The Changing Relationship Between Local Income And Racial Disparities In Infant Mortality

EK Green
Pronouns: They/Them
University of Arizona

Background

- Black-White infant mortality gap > twofold (Artiga et al., 2020)
  - Also other non-white groups Native American / Native Hawaiian & Pacific Islander gaps (Artiga et al., 2020)
- Many contributing factors: healthcare, environmental, and other socioeconomic inequities (Artiga et al., 2020)
- Gap has closed over time as Black infant mortality has fallen faster than white infant mortality (Riddell, Harper, Kaufman, 2017)
- Black infant mortality declines have recently stagnated (Riddell, Harper, Kaufman, 2017)

Introduction: Research Questions

- How are changes in local infant mortality over time associated with changes in local incomes?
- Are there different associations by race?
- Do these associations change over time?

Introduction: Approach

- 1962-2016
- Fixed effects by county and year
- Demographic controls
- 15 year windows / rolling windows to capture changes over time

Introduction: Key Questions and Results

- How are changes in local infant mortality over time associated with changes in local incomes?
- Are there different associations by race?
  - Higher income ~ lower non-white infant mortality
  - $1000 1967 ~ 2 fewer non-white infant deaths
- Do these associations change over time?
  - Attenuate mid-1960s; period of key policy changes
  - $1000 1967 ~ 4 fewer non-white infant deaths → 1-2 fewer

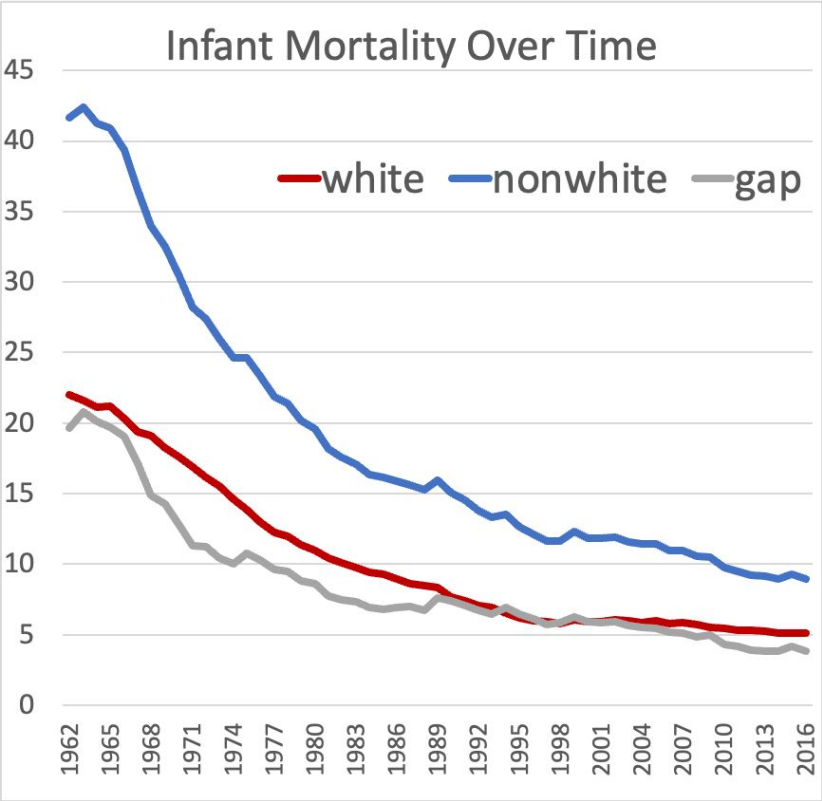
Introduction: Key features

- Time Period: 1962-2016
- County level infant mortality data (white / non-white)
- White and Non-White state average per capita incomes
  - From individual level with additional demographics
- Overall state and county average per capita incomes

Introduction: Key Contributions

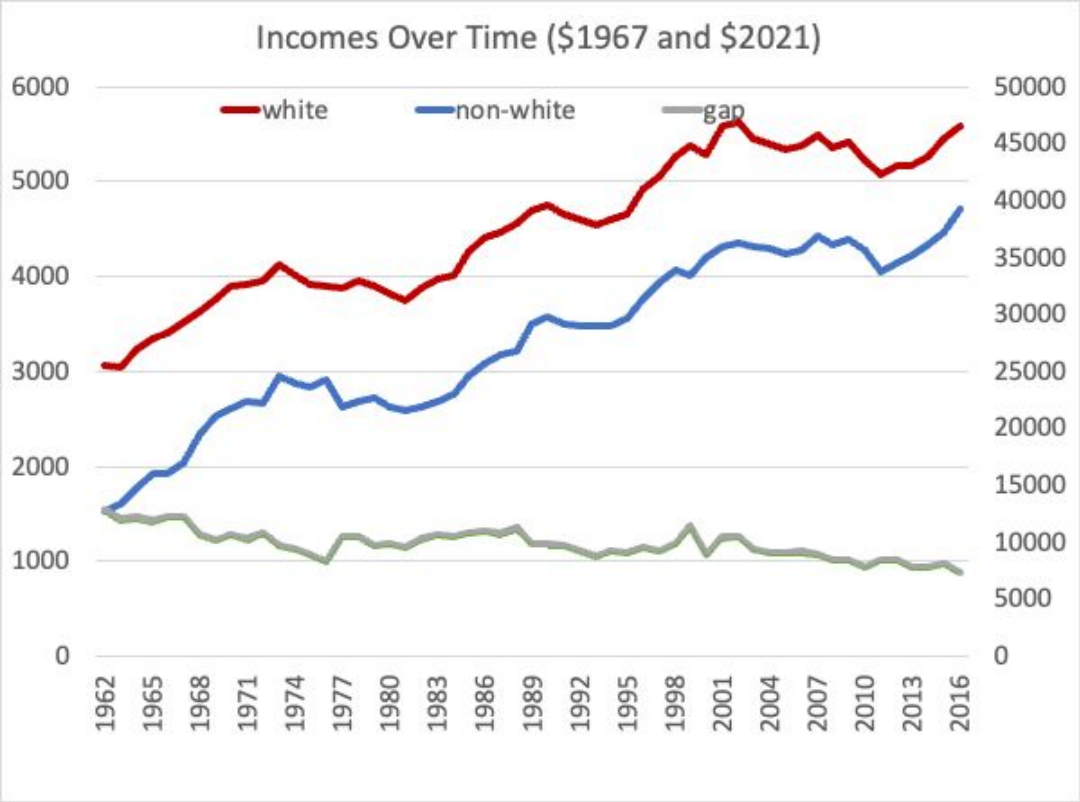
- Extending time frame
- Focusing on income
- Considering different levels of aggregation
  - County level infant mortality
  - State income by white/non-white
  - State and county income

Data



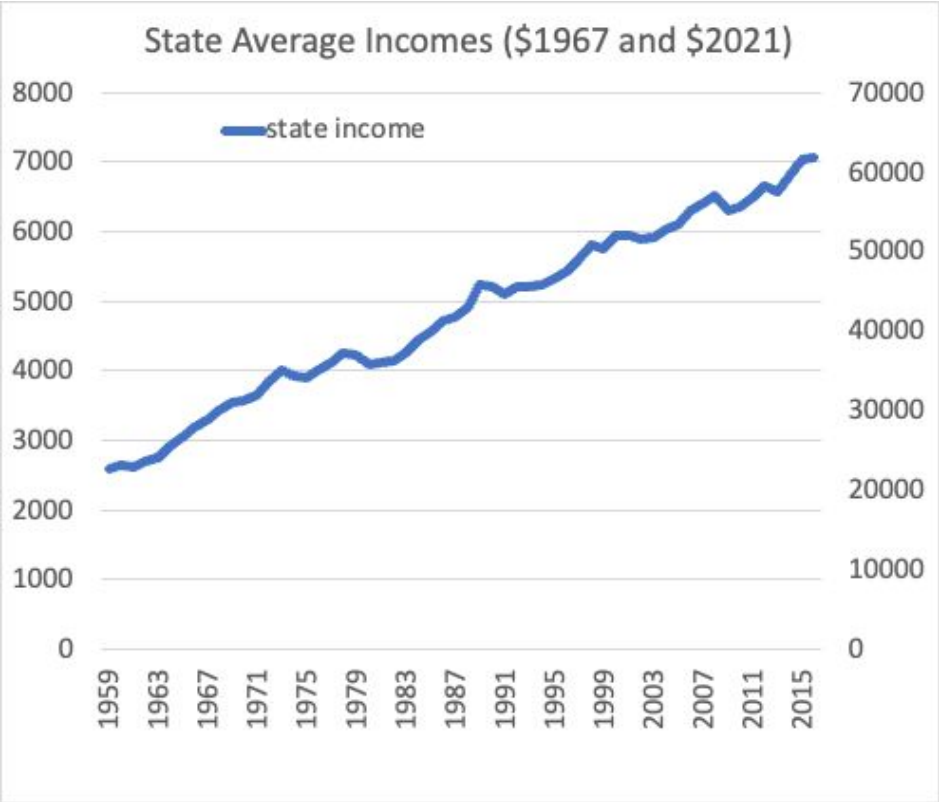
- Deaths in first year per thousand live births
- 1959-2007 ICPSR dataset, “U.S. County-Level Natality and Mortality Data 1915-2007,” (Bailey, Clay, Fishback, et al. ICPSR project 33603)
- 1942 – 1959 Vital Statistics of the United States
- 1999 – 2016 National Center for Health Statistics

Data



- Individual personal income data was collected from the annual Current Population Surveys (CPS) for the years 1962 through 2017, aggregated to state
- Additional information on specific race, ethnicity, education, age from CPS also aggregated to state

Data



- Personal Income Summary data from the Bureau of Economic Analysis
- Data extends further back in time
- All incomes adjusted for inflation based on the CPI to 1967 real dollars (McCulloch 2022)

Methods

$$M_{cyr} = \beta_1 I_{syr} + \beta_2 R_{sy} + \beta_3 I_{syr} * R_{sy} + \beta_4 X_{syr} + \beta_4 Z_{sy} + \beta_5 X_{syr} * R_{sy} + Y_y + Y_c + \varepsilon_{cyr}$$

M - infant mortality per thousand live births
I - average real personal income per capita
R - non-white indicator
X - Demographic controls by white/non-white
Y - Racial demographic controls
r - race (white/non-white)
c – county
s – state
y - year

Selected Alternate Specifications

- Base model without demographic controls
- Separate regional analysis
- Income only by state and year
- Income by county and year

Demographic Controls

- Share of income held by the bottom quintile
- Share of reproductive population below a high school education
- Share of population between the ages of 15 and 18
- Share of population above 65
- Share of population Black
- Share of population Hispanic

Results: Income Disaggregated by Race

	1962-2016
Income	-0.0001
	0.0002
Non-White	9.3278*
	4.6685
Non-White *Income	-0.0017**
	0.0007
N	165,181

Results: Income Disaggregated by Race

	1962-2016
Income	-0.0001
	0.0002
Non-White	9.3278*
	4.6685
Non-White *Income	-0.0017**
	0.0007
Non-White*Income + Income	-0.0018
N	165,181

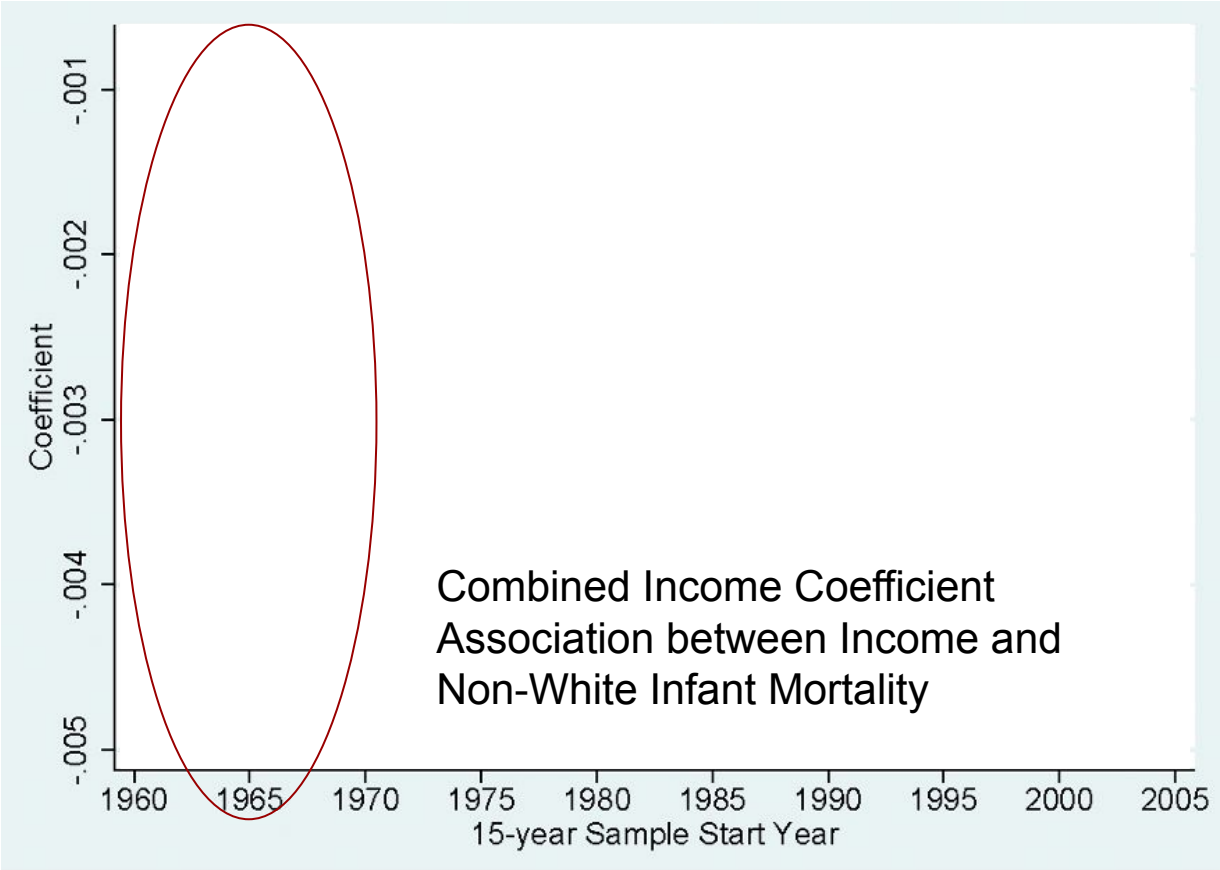
Results: Income Disaggregated by Race

	1962-2016
Income	-0.0001
	0.0002
Non-White	9.3278*
	4.6685
Non-White *Income	-0.0017**
	0.0007
Non-White*Income + Income	-0.0018
N	165,181
Gap at Means	3.2
Gap if at White Mean Income for Both	1.4

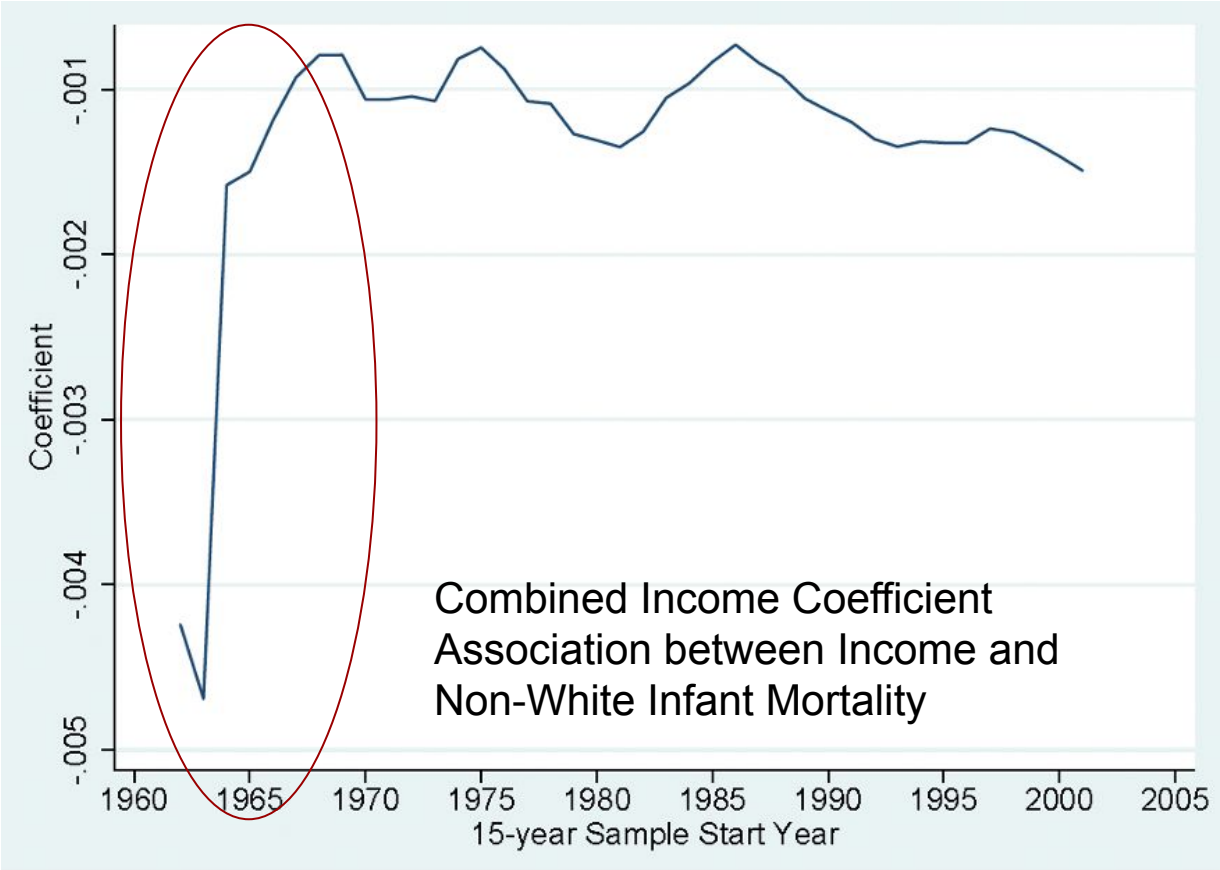
Results: Income Disaggregated by Race

	1962-2016	1965-1979	1980-1994	1995-2009
Income	-0.0001	0.0005	-0.0005*	0.0001
	0.0002	0.0006	0.0002	0.0002
Non-White	9.3278*	11.0469*	3.8327	12.7102****
	4.6685	5.7969	2.2495	2.6968
Non-White *Income	-0.0017**	-0.0020*	-0.0008*	-0.0015***
	0.0007	0.0011	0.0004	0.0004
Non-White*Income + Income	-0.0018	-.0015	-0.0013	-0.0014
N	165,181	43,112	54,742	38,763
Gap at Means	3.2	5.3	1.9	6.3
Gap if at White Mean Income for Both	1.4	3.4	0.4	4.7

Results: Income Disaggregated by Race



Results: Income Disaggregated by Race



Results: Income Disaggregated by Race

- Living in a state with higher average non-white incomes is associated with lower non-white infant mortality
- Sign on non-white dummy variable consistently positive
- Sign on income varies around null over time

Results: Income Disaggregated by Race

- Relationship attenuates; significant level change in mid 60s
- Higher income does not fully close mortality gaps
- Income gaps associated with a share of mortality gaps
- Increasing incomes associated with a share of decline in non-white infant mortality

Results: Additional Specifications

- Patterns in results are consistent with and without demographic controls
- Results are not only driven by one region
- State average income overall shows similar associations as average income disaggregated by race
- County average income shows slightly more attenuated results, likely due to missing spillover effects
- Similar patterns over time

Key Questions and Results

- How are changes in local infant mortality over time associated with changes in local incomes?
- Are there different associations by race?
  - Higher income ~ lower non-white infant mortality
  - $1000 1967 ~ 2 fewer non-white infant deaths
- Do these associations change over time?
  - Attenuate mid-1960s; period of key policy changes
  - $1000 1967 ~ 4 fewer non-white infant deaths → 1-2 fewer

Conclusions

- Results do not appear to suggest non-white infants miss all benefits associated with residence in a higher income area
- Increasing incomes over time has been associated with a significant share of declines in infant mortality
- Key changes from the mid 1960s

Further Steps

- Unemployment by white/non-white
- Shift-Share Instrument (employment) - started
- Income distribution - started
- Distribution of hospitals - started

Thank You!

ekgreen42@arizona.edu
ekgreen.net