Can you move to opportunity?
Evidence from the Great Migration [*]
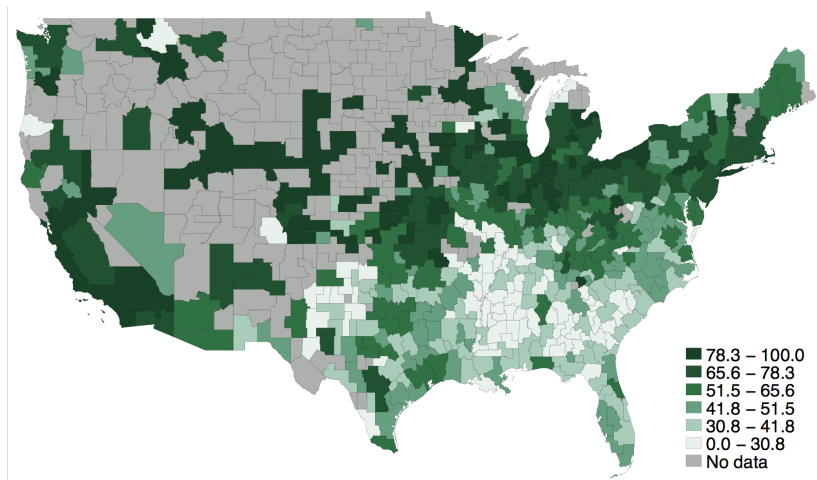
Ellora Derenoncourt

Harvard University

February 4, 2019

Geography of black upward mobility: 1940

Legend:
- 78.3 – 100.0
- 65.6 – 78.3
- 51.5 – 65.6
- 41.8 – 51.5
- 30.8 – 41.8
- 0.0 – 30.8
- No data

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

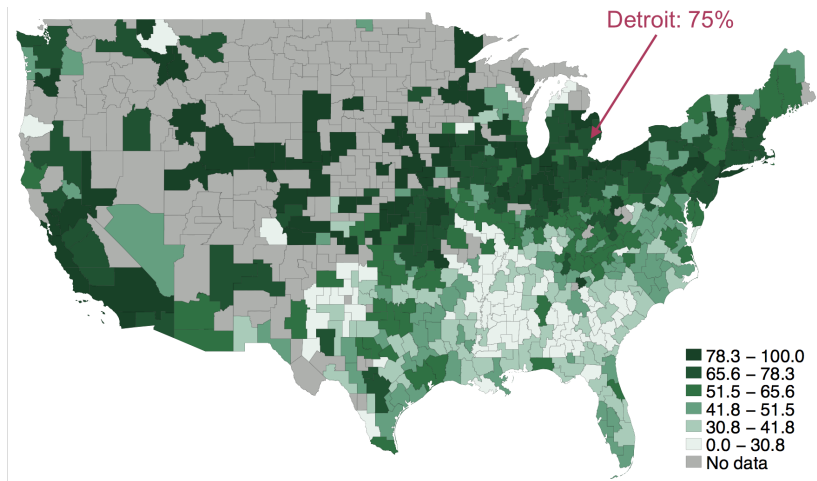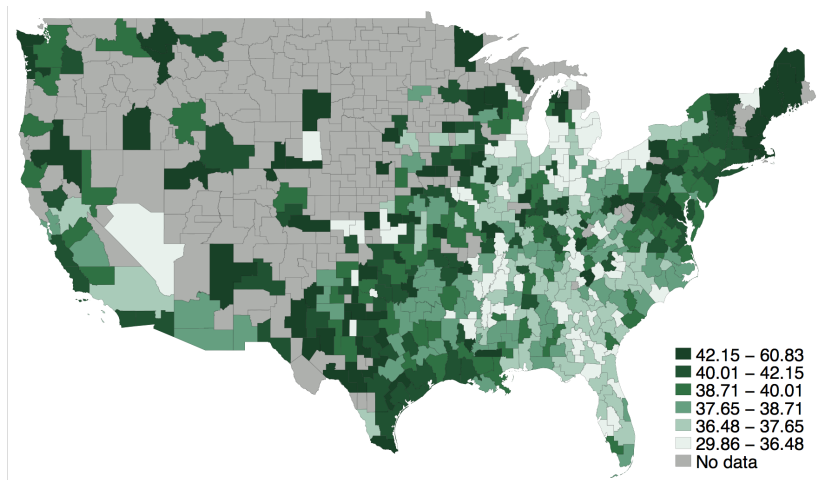Data from IPUMS, method via Card, Domnisoru, and Taylor (2018).

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).

Geography of black upward mobility: 2015

■	42.15 – 60.83
■	40.01 – 42.15
■	38.71 – 40.01
■	37.65 – 38.71
■	36.48 – 37.65
■	29.86 – 36.48
■	No data

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

Data from Chetty, Hendren, Jones, and Porter (2018). ▸ HS dropout 2000 ▸ Edu Mob 2000
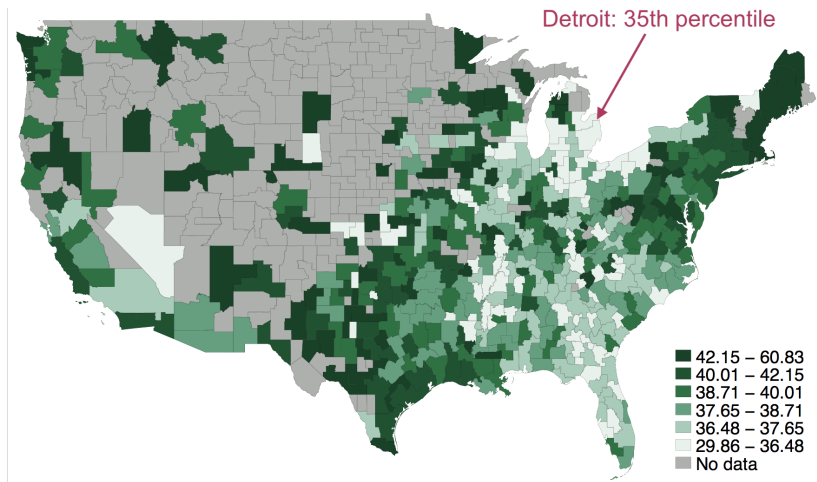
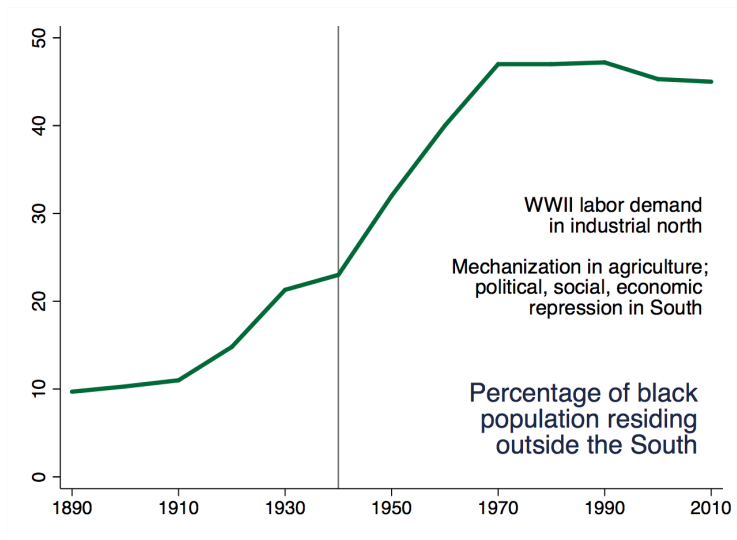# Geography of black upward mobility: 2015

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

Data from Chetty, Hendren, Jones, and Porter (2018). ▸ HS dropout 2000   ▸ Edu Mob 2000

1940: A pivotal moment in Great Migration North

WWII labor demand
in industrial north

Mechanization in agriculture;
political, social, economic
repression in South

**Percentage of black
population residing
outside the South**

Data from US Census.

Reactions in the North

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

Source: LOC.

Question and empirical strategy

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

- Upward mobility: Adult outcomes of children conditional on parent economic status.

Question: Did the Great Migration reduce the gains from growing up in northern destination cities?

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 LASSO-selected variables

Preview of findings

1. Growing up in a Great Migration destination city today reduces children's long-run outcomes.
   - Individuals from low income families in places that experienced 1 s.d. larger ↑ in black pop have **12%** lower household income.
   - Channel is location, not selection of families.

2. Upward mobility declines largest for **black men** growing up in destination cities today.
   - Those with low, median, and high income parents all affected.
   - No effect on upward mobility for white men or women.
   - Possible income effect on black women:
     higher individual income, no impact on household income.

3. Great Migration explains **28%** of upward mobility gap between black and white households in North today.

4. Mechanisms: rising segregation and urban decline post-1960.
   - White flight from public schools and urban neighborhoods
   - Increased investment in policing; higher crime and incarceration

Literature review

- Upward mobility, racial inequality, and neighborhood effects
  - Chetty, Hendren, Jones, and Porter (2018); Chetty and Hendren (2018a, 2018b); Ananat (2011); Andrews et al. (2017); Card et al. (2018); Chetty, Hendren, and Katz (2016); Cutler and Glaeser (1997); Graham (2016); Kasy (2015); Kling, Liebman, and Katz (2007); Massey and Denton (1990); Mazumder and Davis (2018); Ludwig et al (2012); Rothstein (2017); Wilson (1987).

- Great Migration and black economic history
  - Boustan (2009); Boustan (2010); Boustan (2016); Black et al. (2015); Collins and Margo (2007); Collins and Wanamaker (2015); Eriksson (2018); Eriksson and Niemesh (2016); Fouka, Mazumder, Tabellini (2018); Margo (1990); Muller (2012); Shertzer and Walsh (2016); Stuart and Taylor (2017); Tabellini (2018).

- Local public finance
  - Alesina, Baqir, and Hoxby (2004); Epple and Romano (1996); Tiebout (1956).

Outline

The Great Migration

Migrants to Chicago on leaving the South:

- Some of my people were here.
- Persuaded by friends.
- For better wages.
- To better my conditions.
- Better conditions.
- Better living.
- More work; came on visit and stayed.
- Wife persuaded me.
- Tired of the South.
- To get away from the South.

- From Isabel Wilkerson's *The Warmth of Other Suns: The Epic Story of America's Great Migration*

▸ 1940 wages

The Great Migration

"My mother was my inspiration... She was one of those 6,000,000 black people who left the South so that her children wouldn't have to grow up and put up with what she had to grow up and put up with."

On Brown v. Board: "I was surprised. I didn't go to school in the South. I didn't know that they didn't even go to school together down there."

- Helen Singleton, Civil Rights activist from Los Angeles

▸ 1940 mobility

Regional patterns in black economic progress today

"There is no region in the United States where it is better to be poor and black compared to being equally poor and white."

- Davis and Mazumder, 2018

▸ Correlation White   ▸ Correlation Black   ▸ 2000 mean parent income rank
▸ 2015 mean income rank   ▸ 2015 mobility   ▸ Regional racial gap time series
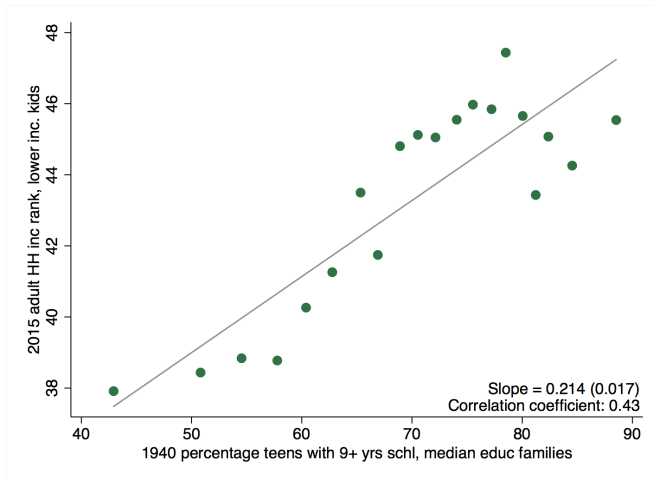
Outline

Data on upward mobility

- Historical: IPUMS 1940 US Complete Count Census ("CC")
  - Universe of enumerated individuals ($N \approx 132$ million)
  - Education outcomes for teens and parents in same household
  - Location, race, and other demographics available
- Modern: Chetty et al. (2018); Chetty and Hendren (2018b)
  - Income for parents and kids from US federal tax records
  - Parents and kids linked through dependent claiming
  - Upward mobility measures for 1980s birth cohorts
  - Linked to Census for information on race

Data on upward mobility

Measures:

- 1940: Fraction of teenagers in CZ with 9+ years of schooling; household head has 5-8 years of schooling

  [method similar to Card, Domnisoru, and Taylor (2018)]

- Pre-1940: School attendance of teens with low occupation score fathers

- 2000s: CZ-level estimated income rank (individual and household), for individuals from parent percentiles 25 and 75
  - Kids and parents ranked nationally within child birth cohort.

- Correlation coefficient: 0.43
  - Correlation between income upward mobility and high school graduation rates for low income families today: .53.

Relationship between 1940 and 2015 mobility measures

Slope = 0.214 (0.017)
Correlation coefficient: 0.43

Sample is commuting zones in continental US. ▸ White only

Data on urban CZ demographics during Great Migration

- **Sample:** 130 non-southern, continental US commuting zones
- **Criteria:**
    1. Cities in CZ observed in City Data Books, 1944-1977
        - Includes cities with population 25,000 or more in survey year
        - 294 cities with black population data in 1940 and 1970
    2. CZ in net-receiving state during Great Migration
        - Census division Northeast, Midwest, West plus Maryland, Delaware, and Washington, D.C.[†]
- **Coverage:** 85% of non-southern US pop (97% of non-southern black); 58% of overall US pop (50% of black)
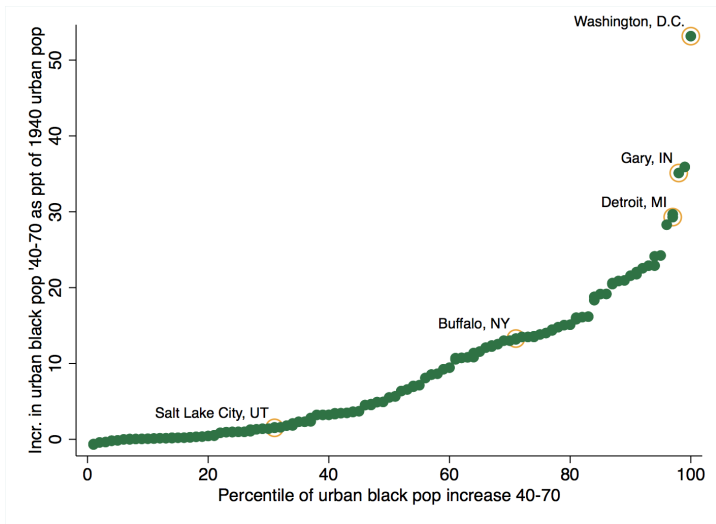

[†]DC, DE, and MD were net receivers. See Boustan (2016).

Measure of black population change

$$\text{Black pop change}_{CZ} = \frac{b^{1970}_{\text{urban},CZ} - b^{1940}_{\text{urban},CZ}}{\text{pop}^{1940}_{\text{urban},CZ}}$$
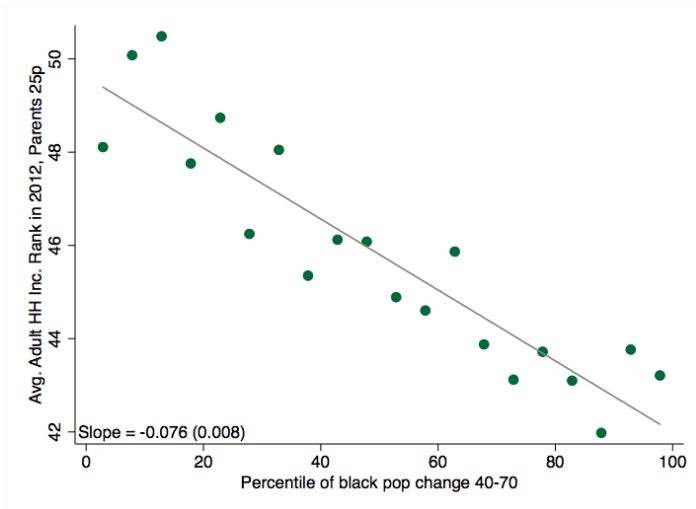
- $b^t_{\text{urban},CZ}$ is the total black population in all sample cities in commuting zone CZ in year t.
- GM_{CZ}, percentile of black pop change is key regressor.

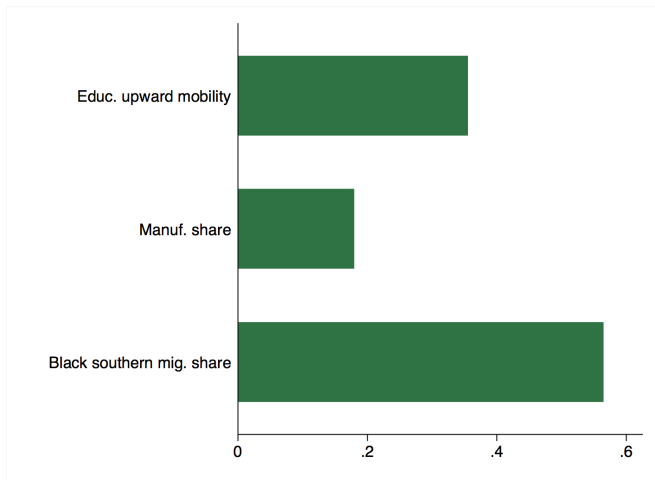# Quantile function of urban black pop increases, 1940-1970

Northern urban CZs. *Data source*: 1940 Census and City and County Data Books 1944-1977.

▸ Histogram

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

Observations are northern commuting zones. *Data source*: Chetty and Hendren (2018); IPUMS 1940
Census; and City and County Data Books, 1944-1977.

1940 correlates of black pop ↑ during Great Migration

Correlation between 1940–1970 black population increases in sample CZs and baseline 1940 characteristics. *Data source*: IPUMS 1940 Census; City and County Data Books, 1944–1977.

Motivation for instrument

- Increases in the black population during Great Migration not randomly assigned
- Omitted CZ characteristics may drive increases in black population and changes in upward mobility

Outline

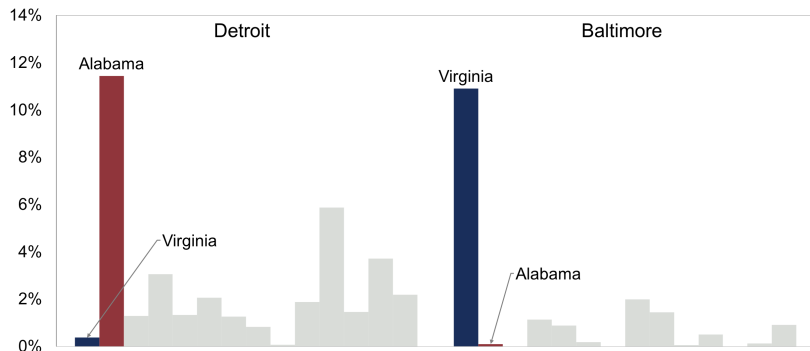# Heuristic definition of Great Migration shift-share instrument

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

$$\text{Pred Black Pop} \uparrow = \overbrace{\text{Historical settlement}}^{\text{``Shares''}} \times \overbrace{\text{Predicted migration}}^{\text{``Shifters''}}$$
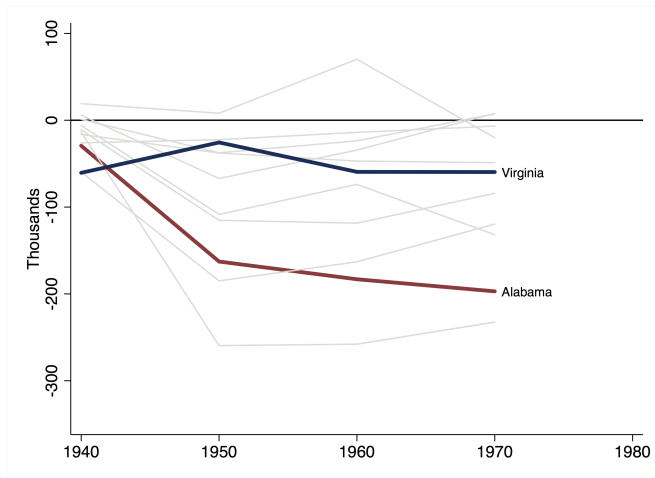
Instrument intuitively combines

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

Distinctive southern migrant composition in northern cities

Migration weights for ∼320,000 black respondents who list southern county of residence in 1935 ≠ current county. Weight shown for largest county by southern state (e.g., Jefferson County, AL and Richmond City County, VA). *Data source*: IPUMS 1940 complete count census.
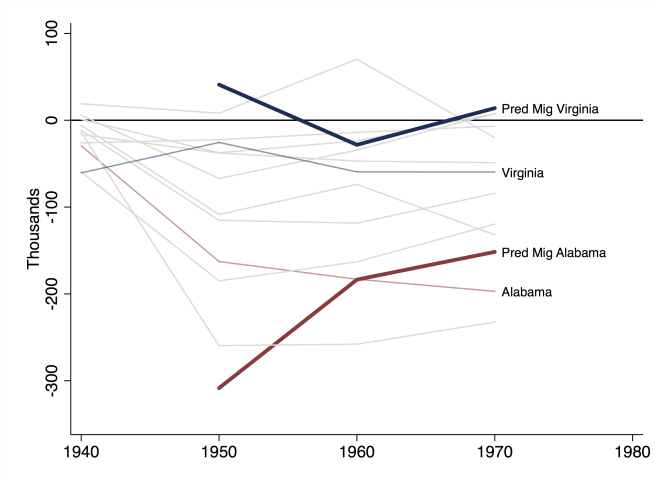
Variation in southern state net-migration flows

Southern net-migration estimates (1000s). *Data source*: Foukas et al. (2018); Boustan (2016).

Variation in southern state net-migration flows

Use "push" factors.

Southern net-migration estimates (1000s). *Data source*: Foukas et al. (2018); Boustan (2016).

New version of instrument for black pop ↑ during GM

Percentile of predicted black pop change from 1940 to 1970, where

$$\text{Pred Black Pop} \uparrow = \sum_{j \in S} \sum_{c \in CZ} \omega_{jc}^{1935-1940} \times \hat{m}_j^{1940-1970}$$

where

- $\omega_{jc}^{1935-1940}$ is share of recent black migrants from southern county j living in northern city c in 1940
- $\hat{m}_j^{1940-1970}$ is total predicted 1940-1970 net-migration from j

New version of instrument for black pop ↑ during GM

Percentile of predicted black pop change from 1940 to 1970, where

$$\text{Pred Black Pop} \uparrow = \sum_{j \in S} \sum_{c \in CZ} \omega_{jc}^{1935-1940} \times \hat{m}_j^{1940-1970}$$

With following features:

1. Shares ω at southern county, not state, level ($|S| \sim 1200$):
   Universe of 1935-1940 black southern migrants (1940 CC)
2. Predicted county migration $\hat{m}$ using Post-LASSO ▸ Details

Intuition:
Instrument modifies ranks using only southern variation in northern black population change ▸ Shuffle

Identification condition

Conditional on baseline upward mobility and other covariates, Great Migration shock ($\hat{GM}_{CZ}$) to location CZ must be orthogonal to omitted variables (ε_{CZ}) that also impact upward mobility in CZ:

$$\mathbb{E}[\hat{GM}_{CZ} \cdot \varepsilon_{CZ}|\mathbb{X}_{CZ}] = 0$$

Baseline 1940 covariates $\mathbb{X}_{CZ}$ include:

- Educational upward mobility
- Manufacturing share
- Demand for southern black labor[‡]
- Census division fixed effects

Examples of ε_{CZ}: pre-1940 educational upward mobility; median education levels in 1940. ▸ Bartik Debate

---

[‡]Defined as 1935-40 black southern migrant share of 1940 urban population.

Placebo test: No effect of Great Migration on pre-1940 upward mobility

Table: Regression of $\hat{GM}$ on pre-period outcomes

| | School Attendance | | | Median education |
	1920	1930	1940	1940
GM Shock	-0.006	-0.007	0.005	-0.011
	(0.023)	(0.024)	(0.011)	(0.009)
Baseline mean	65.477	74.912	80.676	27.355
Std Dev	7.425	8.674	5.710	2.863
Observations	130	130	130	130
Baseline Controls	Y	Y	Y	Y

Data from IPUMS Complete Count Censuses 1920-1940. Sample for school attendance is 14–17 year old boys and girls with fathers who have below median occupation scores. Last column is weighted county-average median educational attainment of adults at the CZ level.

Empirical specification

$$\bar{Y}_{p,CZ} = \alpha + \beta GM_{CZ} + \mathbb{X}'_{CZ}\Gamma + \varepsilon_{CZ}$$

First Stage: $GM_{CZ} = \gamma + \delta \hat{GM}_{CZ} + \mathbb{X}'_{CZ}\mu + \epsilon_{CZ}$

- $\bar{Y}_{p,CZ}$: Mean adult inc. rank for kids, parents at percentile p
- GM_{CZ}: Pctile of black pop. $\uparrow$, 1940-1970 (30 pctile $\approx$ 1 s.d.)
- $\mathbb{X}_{CZ}$: Baseline 1940 controls (including 1940 upward mobility)

First Stage F-stat $= 20$. ▶ Graph

Outline

Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?

Selection versus location

Children's outcomes conditional on parent income rank p are function of location and unobserved family characteristics:

$$y_{ipc} = \mu_{pc} + \theta_{ipc}$$

Average upward mobility in a commuting zone:
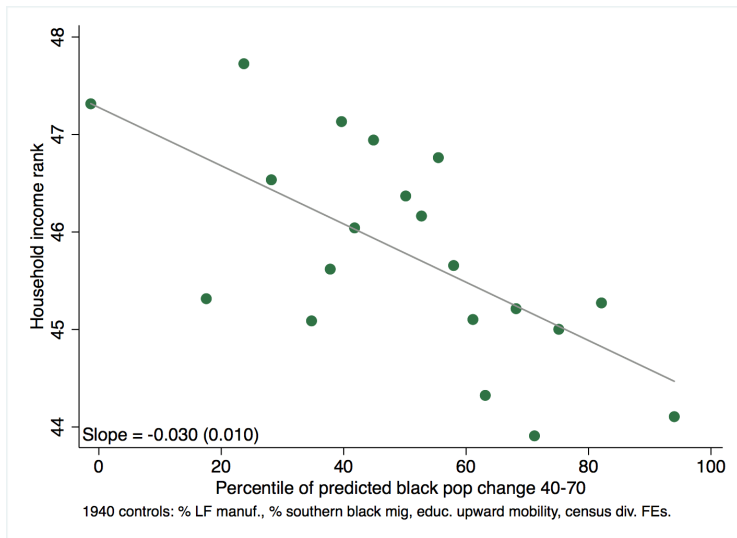
$$\bar{Y}_{p,CZ} = \mu_{p,CZ} + \bar{\theta}_{p,CZ}$$

Examples of θ:

- Race: black men from same census tract as white men have worse outcomes (Chetty, Hendren, Jones, and Porter, 2018)
- Differing propensity to invest in children's human capital

Examples of μ:

- Local public goods, schools, neighborhood quality, peer effects

Reduced upward mobility ($\bar{Y}_{p25}$) in Great Migration CZs

Slope = -0.030 (0.010)

Household income rank (y-axis)
Percentile of predicted black pop change 40-70 (x-axis)

1940 controls: % LF manuf., % southern black mig, educ. upward mobility, census div. FEs.

Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
   - 1 s.d. ↑ lowered average income rank of individuals from low income families by 3 percentiles ($\sim 9\%$ ↓ income)
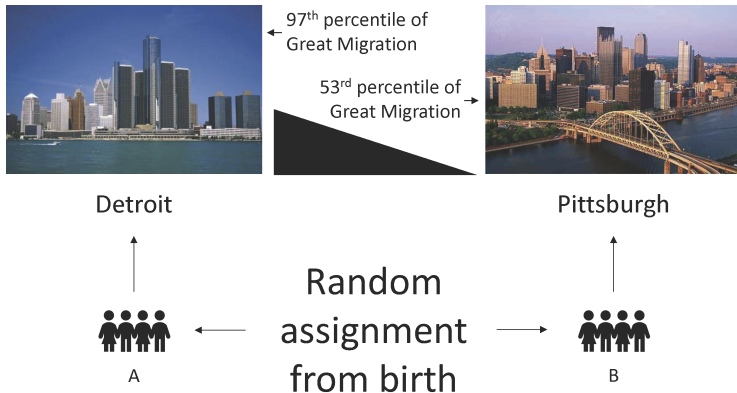
Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
   - 1 s.d. $\uparrow$ lowered average income rank of individuals from low income families by 3 percentiles ($\sim 9\% \downarrow$ income)
2. Is the channel family selection ($\bar{\theta}$) or changes in locations (μ)?

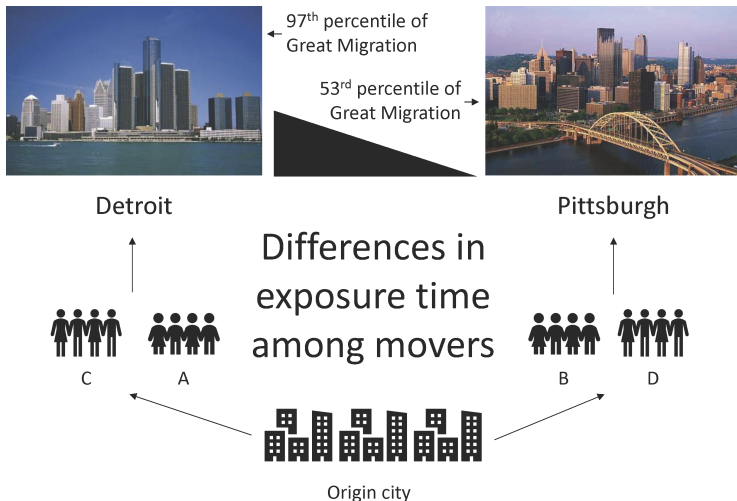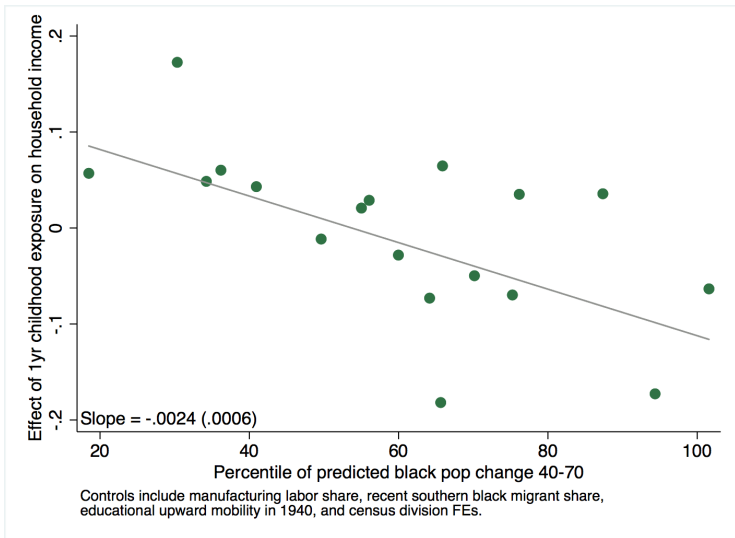# Isolating impact of Great Migration on locations

Ideal experiment:

Detroit

Pittsburgh

97th percentile of Great Migration

53rd percentile of Great Migration

Random assignment from birth

A

B

- Prediction: Adult income A < B.

Isolating impact of Great Migration on locations

Approximating ideal experiment:

Detroit

Pittsburgh

← 97th percentile of Great Migration

53rd percentile of Great Migration

Differences in exposure time among movers

C   A

B   D

Origin city
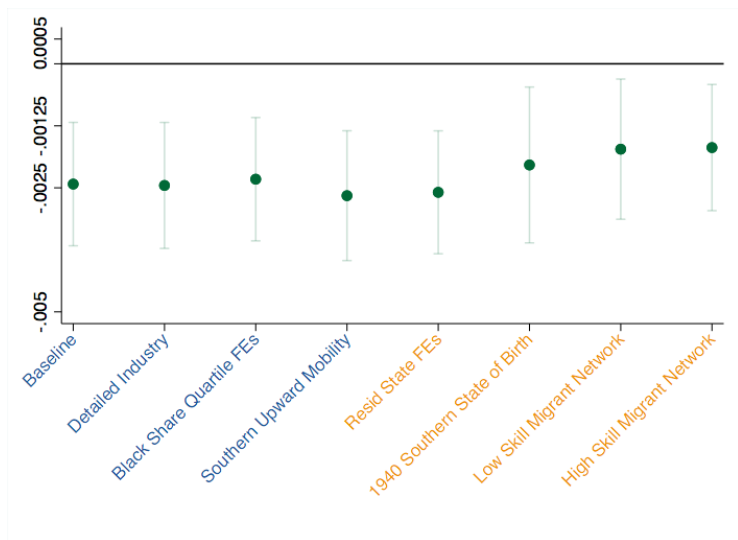
- (C-A) > (D-B): Exposure to Detroit worse than to Pittsburgh.

Reduced childhood exposure effects in Great Migration CZs

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.

▸ Table   ▸ Notes

Robustness

Alternative baseline controls Different versions of the instrument

Contribution of selection vs. location-based channels

Comparing GM impact (IV) on upward mobility for low income families using CZ exposure effects (μ) vs. average upward mobility ($\bar{Y} = \mu + \bar{\theta}$), assuming full childhood exposure.

Multiplier	μ	$\bar{Y}$
20	**-5**	-3
15.52	**-3.9**	-3

- Multiplier adjusts for cumulative effect of full childhood exposure to a location under different assumptions.
  ▸ Hockey Stick ▸ Visual

- No evidence that selection drives effect of Great Migration.
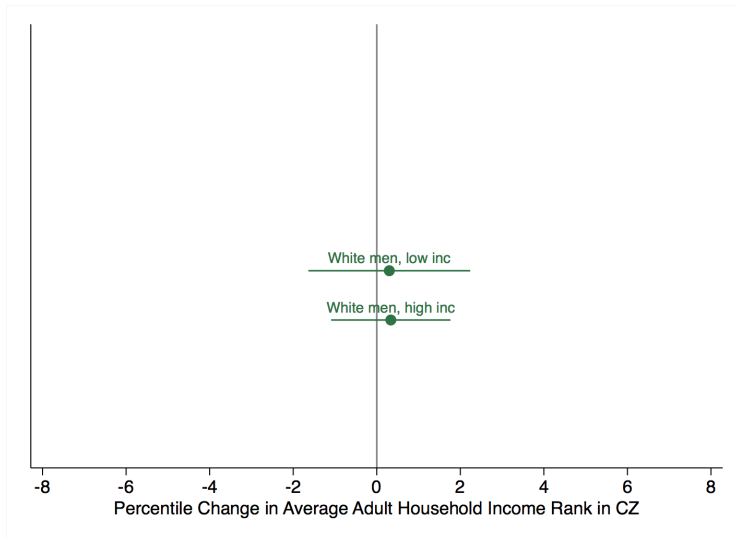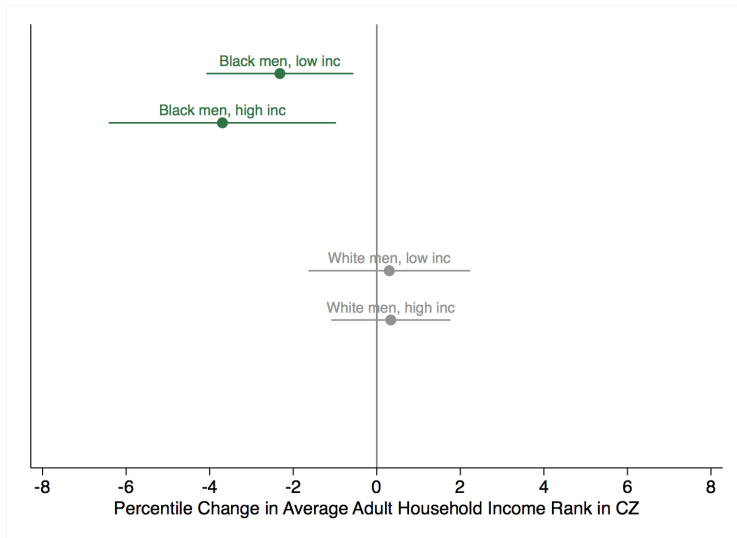
-3.9 percentile points $\sim 12\%$ drop in income.

Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
   - 1 s.d. ↑ lowered average income rank of individuals from low income families by 3 percentiles ($\sim 9\%$ ↓ income)
2. Is the channel selection (Δ average child) or changes in locations (e.g., local public goods and neighborhood quality)?
   - Random child growing up in Great Migration CZ has lower income as an adult. 1 s.d. ↑ shock $\implies$ 3.9 percentiles ↓ in income rank ($\sim 12\%$ ↓ income)

Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
   - 1 s.d. ↑ lowered average income rank of individuals from low income families by 3 percentiles ($\sim 9\%$ ↓ income)
2. Is the channel selection (Δ average child) or changes in locations (e.g., local public goods and neighborhood quality)?
   - Random child growing up in Great Migration CZ has lower income as an adult. 1 s.d. ↑ shock $\implies$ 3.9 percentiles ↓ in income rank ($\sim 12\%$ ↓ income)
3. Whose upward mobility was affected by the Great Migration?

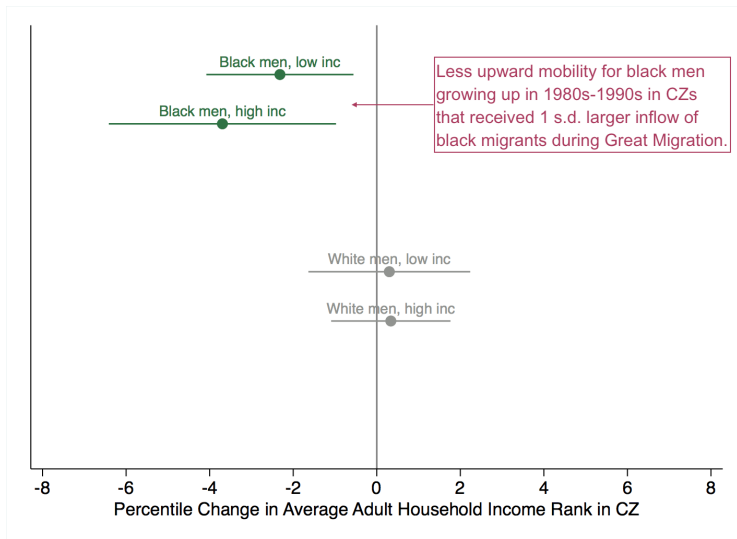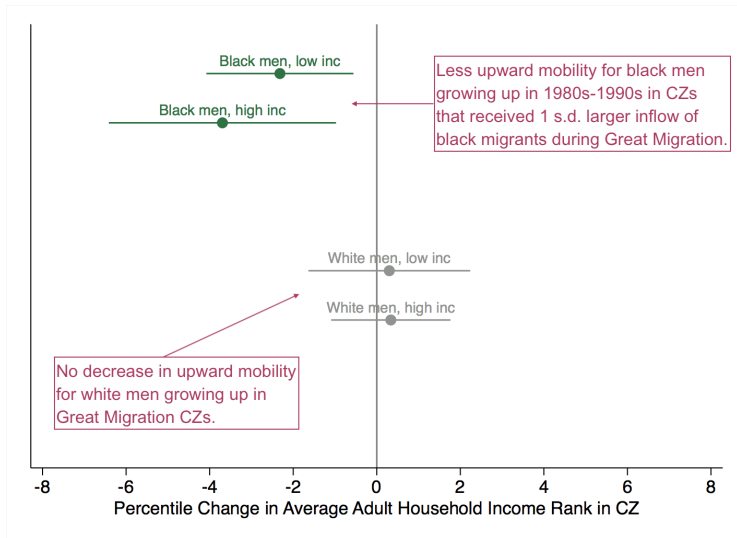# Whose upward mobility was affected by Great Migration?
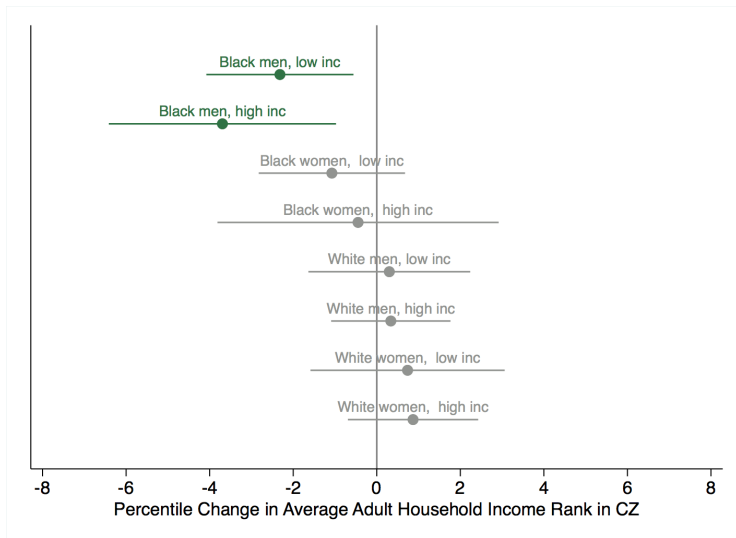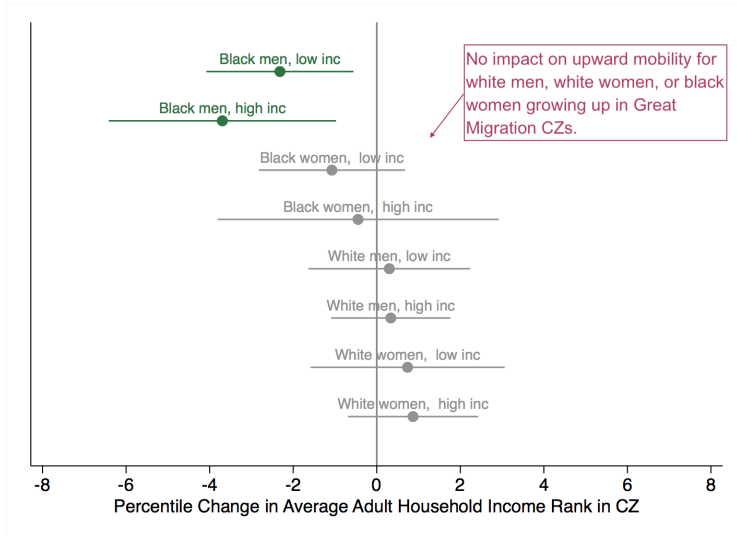
Notes

Whose upward mobility was affected by Great Migration?

Percentile Change in Average Adult Household Income Rank in CZ

▸ Notes

Whose upward mobility was affected by Great Migration?

Less upward mobility for black men growing up in 1980s-1990s in CZs that received 1 s.d. larger inflow of black migrants during Great Migration.

Whose upward mobility was affected by Great Migration?
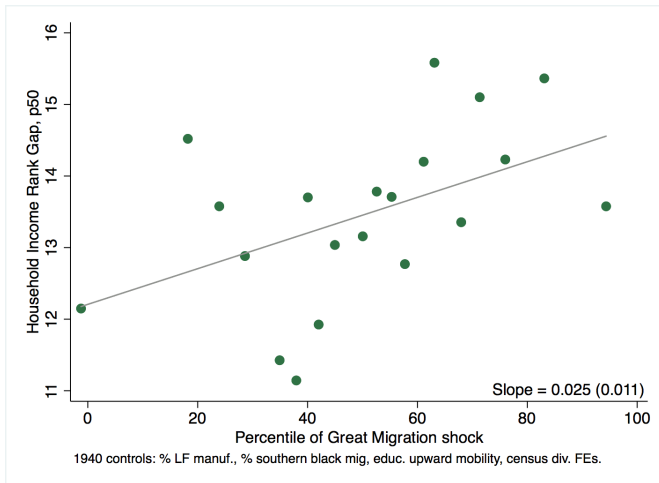
Whose upward mobility was affected by Great Migration?

Black men, low inc
Black men, high inc
Black women, low inc
Black women, high inc
White men, low inc
White men, high inc
White women, low inc
White women, high inc

Percentile Change in Average Adult Household Income Rank in CZ

▸ Income effect on black women   ▸ Notes

Whose upward mobility was affected by Great Migration?

No impact on upward mobility for white men, white women, or black women growing up in Great Migration CZs.

Percentile Change in Average Adult Household Income Rank in CZ

▸ Income effect on black women   ▸ Notes

Heterogeneity by gender

- Boys' outcomes more elastic to family and school inputs

  [Bertrand and Pan (2013); Autor et al. (2016); Autor et al. (forthcoming)]

- Chetty et al. (2018) find no white-black gap among girls
- Results have implications for racial gap in upward mobility

Great Migration and racial gap in upward mobility in 2015

1940 controls: % LF manuf., % southern black mig, educ. upward mobility, census div. FEs.

Slope = 0.025 (0.011)

Axis labels: Household Income Rank Gap, p50 (y-axis); Percentile of Great Migration shock (x-axis)

Contribution of Great Migration to upward mobility gap between black and white households

Question: What would the racial gap in 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):

	Parent Income		
	25th pctile	50th pctile	75th pctile
Observed	12.03	13.45	15.30
CF w/o GM (se)	8.74 (.16)	9.57 (.16)	10.84 (.20)
Pct Change	-27%	-28%	-29%

- Great Migration explains 28% of income gap between black and white households from median income families.

Results on upward mobility

1. Did the Great Migration reduce upward mobility in the North?
   - 1 s.d. $\uparrow$ lowered average 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)?
   - Random child growing up in Great Migration CZ has lower income as an adult. 1 s.d. $\uparrow$ shock $\implies$ 3.9 percentiles $\downarrow$ in income rank ($\sim 12\% \downarrow$ income)
3. Whose upward mobility was affected by the Great Migration?
   - Black men's income upward mobility reduced; possible income effect on black women.

Alternative explanations for findings on upward mobility

- Increase in southern population and policy preferences
  - White southern migration placebo ▸ White Southerners
- Historical legacy of European immigration ▸ European Immigrants
- Correlated shocks to southern and northern locations
  - Residualize county net-migration on state FEs ▸ Resid
  - Non-urban county migration only ▸ Non-urban
  - Controlling for LASSO-selected specific southern county migrant shares at the CZ level does not affect results ▸ Shares
- Fixed characteristics of high black share CZs ▸ Expos FX
- Other fixed characteristics of CZs: similar impact on first-differences in black men's upward mobility ▸ Graph
- Over-ID tests: multiple instruments deliver similar estimates
- Results not driven by any particular CZ ▸ Leave One Out

Outline

Results on local mechanisms

1. How did the urban environment change in response to the Great Migration?

Potential explanations

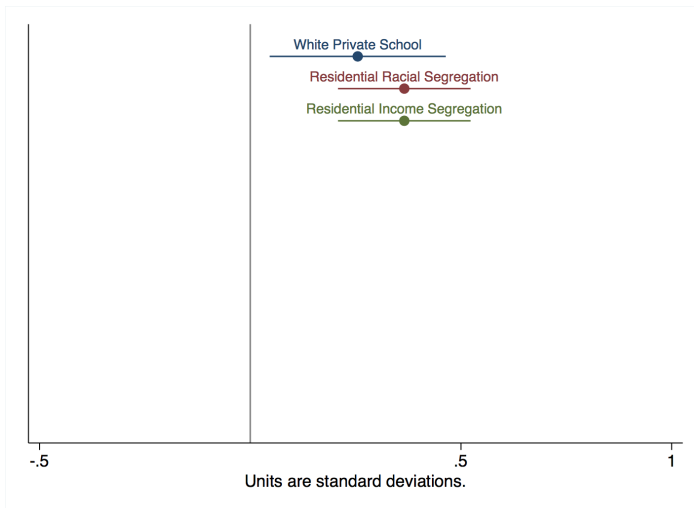The Great Migration of poorer black families from the South caused...

1. Substitution into private goods, lower government expenditures
2. Income segregation and inequality in public services
3. White flight and income segregation
4. Reduced urban economic opportunity $\rightarrow$ higher crime
5. Incarceration $\uparrow$ $\rightarrow$ negative spillovers on black men

Potential explanations

The Great Migration of poorer black families from the South caused...

1. ~~Substitution into private goods, lower government expenditures~~
2. ~~Income segregation and inequality in public services~~
3. **White flight and income segregation**
4. **Reduced urban economic opportunity $\rightarrow$ higher crime**
5. **Incarceration $\uparrow$ $\rightarrow$ negative spillovers on black men**

Great Migration increased white flight, crime, and policing

Units are standard deviations.

Data Source: PF-NBHDS database for CZs, 1920-2015. ▸ Pretrends test   ▸ Highways   ▸ Notes

Great Migration increased white flight, crime, and policing

Units are standard deviations.

Data Source: PF-NBHDS database for CZs, 1920-2015. [▸ Pretrends test] [▸ Highways] [▸ Notes]

Great Migration increased white flight, crime, and policing

Data Source: PF-NBHDS database for CZs, 1920-2015.   ▸ Pretrends test   ▸ Highways   ▸ Notes

Great Migration increased white flight, crime, and policing

Data Source: PF-NBHDS database for CZs, 1920-2015. ▸ Pretrends test ▸ Highways ▸ Notes

Results on local mechanisms

1. How did the urban environment change in response to the Great Migration?
   - 1 s.d. ↑ black inflows associated with 0.25 s.d ↑ police expenditures, murder rates, white private school enrollment; 0.52 s.d ↑ incarceration.
2. When did the changes occur?
   - ▸ Data
   - ▸ Private School
   - ▸ White Flight
   - ▸ Police
   - ▸ Incarceration
   - ▸ Murder

Results on local mechanisms

1. How did the urban environment change in response to the Great Migration?
   - 1 s.d. ↑ black inflows associated with 0.25 s.d ↑ police expenditures, murder rates, white private school enrollment; 0.52 s.d ↑ incarceration.
2. When did the changes occur?
   - ▸ Data
   - ▸ Private School
   - ▸ White Flight
   - ▸ Police
   - ▸ Incarceration
   - ▸ Murder
   - 1960s are a turning point for Great Migration cities

Interpretation of results on local mechanisms

Northern opportunity "meccas" declined especially for black men.

- Direct negative impact of urban violence on outcomes
- Exposure to crime increases likelihood of committing crimes
  [Case and Katz, 1991; Damm and Dustmann, 2014; Heller et al., 2017; Sviatschi, 2018]
- Negative externalities of police for black boys
  [Ang, 2018; Legewie and Fagan, 2018]
- Incarceration has long-term negative effects on outcomes
  [Johnson, 2009; Dobbie et al., 2018; Liu, 2018]
- Fewer public resources for education spending, which benefits low income families [Jackson et al., 2015]
- Suggestive evidence on likely mediators ▸ Low Inc ▸ High Inc
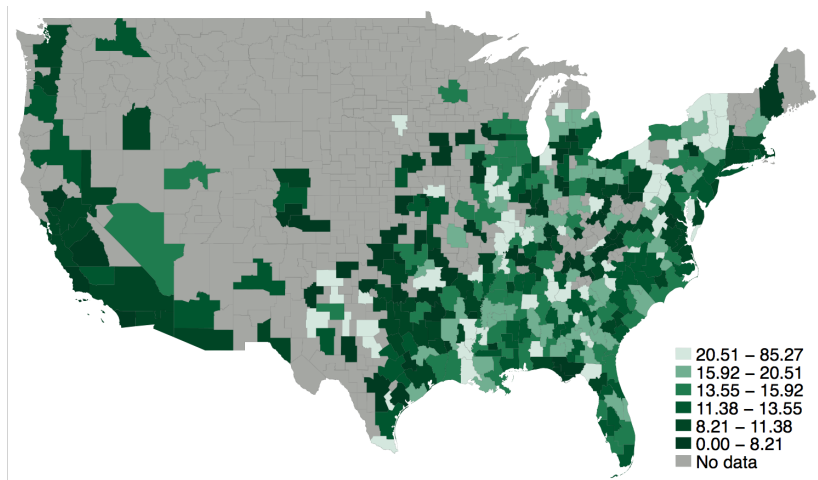- It's not all sorting: GM ↑ census tract racial gap ▸ Graph

Outline

Conclusion

- High opportunity areas became opportunity "deserts" in response to Great Migration of black families from the South.

  ▸ Aggregate Effects?

- Location effects are sensitive to shocks to racial composition

- The Migration led to white flight and urban decline post-1960

- 50 years of policing, incarceration, and persistent crime

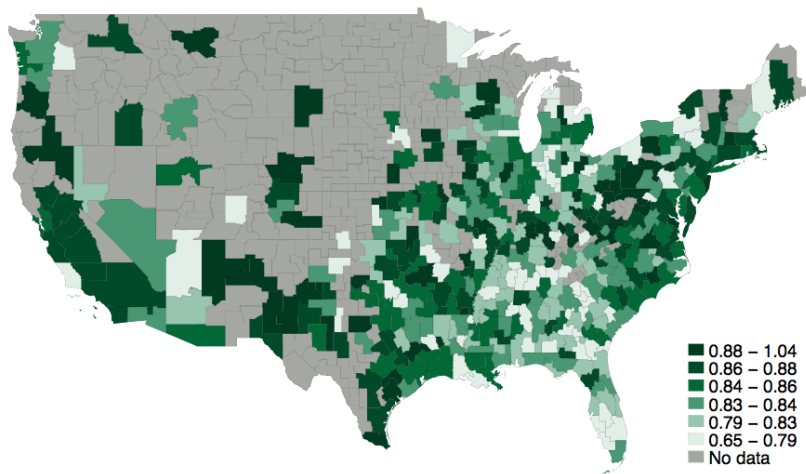- Do we need new policies to address racial inequality in cities?

School attendance of black teenage boys: 2000

Legend:
- 20.51 – 85.27
- 15.92 – 20.51
- 13.55 – 15.92
- 11.38 – 13.55
- 8.21 – 11.38
- 0.00 – 8.21
- No data

Fraction of black male 16-19 year-olds who are not in school.

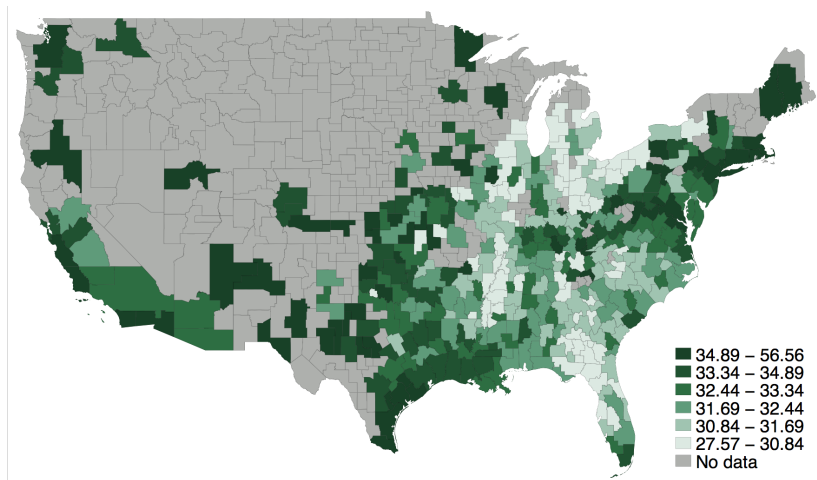Restricted to commuting zones with at least 100 black male 16-19 year-olds. Data from NHGIS.

▸ Back

Geography of black upward mobility: 2000

■	0.88 – 1.04
■	0.86 – 0.88
■	0.84 – 0.86
■	0.83 – 0.84
■	0.79 – 0.83
■	0.65 – 0.79
■	No data

High school graduation rates of black men and women from 1978-1983 birth cohorts with median income parents.

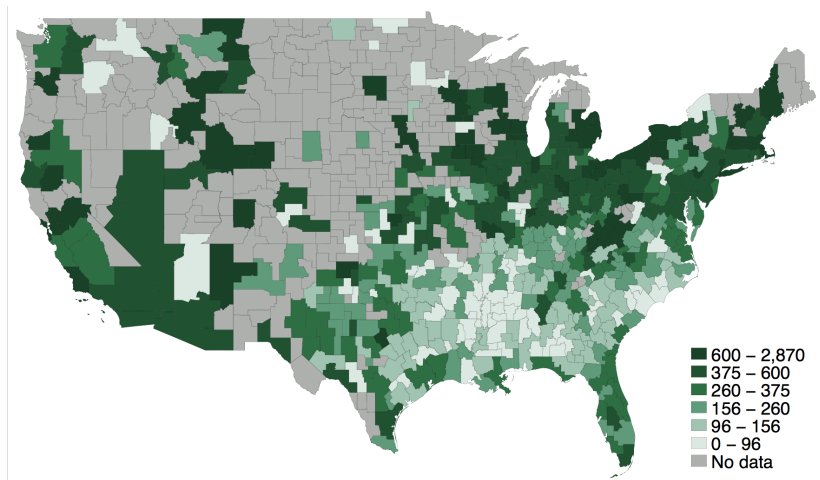Data from Chetty, Hendren, Jones, and Porter (2018).   ▸ Back

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). ▸ Back
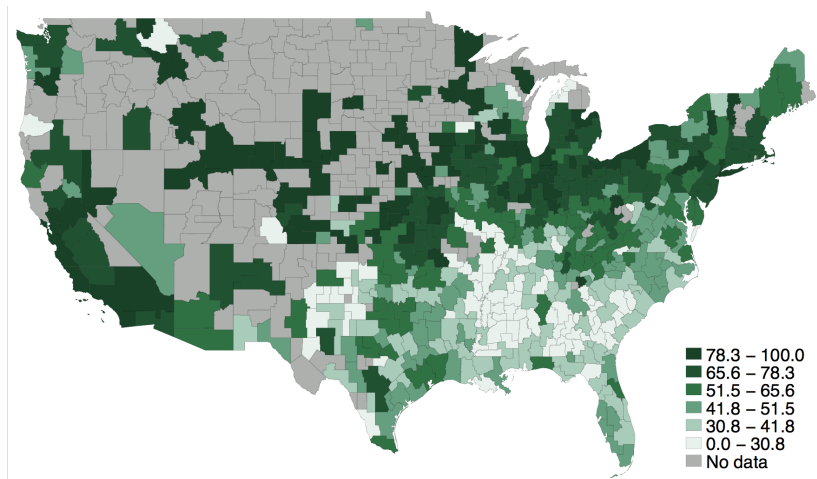
Median annual wages for black men and women in 1940

Median annual wages of black men and women by commuting zone in 1940.
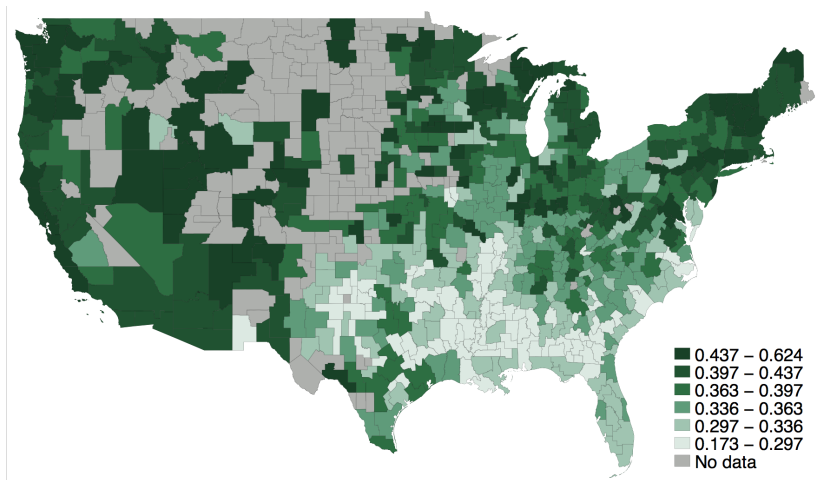
▸ Back

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.

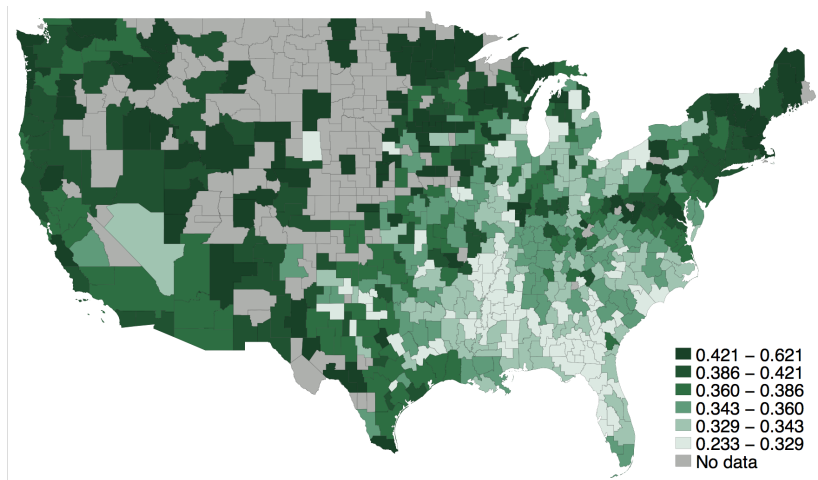Data from IPUMS, method via Card, Domnisoru, and Taylor (2018). ▸ Back

Mean parent income rank of black men and women in 2000

Mean parent income rank of black men and women in 2000 by childhood commuting zone.

Data from Chetty, Hendren, Jones, and Porter (2018). ▸ Back
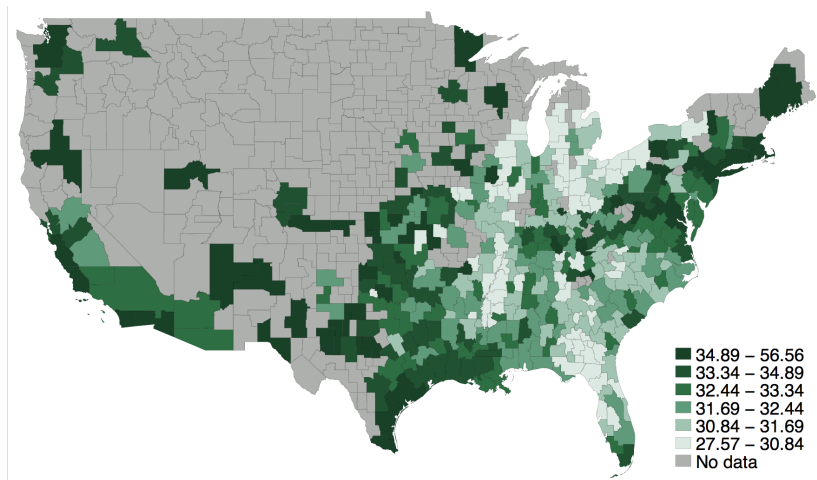
Mean income rank of black men and women in 2015

Mean income rank of black men and women in 2015 by childhood
commuting zone.

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

Geography of black upward mobility: 2015

Legend:
- 34.89 – 56.56
- 33.34 – 34.89
- 32.44 – 33.34
- 31.69 – 32.44
- 30.84 – 31.69
- 27.57 – 30.84
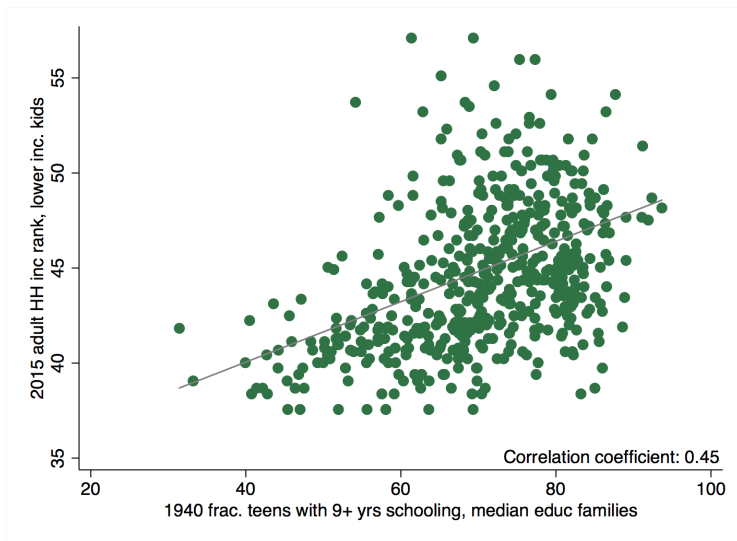- No data

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). ▸ HS DO 2000 ▸ Edu Mob 2000 ▸ Back

Correlation 1940 and 2015 upward mobility (white pop)

Correlation coefficient: 0.45

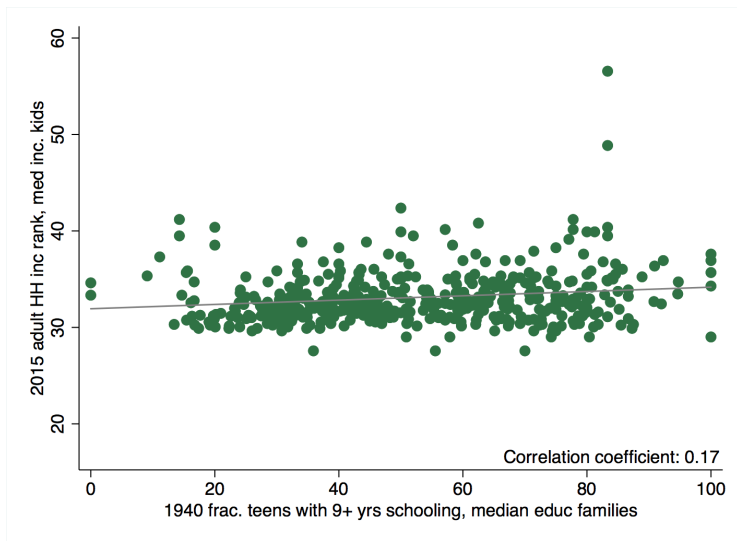2015 measures for individuals from low income families. Data from Chetty et al. (2018). ▸ Back

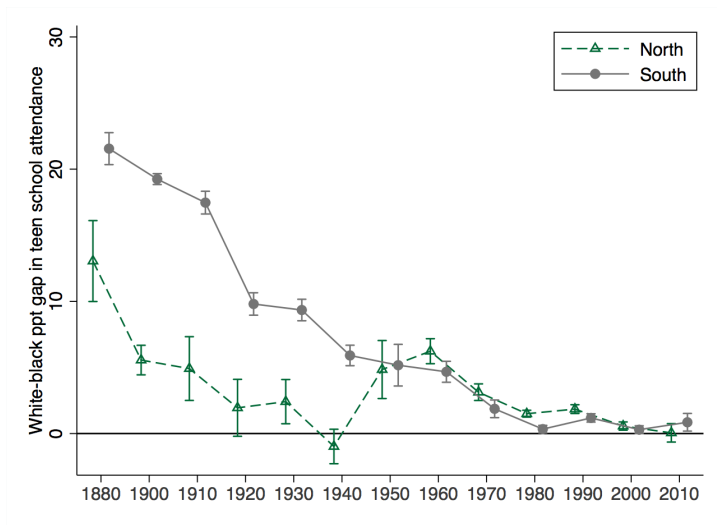# Correlation 1940 and 2015 upward mobility (black pop)

2015 measures for individuals from low income families. Data from Chetty et al. (2018). ▸ Back

Racial gap in teen school attendance, 1880-2010

Unadjusted racial gap in teen school attendance by region (South and Non-South ("North")). Sample is 14-17 year-old boys and girls living in households.. *Data source*: IPUMS. ▸ Adj. ▸ TS ▸ Back

Adj. White-Black gap in teen school attendance

Racial gap in teen school attendance by region adjusted for household head occupation score and birth state as well as teen birth state. The sample is 14–17 year-olds living in households. *Source*: IPUMS.

▸ Unadjusted ▸ Back

Teen school attendance by race and region

Teen school attendance by region (South and Non-South ("North")). The sample is 14–17 year-olds
living in households. *Source*: IPUMS. ▸ Unadjusted   ▸ Back

Relationship between 1940 and 2015 mobility measures

Slope = 0.214 (0.017)
Correlation coefficient: 0.43

Sample is commuting zones in continental US. ▸ Back

Relationship between 1940 and 2015 mobility measures for white families

Sample is commuting zones in continental US. ▸ Back

Histogram of urban black pop increases, 1940-1970

Northern urban CZs. *Data source*: 1940 Census and City and County Data Books 1944-1977. ▸ Back

Reshuffled ranking of Great Migration destinations

	Rank Actual	Rank Predicted
Phoenix, AZ	99	1
Albuquerque, NM	74	1
Tucson, AZ	90	2
Bakersfield, CA	96	3
Wichita, KS	84	4
Louisville, KY	45	5
Topeka, KS	55	6
San Francisco, CA	91	9
Seattle, WA	58	10
San Diego, CA	95	11
Mason City, IA	3	44
St. Joseph, MO	1	48
Scioto, OH	1	52
Altoona, PA	23	67
Joplin, MO	5	94

Isolating exogenous changes in black share during GM

A modified shift-share approach:

$$\text{Pred. Black Pop } \uparrow = \frac{\sum_{j \in S} \sum_{t \in T} \frac{m_{jc}^{'35\text{-}40}}{m_j^{'35\text{-}40}} \hat{m}_{jt}}{\text{pop}_{c,1940}}$$

- $T = \{1950, 1960, 1970\}$; S is the set of all southern counties.
- $\hat{m}_{jt}$: OLS predicted net-migration using southern variables from j in decade t chosen by LASSO (Belloni et al., 2011).
- $m_j^{'35\text{-}40}$: southern county outmigrants between 1935 and 1940.
- $m_{cj}^{'35\text{-}40}$: southern county outmigrants from 35-40 into c.
- $\text{pop}_{c,1940}$ is the population in c in 1940.

▶ Back

Details on black population instrument

Let m_{ct} be historical black in-migration into city c in decade t, and let ω_{cj} be the share of county j's outmigrants between 1935 and 1940 who reside in city c by 1940. Predicted in-migration $\hat{m}_{ct}$ is the sum of predicted outmigration from southern counties, weighted by ω_{cj}:

$$\hat{m}_{ct} = \sum_{j=1,\dots,1200} (\omega_{cj}^{1935-40} \cdot \hat{m}_{jt}) \text{ and}$$

$$\hat{b}_{c,t+10} = \hat{b}_{c,t} + \hat{m}_{c,t+10} \ \forall t > 1940.$$

$$\text{For } t = 1940, \ \hat{b}_{c,1940} = b_{c,1940}.$$

Variables selected in 1940

- Percent tenant farms
- Share of the labor force in agriculture
- WWII spending per capita
- Percent acreage in cotton
- Share of the labor force in agriculture $\times$ Tobacco growing state
- Indicator for mining state
- Indicator for mining state $\times$ Share of the labor force in mining

▸ Back

Variables selected in 1950

- Percent tenant farms
- Share of the labor force in agriculture
- WWII spending per capita
- Percent acreage in cotton
- Percent acreage in tobacco
- Indicator for mining state
- Indicator for mining state $\times$ Share of the labor force in mining
- Share of the labor force in mining

Variables selected in 1960

- Percent tenant farms
- Share of the labor force in agriculture
- Indicator for tobacco growing state
- Share of the labor force in agriculture $\times$ Tobacco growing state
- Percent acreage in cotton
- Indicator for mining state
- Indicator for mining state $\times$ Share of the labor force in mining
- Share of the labor force in mining

Where does ID come from in the Great Migration Bartik?

Shares themselves may not be exogenous: $\mathbb{E}[\tilde{\omega}_{j,CZ} \cdot \varepsilon_{CZ}|\mathbb{X}_{CZ}] \neq 0$.
Exogenous shocks interacted with many invalid shares as
instruments give rise to plausibly exogenous variation.

[Goldsmith-Pinkham et al., 2018; Borusyak et al., 2018; Adao et al., 2018]

Key threat to identification: correlated shocks to origins and
destinations.

- Results on upward mobility are robust to first residualizing
  county net-migration rates on southern state FEs.
- Results robust to dropping urban counties in the south and
  relying only on rural county migration rates.
- Over-identification tests using different constructions of
  instrument fail to reject null of identical effects.

▸ Back ▸ Visual

Insufficient number of county types

Insufficient number of county types

Can't rule out correlated origin and destination shocks

Sufficient number of county types

Sufficient number of county types

Idiosyncratic origin variation within destination

3   2   1

Madison, WI   Poughkeepsie, NY   Saginaw, MI

Low Migration   Low Migration   High Migration

▸ Back

First Stage

Slope = 0.304 (0.075)
F-stat: 23.316

1940 controls: % LF manuf., % southern black mig, educ. upward mobility, census div. FEs.

▸ Back

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

Robustness

Alternative baseline controls Different versions of the instrument

Foreign-born white share impact on CZ exposure effects

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
Slope = -0.000 (0.001)

Baseline controls included. Observations are northern commuting zones. *Data source*: IPUMS 1910-1940 Census; City and County Data Books, 1944-1977; and Boustan (2016). ▸ Back

Foreign-born white share impact on black m p25

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
Slope = 0.000 (0.000)

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

Foreign-born white share impact on black m p75

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
Slope = 0.000 (0.000)

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

White southern mig impact on CZ exposure effects

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
Slope = 0.000 (0.001)

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

▸ Back

White southern mig impact on black m p25

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
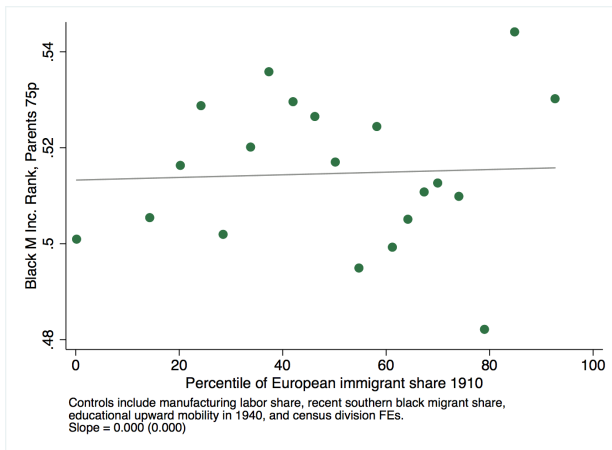Slope = 0.011 (0.010)

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

White southern mig impact on black m p75

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
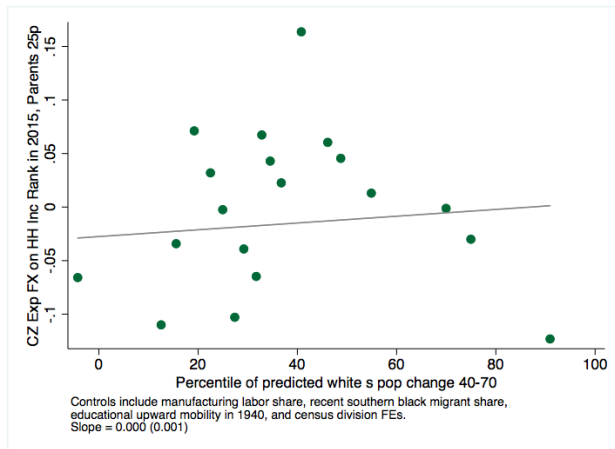Slope = 0.023 (0.014)

Baseline controls included. Observations are northern commuting zones. *Data source*: Chetty et al. (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016). ▸ Back
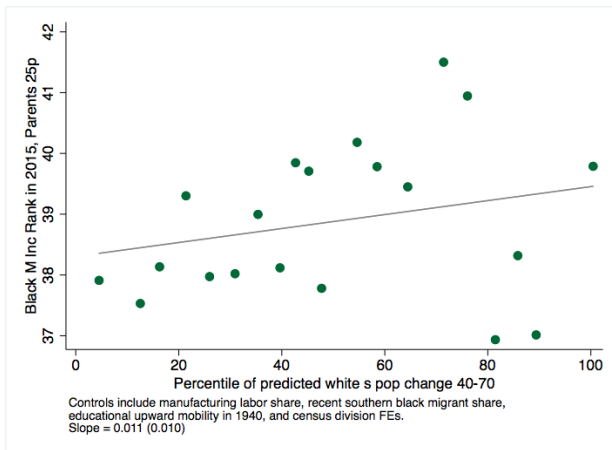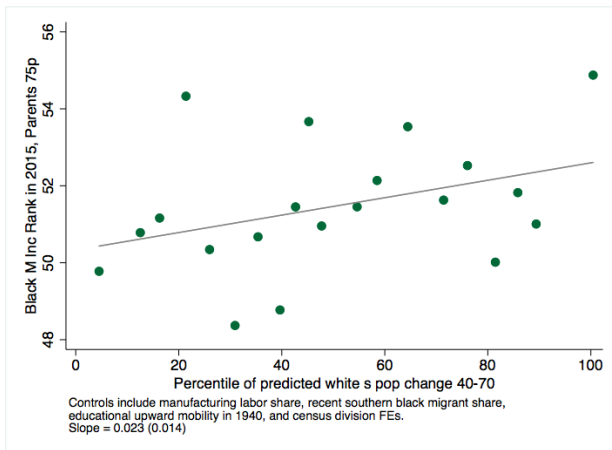
Black state resid mig impact on CZ exposure effects

Controls include manufacturing labor share, recent southern black migrant share,
educational upward mobility in 1940, and census division FEs.
Slope = -0.003 (0.001)

Baseline controls included. Observations are northern commuting zones. *Data source*: Chetty and

Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944–1977; and Boustan (2016).

▸ Back

Black non-urban county mig impact on CZ exposure effects

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
Slope = -0.003 (0.001)

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

▸ Back

Black state resid mig impact on black m p25

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, and census division FEs.
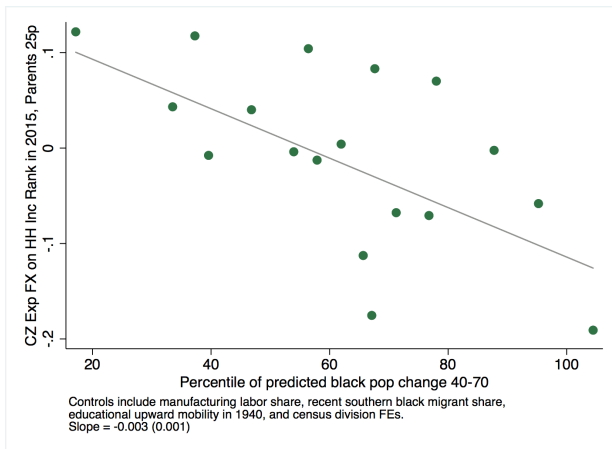Slope = -0.026 (0.011)

Baseline controls included. Observations are northern commuting zones. *Data source*: Chetty et al. (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016). ▸ Back
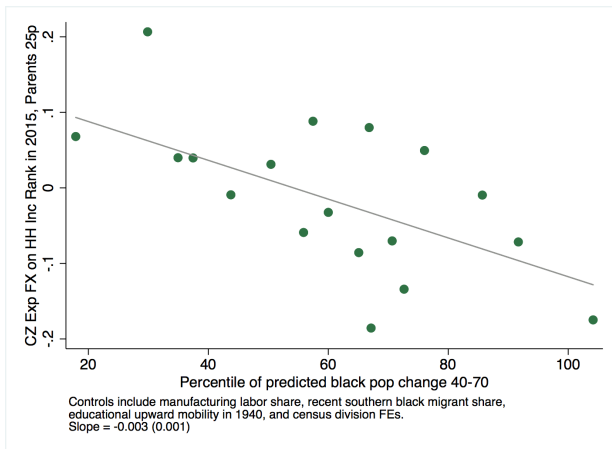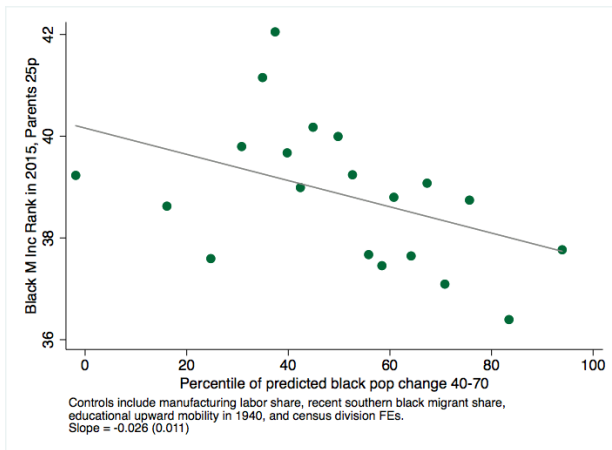
Black state resid mig impact on black m p75

Controls include manufacturing labor share, recent southern black migrant share,
educational upward mobility in 1940, and census division FEs.
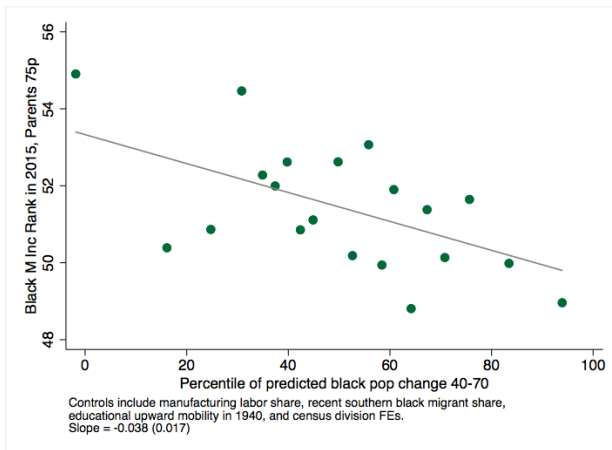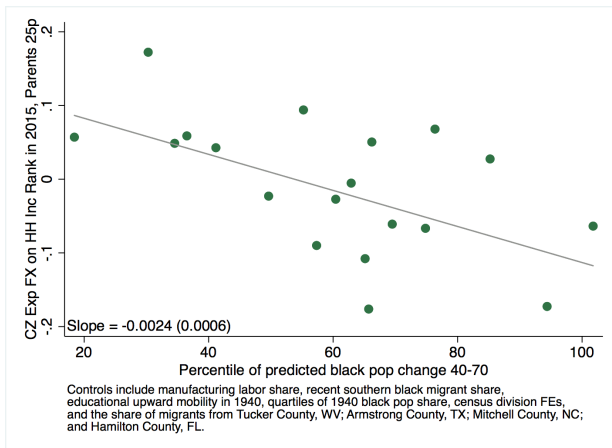Slope = -0.038 (0.017)

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

Great Migration impact on CZ exposure effects, controlling for LASSO-selected county shares

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, quartiles of 1940 black pop share, census division FEs, and the share of migrants from Tucker County, WV; Armstrong County, TX; Mitchell County, NC; and Hamilton County, FL.

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

▸ Back

Great Migration impact on CZ exposure effects, flexible controls for fraction black

Slope = -0.0022 (0.0006)

Controls include manufacturing labor share, recent southern black migrant share, educational upward mobility in 1940, quartiles of 1940 black pop share and census division FEs.

Baseline controls included. Observations are northern commuting zones. *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).
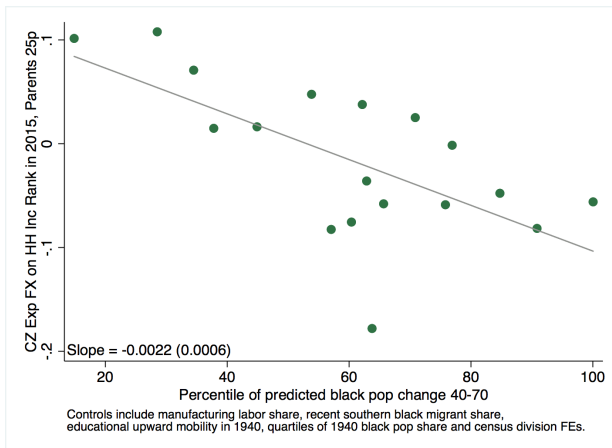
◂ Back

Robustness checks

Impact of Great Migration on black men with lower income parents

GM Shock	-0.000380***	-0.000366***	-0.000248**	-0.000292**	-0.000266**	-0.000160	-0.000290**	-0.000263**
	(0.0000884)	(0.0000927)	(0.000113)	(0.000114)	(0.000122)	(0.000111)	(0.000118)	(0.000107)
R-squared	0.127	0.138	0.185	0.208	0.187	0.258	0.196	0.275
N	129	129	129	129	129	129	129	129
Precision Wt	Y	Y	Y	Y	Y	Y	Y	Y
Baseline Controls	N	N	Y	Y	Y	Y	Y	Y
Census Div FE	N	Y	Y	Y	Y	Y	Y	Y
Pop 1940	N	N	N	Y	N	N	N	N
Black Shares 1920-1940	N	N	N	N	Y	N	N	N
Black Share Rank 1940	N	N	N	N	N	Y	N	N
Recent WS Mig Share 1940	N	N	N	N	N	N	Y	N
FB White Share 1940	N	N	N	N	N	N	N	Y

▸ Back

Robustness checks

Impact of Great Migration on black men with higher income parents

GM Shock	-0.000424***	-0.000464***	-0.000357**	-0.000374**	-0.000345*	-0.000309*	-0.000405**	-0.000361**
	(0.000129)	(0.000134)	(0.000167)	(0.000172)	(0.000181)	(0.000171)	(0.000175)	(0.000168)
R-squared	0.0783	0.104	0.116	0.117	0.122	0.127	0.123	0.118
N	129	129	129	129	129	129	129	129
Precision Wt	Y	Y	Y	Y	Y	Y	Y	Y
Baseline Controls	N	N	Y	Y	Y	Y	Y	Y
Census Div FE	N	Y	Y	Y	Y	Y	Y	Y
Pop 1940	N	N	N	Y	N	N	N	N
Black Shares 1920-1940	N	N	N	N	Y	N	N	N
Black Share Rank 1940	N	N	N	N	N	Y	N	N
Recent WS Mig Share 1940	N	N	N	N	N	N	Y	N
FB White Share 1940	N	N	N	N	N	N	N	Y

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

▸ Back

Impact of Great Migration on change in black men's upward mobility 1940-2015
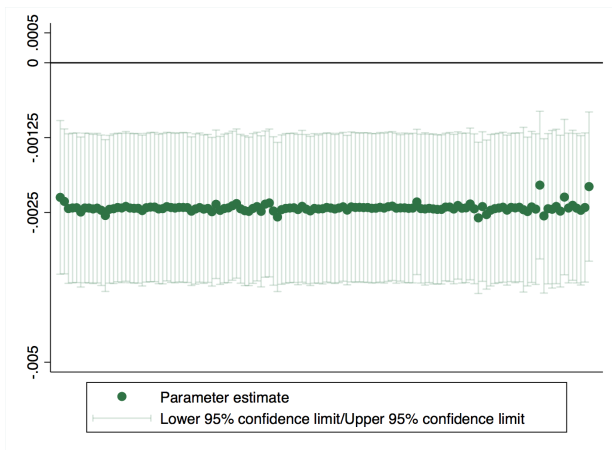

Baseline controls included. Observations are northern commuting zones. *Data source*: Chetty et al. (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016). ▸ Back

Results robust to dropping each CZ once from sample

Coefficient on $\hat{GM}$

Baseline controls included. Observations are northern commuting zones. *Data source*: Chetty et al. (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016). ▸ Back
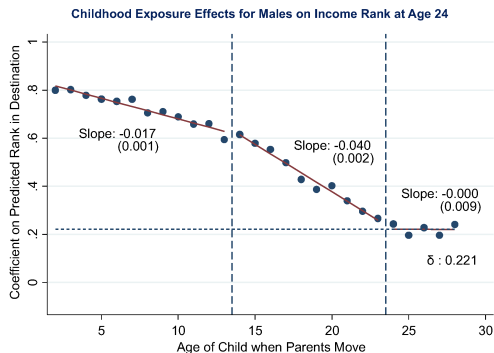
Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)

- Household income measured at age 26

- Baseline controls included.

- Observations are northern commuting zones.

- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)

- Household income measured at age 26

- Baseline controls included.

- Observations are northern commuting zones.

- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

Early exposure has smaller impact than teen years

$$\text{Multiplier} = (23 - 13) + (17/40) \cdot 13 = 15.525$$

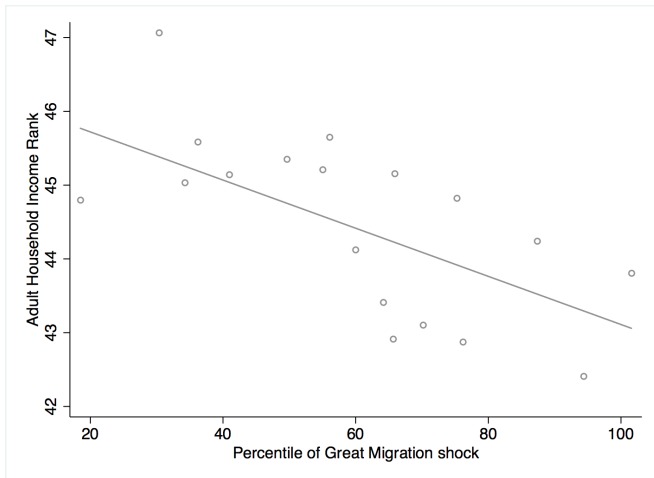Childhood Exposure Effects for Males on Income Rank at Age 24

Calculating effect of full childhood exposure

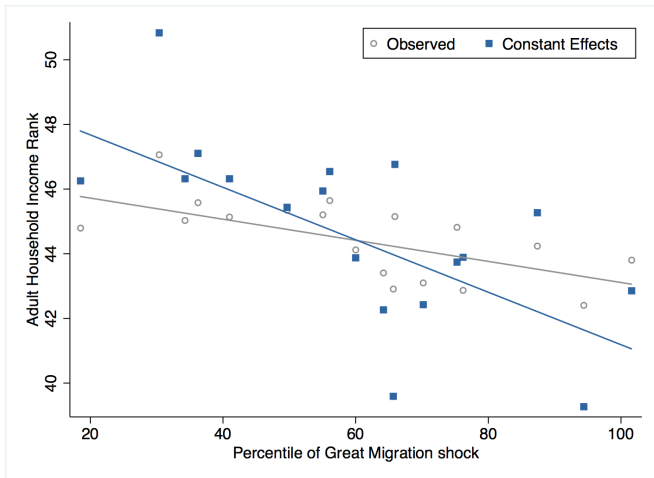Assume muted effect for early years:
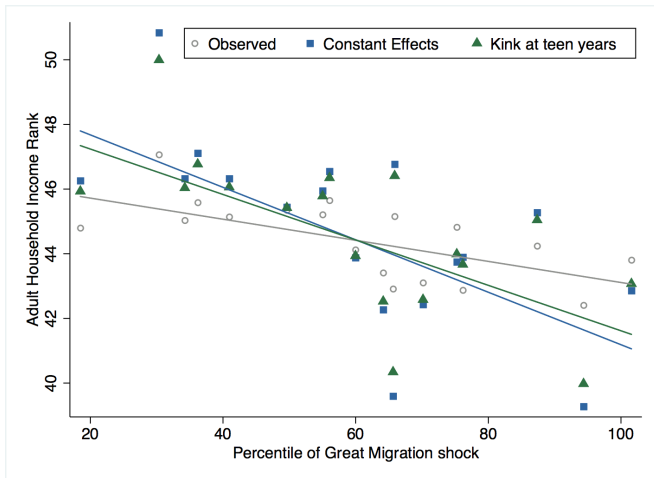
$$\text{Years} = (23 - 13) + (17/40) * 13 = 15.525$$

Selection vs. Location

Selection vs. Location

Selection vs. Location

Back

Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)

- Household income measured at ages 32-37.

- Baseline controls included.

- Observations are northern commuting zones.

- Units of shock ar 30 percentiles ($\approx$ 1 sd).

- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

▸ Back

Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)
- Household income measured at ages 32-37.
- Baseline controls included.
- Observations are northern commuting zones.
- Units of shock ar 30 percentiles ($\approx$ 1 sd).
- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

▸ Back

Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)
- Household income measured at ages 32-37.
- Baseline controls included.
- Observations are northern commuting zones.
- Units of shock ar 30 percentiles ($\approx$ 1 sd).
- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

▸ Back

Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)
- Household income measured at ages 32-37.
- Baseline controls included.
- Observations are northern commuting zones.
- Units of shock ar 30 percentiles (≈ 1 sd).
- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).
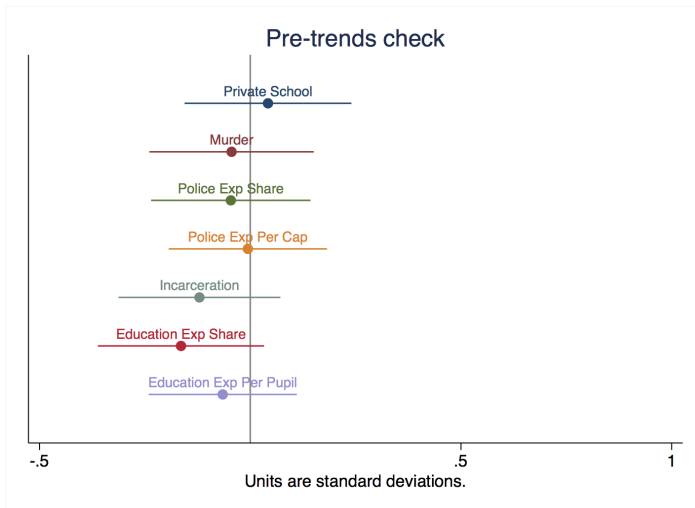
Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)
- Household income measured at ages 32-37
- Baseline controls included.
- Observations are northern commuting zones.
- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

Notes

- Individuals from 1980s birth cohorts from low income families (25th percentile)
- Household income measured at ages 32-37
- Baseline controls included.
- Observations are northern commuting zones.
- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).

Notes

- Outcome is gap in average adult household income rank between black and white individuals from median income families.

- Individuals from 1980s birth cohorts

- Household income measured at ages 32-37

- Baseline controls included.

- Observations are northern commuting zones.

- *Data source*: Chetty and Hendren (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016).
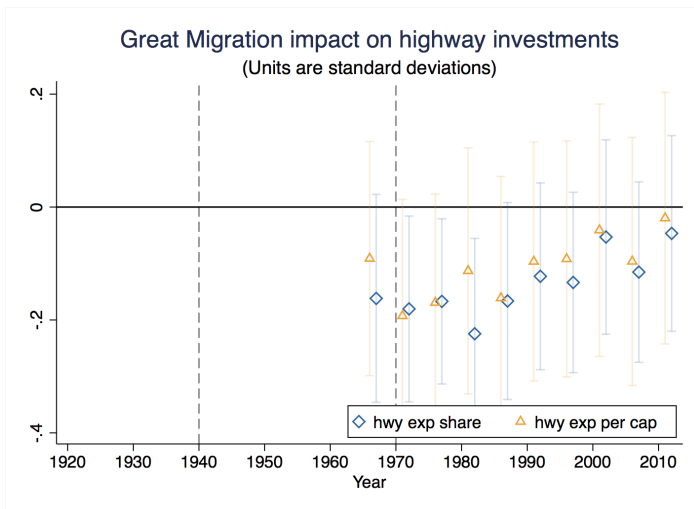
Great Migration not associated with pre-1940 mechanisms

Pre-trends check

Private School

Murder

Police Exp Share

Police Exp Per Cap

Incarceration

Education Exp Share

Education Exp Per Pupil

-.5   .5   1

Units are standard deviations.

Data Source: PF-NBHDS database for CZs, 1920-2015.

Notes   Back

Substitution out of highway expenditures

Data Source: PF-NBHDS database for CZs, 1920-2015. ▸ Back

Notes

- Coefficient on 1 s.d. (30 pctile) Great Migration shock
- Outcomes (years):
    - Average white private school rates (1970-2000)
    - Residential racial and income segregation (2000)
    - Average expenditure shares by government category (1972-2002)
    - Average Murders per 100k (1977-2002)
    - Average incarcerated per 100k (1983-2000)
    - Baseline 1940 controls included
    - Observations are northern commuting zones
    - *Data source*: PF-NBHDS database for CZs, 1920-2015; Chetty et al. (2014)

▸ Back

Notes

- Coefficient on 1 s.d. (30 pctile) Great Migration shock
- Outcomes (years):
    - Private school rates (1920)
    - Average murders per 100k (1931-1943)
    - Average local jail rate per 100k (1920-1940)
    - Average expenditure shares and per cap/pupil by government category (1932)
    - Baseline 1940 controls included
    - Observations are northern commuting zones
    - *Data source*: PF-NBHDS database for CZs, 1920-2015

PF-NBHDS database for CZs, 1920-2015 (1/2)

- Public finance
  - **Financial statistics of states and local governments, 1932**
  - City and County Data Books, 1944-1977
  - US Census Bureau Annual Survey of Local Governments, 1967-2012
  - Private school enrollment rates
    - **Biennial Statistics of Education, 1920-22**
    - NHGIS, 1960-2010

PF-NBHDS database for CZs, 1920-2015 (2/2)

- Neighborhood quality (cont'd)
  - Murder rates
    - Johnson et al. (2007) city crime rates from Uniform Crime Reports ("UCR"), 1930-1940
    - **UCR 1931, 1936, 1943, and 1950**
    - ICPSR city crime rates from UCR 1958-1969
    - Vera Institute of Justice In Our Backyards Database
    - City and County Data Books, 1944-1977
  - Incarceration
    - IPUMS Complete Count 1920-1940 Censuses
    - **Inmates of Institutions, US Census 1960, Table 52**
    - **Vera Institute of Justice In Our Backyards Database**

▸ Back

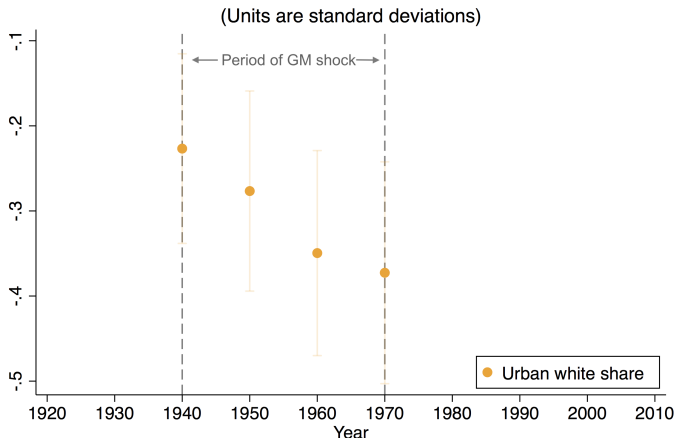# Great Migration impact on private school enrollment

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

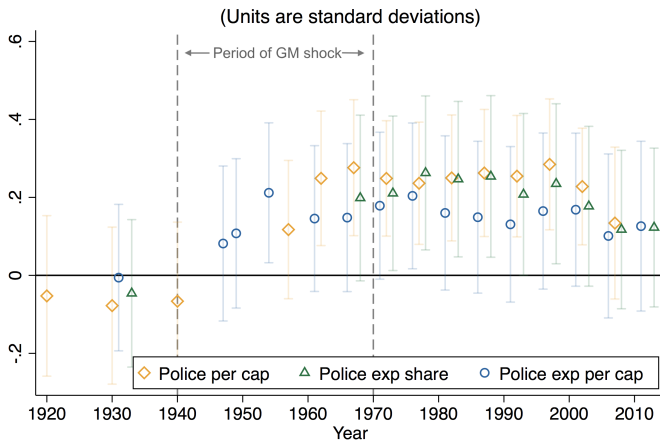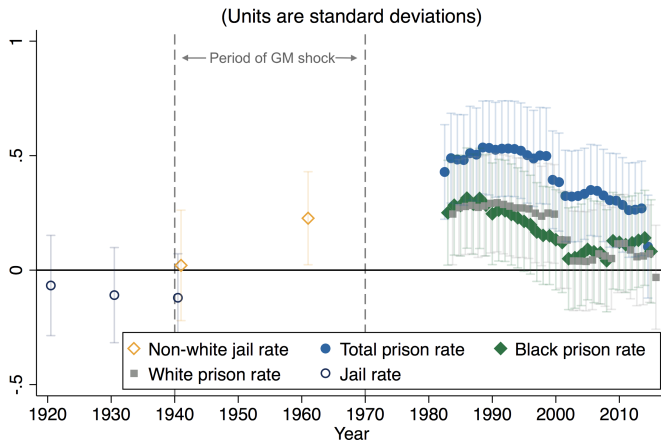Units of shock are 30 percentiles. *Data Source*: PF-NBHDS database for CZs, 1920-2015. ▸ Back

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. ▸ Back

Great Migration impact on police expenditures
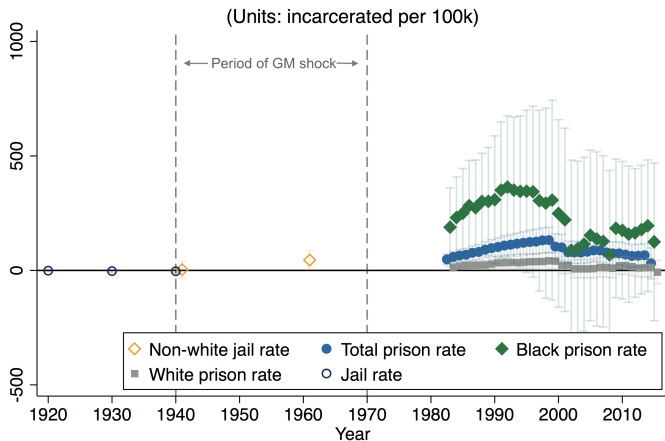

(Units are standard deviations)

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   ▸ Back

Great Migration impact on incarceration rates

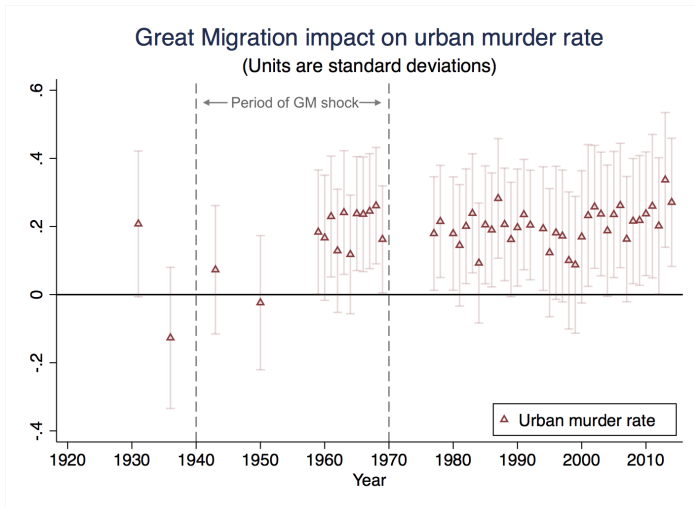(Units are standard deviations)

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. ▶ Back

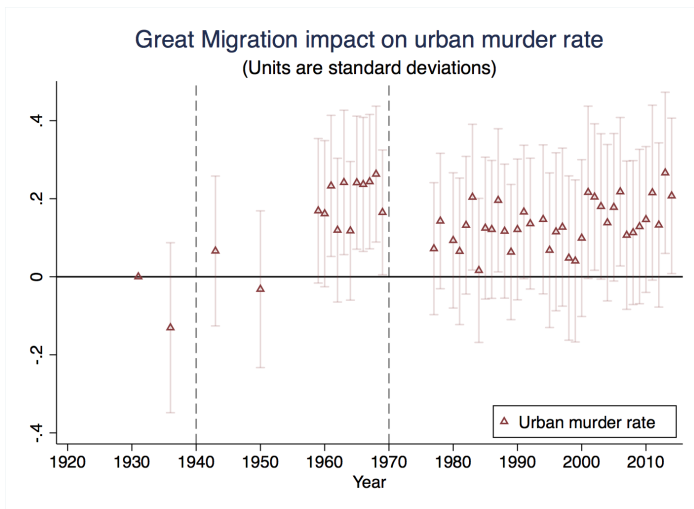# Great Migration impact on incarceration rates (levels)

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. ▸ Back

Great Migration impact on murder rates

Great Migration impact on urban murder rate
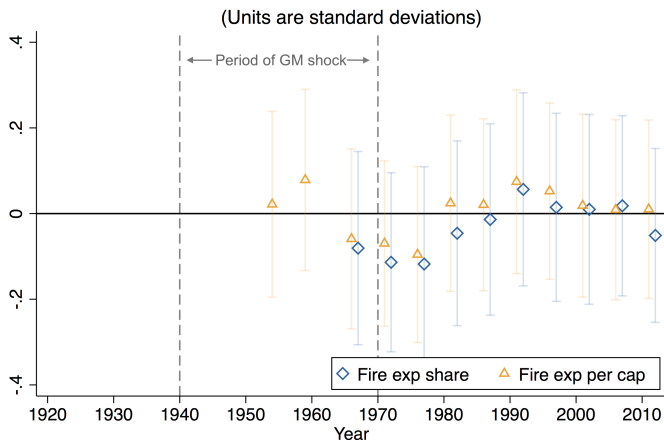(Units are standard deviations)

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 ▸ Back

Great Migration impact on murder rates

Great Migration impact on urban murder rate
(Units are standard deviations)

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 ▸ Back

Great Migration impact on fire fighting $

(Units are standard deviations)

◇ Fire exp share   △ Fire exp per cap

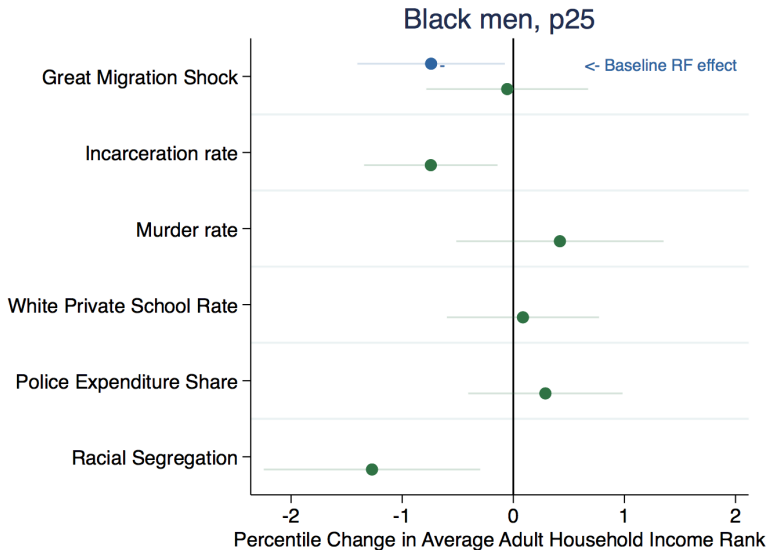Reduced form coefficients of mechanism on Great Migration shock, estimated separately each year.

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

TABLE A9: GREAT MIGRATION IMPACT ON 1960s RIOTS

	Killed Per 100k	Arson Per 100k	Arrests Per 100k	Days of Riots Per 100k	Injured Per 100k	Riots Per 100k
			Ordinary Least Squares			
GM	0.00266***	0.188***	1.026***	0.0255***	0.175***	0.0103***
	(0.000426)	(0.0243)	(0.119)	(0.00381)	(0.0254)	(0.00151)
R-squared	0.296	0.397	0.583	0.290	0.423	0.292
			Reduced Form			
GM Shock	0.00117**	0.0661**	0.446***	0.0155***	0.0991***	0.00654***
	(0.000531)	(0.0282)	(0.138)	(0.00523)	(0.0311)	(0.00207)
R-squared	0.307	0.484	0.646	0.150	0.454	0.162
			Two-stage least squares			
GM	0.00300**	0.169**	1.138***	0.0395***	0.253***	0.0167***
	(0.00131)	(0.0702)	(0.351)	(0.0116)	(0.0784)	(0.00461)
R-squared	0.310	0.477	0.627	0.317	0.430	0.317
N	130	130	130	130	130	130
Mean Dep Var	0.0589	4.697	24.91	0.950	4.474	0.413
SD Dep Var	0.162	9.952	58.87	1.437	10.65	0.572
SD GM	28.98	28.98	28.98	28.98	28.98	28.98

Notes: Each outcome is normalized by the 1960 CZ population. *Source*: Collins and Margo (2007).

▸ Back

Black men, p25

<- Baseline RF effect

Sensitivity of coefficient on Great Migration shock to inclusion of intermediate local mechanisms.

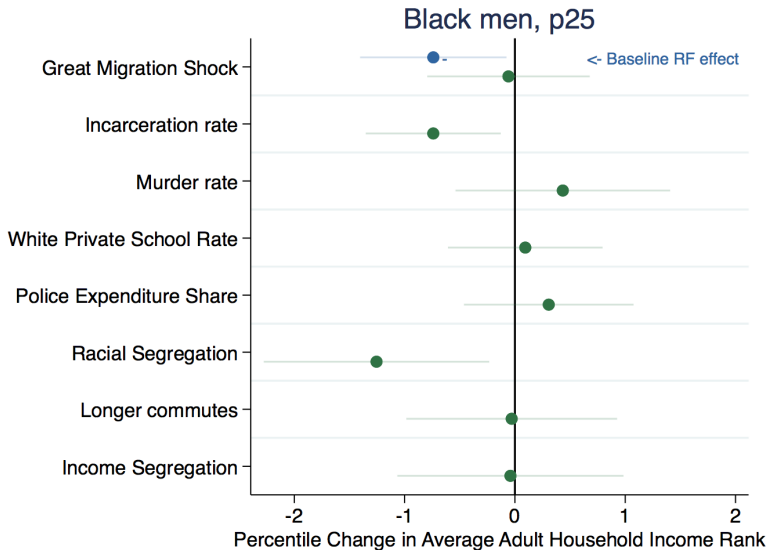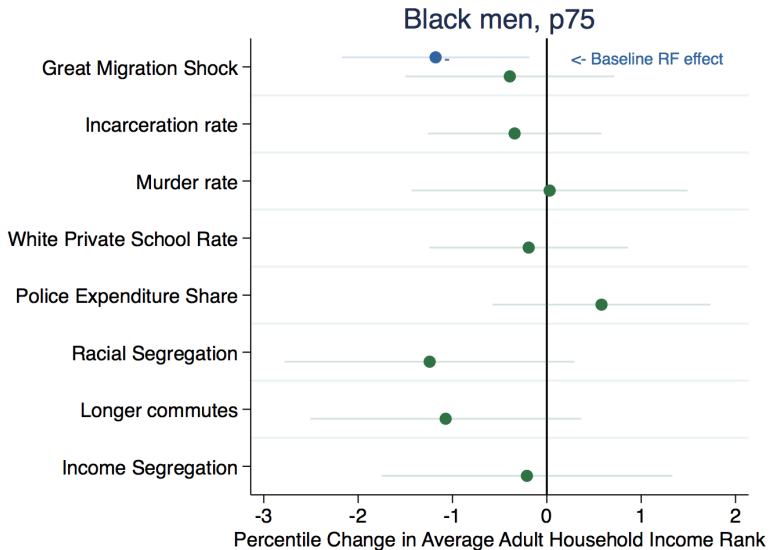Sample: black men from low income families. Units of shock are 30 percentiles. ▸ Back

Black men, p75

Sensitivity of coefficient on Great Migration shock to inclusion of intermediate local mechanisms.

Sample: black men from high income families. Units of shock are 30 percentiles. ▸ Back

Black men, p25

<- Baseline RF effect
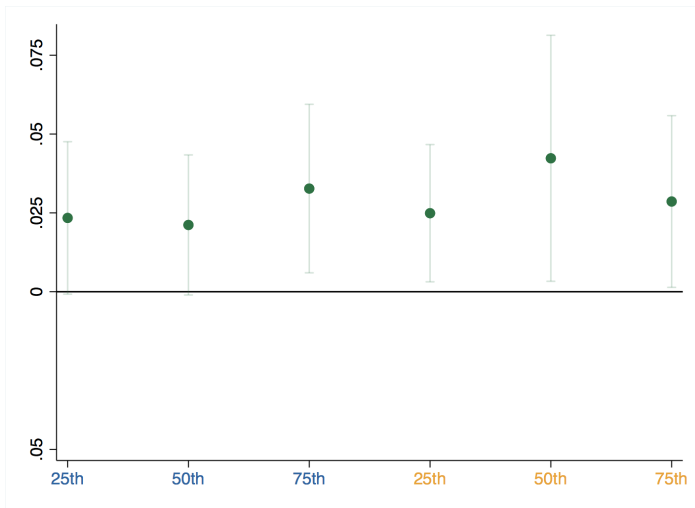
Percentile Change in Average Adult Household Income Rank

Sensitivity of coefficient on Great Migration shock to inclusion of intermediate local mechanisms.

Sample: black men from low income families. Units of shock are 30 percentiles. ▸ Back

Black men, p75

Sensitivity of coefficient on Great Migration shock to inclusion of intermediate local mechanisms.

Sample: black men from high income families. Units of shock are 30 percentiles. ▸ Back

Great Migration increased within census tract racial gap

Census Tract Race Gap CZ Race Gap ▸ Notes ▸ Back

Notes

- Census tract results for 90 CZs for which tract-level gap data available
- Baseline controls included
- Observations are northern commuting zones
- *Data source*: Chetty et al (2018); IPUMS 1940 Census; City and County Data Books, 1944-1977; and Boustan (2016)

What was the net effect of the Great Migration?
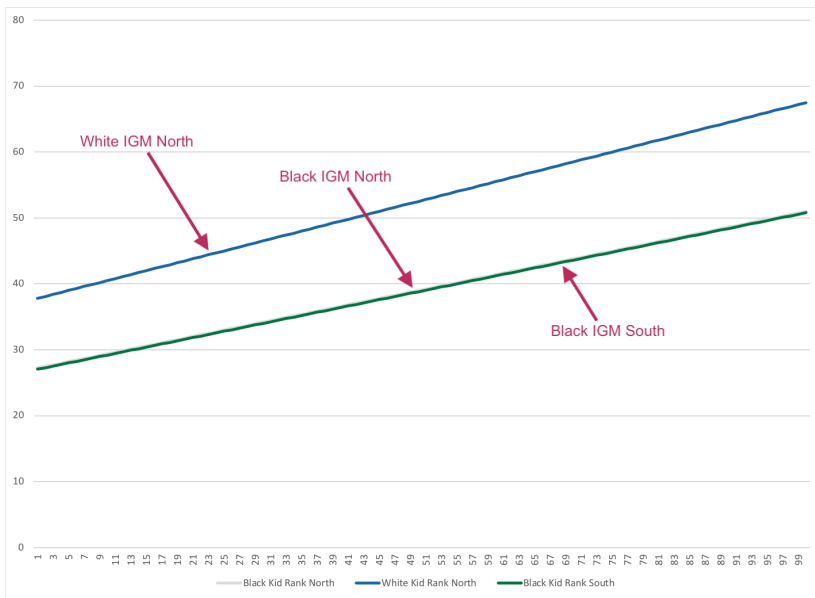
Things we would need to know:

- Causal effect of Great Migration on upward mobility in South

- Causal effect of Great Migration on (grand)parent income

- Structural relationship between parent income and kid income

- Geographic distribution of black population before and after

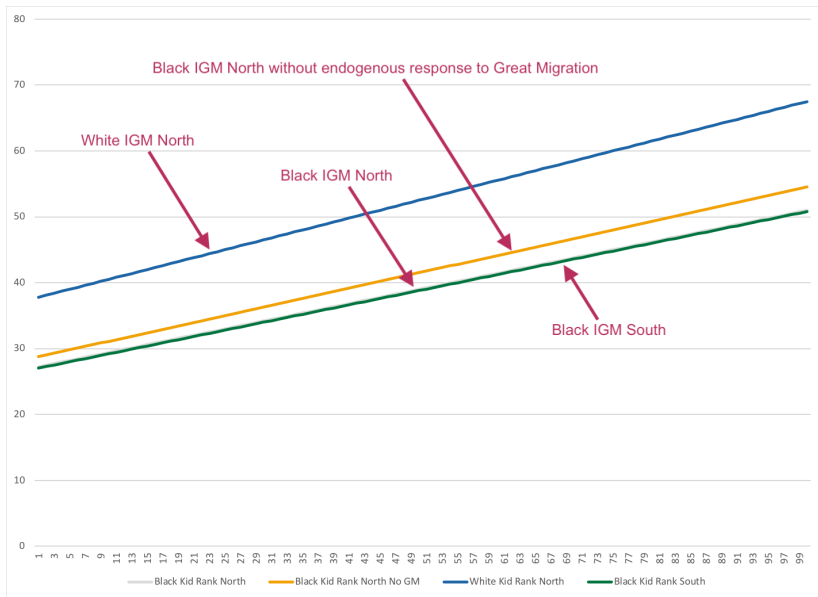# What was the net effect of the Great Migration?

Conjecture: > 0

- Causal effect of Great Migration on upward mobility in South (≥ 0)
- Causal effect of Great Migration on (grand)parent income ($>> 0$)
- Structural relationship between parent income and kid income Assumed
- Geographic distribution of black population before and after
  $1940 \rightarrow 23\%$ N, 77% S
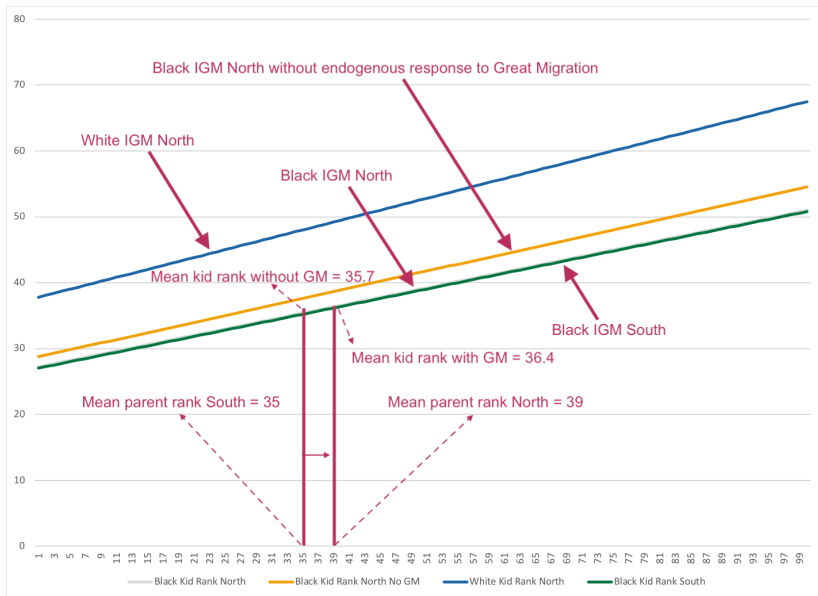 $2000 \rightarrow 50\%$ N, 50% S

Intergenerational mobility by race and region

Intergenerational mobility by race and region

Intergenerational mobility by race and region

What was the net effect of the Great Migration?

Why 0.7 percentiles net gain is likely a lower bound:

- Great Migration impact on parent income $\gg$ 4 pctiles
- "Voting with one's feet" may have improved the South