

Residential Segregation, the White-Black Income Gap, and White-Black Disparities in Premature Mortality

José J. Escarce, M.D., Ph.D.

David Geffen School of Medicine at UCLA

UCLA Fielding School of Public Health

Prepared for the National Academy of Social Insurance

28th Annual Policy Research Conference

January 28, 2016

Outline of Talk

- What is residential segregation?
- How might segregation affect health?
- Previous evidence
- Our ongoing work
- Conclusions

What Is Residential Segregation?

- Residential segregation is the degree to which two or more groups live separately from one another, in different parts of the urban environment
- There are five dimensions of segregation, but most studies of health effects focus on “evenness”:
 - Evenness: The degree to which minority members are distributed so they are overrepresented in some areas and underrepresented in others

Measuring Evenness: Index of Dissimilarity

Most widely used measure of evenness is D , the index of dissimilarity:

$$D = \sum_{i=1}^n \frac{t_i |p_i - P|}{2TP(1 - P)}$$

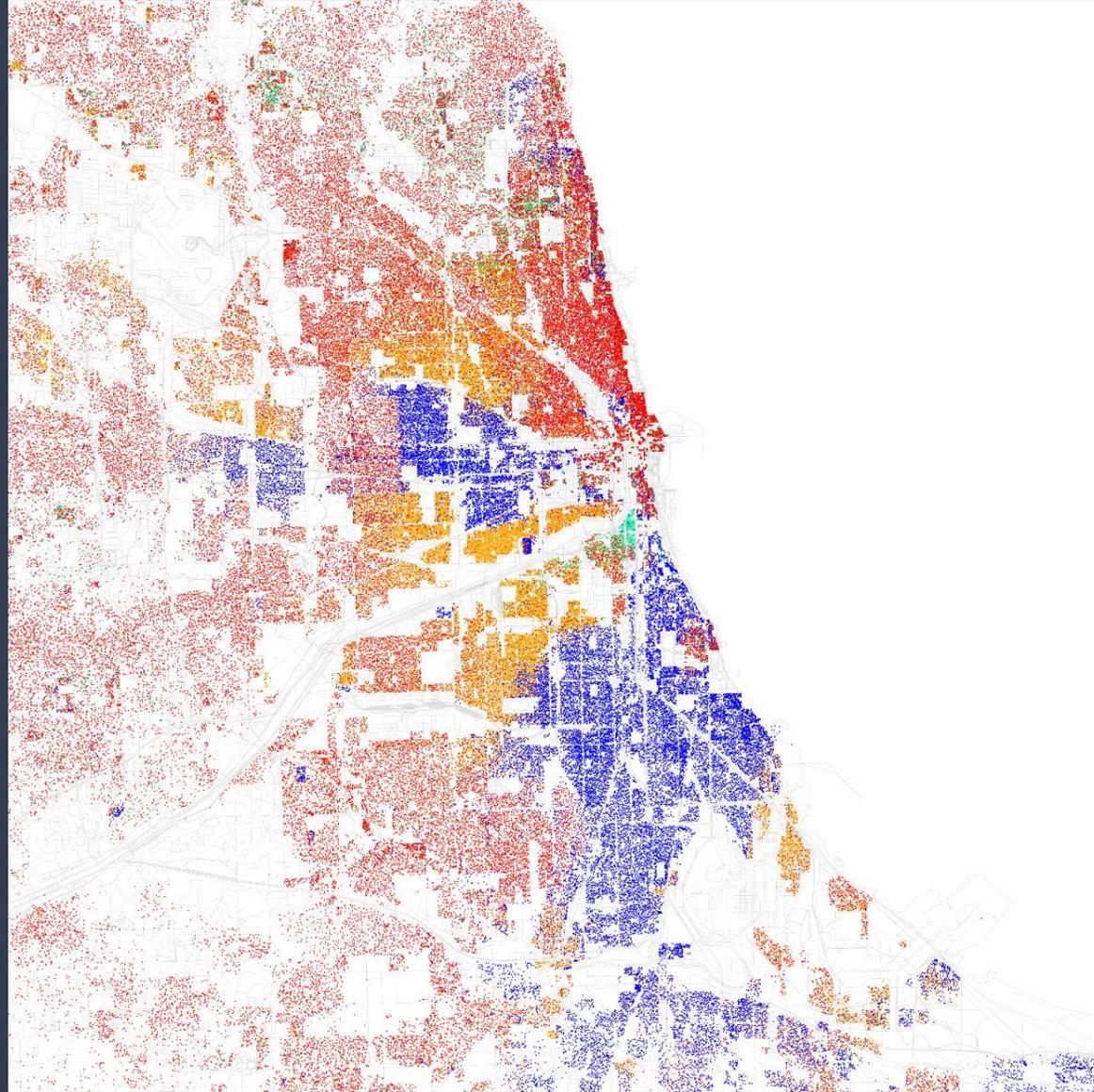
where t_i and p_i are the total population and minority proportion of areal unit i , and T and P are the total population and minority proportion of the whole metropolitan area, which is divided into n areas units.

- D varies between 0 and 1.

Segregation Map of Chicago, 2010

$D = .72$

- Black
- White
- Hispanic
- Asian
- Other



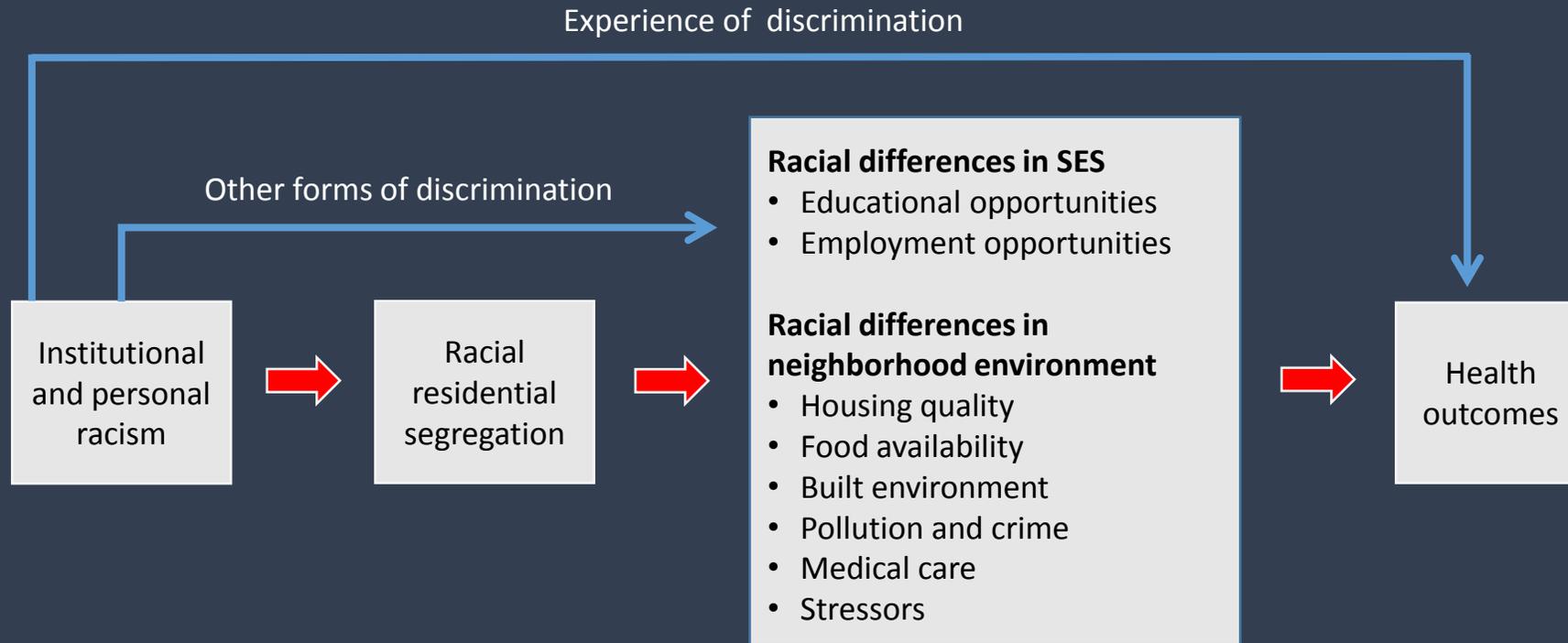
Segregation Map of Charlotte, 2010

$D = .47$

- Black
- White
- Hispanic
- Asian
- Other



How Might Segregation Affect Health?



Previous Evidence

Studies have used evenness and isolation measures of segregation to find an association of higher segregation with worse health outcomes:

- All-cause mortality
- Heart disease, stroke, and cancer mortality
- Hypertension prevalence
- Self-rated health
- Infant mortality

Other studies have found an association of higher segregation with larger black-white disparities in income.

Our Ongoing Work

- Examines bivariate associations among residential segregation, income, and survival for blacks and whites across 121 metropolitan areas in the United States.
- Assesses how much of the association between residential segregation and black-white disparities in survival is explained by racial gaps in income and other socioeconomic factors.
- Contributions:
 - Recent data (2009-2013)
 - Premature mortality: Probability of surviving from age 35 to age 75
 - Gender-specific analyses

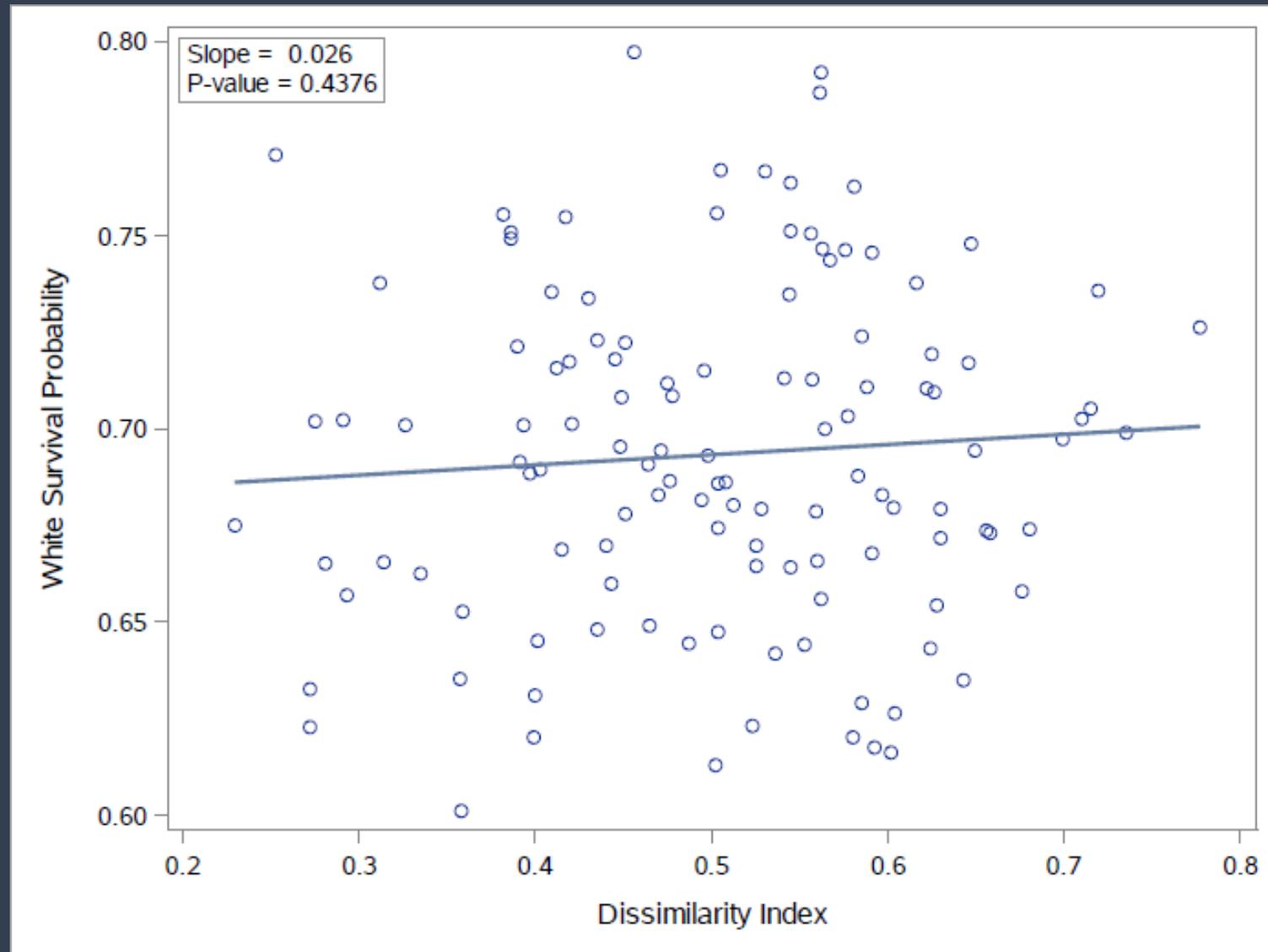
Descriptive Data: Probability of Surviving From Age 35 to 75

	White population	Black population
Men	0.63	0.50
Women	0.75	0.66
Overall	0.69	0.59

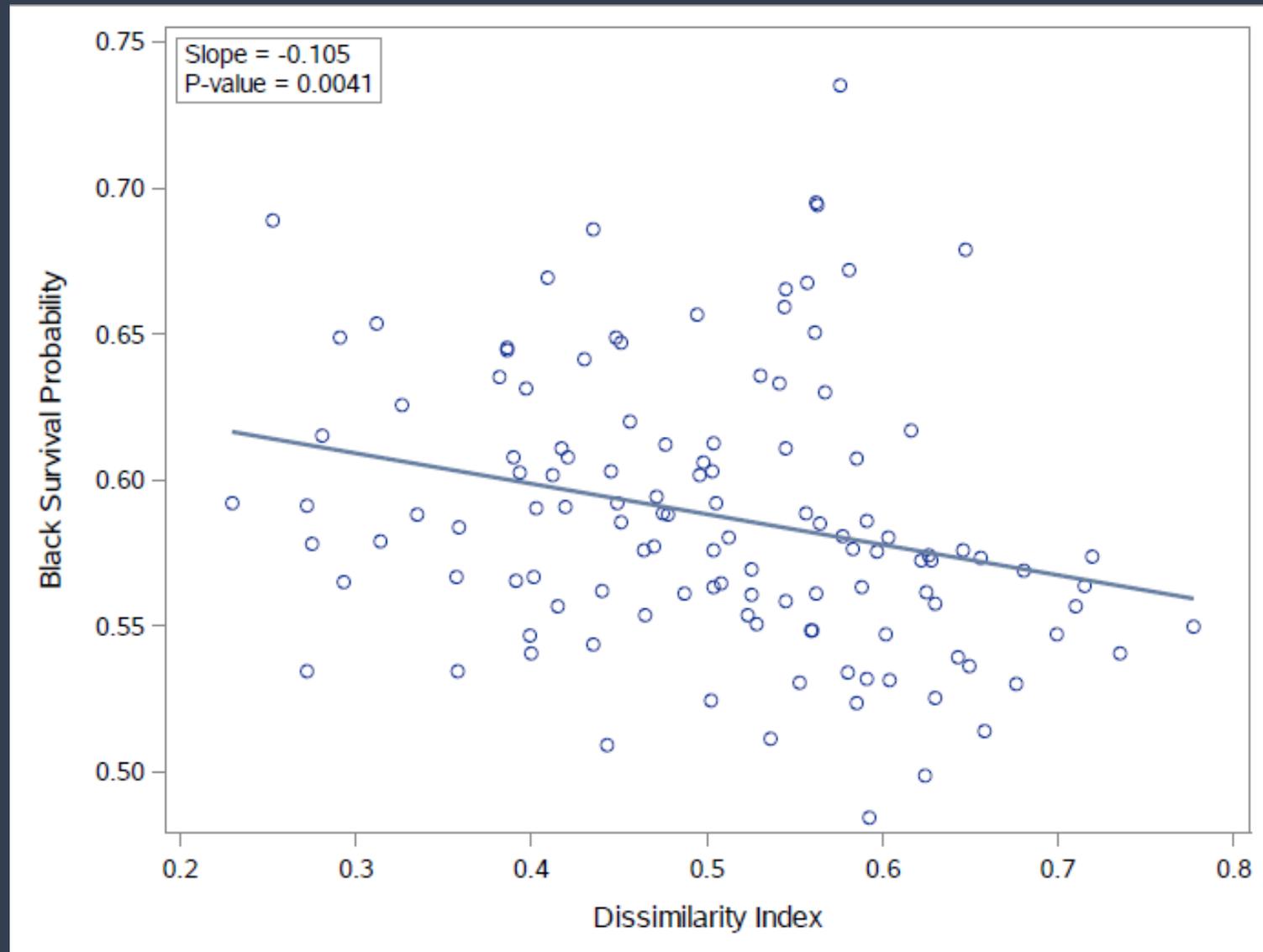
Descriptive Data: Median Household Income and Poverty Rate

	White population	Black population
Median household income (\$1,000s)	57.9	33.7
Percent living in poverty	11.9	29.0

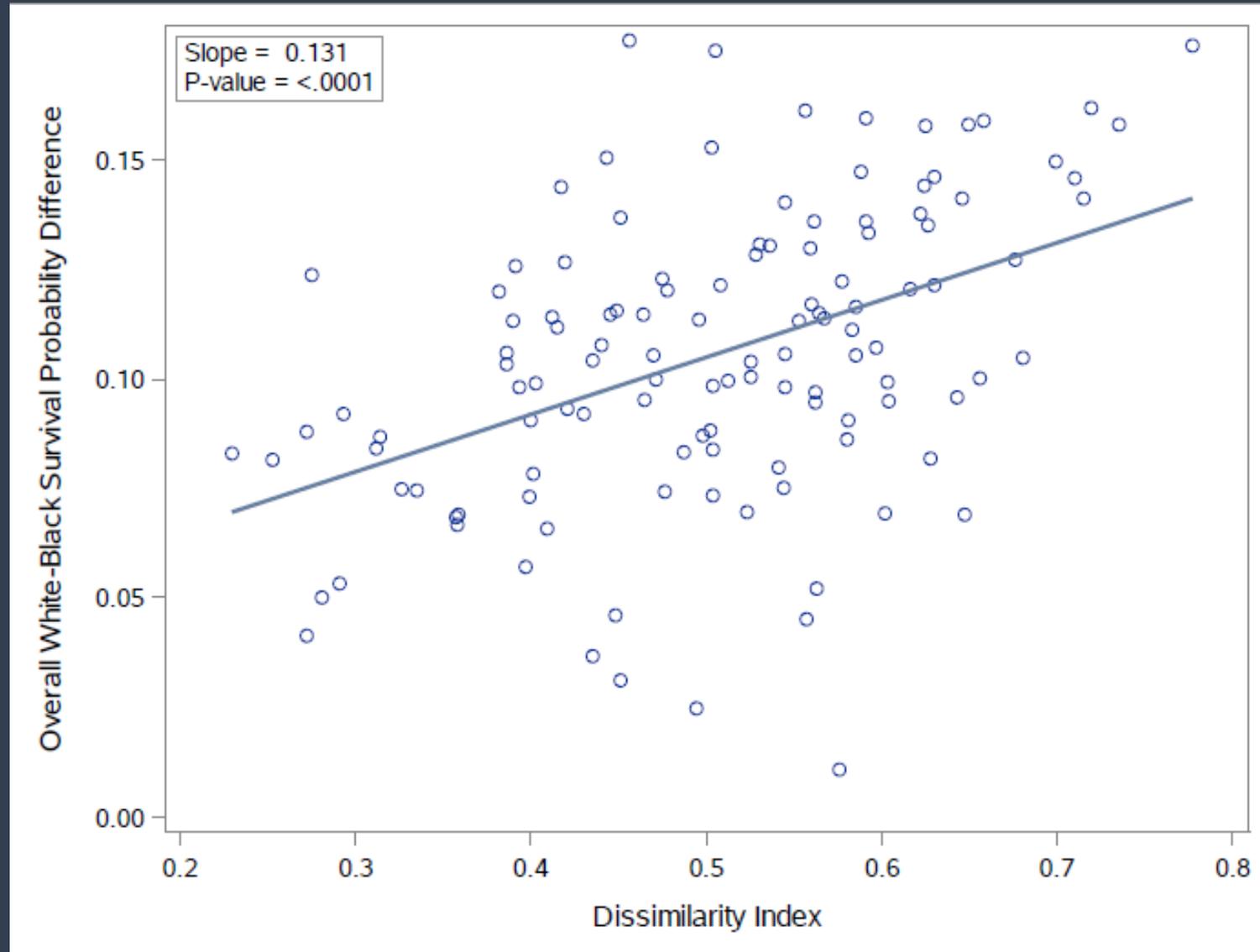
Survival vs. Segregation, Whites



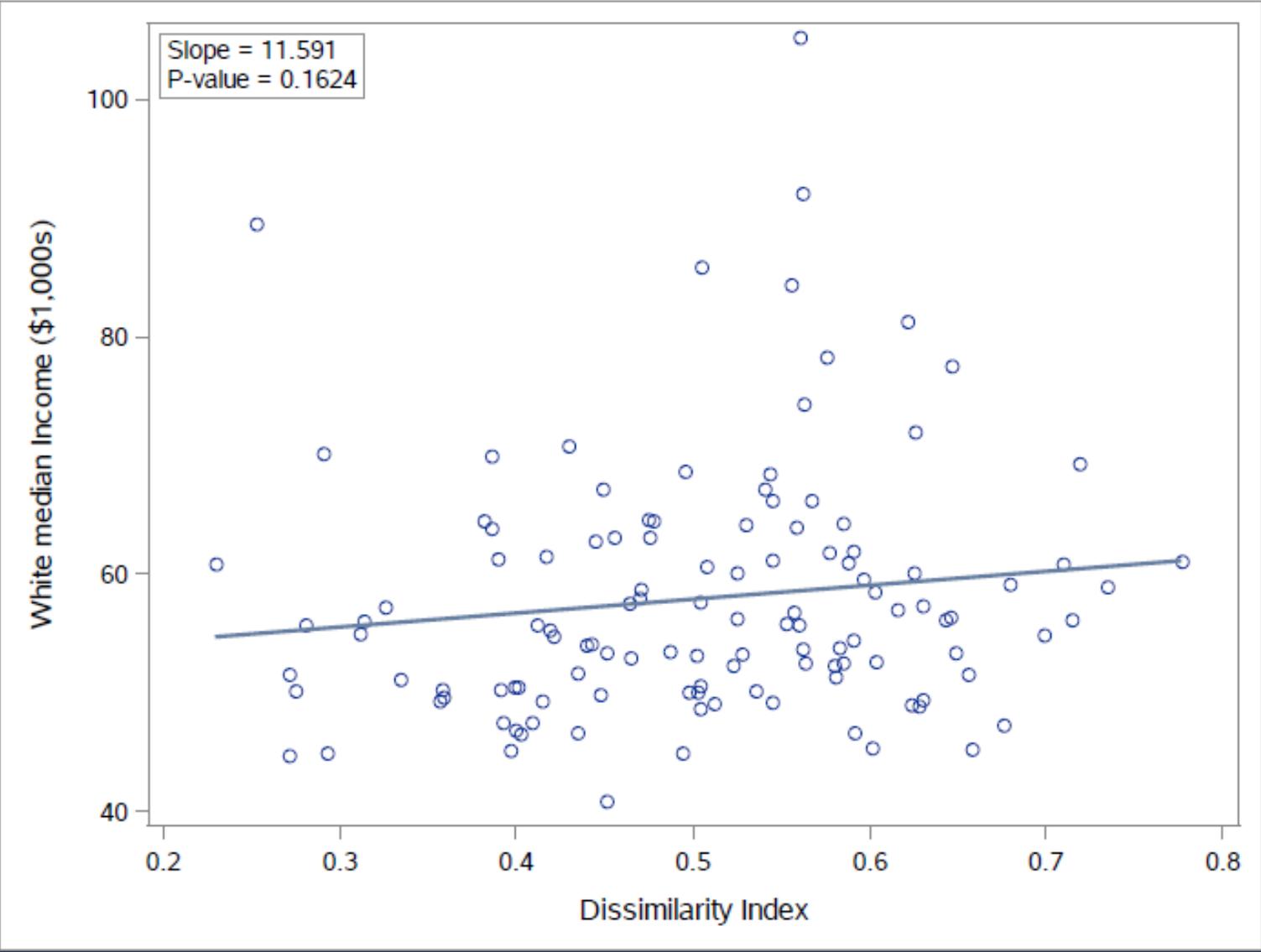
Survival vs. Segregation, Blacks



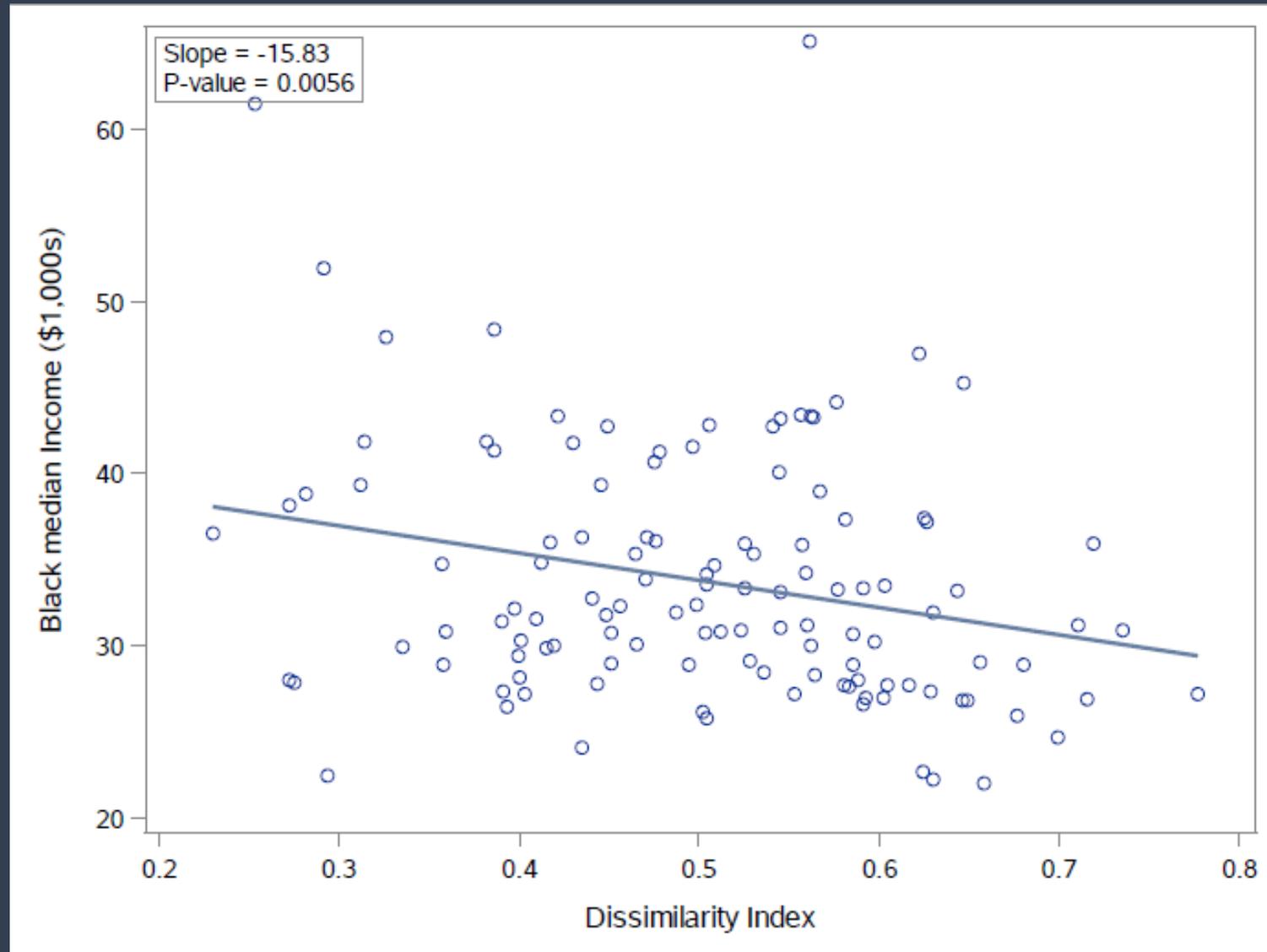
Racial Gap in Survival vs. Segregation



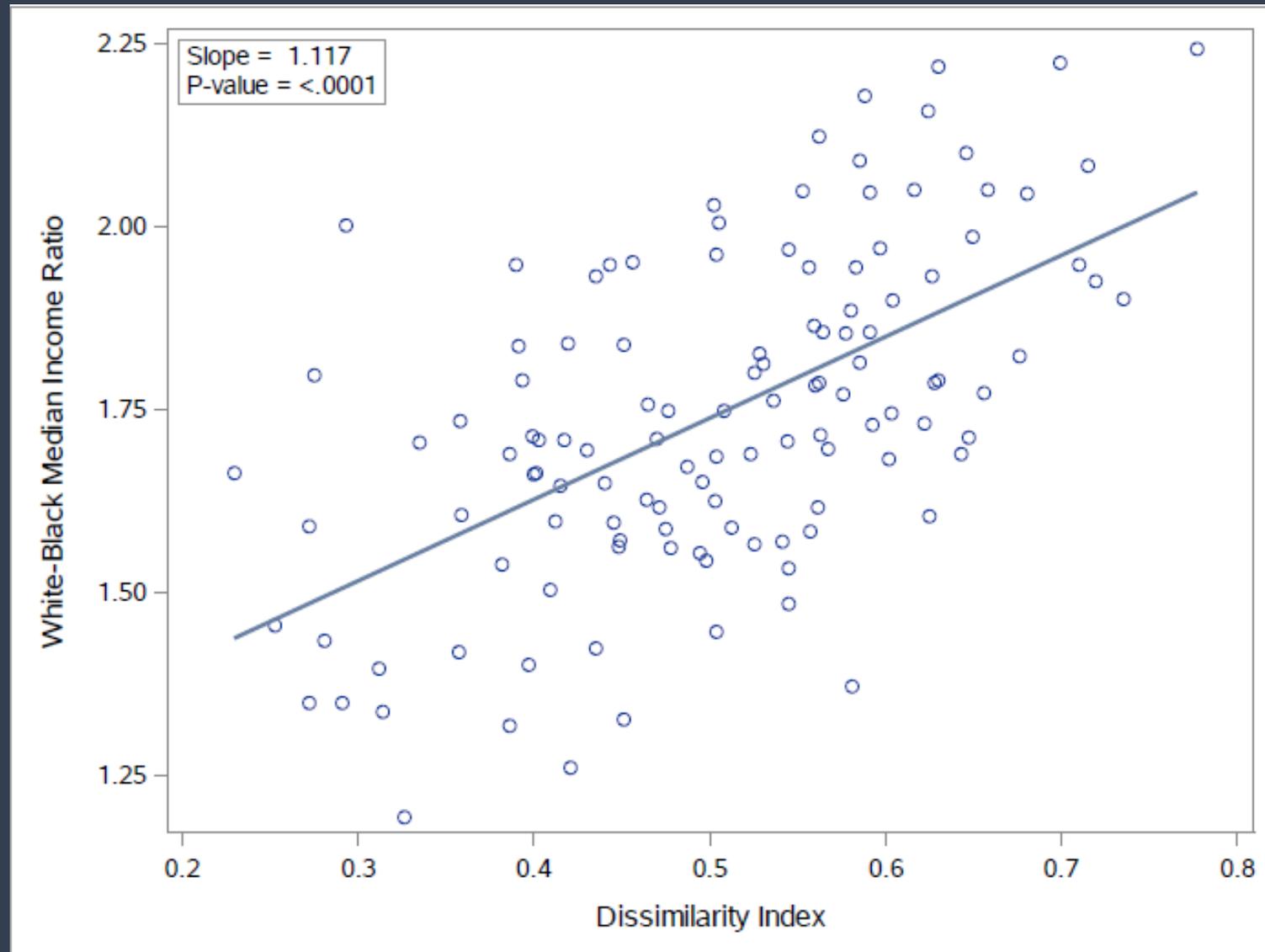
Household Income vs. Segregation, Whites



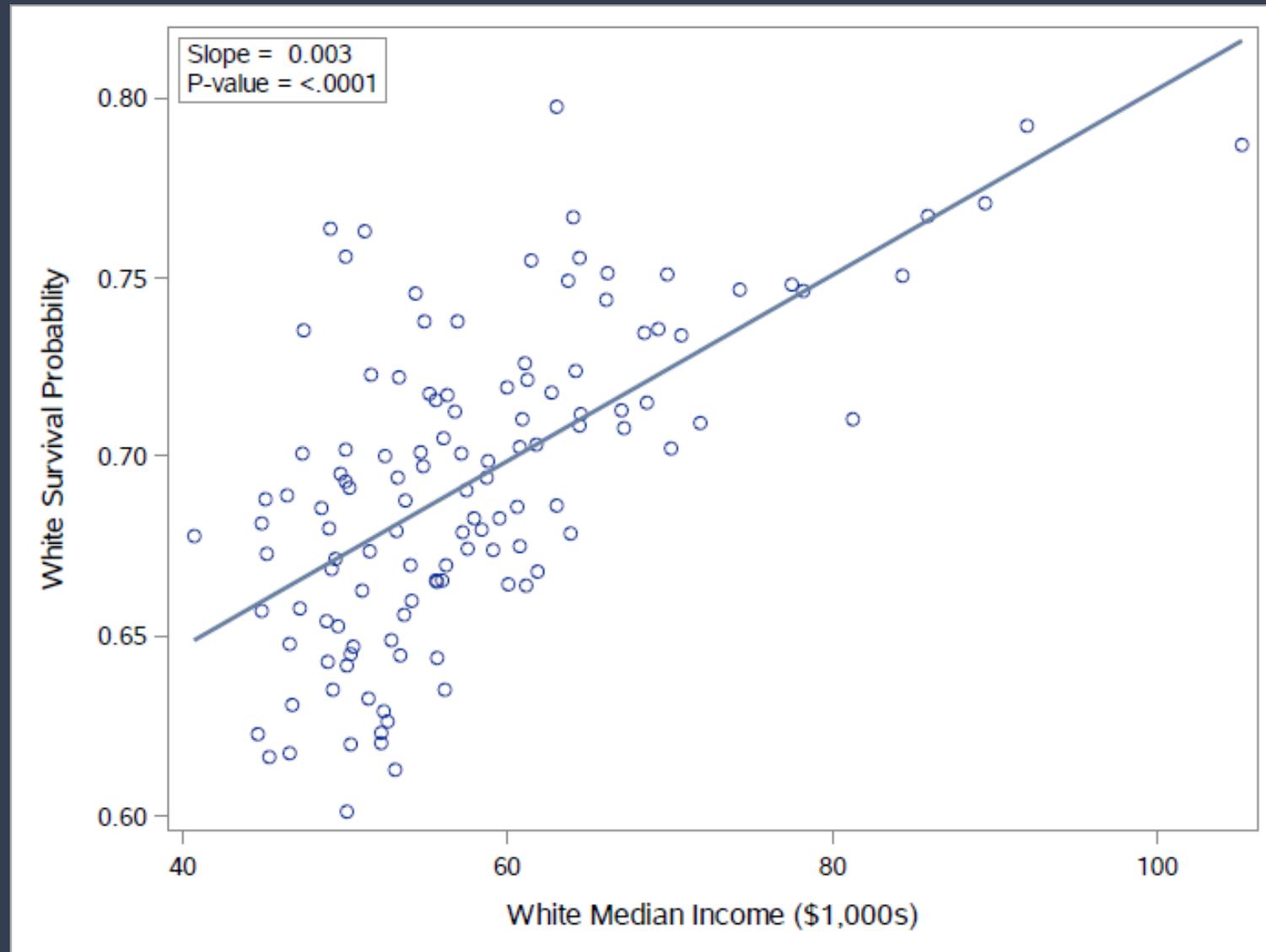
Household Income vs. Segregation, Blacks



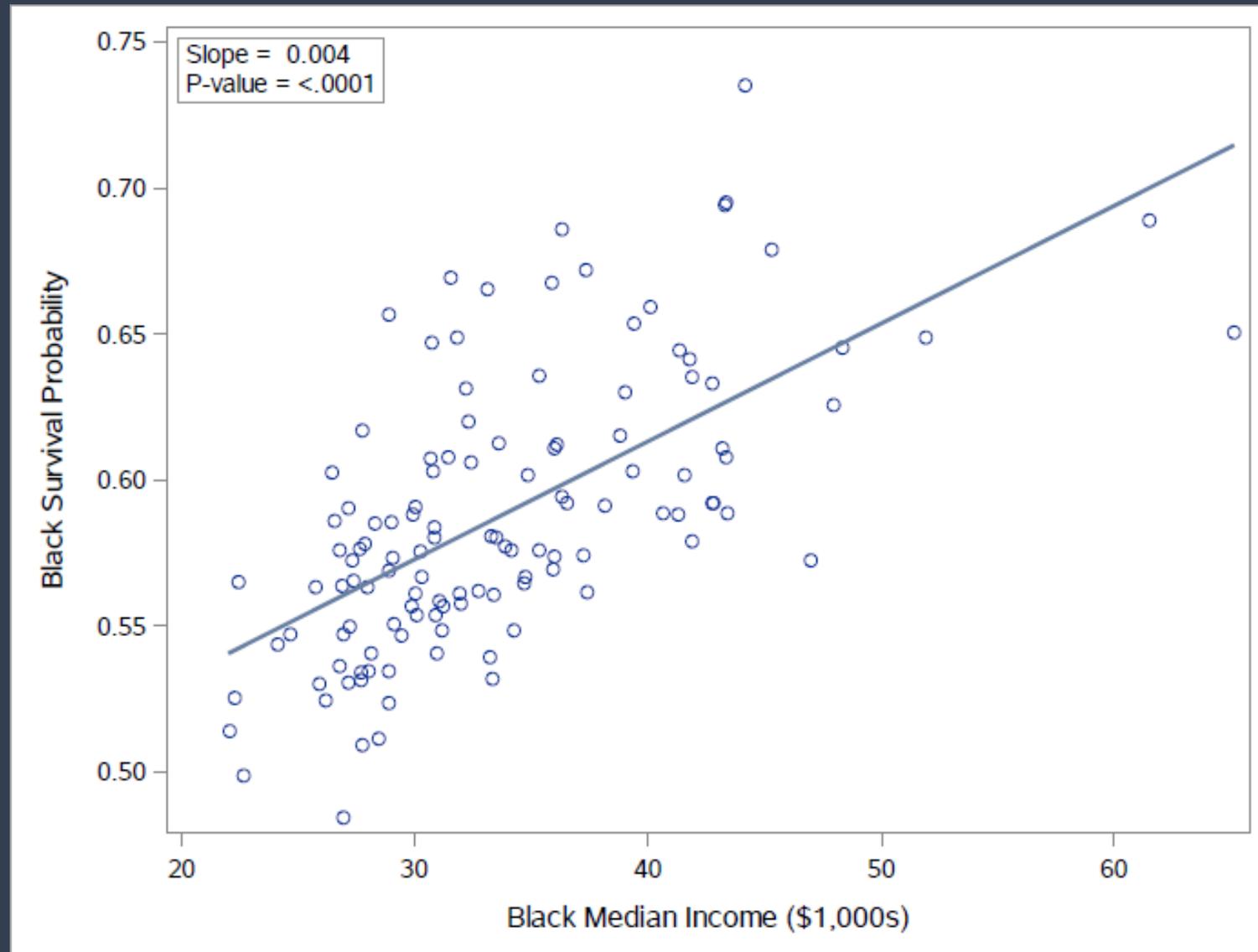
Racial Gap in Household Income vs. Segregation



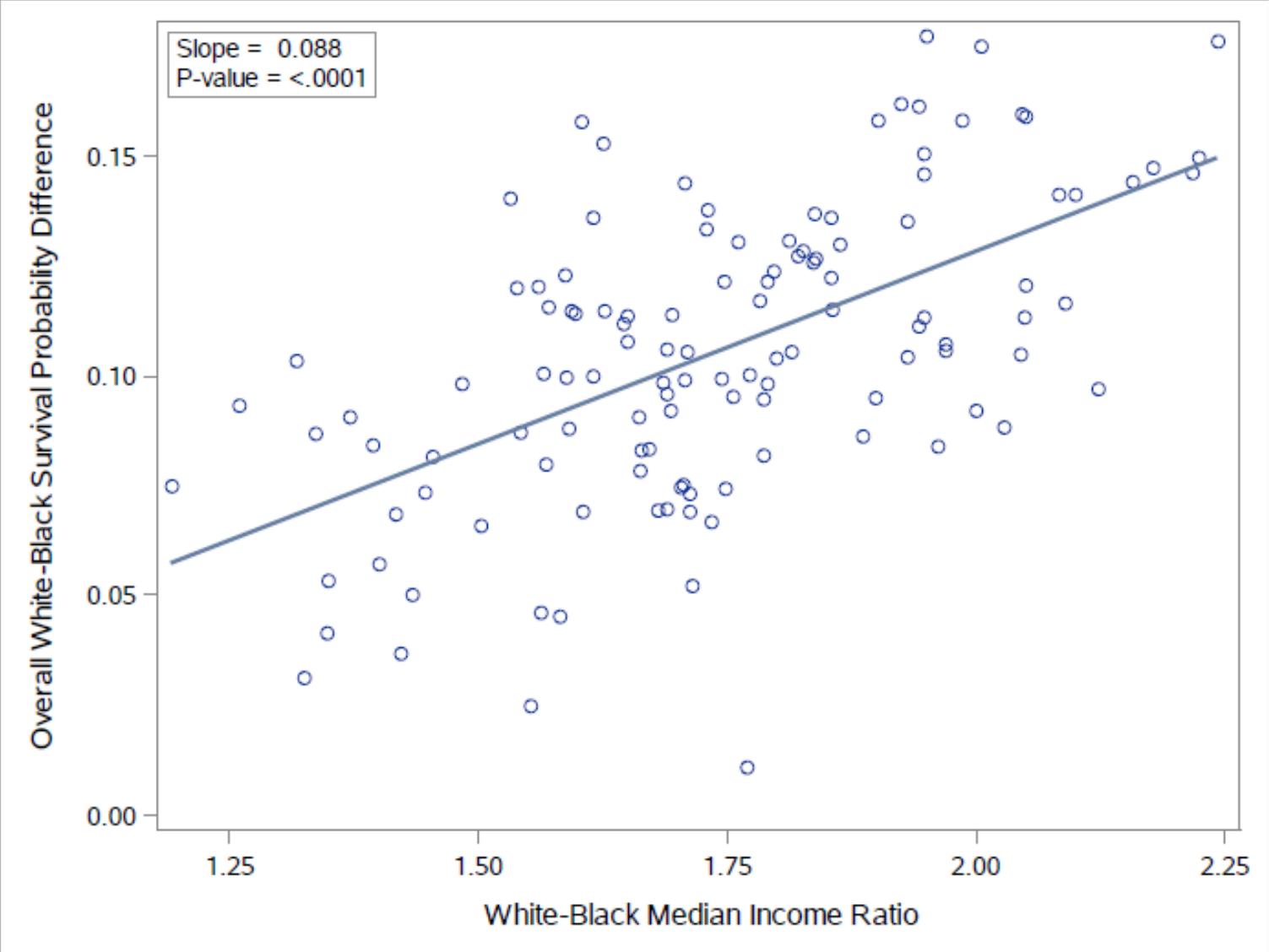
Survival vs. Household Income, Whites



Survival vs. Household Income, Blacks



Racial Gap in Survival vs. Gap in Household Income



Adjusted Results

	Change in White-Black Gap in Survival for a 1.0 Increase in Dissimilarity Index		
	Men	Women	Overall
Model 1: Unadjusted	.18***	.09***	.13***
Model 2: Adjusted for percentage black population, race-specific socioeconomic index, health insurance coverage, and census region.	.09***	.05*	.07**

* P<.10

**P<.05

***P<.01

Conclusions

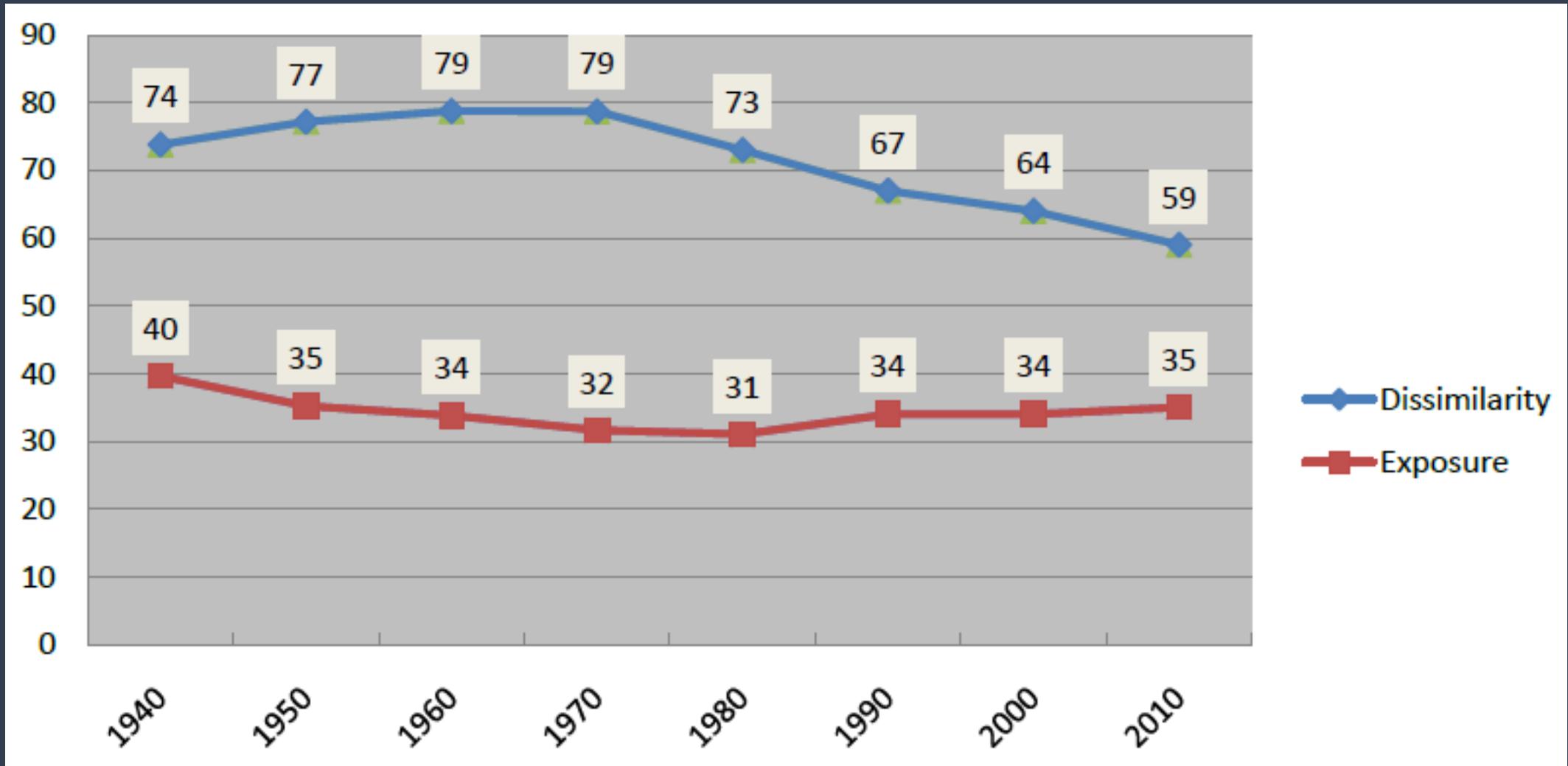
- White men and women have a much higher probability than their black peers of surviving from age 35 to age 75
- Segregation is associated with the racial gap in survival
 - The probability of survival is unassociated with segregation among whites, but declines with increasing segregation among blacks
- Segregation is associated with the racial gap in household income
 - Household income is unassociated with segregation among whites, but declines with increasing segregation among blacks

Conclusions (cont.)

- Household income is associated with survival
 - The probability of survival rises with increasing household income among both whites and blacks
- However, the racial gap in socioeconomic status explains only about one-half of the effect size of segregation on the racial gap in survival
 - This is consistent with the notion that segregation may affect white-black disparities in health through a variety of pathways, likely related to constrained opportunities of many types for African Americans

Thank you!

Black-White Segregation Trends, 1940-2010



Data Sources

- CDC Wonder Mortality Data (2009-2013)
 - Reports data by gender and race for 5-year and 10-year age groups
 - Suppresses data for any gender/race/age group with fewer than 10 deaths
- Manhattan Institute 2012 Report on Segregation
- 2010 Census
- 2009-2013 American Community Survey

Study Variables

Outcome:

- Race-specific probability of survival from age 35 to age 75 in the metro area

Explanatory variables:

- Dissimilarity index for the metro area
- Percent of population black in the metro area
- Race-specific socioeconomic characteristics in the metro area
 - Median household income
 - Percent of population below the poverty line
 - Percent of population age 25 or older without a high school diploma
 - Percent of households with a female head
 - Percent of males age 16 or older who are unemployed
 - SES index constructed from these five variables
 - Percent of population ages 18-64 without health insurance
 - Census region indicators

Regression Model

We stacked the data to create a white observation and a black observation for each metro area and estimated the following two-equation model:

$$Y_{w,m} = \alpha_w + \beta_w D_m + \gamma_w P_m + \theta_w X_{w,m} + \varphi_w C_m$$

$$Y_{b,m} = \alpha_b + \beta_b D_m + \gamma_b P_m + \theta_b X_{b,m} + \varphi_b C_m$$

- Y is probability of survival from age 35 to age 75
- D is dissimilarity index
- P is percent of the population black
- X is vector of race-specific socioeconomic characteristics
- C is a vector of indicators for census region

We used the sandwich estimator to correct standard errors for heteroskedascity and for clustering within metro areas.

Key estimate: $\beta_w - \beta_b$