Hours Worked in ACS (Age >= 30) vs. Parent Household Income Rank

- Diff. at p=25: 10.6
- Diff. at p=75: 8.1

Legend:
- White
- Black
Hours Worked vs. Parent Income Rank
Female Children

Weekly Hours Worked in ACS (Age >= 30)

Parent Household Income Rank

Diff. at p=25: -1.0
Diff. at p=75: -1.3

White
Black
High School Completion Rates vs. Parent Income Rank

Male Children

Diff. at p=25: 8.3

Diff. at p=75: 4.2

Pct. of Children with High School Degree (Age >= 19)

Parent Household Income Rank

White

Black

95
High School Completion Rates vs. Parent Income Rank

Female Children

Diff. at p=25: 3.5

Diff. at p=75: 1.5

Pct. of Children with High School Degree (Age >= 19)

Parent Household Income Rank

White

Black
College Attendance Rates vs. Parent Income Rank

Male Children

Diff. at p=25: 6.5

Diff. at p=75: 7.7

Parent Household Income Rank

College Attendance Rate for Children (%)

White
Black

97
College Attendance Rates vs. Parent Income Rank
Female Children

- Diff. at p=25: 2.8
- Diff. at p=75: 3.6

College Attendance Rate for Children (%)

Parent Household Income Rank

- White
- Black
Household Income Rank vs. Parent Income Rank
Male Children

Diff. at p=25: 13.6
Diff. at p=75: 16.6

Mean Child Household Income Rank

Parent Household Income Rank

White
Black
Household Income Rank vs. Parent Income Rank

Female Children

Diff. at p=25: 11.7

Diff. at p=75: 14.9

White

Black

Parent Household Income Rank

Mean Child Household Income Rank

Diff. at p=25: 11.7

Diff. at p=75: 14.9
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank

Male Children in Single-Parent Families

Diff. at p=25: 9.7
Diff. at p=75: 12.0
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank

Male Children in Two-Parent Families

Mean Child Individual Income Rank vs. Parent Household Income Rank

- Diff. at p=25: 7.9
- Diff. at p=75: 11.5

Legend:
- White
- Black
Black-White Gap in Child Individual Income Rank vs. Parent Income Rank
Male Children, Parents Do Not Own Home

Black
White

Diff. at p=25: 8.1
Diff. at p=75: 11.9

Mean Child Individual Income Rank

Parent Household Income Rank

White
Black
Occupational Distributions Conditional on Parent Income, by Gender
Black and White Children, Parents in 3\textsuperscript{rd} Income Decile

Male

- Business
- STEM
- Social Service
- Healthcare
- Food/Service
- Administrative
- Farming/Construction
- Maintenance/Repair
- Machine Operation
- Transportation

Fraction to Be Reallocated = 19.5%

Female

- Business
- STEM
- Social Service
- Healthcare
- Food/Service
- Administrative
- Farming/Construction
- Maintenance/Repair
- Machine Operation
- Transportation

Fraction to Be Reallocated = 5.5%
Occupational Distributions Conditional on Parent Income, by Gender
Black and White Children, Parents in 8th Income Decile

Male

Female

Fraction to Be Reallocated = 13.2%

Fraction to Be Reallocated = 5.4%

White
Black
Effects of Family-Level Factors on the Black-White Income Gap
Children with Parents at 75th Percentile

Mean Rank of White Minus Black

Controls: None Par. Inc. Par Inc. +Two-Par. Par Inc. +Two-Par. +Educ. Par Inc. +Two-Par. +Educ. +Wealth

Male Female

17.6 4.8 11.7 -0.9 11.4 -0.7 11.4 -0.7 11.0 -1.2
Effects of Family-Level Factors on the Unconditional Black-White Gap

Controls:

- None
- Two Parent
- Parent Education
- Parent Wealth

Mean Rank of White Minus Black

- Male: 17.6, 13.3, 15.2, 13.1
- Female: 4.8, 1.8, 2.4, 1.0
Mean Child Individual Income Rank by CZ
White Females with Parents at 25th Percentile
Mean Child Individual Income Rank by CZ
Black Females with Parents at 25\textsuperscript{th} Percentile
Mean Child Household Income Rank Given Parents at 25th Percentile by CZ
Full Population
Mean Child Household Income Rank Given Parents at 25\textsuperscript{th} Percentile by CZ

Whites

Correlation with Baseline: 0.77
Mean Child Household Income Rank Given Parents at 25\textsuperscript{th} Percentile by CZ

Blacks

Correlation with Baseline: 0.61
Correlation with White: 0.53
Mean Child Individual Income Rank for Males with Parents at 25th Percentile
Distribution of Black – White Gap in Individual Ranks Across Tracts
Male Children with Parents at 75th Percentile

Raw Fraction < 0: 15.2%
Signal Fraction < 0: 1.9%
Mean Gap: 9.2 pctlies
Mean Child Individual Income Rank for Males with Parents at 75th Percentile
Distribution of Black – White Gap in Individual Ranks Across Tracts

Women Children with Parents at 25th Percentile

Density

White Minus Black Rank Given Parents at 25th Percentile

Raw Fraction < 0: 72.5%
Signal Fraction < 0: 83.6%
Mean Gap: -3.0 pctl.
Distribution of Black – White Gap in Individual Ranks Across Tracts

Women Children with Parents at 75th Percentile

Raw Fraction < 0: 60.8%
Signal Fraction < 0: 69.0%
Mean Gap: -2.1 pctlies
Black-White Gap in Incarceration Rate vs. Father Presence
Male Children with Parents at 25th Percentile - Poverty Share Less than 10%

White; Slope: -0.01 (0.003)
Black; Slope: -0.06 (0.007)
Tract Poverty Rates vs. Mean Child Individual Rank
Black and White Children

Diff. at p=25: -7.4

Diff. at p=75: -4.8

White (Intercept: 12.91; Slope: -0.05)
Black (Intercept: 21.63; Slope: -0.11)
Fraction of Kids with Father Present vs. Individual Income Rank
Black and White Children

Diff. at p=25: 27.8
Diff. at p=75: 26.9

White (Intercept: 69.20, Slope: -0.02)
Black (Intercept: 41.02, Slope: -0.00)
Disruptive Behavior, by Race and Gender

Source: National Educational Longitudinal Study 1988
Childhood Exposure Effects on Probability of Being Incarcerated in 2010

White Males

Slope: -0.025 (0.004)

δ: 0.094

Coefficient on Incarceration Rate

Age of Child when Parents Move
Childhood Exposure Effects for Males on Income Rank at Age 24

Coefficient on Predicted Rank in Destination

Slope: -0.017 (0.001)
Slope: -0.040 (0.002)
Slope: -0.000 (0.009)

δ: 0.221

Age of Child when Parents Move
## Top 5 and Bottom 5 CZs in Upward Mobility for Low-Income Black Men

Among 100 Largest CZs by Black Population

<table>
<thead>
<tr>
<th>Commuting Zone</th>
<th>Mean Individual Income Rank Black Males (p=25)</th>
<th>White Minus Black Individual Income Rank (p=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black Males (p=25)</td>
<td></td>
</tr>
<tr>
<td>A. Top 5 CZs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boston, MA</td>
<td>44.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Lafayette, LA</td>
<td>44.0</td>
<td>11.6</td>
</tr>
<tr>
<td>Lake Charles, LA</td>
<td>43.1</td>
<td>11.1</td>
</tr>
<tr>
<td>Baton Rouge, LA</td>
<td>43.1</td>
<td>10.8</td>
</tr>
<tr>
<td>New York, NY</td>
<td>42.4</td>
<td>13.2</td>
</tr>
<tr>
<td>B. Bottom 5 CZs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Rapids, MI</td>
<td>35.5</td>
<td>11.1</td>
</tr>
<tr>
<td>Cleveland, OH</td>
<td>35.2</td>
<td>12.6</td>
</tr>
<tr>
<td>Youngstown, OH</td>
<td>35.2</td>
<td>12.9</td>
</tr>
<tr>
<td>Tampa, FL</td>
<td>34.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Cincinnati, OH</td>
<td>34.7</td>
<td>10.1</td>
</tr>
</tbody>
</table>