

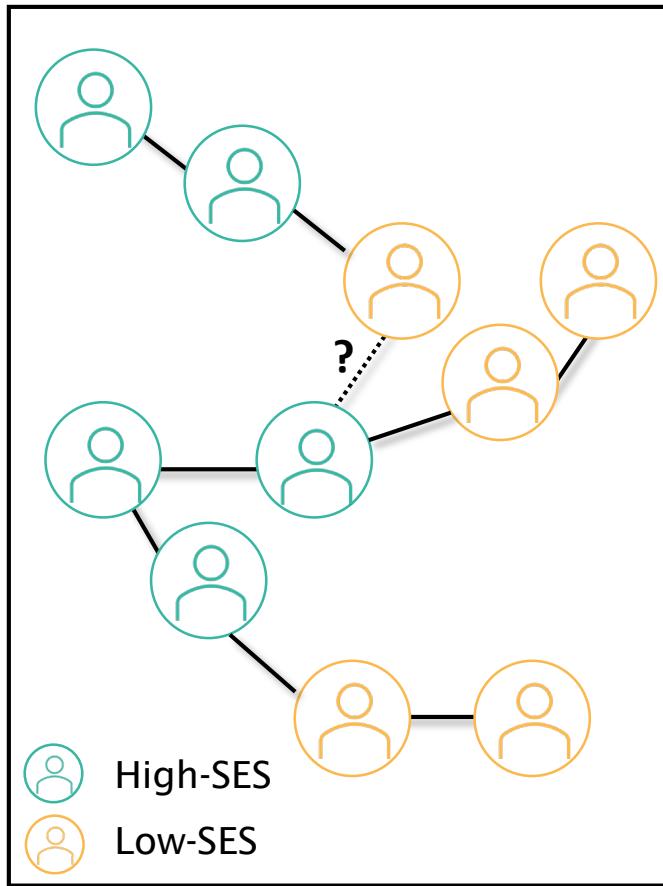


# Social Capital and Economic Mobility

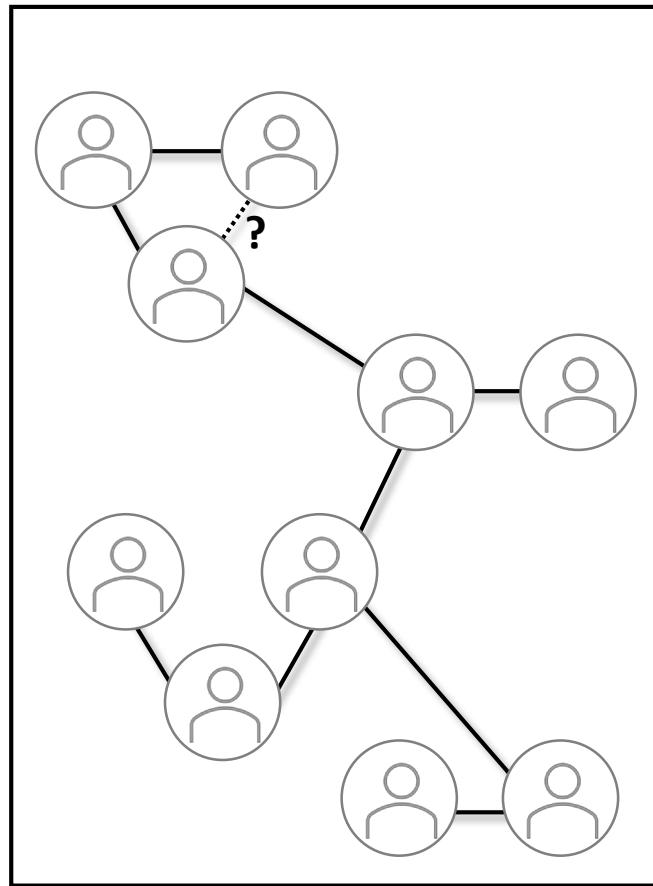
Raj Chetty\*, Matthew Jackson\*, Theresa Kuchler\*, Johannes Stroebel\*  
Nathan Hendren, Robert Fluegge, Sara Gong, Federico González, Armelle Grondin  
Matthew Jacob, Drew Johnston, Martin Koenen, Eduardo Laguna-Muggenburg  
Florian Mudekereza, Tom Rutter, Nicolaj Thor, Wilbur Townsend, Ruby Zhang  
Mike Bailey, Pablo Barberá, Monica Bhole & Nils Wernerfelt

# What is “Social Capital”? Three Concepts

## Connectedness



## Cohesiveness



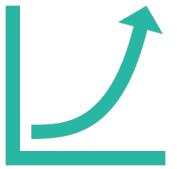
## Civic Engagement



# This Project: Two Papers



**Measure Social Capital Using Data on 21 Billion Friendships**



**Analyze Associations with Economic Mobility**



**Identify Determinants of Social Connections**



**Release Publicly Available Data to Target Interventions**

# Paper 1: Measurement and Associations with Economic Mobility



Measurement of  
Social Capital

Association  
with Economic  
Mobility

Determinants  
of Social  
Connections

Targeting  
Interventions

# Measurement of Social Capital

# Data and Sample Definitions

- We measure social capital by ZIP code, high school, and college using privacy-protected data from Facebook and Instagram
- Baseline analysis sample
  - U.S. Facebook users between ages 25–44 who are 30-day active with at least 100 friends in the U.S. as of May 28, 2022 (1978–1997 birth cohorts)
  - 72.2 million individuals, 21 billion friendships: **84% coverage** of 25–44-year-old population

# Economic Connectedness

- Begin by measuring **economic connectedness**: to what extent are individuals from low vs. high-SES backgrounds friends with each other?
  - Many theories for why economic connectedness might matter for outcomes: information, contacts for jobs, influence on aspirations and preferences [Loury 1977, Bourdieu 1986]

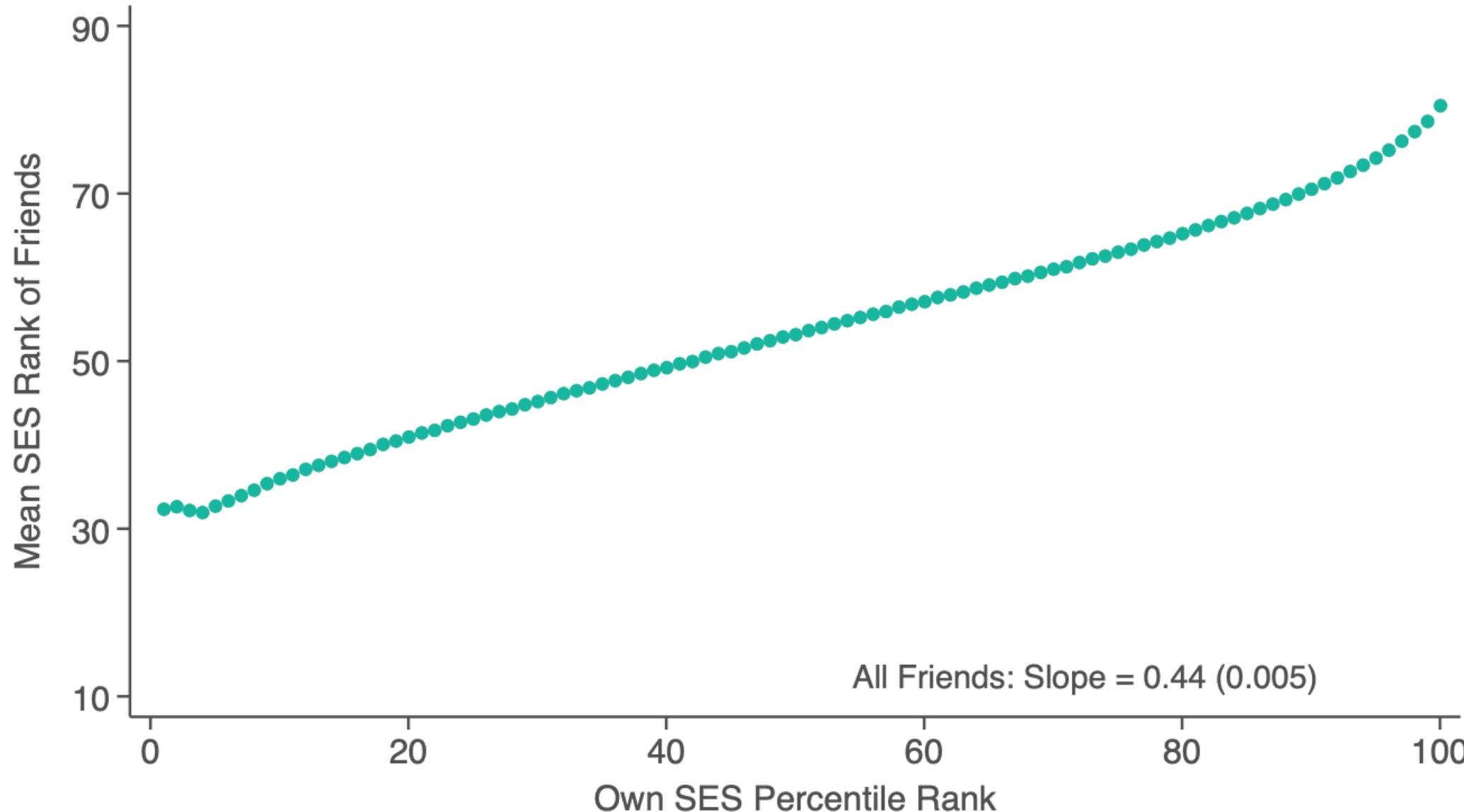
# Measuring Socioeconomic Status

- Construct an index of socioeconomic status (SES) by combining several proxies: ZIP code, college, phone model price, donations, ...
- Baseline measure: combination that best predicts median household income in block group (available for a subset of users) using a machine learning model
- Rank users in the national income distribution based on their predicted SES ranks
- Note: all inferences were created and used solely for the purpose of this research and were not used by Meta for any other purpose

# Benchmarking SES Predictions Using Publicly Available Data

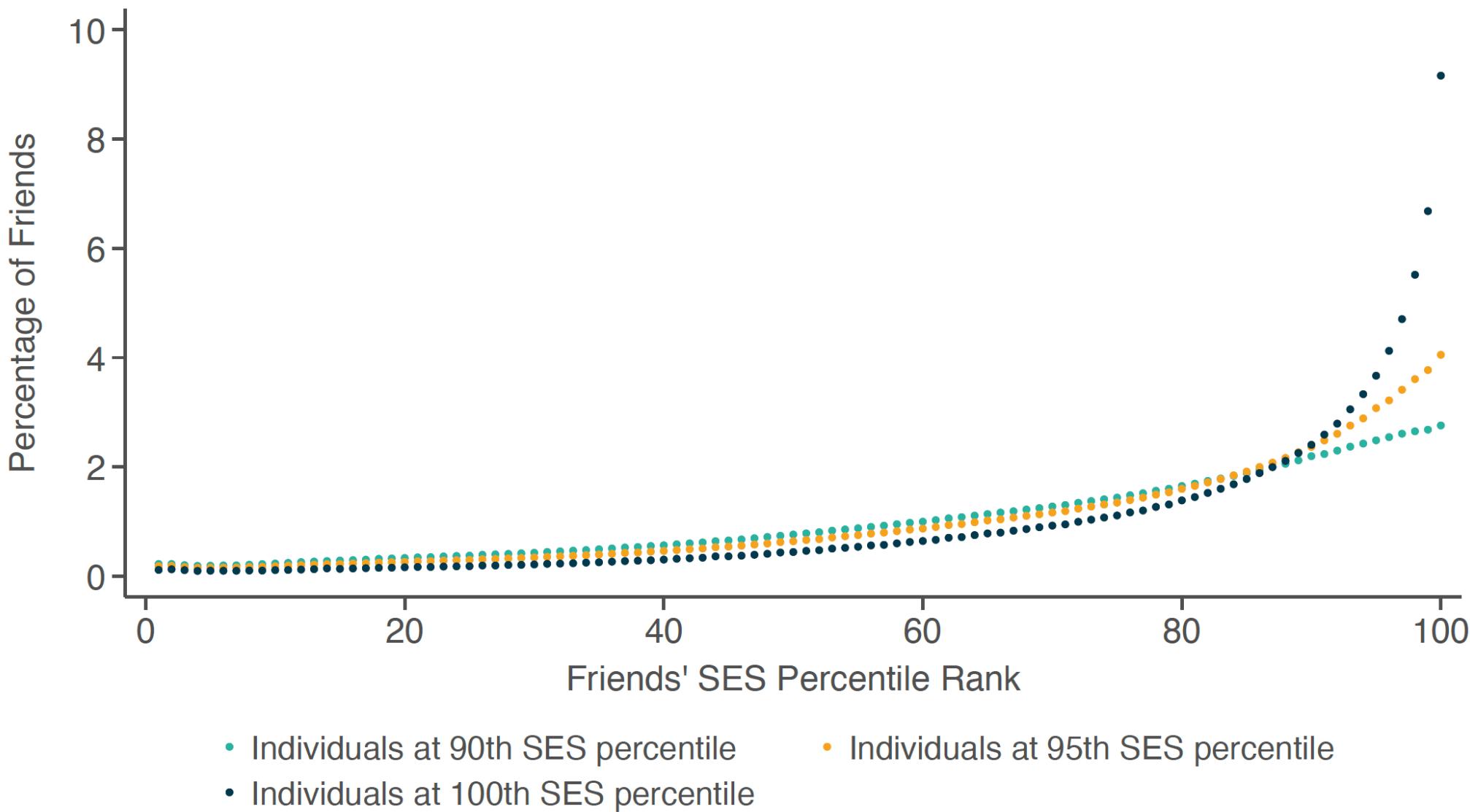
Setting	Benchmark	Facebook SES Measure	Correlation with % Above-Median SES in Facebook Data
ZIP Codes	% of individuals with household income above the national median (ACS)	Own SES	0.88
High Schools	% of students not eligible for free or reduced lunch (NCES)	Parental SES	0.85
Colleges	% of students with parental household income in the top two quintiles of the national distribution (tax data)	Parental SES	0.91

# Mean Friend SES Rank vs. Own SES Rank

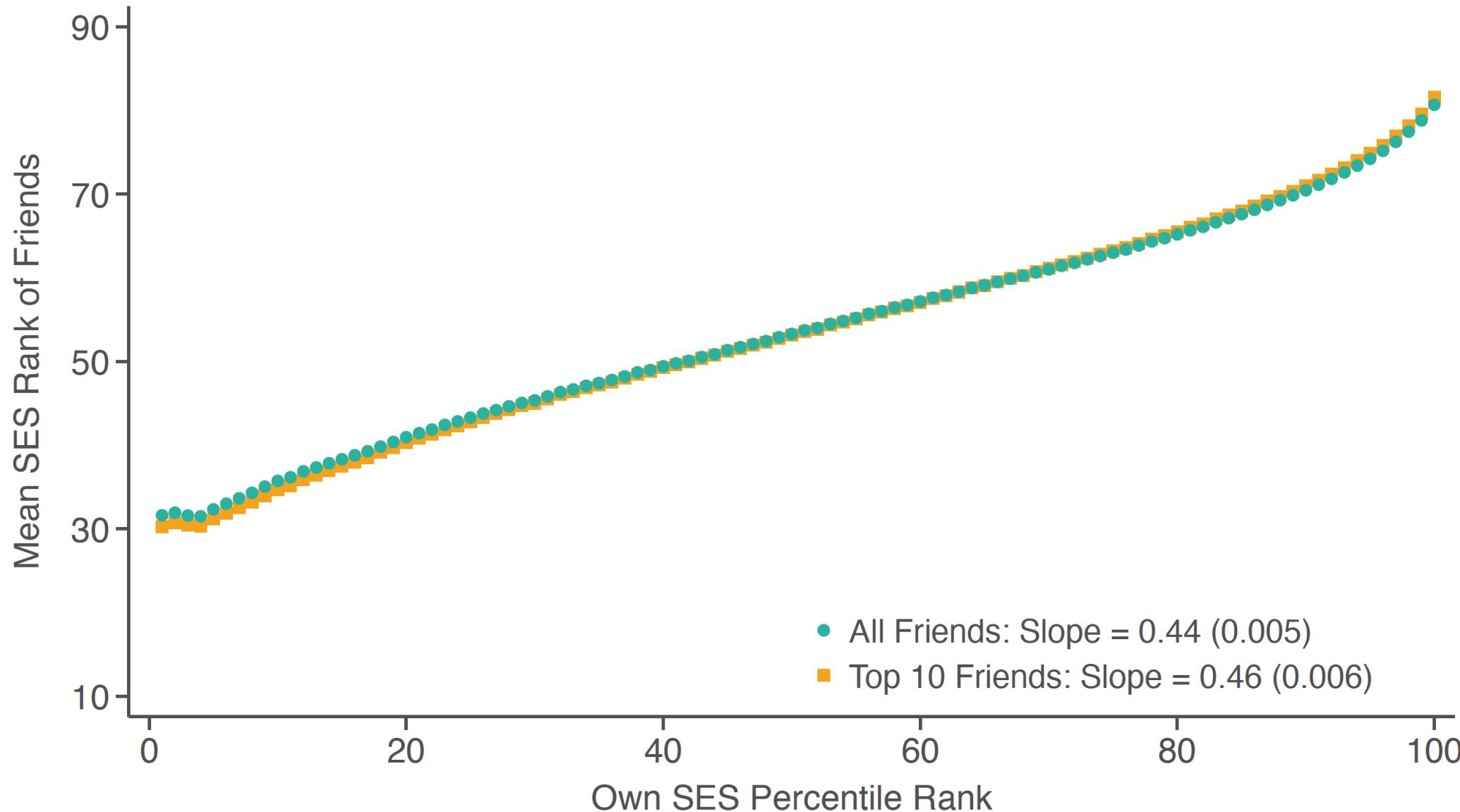


# Proportion of Friendships by SES Percentile Rank

Proportion of Friends by SES Percentile Rank for Individuals in the Upper Tail

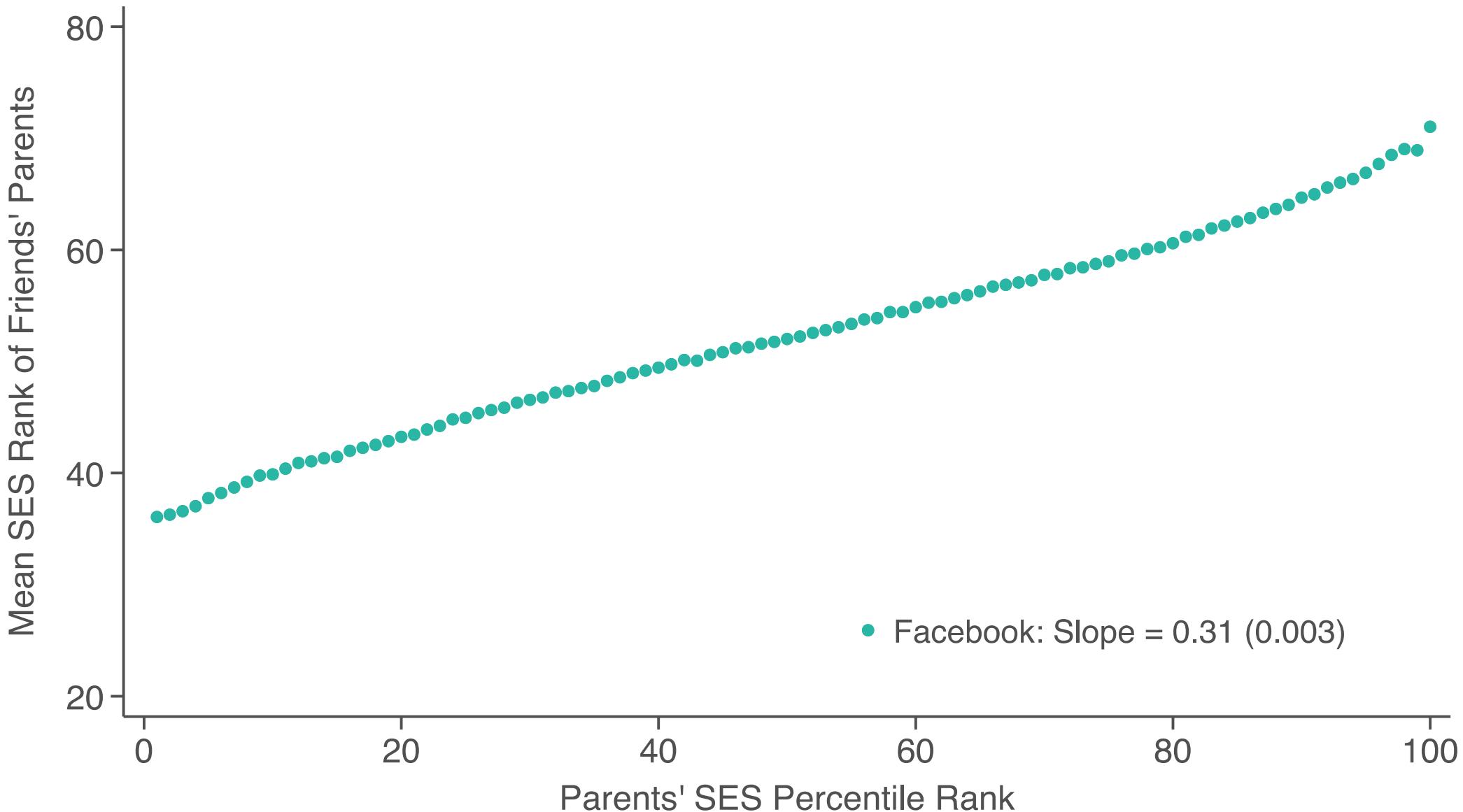


# Mean Friend SES Rank vs. Own SES Rank



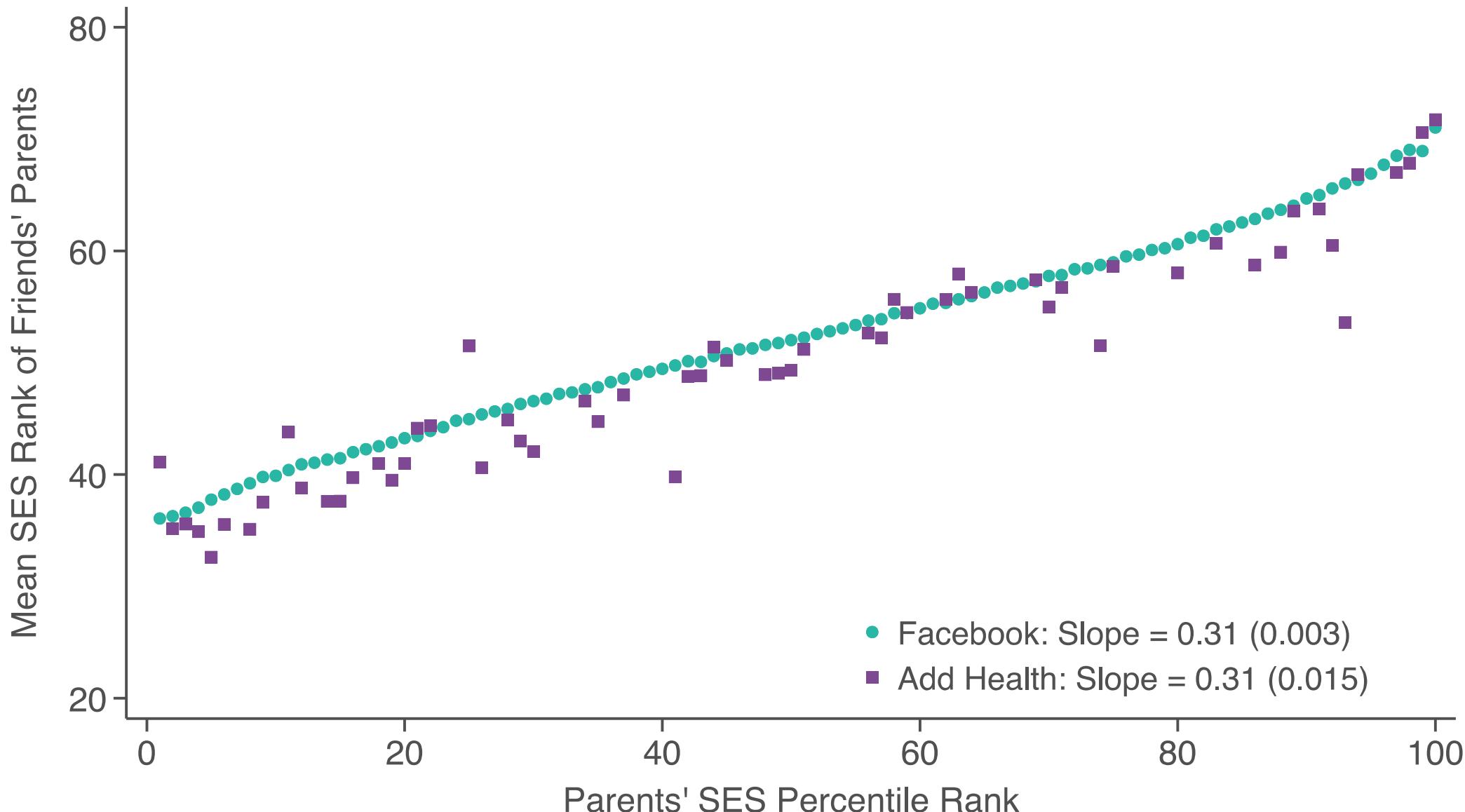
# Mean Top 5 High School Friends' Parents' Rank vs. Own Parent's Rank

Facebook Parent-Child Linked Analysis Sample

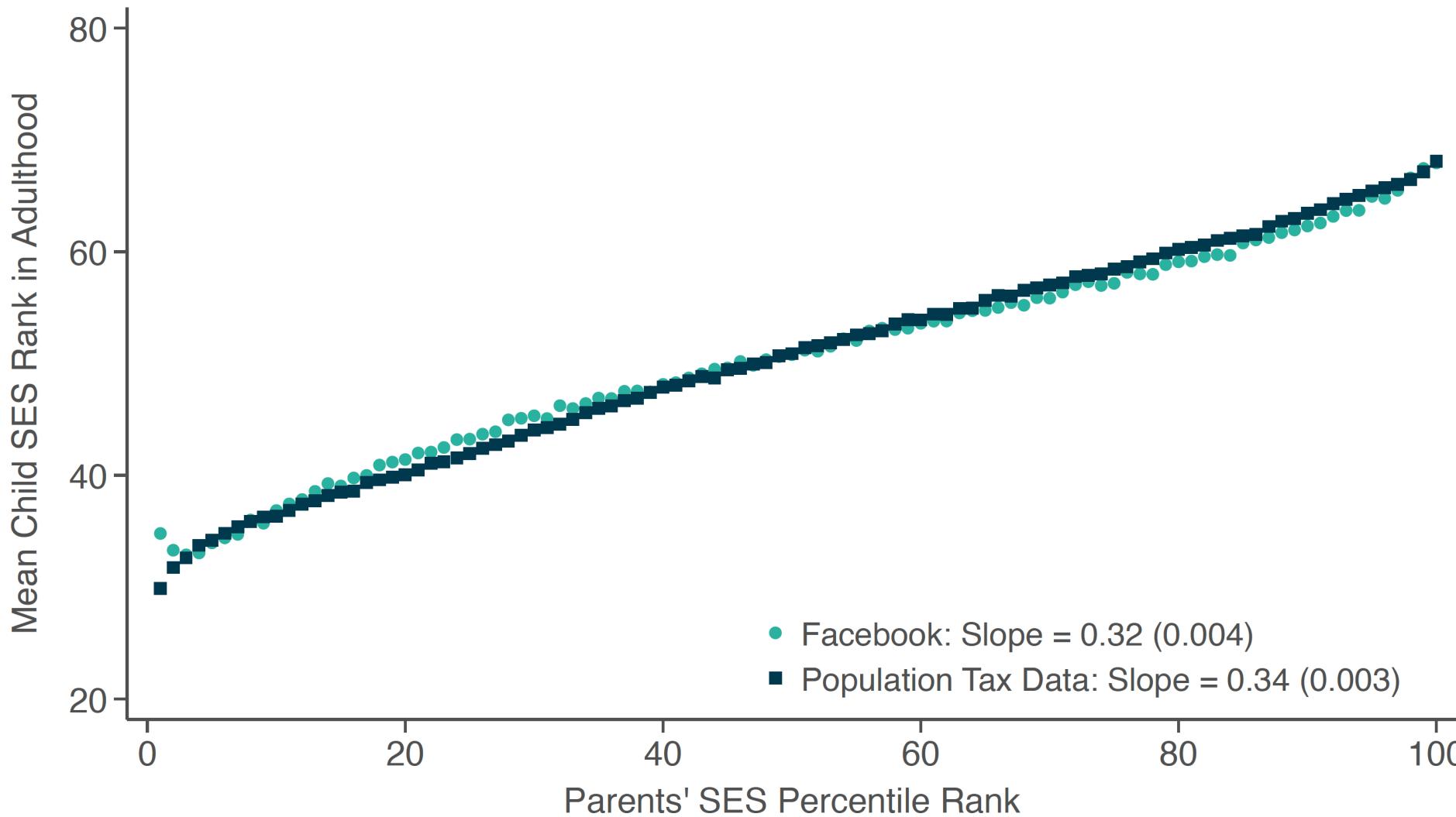


# Mean Top 5 High School Friends' Parents' Rank vs. Own Parent's Rank

Facebook Parent-Child Linked Analysis Sample vs. Add Health Data



# Intergenerational Persistence of SES in Facebook vs. Tax Data



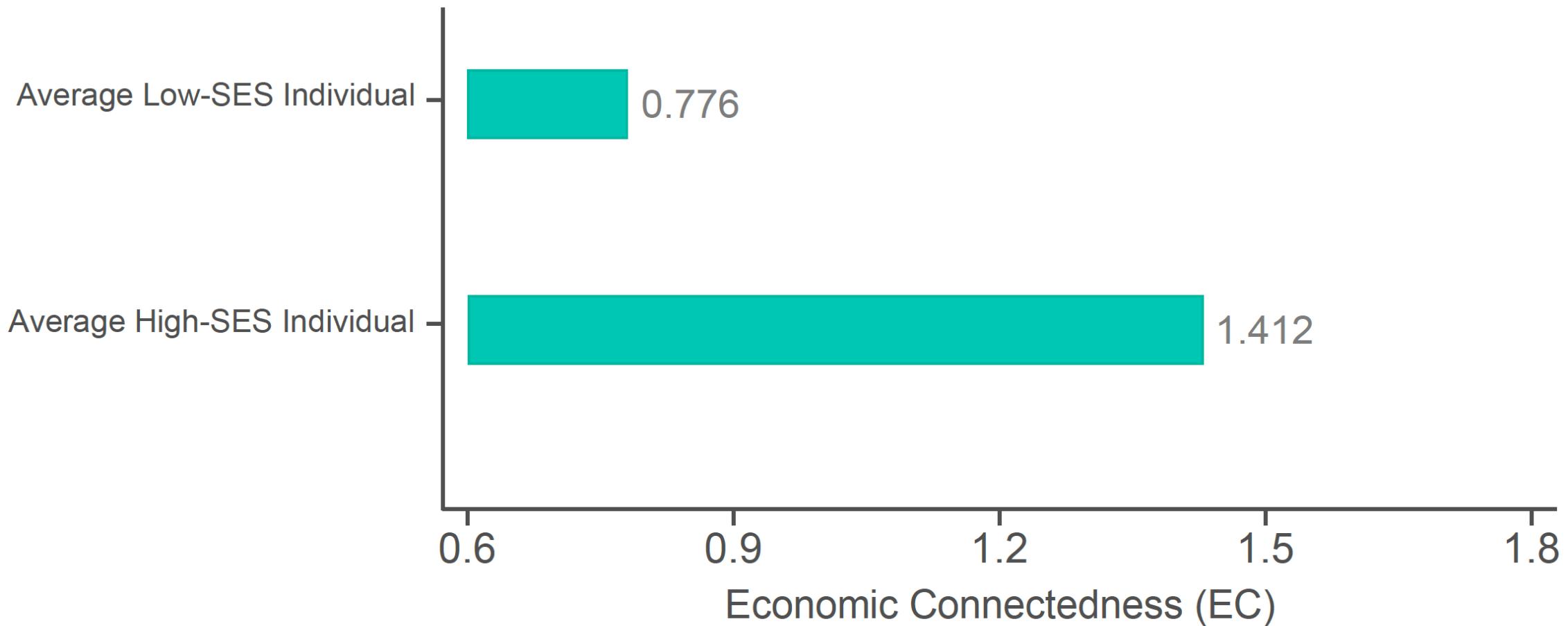
# Measuring Economic Connectedness Across Subgroups

- Overarching question: why do the poor have much fewer high-SES friends than the rich and what implications does this have for economic mobility?
- Answer these questions by disaggregating national data across subgroups
- To examine variation across groups, summarize connections between low- and high-SES people with the following statistic:

$$EC = \frac{\text{Number of friends with above median SES}}{\text{Total number of friends}} / \frac{1}{2}$$

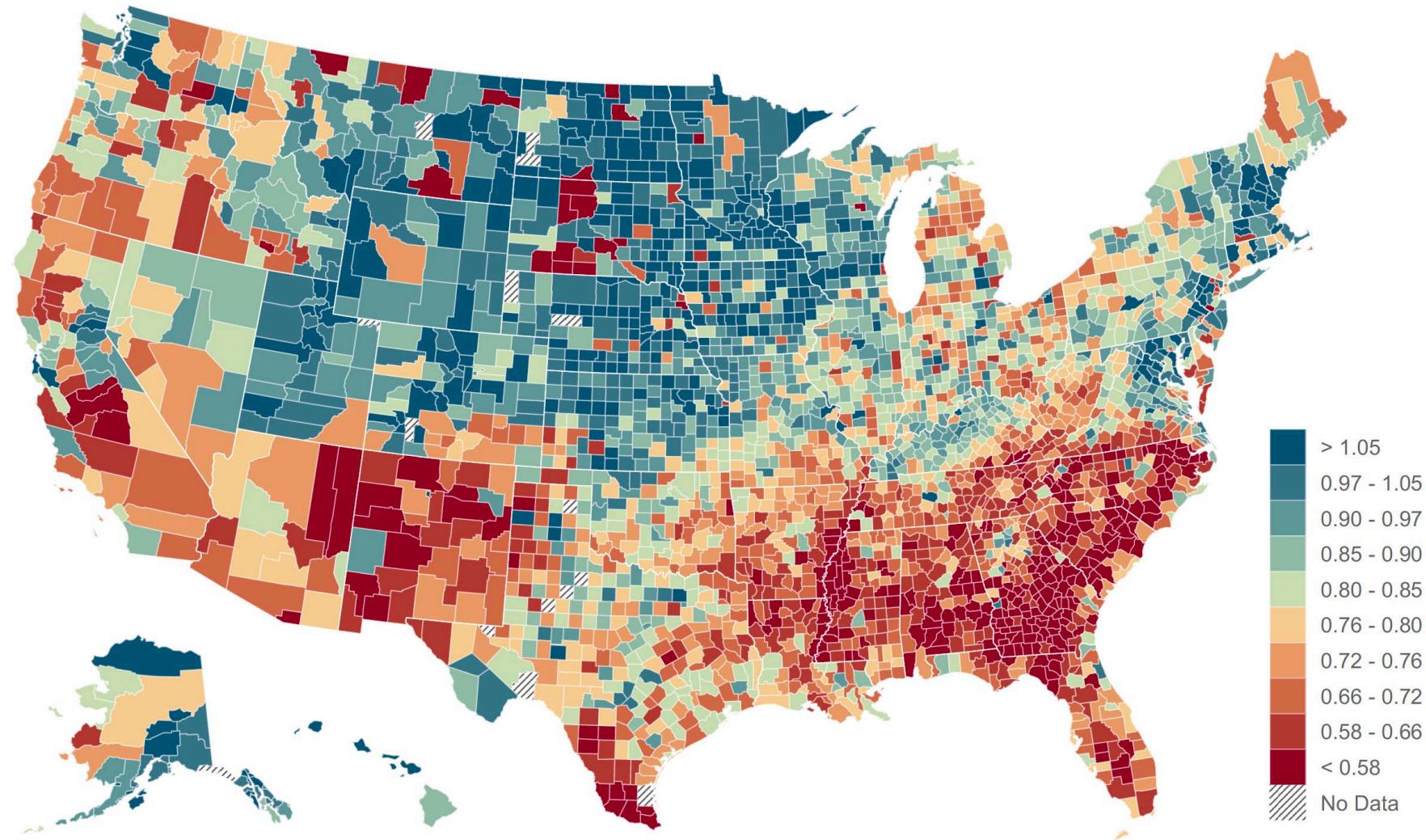
# Economic Connectedness among Low vs. High-SES Individuals

Normalized Share of Above-Median-SES Friends



# Economic Connectedness of Low-SES Individuals by County

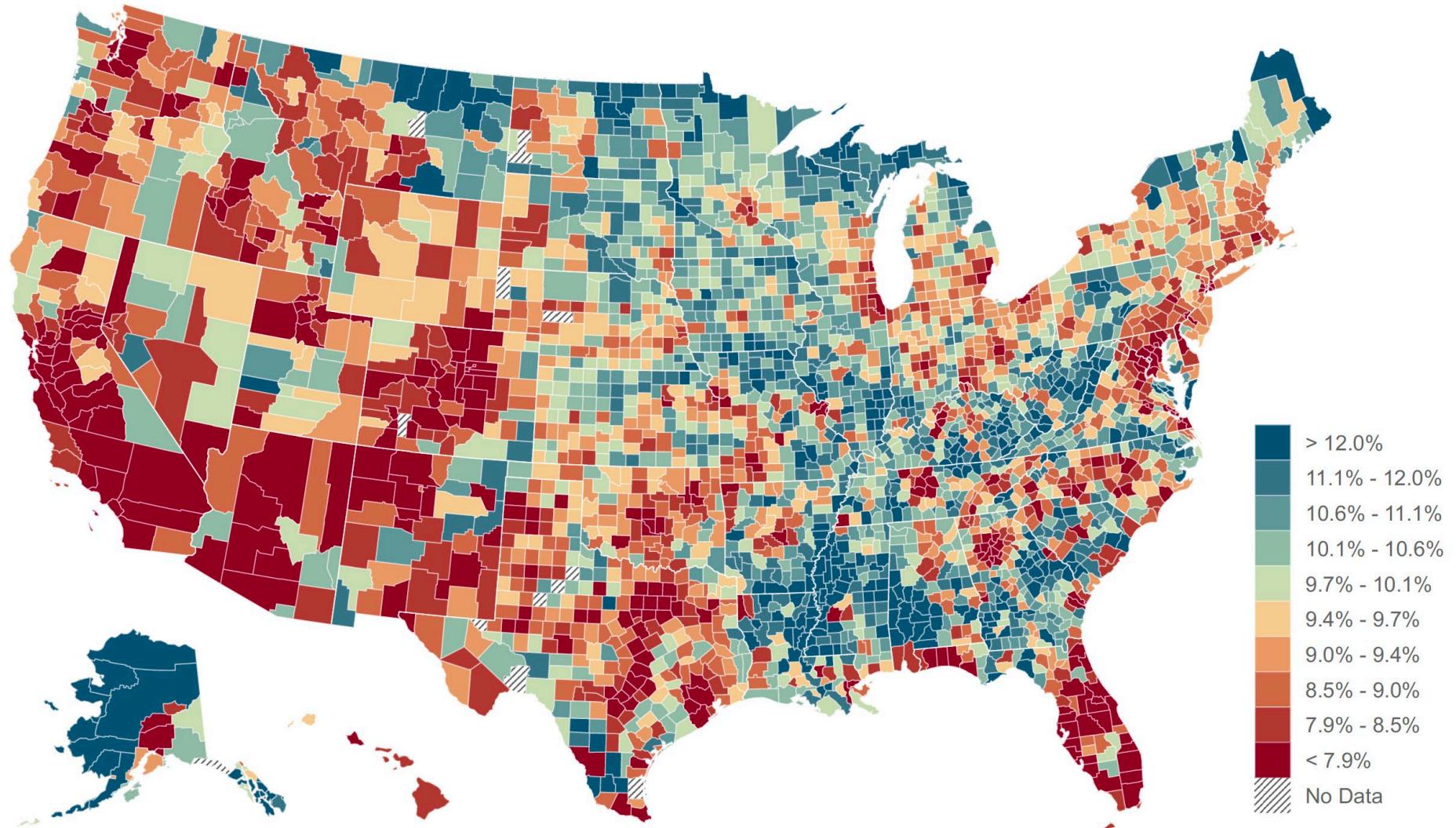
## Normalized Share of Above-Median Friends Among Below-Median People



Note: see the Social Capital Atlas ([www.socialcapital.org](http://www.socialcapital.org)) for an interactive version of this map and downloadable data

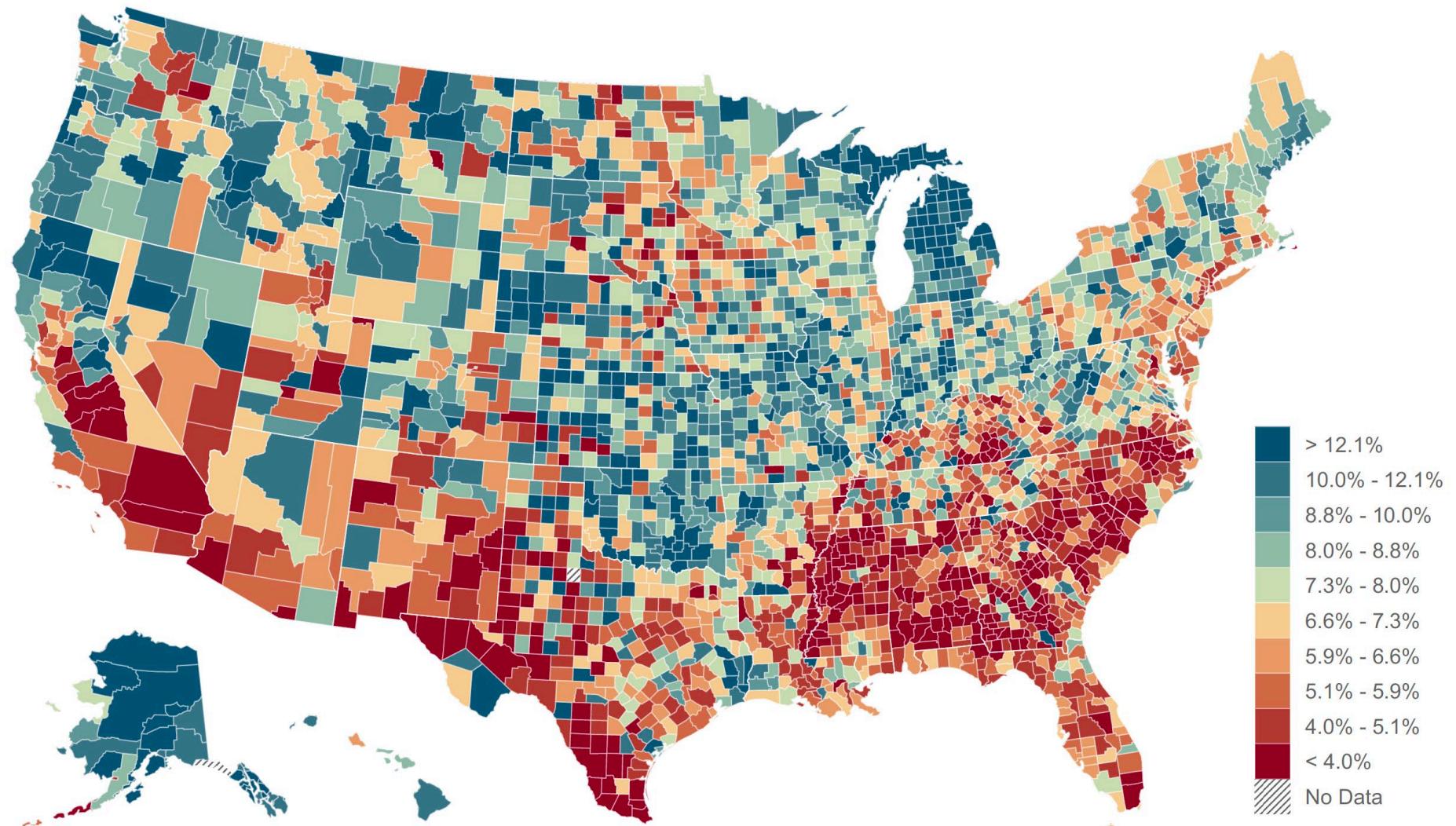
# Cohesiveness: Clustering by County

National Correlation With EC: 0.14



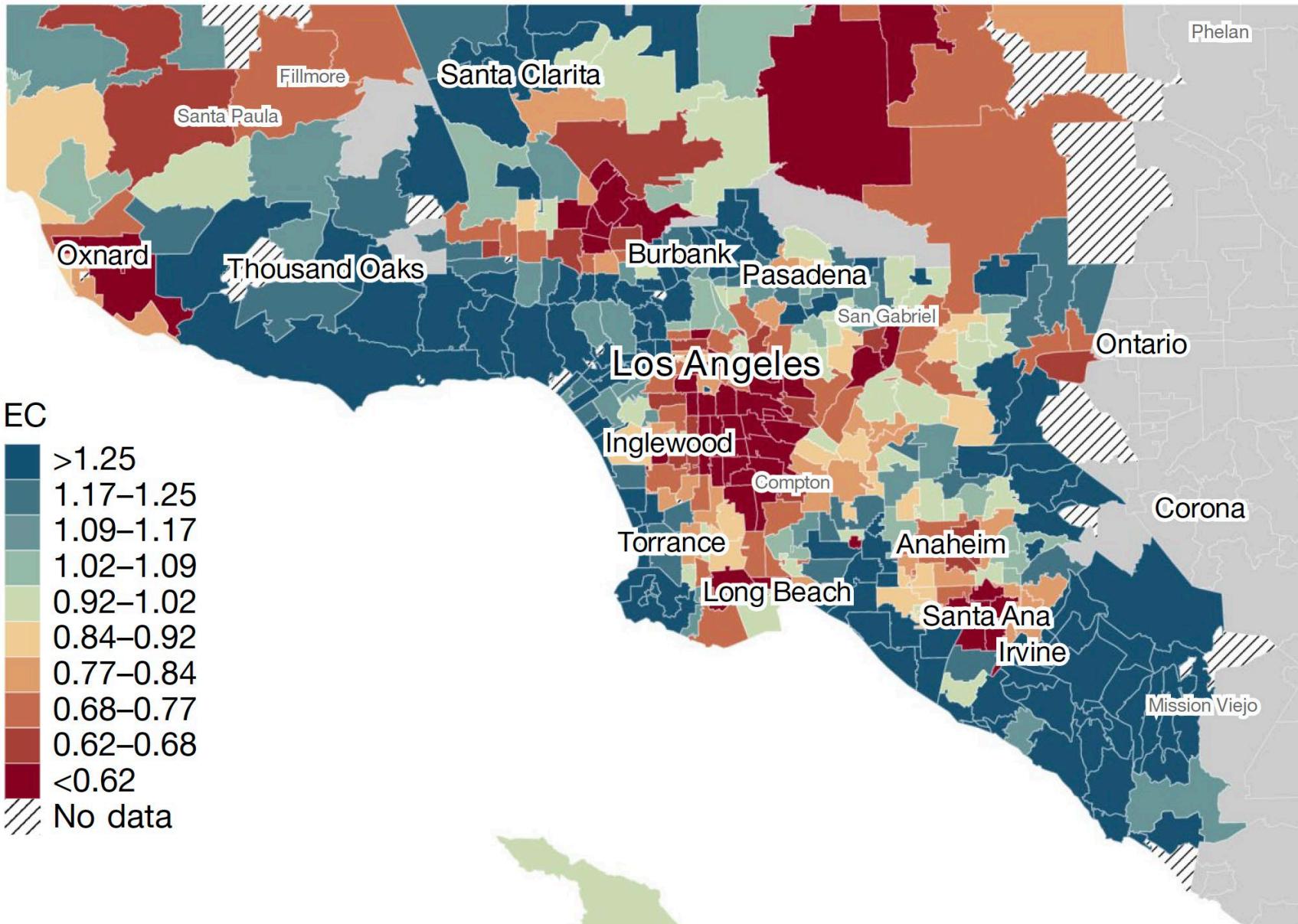
# Civic Engagement: Volunteering by County

National Correlation With EC: 0.26

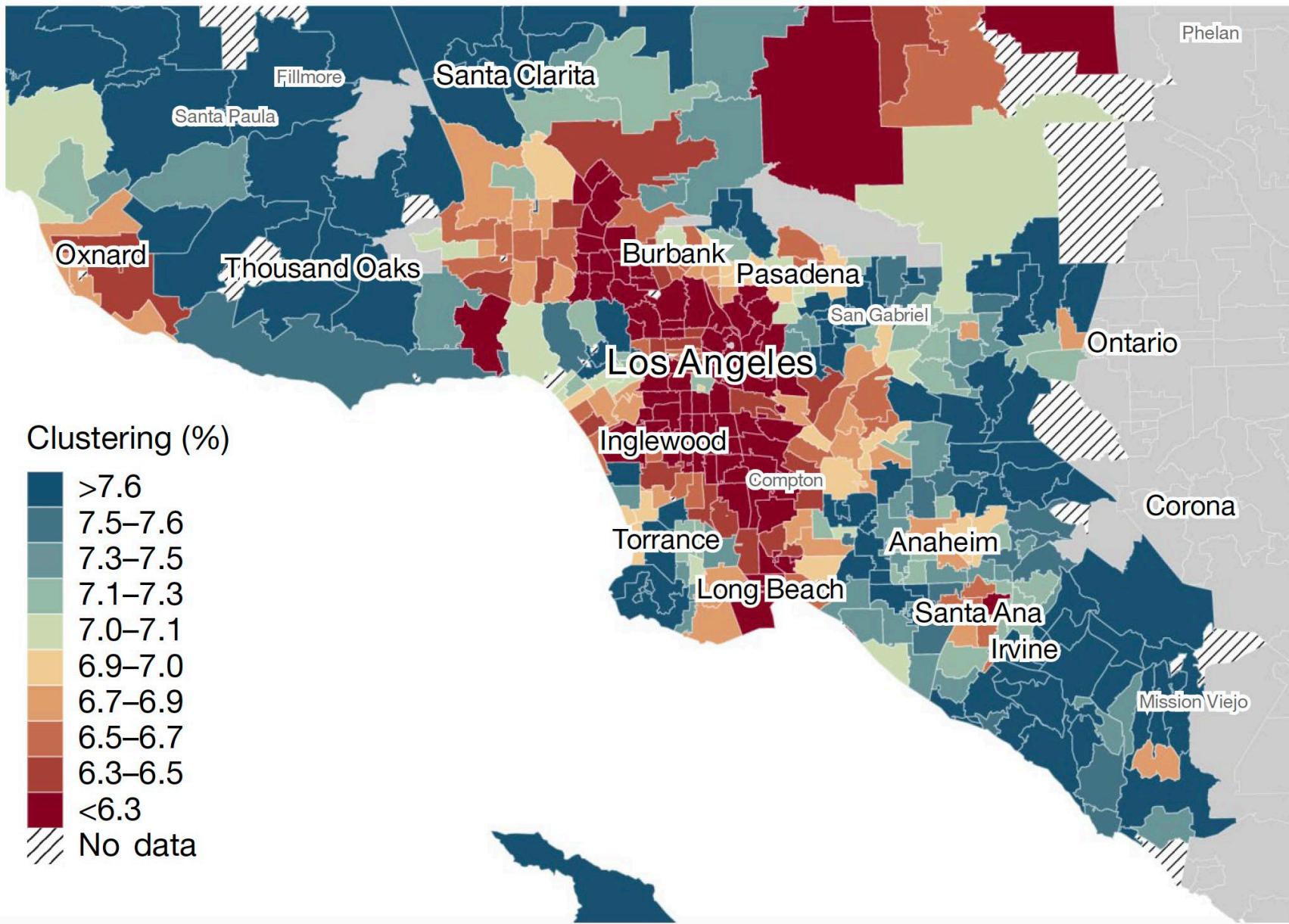


# Economic Connectedness of Low-SES Individuals by ZIP Code in LA

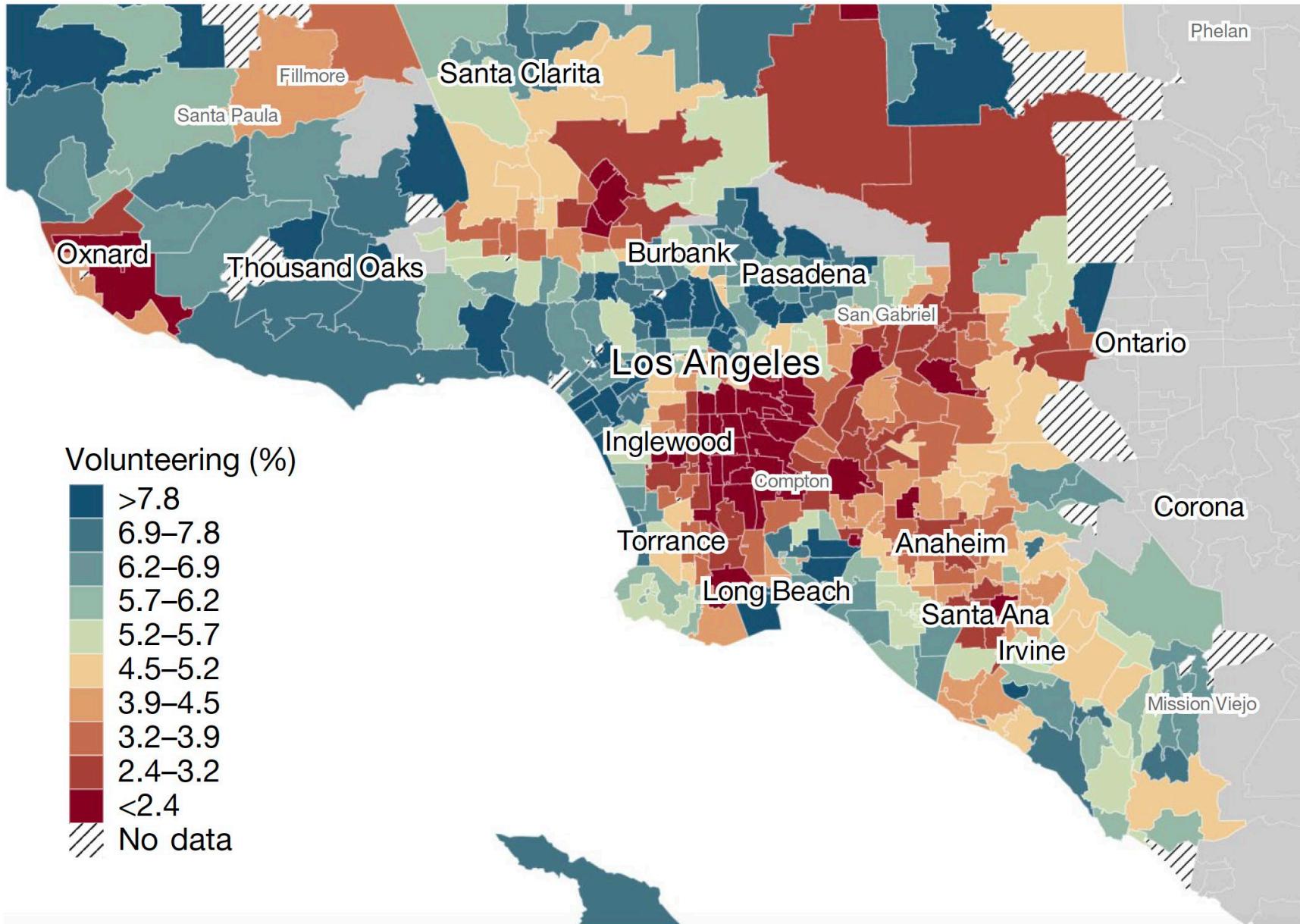
Normalized Share of Above-Median Friends Among Below-Median People



# Cohesiveness: Clustering Coefficients by ZIP Code in LA



# Civic Engagement: Volunteering Rates by ZIP Code in LA



# Correlation Matrix of County-Level Social Capital Measures

## Selected Social Capital Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Economic Connectedness (EC)	1.00								
(2) Language Connectedness	0.10	1.00							
(3) Age Connectedness	-0.45	0.17	1.00						
(4) Clustering	0.01	0.38	0.51	1.00					
(5) Support Ratio	-0.25	0.30	0.50	0.64	1.00				
(6) Spectral Homophily	-0.09	-0.37	-0.49	-0.61	-0.51	1.00			
(7) Penn State Index	0.31	0.08	-0.04	0.39	0.28	-0.25	1.00		
(8) Civic Organizations	0.27	0.16	0.05	0.37	0.23	-0.33	0.67	1.00	
(9) Volunteering Rate	0.46	0.28	-0.04	0.30	0.23	-0.35	0.44	0.46	1.00

Measurement of  
Social Capital

Association  
with Economic  
Mobility

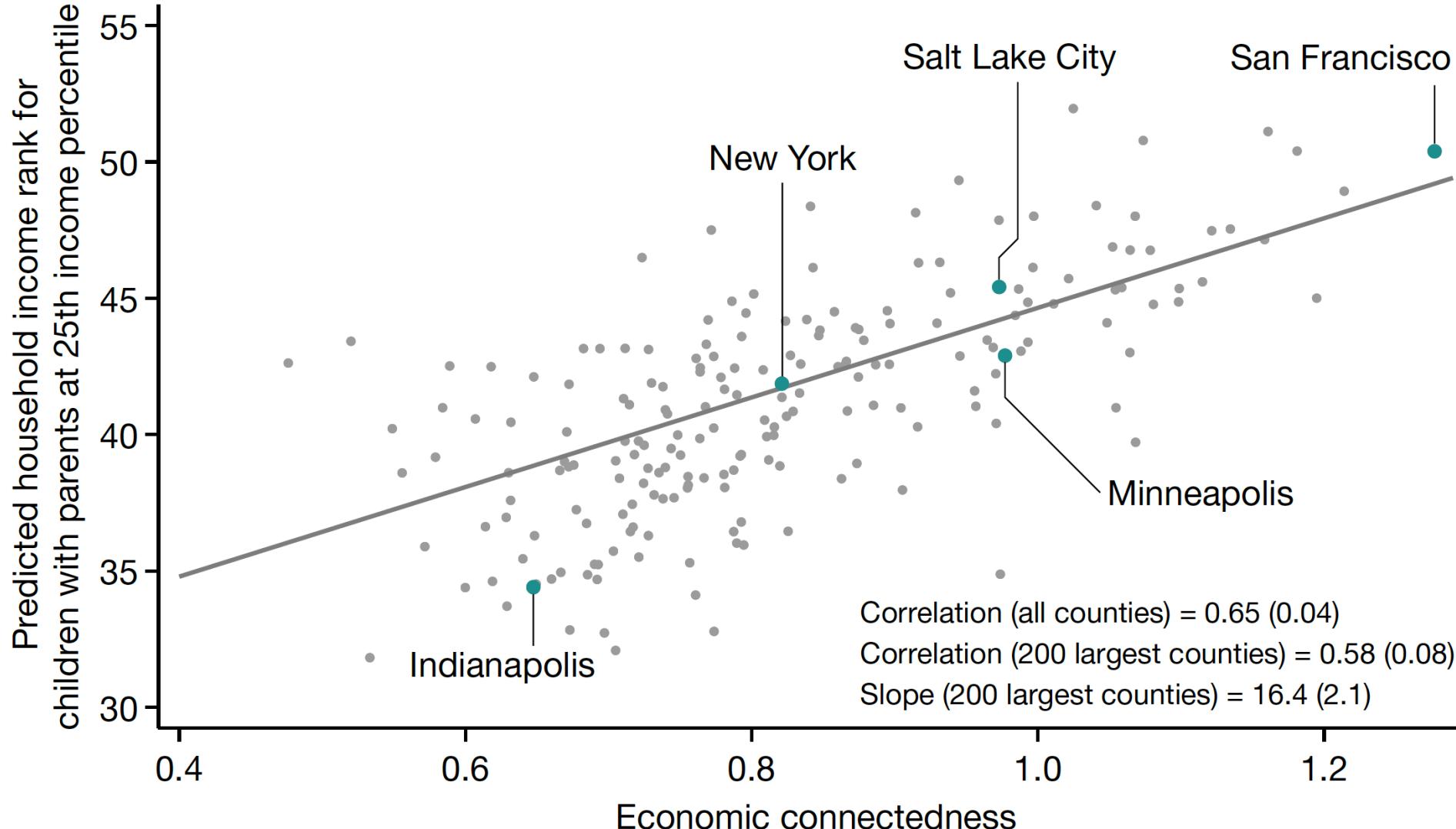
Determinants  
of Social  
Connections

Targeting  
Interventions

# Association with Economic Mobility

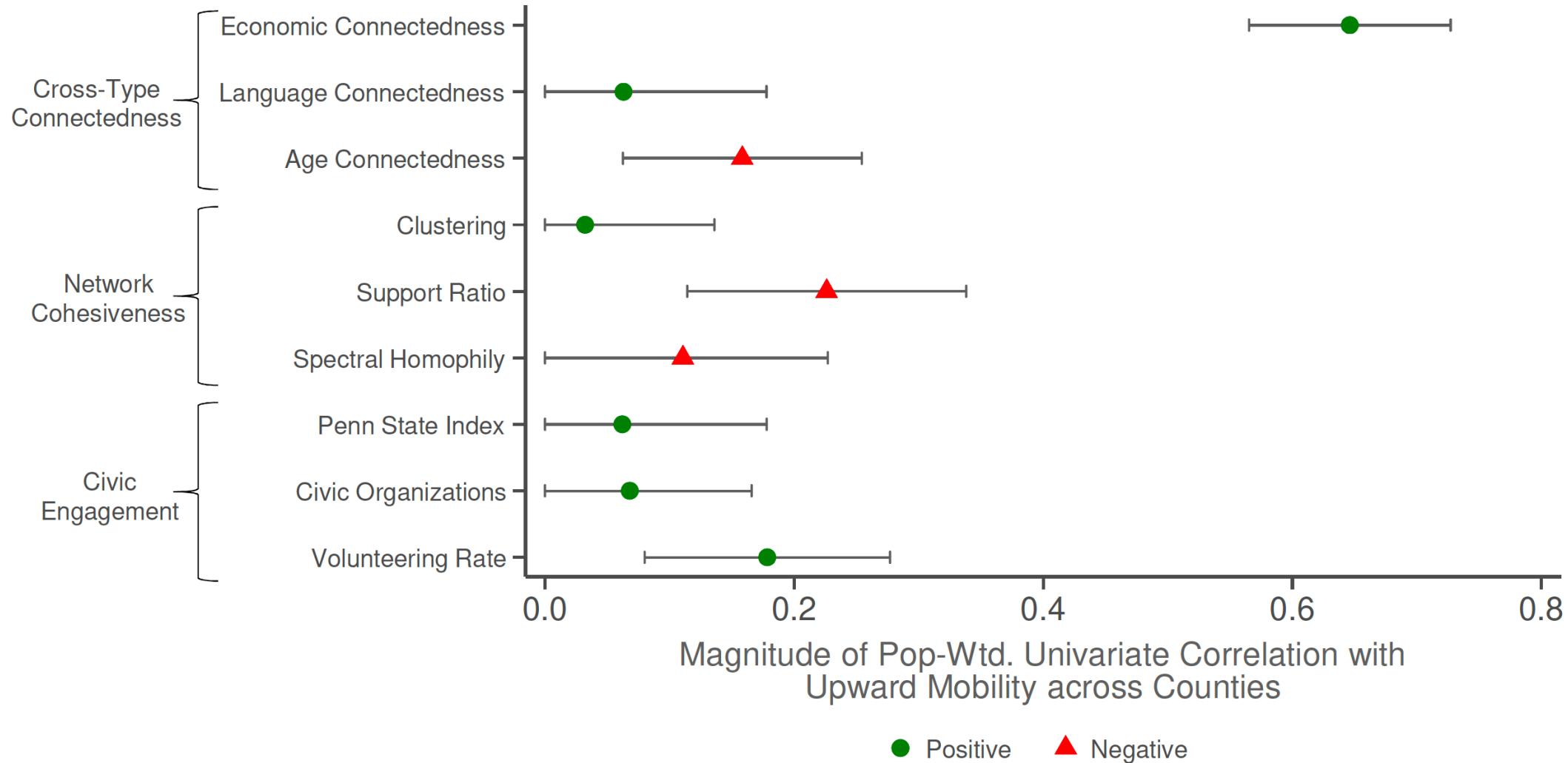
# Upward Mobility vs. Economic Connectedness, by County

200 Largest Counties



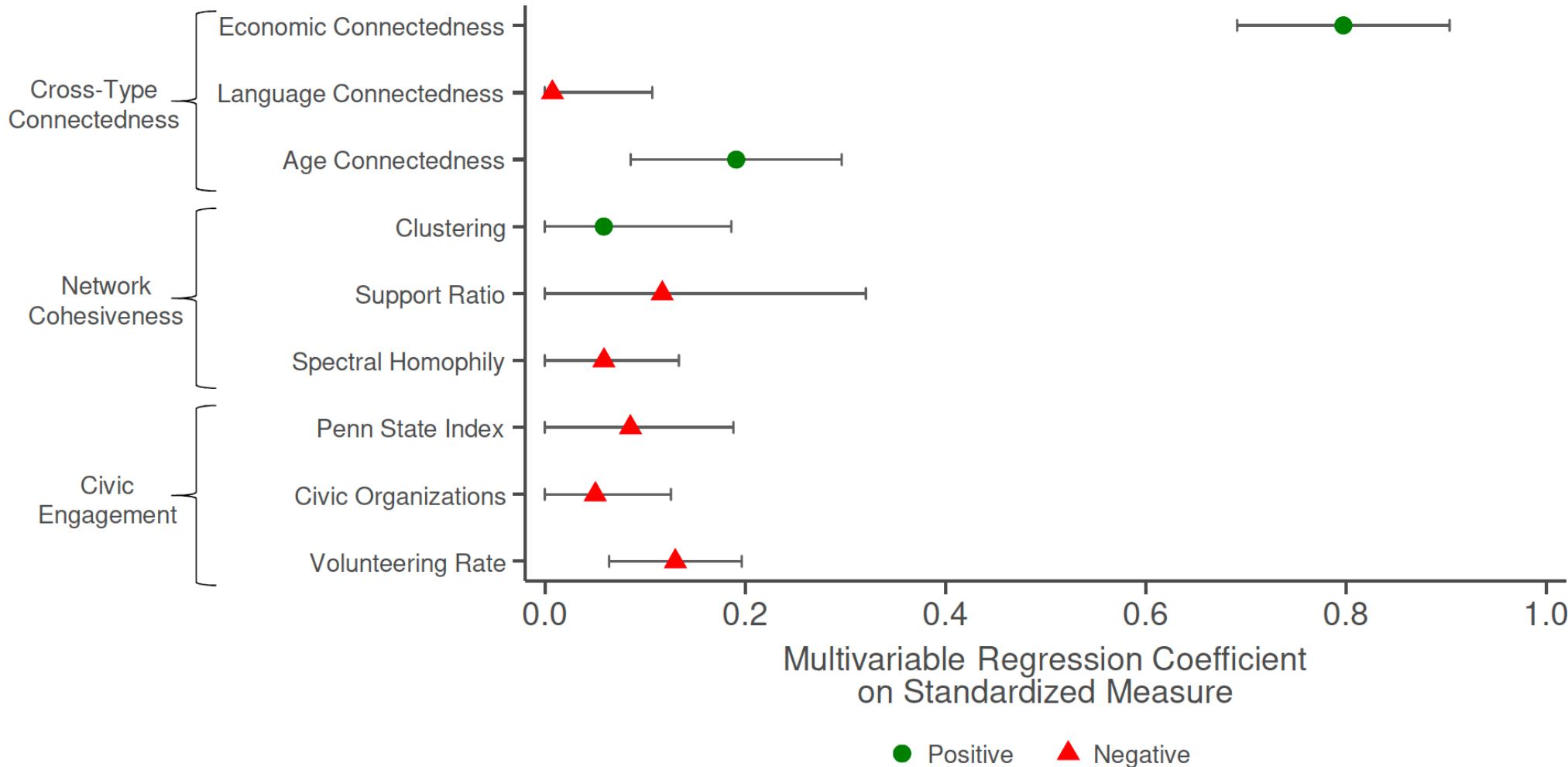
# Correlations between Upward Mobility and Measures of Social Capital

## County-level Univariate Correlations



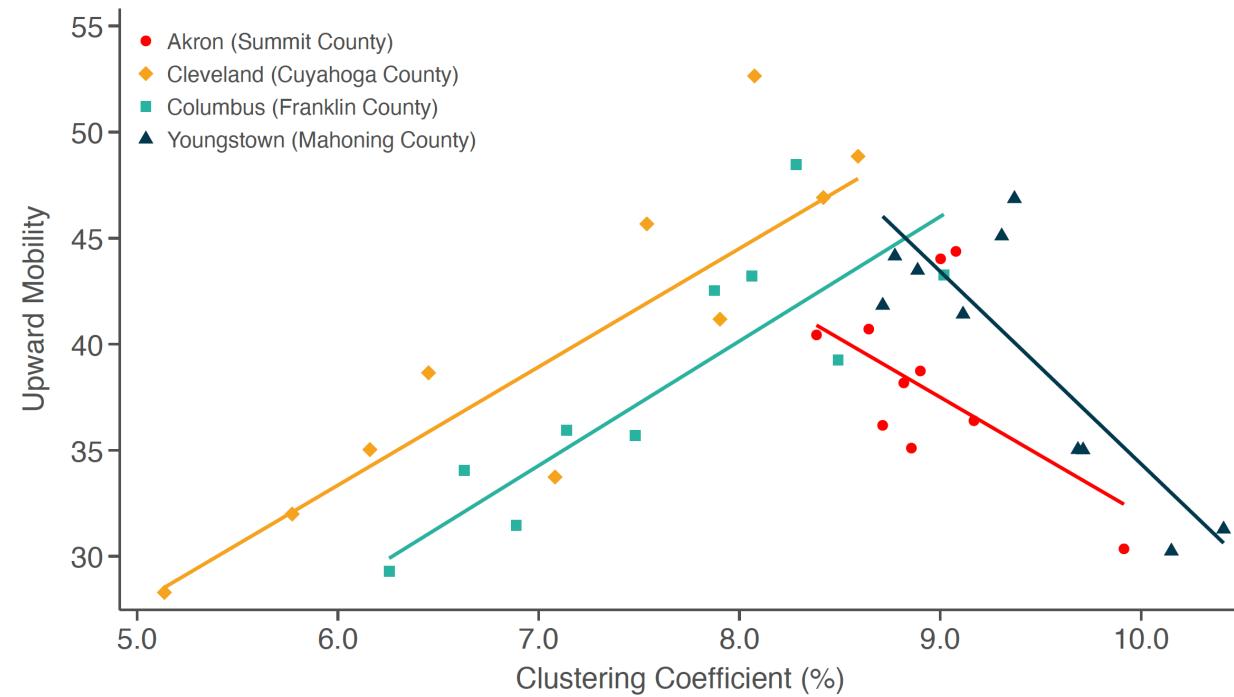
# Correlations between Upward Mobility and Measures of Social Capital

## Coefficients from County-level Multivariable Regression



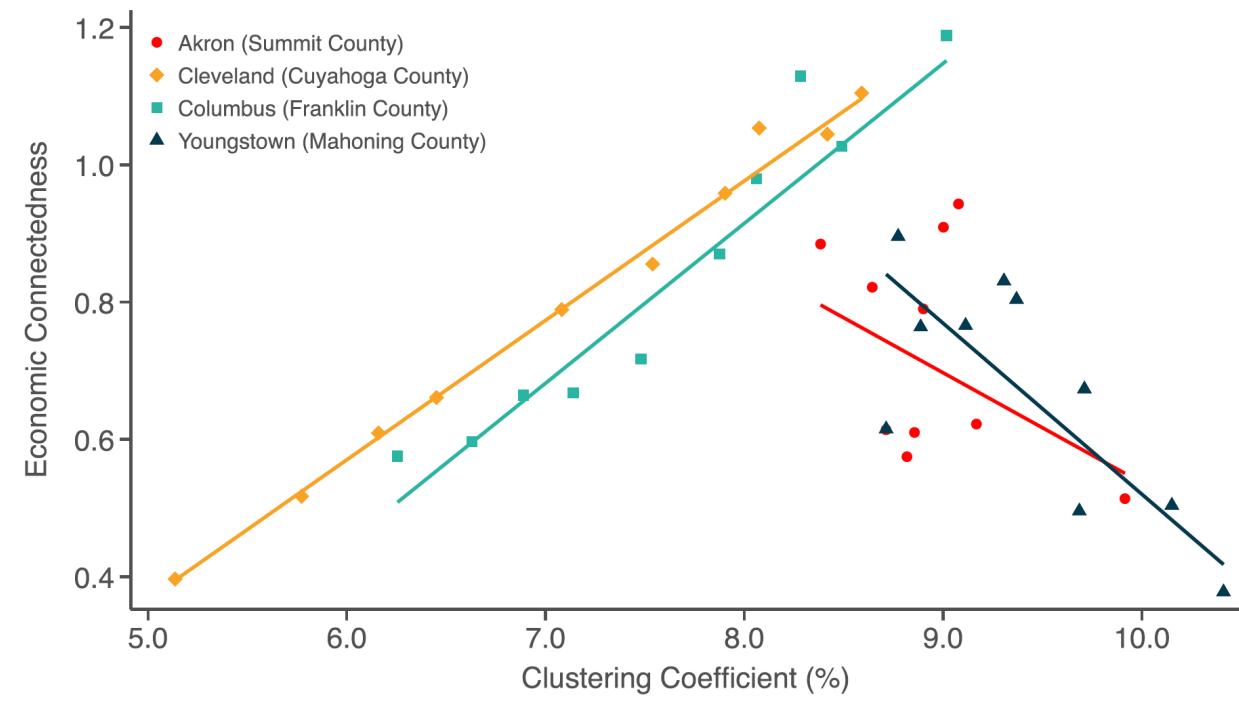
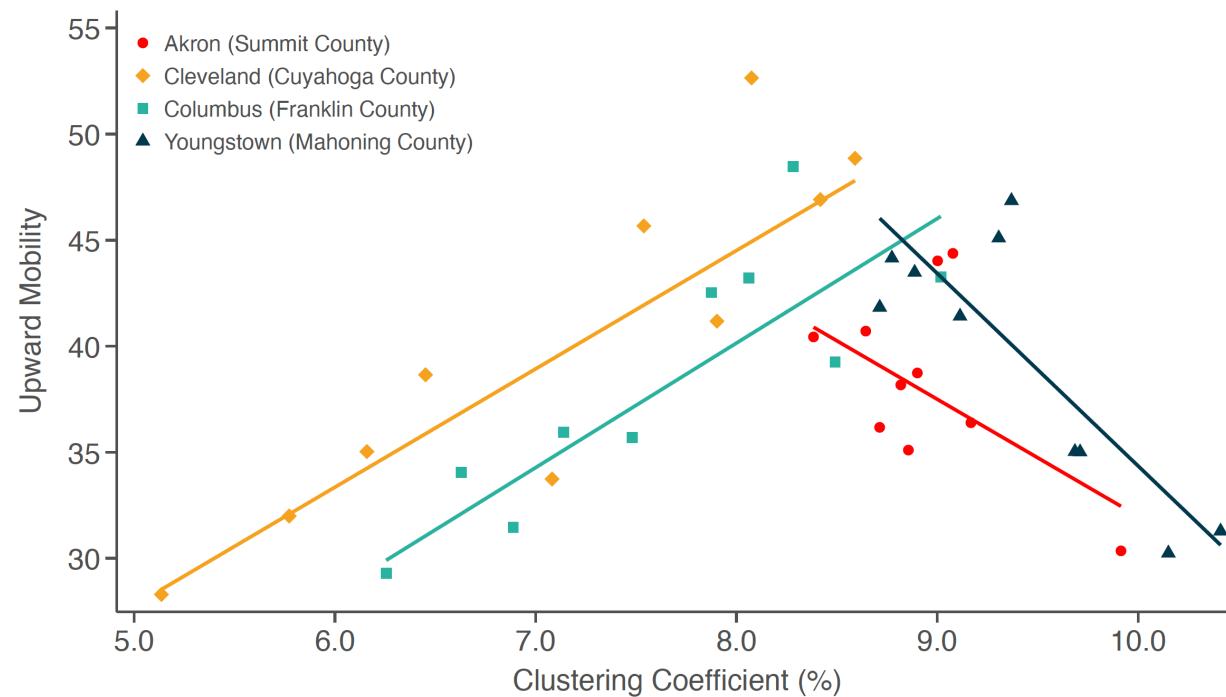
# Relationship between Clustering and Upward Mobility

ZIP-level, selected cities



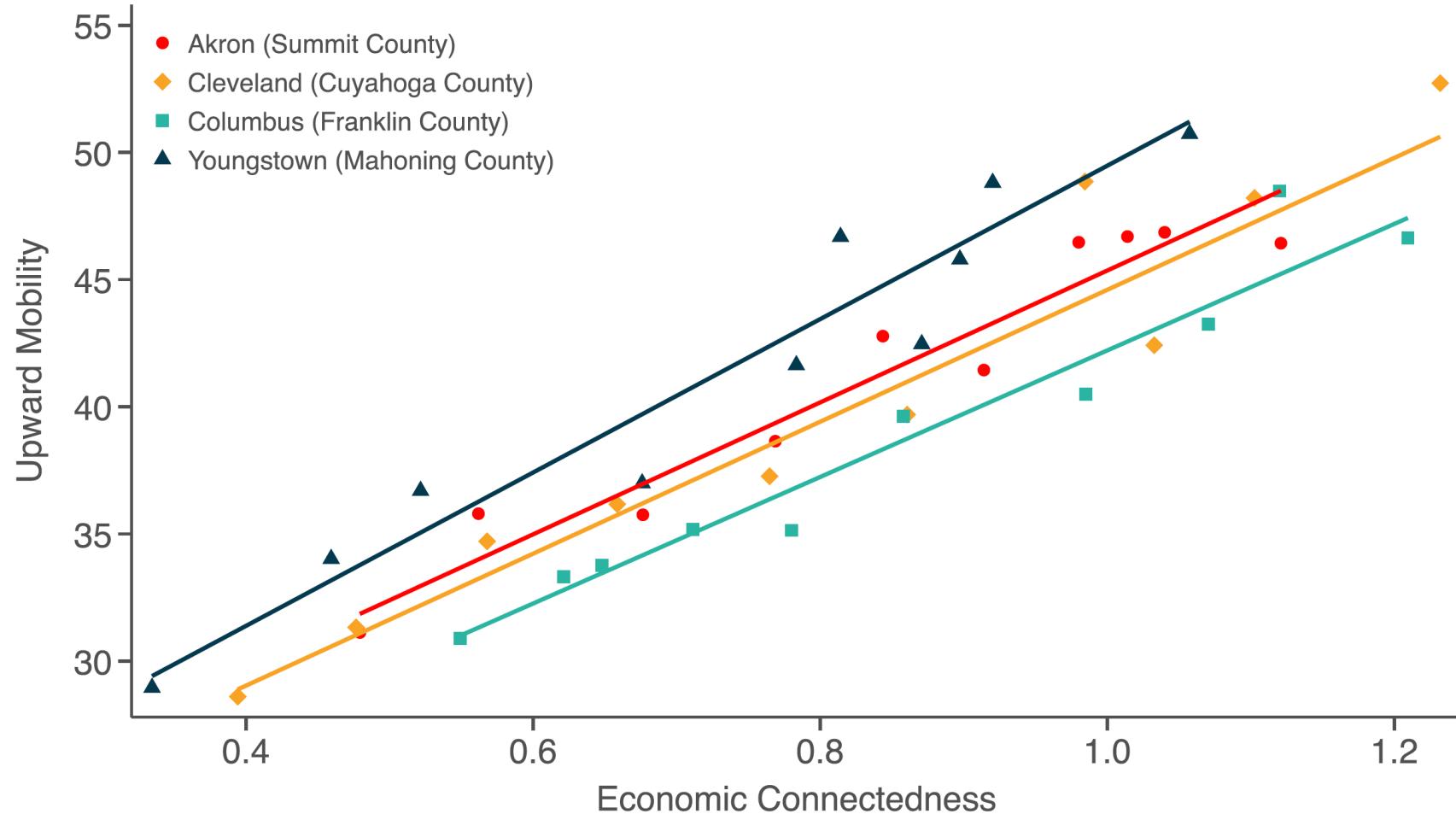
# Relationship between Clustering, Upward Mobility, and EC

ZIP-level, selected cities

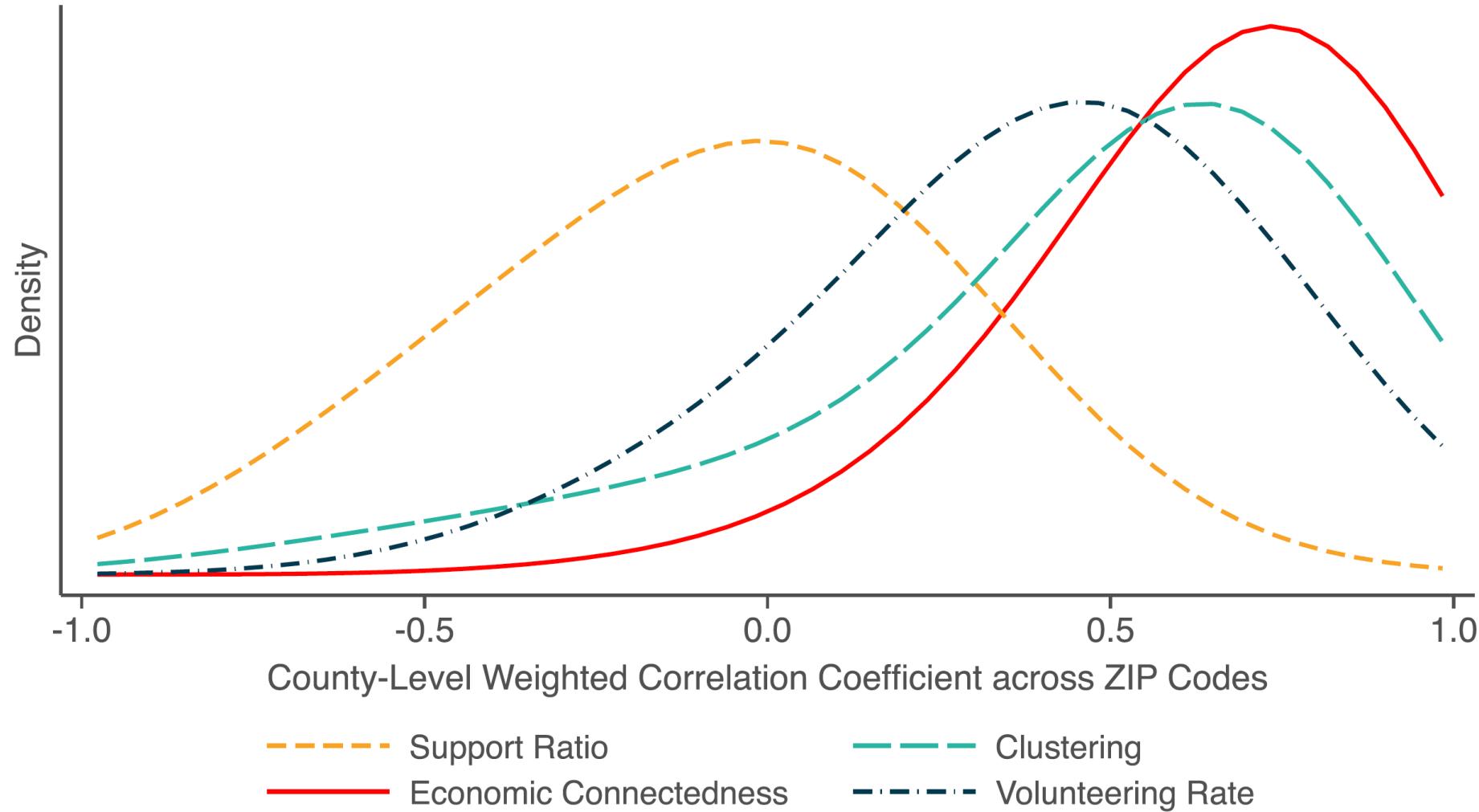


# Relationship between Upward Mobility and Economic Connectedness

ZIP-level, selected cities



# Distributions of ZIP Code-Level Correlations between Upward Mobility and Social Capital Measures across Counties



# Why is Economic Connectedness Related to Upward Mobility?

- Economic connectedness may have a causal effect on upward mobility through many mechanisms: aspirations, information, referrals
- But EC may also be correlated with mobility for three other reasons, even in the absence of a causal effect
  1. Reverse causality: mobility affects EC
  2. Selection: people who live in high EC areas differ
  3. Other neighborhood characteristics: other characteristics of high-EC neighborhoods lead to high upward mobility
- Evaluate each in turn

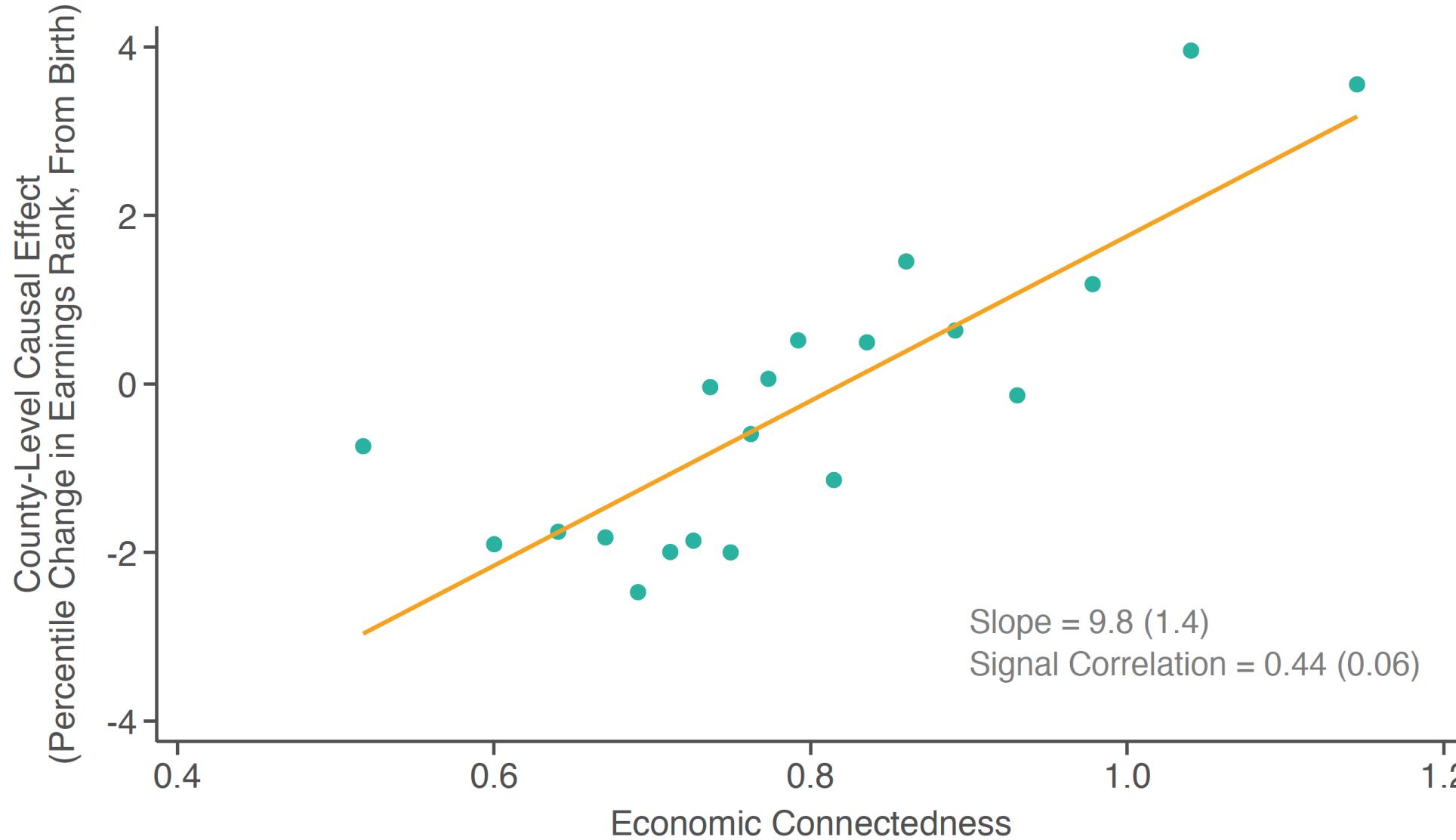
# Reverse Causality

- To assess reverse causality, examine friendships made **before** individuals enter labor market, based on **parental** SES
  - Pre-determined relative to ex-post SES, so cannot be mechanically affected by rates of upward mobility
- Two approaches to measuring childhood EC: high-school friends, parental SES of Facebook users and current day Instagram users aged 13-18
- Correlation between upward mobility and childhood EC of 0.44 using Facebook measure and 0.62 using Instagram measure

## Selection vs. Causal Effects

- To evaluate importance of selection, examine association between estimated causal effects of counties on upward mobility and EC
  - Use causal effect estimates from Chetty and Hendren (2018), identified using a quasi-experimental movers design

# Counties' Causal Effects on Upward Income Mobility vs. Economic Connectedness

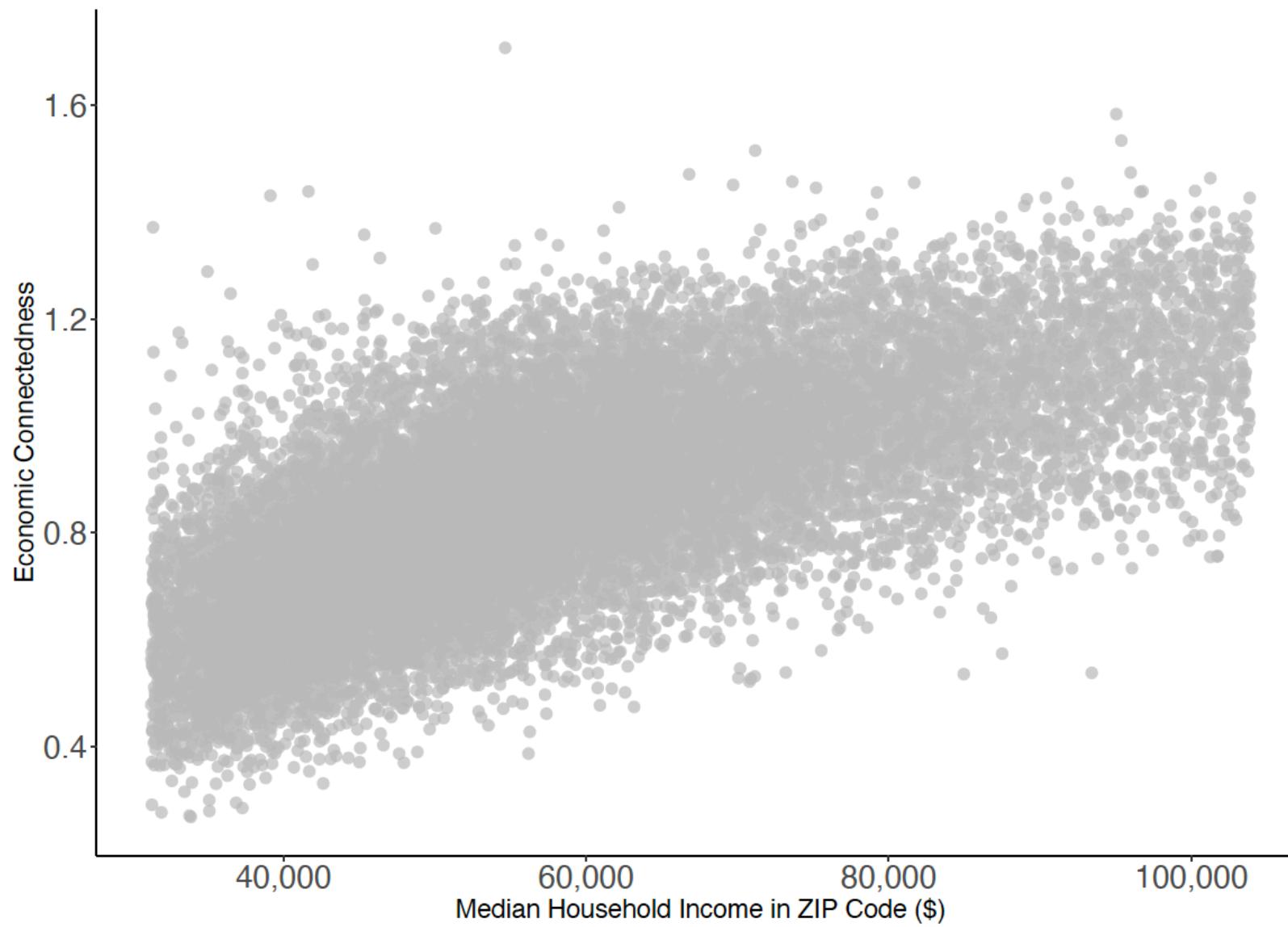


Note: causal effects on upward mobility estimated using movers design (Chetty and Hendren QJE 2018b)

# Economic Connectedness vs. Other Neighborhood Characteristics

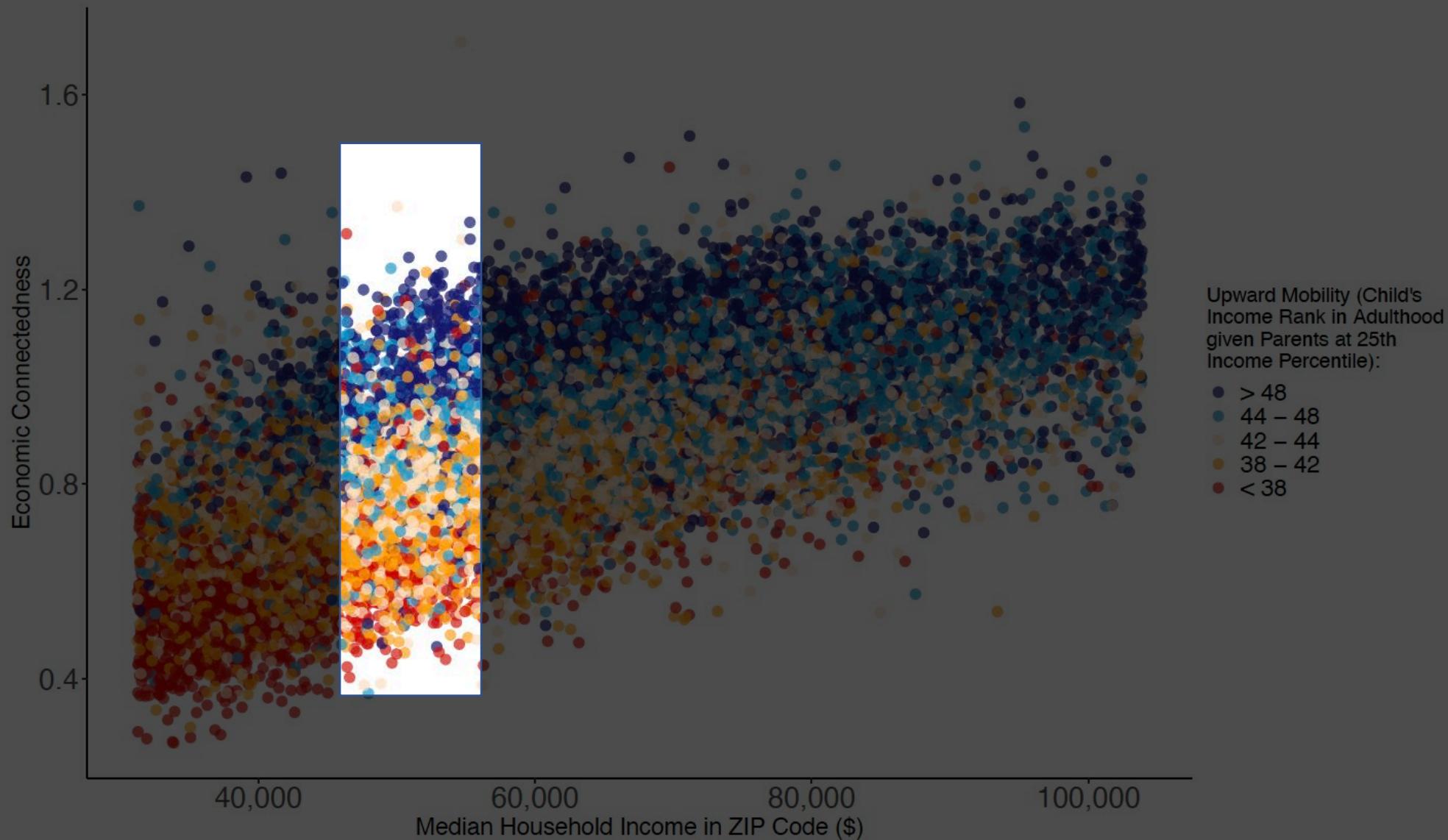
- Preceding results establish that growing up in a high-EC area for more years has a causal effect on upward mobility
- Is this because of connectedness itself or other characteristics of high-EC neighborhoods?
- Vast literature has shown how a variety of characteristics predict differences in economic mobility across areas (poverty rates, racial segregation, inequality, ...)
  - Low poverty rates are widely used as a marker of “high opportunity” neighborhoods
- Examine relative explanatory power of these other factors vs. EC, starting with neighborhood incomes

# Economic Connectedness vs. Household Median Income, by ZIP Code



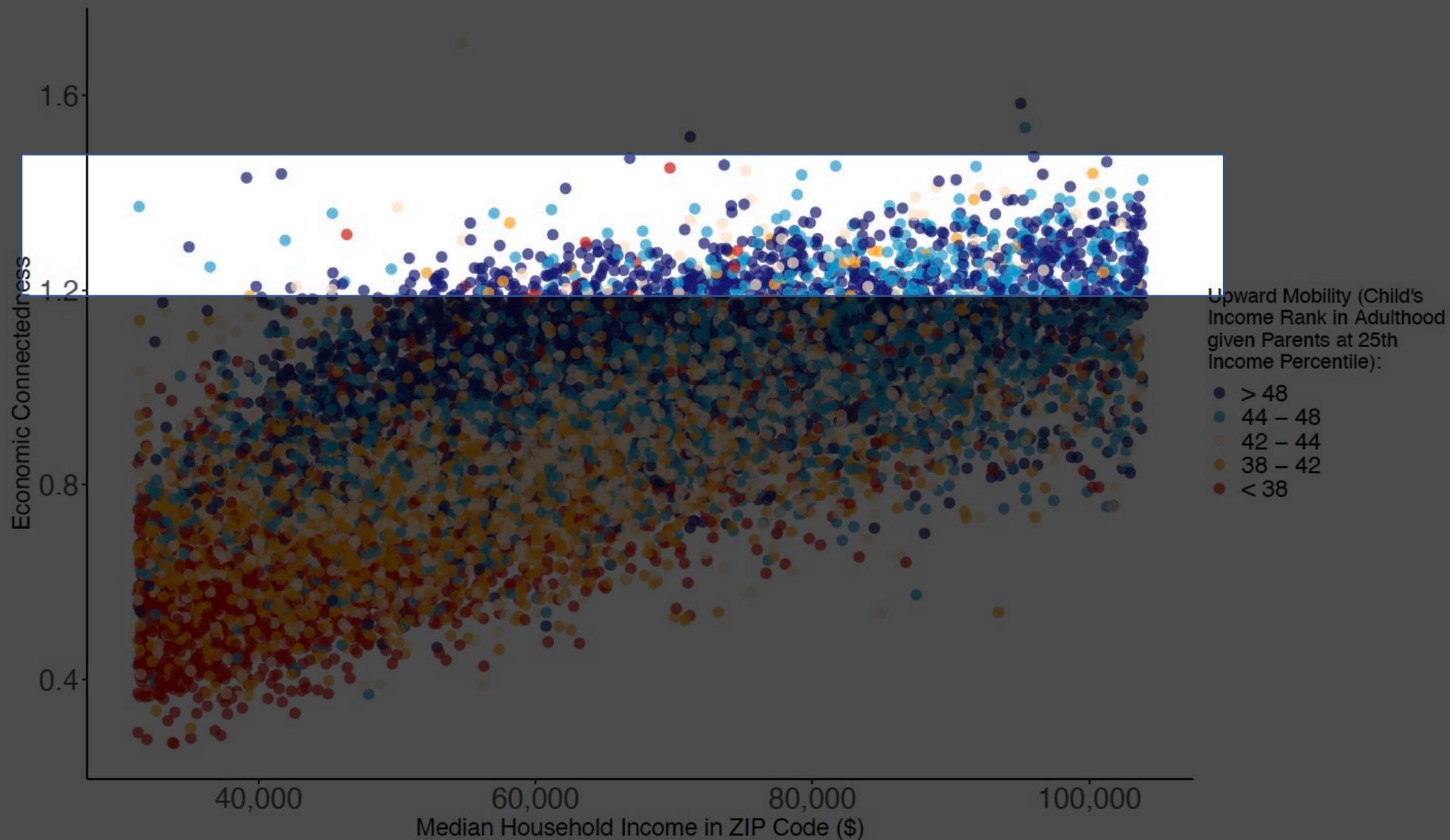
# Economic Connectedness vs. Household Median Income, by ZIP Code

Colored by Rate of Upward Mobility



# Economic Connectedness vs. Household Median Income, by ZIP Code

Colored by Rate of Upward Mobility



# Upward Mobility vs. Economic Connectedness, Inequality, and Segregation

## OLS Regression Estimates, Across Counties and ZIP codes

Dependent Variable:	Upward Mobility (Mean Income Rank at Age 35 for Children with Parents at 25th Percentile)	
	Across Counties	
	(1)	(2)
Income Inequality (Gini coefficient)	-0.449*** (-0.084)	-0.103 (-0.091)
Share Black		
Economic Connectedness		0.577*** (0.063)
Observations	2,741	2,741
R-squared	0.207	0.424

Connectedness explains the link between inequality and mobility  
(Great Gatsby Curve) [Corak 2013, Krueger 2016]

# Upward Mobility vs. Economic Connectedness, Inequality, and Segregation

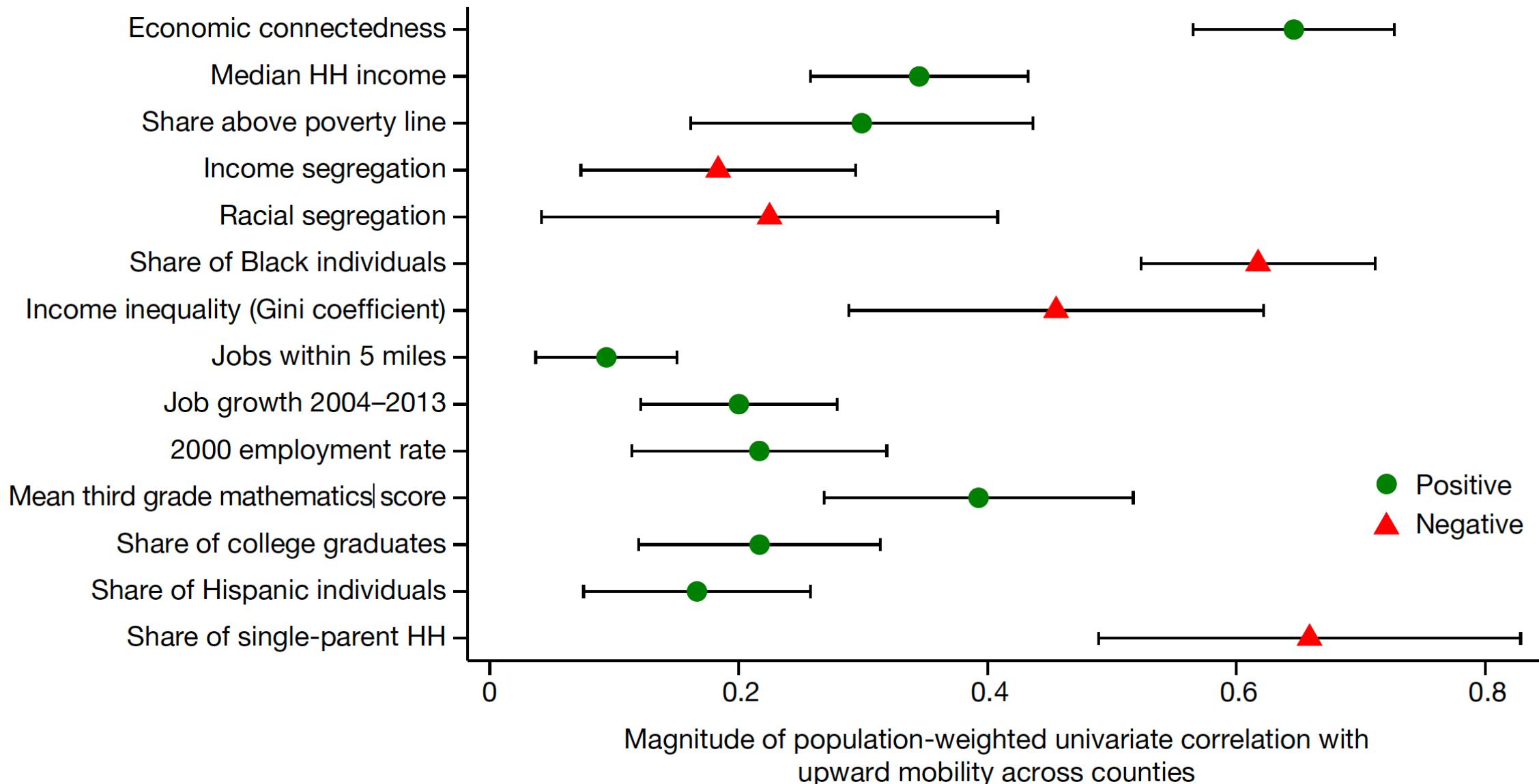
## OLS Regression Estimates, Across Counties and ZIP codes

Dependent Variable:	Upward Mobility (Mean Income Rank at Age 35 for Children with Parents at 25th Percentile)		Upward Mobility for Black Individuals		Upward Mobility for White Individuals	
	Across Counties		Across ZIP Codes			
	(1)	(2)	(3)	(4)	(5)	(6)
Income Inequality (Gini coefficient)	-0.449*** (-0.084)	-0.103 (-0.091)				
Share Black			-0.204*** (0.057)	-0.014 (0.071)	-0.250*** (0.018)	0.035* (0.018)
Economic Connectedness		0.577*** (0.063)		0.468*** (0.083)		0.631*** (0.027)
Observations	2,741	2,741	11,147	11,147	24,020	24,020
R-squared	0.207	0.424	0.042	0.224	0.063	0.380

Connectedness explains why racially segregated areas have lower mobility [Cutler Glaeser 1997]

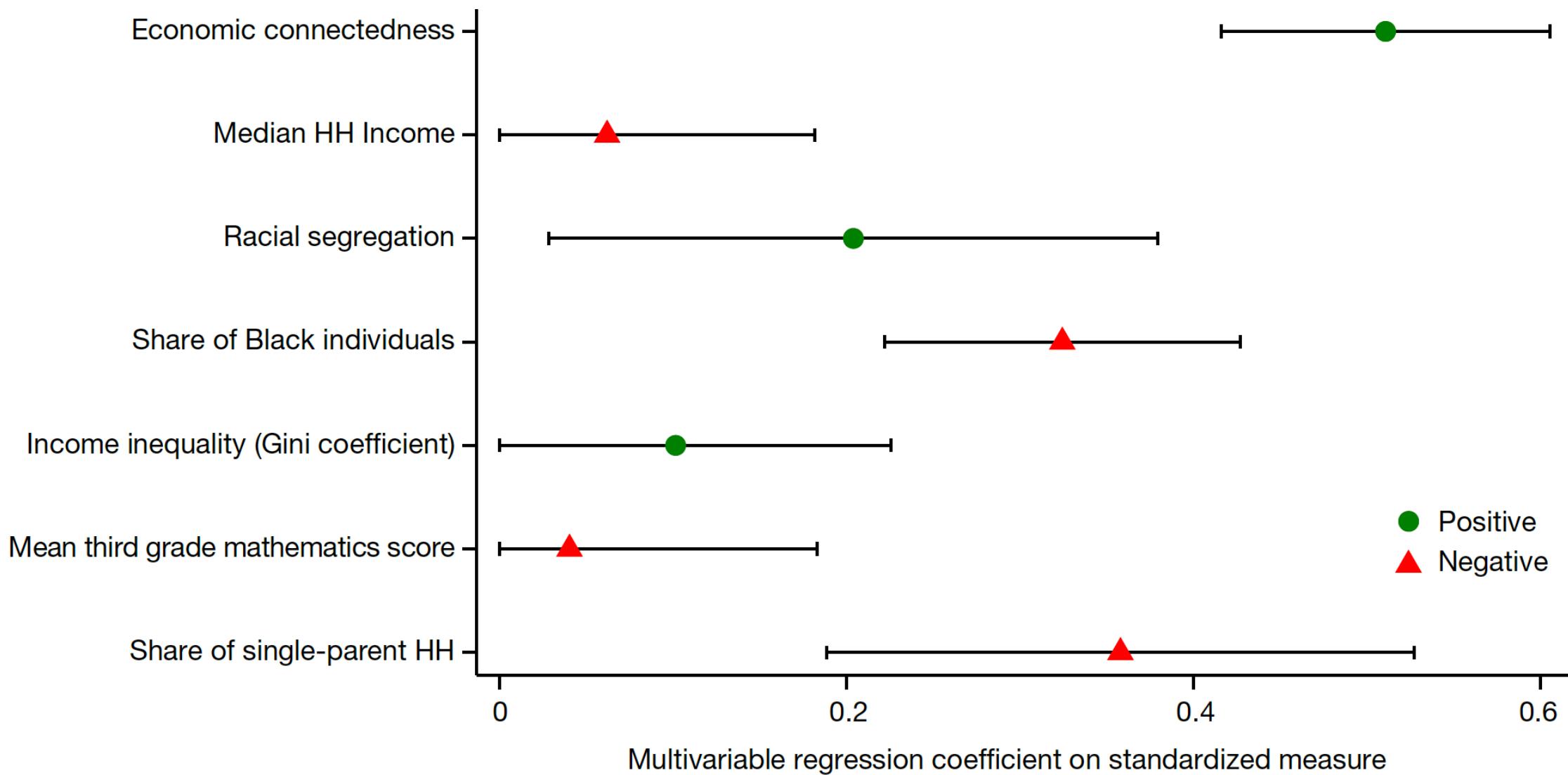
# Correlations between Upward Mobility and Neighborhood Characteristics

## County-level Univariate Correlations



# Correlations between Upward Mobility and Neighborhood Characteristics

## County-level Multivariable Regression Coefficients

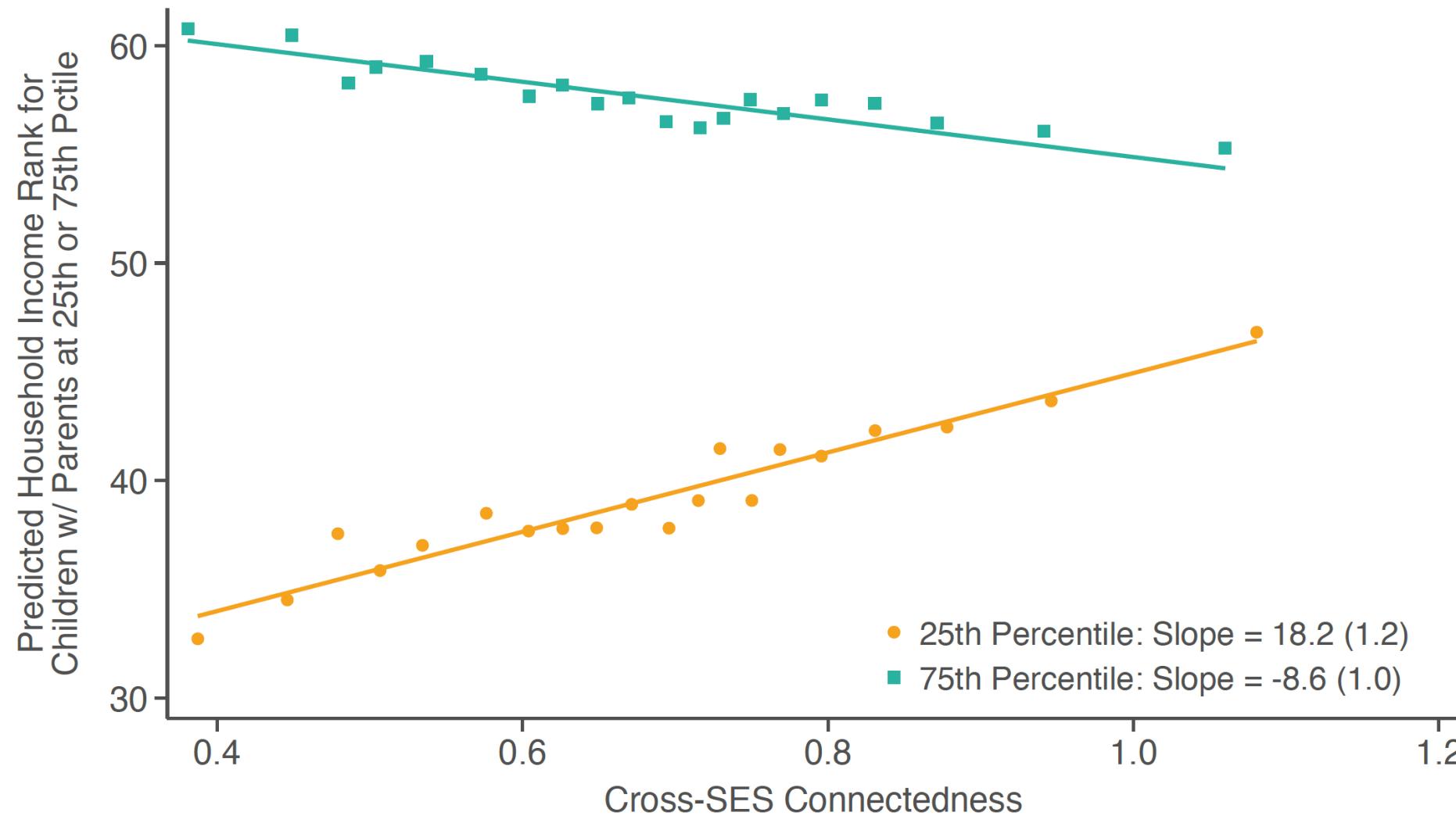


## Connectedness and Outcomes for High-SES Families

- Greater economic connectedness is strongly associated with better outcomes for the poor, but does this come at the expense of outcomes for the rich?

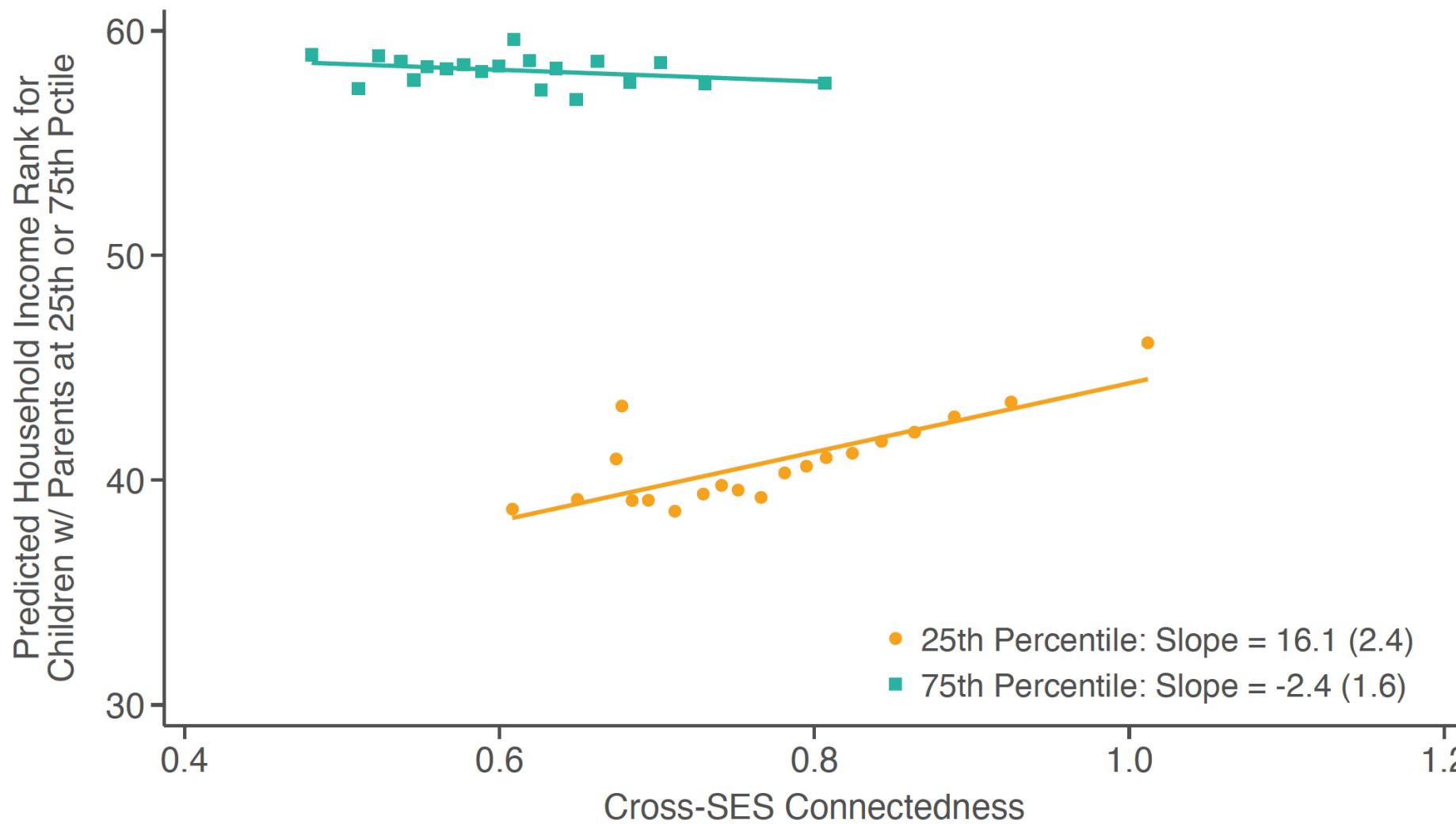
# Economic Mobility vs. Cross-SES Connectedness for Low- vs. High-SES Individuals

## County-Level



# Economic Mobility vs. Cross-SES Connectedness for Low- vs. High-SES Individuals

County-Level, Controlling for Share of High-SES Residents

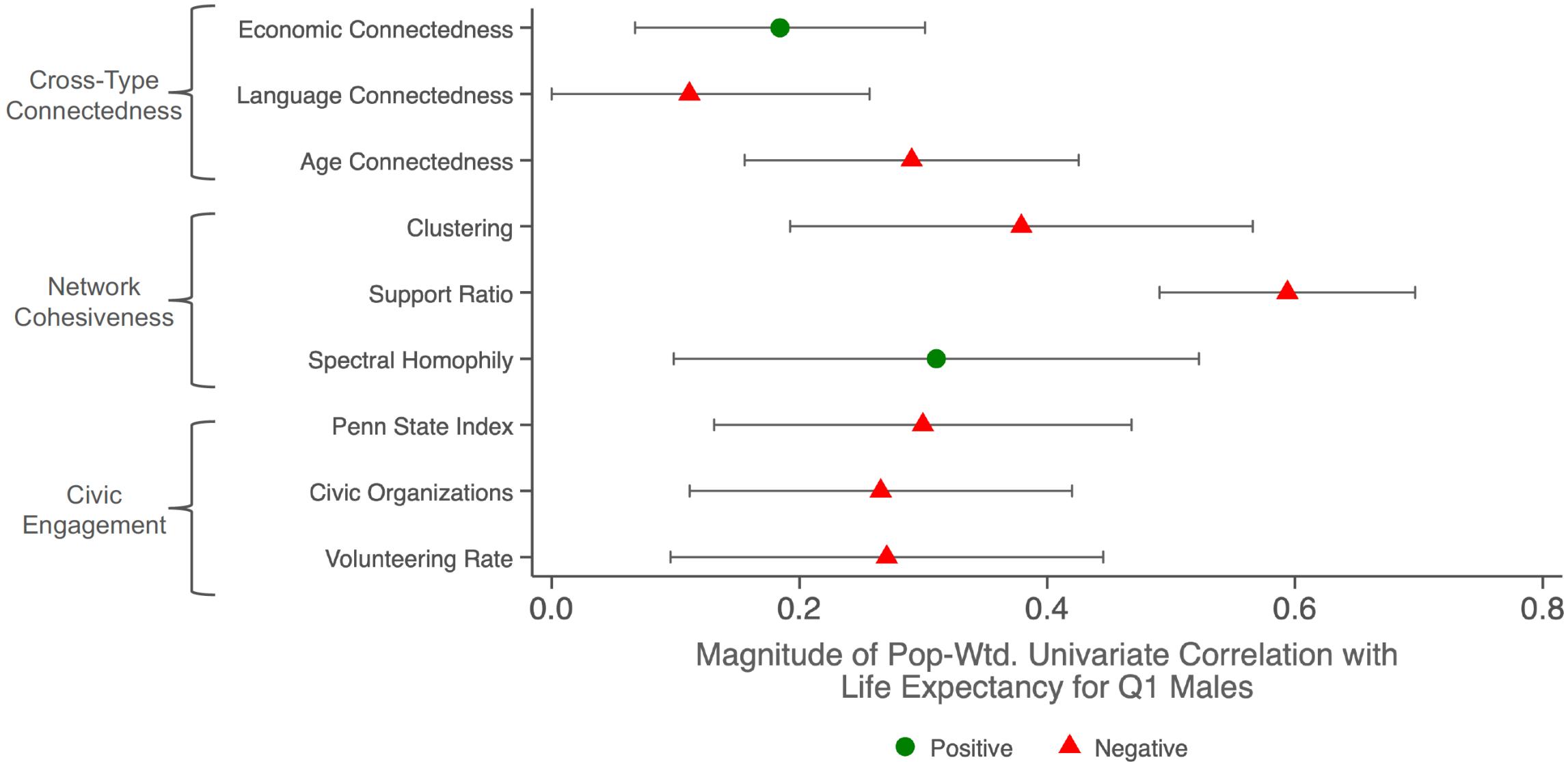


# Different Types of Social Capital Matter for Different Outcomes

- Economic connectedness may predict upward mobility because it provides “bridging” social capital useful for “getting ahead” [Putnam 2000]
- But important to recognize that it is not necessarily the “best” measure of social capital in general
  - Illustrate by looking at correlations with other outcomes, such as life expectancy by income

# Correlations between Social Capital and Life Expectancy at Age 40 for Bottom-Income-Quartile Men

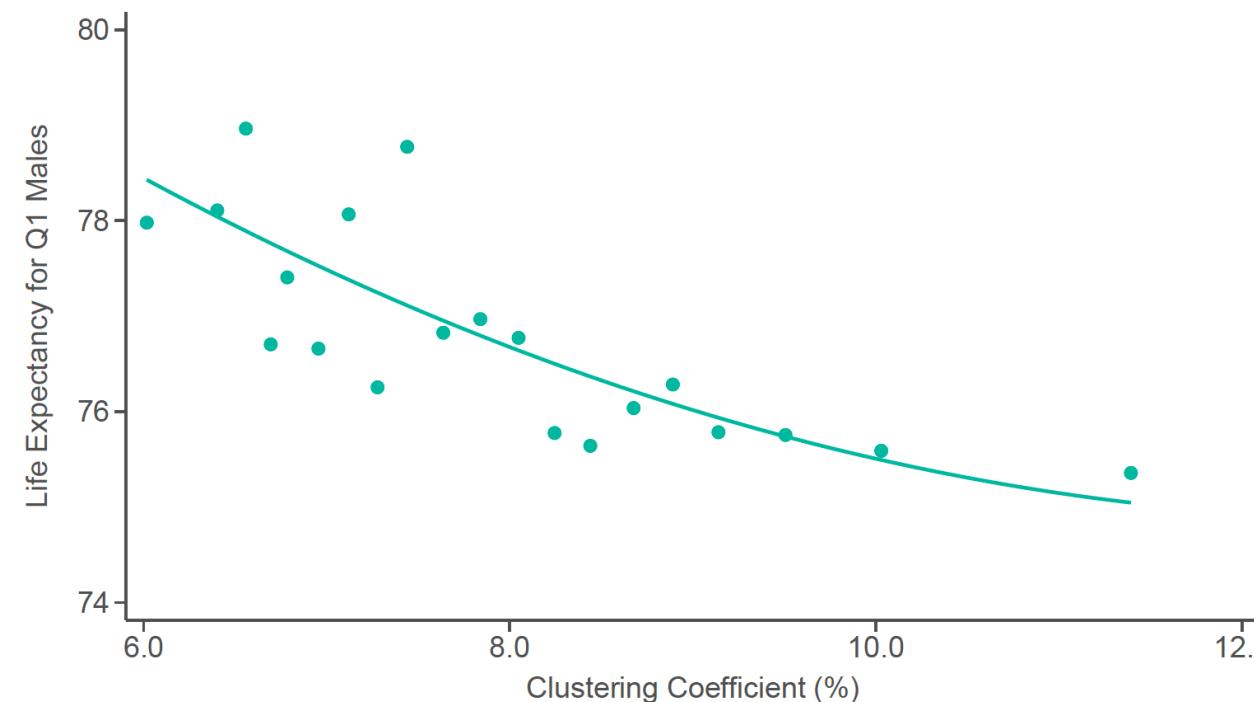
## Univariate County-level Correlations



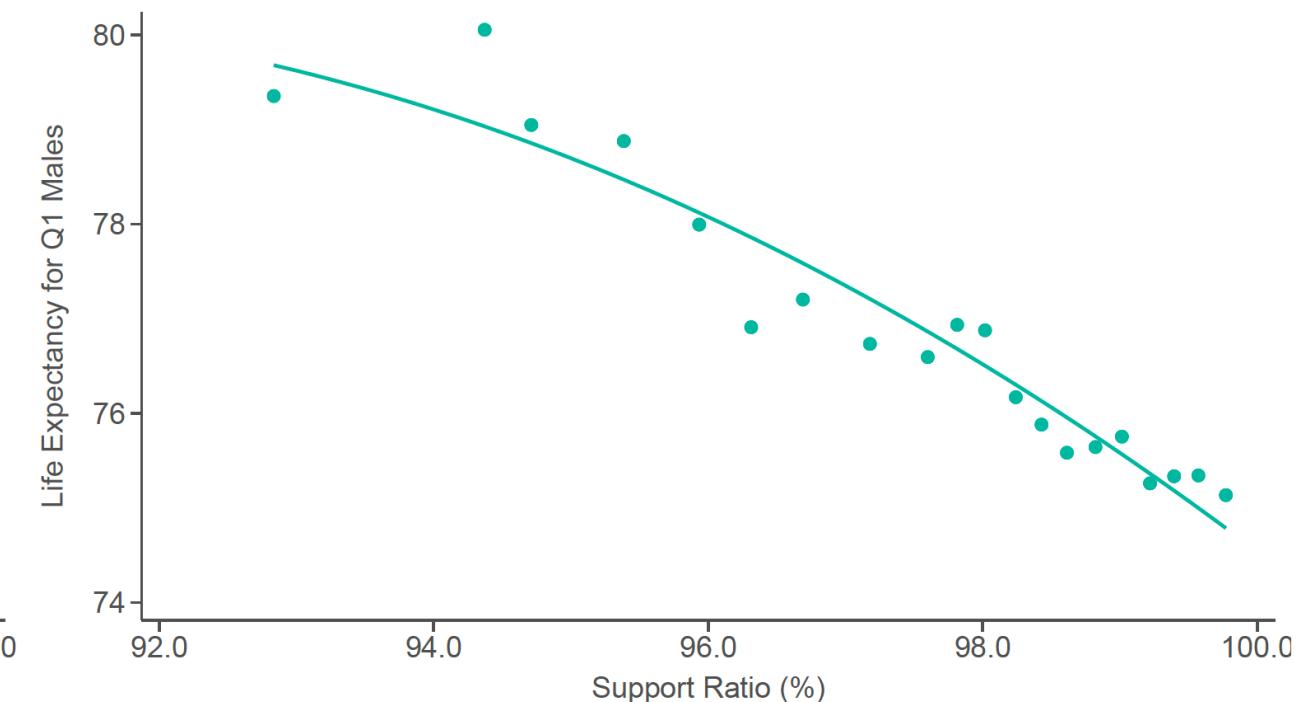
# Correlations between Social Capital and Life Expectancy at Age 40 for Bottom-Income-Quartile Men

## Cohesiveness vs. Life Expectancy

Life Expectancy for Bottom-Income-Quartile Men vs.  
Clustering Coefficient, by County



Life Expectancy for Bottom-Income-Quartile Men vs.  
Support Ratio, by County



Measurement of  
Social Capital

Association  
with Economic  
Mobility

Determinants  
of Social  
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Targeting  
Interventions

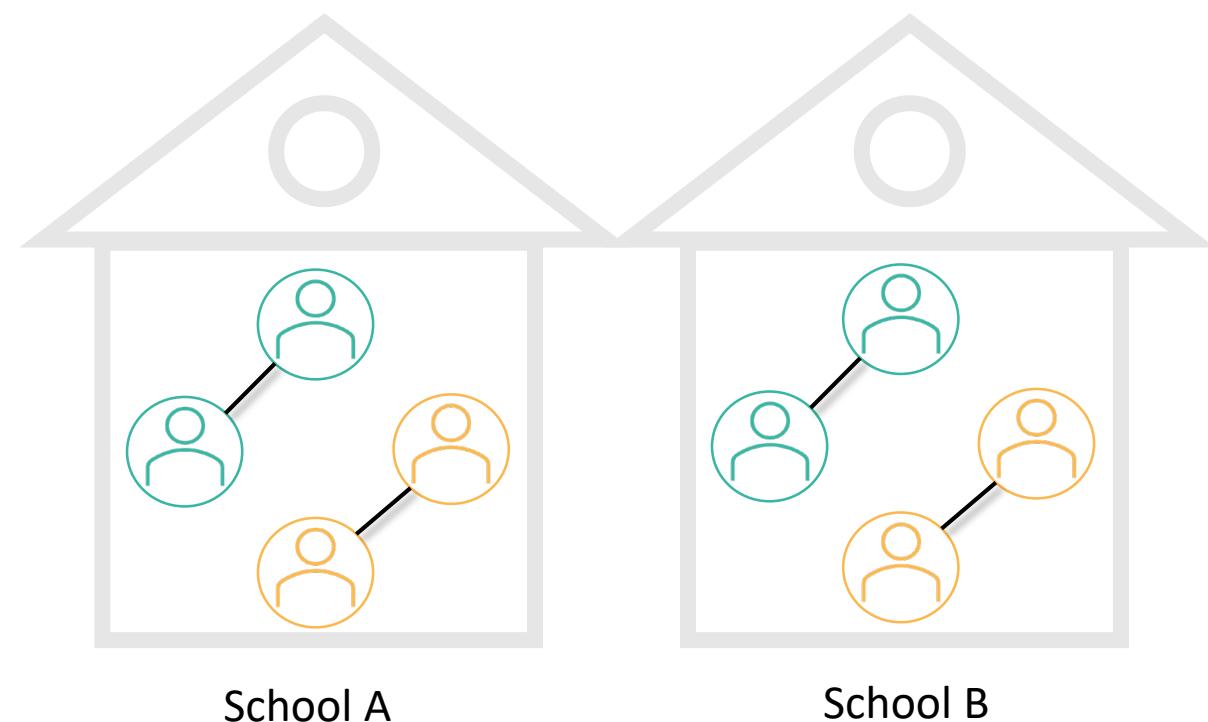
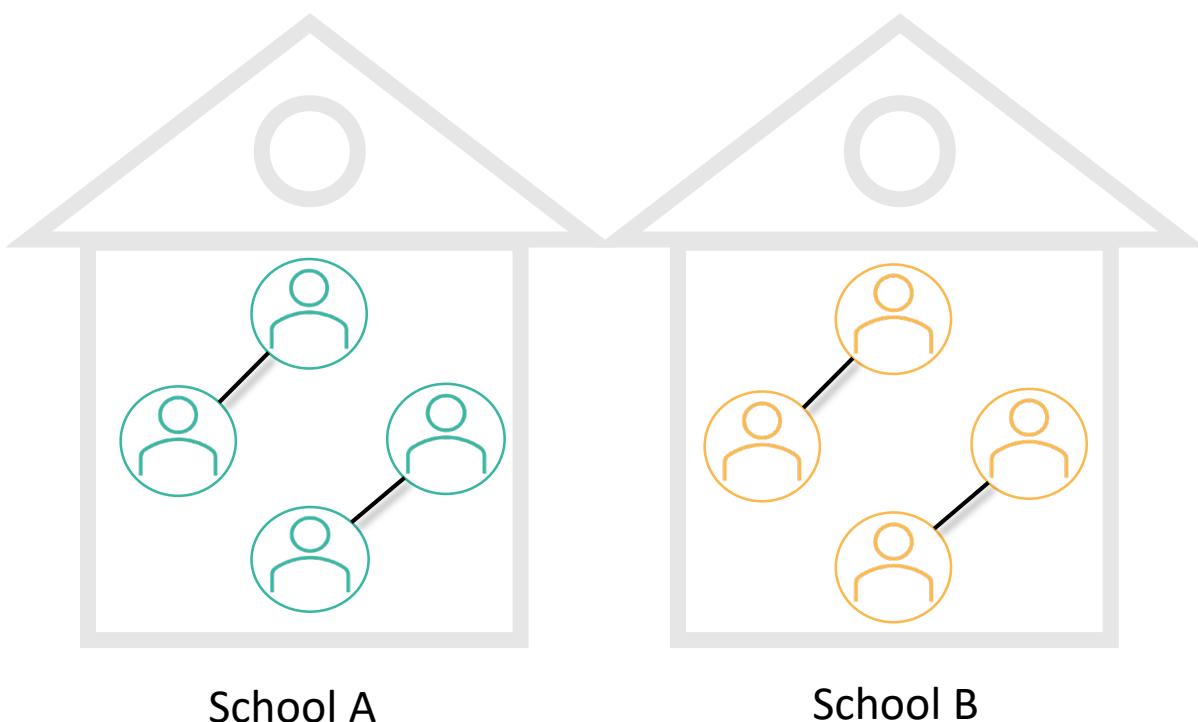
# Paper 2: Determinants of Economic Connectedness

# Why Do the Poor Have Fewer High-SES Friends?

**Exposure**  
*Segregation by Income*

**vs.**

**Friending Bias**  
*Interaction Conditional on Exposure*



# Measuring the Importance of Exposure vs. Friending Bias

- We can decompose economic connectedness (EC) for a given person into the sum of three components across the groups where she makes friends:

$$EC = \sum_{g \in G} \text{Friend Share}_g \times \text{Exposure}_g \times (1 - \text{Friending Bias}_g)$$

- 1. Friend Share:** Share of friends made in group  $g$
- 2. Exposure:** Share of members of group  $g$  who are high-SES
- 3. Friending Bias:**  $1 - (\text{Share high-SES friends made in } g) / (\text{Share high-SES members of } g)$

# Exposure vs. Friending Bias

- Demarcation between exposure and friending bias depends on how we define the groups where people interact
  - Friending bias within schools may itself arise from differences in exposure (e.g., across classrooms)

→ Distinction is **policy-dependent** rather than conceptual

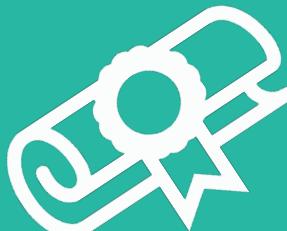
- School-level grouping has policy relevance: many efforts to integrate schools, neighborhoods, etc.

# Assign Friendships to One of Six Settings Where They are Formed

High Schools



Colleges



Employers



Recreational Groups



Religious Groups

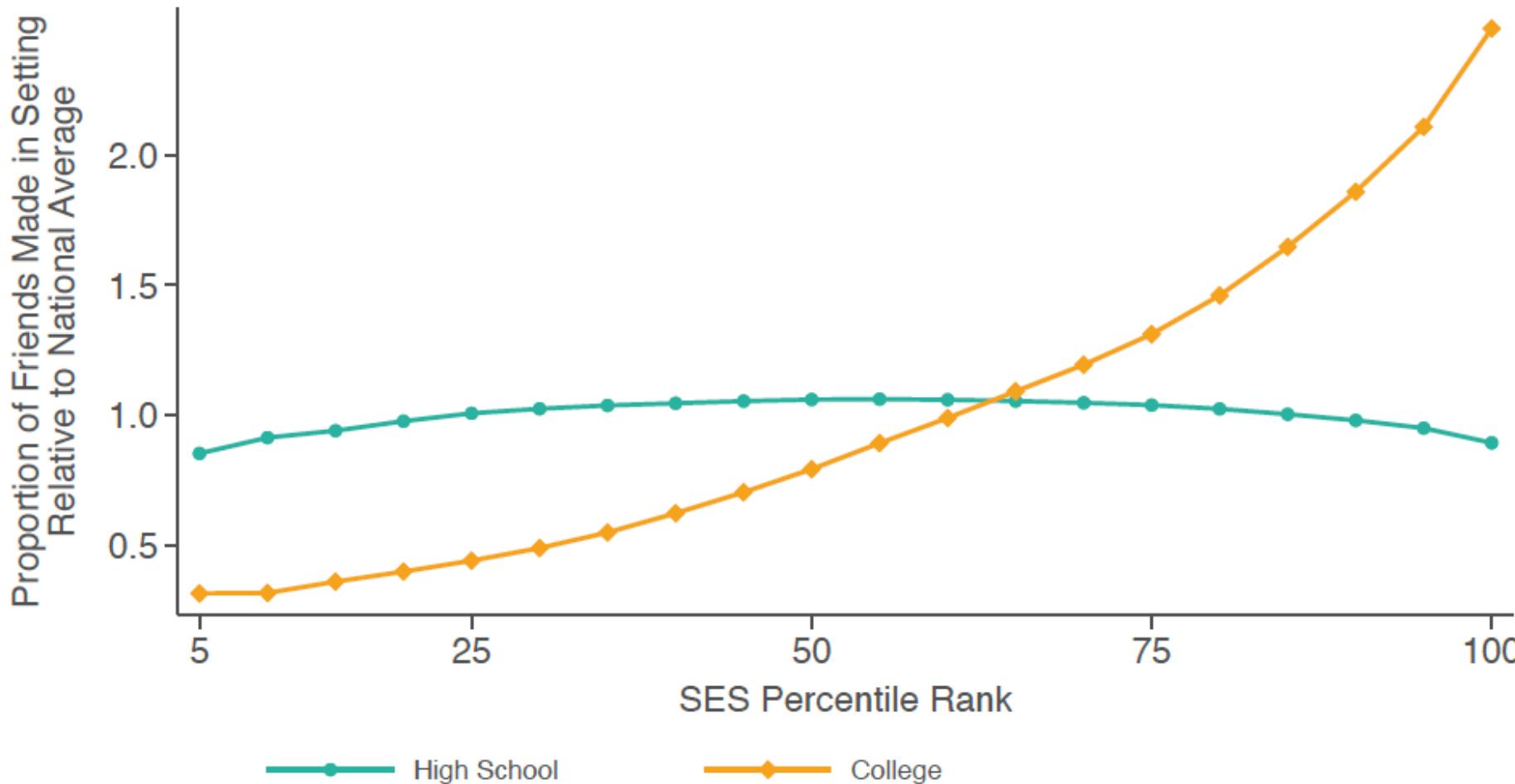


Neighborhoods



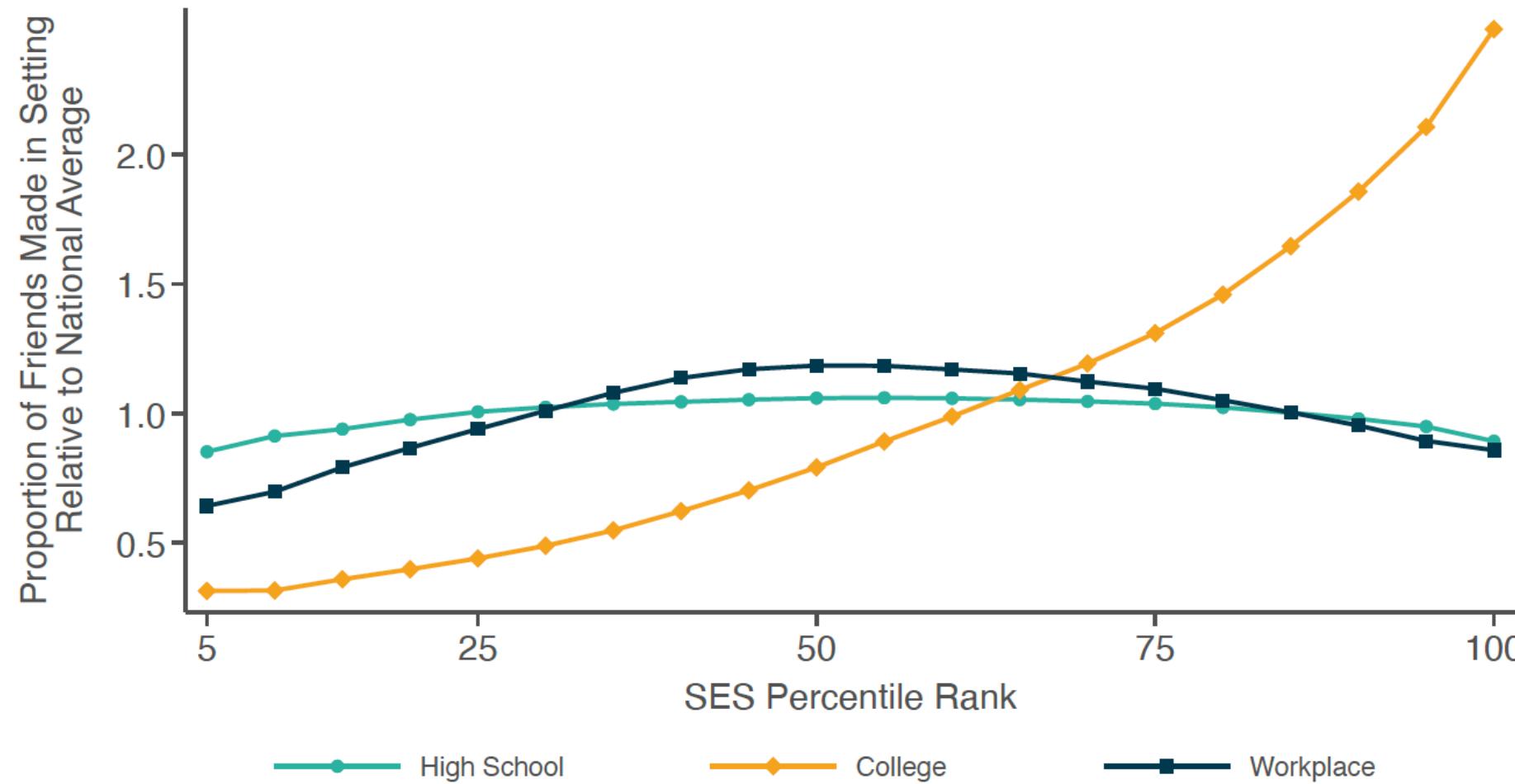
# Friendship Shares by Setting vs. Socioeconomic Status

High Schools & Colleges



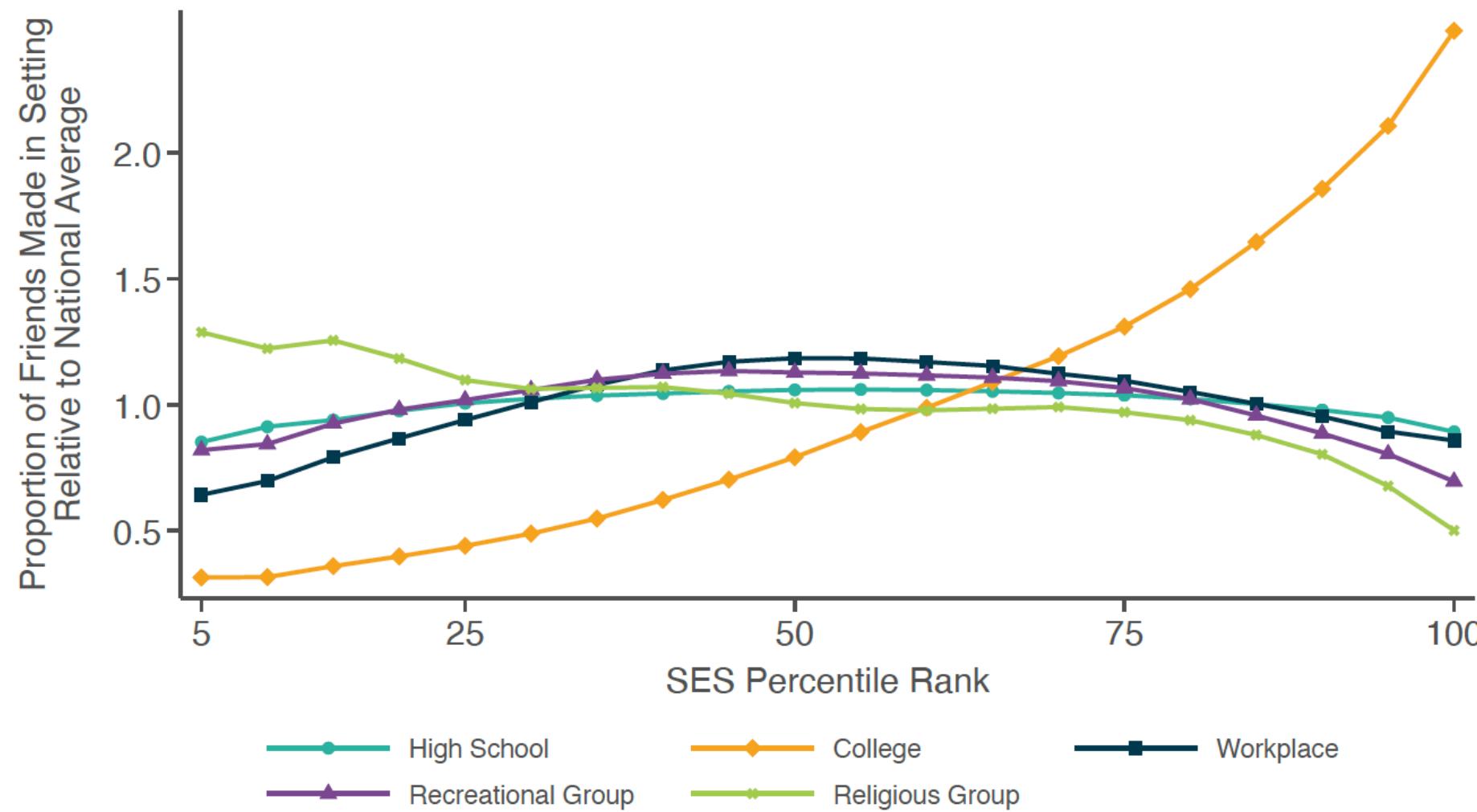
# Friendship Shares by Setting vs. Socioeconomic Status

High Schools, Colleges and Workplaces



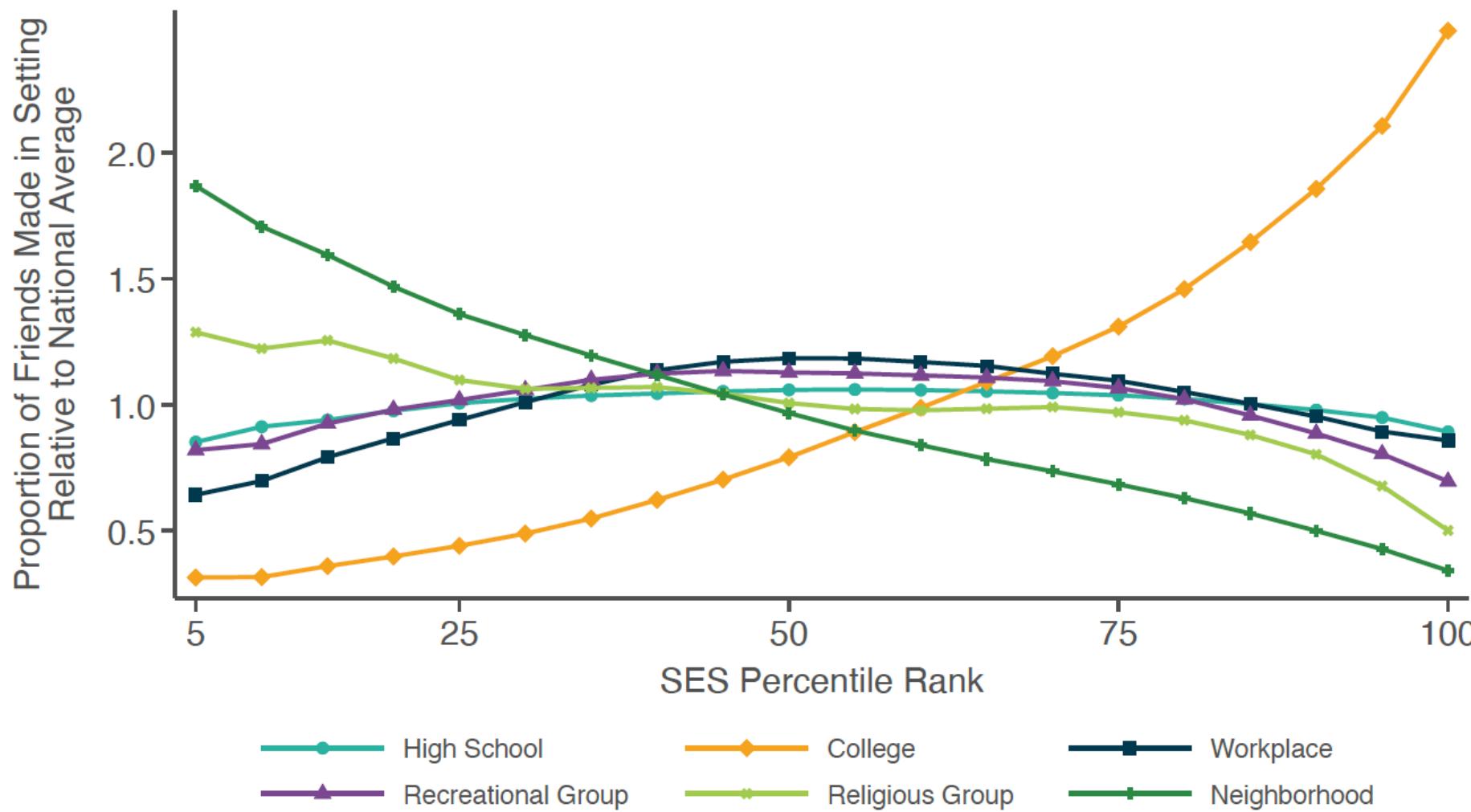
# Friendship Shares by Setting vs. Socioeconomic Status

## High Schools, Colleges, Workplaces, and Recreational & Religious Groups



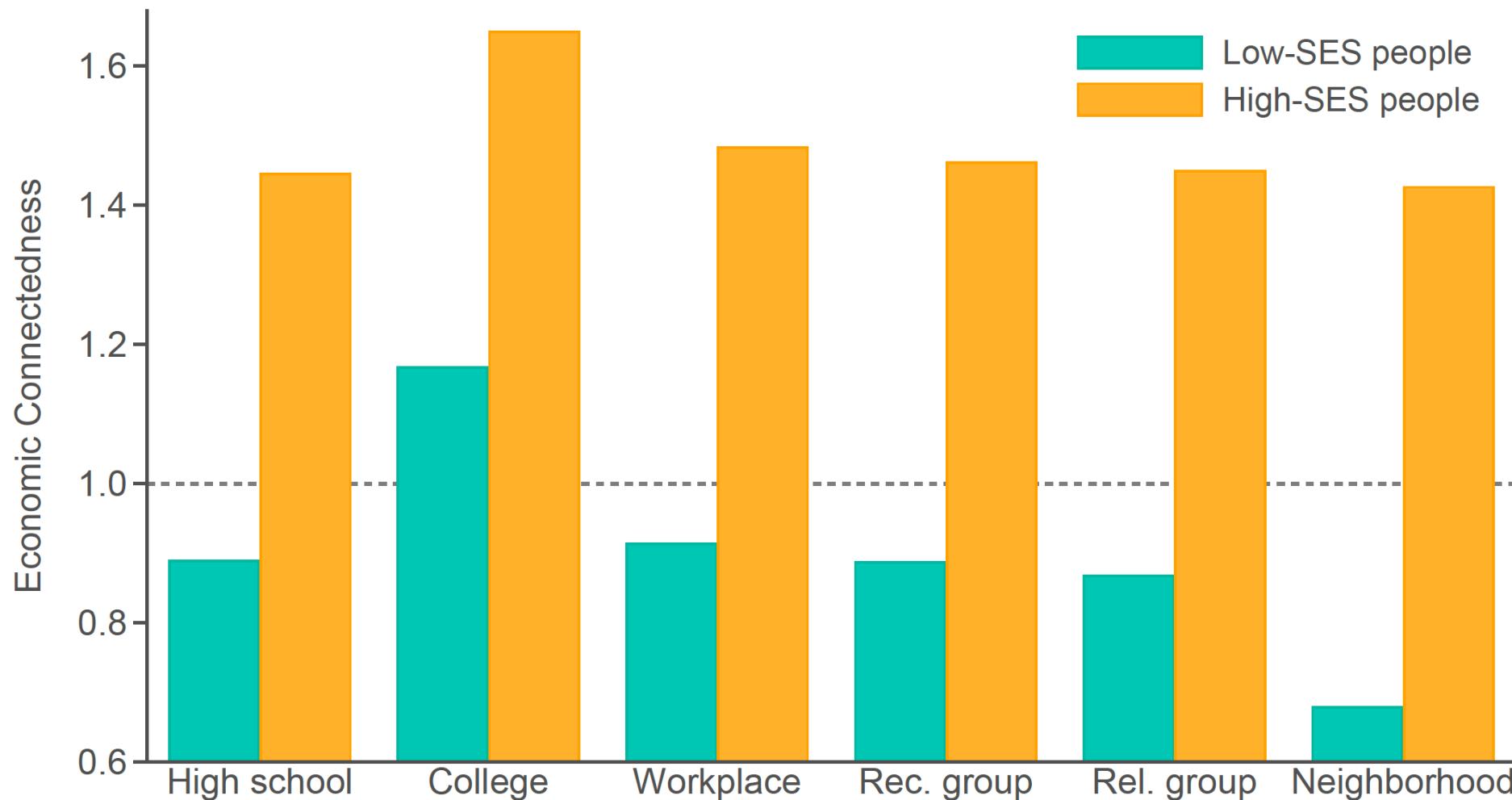
# Friendship Shares by Setting vs. Socioeconomic Status

All Settings



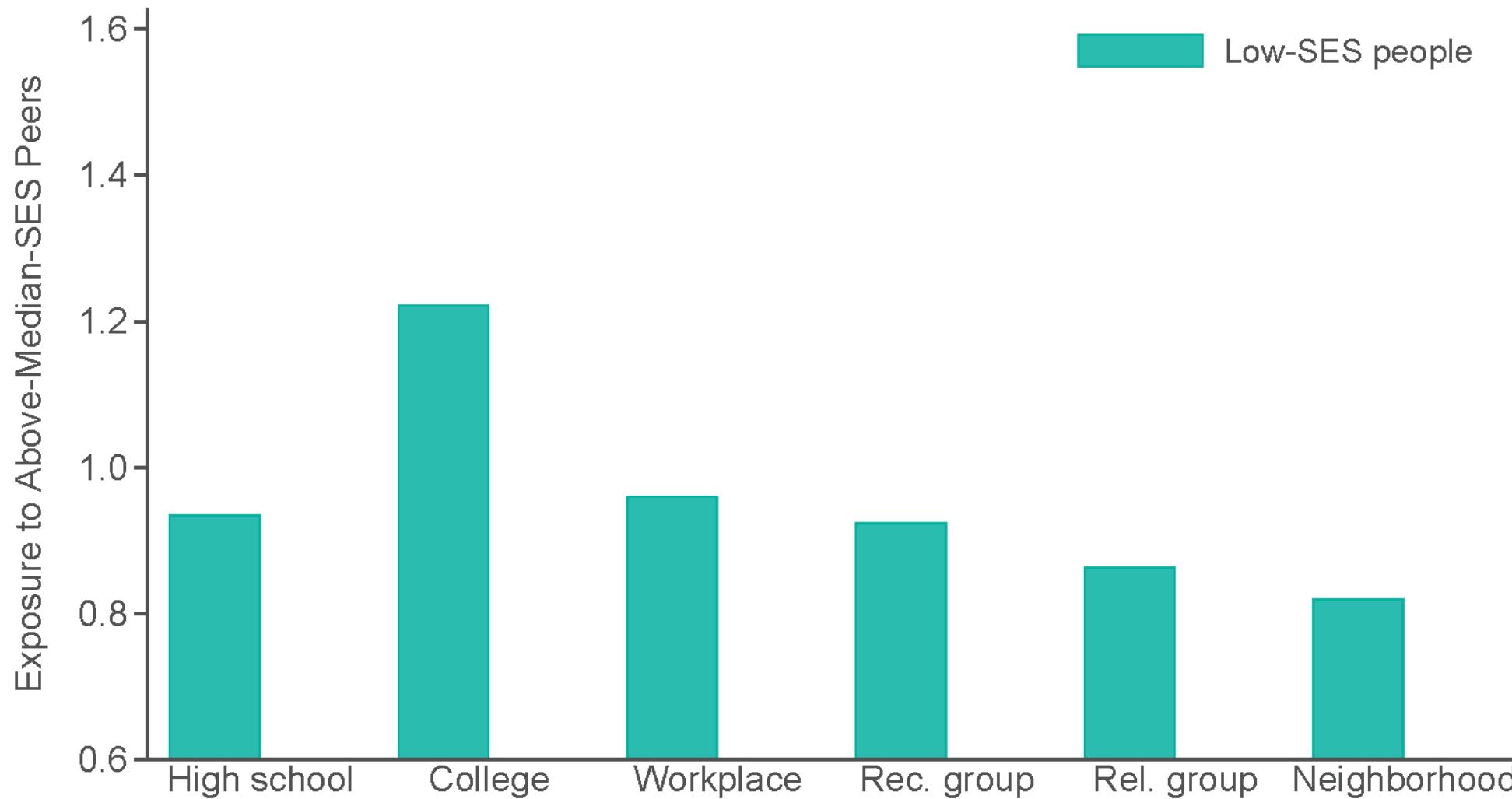
# EC By Setting

Low-SES vs. High-SES People



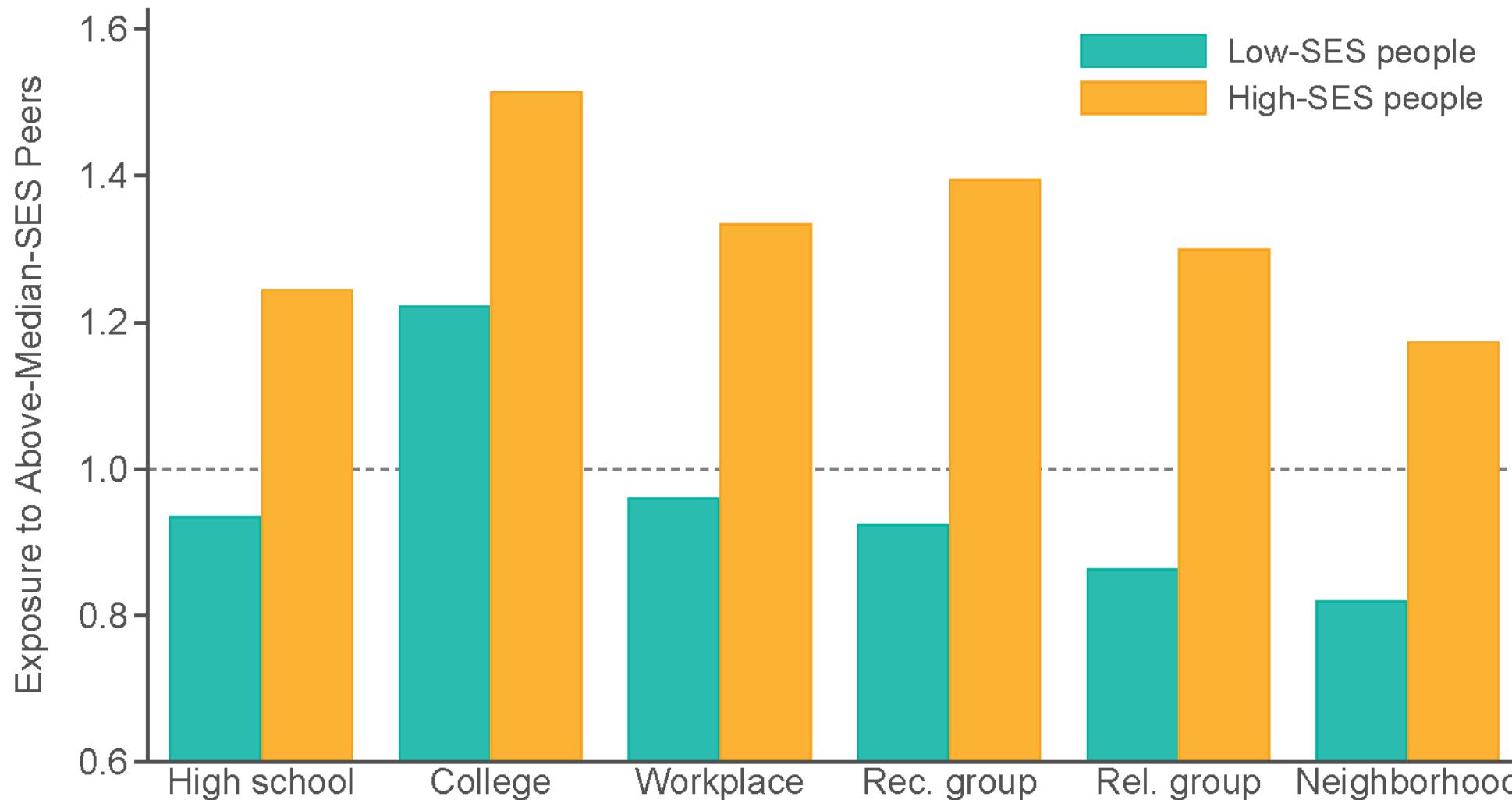
# Exposure By Setting

Low-SES People

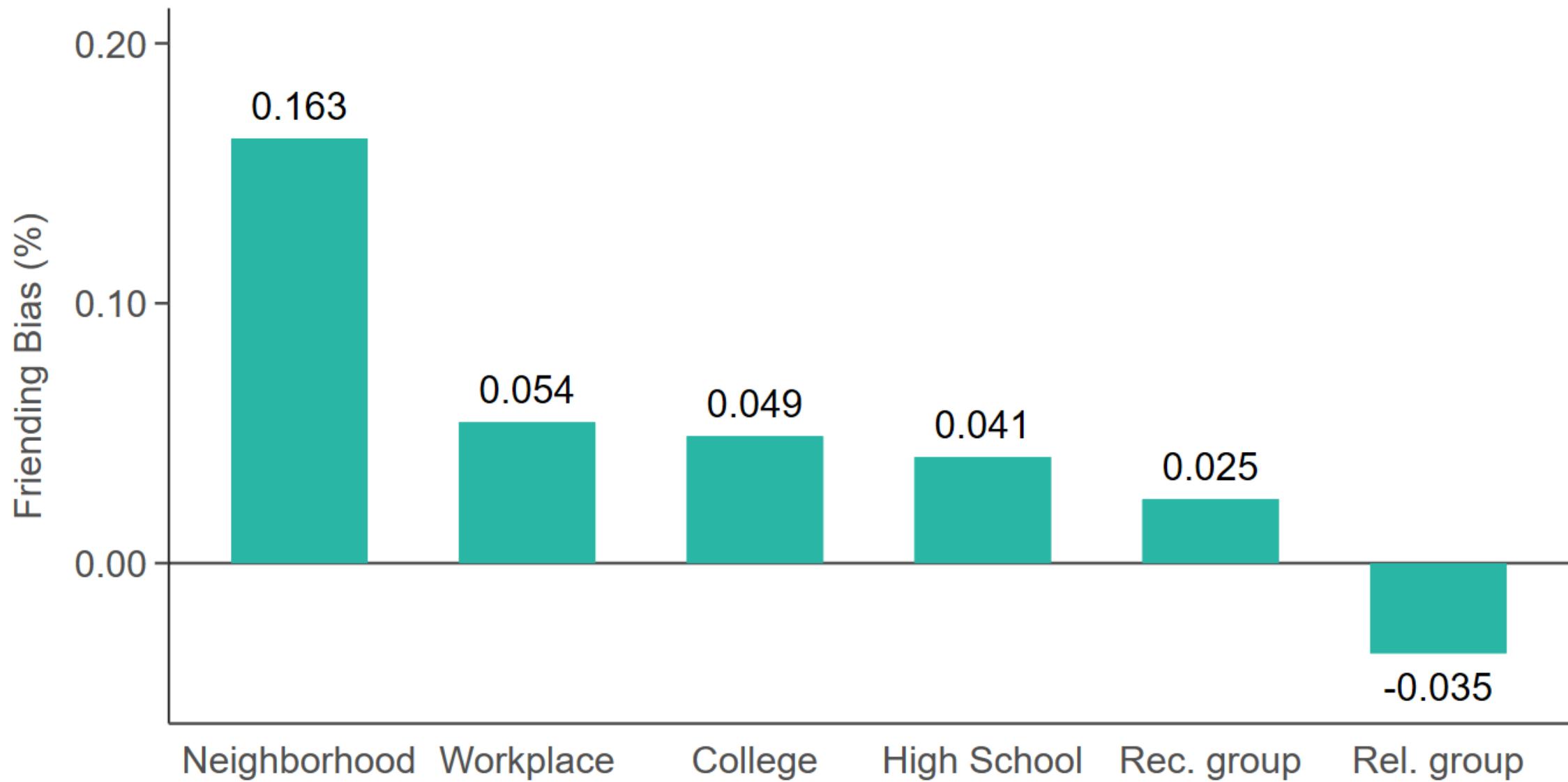


# Exposure By Setting

Low-SES vs. High-SES People

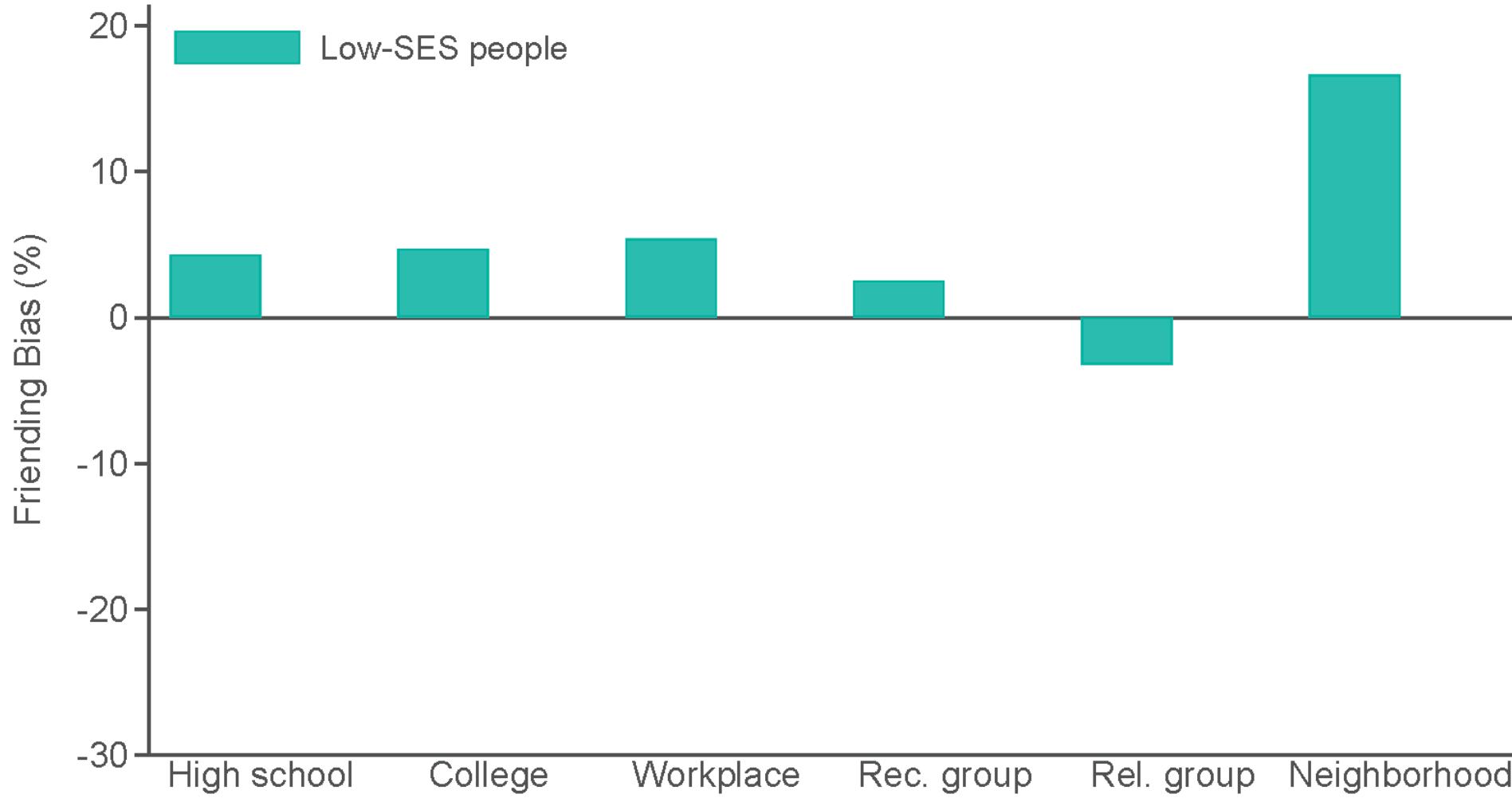


# Friending Bias Among Low-SES People, By Setting



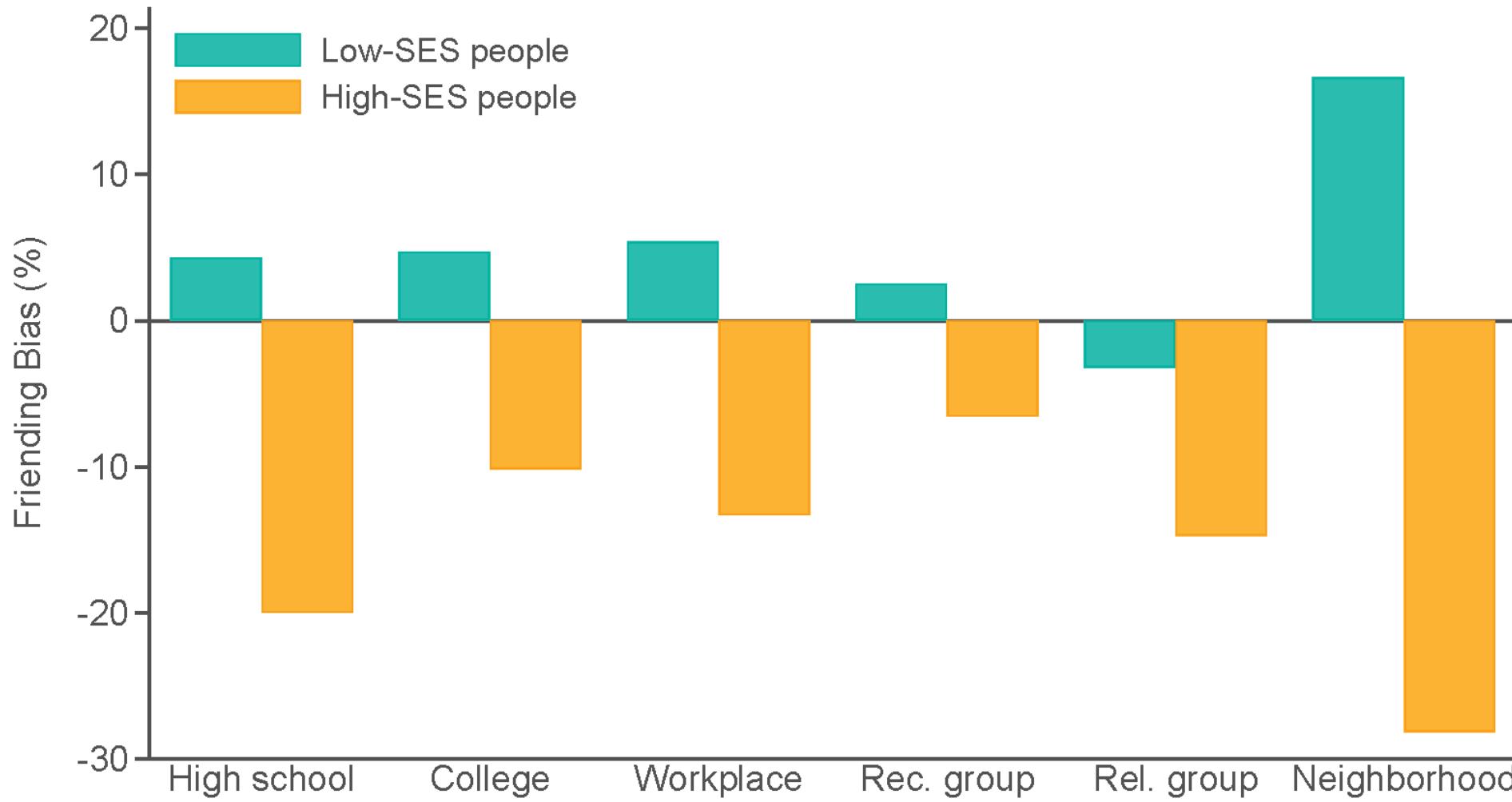
# Friending Bias By Setting

Low-SES People

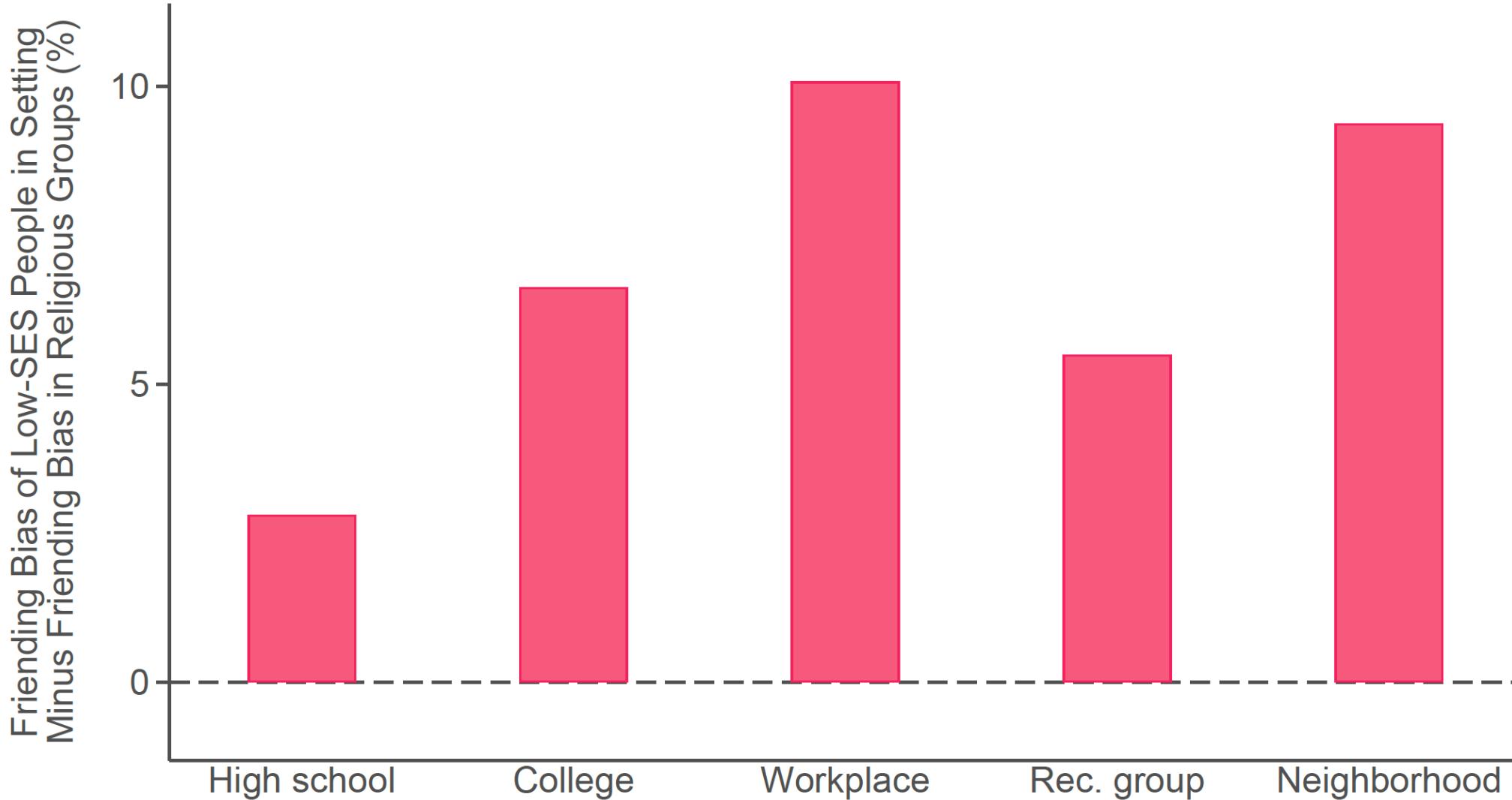


# Friending Bias By Setting

Low-SES vs. High-SES People



# Friending Bias Among Low-SES Members of Religious Groups, Minus Friending Bias in Religious Group



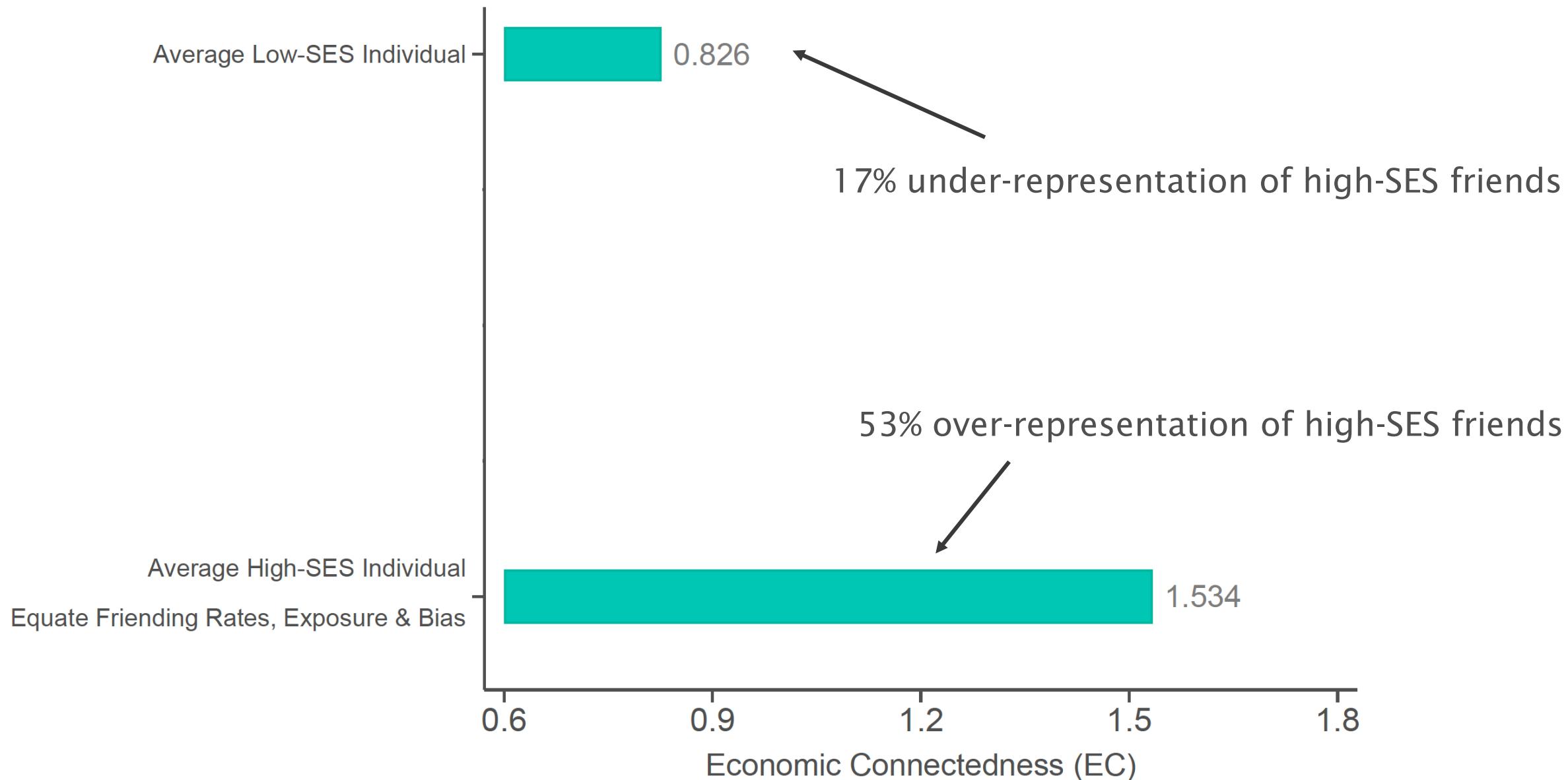
# Measuring the Importance of Exposure vs. Friending Bias

- We just measured each of three components that determine connectedness: friend shares, exposure, and friending bias
- Now combine these parameters to quantify the contribution of each channel in explaining why the poor have fewer high-SES friends than the rich

# Why do Low-SES People Have Fewer High-SES Friends than High-SES People?

Decomposition Analysis: Group Importance, Exposure, and Friending Bias

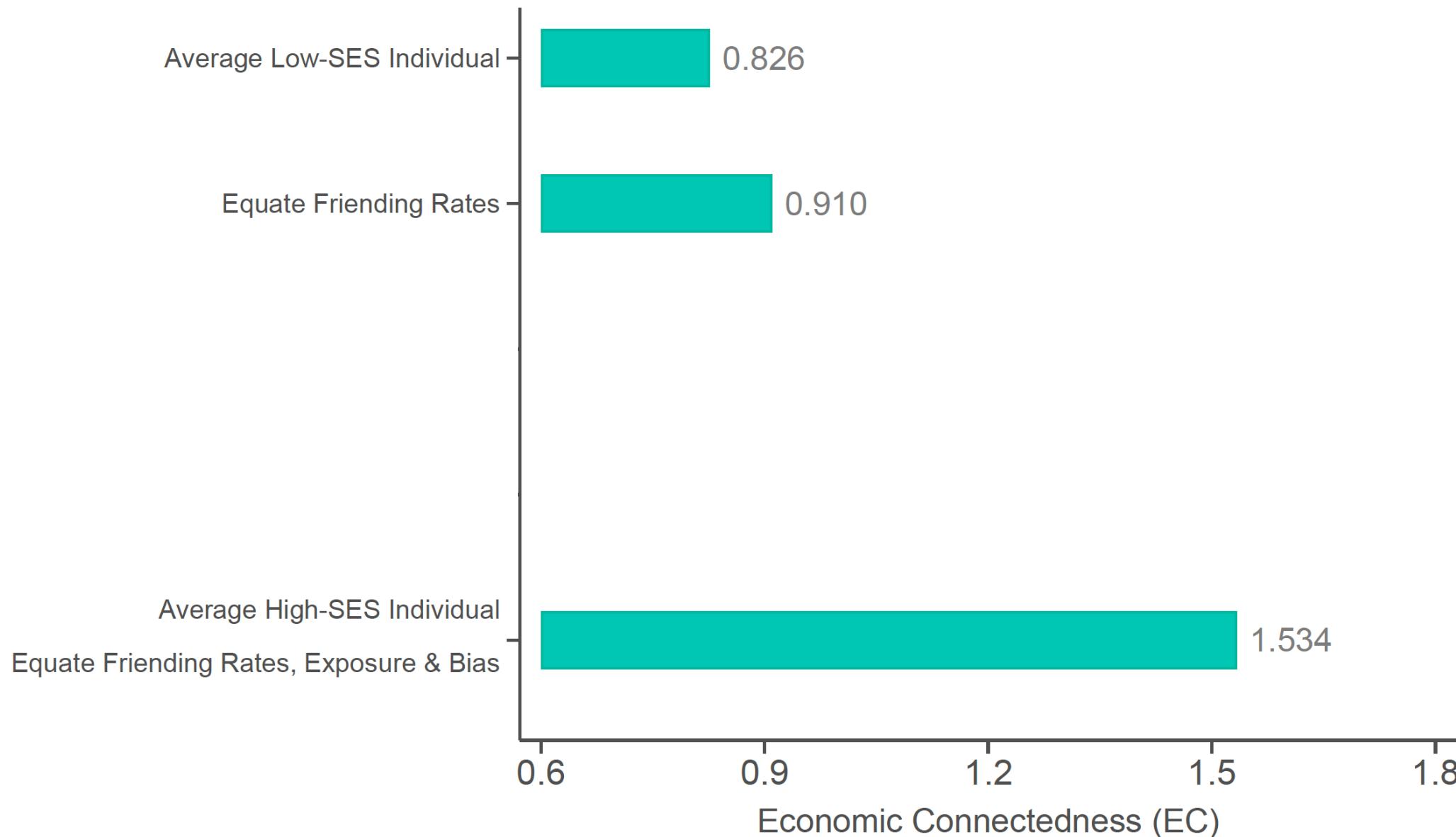
Low-SES vs. High-SES Individuals



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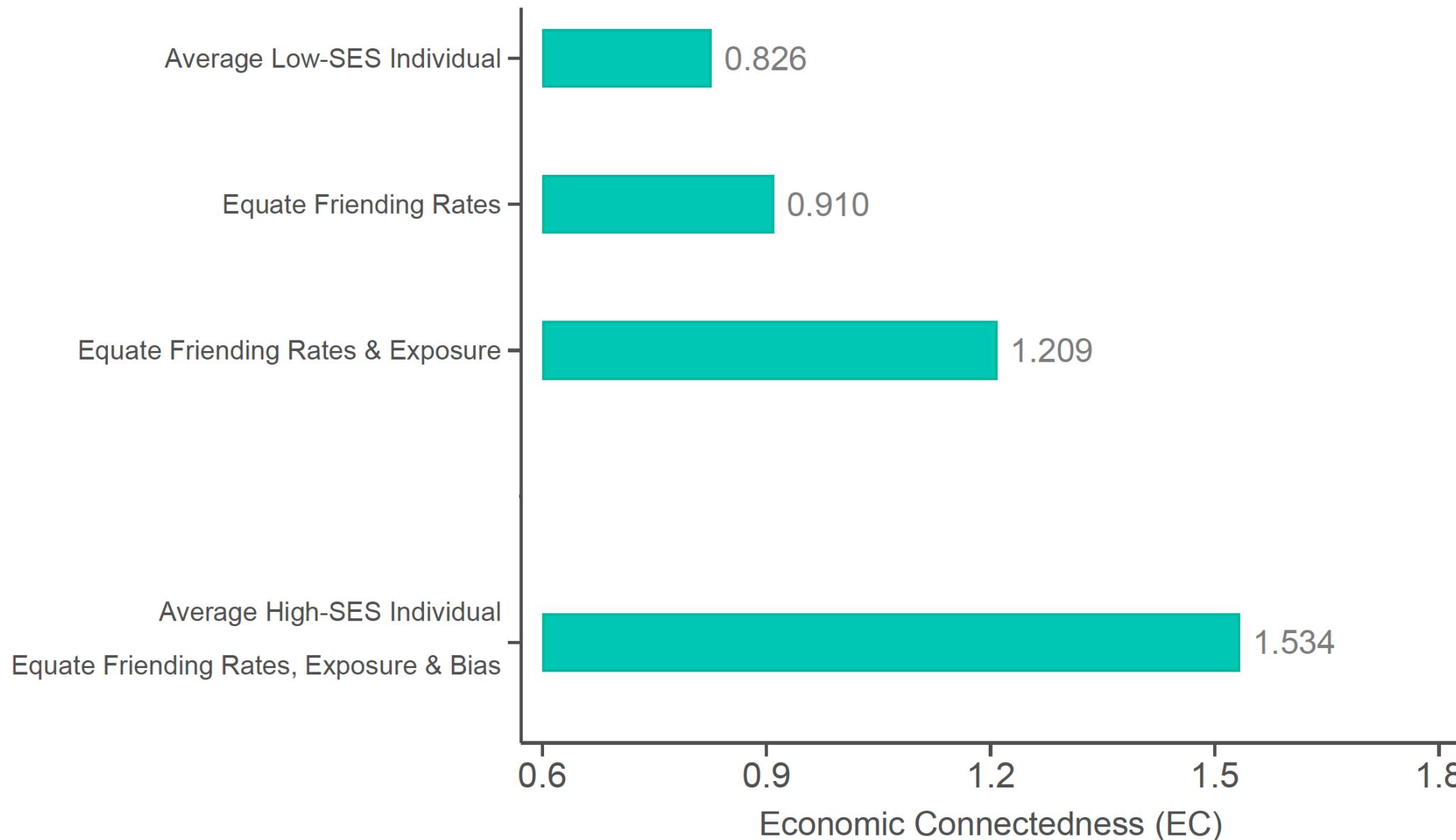
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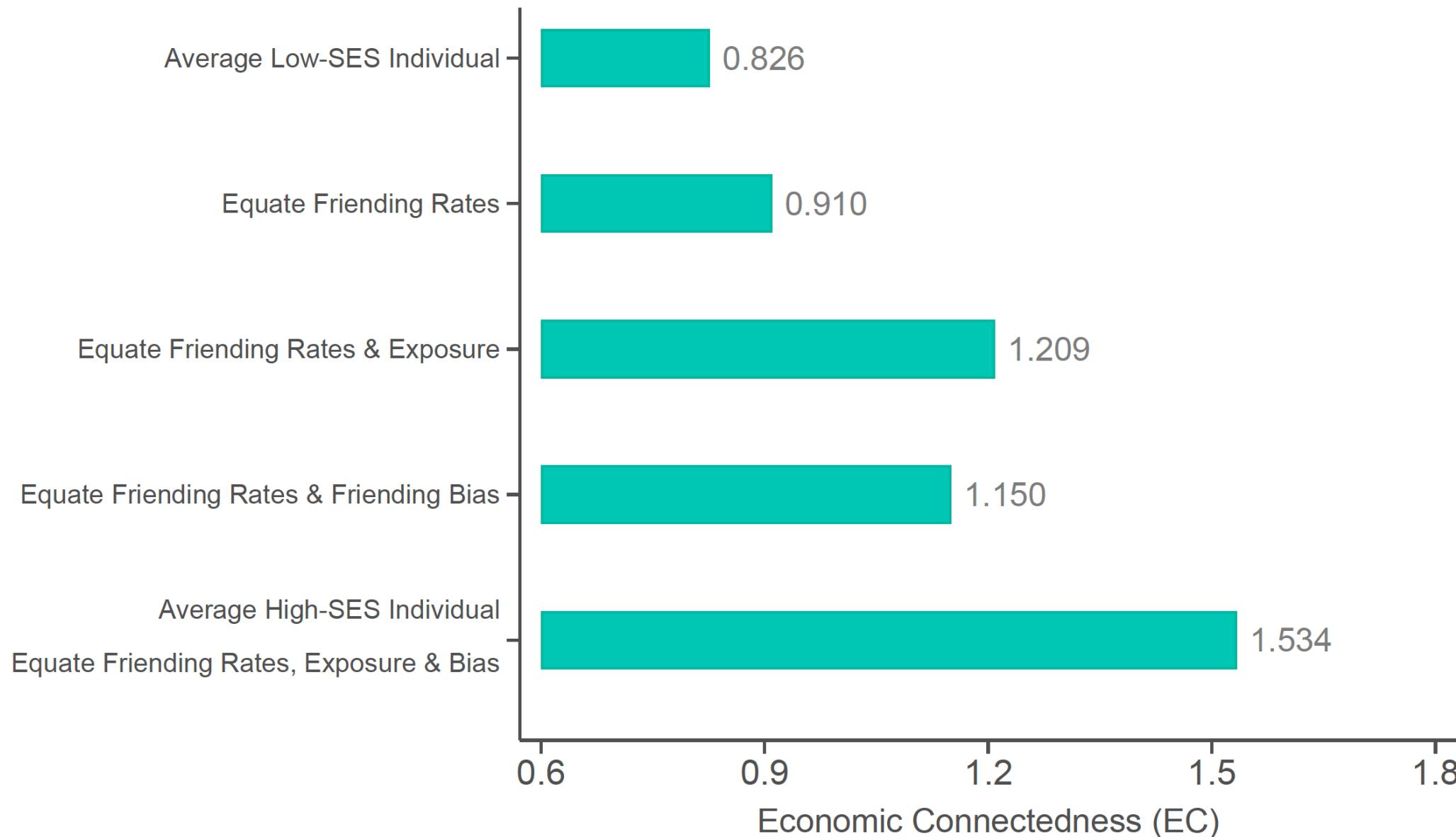
Low-SES vs. High-SES Individuals



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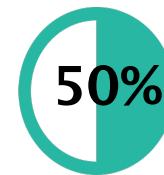
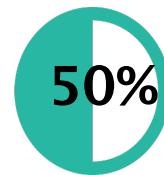


# Determinants of Economic Connectedness

**Exposure**  
*Segregation by Income*

vs.

**Friending Bias**  
*Interaction Conditional on Exposure*



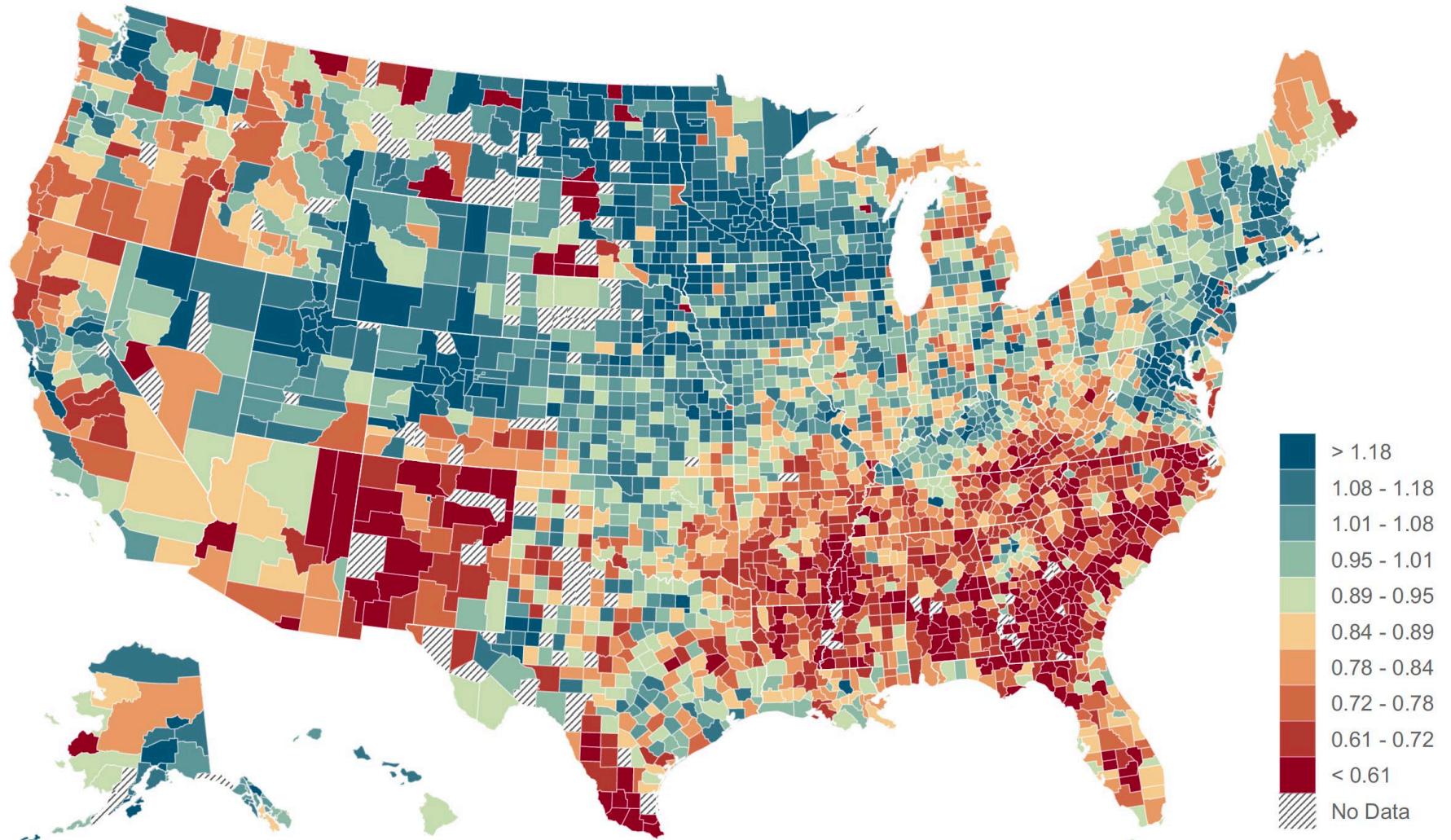
*"Every time I walked across Eutaw Street, I witnessed the exchange of realities. As I grew older, I've come to learn that this was how Baltimore works. Millionaires could live on one side of a street, and the projects could be on the other side. **Those two worlds would never cross, never make friends, never acknowledge each other.** Everybody was OK with it, especially the rich.*

- Carmelo Anthony (2021), *Where Tomorrows Aren't Promised*

# Exposure and Bias Across Areas

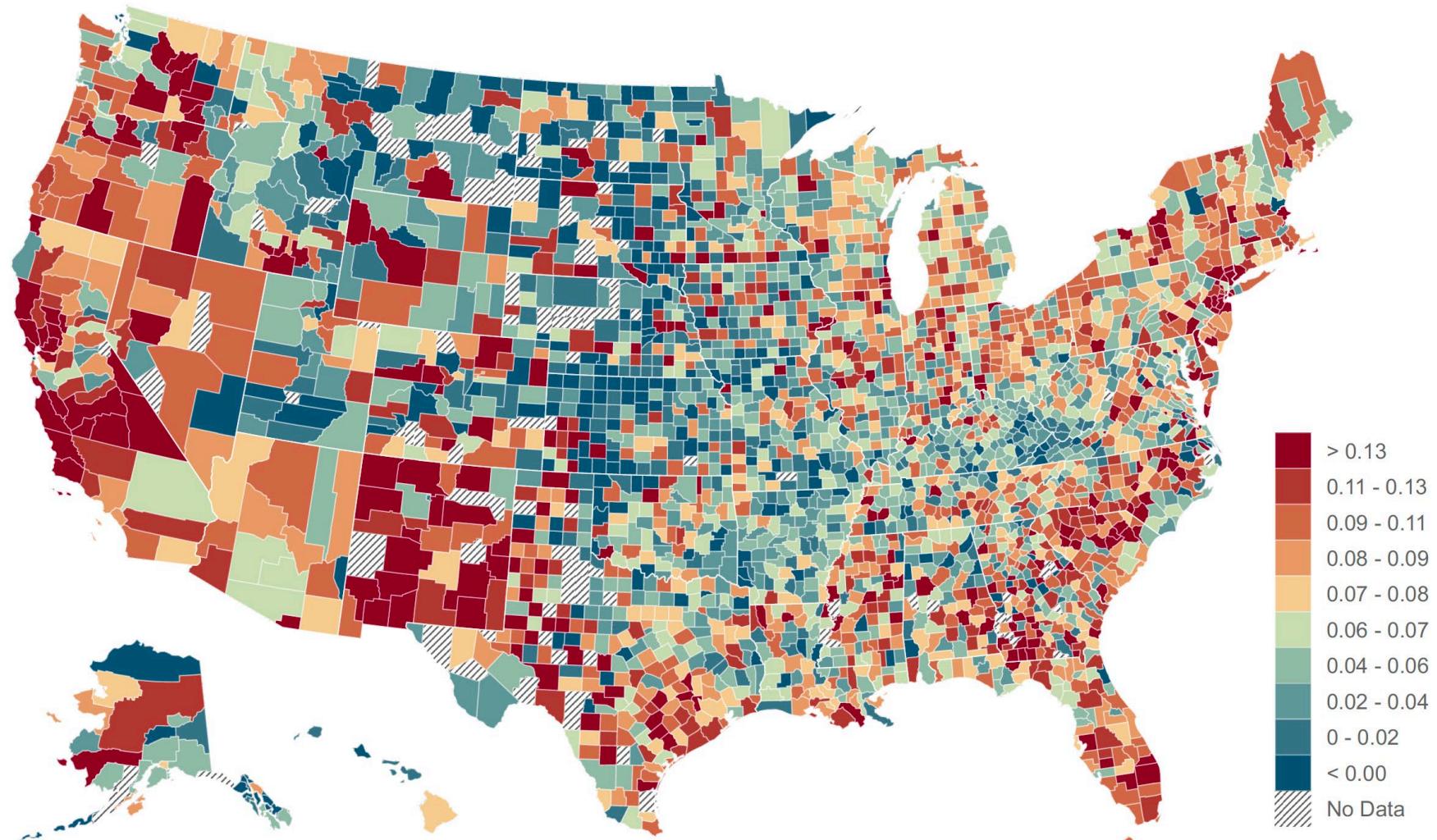
# Exposure of Low-SES Individuals by County

Share of above-median-SES people in below-median-SES people's communities



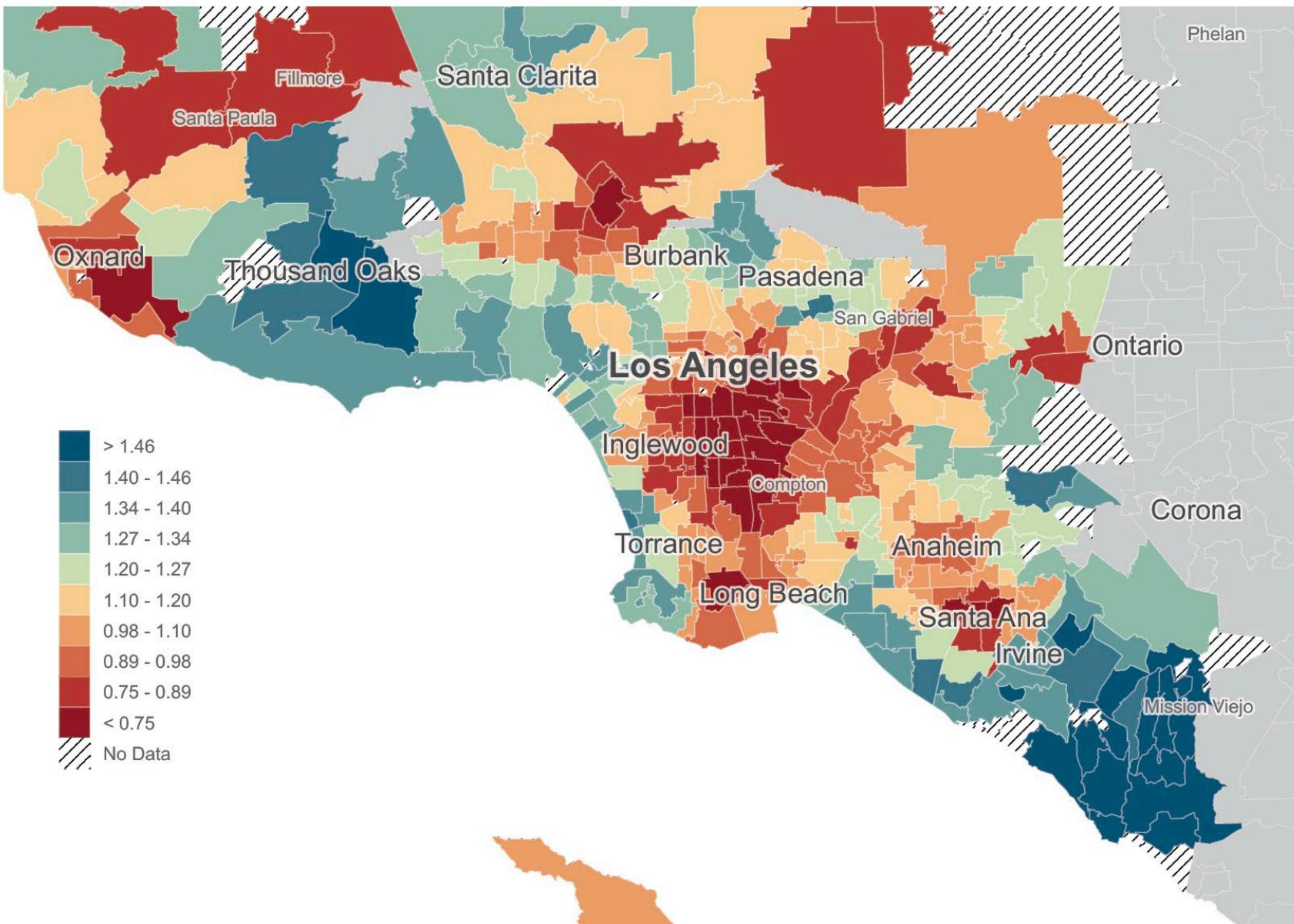
# Friending Bias of Low-SES Individuals by County

Share of above-median-SES friends of below-median-SES people, conditional on exposure



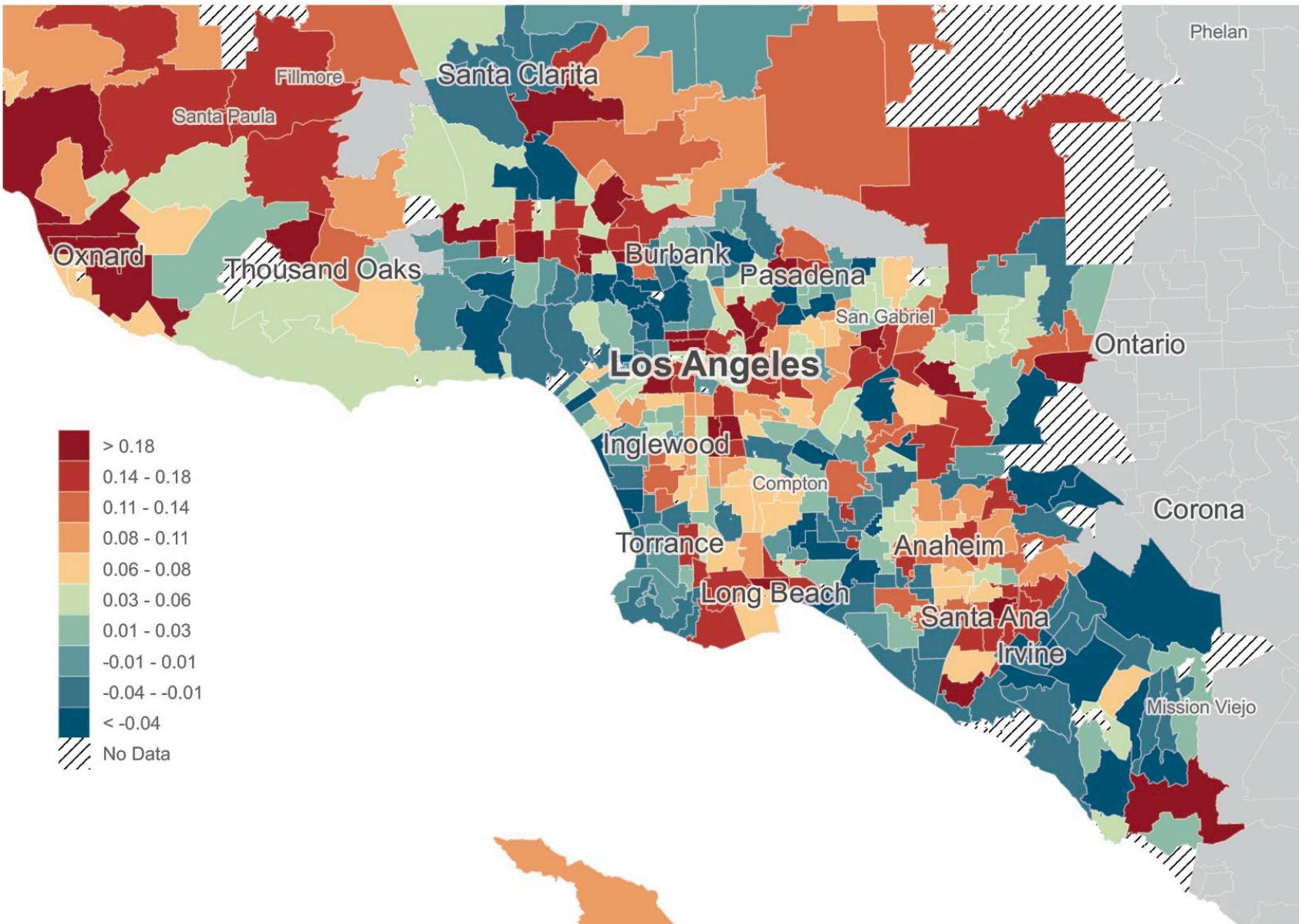
# Exposure of Low-SES Individuals by ZIP Code in LA

Share of above-median-SES people in below-median-SES people's communities



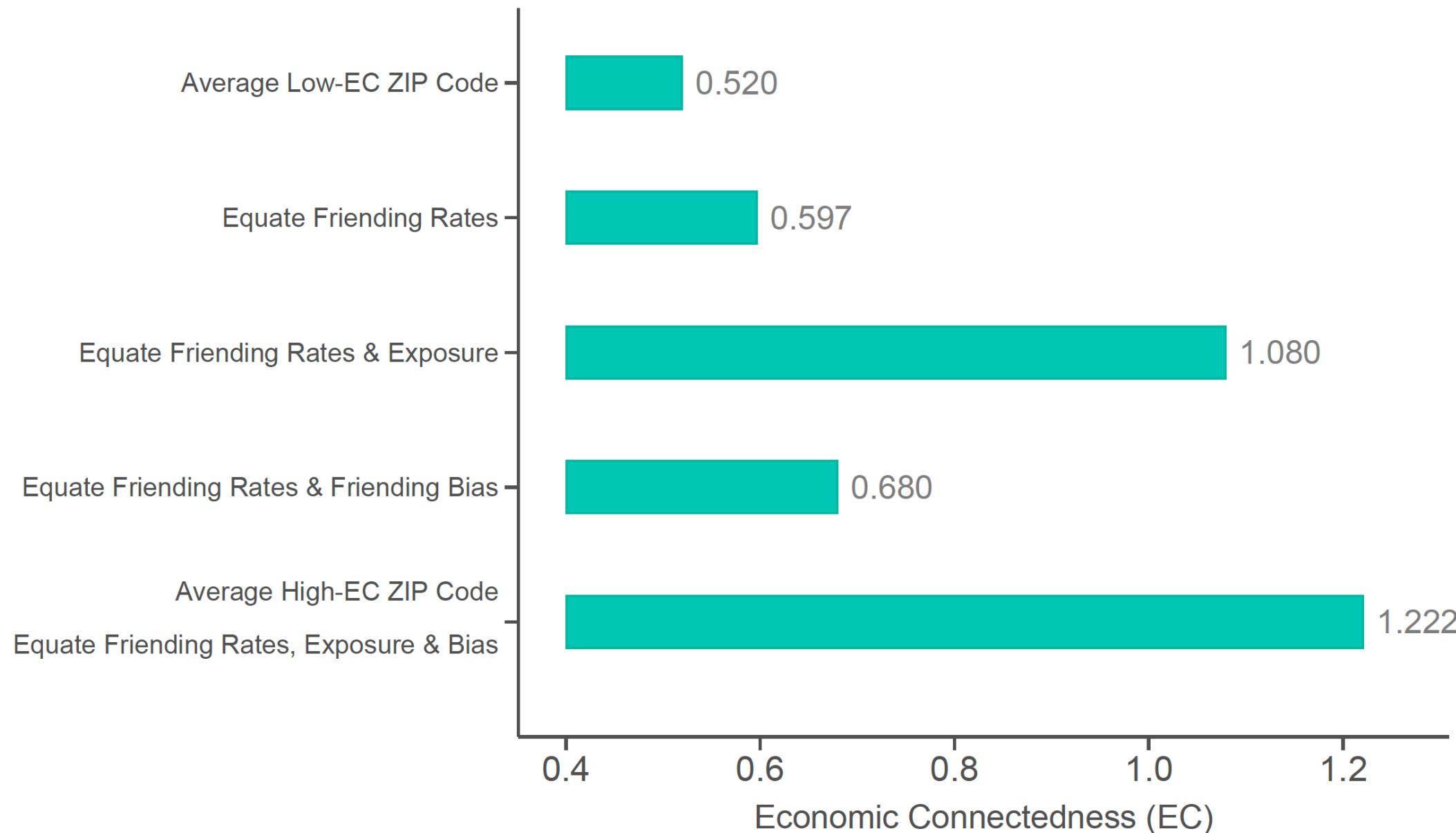
# Friending Bias of Low-SES Individuals by ZIP Code in LA

Share of above-median-SES friends of below-median-SES people, conditional on exposure



# Why Does Economic Connectedness Vary Across Areas?

Low-EC vs. High-EC ZIP Codes



# Associations between Friending Bias, Exposure, and Upward Mobility across Counties and ZIP Codes

Dependent Variable:	log(Upward Mobility)				log(Causal Upward Income Mobility)		
	ZIP Codes				Counties		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log (Economic Connectedness)	0.236*** (0.01)		0.227*** (0.01)		0.272*** (0.02)		
log (High-SES Exposure)		0.248*** (0.01)		0.224*** (0.02)		0.286*** (0.02)	0.116*** (0.02)
log (1 - Friending Bias)			0.185*** (0.03)	0.236*** (0.04)		0.142* (0.08)	0.339*** (0.07)
County FEs	No	No	Yes	Yes	No	No	No
Observations	24,200	24,200	24,200	24,200	2,986	2,986	2,136
R-squared	0.42	0.43	0.71	0.71	0.38	0.39	0.03

Measurement of  
Social Capital

Association  
with Economic  
Mobility

Determinants  
of Social  
Connections

Targeting  
Interventions

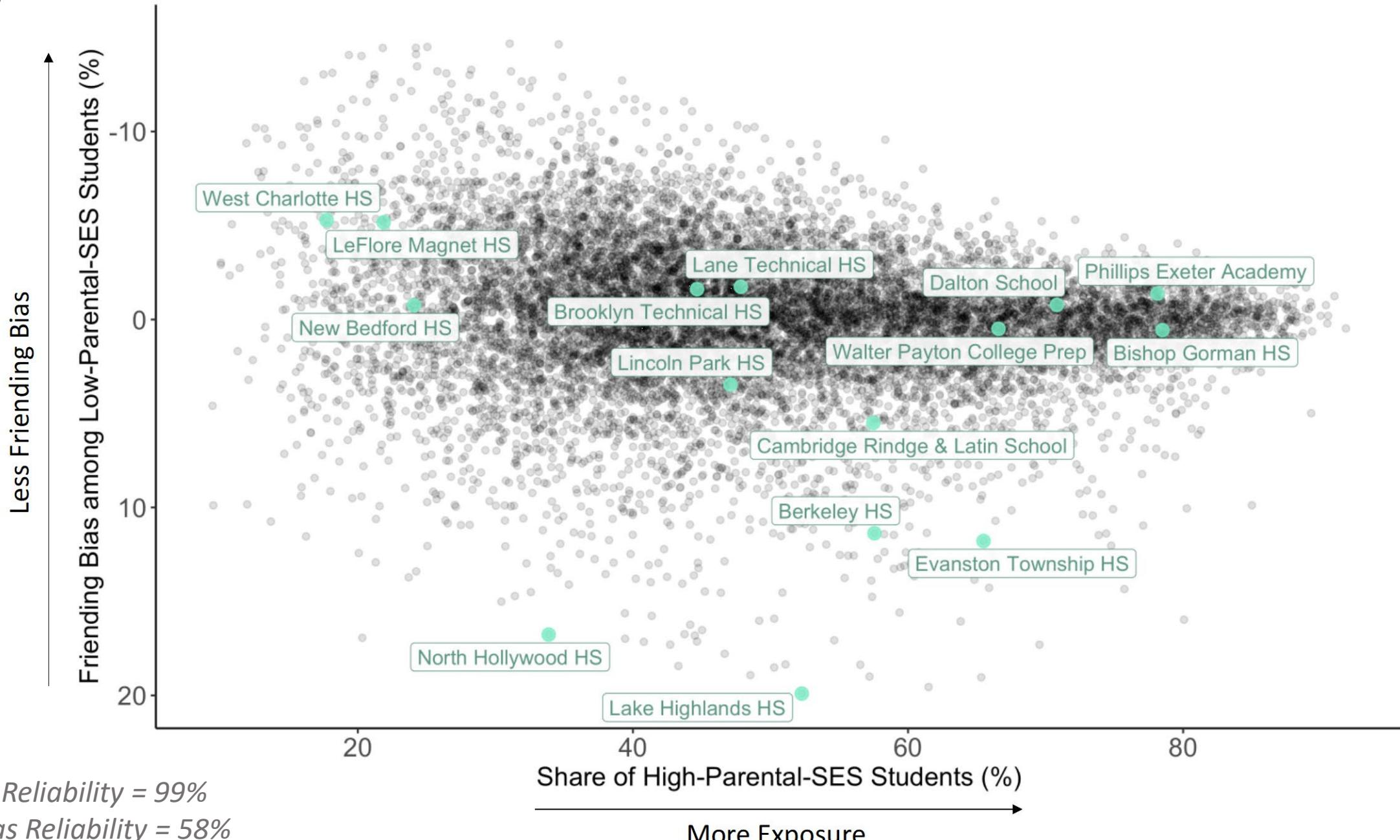
# Using New Public Data to Target Interventions

# Targeting Interventions to Increase Connectedness

- We release granular statistics on social capital measures in the Social Capital Atlas ([www.socialcapital.org](http://www.socialcapital.org))
  - Connectedness: EC, exposure, bias
  - Other measures of social capital: cohesiveness and civic engagement
  - By ZIP code, high school, and college
- Here, show how these new statistics can be useful to
  - Understand institutional determinants of friending bias
  - Inform interventions to increase social connections
- Contrast two approaches: increasing integration vs. reducing friending bias

# Friending Bias vs. Exposure to High-SES Students, by High School

Among Low-SES Students in 1990-2000 Birth Cohorts



# Friending Bias in High Schools

## The Role of Academic Tracking

# Friends Disappear

THE BATTLE FOR RACIAL EQUALITY IN EVANSTON  
MARY BARR



- Mary Barr: sociologist who attended Evanston Township HS

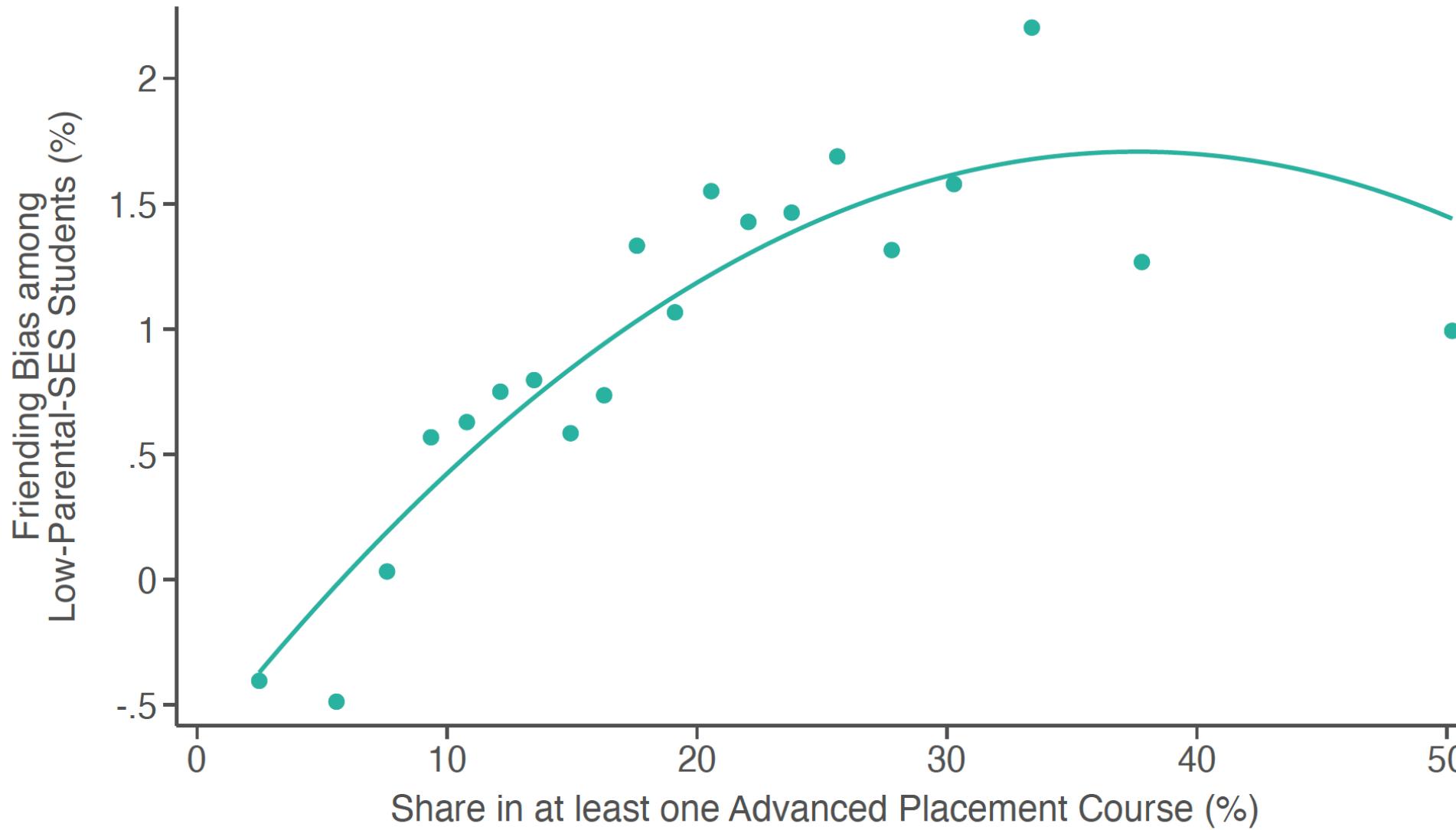
**BARR:** Interracial friendships that had been building and blossoming, even though it was more difficult, beginning in the elementary schools, and then really flourishing in the middle school, just sort of come to an abrupt halt.

The process of social segregation began again in high school, reinforced by academic tracking that guided white students towards an academic focus and black students to a vocational focus. Some of that tracking came through the school itself; some from families.

**BARR:** This is where our friendship ended. I think that it wasn't... when we think about tracking, we think about "college bound," right? The gifted group, the AP classes, or the remedial or vocational courses. And that's where all of my black friends ended up.

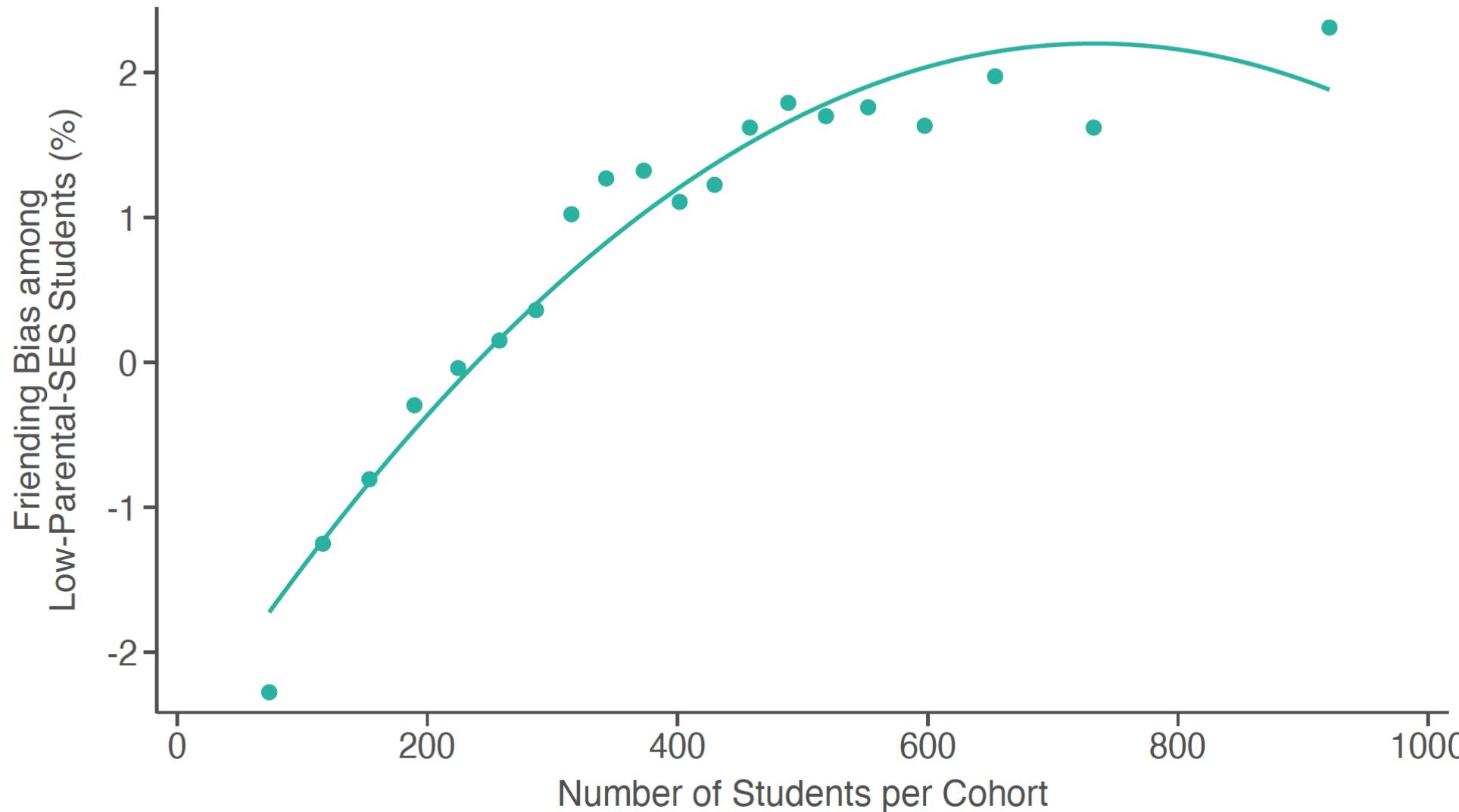
# Friending Bias in High Schools vs. AP Enrollment

Bias Measured using Parental SES



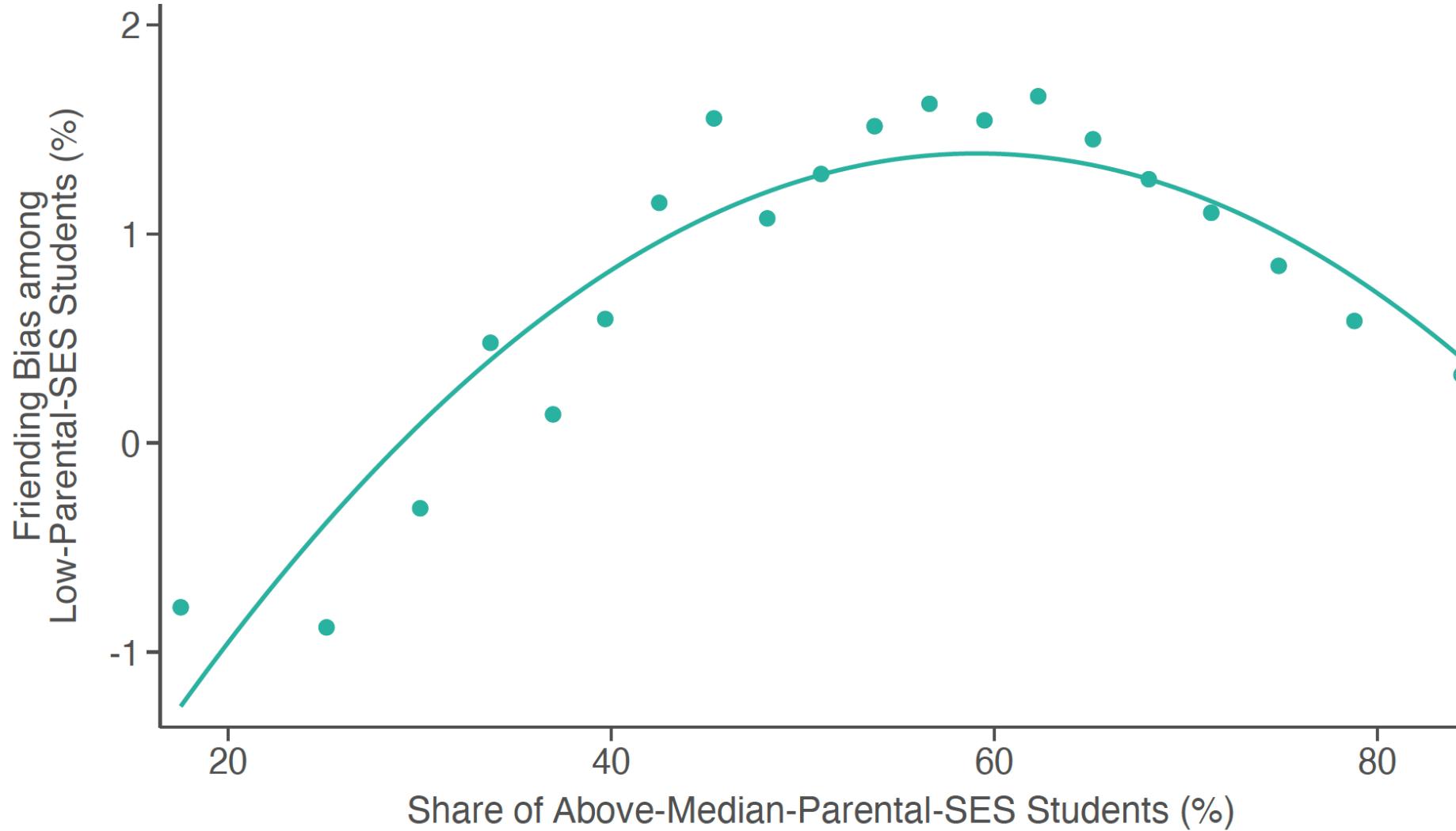
# Friending Bias in High Schools vs. School Size

Bias Measured using Parental SES



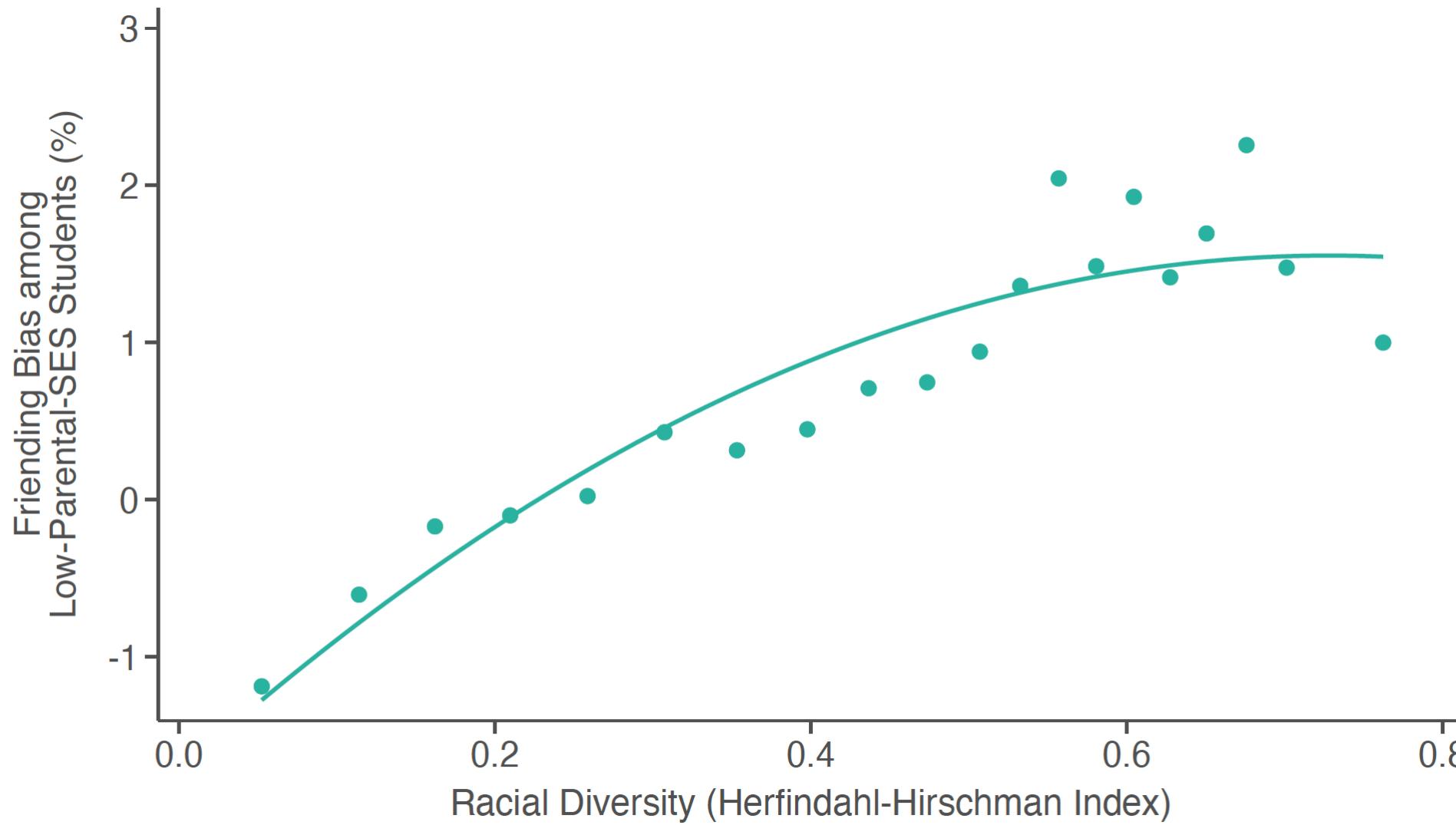
# Friending Bias in High Schools vs. Socioeconomic Diversity

Bias Measured using Parental SES



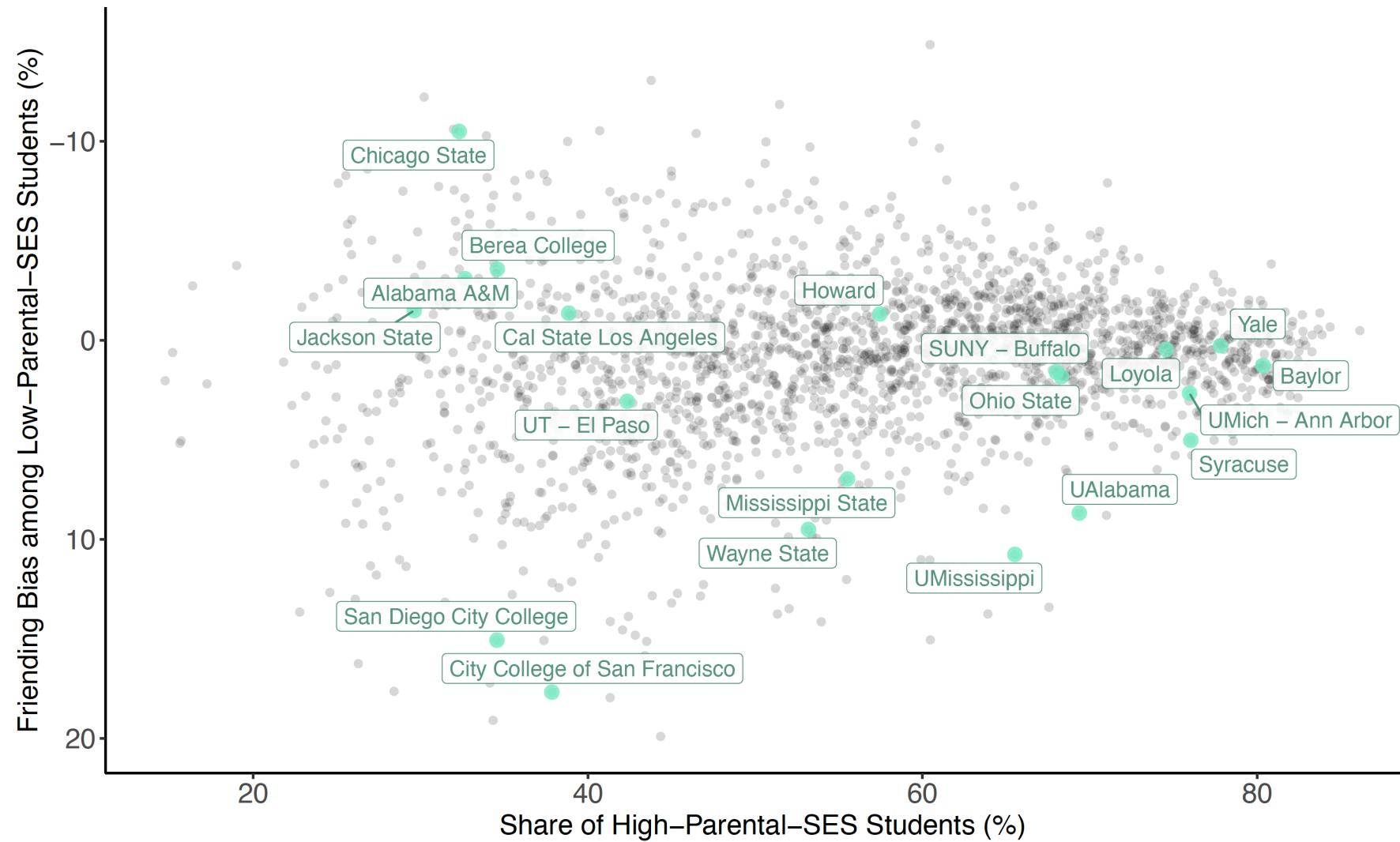
# Friending Bias in High Schools vs. Racial Diversity

Bias Measured using Parental SES



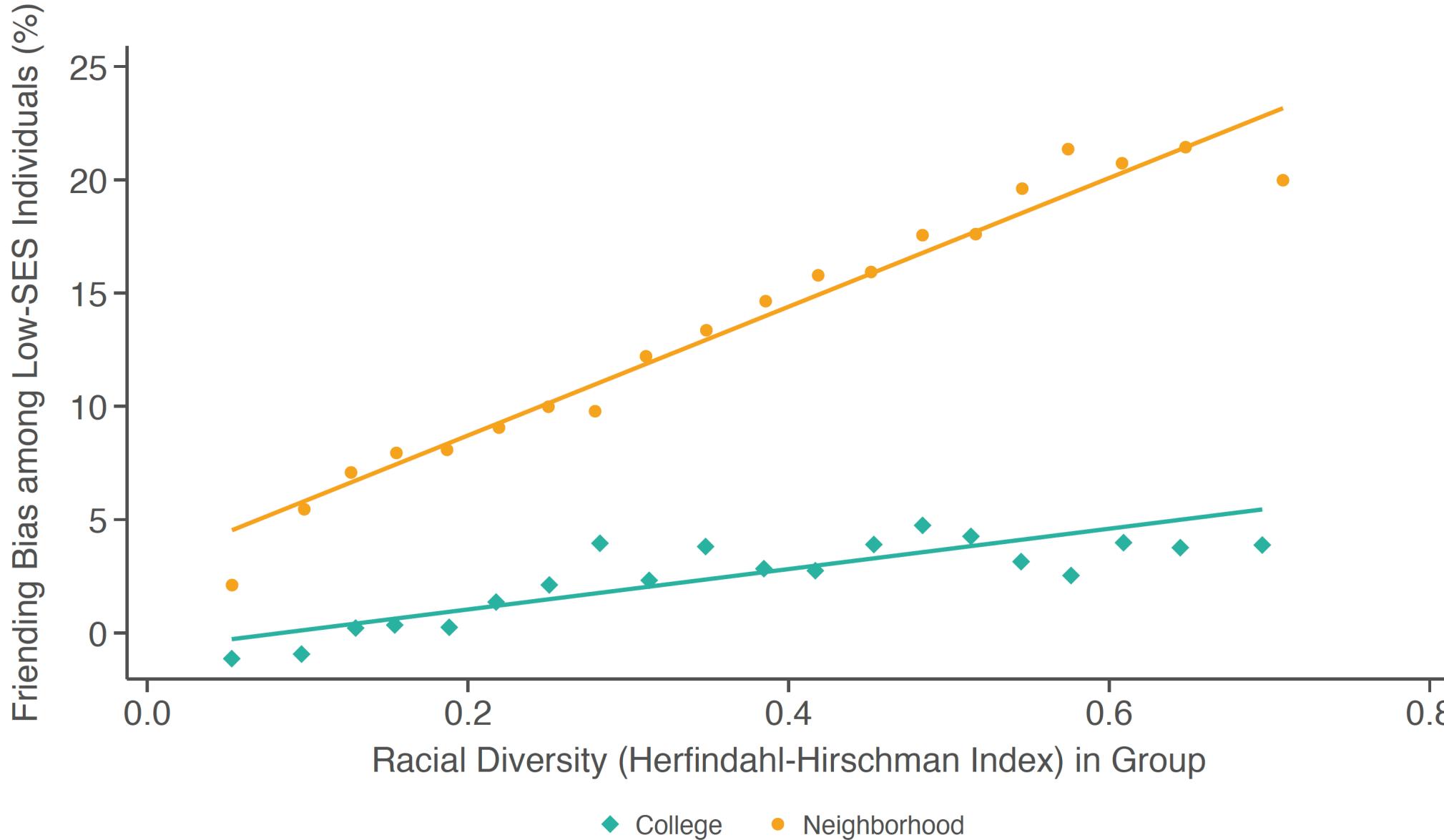
# Friending Bias vs. Exposure to High-SES Students, by College

Among Low-SES Students in 1990-2000 Birth Cohorts



# Racial Diversity vs. Friending Bias

In Colleges and Neighborhoods



# Friending Bias at the University of Alabama

Greek Life as a Potential Source of Friending Bias on College Campuses

# The Crimson White

OPINION

## Greek diversity: Why not socioeconomic too?

[Leigh Terry](#)

January 22, 2014

One of the reasons I chose the Capstone over other institutions of higher learning was my awareness and appreciation of the socioeconomic variety composed in its student body.

However, I have been dismayed over the course of my three semesters at The University of Alabama by how few interclass interactions I have on a monthly basis. This stark contrast from my pre-college days is most striking among my friends and acquaintances in the greek community.

It is no secret that sorority and fraternity dues are expensive. According to the UA National Panhellenic Conference website, the average sorority member (not living in-house) paid \$3,300.25 per semester during the 2012-2013 academic year. That adds up to more than \$26,000 – equal to 64 percent of the cost of four years of in-state tuition – over the course of a member's four years in Tuscaloosa.

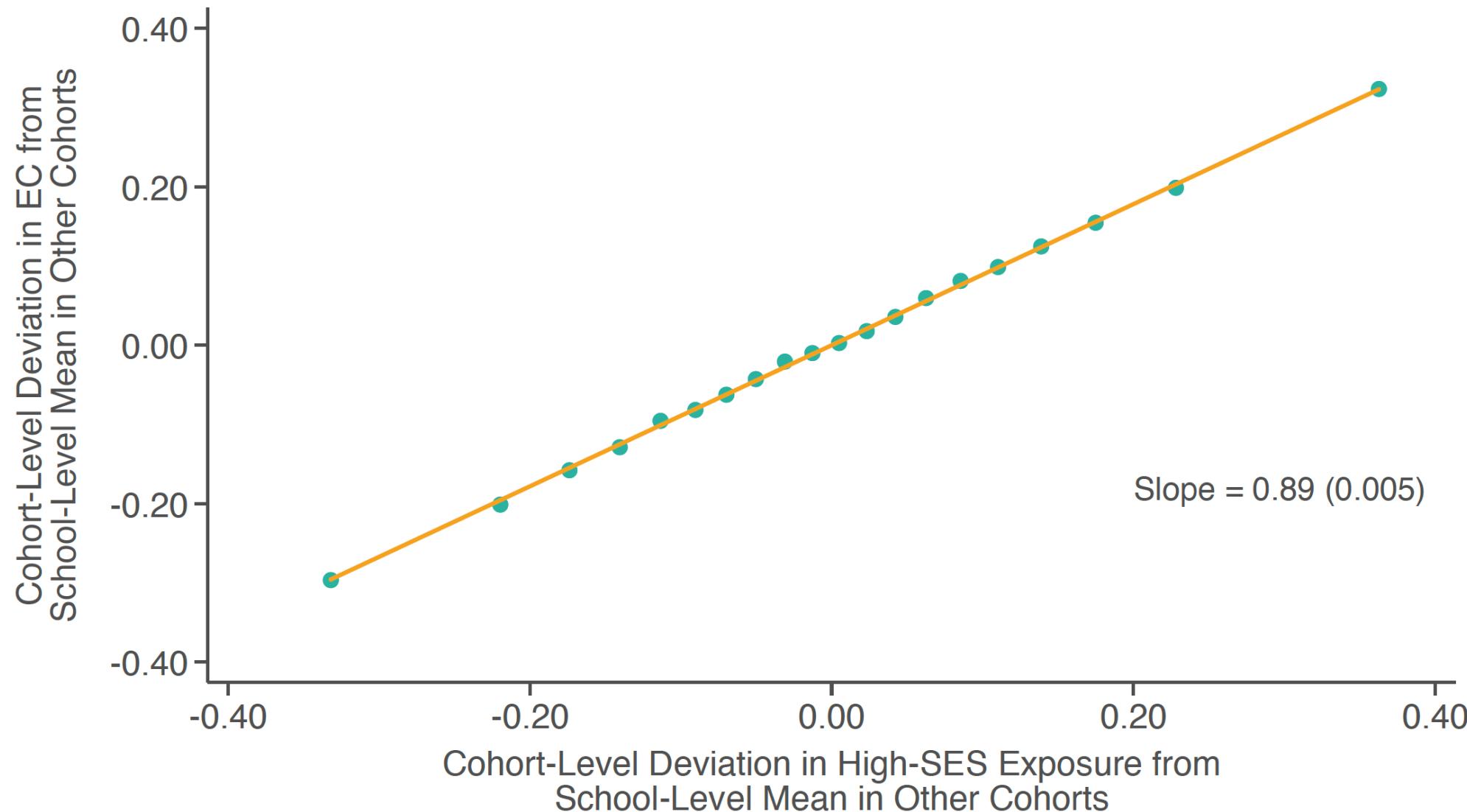
# Targeting Interventions to Increase Connectedness

- Relative importance of reducing bias vs. increasing exposure differs across schools
- School-level statistics can be useful in predicting impacts of marginal efforts to increase integration vs. reduce friendending bias
- To illustrate, estimate causal effects of marginal integration on social interaction
  - Use quasi-experimental variation in share of high-SES classmates across cohorts within high schools [Hoxby 2001, Sacerdote 2011]

# Causal Effects of Integration on Connectedness:

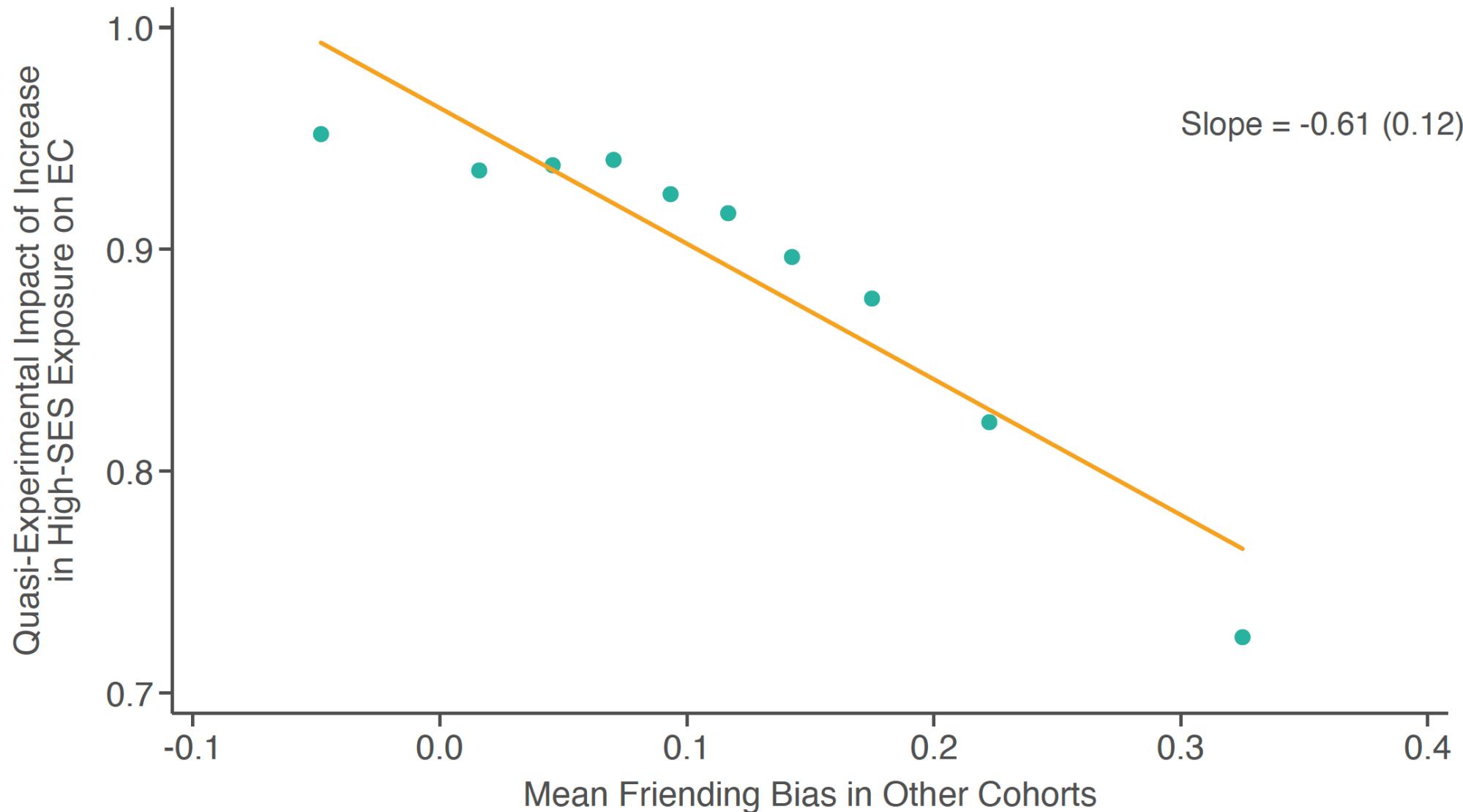
## Cross-Cohort Fluctuations

Cohort-level Changes in EC vs. Changes in Exposure



# Causal Effects of Integration on Connectedness: Cross-Cohort Fluctuations

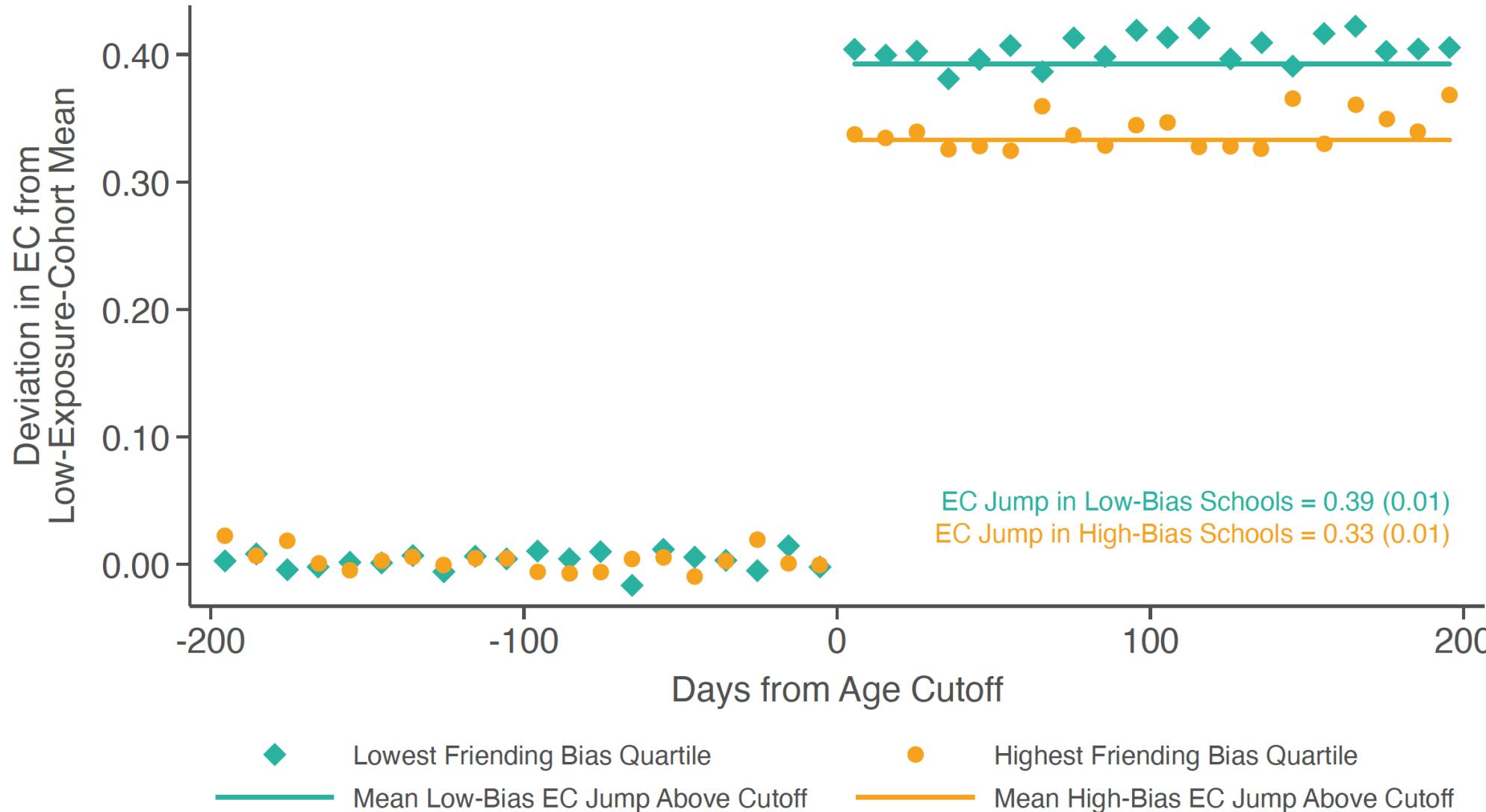
Causal Impacts of High-SES Share on Connectedness, by Level of Friending Bias



# Causal Effects of Integration on Connectedness:

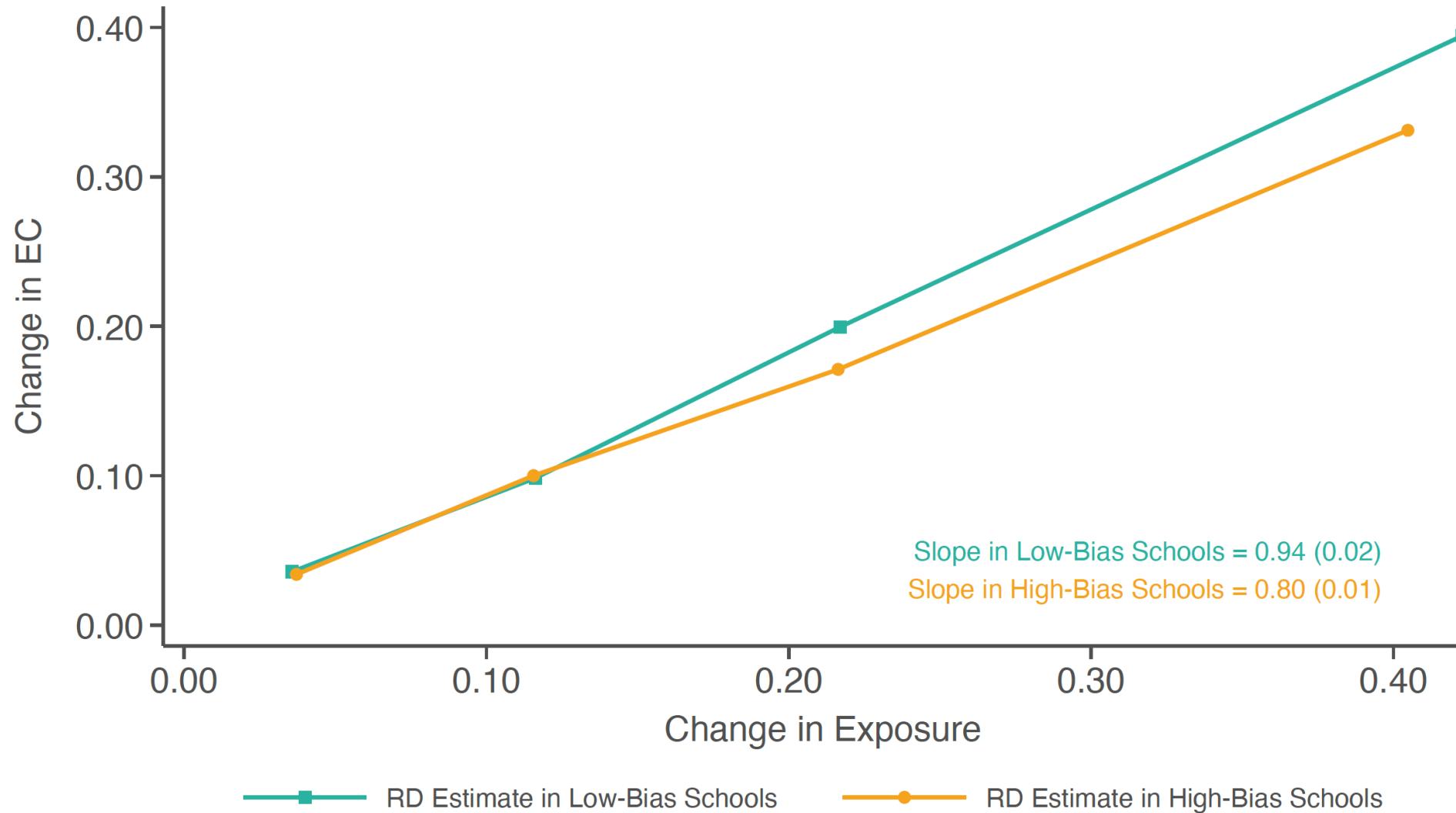
## Regression Discontinuity

Changes in EC Around School Entry Cutoffs, by Friending Bias



# Causal Effects of Integration on Connectedness: Regression Discontinuity

Impacts of Exposure on EC, by Friending Bias



# Ongoing Efforts to Reduce Friending Bias

THE DAILY CALIFORNIAN

NEWS

**A structure of division: Berkeley High School attempts to tackle segregation on campus**

**The Crimson White**

OPINION

Greek diversity: Why not socioeconomic too?

August 15, 2019

**Thinking Outside the Checkbox: How HKS Teamed Up With a Dallas School to Connect Divided Campus**

By HKS

**A Weightlifting Program Gives Ex-Cons A Chance At Change**

April 20, 2017 · 3:58 PM ET

Heard on All Things Considered



# Berkeley High School: Initiatives to Reduce Friending Bias

THE DAILY CALIFORNIAN

SUNDAY, MAY 14, 2017

## A structure of division: Berkeley High School attempts to tackle segregation on campus

Today, Berkeley High is split into five learning communities, with two larger schools — Berkeley International High School, or BIHS, and Academic Choice, or AC — and three smaller schools — the Academy of Medicine and Public Service, Arts and Humanities Academy, or AHA, and Communication Arts and Sciences, or CAS.

Though the movement toward a small program structure was meant in part to address racial achievement gaps and improve outcomes for students of color, many students feel it has created a segregated school and fueled racist attitudes.

### Intervention

To attempt to address this divisive climate, Berkeley High's Design Team has proposed the creation of a ninth grade that places incoming students into intentionally diverse communities. Under a universal ninth grade, students would begin their time at Berkeley High in one of various houses, rather than in one of the five learning communities.

# A Gym in Boston Pushes to Reduce Friending Bias

Inner City Weightlifting (ICW), Boston MA



## STAGE III SOCIAL CAPITAL

During Stage III, students form relationships with clients from opposite socioeconomic backgrounds, bridging social capital, and creating a dynamic support network.

At ICW, through our career track in personal training, we help create economic mobility for people in our program as they begin earning \$20-\$60 per hour training clients from opposite socio-economic backgrounds. More importantly, this flips power dynamics, bridges social capital, and creates a genuine form of inclusion that disrupts the system of segregation, isolation, and racism that leads to the streets. **The people in our program gain access to new networks and opportunities, while our clients gain new insights and perspectives into complex social challenges.**

# Conclusion: Social Capital as a Lever for Economic Mobility

- Two broad takeaways:
  1. Social capital as measured by *economic connectedness* appears to be a key mediator of economic mobility
  2. Economic connectedness is shaped by segregation (exposure) and friending bias (interaction), both of which can be measured and shaped by policy
- More generally, increasing social connectedness lies at the heart of many recent programs that have shown promise in increasing upward mobility
  - Ex: CMTQ (neighborhoods) and YearUp (job training)
- Designing policies going forward to provide not just economic resources but relevant socioeconomic connections may be critical for expanding opportunity

# For Further Information



Research papers:

- Social Capital I: Measurements and Associations with Economic Mobility.  
*Nature* 608 (7921): 108-121, 2022
- Social Capital II: Determinants of Economic Connectedness.  
*Nature* 608 (7921): 122-134, 2022



Data: [www.socialcapital.org](http://www.socialcapital.org)



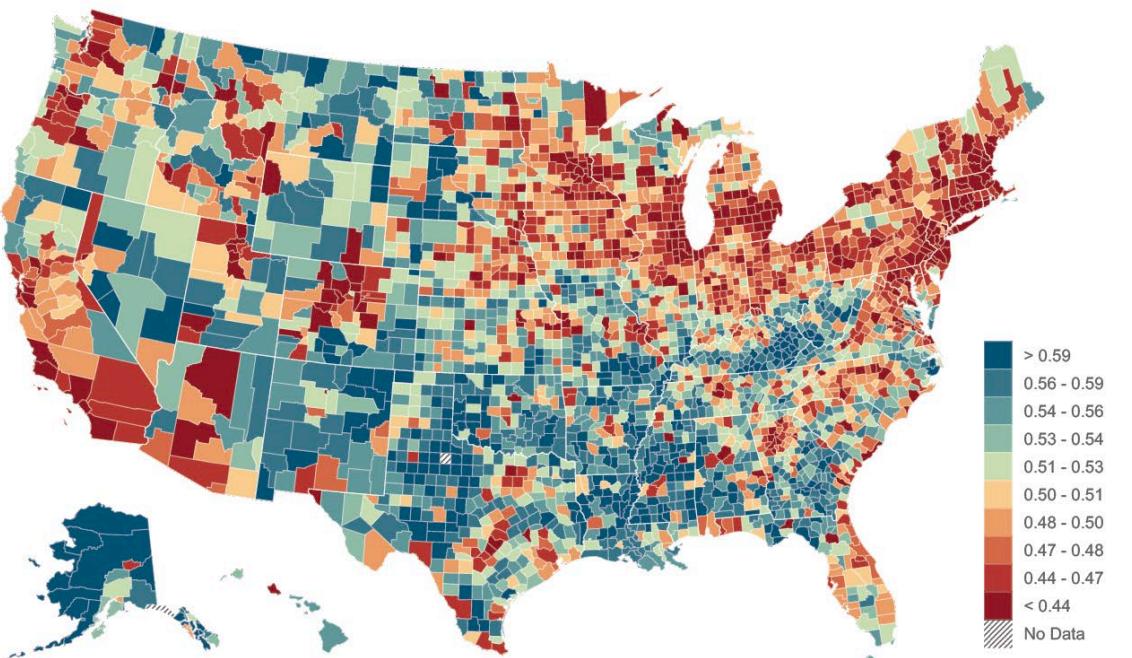
Questions: [info@opportunityinsights.org](mailto:info@opportunityinsights.org)

# Supplementary Slides

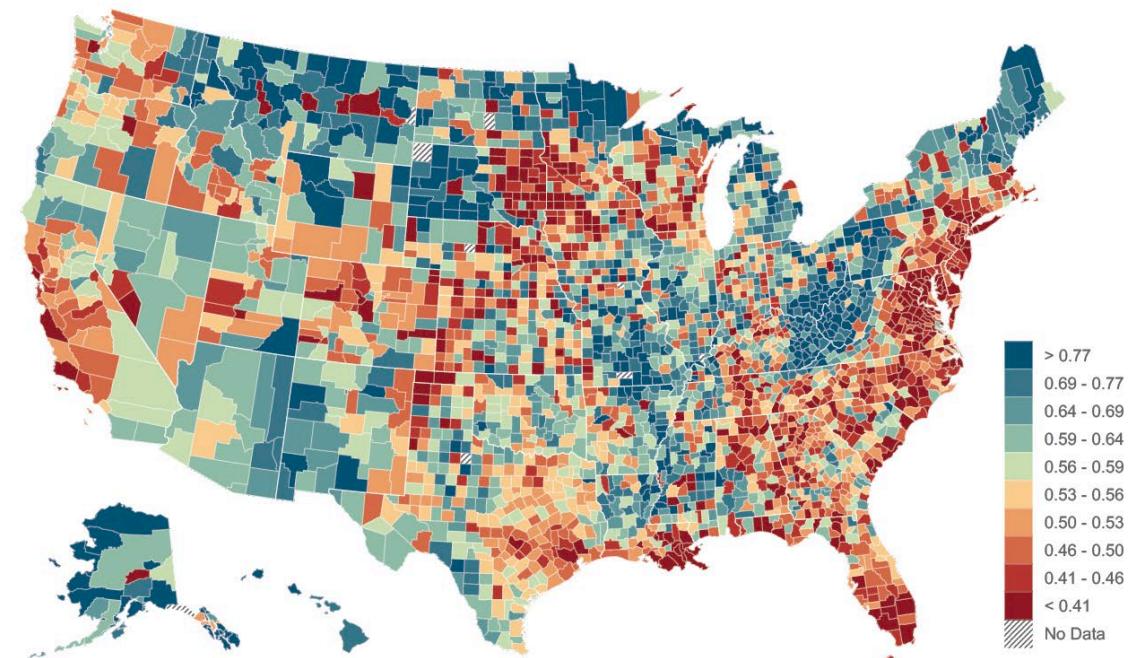
# Connectedness by County

## Age and Language

Age Connectedness



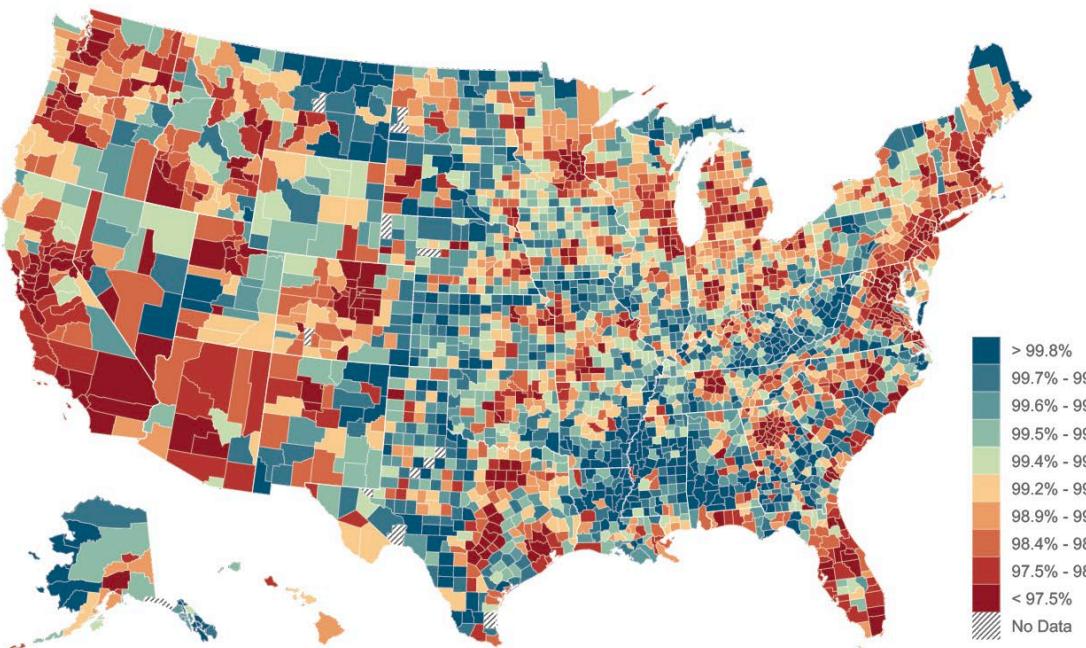
Language Connectedness



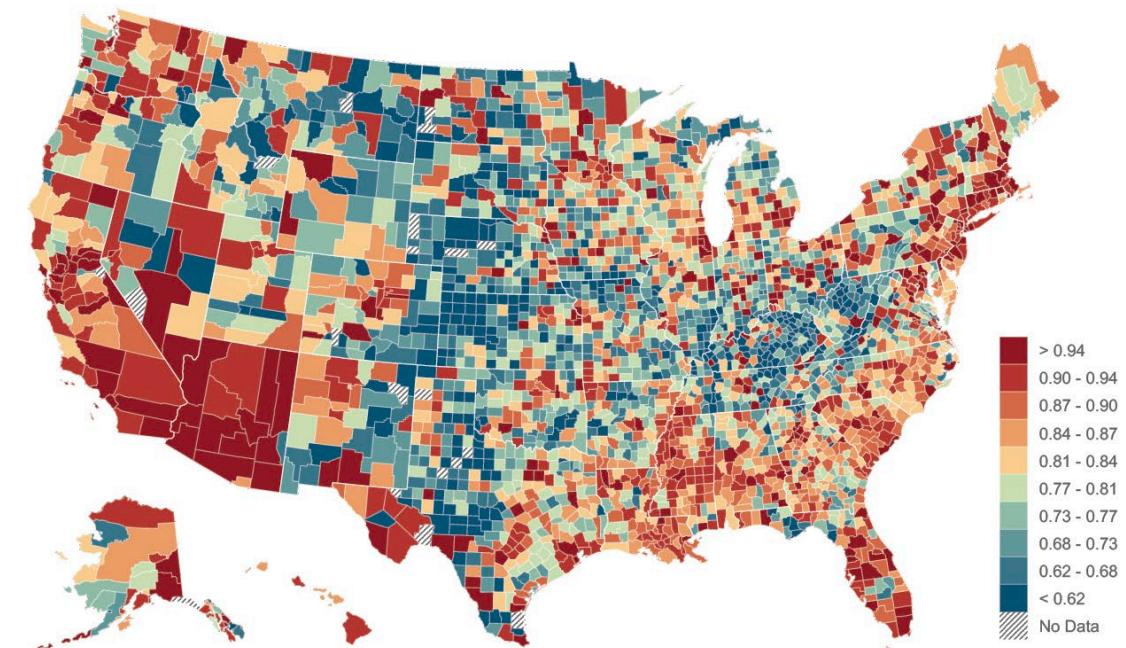
# Cohesiveness by County

## Support Ratio and Spectral Homophily

Support Ratio



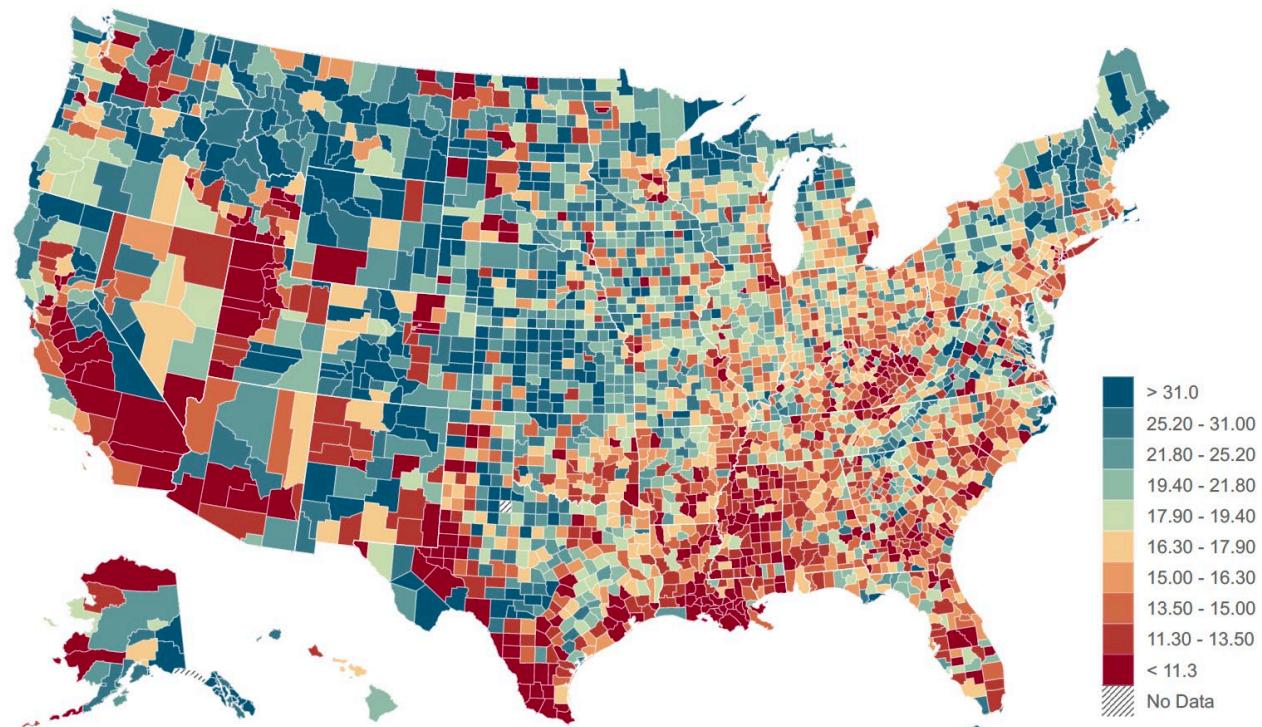
Spectral Homophily



# Civic Engagement by County

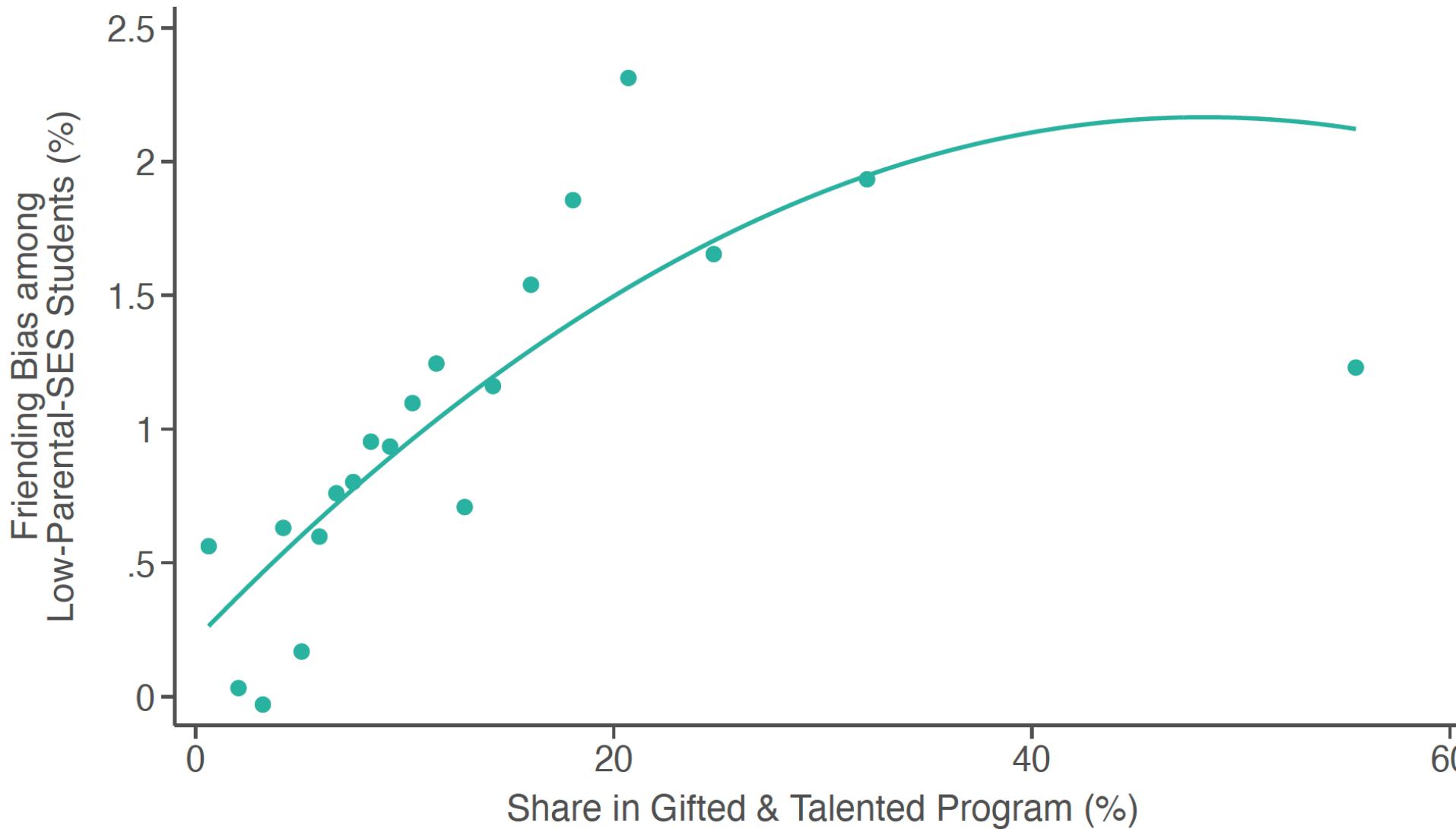
Number of Civic Organization Pages per 1,000 Facebook Users

Civic Organizations



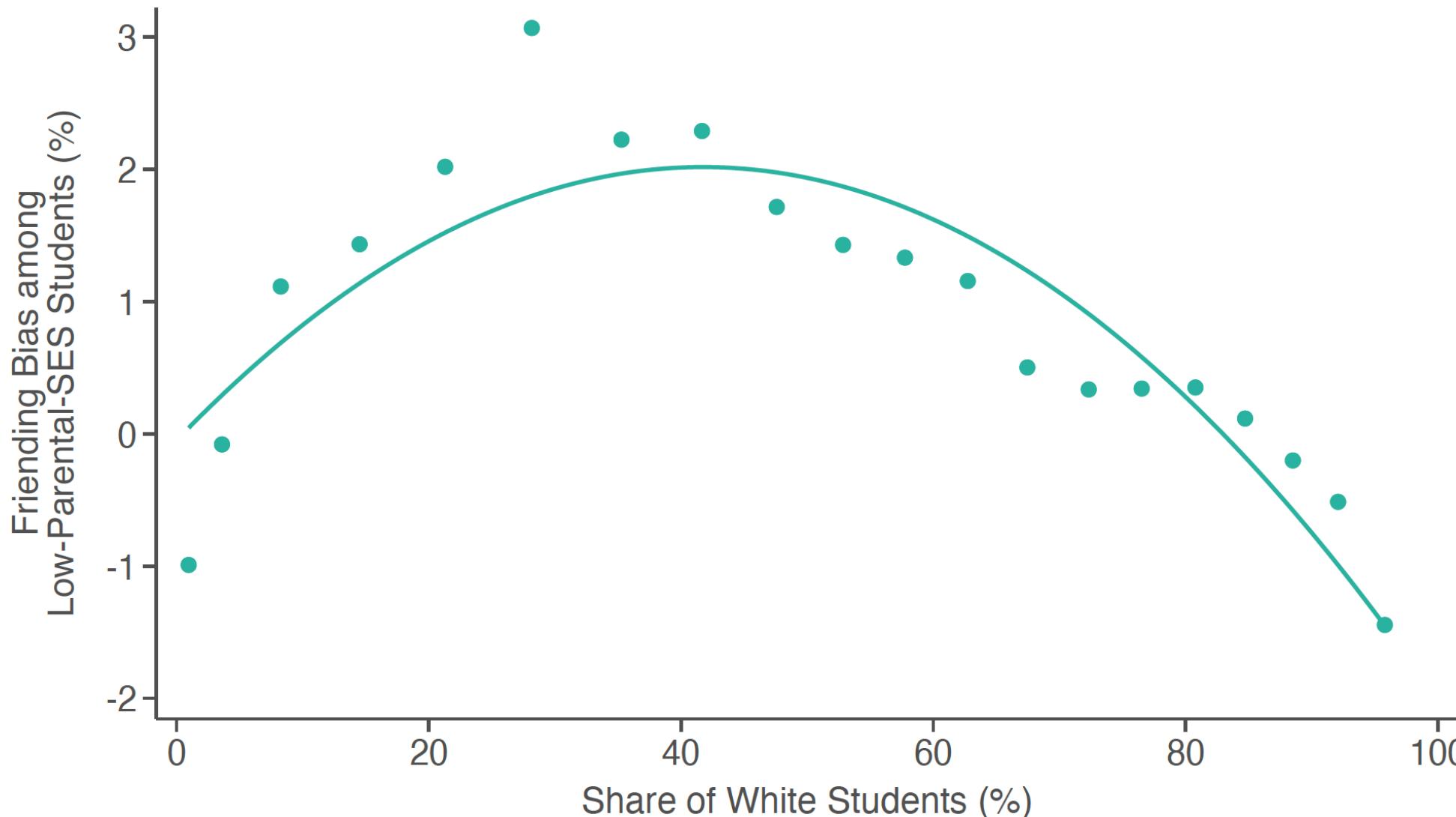
# **Friending Bias in High Schools vs. Gifted & Talented Enrollment**

Bias Measured using Parental SES



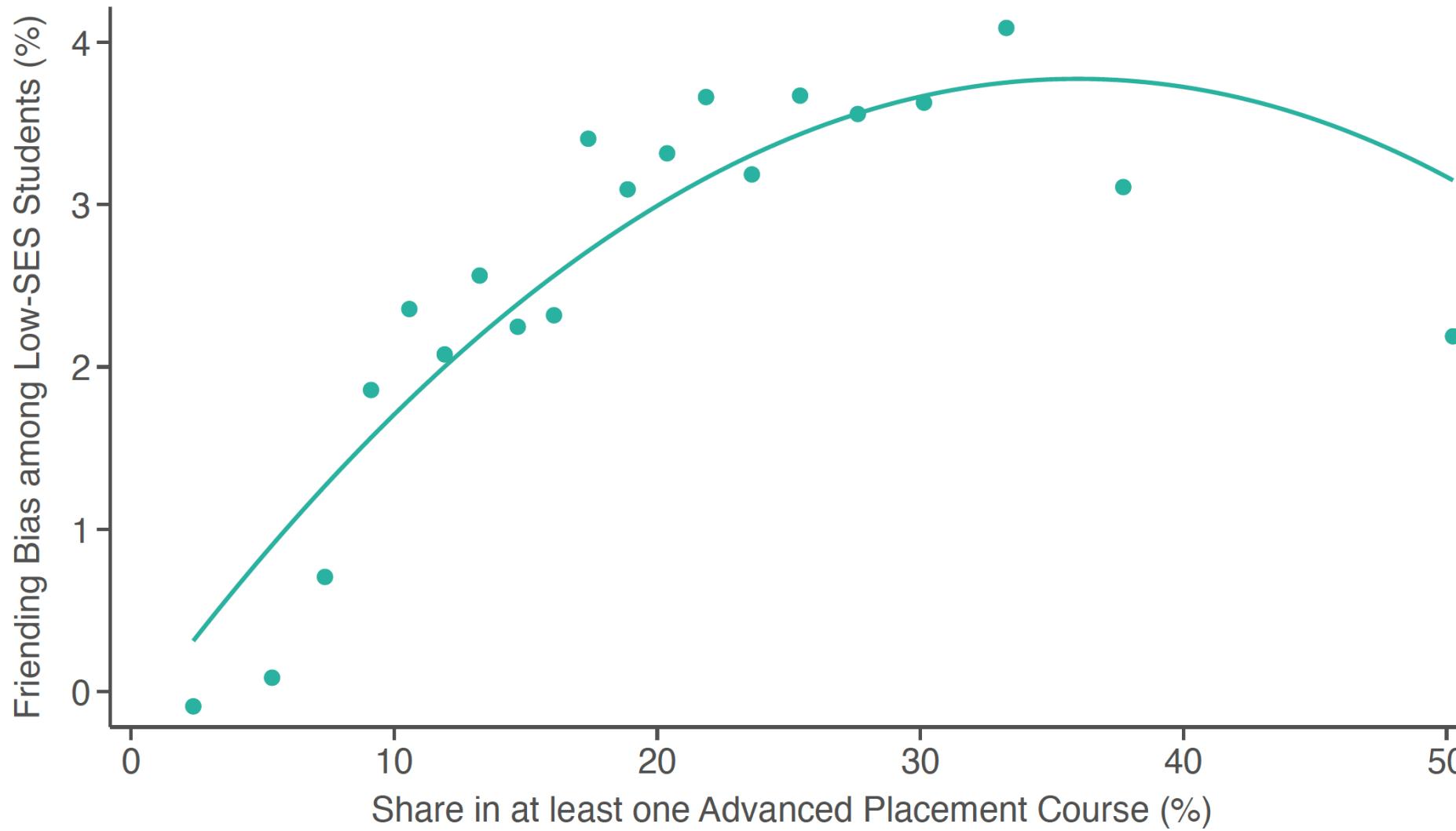
# Friending Bias in High Schools vs. Share of White Students

Bias Measured using Parental SES



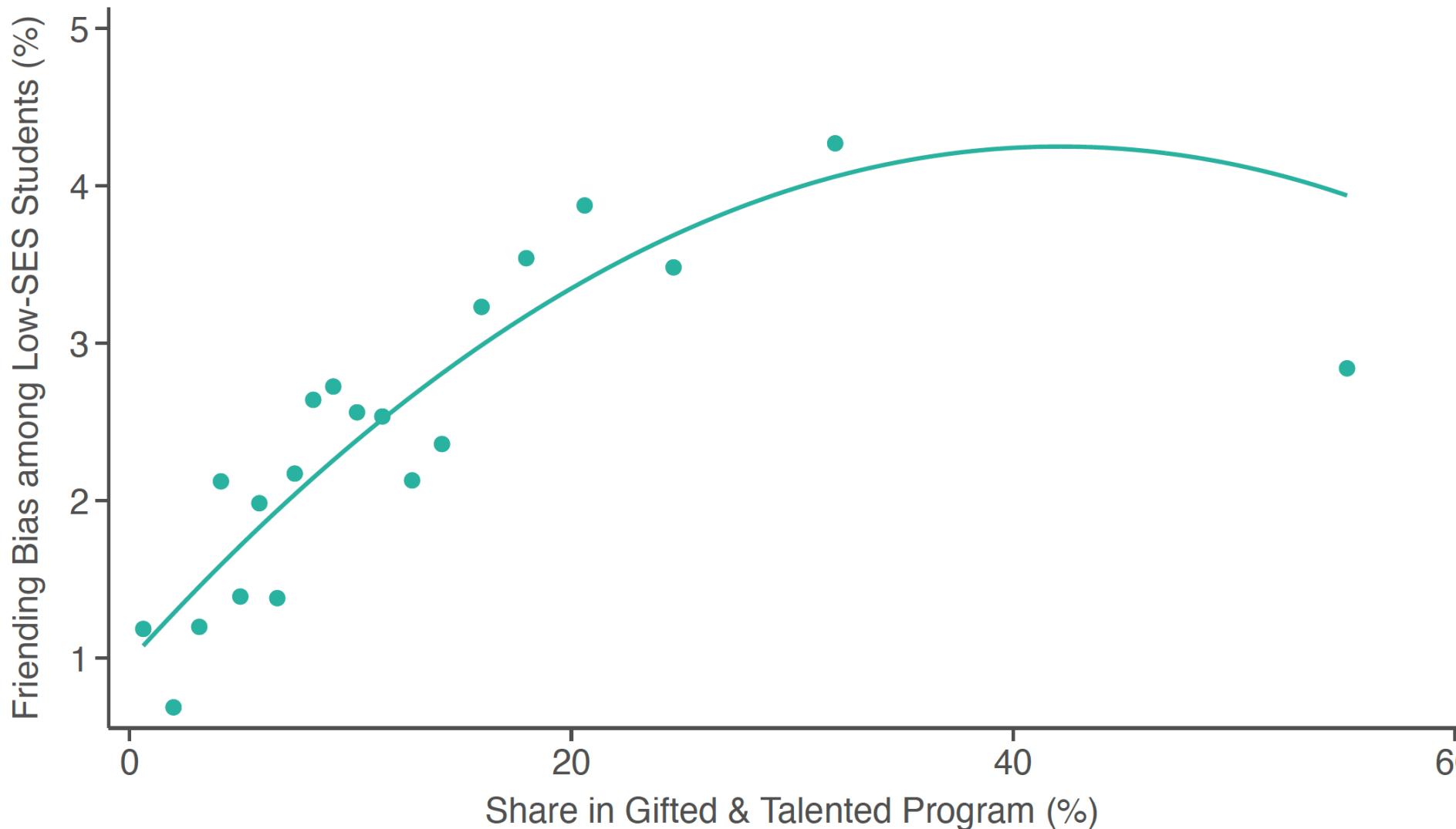
# Friending Bias in High Schools vs. AP Enrollment

Bias Measured using Own SES



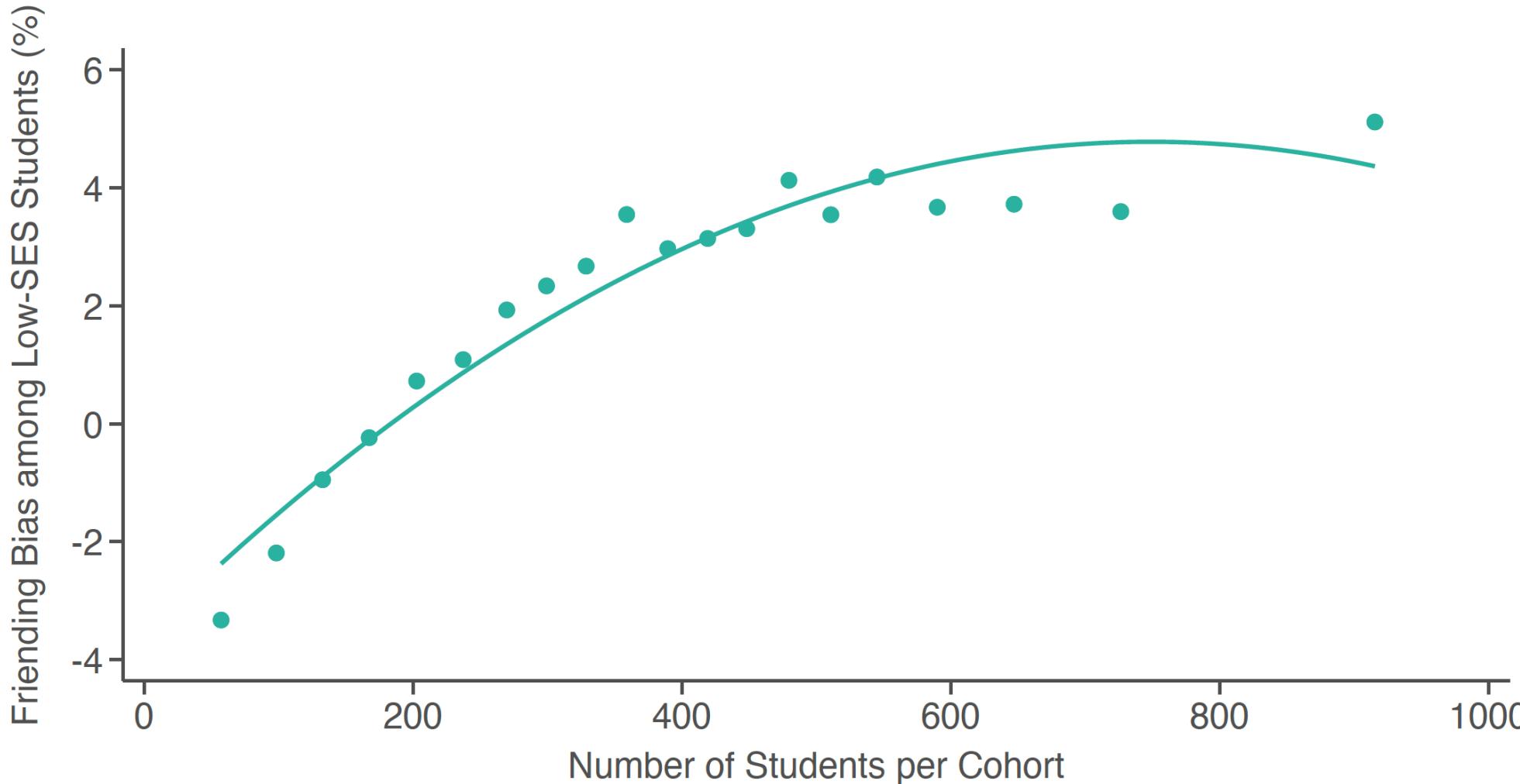
# Friending Bias in High Schools vs. Gifted & Talented Enrollment

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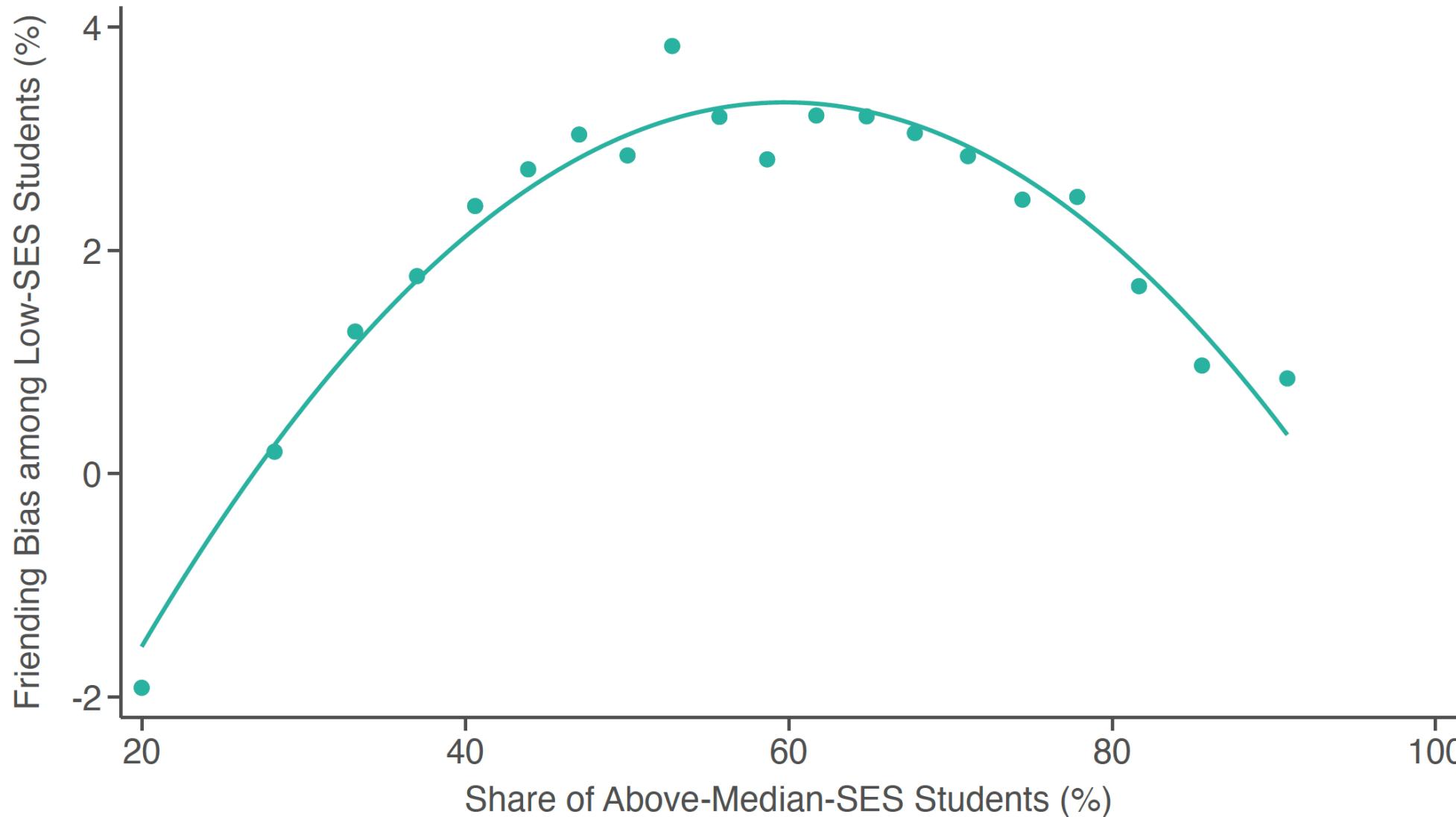
# Friending Bias in High Schools vs. School Size

Bias Measured using Own SES



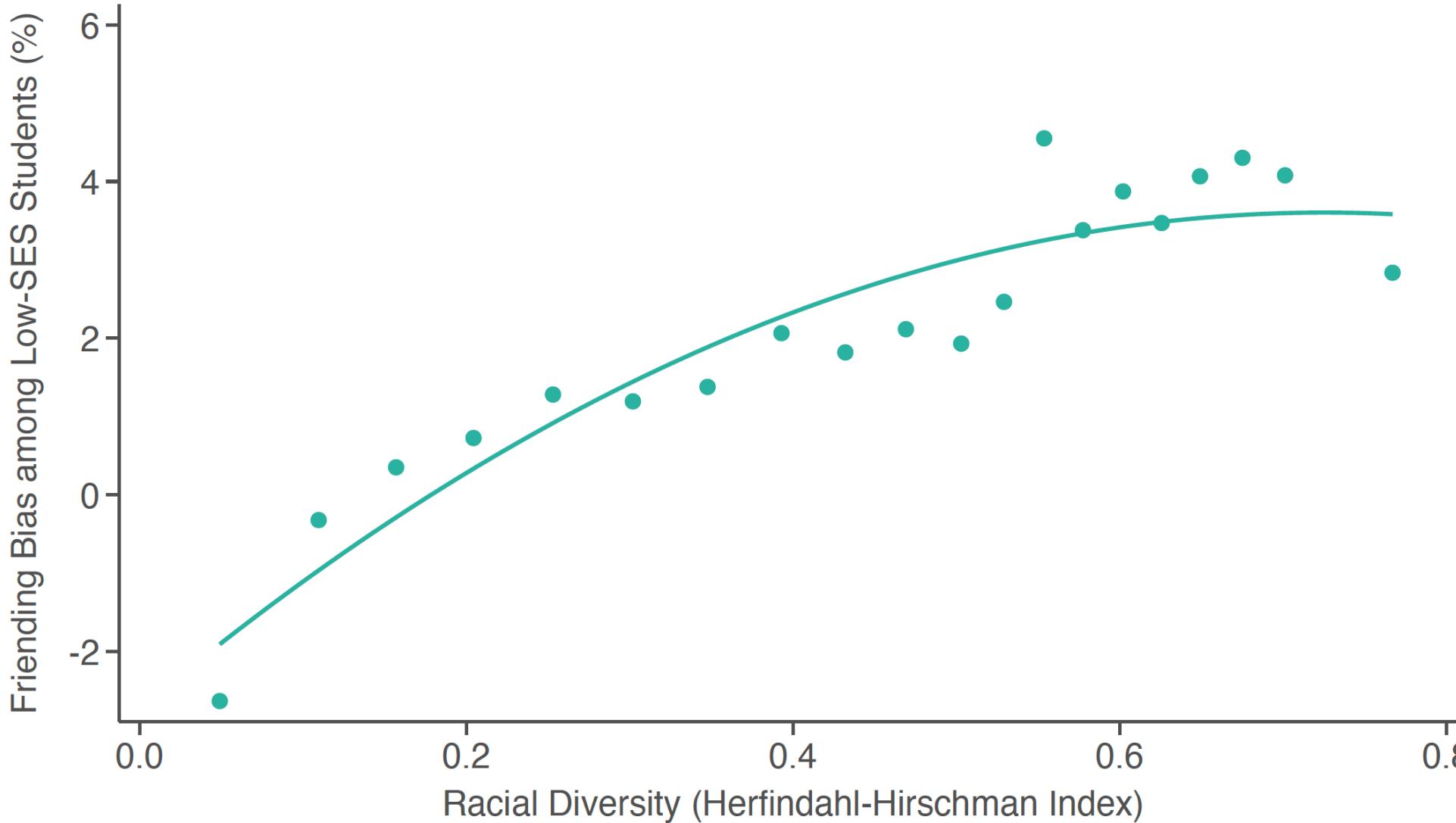
# Friending Bias in High Schools vs. Exposure

Bias Measured using Own SES



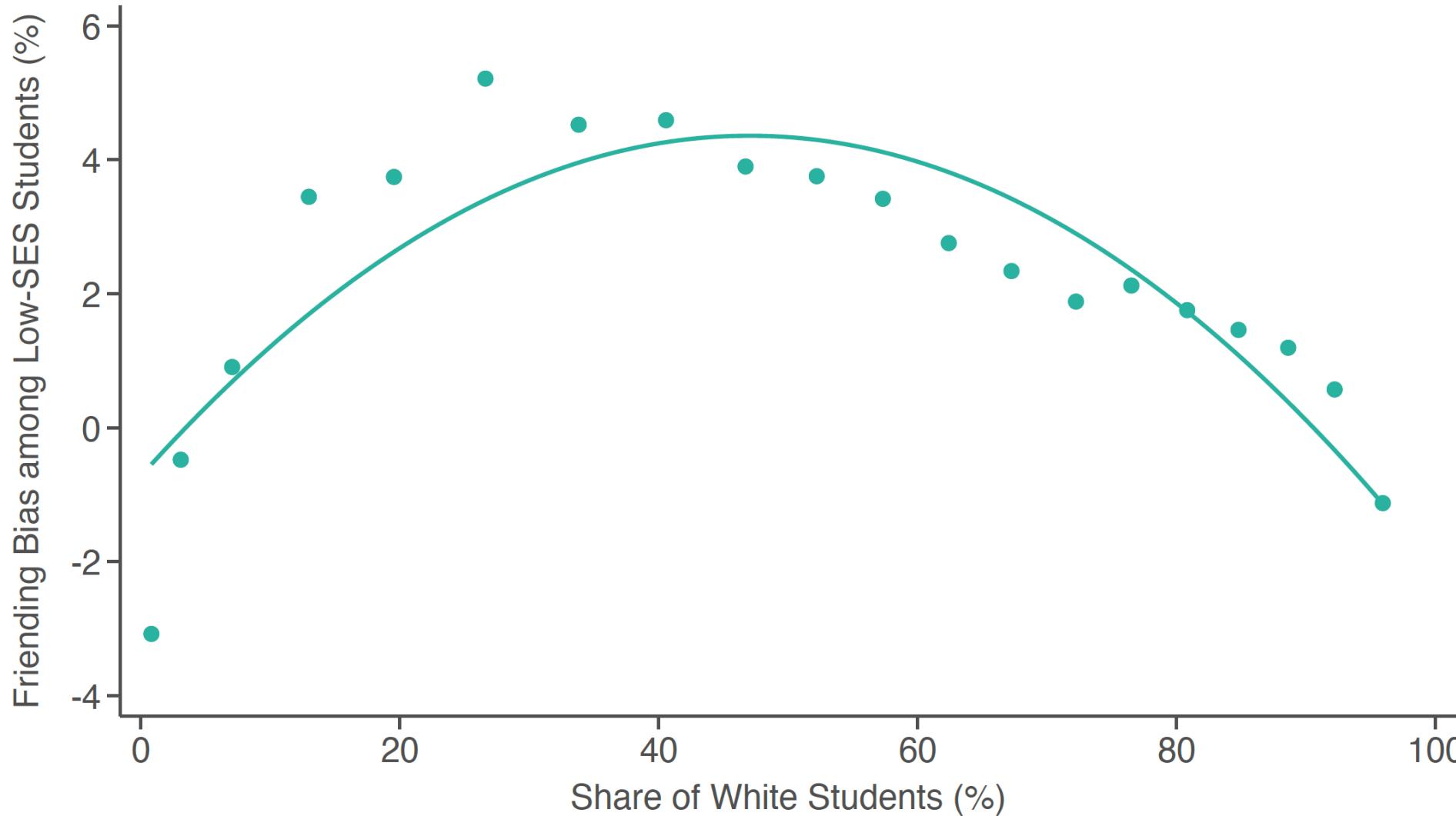
# Friending Bias in High Schools vs. Racial Diversity

Bias Measured using Own SES

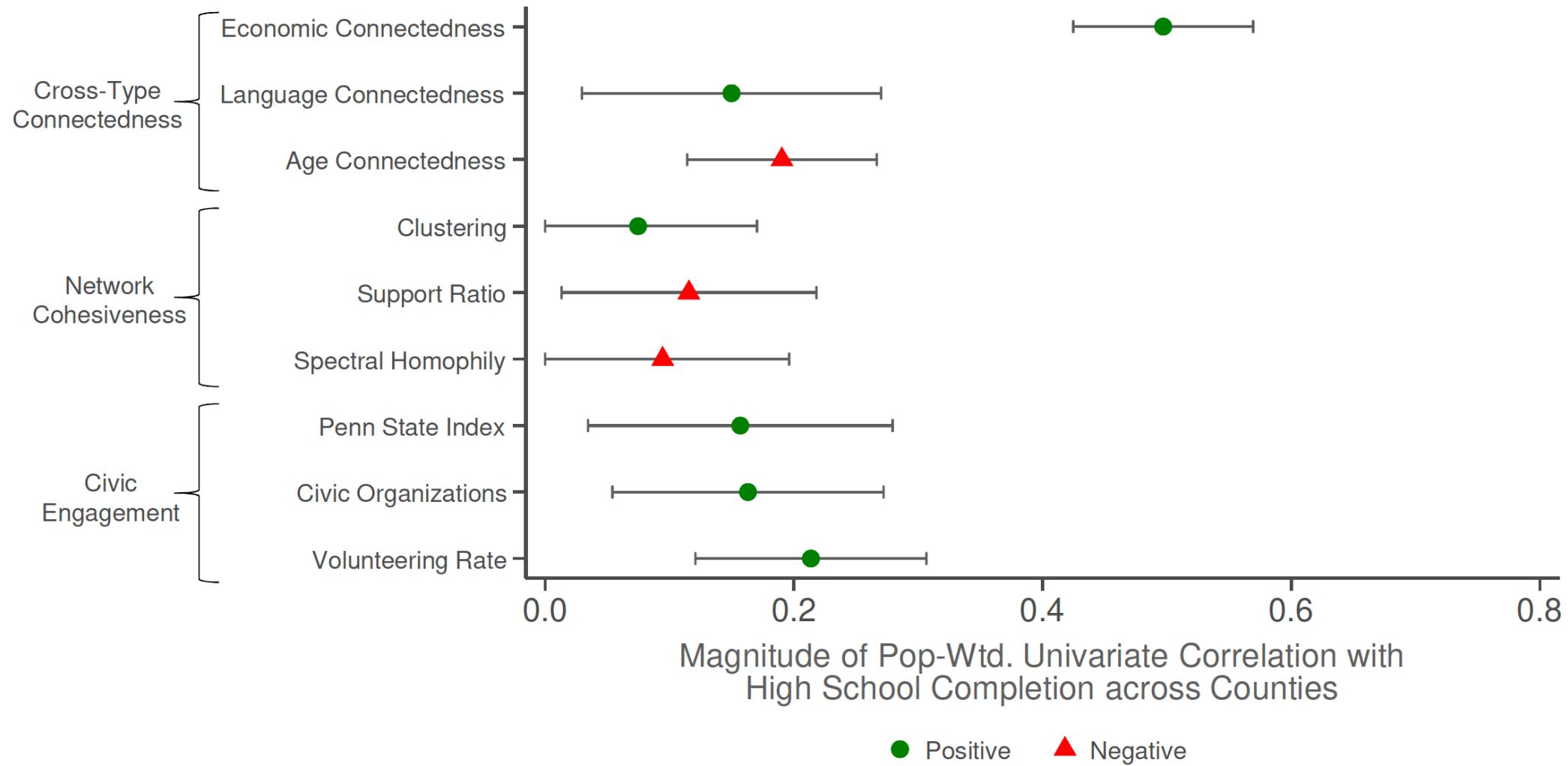


# Friending Bias in High Schools vs. Share of White Students

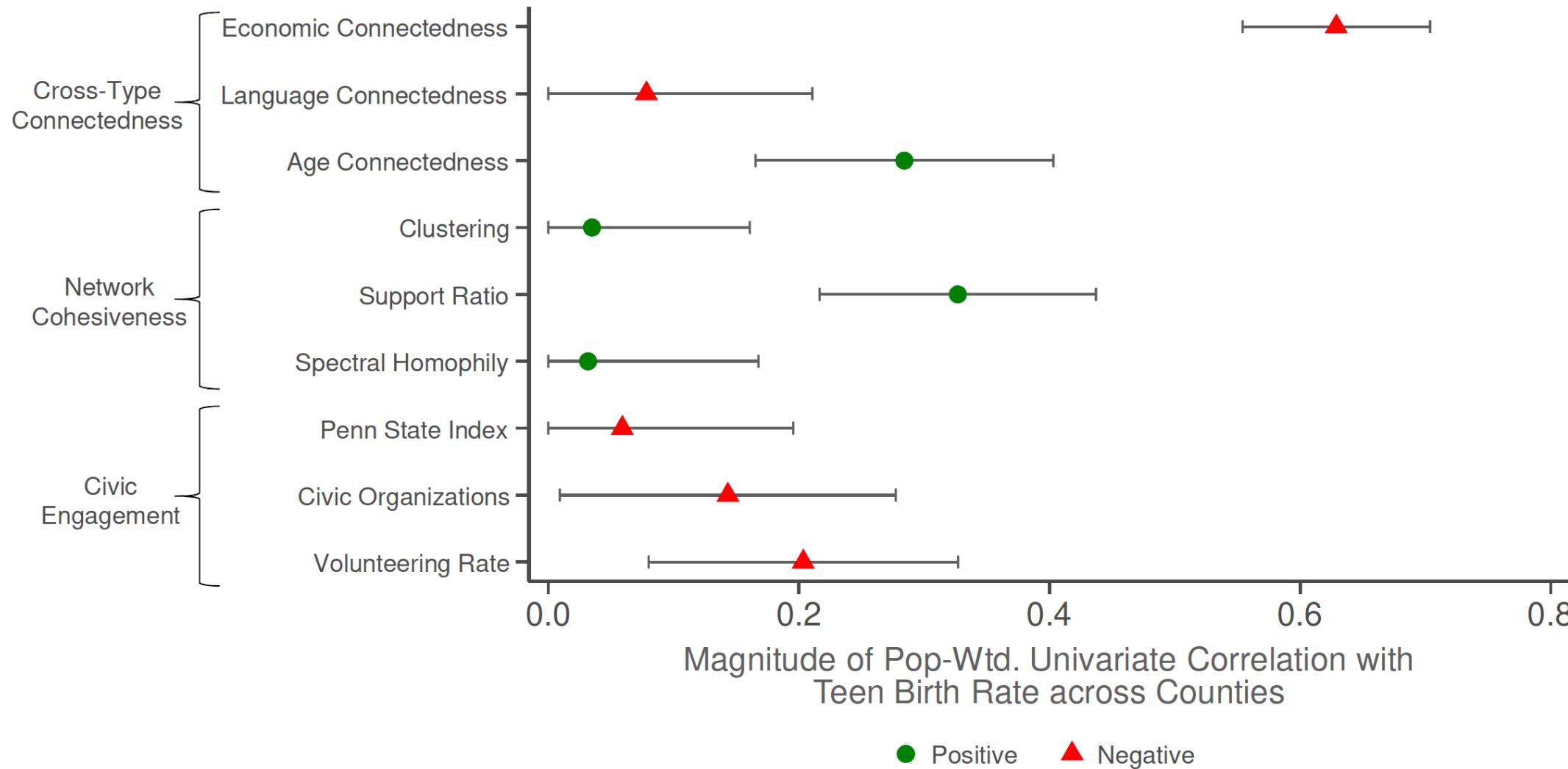
Bias Measured using Own SES



# Correlations with High School Completion Rate for Children with Parents at 25<sup>th</sup> Percentile

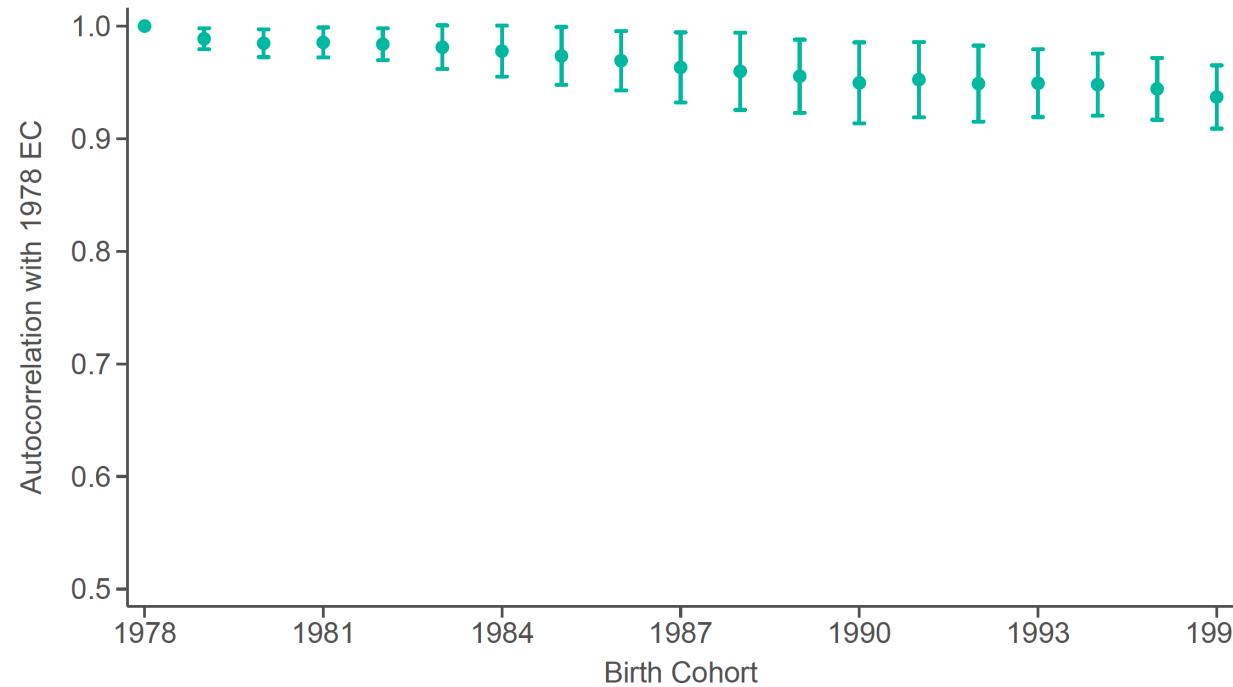


# Correlations with Teen Birth Rate for Women with Parents at 25<sup>th</sup> Percentile

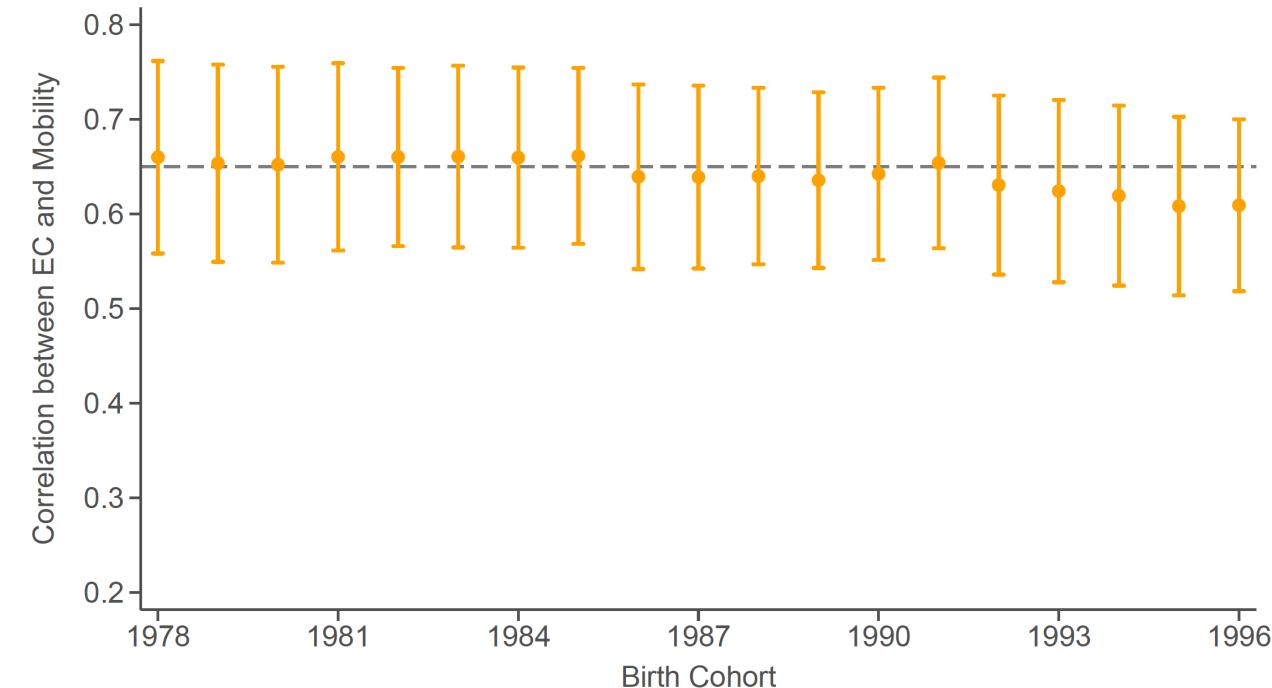


# Stability of County-Level Economic Connectedness Across Cohorts

A. Autocorrelation of Economic Connectedness Across Counties by Cohort

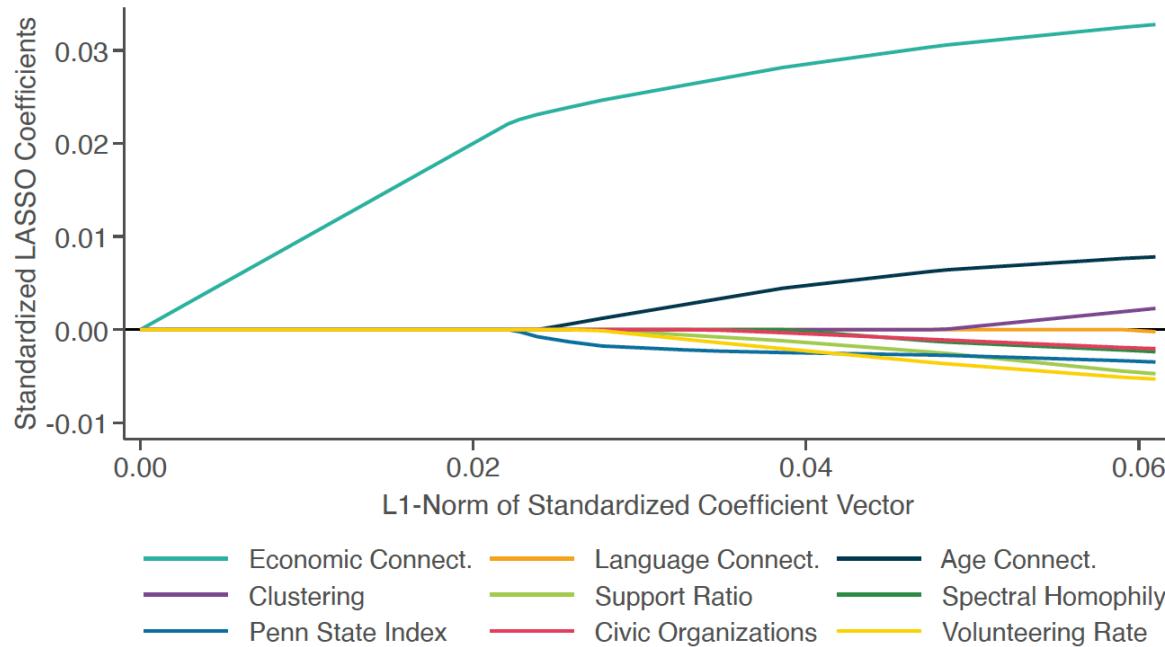


B. Correlation between Upward Mobility for 1978-83 Cohorts and Cohort-Specific EC

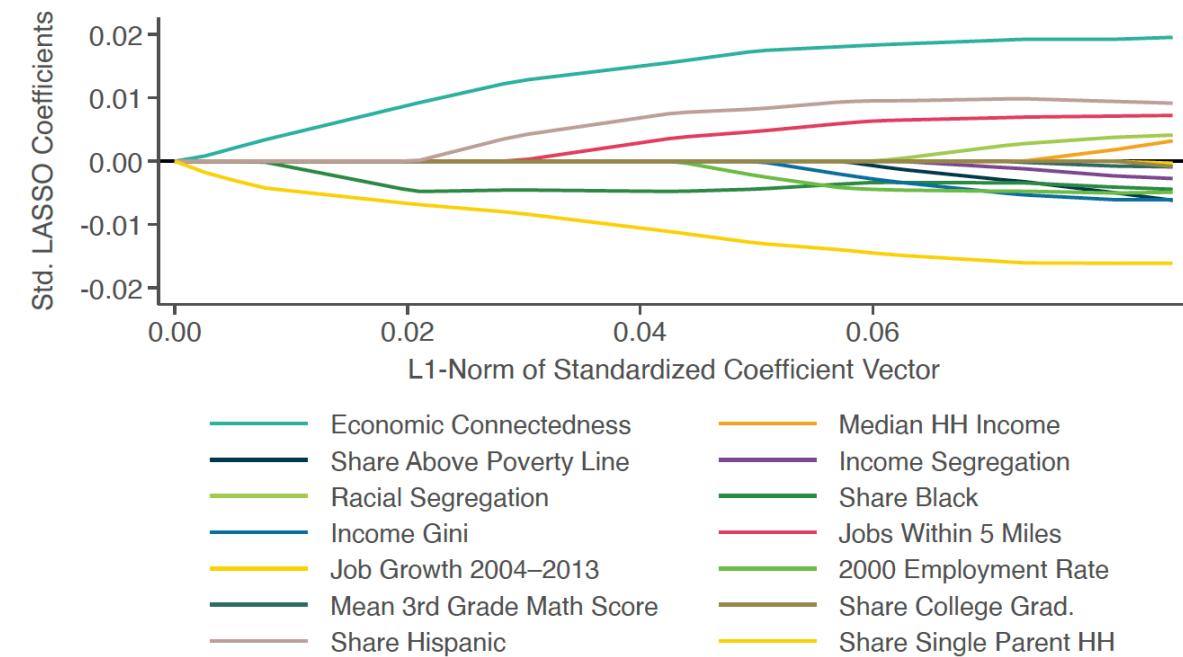


# LASSO Estimates

A. LASSO for Social Capital Measures

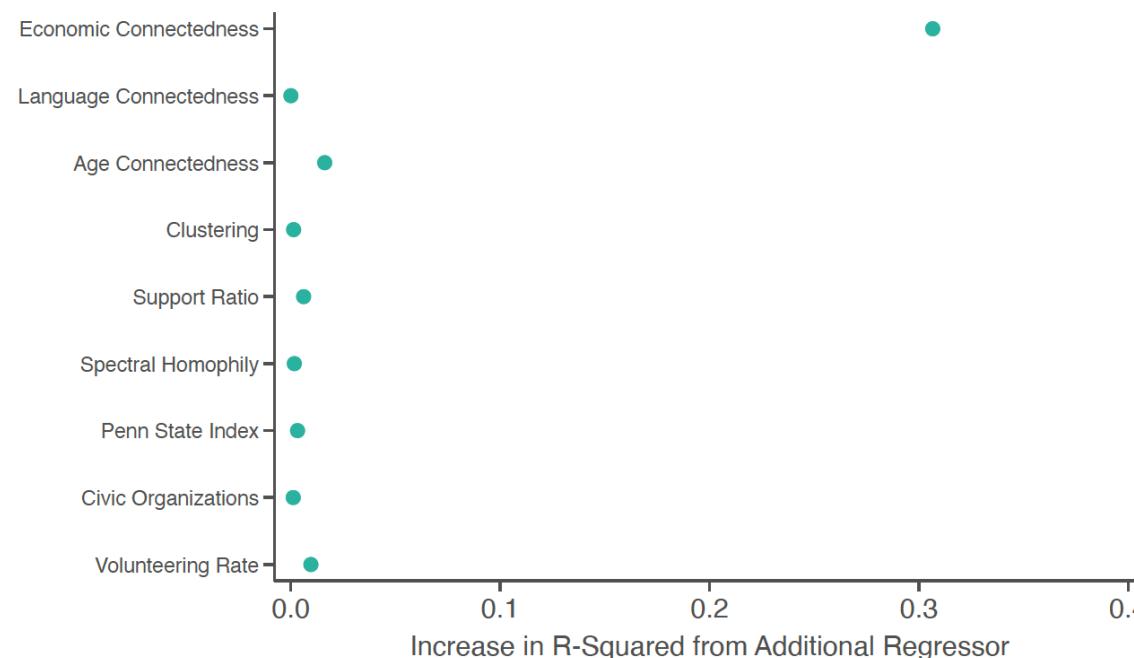


B. LASSO Including Other Neighborhood Characteristics

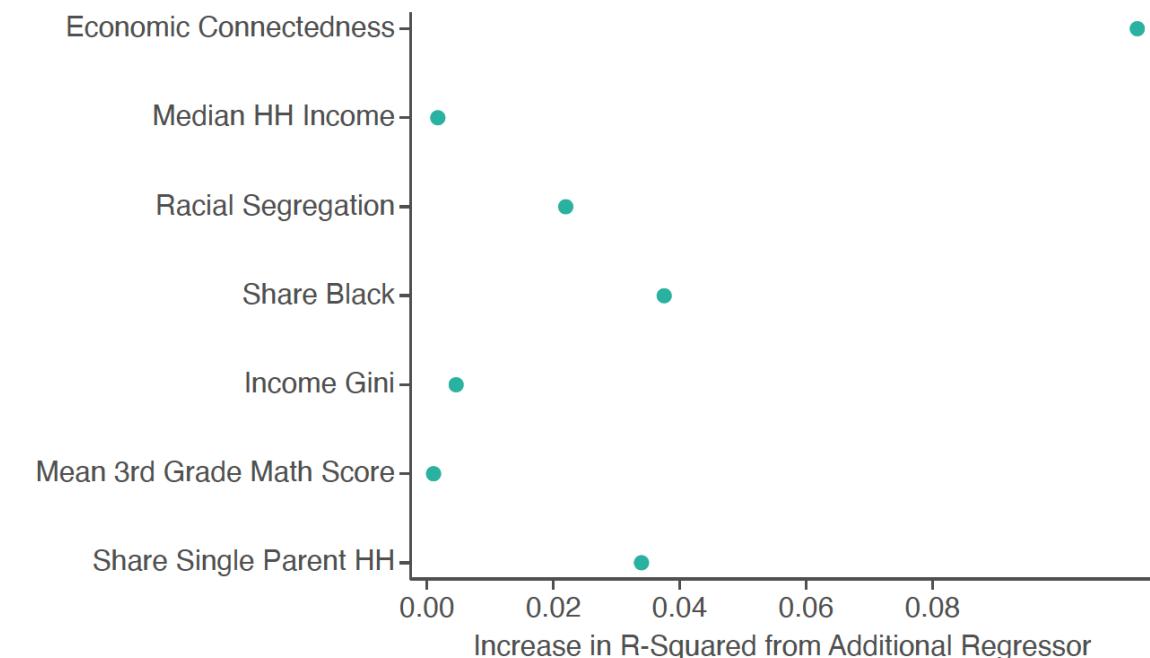


# Incremental R-Squared of Predictors

C. Additional R-Squared for Social Capital Measures

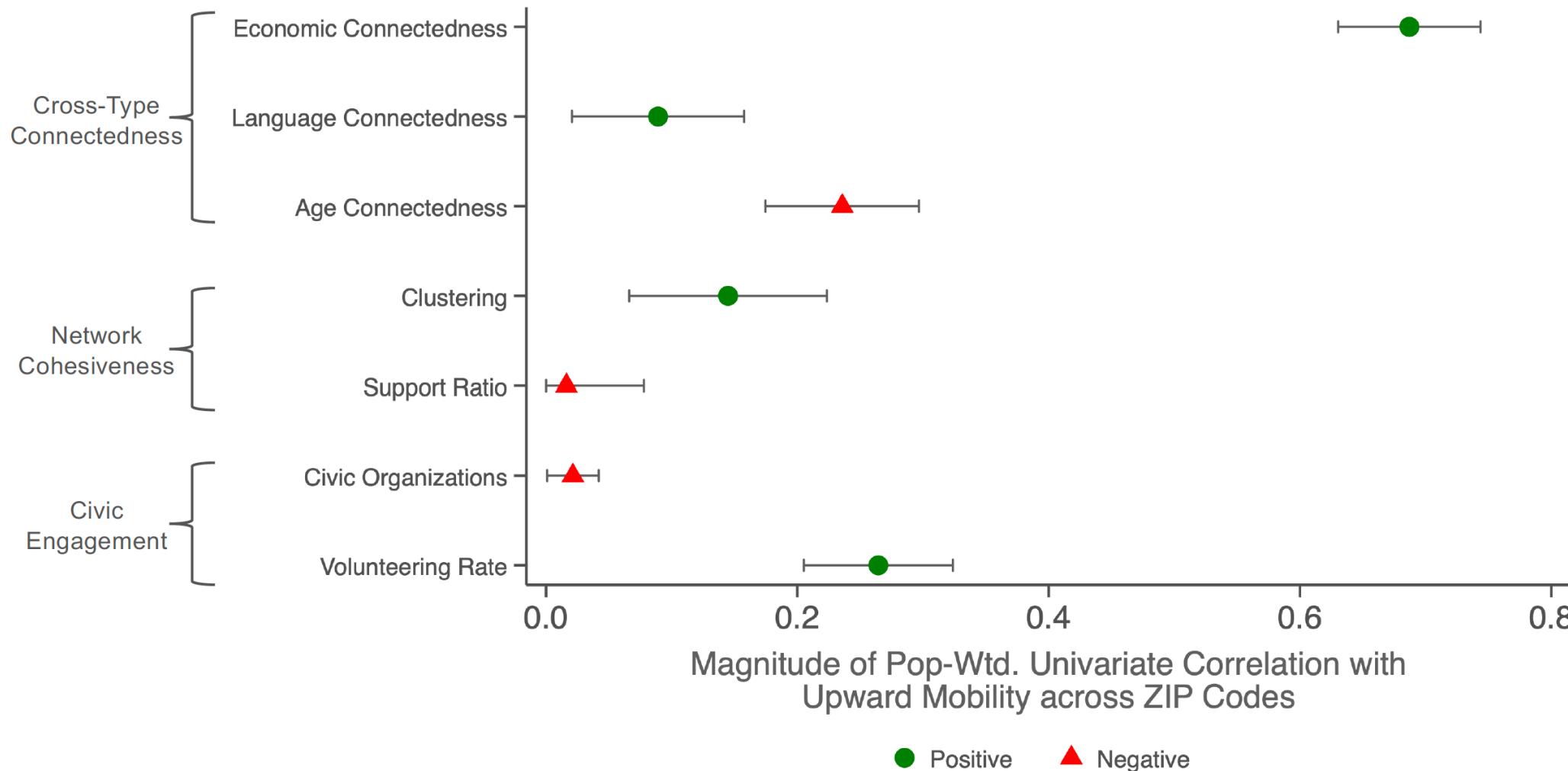


D. Additional R-Squared Incl. Other Nbhd. Characteristics



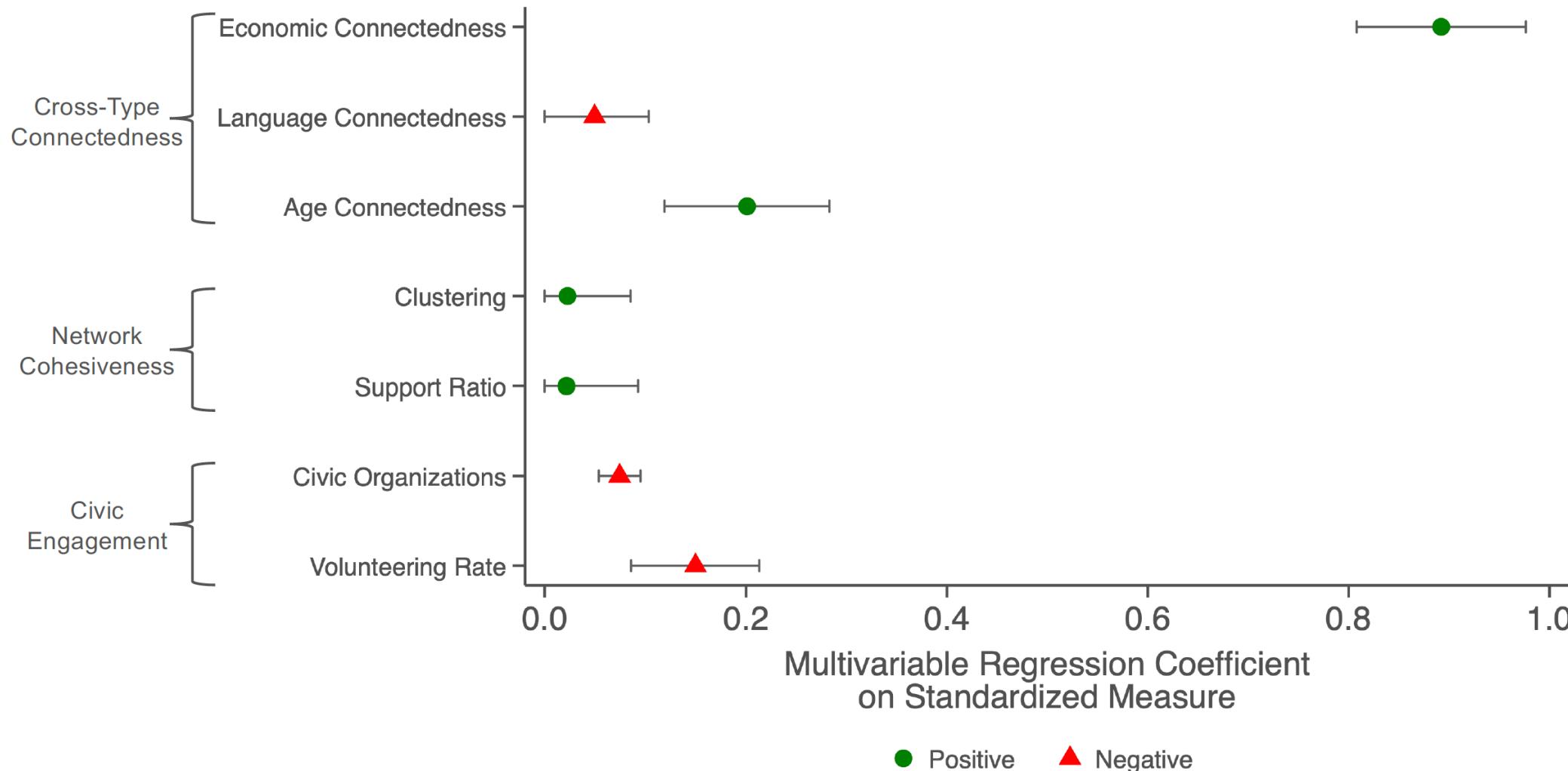
# Correlations between Upward Mobility and Measures of Social Capital

## ZIP-level Univariate Correlations



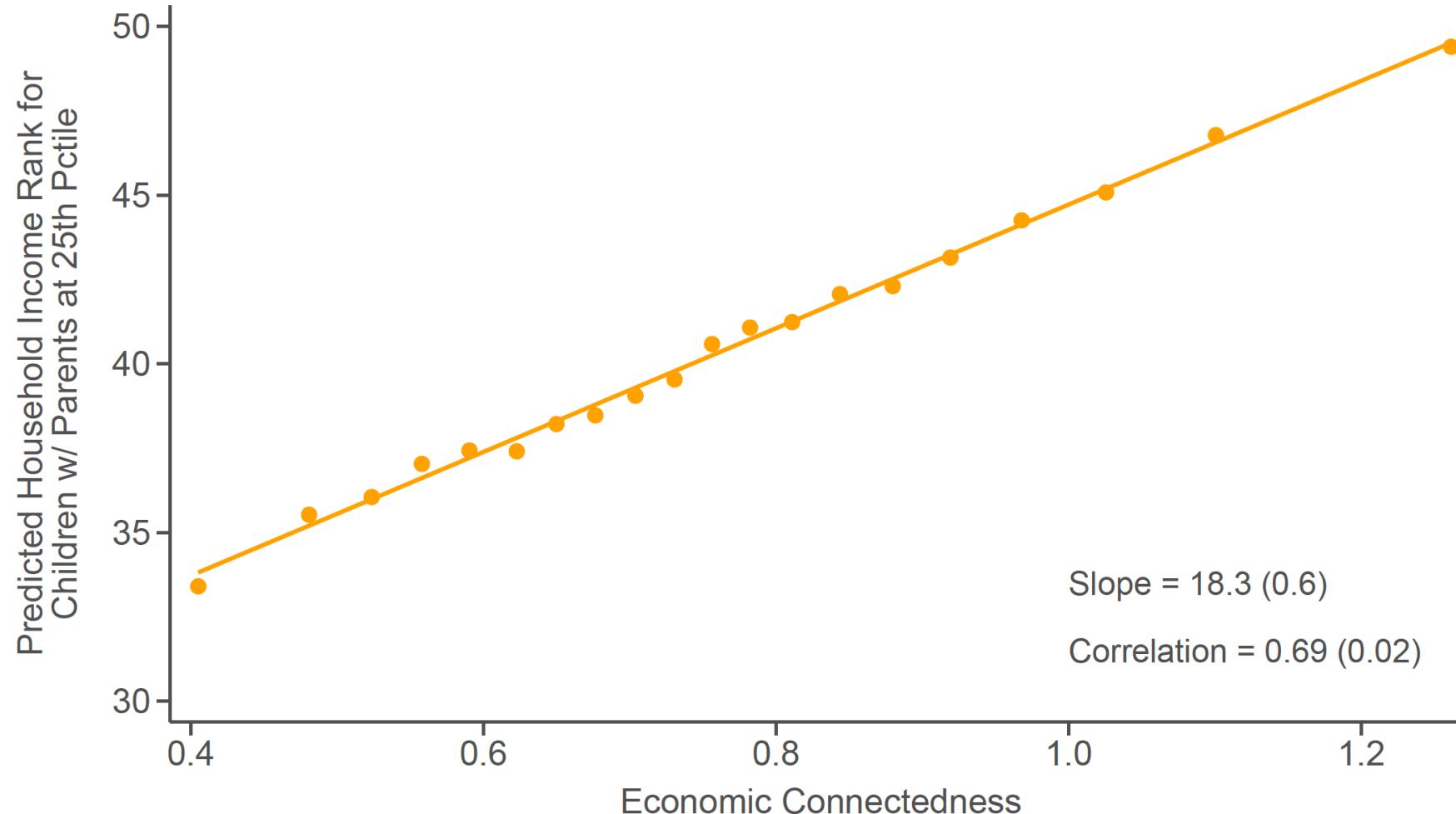
# Correlations between Upward Mobility and Measures of Social Capital

Coefficients from ZIP-level Multivariable Regression



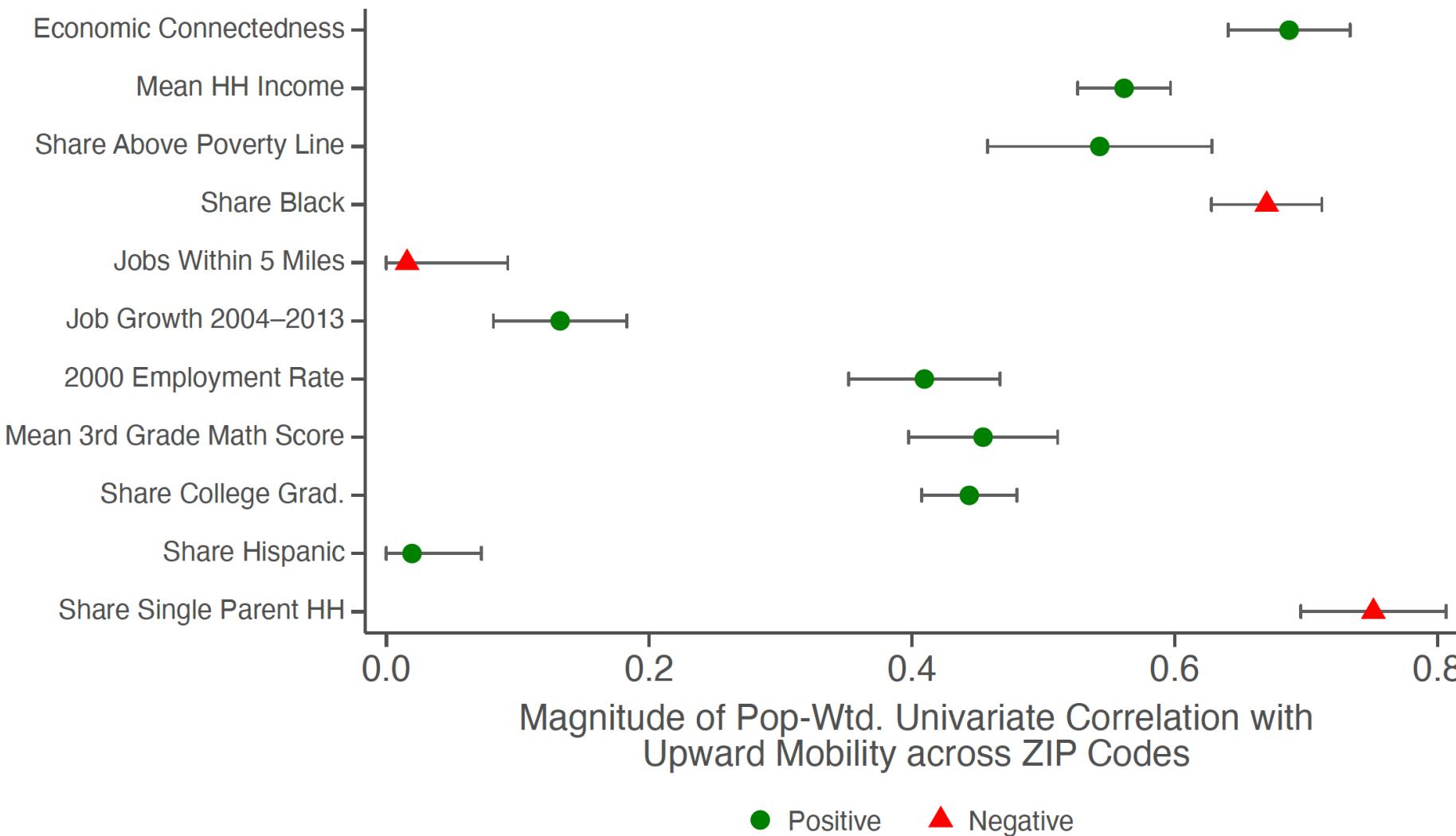
# Relationship between Upward Mobility and EC

ZIP-level Regression



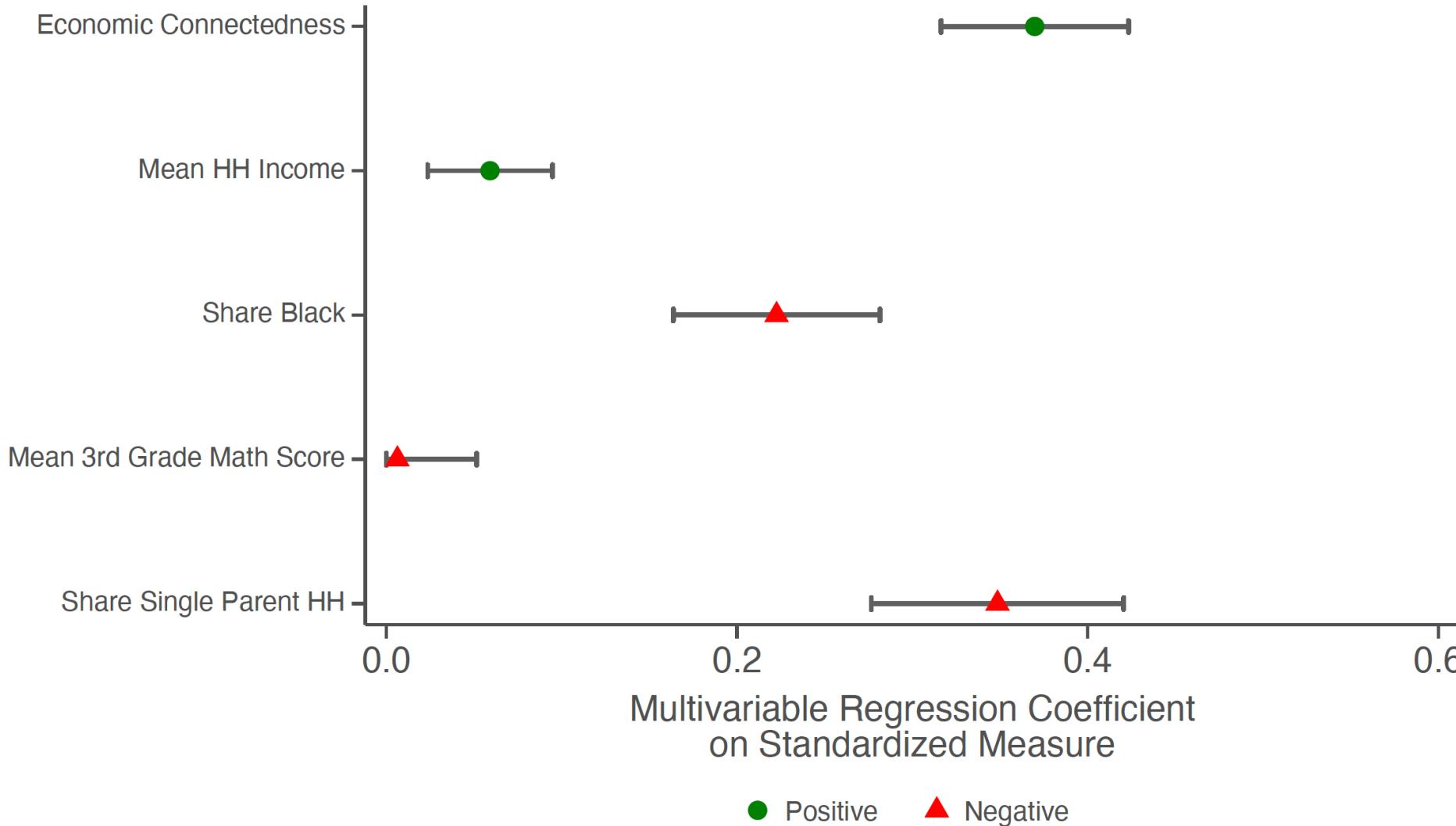
# Relationship between Upward Mobility and EC

## ZIP-level Univariate Correlations



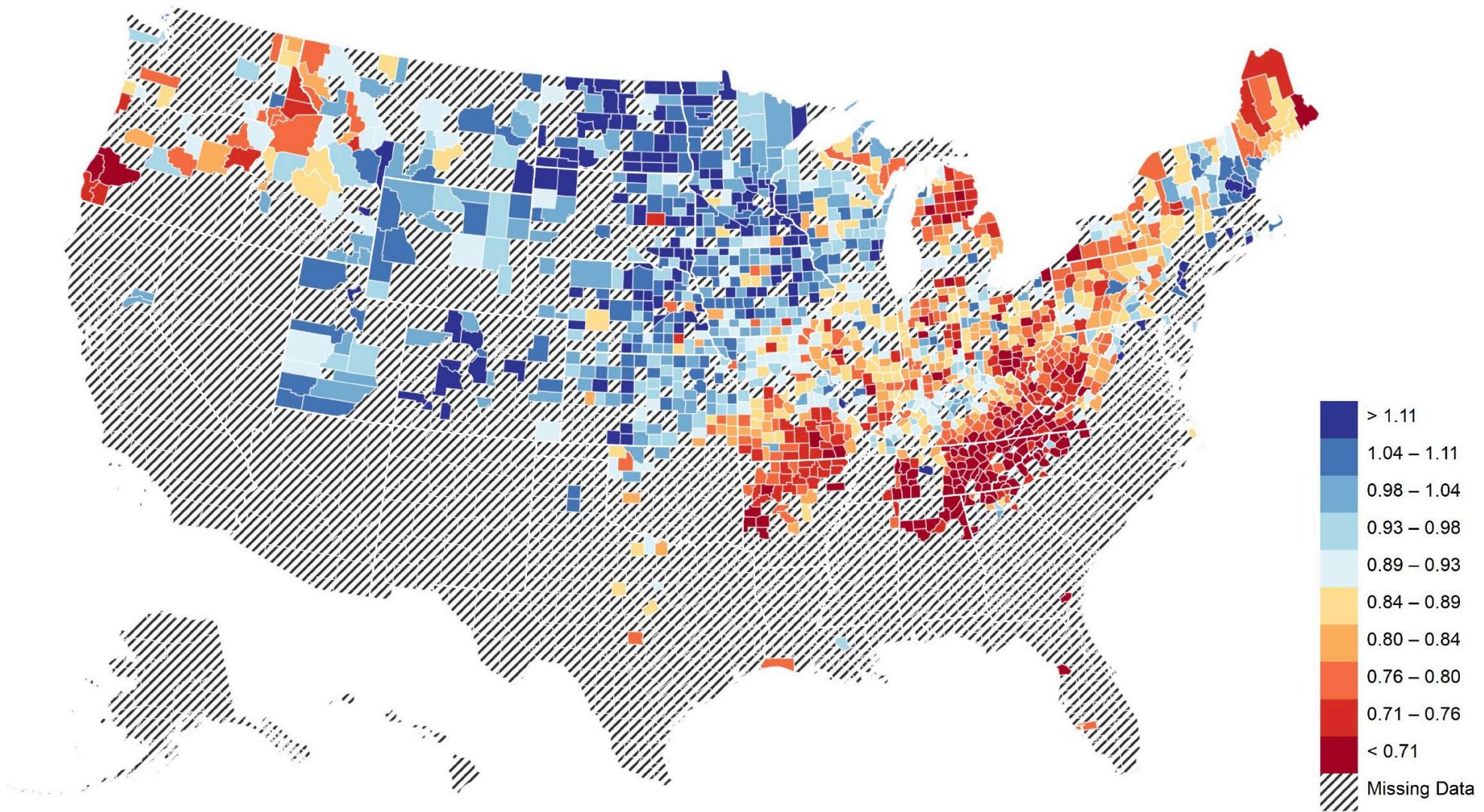
# Relationship between Upward Mobility and EC

## Coefficients from ZIP-level Multivariate Regression



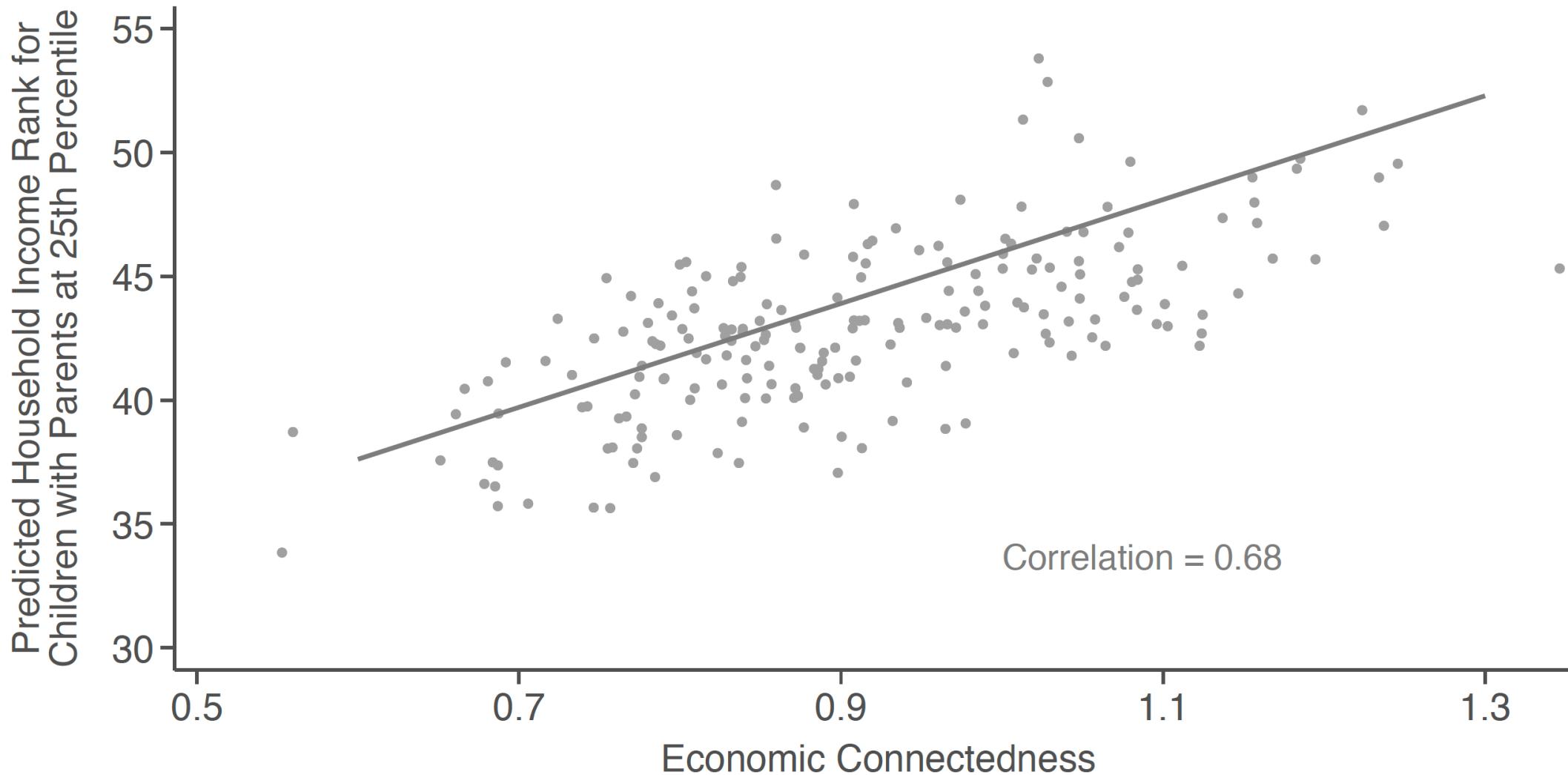
# Social Capital and Upward Mobility in Counties with Predominantly White Residents

## Spatial Variation in EC



# Social Capital and Upward Mobility in Counties with Predominantly White Residents

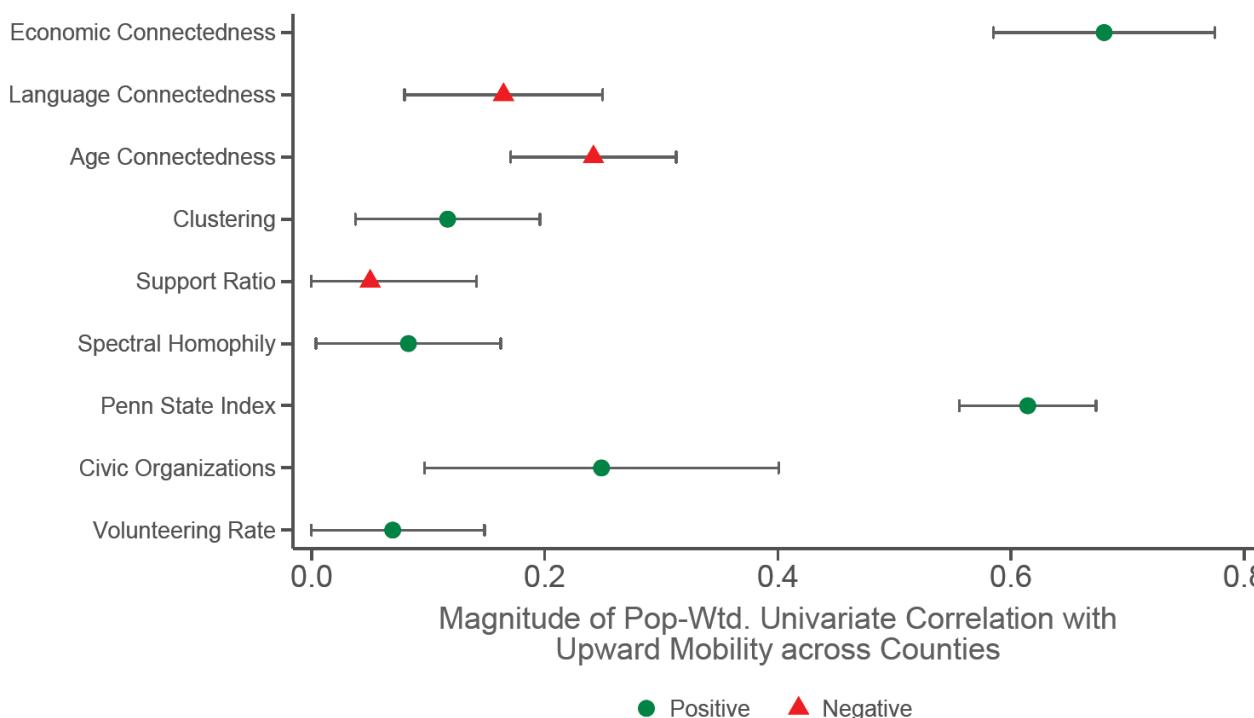
## EC vs. Upward Mobility



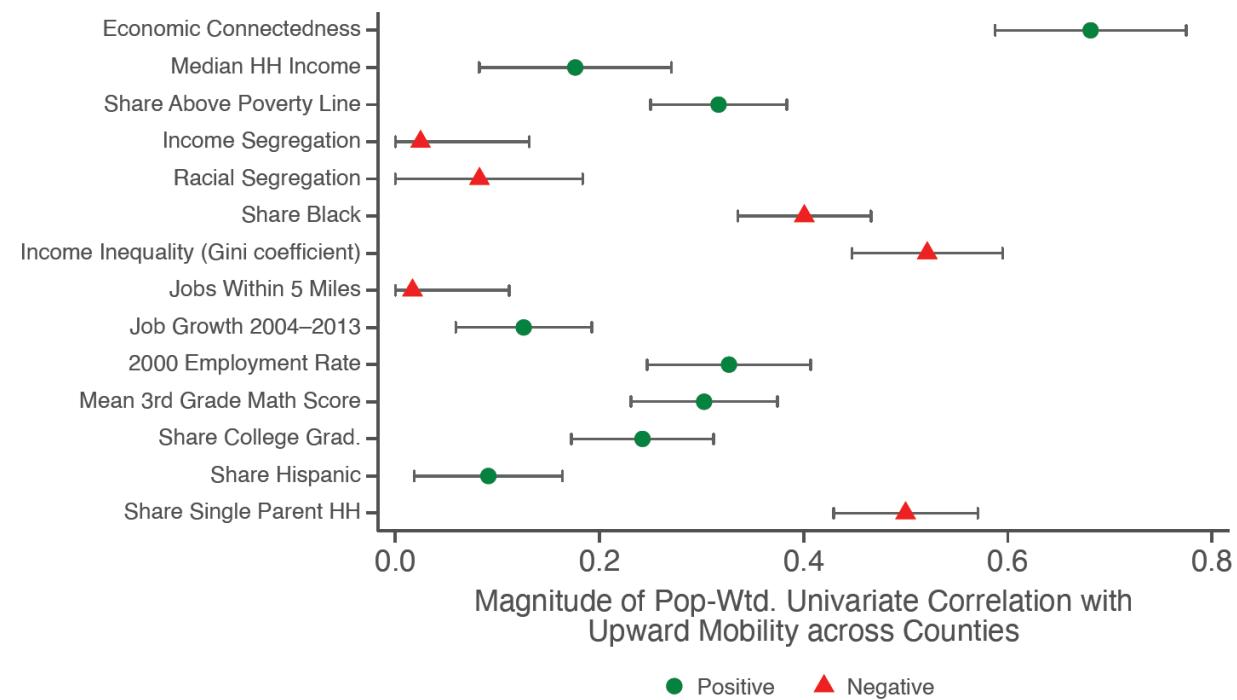
# Social Capital and Upward Mobility in Counties with Predominantly White Residents

## Univariate Correlations with Upward Mobility

C. Univariate Correlations between Upward Mobility and Social Capital

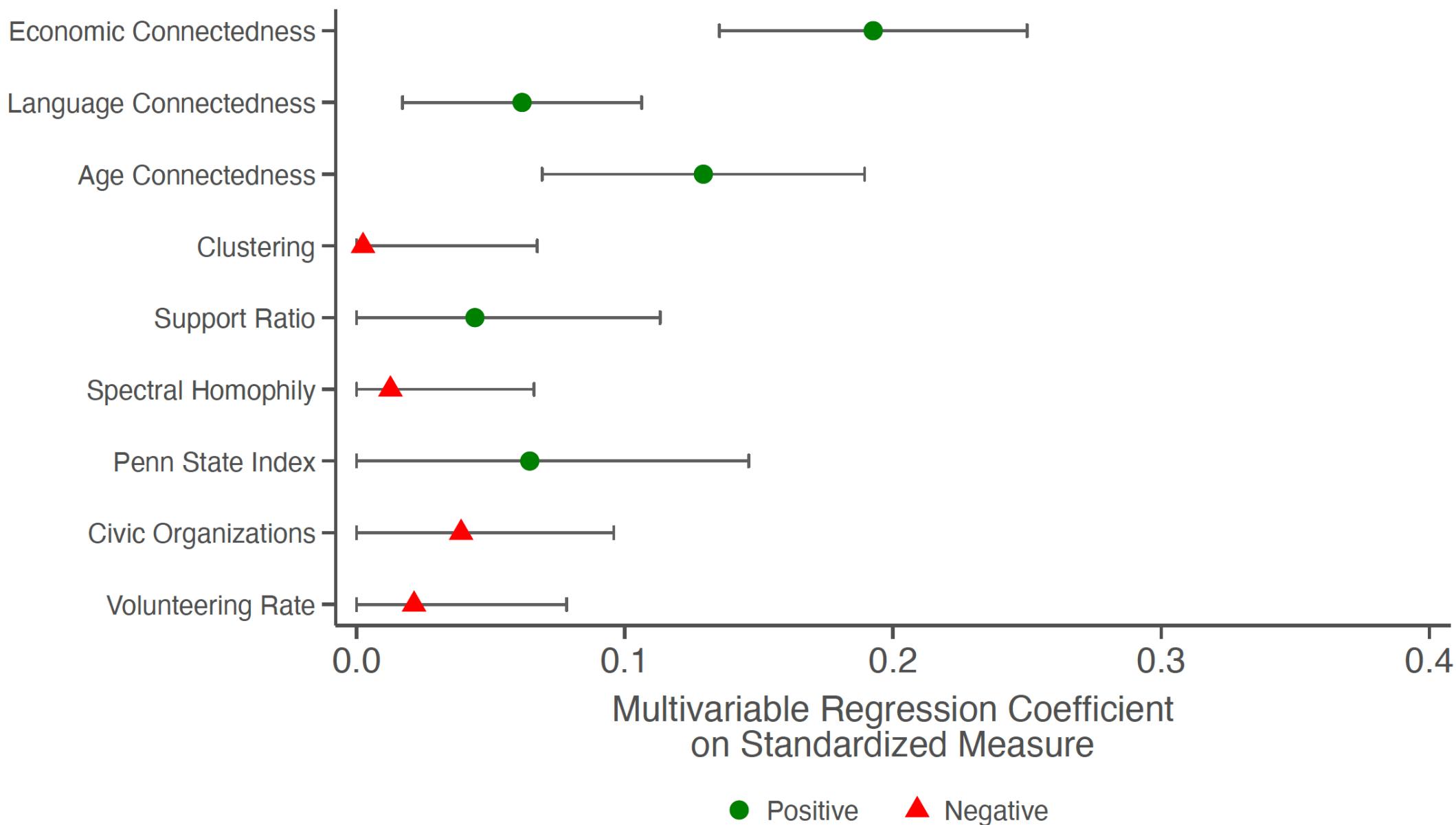


D. Univariate Correlations between Upward Mobility and Other Neighborhood Characteristics



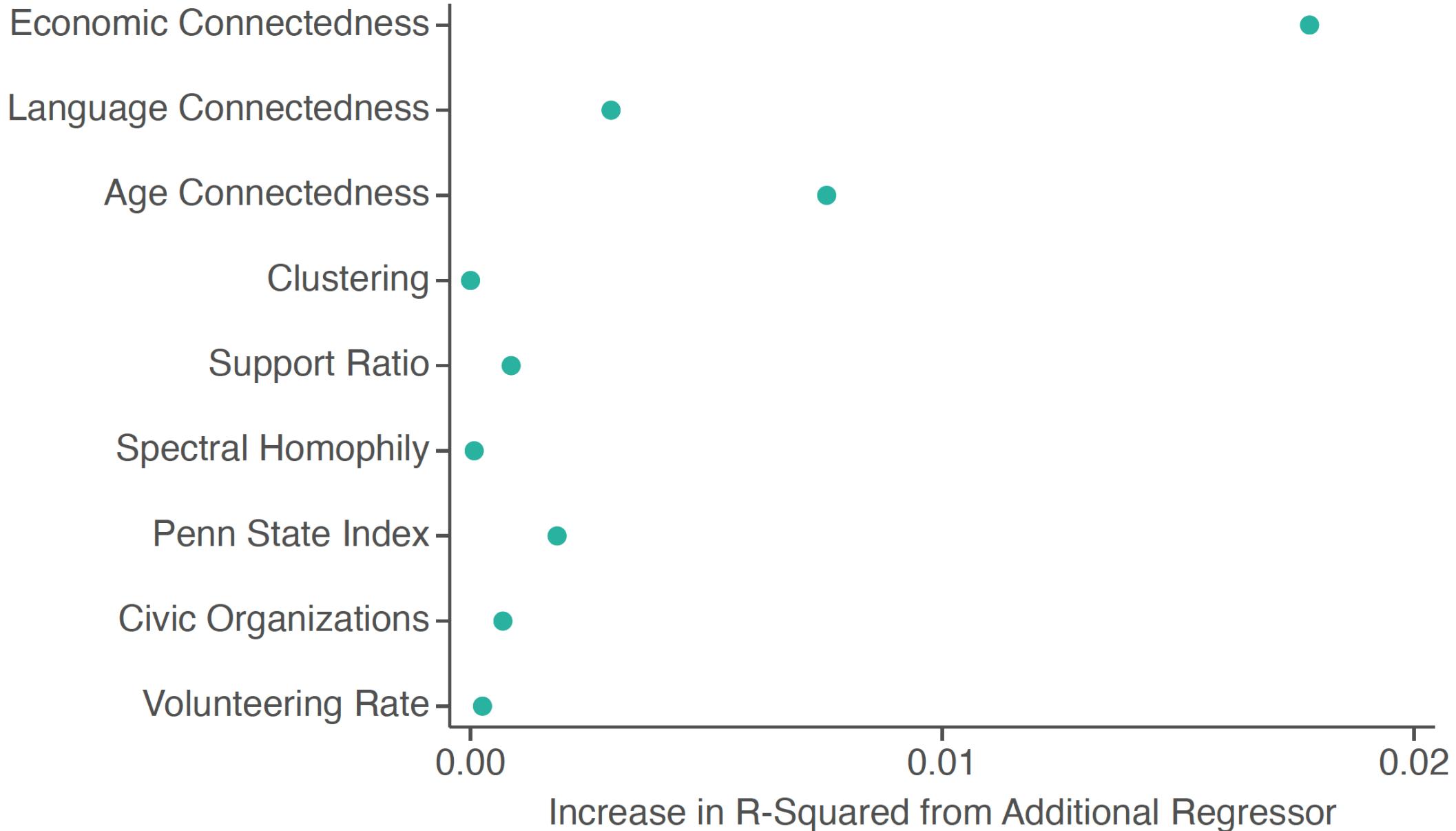
# Regression of Counties' Causal Effects on Upward Mobility on Social Capital

## Multivariable Regression Coefficients



# Regression of Counties' Causal Effects on Upward Mobility on Social Capital

## Incremental R-Squared



# Upward Mobility, EC, and Income Levels across Counties

## Median Household Income vs. Upward Mobility

A. Upward Mobility vs. Median Income,  
by County



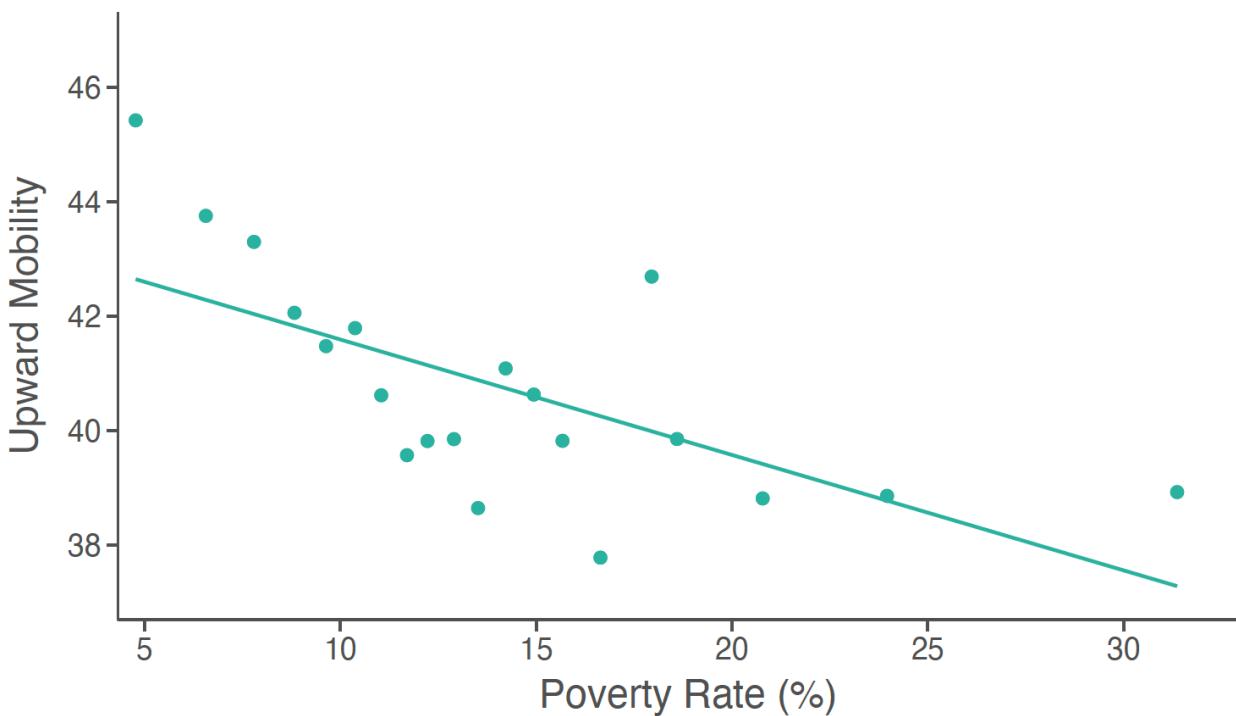
B. Upward Mobility vs. Median Income Controlling for EC,  
by County



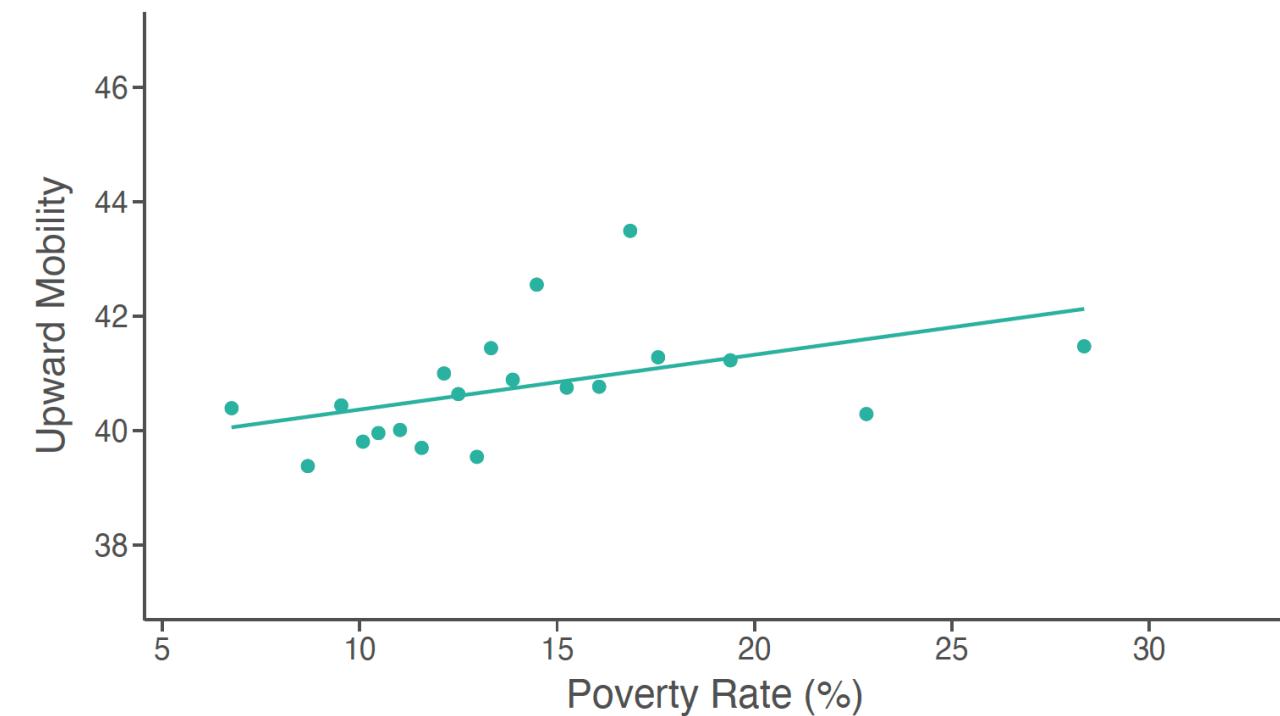
# Upward Mobility, EC, and Income Levels across Counties

## Poverty Rate vs. Upward Mobility

C. Upward Mobility vs. Poverty Rate,  
by County



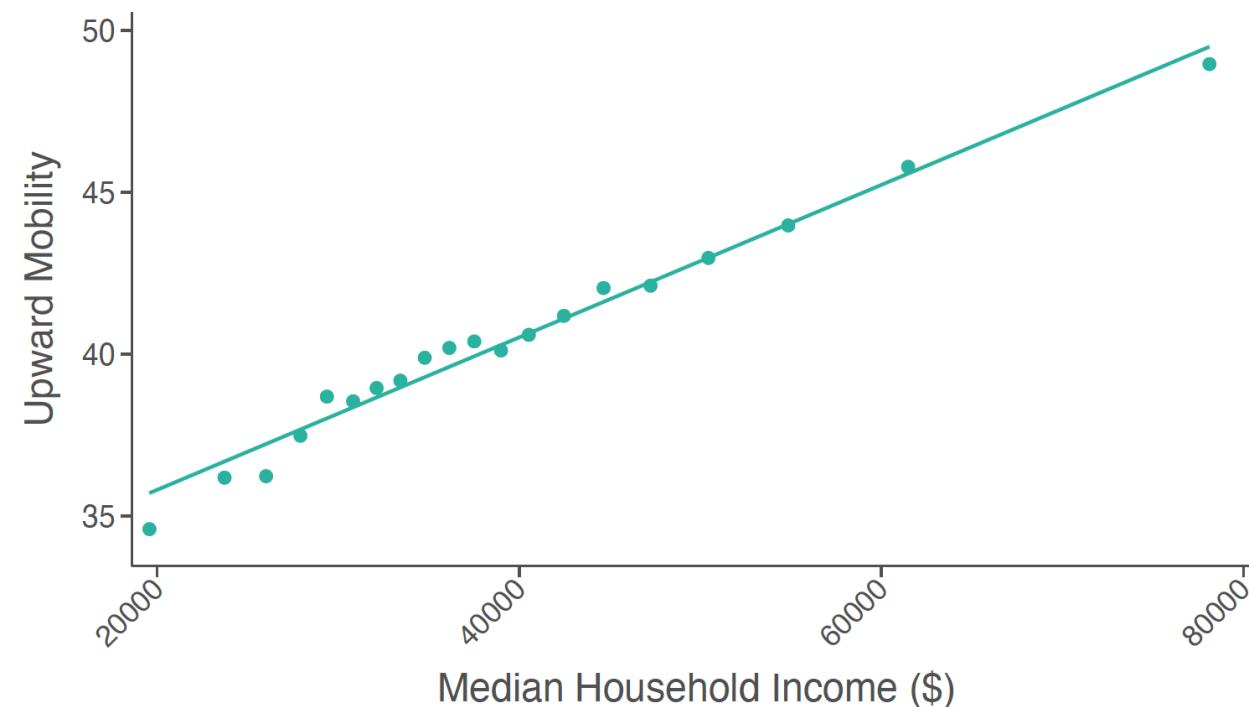
D. Upward Mobility vs. Poverty Rate Controlling for EC,  
by County



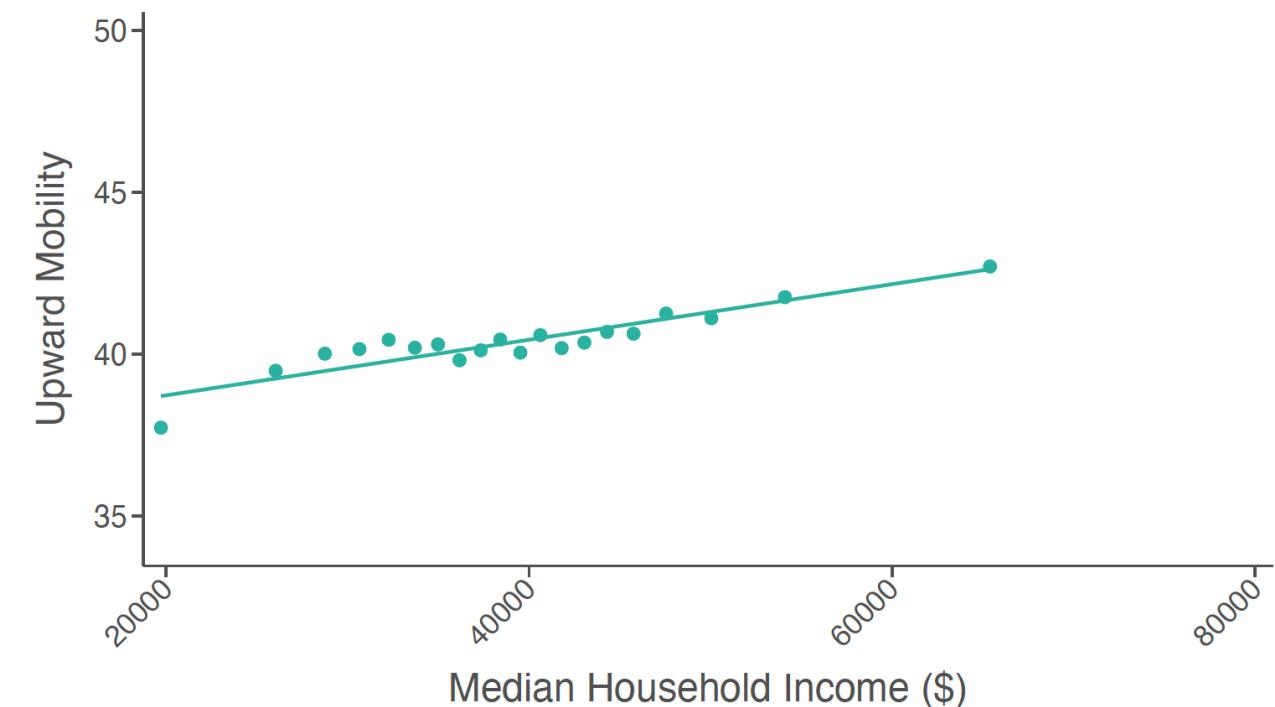
# Upward Mobility, EC, and Income Levels across ZIPs

## Median Household Income vs. Upward Mobility

A. Upward Mobility vs. Median Income,  
by ZIP Code



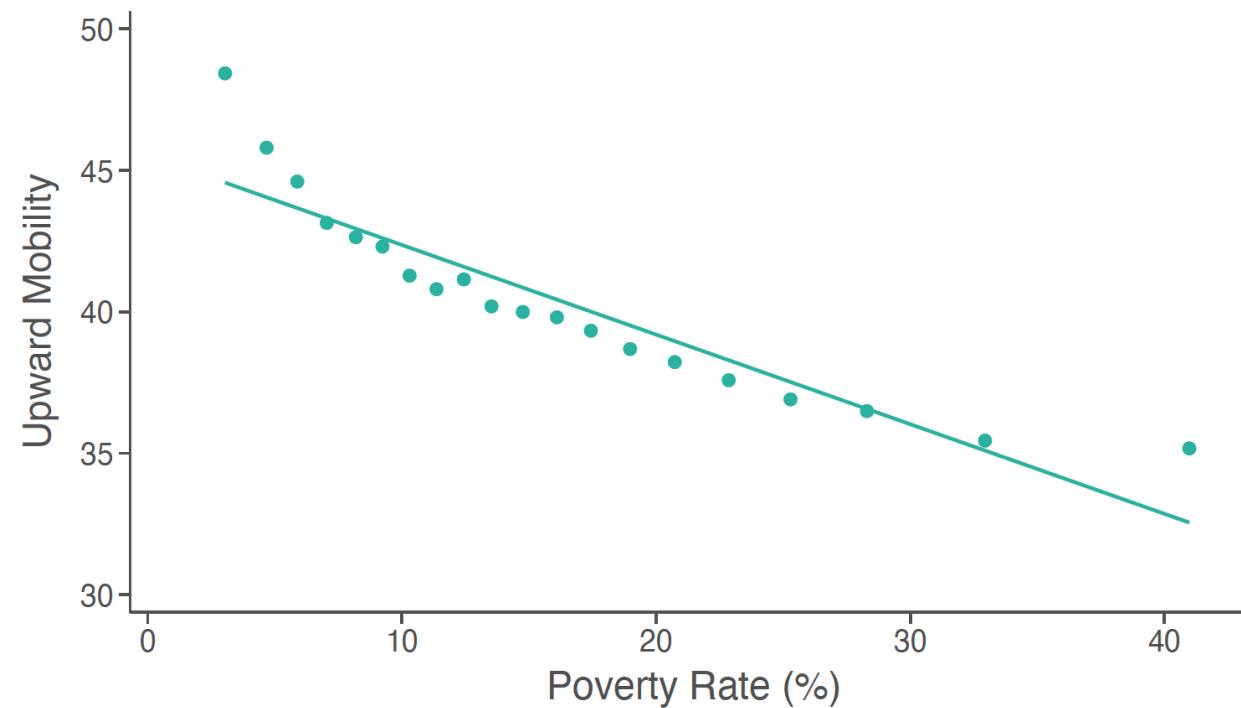
B. Upward Mobility vs. Median Income Controlling for EC,  
by ZIP Code



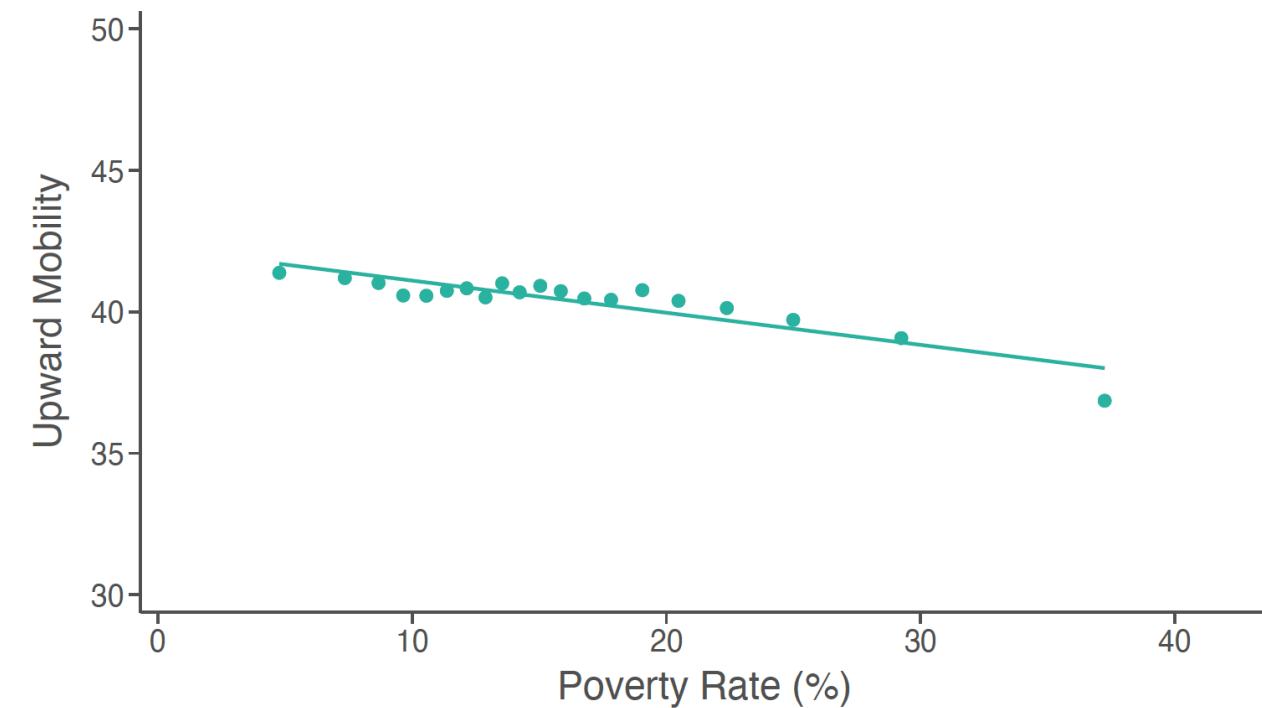
# Upward Mobility, EC, and Income Levels across ZIPs

## Poverty Rate vs. Upward Mobility

C. Upward Mobility vs. Poverty Rate,  
by ZIP Code



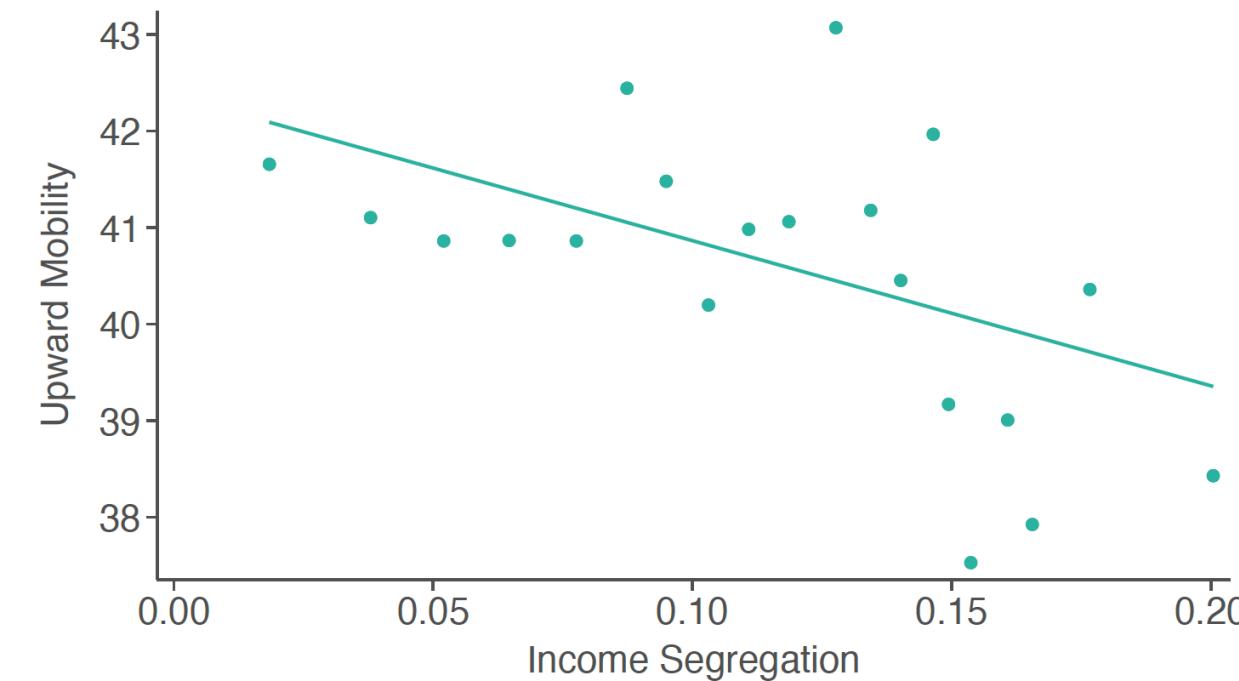
D. Upward Mobility vs. Poverty Rate Controlling for EC,  
by ZIP Code



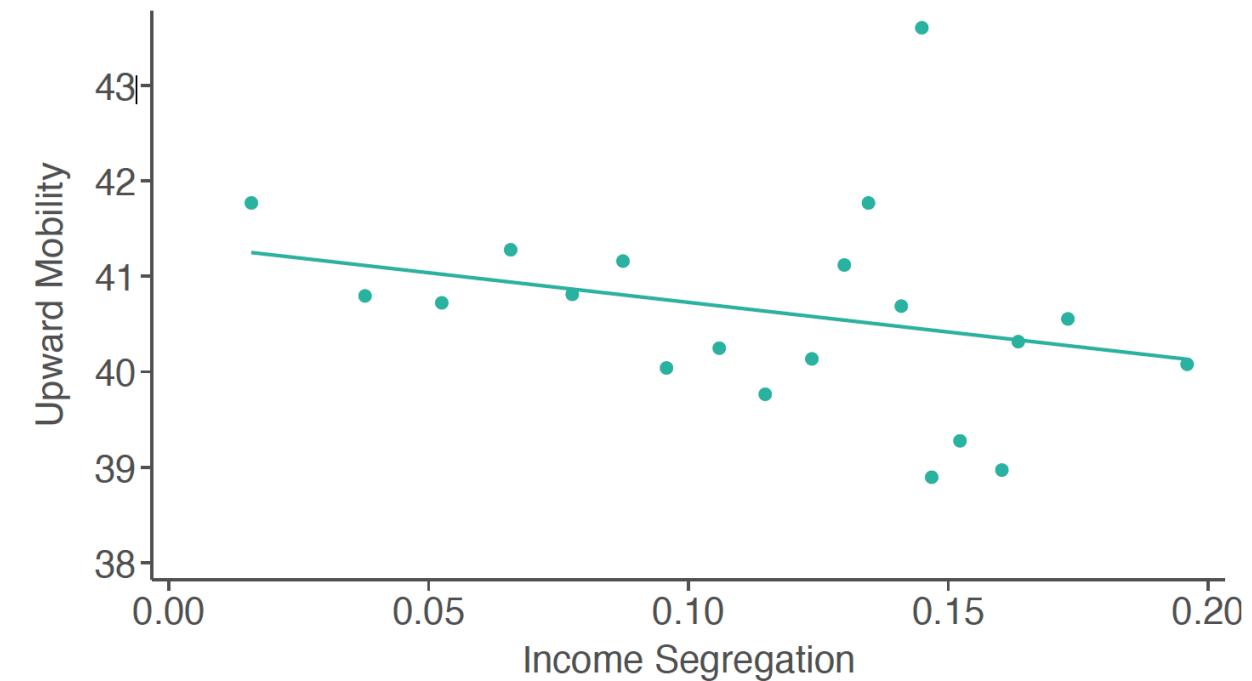
# Upward Mobility, EC, and Inequality and Segregation across Counties

## Income Segregation vs. Upward Mobility

A. Upward Mobility vs. Income Segregation,  
by County



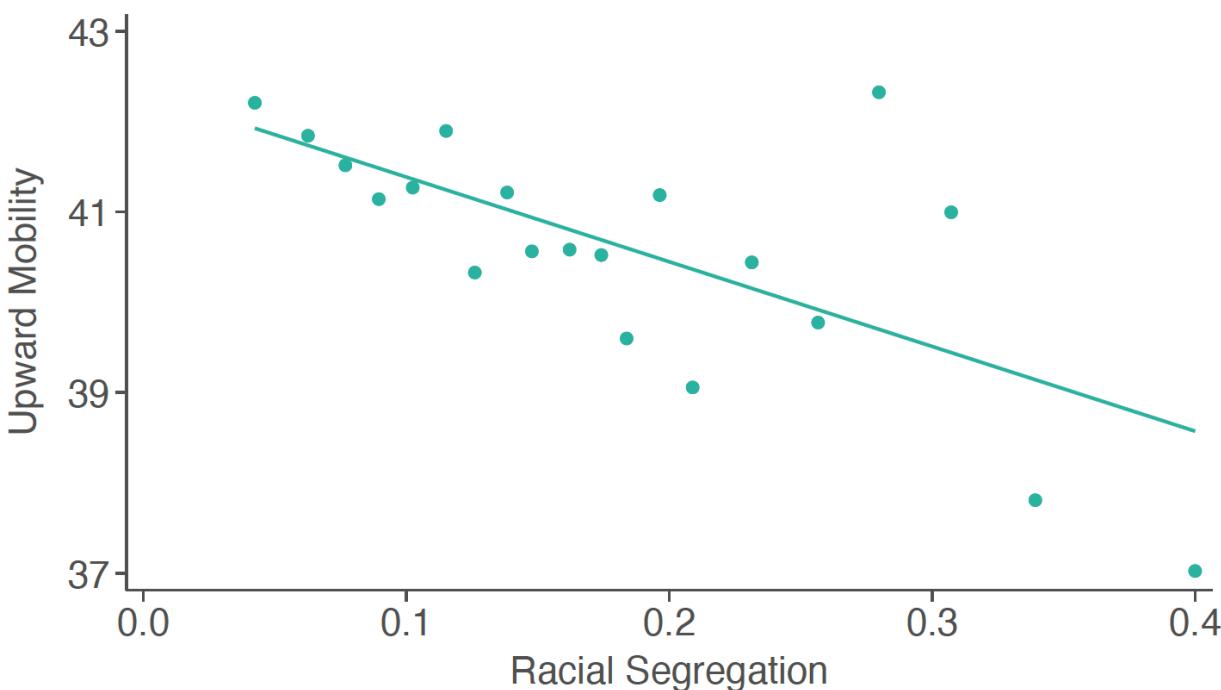
B. Upward Mobility vs. Income Segregation Controlling for  
EC, by County



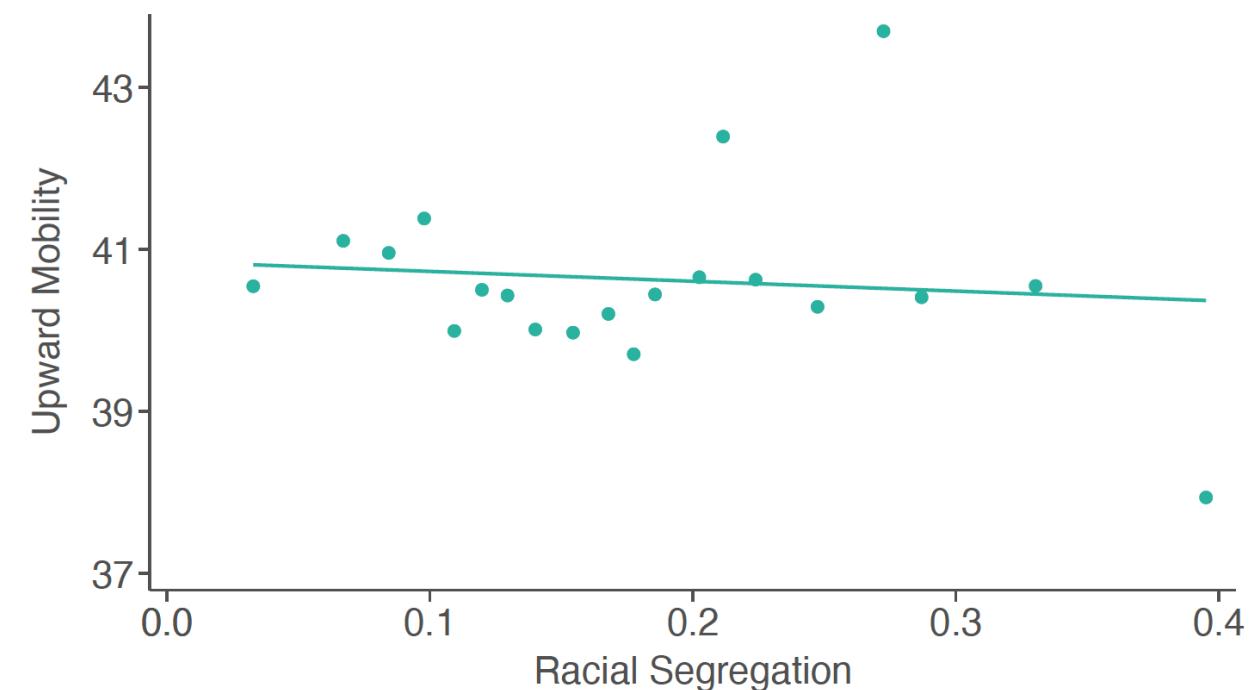
# Upward Mobility, EC, and Inequality and Segregation across Counties

## Racial Segregation vs. Upward Mobility

C. Upward Mobility vs. Racial Segregation,  
by County



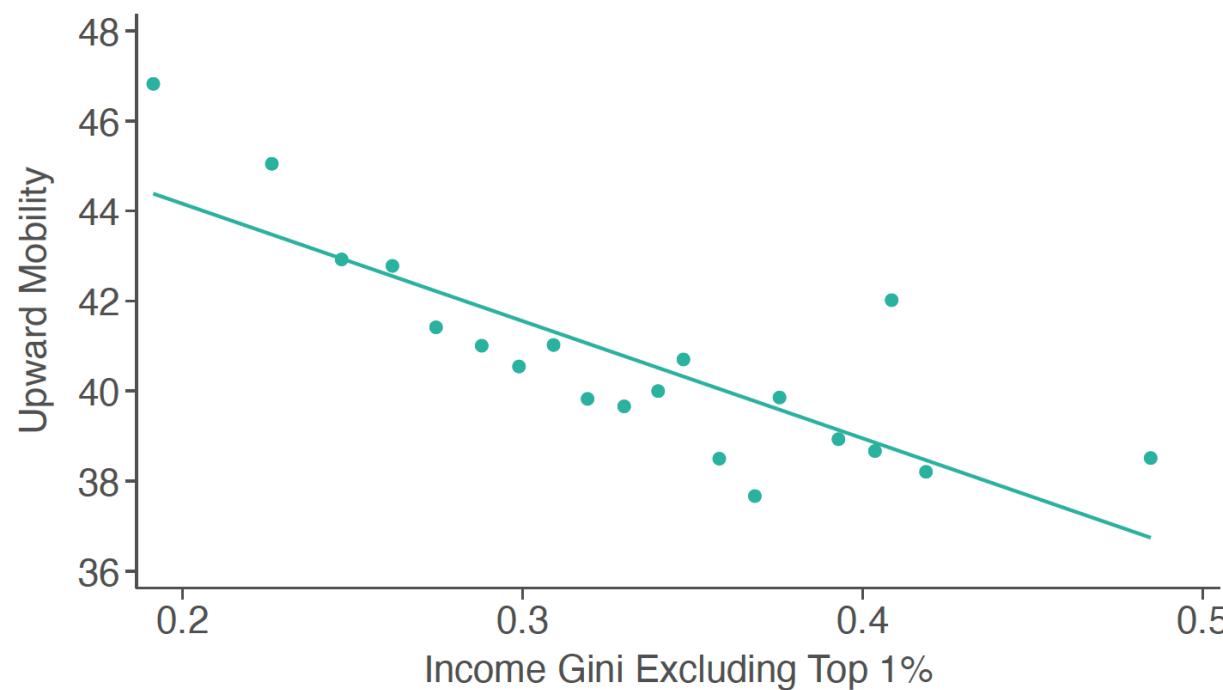
D. Upward Mobility vs. Racial Segregation Controlling for  
EC, by County



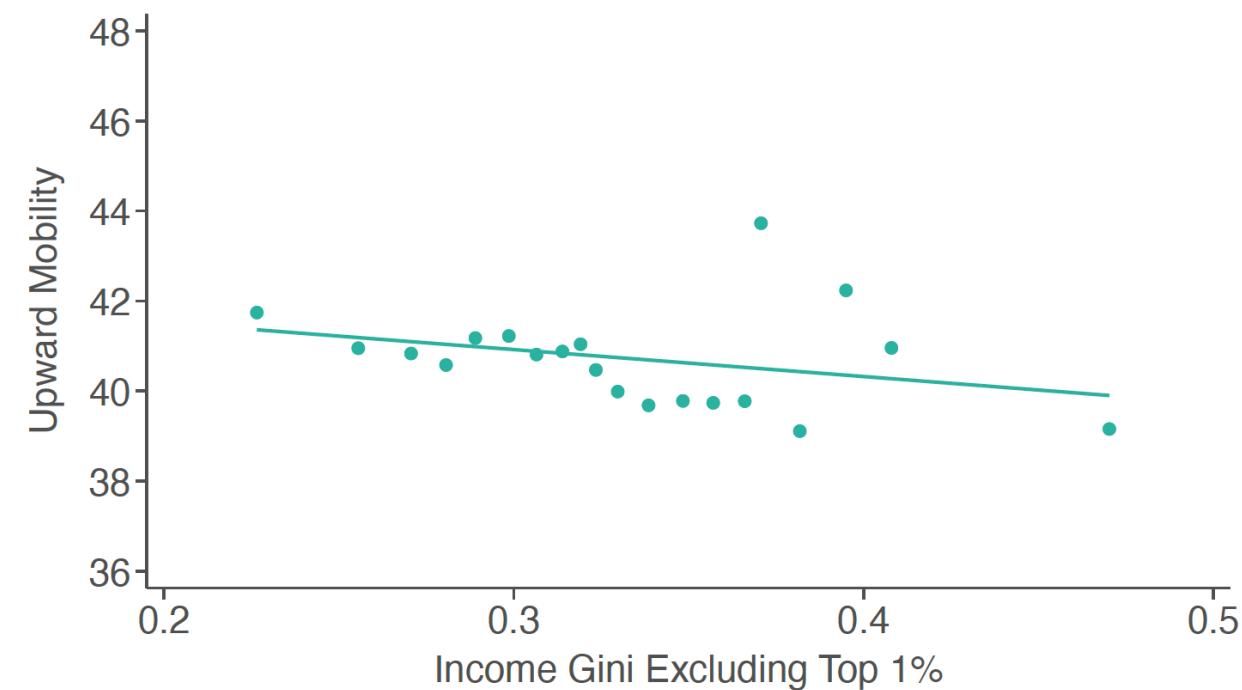
# Upward Mobility, EC, and Inequality and Segregation across Counties

## Gini Coefficient vs. Upward Mobility

E. Upward Mobility vs. Gini Coefficient,  
by County



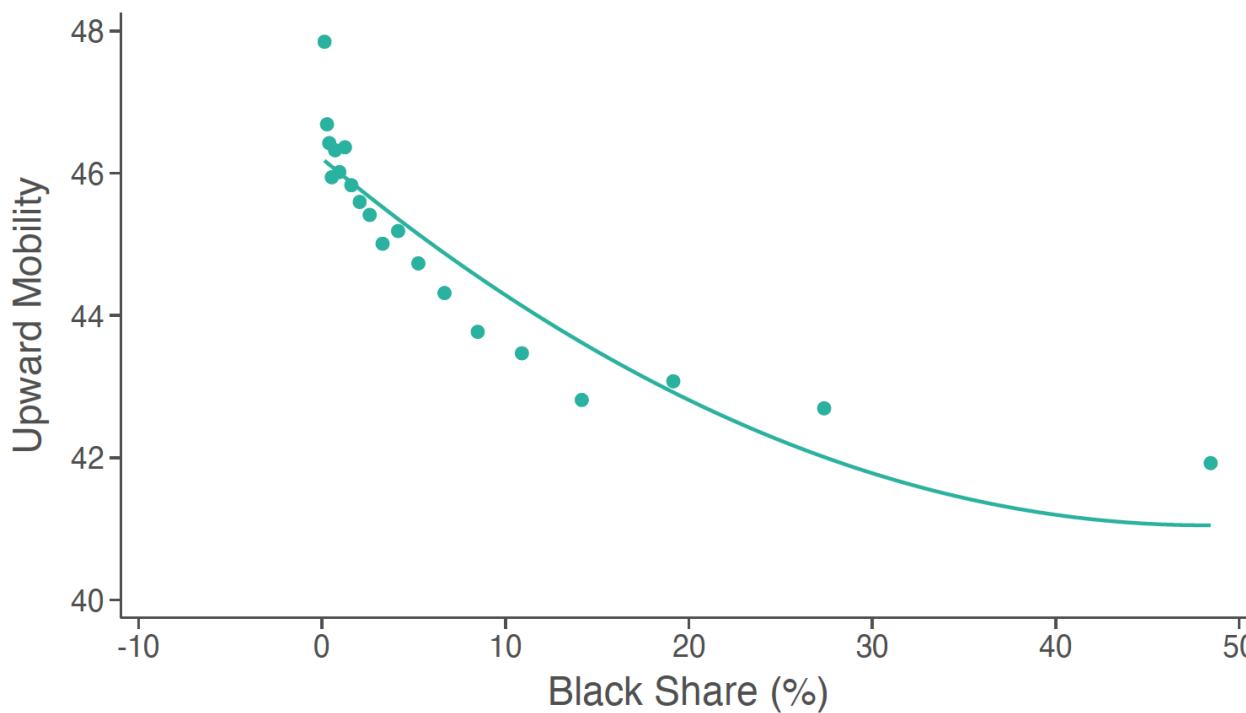
F. Upward Mobility vs. Gini Coefficient Controlling for EC,  
by County



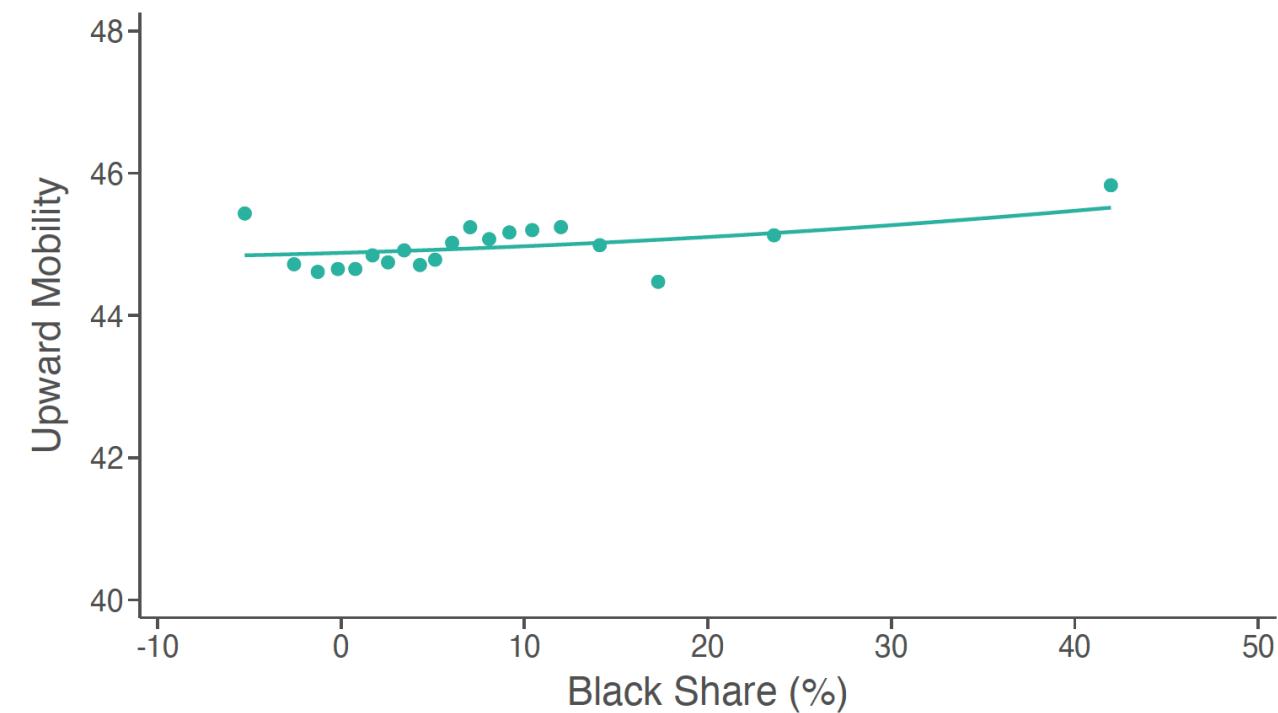
# Upward Mobility, EC, and Share of Black Residents across ZIPs

## Black Share vs. Upward Mobility for White Individuals

A. Upward Mobility for White Individuals vs. Black Share,  
by ZIP Code



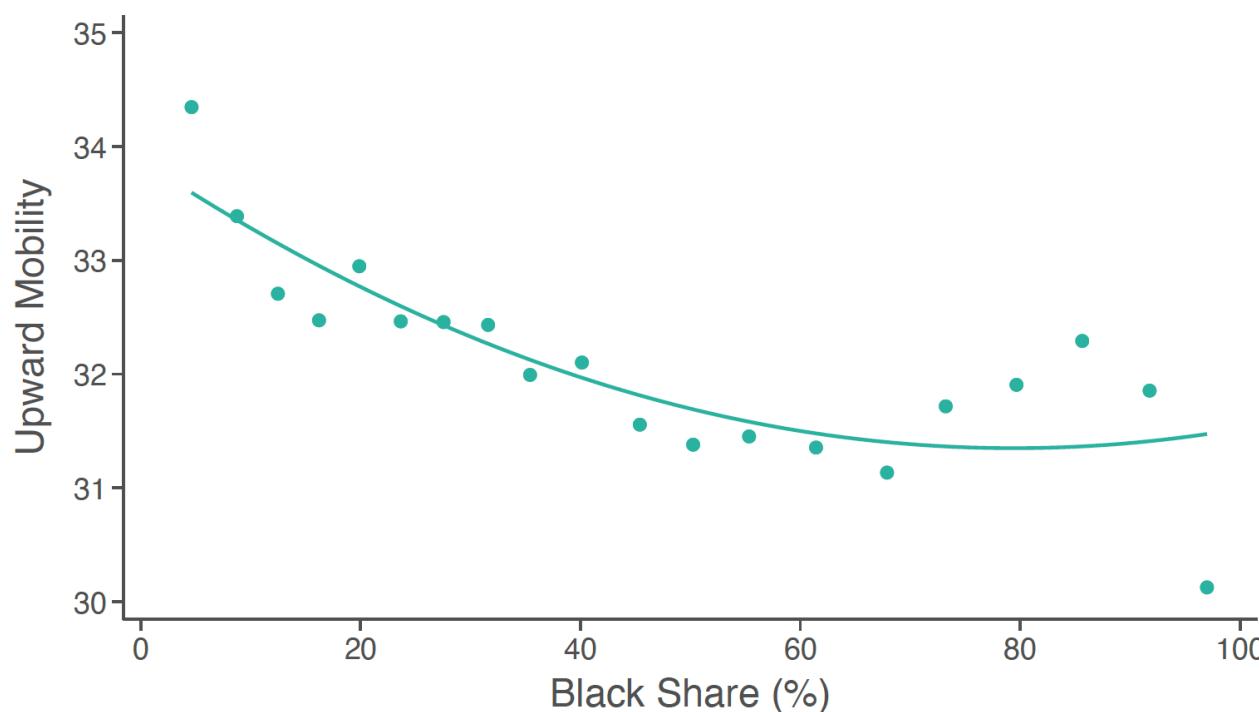
B. Upward Mobility for White Individuals vs. Black Share  
Controlling for EC, by ZIP Code



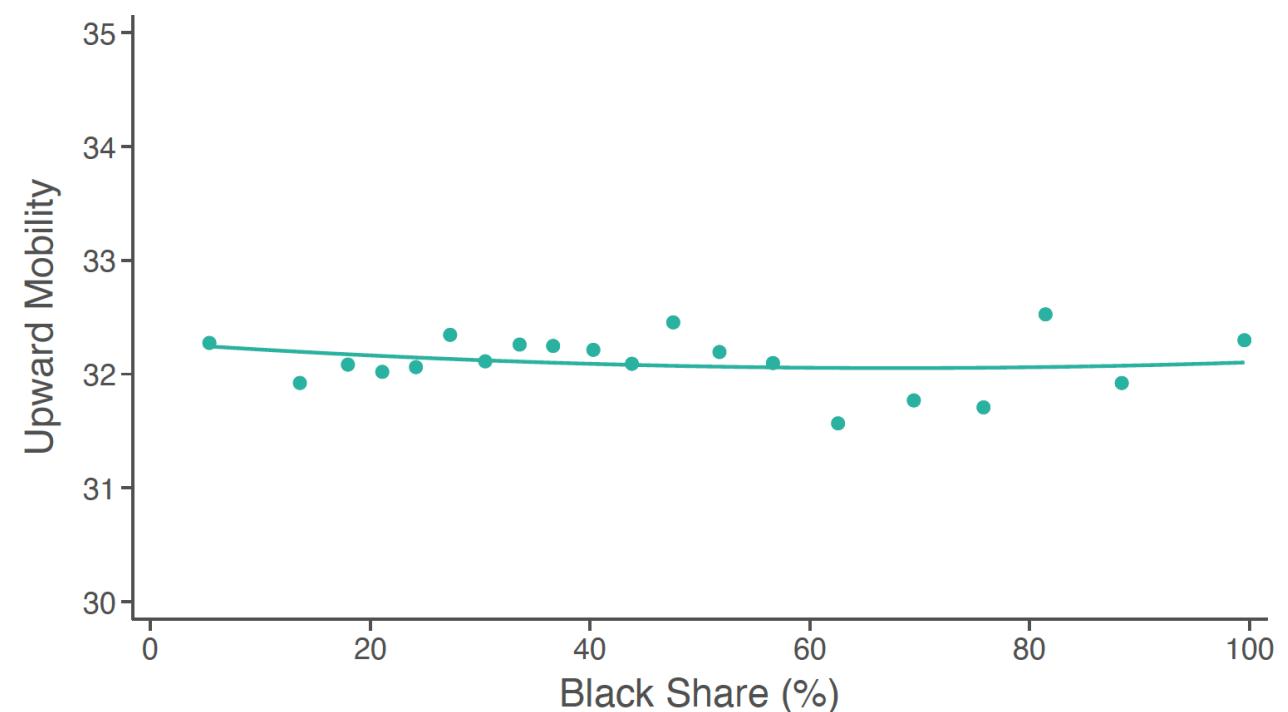
# Upward Mobility, EC, and Share of Black Residents across ZIPs

## Black Share vs. Upward Mobility for Black Individuals

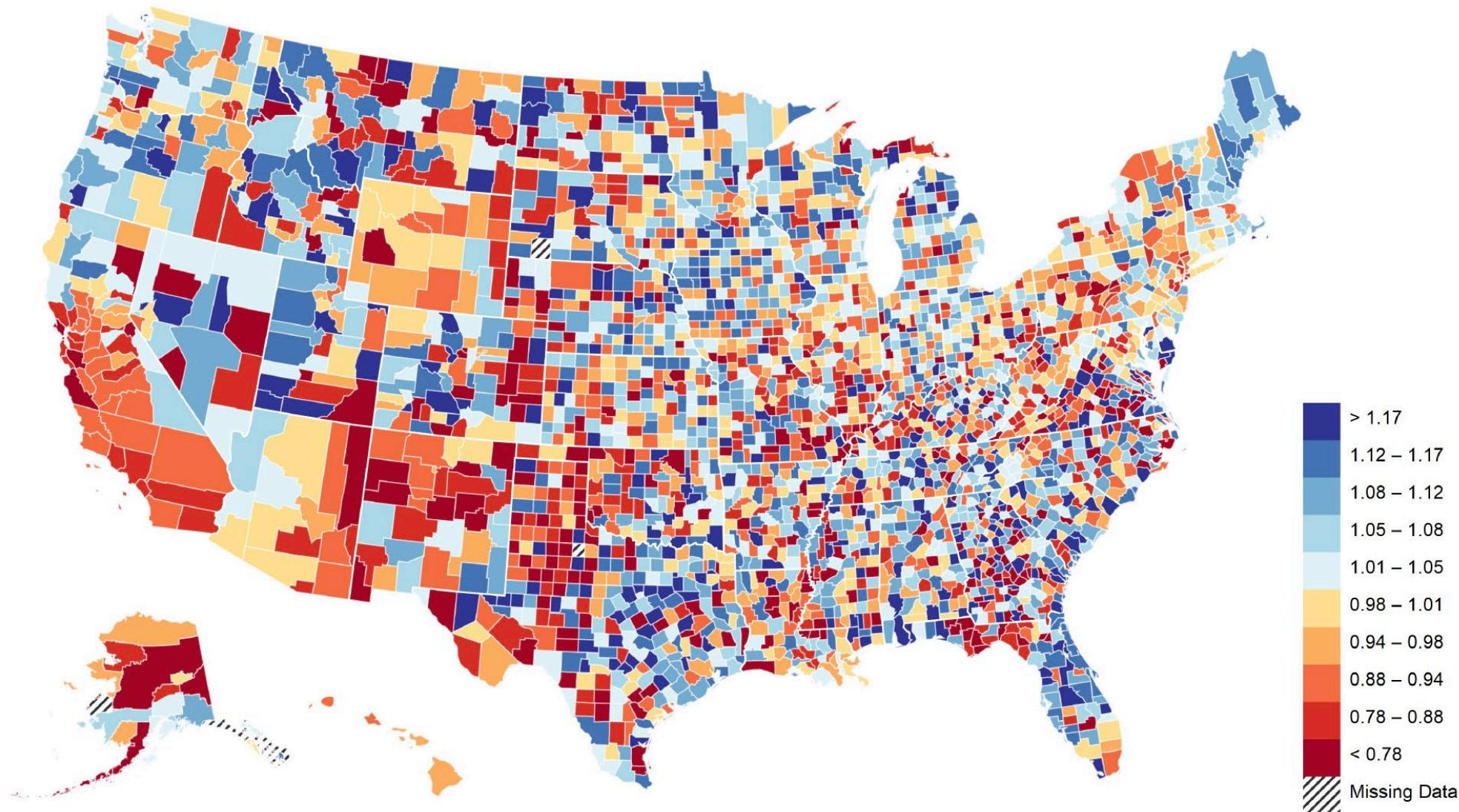
C. Upward Mobility for Black Individuals vs. Black Share,  
by ZIP Code



D. Upward Mobility for Black Individuals vs. Black Share  
Controlling for EC, by ZIP Code

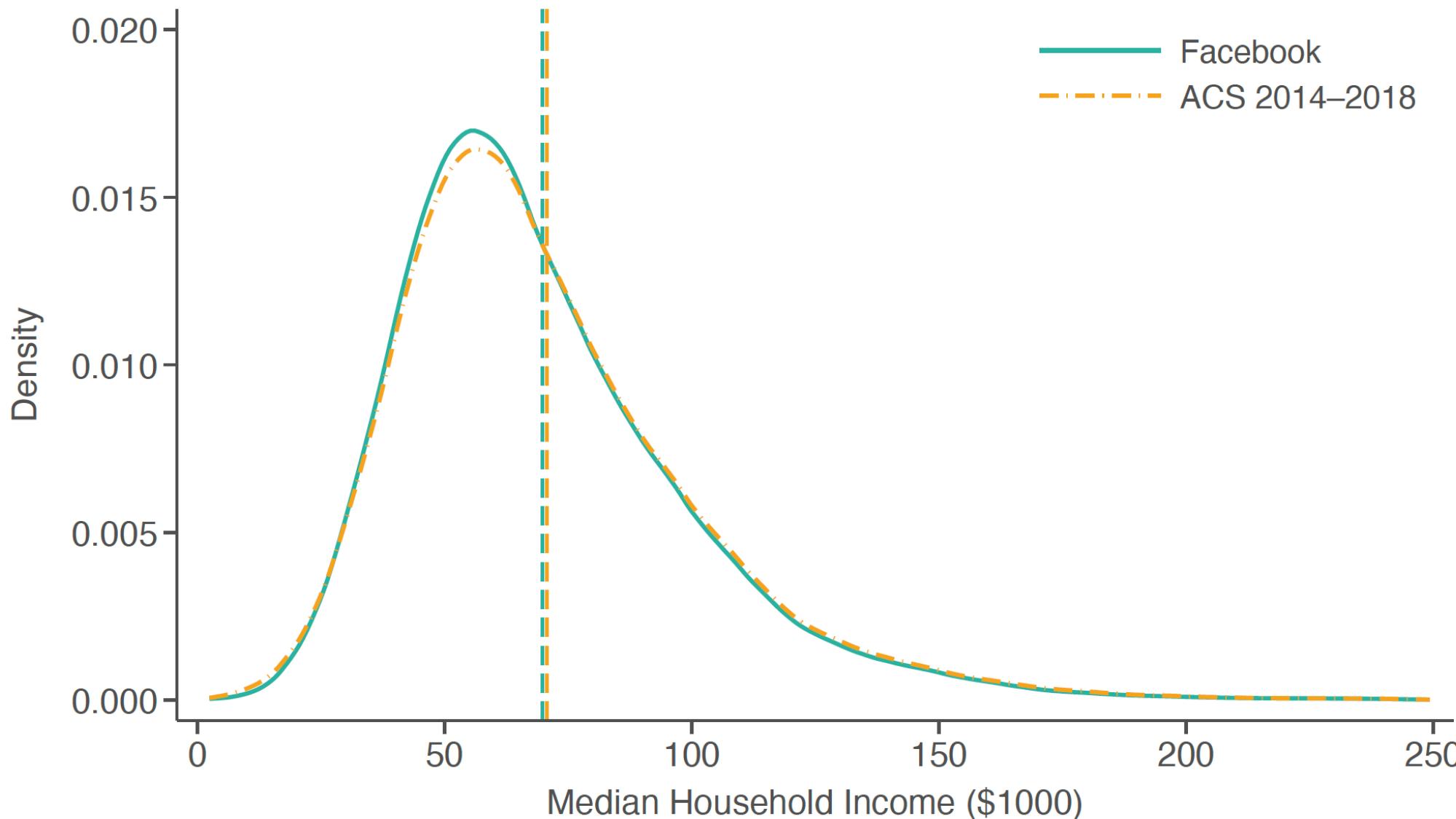


# Relative Geographic Coverage of Facebook Data



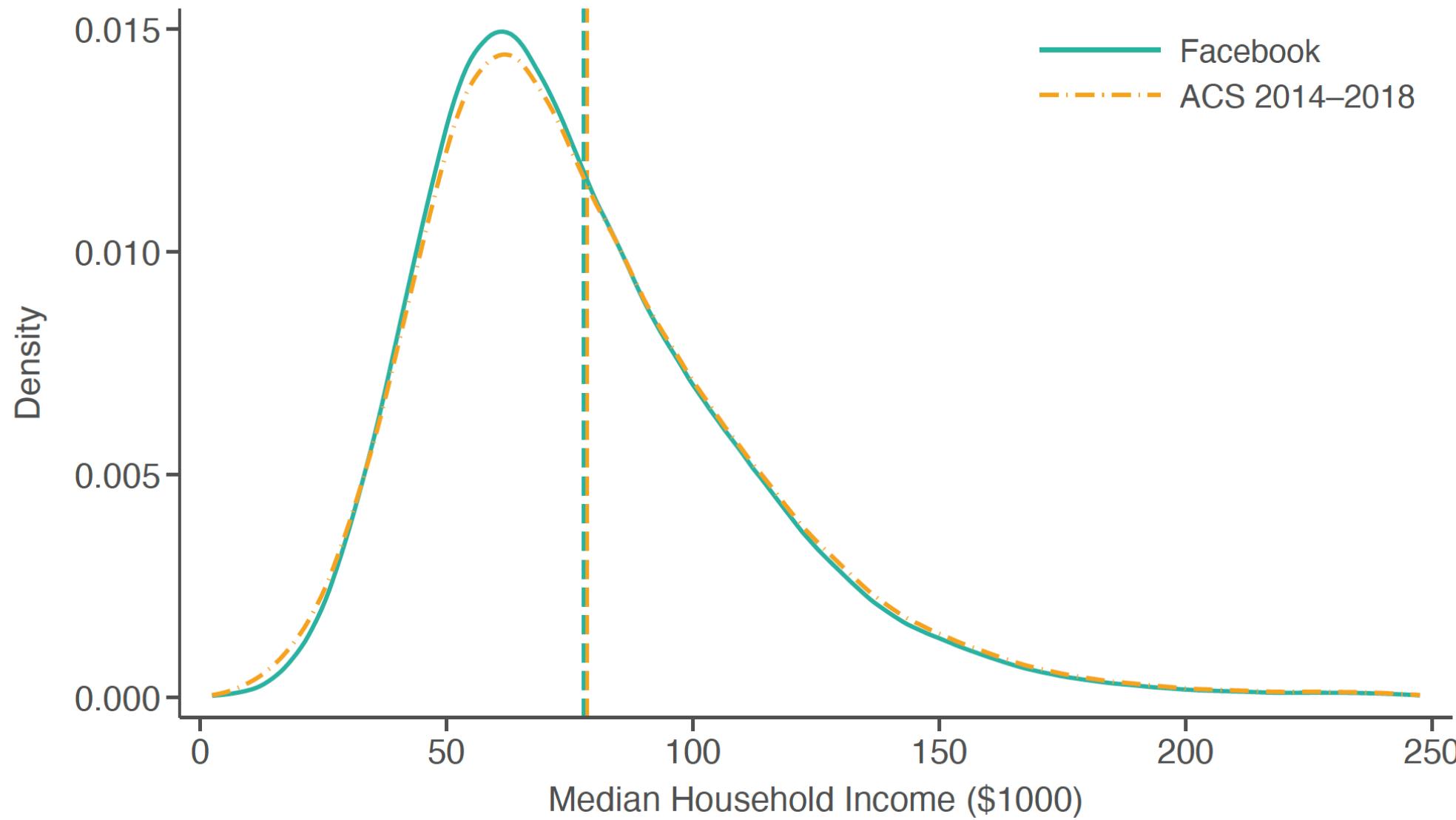
# Distribution of ZIP-level Incomes in Facebook Data vs. ACS

Ages 25 to 44



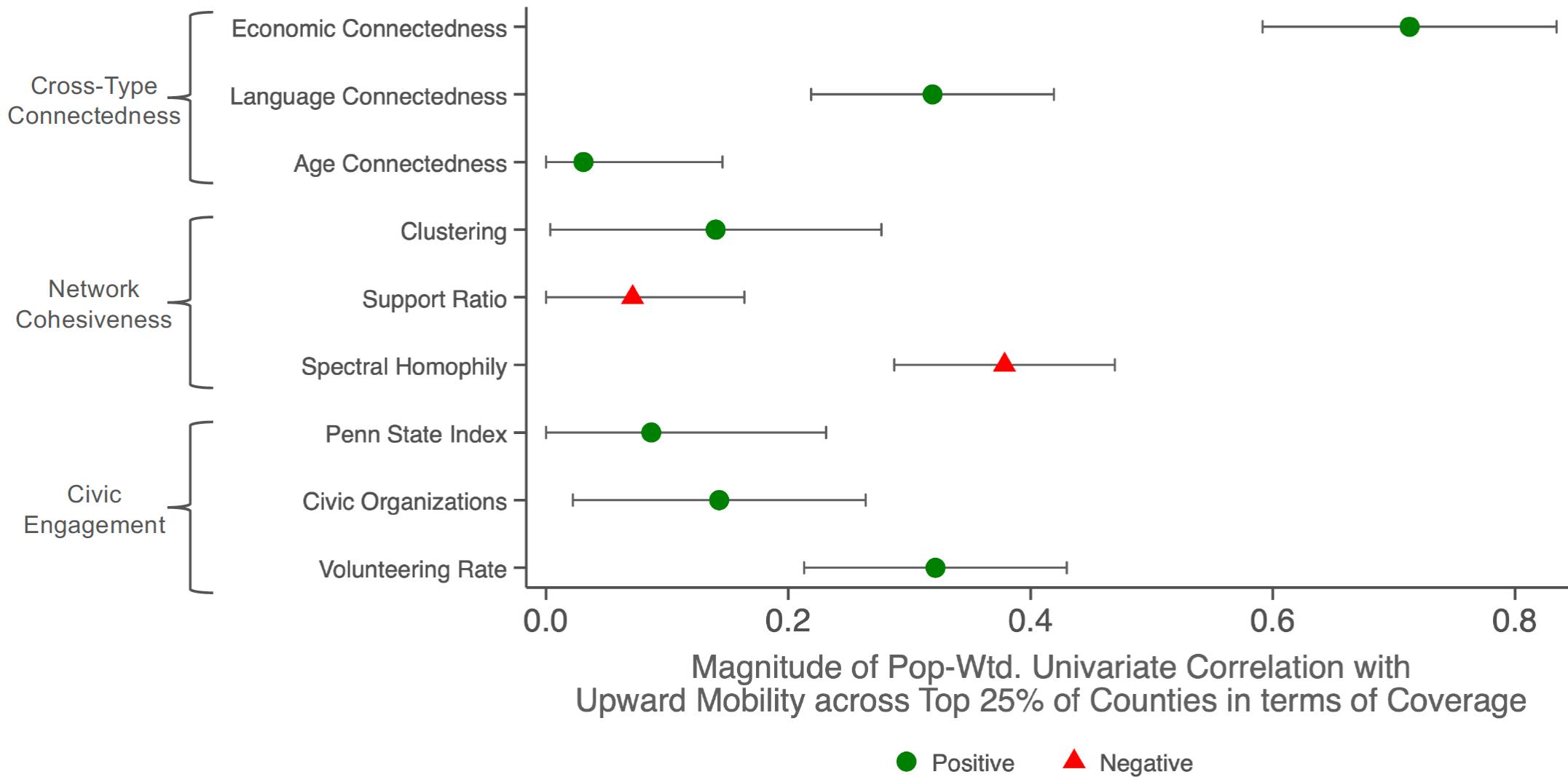
# Distribution of ZIP-level Incomes in Facebook Data vs. ACS

Ages 45 to 64



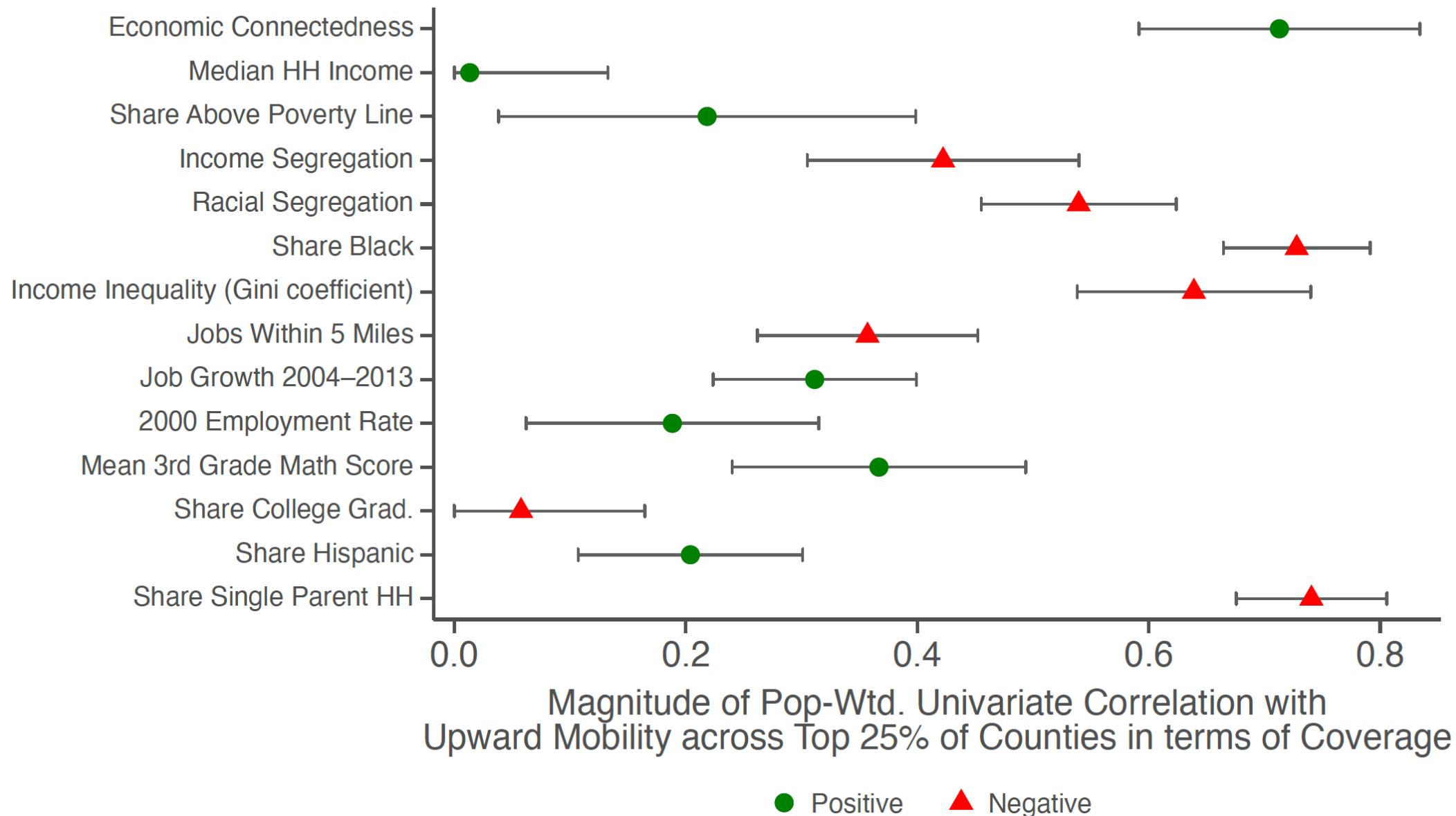
# County-level Correlations for Top 25% of Counties by FB Coverage Rates

## Social Capital vs. Upward Mobility

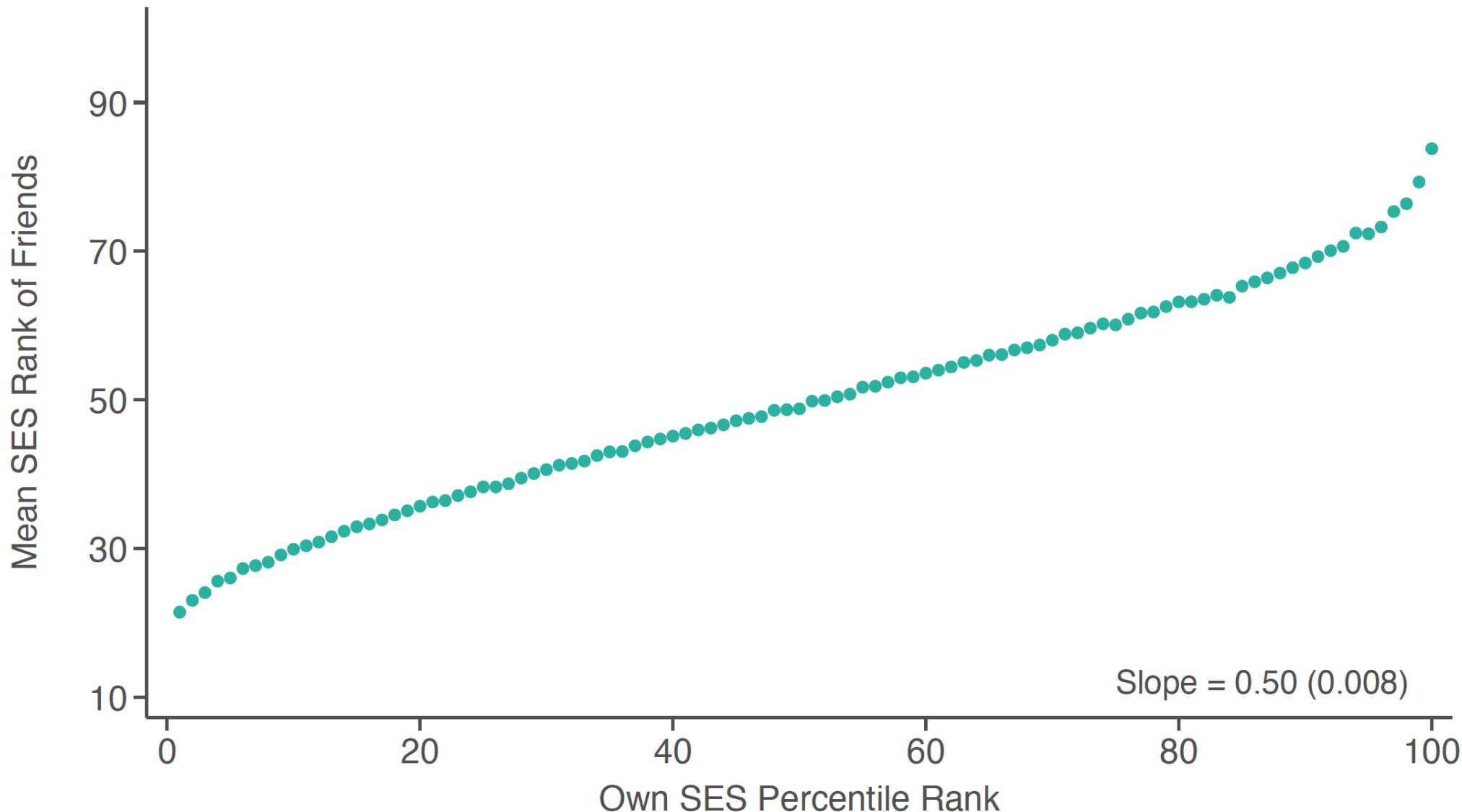


# County-level Correlations for Top 25% of Counties by FB Coverage Rates

## Neighbourhood Characteristics vs. Upward Mobility



# Relationship Between Friends' and Own SES on Instagram



# Proportion of Friendships by SES Percentile Rank

# Friending Shares by Own and Friends' Ranks

