

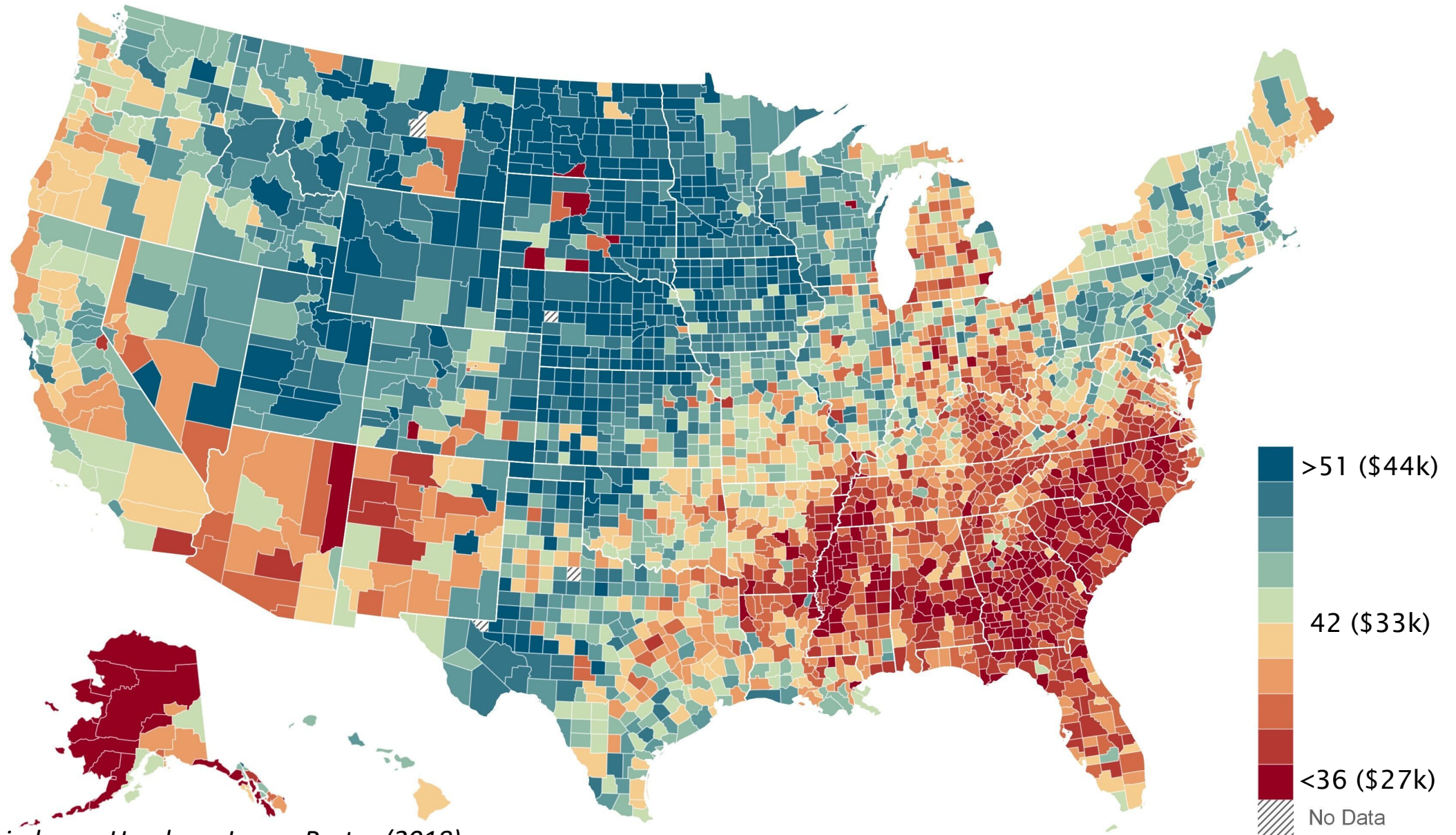


Social Capital and Economic Mobility

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

The Geography of Upward Mobility in the United States

Mean Income Rank at Age 35 for Children whose Parents Earned \$27,000 (25th percentile)



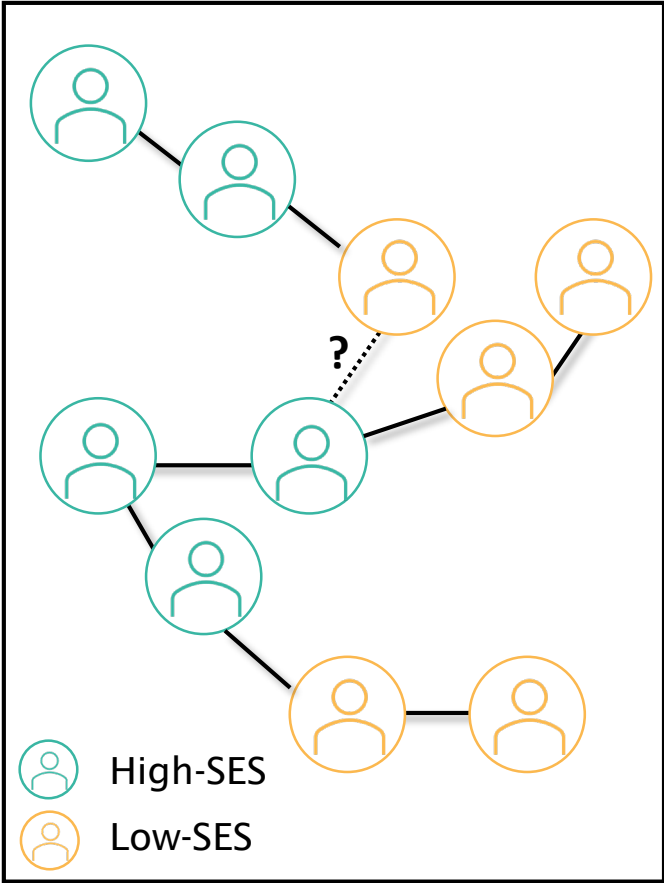
Source: Chetty, Friedman, Hendren, Jones, Porter (2018)

What are the Characteristics of High-Upward-Mobility Areas?

- Large literature has identified several strong predictors of variation in upward mobility across areas, including:
 - Lower poverty rates [Chetty, Hendren, Kline, Saez 2014]
 - School quality [Chetty, Hendren, Kline, Saez 2014]
 - Income inequality [Corak 2013, Krueger 2012, Durlauf et al. 2022]
 - Racial segregation, public goods [Cutler and Glaeser 1997, Derenoncourt 2022]
 - Family structure, father presence [Chetty, Hendren, Jones, Porter 2018]
 - Violence and crime [Sharkey and Torrats-Espinosa 2017, Manduca and Sampson 2019]
 - Pollution exposure [Colmer et al. 2021]
 - Historical redlining [Aaronson et al. 2021]
- Potential importance of social capital? [e.g., Putnam 2016]

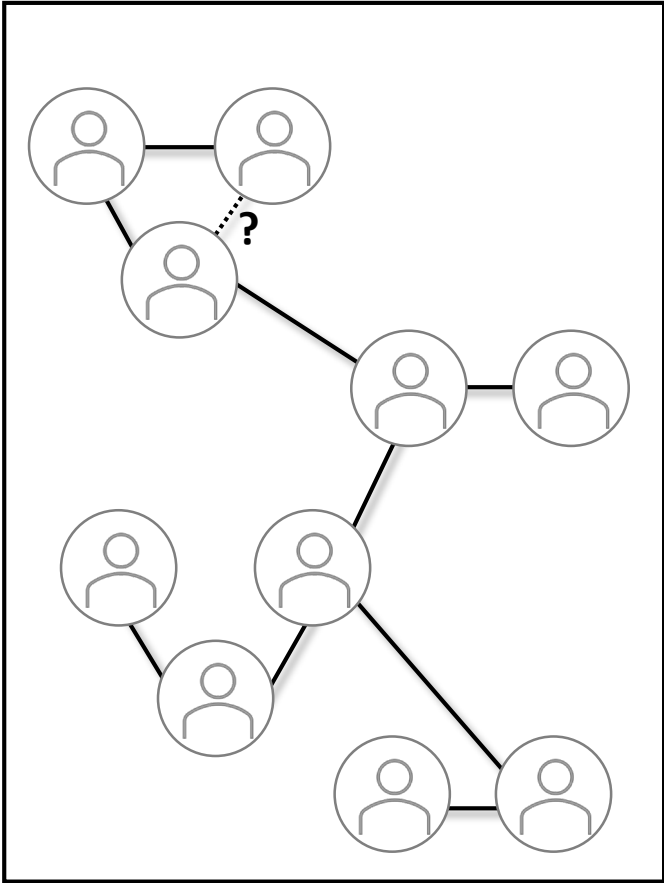
What is “Social Capital”? Three Concepts from the Prior Literature

Connectedness



Loury 1977; Bourdieu 1986;
Lin and Dumin 1986; Putnam 2016

Cohesiveness



Coleman 1988; Jackson et al. 2012

Civic Engagement



Putnam et al. 1994; Putnam 1995;
Glaeser, Laibson, Sacerdote 2002

This Project: Two Papers



Measure Social Capital Using Data from Facebook



Analyze Associations with Economic Mobility



Identify Determinants of Social Connections



Release Granular Data to Inform Interventions

Chetty, Jackson, Kuchler, Stroebe, et al. "Social Capital I: Measurement and Associations with Economic Mobility" *Nature* 2022

Chetty, Jackson, Kuchler, Stroebe, et al. "Social Capital II: Determinants of Economic Connectedness" *Nature* 2022

Measurement of
Social Capital

Association
with Economic
Mobility

Determinants
of Economic
Connectedness

Targeting
Interventions

Measuring Social Capital

Data and Sample Definitions

- Baseline analysis sample
 - U.S. Facebook users between ages 25–44 as of May 28, 2022
 - 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 reasons that economic connectedness might matter for outcomes: information, influence on aspirations and preferences, job referrals [e.g., Case and Katz 1991, Glaeser, Sacerdote, Scheinkman 1996, Cherng, Calarco, Kao 2013, Pallais 2014, Burks et al. 2015, Putnam 2016, ...]

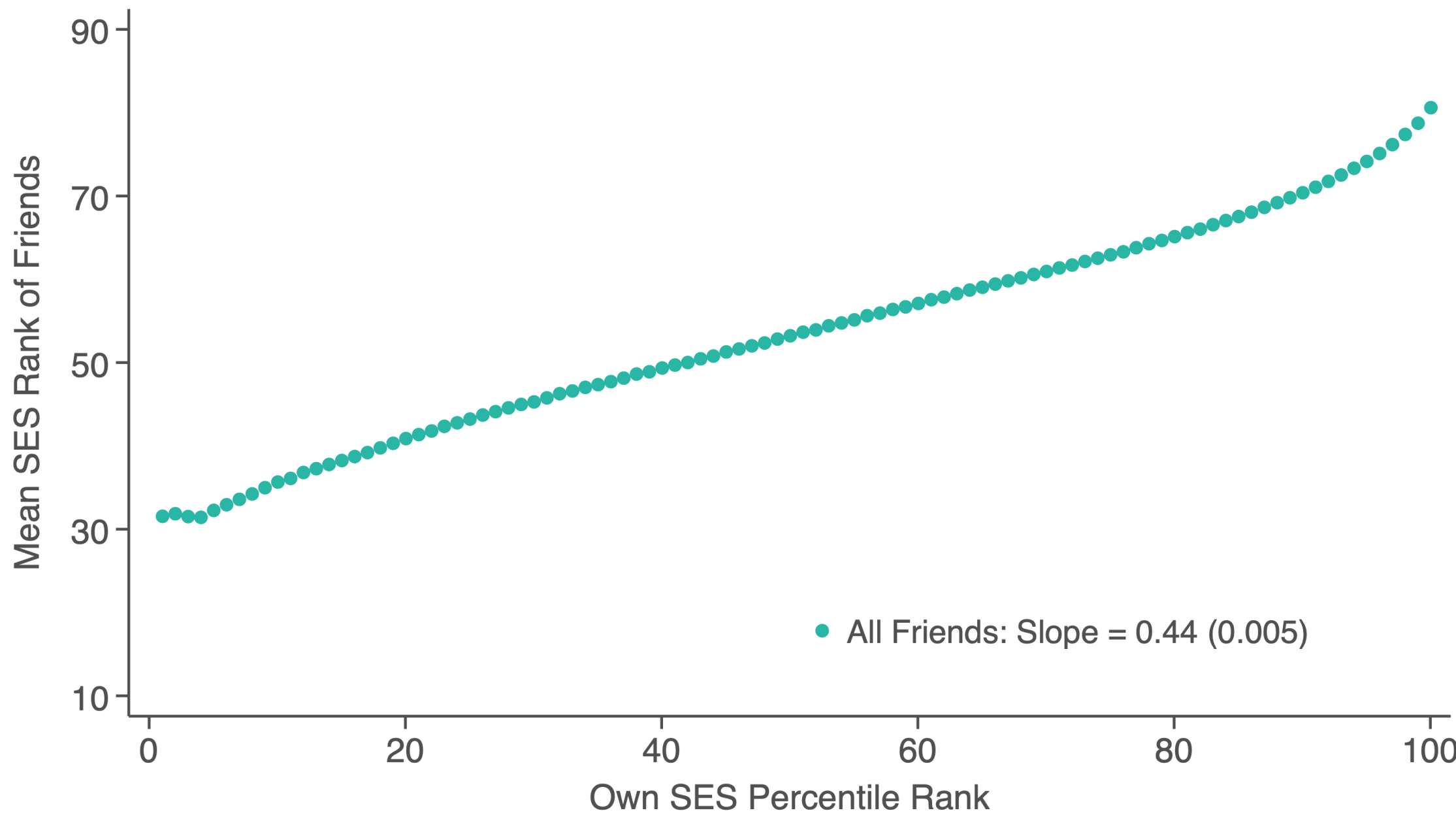
Measuring Socioeconomic Status

- Construct an index of socioeconomic status (SES) by combining several proxies: ZIP code, college, phone model price, ...
- 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** distribution based on their predicted SES ranks relative to others in their cohort

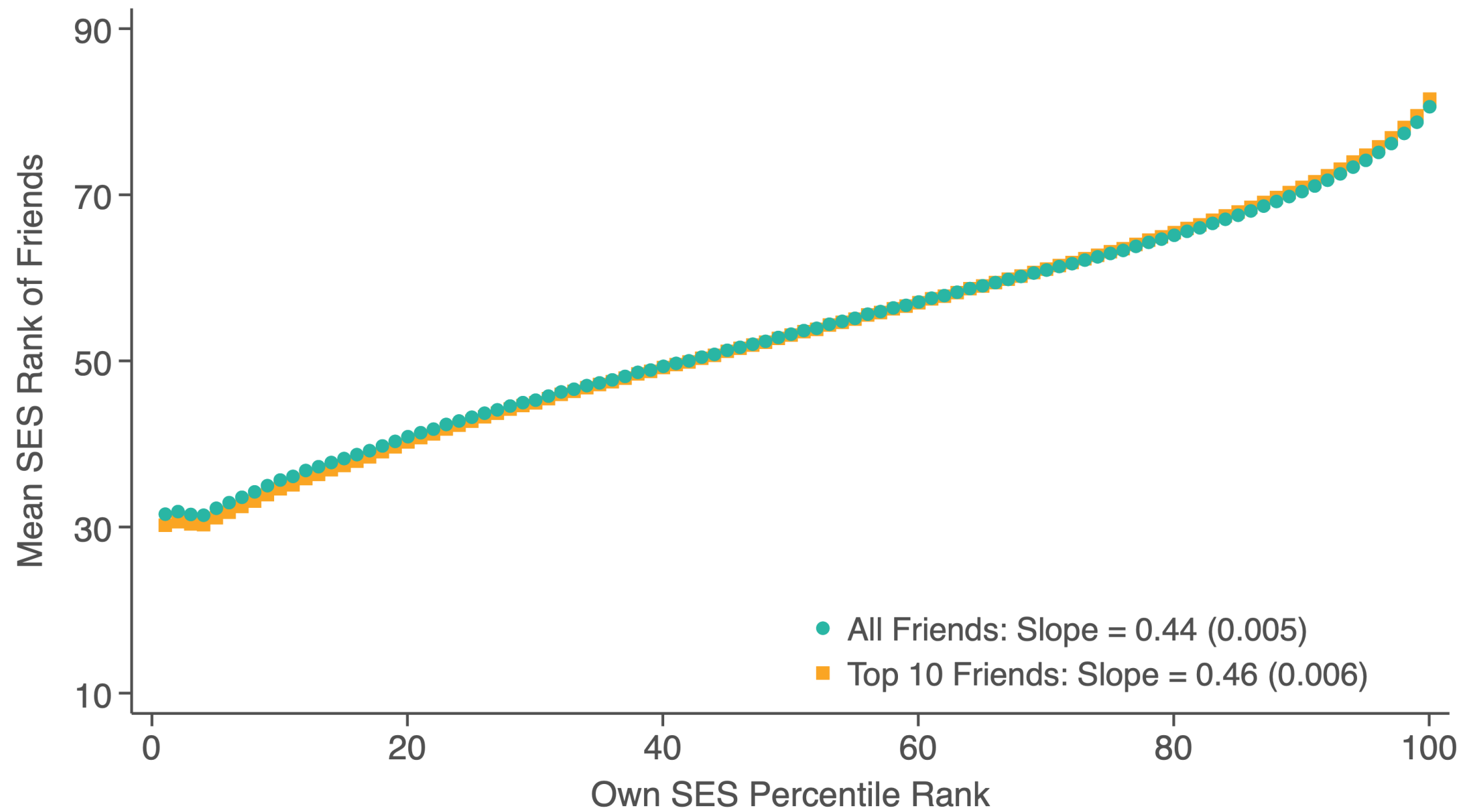
Benchmarking SES Predictions Using Publicly Available Data

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

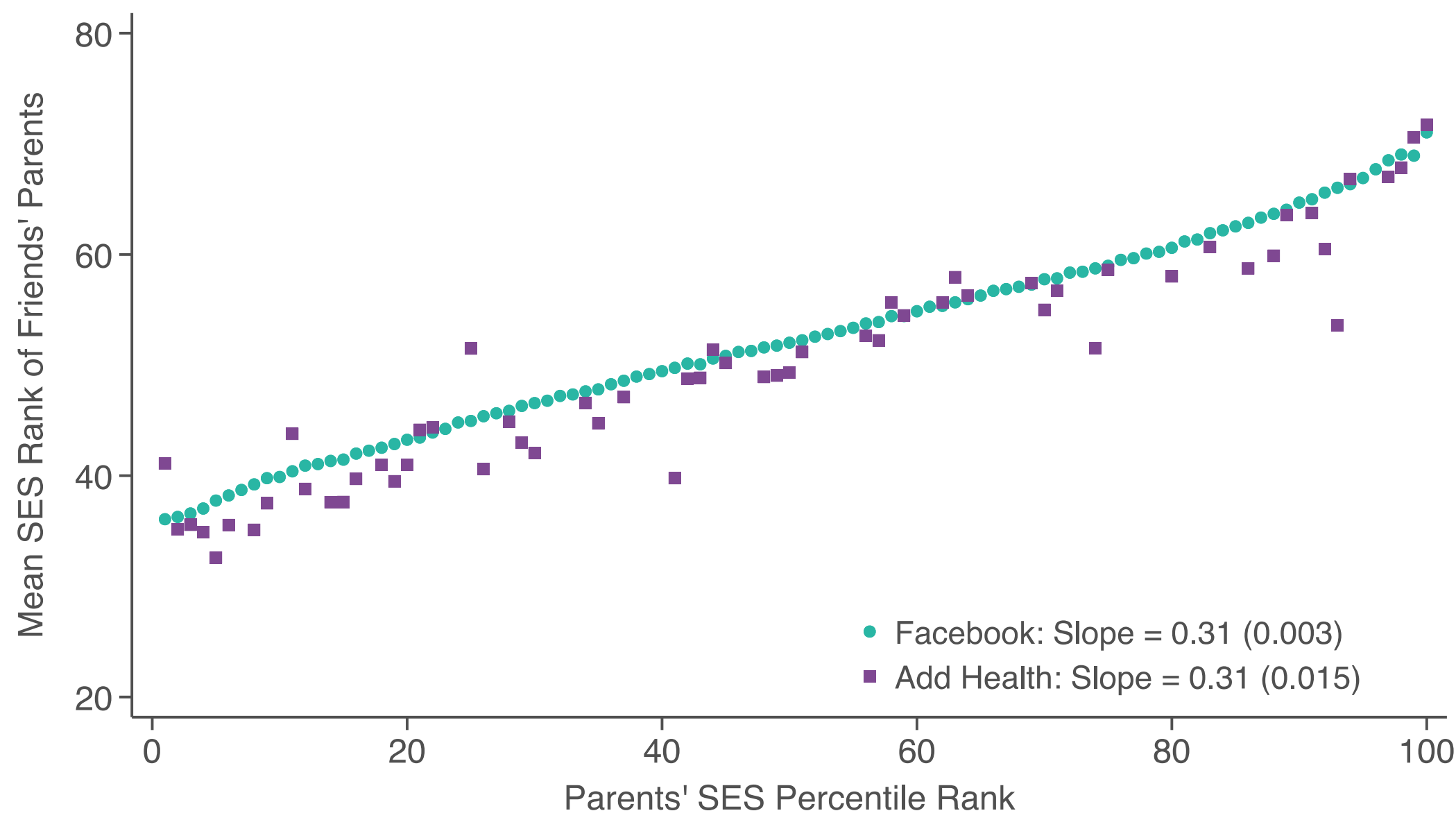


Mean Friend SES Rank vs. Own SES Rank



Homophily by SES in Facebook Data vs. Add Health Survey Data

Mean Parents Rank of Five Best Friends in High School vs. Own Parents' Rank



Measuring Economic Connectedness Across Subgroups

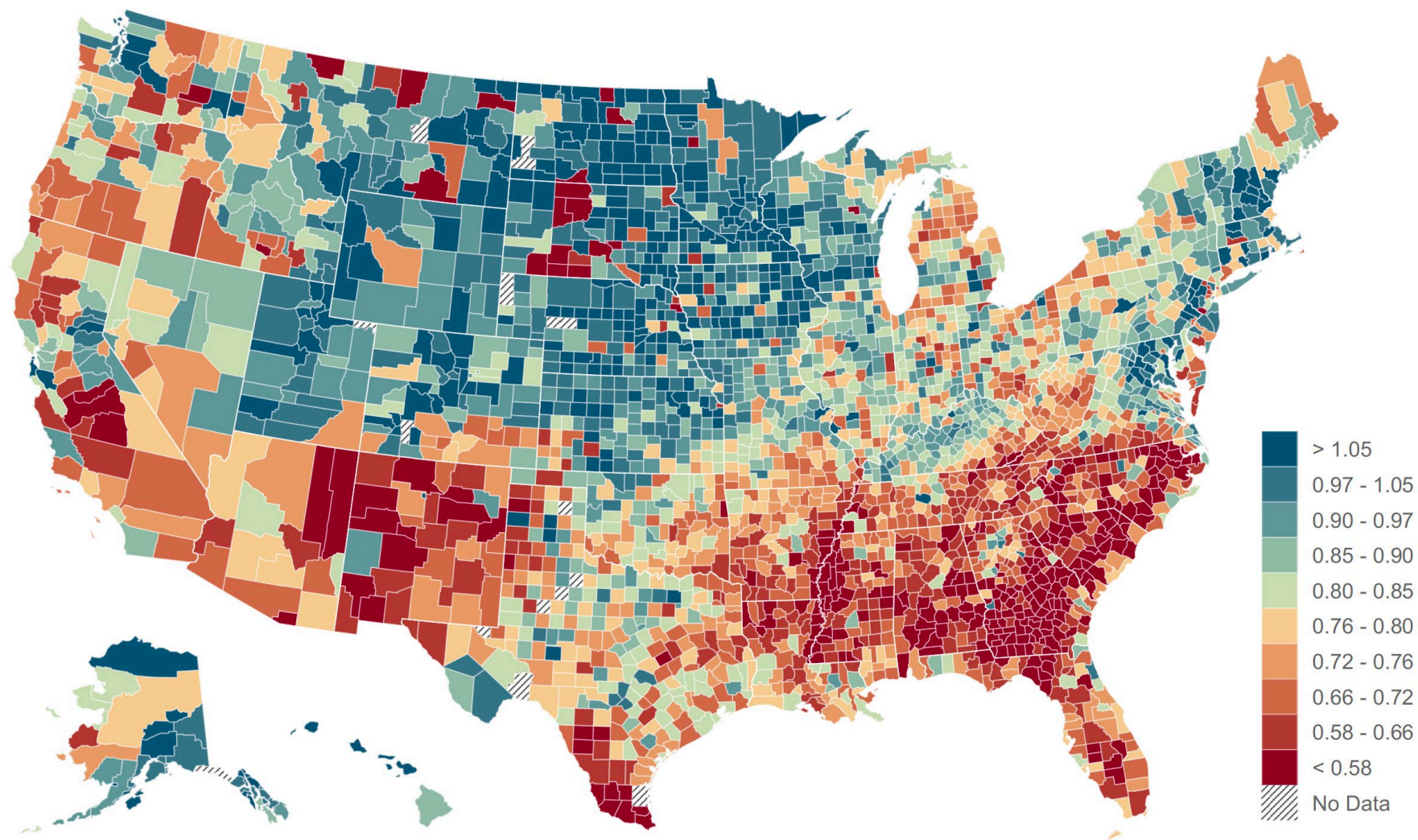
- Facebook data have sufficiently large samples to allow us to disaggregate across subgroups (ZIP codes, high schools, colleges, etc.)
- Summarize the degree to which low-SES people in a given group are connected to high-SES people using the following statistic:

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

- Mean EC nationally = 0.78: **22% under-representation** of high-SES friends relative to random-friending benchmark

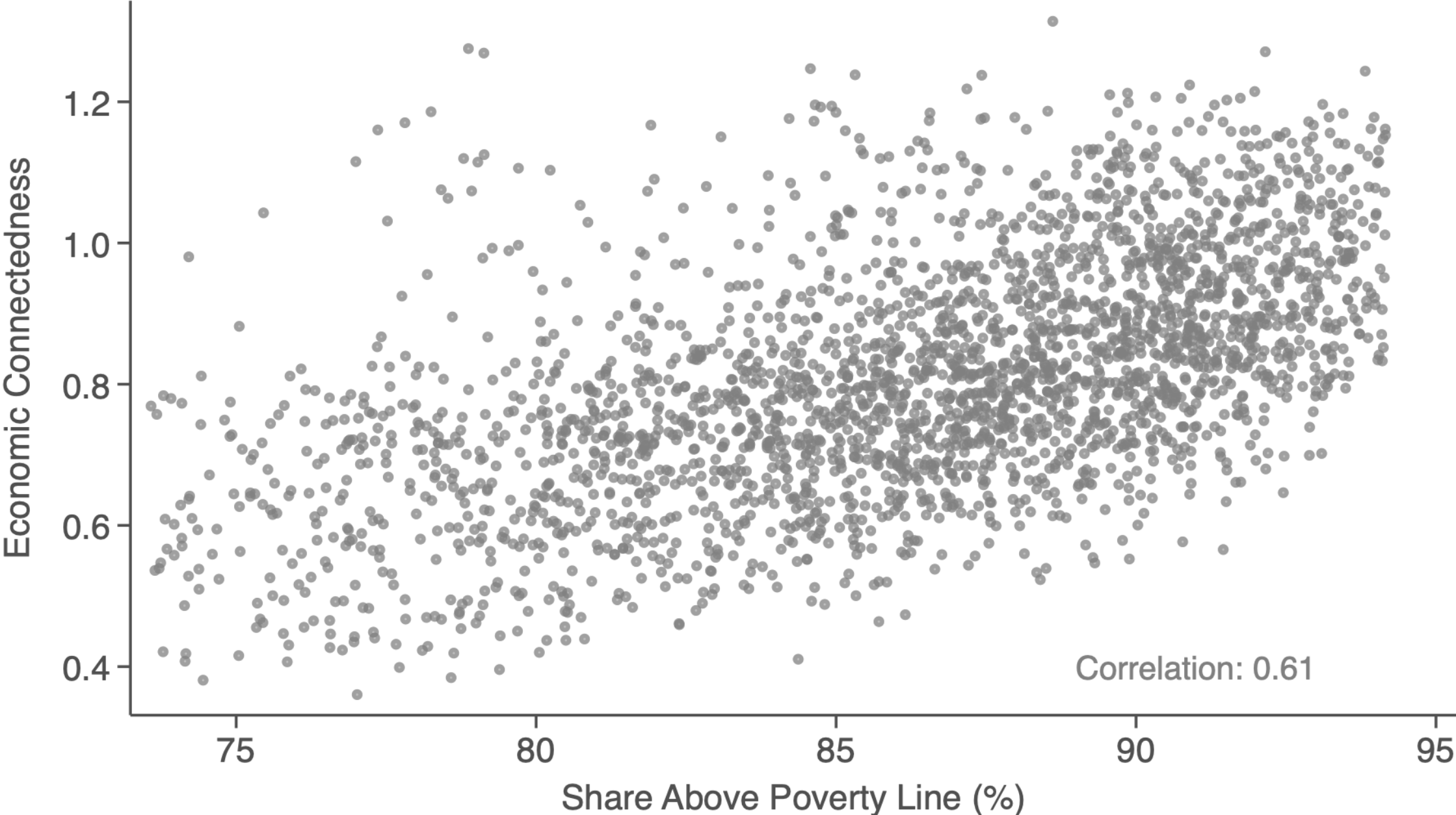
Economic Connectedness of Low-SES Individuals by County

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

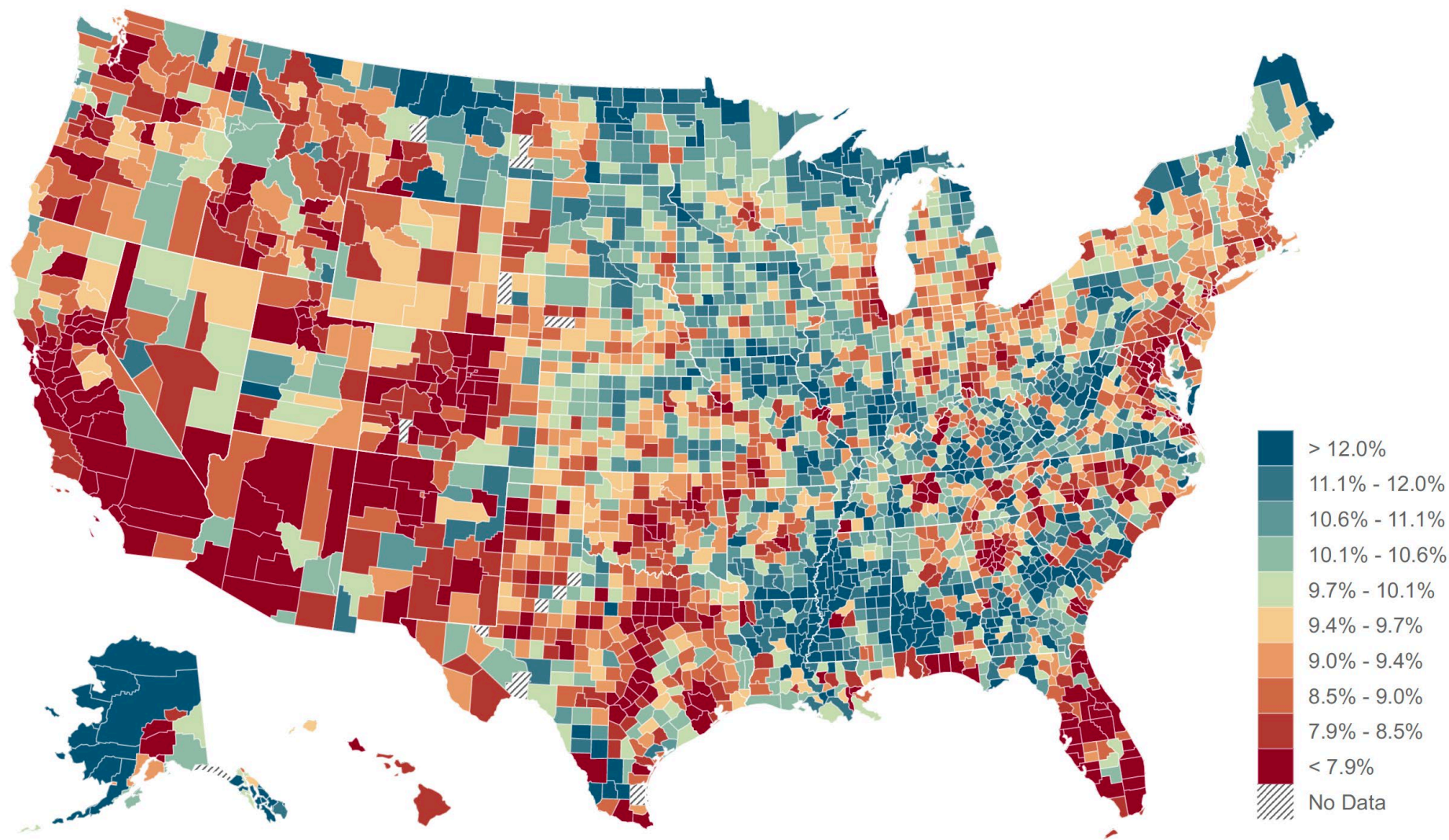


Note: see the Social Capital Atlas (www.socialcapital.org) for an interactive version of this map and downloadable data

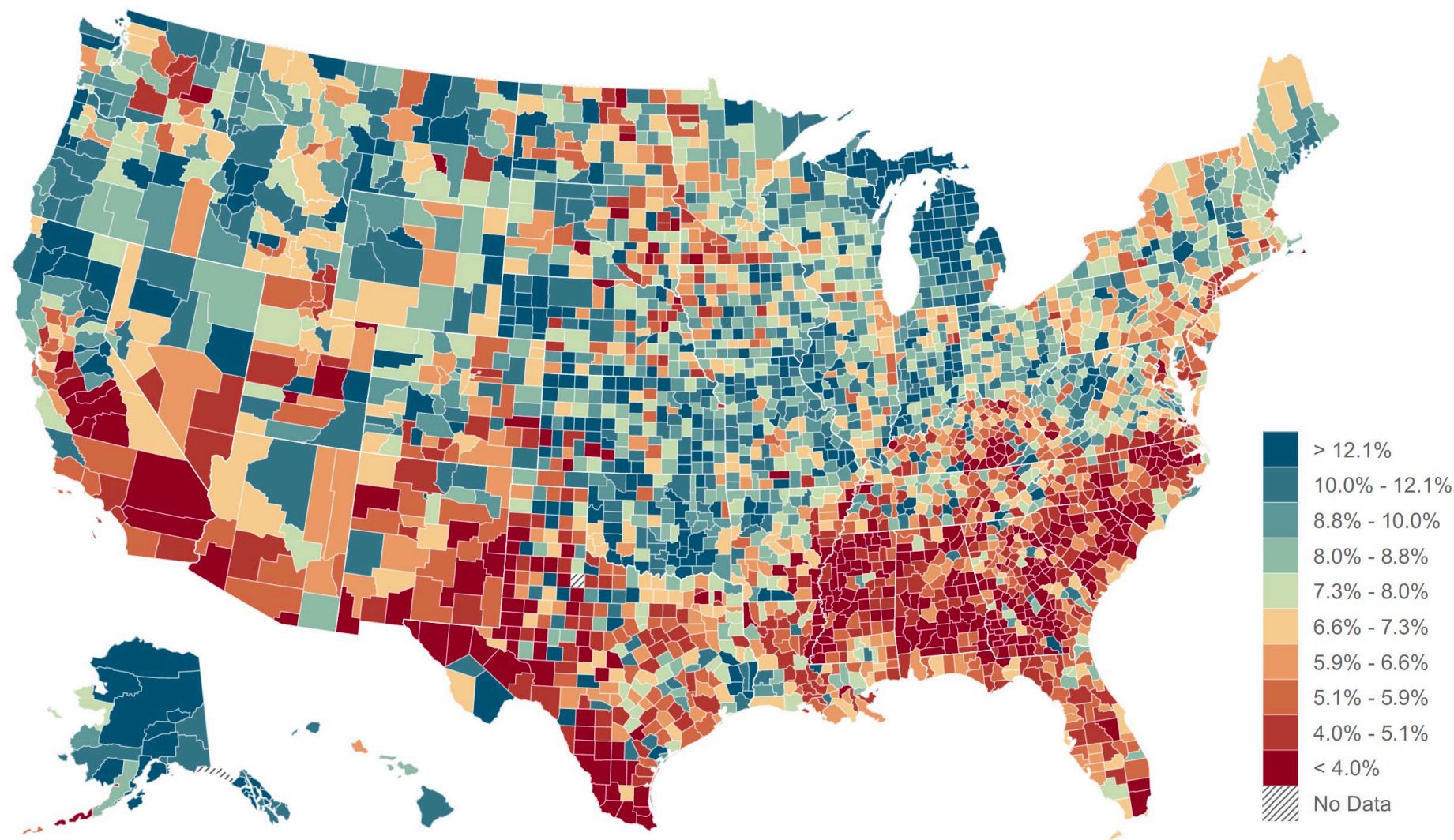
Economic Connectedness vs Share Above Poverty Line, by County



Cohesiveness: Clustering Coefficients by County



Civic Engagement: Participation in Volunteering Groups by County



Correlation Matrix of County-Level 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

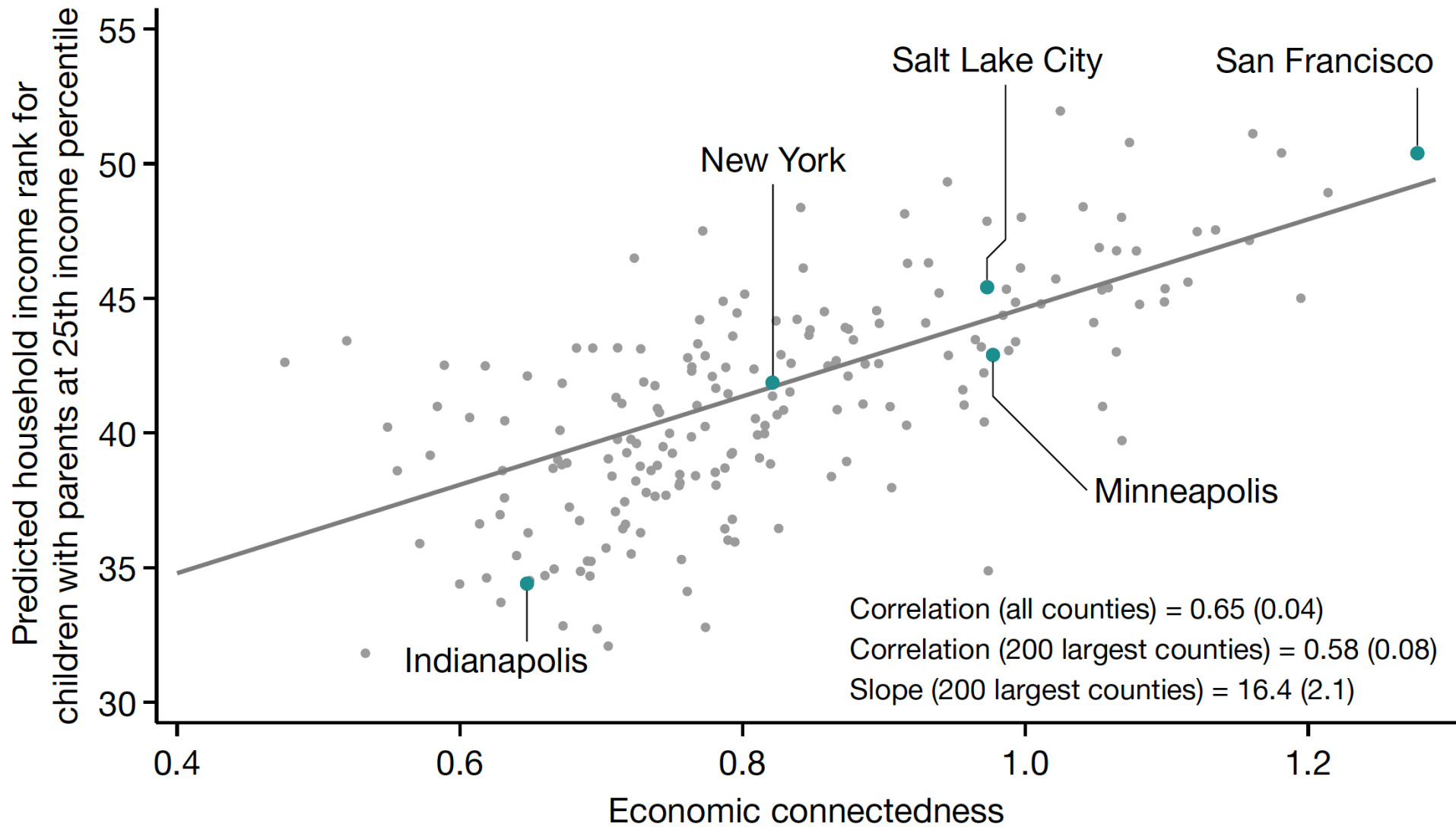
Determinants
of Economic
Connectedness

Targeting
Interventions

Association with Economic Mobility

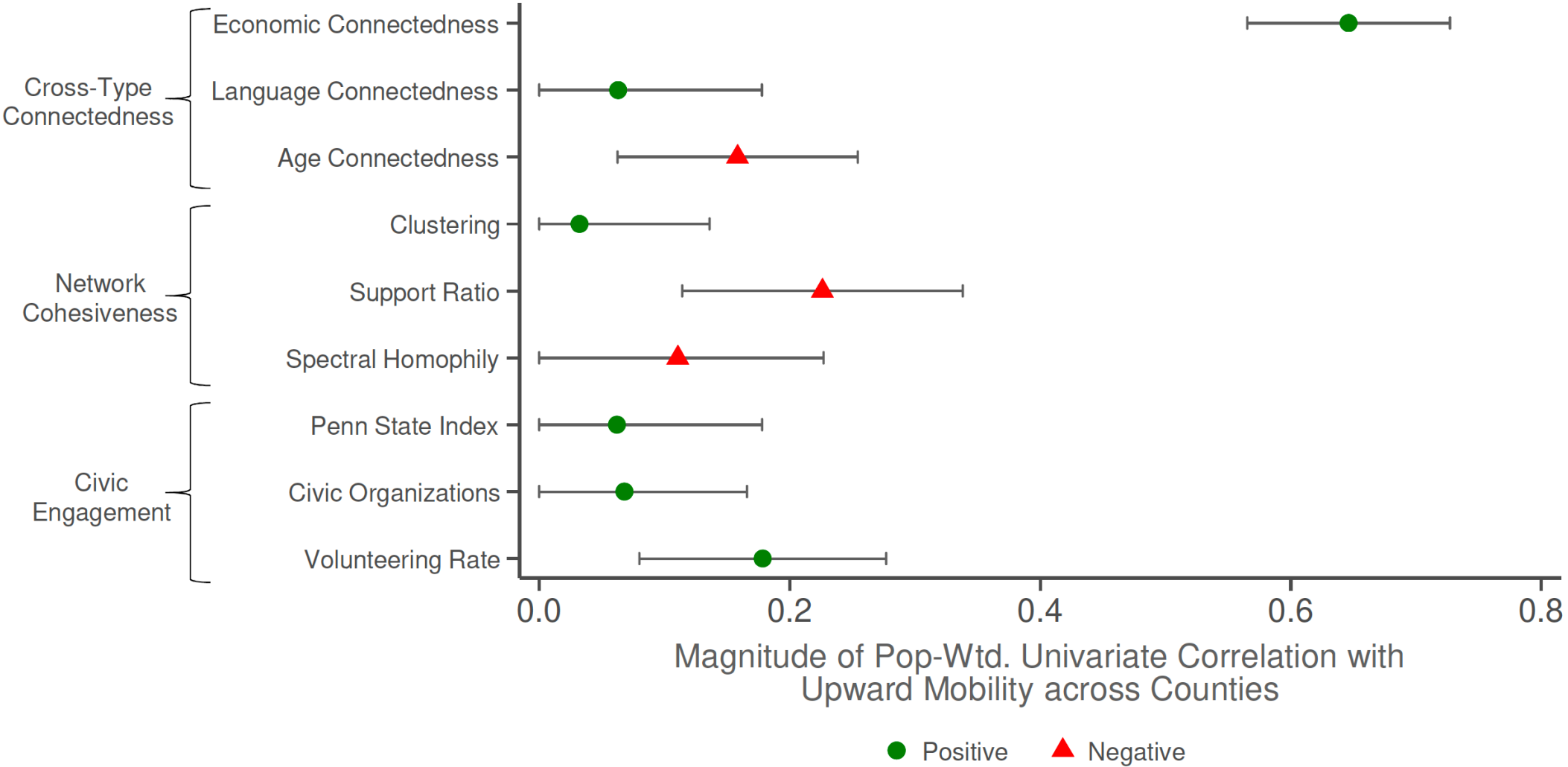
Upward Mobility vs. Economic Connectedness, by County

200 Largest Counties



Correlations between Upward Mobility and Measures of Social Capital

County-level Univariate Correlations



Why is Economic Connectedness Related to Upward Mobility?

- Economic connectedness may have a causal effect on upward mobility through many mechanisms (e.g., aspirations, information, referrals)
- But EC may be correlated with mobility even in the absence of a causal effect for three other reasons:
 1. **Reverse causality:** upward mobility leads to higher EC in adulthood
 2. **Selection:** people who live in high-EC areas differ on other dimensions (e.g., race)
 3. **Other neighborhood characteristics:** high-EC neighborhoods have other features (e.g., better schools) that generate high upward mobility

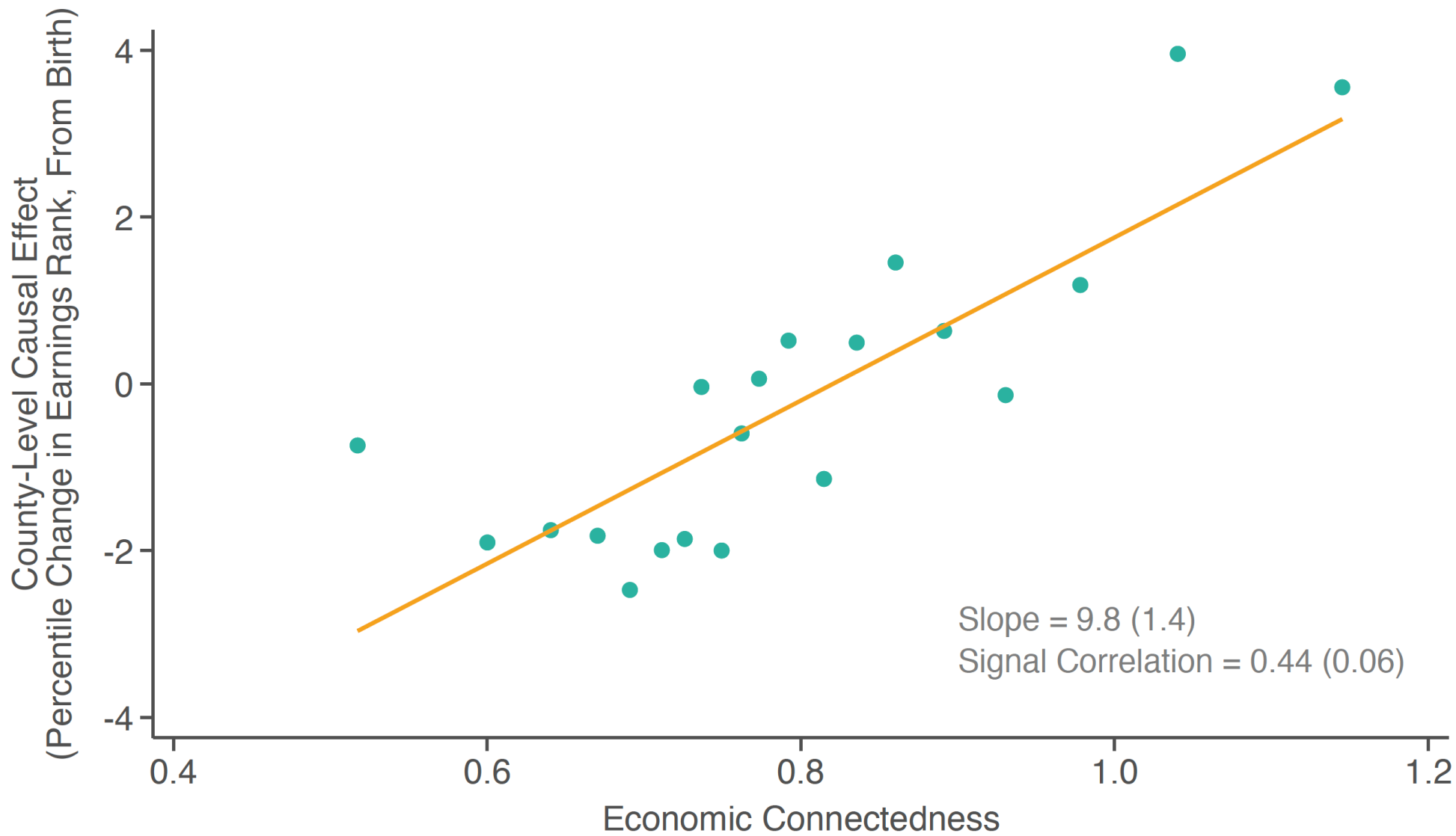
Reverse Causality

- To address 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
- Childhood EC remains strongly correlated with upward mobility
 - Correlation of 0.44 using Facebook subsample linked to parents and 0.62 using Instagram full sample

Selection vs. Causal Effects

- To evaluate importance of selection on other dimensions, examine association between estimated **causal effects** of counties on upward mobility and EC
- Ideal experiment: randomly assign children to different counties while growing up and test if those assigned to counties with higher EC earn more as adults
- Instead, use causal effect estimates from Chetty and Hendren (2018), identified using a quasi-experimental **movers design**
 - Analyze earnings in adulthood of 7 million children whose parents moved to a different county while they were growing up
 - Identification assumption: age at move between a given pair of areas is orthogonal to potential outcomes conditional on parental income
 - Identify causal effect of spending a year of childhood in each county by comparing children who moved that county earlier vs. later [Chetty, Hendren, Katz 2016, Chyn 2018, Deutscher 2019, Alesina et al. 2020, Laliberte 2021]

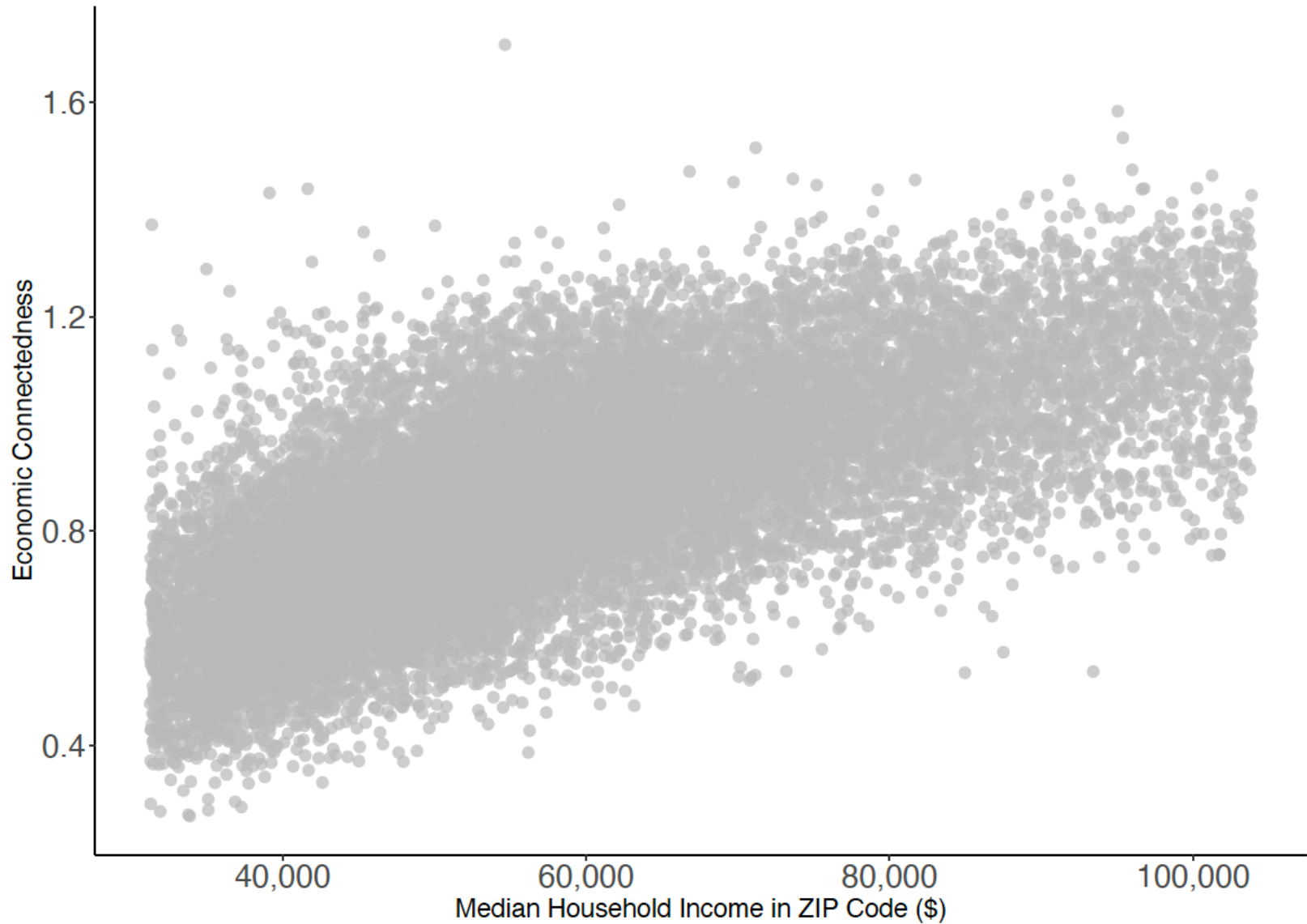
Counties' Causal Effects on Upward Income Mobility vs. Economic Connectedness



Economic Connectedness vs. Other Neighborhood Characteristics

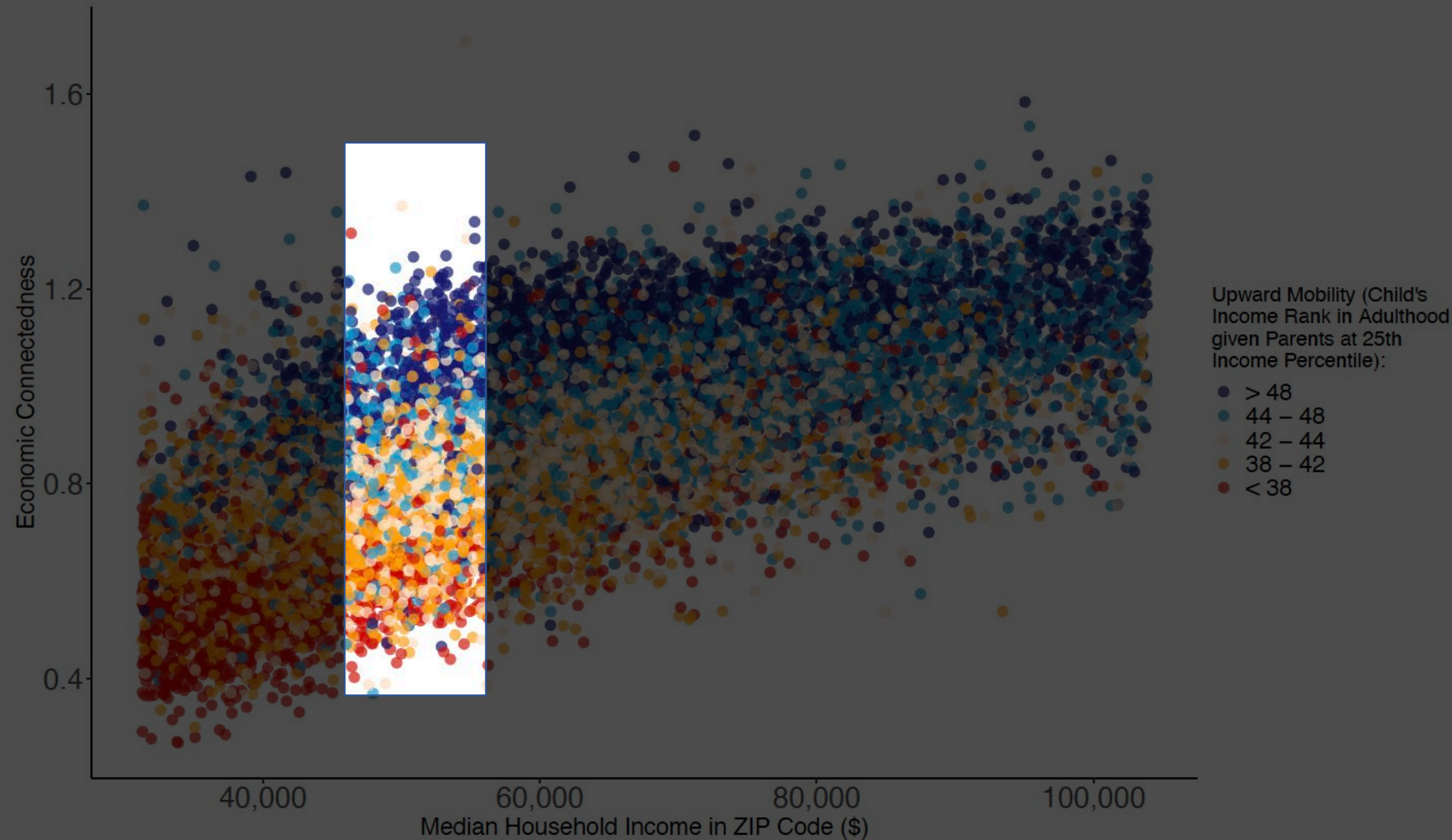
- Growing up in a higher-EC area has a causal effect on upward mobility through a **childhood exposure effect**
- Is this because of connectedness itself or other characteristics of high-EC neighborhoods?
- Compare explanatory power of strongest predictors identified in prior work (poverty rates, inequality, racial segregation, ...) vs. economic connectedness
 - Start by examining role of average neighborhood incomes, currently the most widely used marker of “high opportunity” areas (e.g., Moving to Opportunity, Opportunity Zones)

Economic Connectedness vs. Household Median Income, by ZIP Code



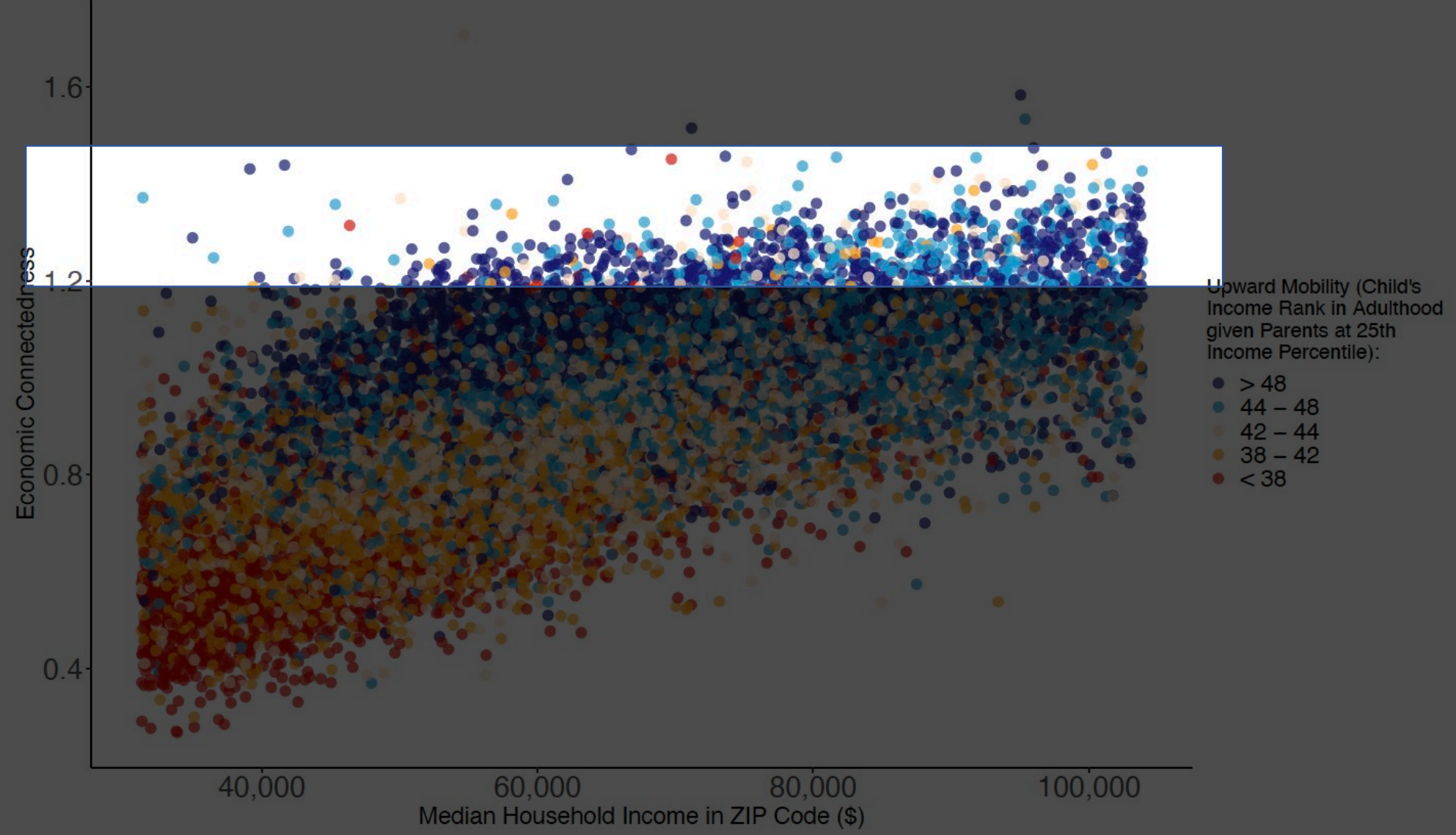
Economic Connectedness vs. Household Median Income, by ZIP Code

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

Cutler and Glaeser (1997): “segregation is extremely harmful for blacks, but we do not have an exact understanding of why this is true.”

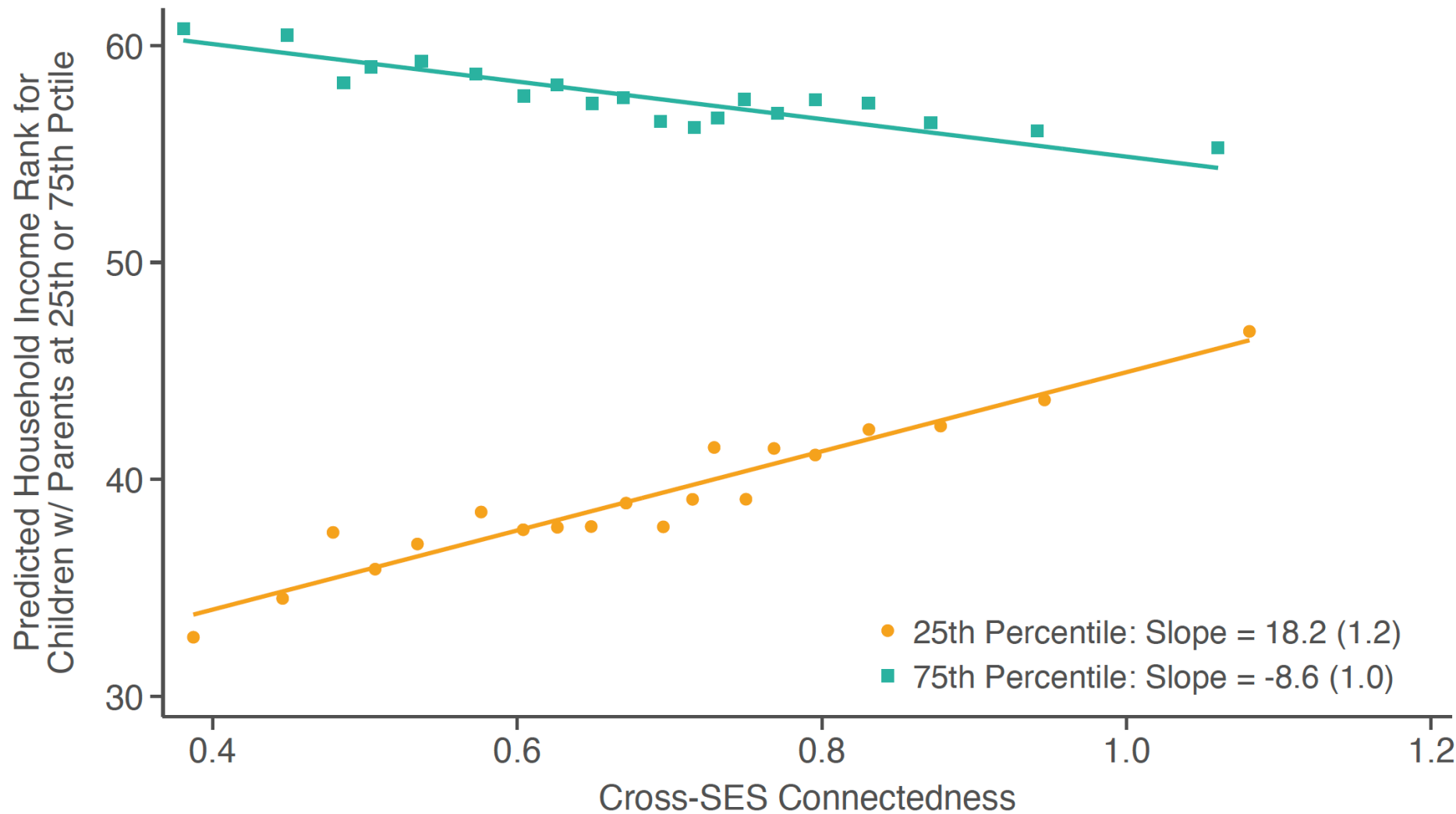
Lack of connectedness provides a (statistical) explanation

Connectedness and Outcomes for High-SES Families

- Greater economic connectedness is strongly associated with better outcomes for low-income families, but does this come at the expense of outcomes for the rich?
[see also Rao 2019, Londono-Velez 2022, Burzstyn et al. 2022]

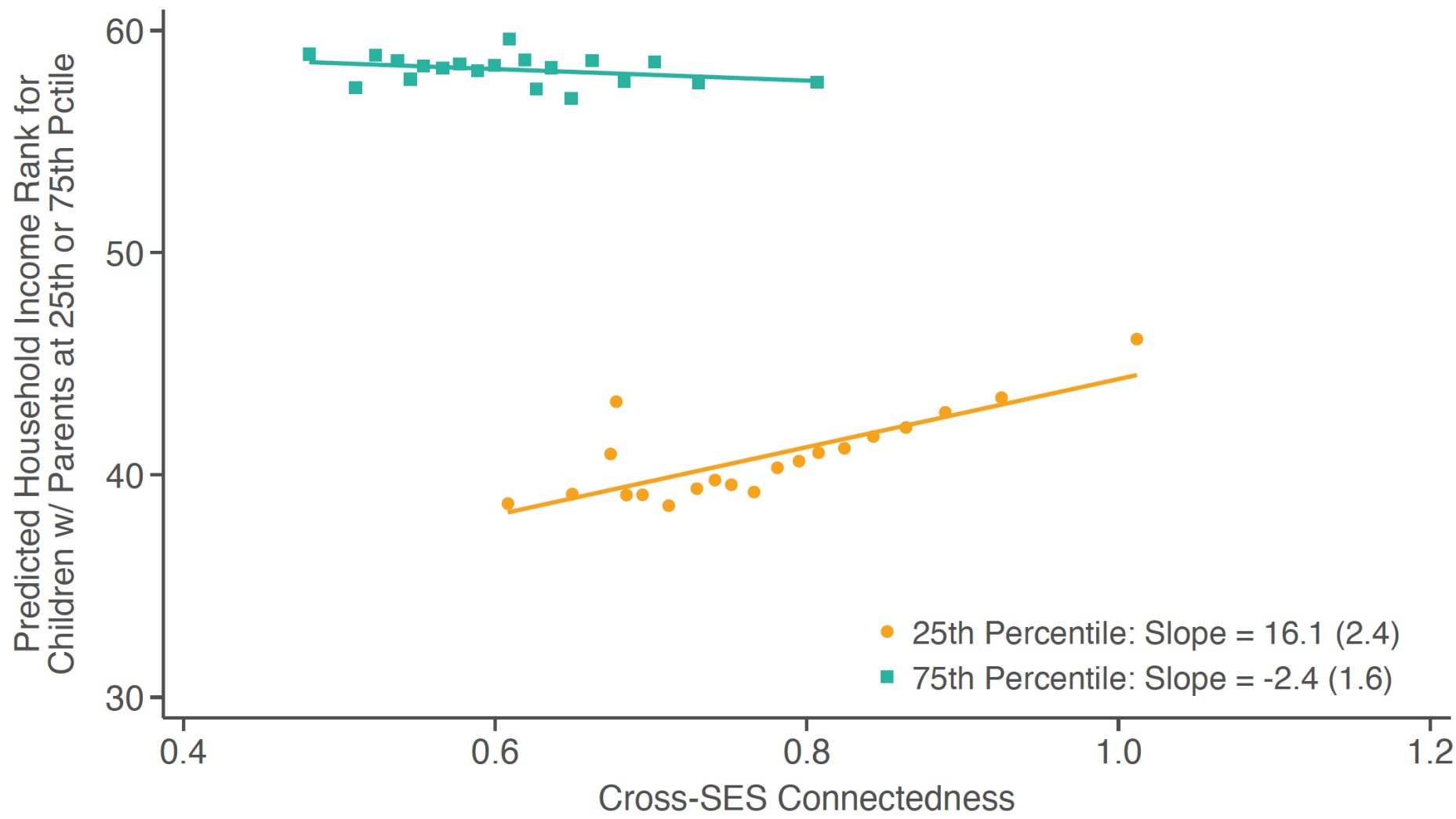
Economic Mobility vs. Cross-SES Connectedness for Low- vs. High-SES Individuals

County-Level



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

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



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Targeting
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Determinants of Economic Connectedness

Why Do Low-Income People Have Fewer High-SES Friends?

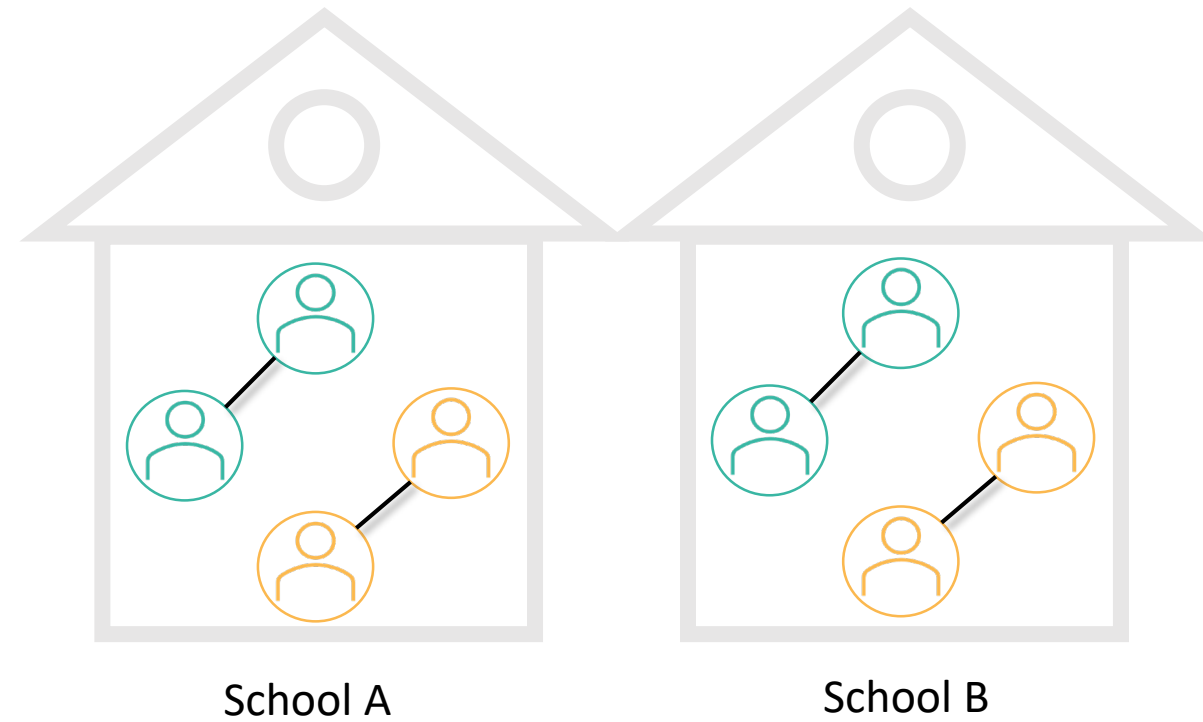
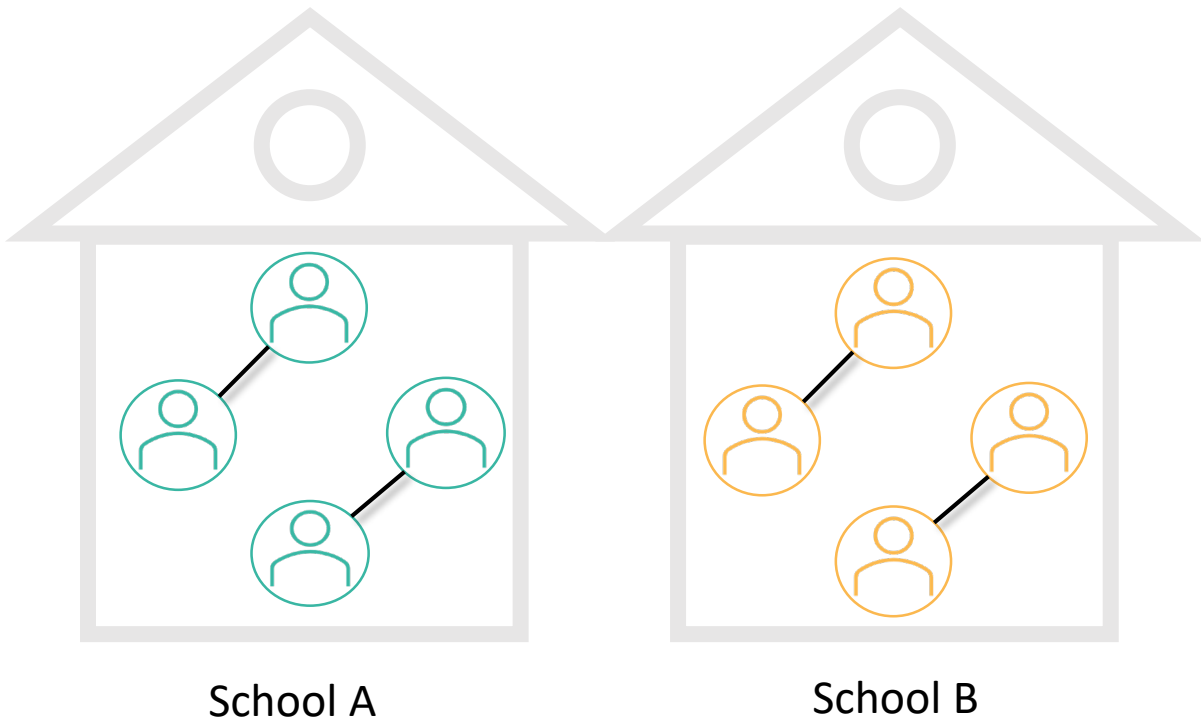
Exposure

*Segregation by
Income*

vs.

Friending Bias

*Interaction Conditional
on Exposure*



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.

Measuring the Importance of Exposure vs. Friending Bias

- We 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:** $1 - (\text{Share high-SES friends made in } g) / (\text{Share high-SES members of } g)$

Assign Friendships to One of Six Settings Where They are Formed

High Schools



Colleges



Workplaces



Recreational
Groups



Religious
Groups

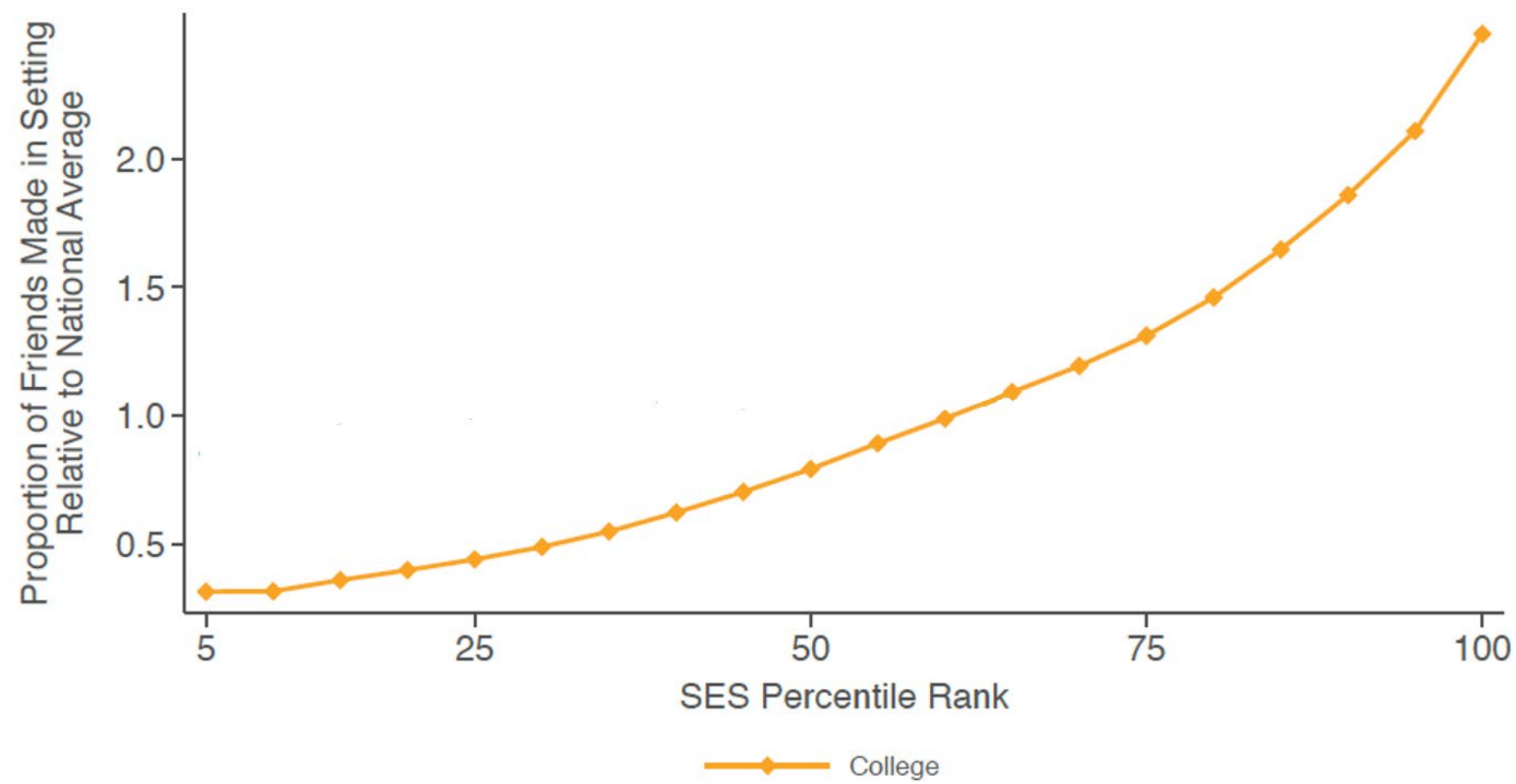


Neighborhoods



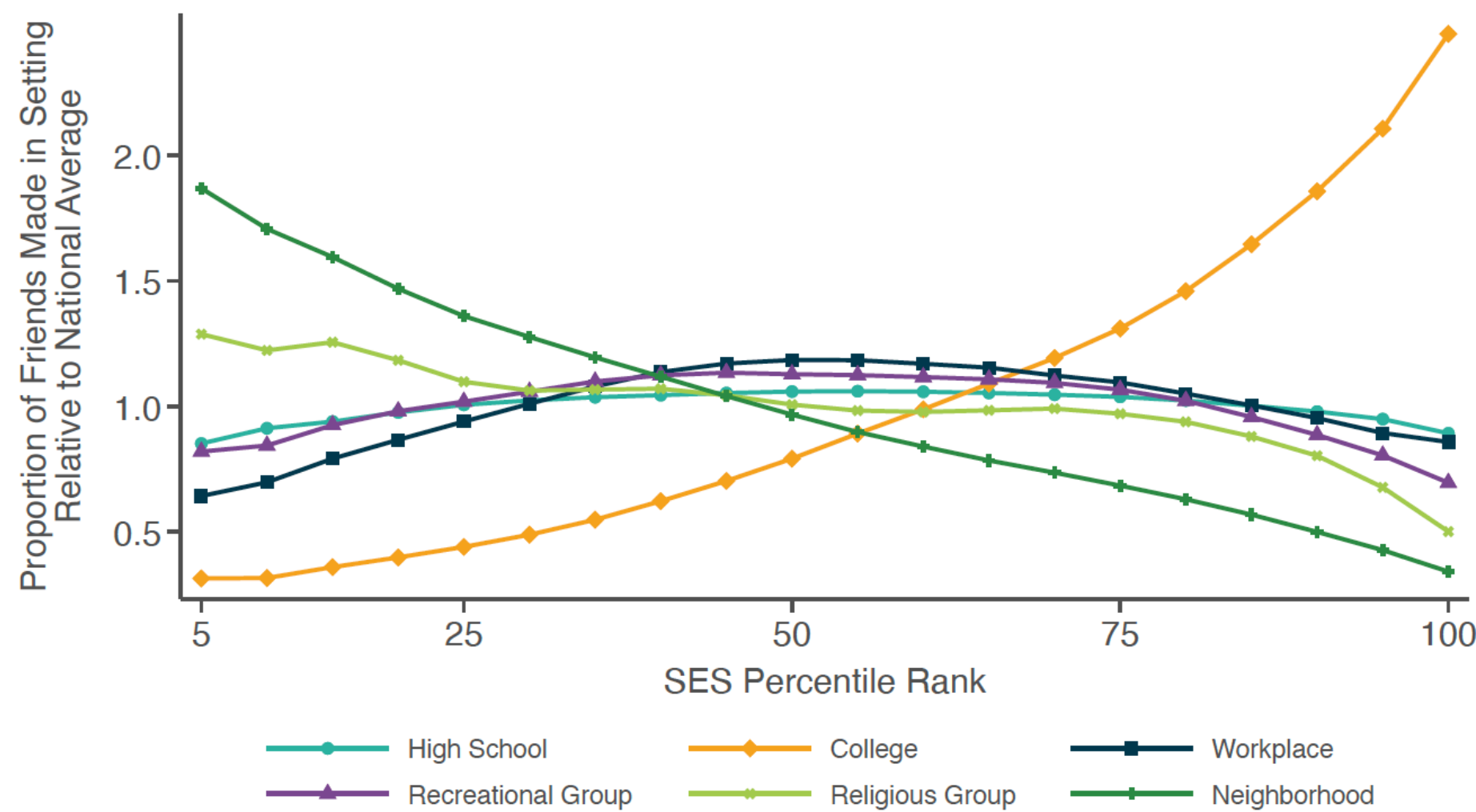
Friendship Shares by Setting vs. Socioeconomic Status

Colleges



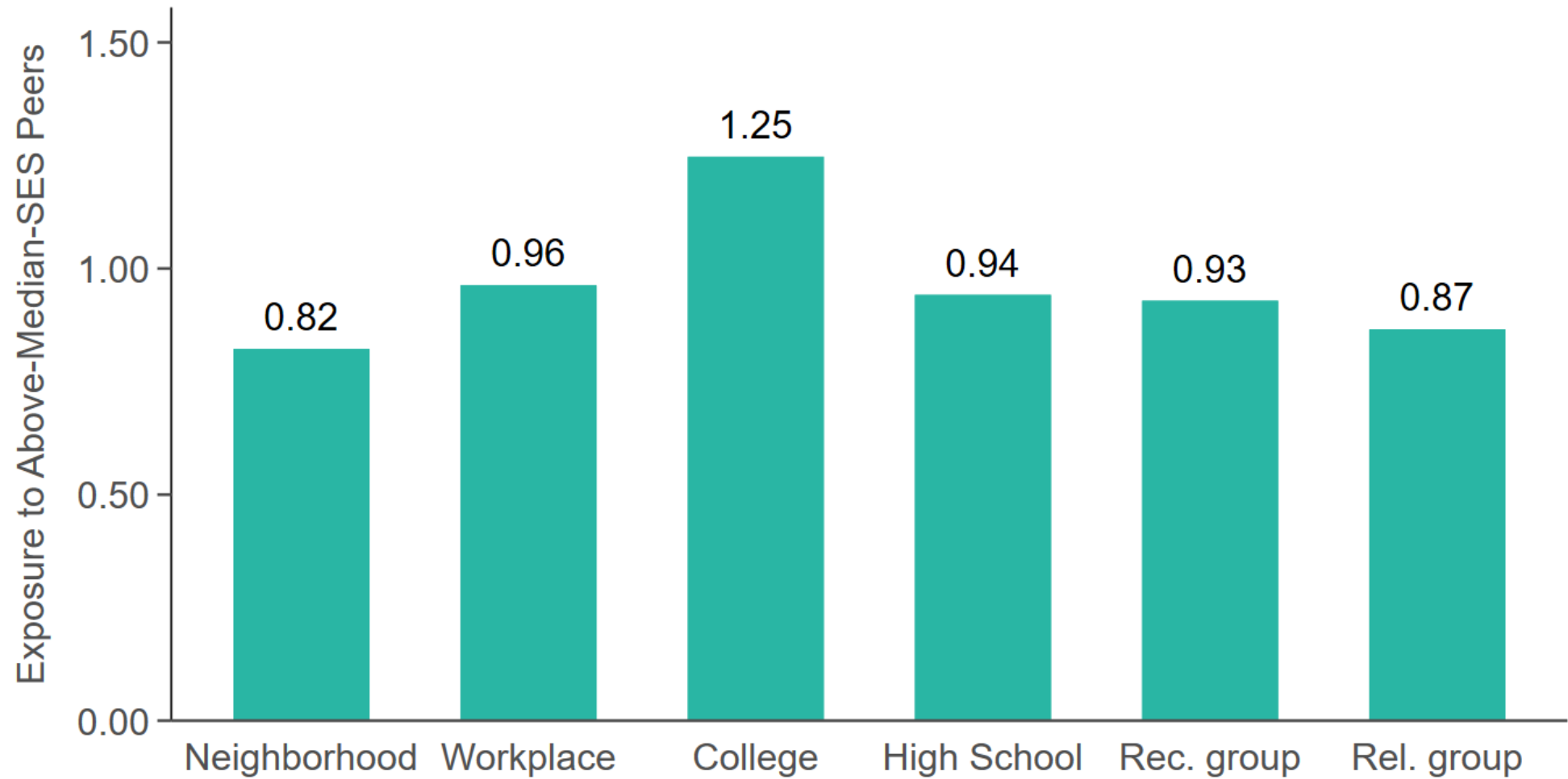
Friendship Shares by Setting vs. Socioeconomic Status

All Settings

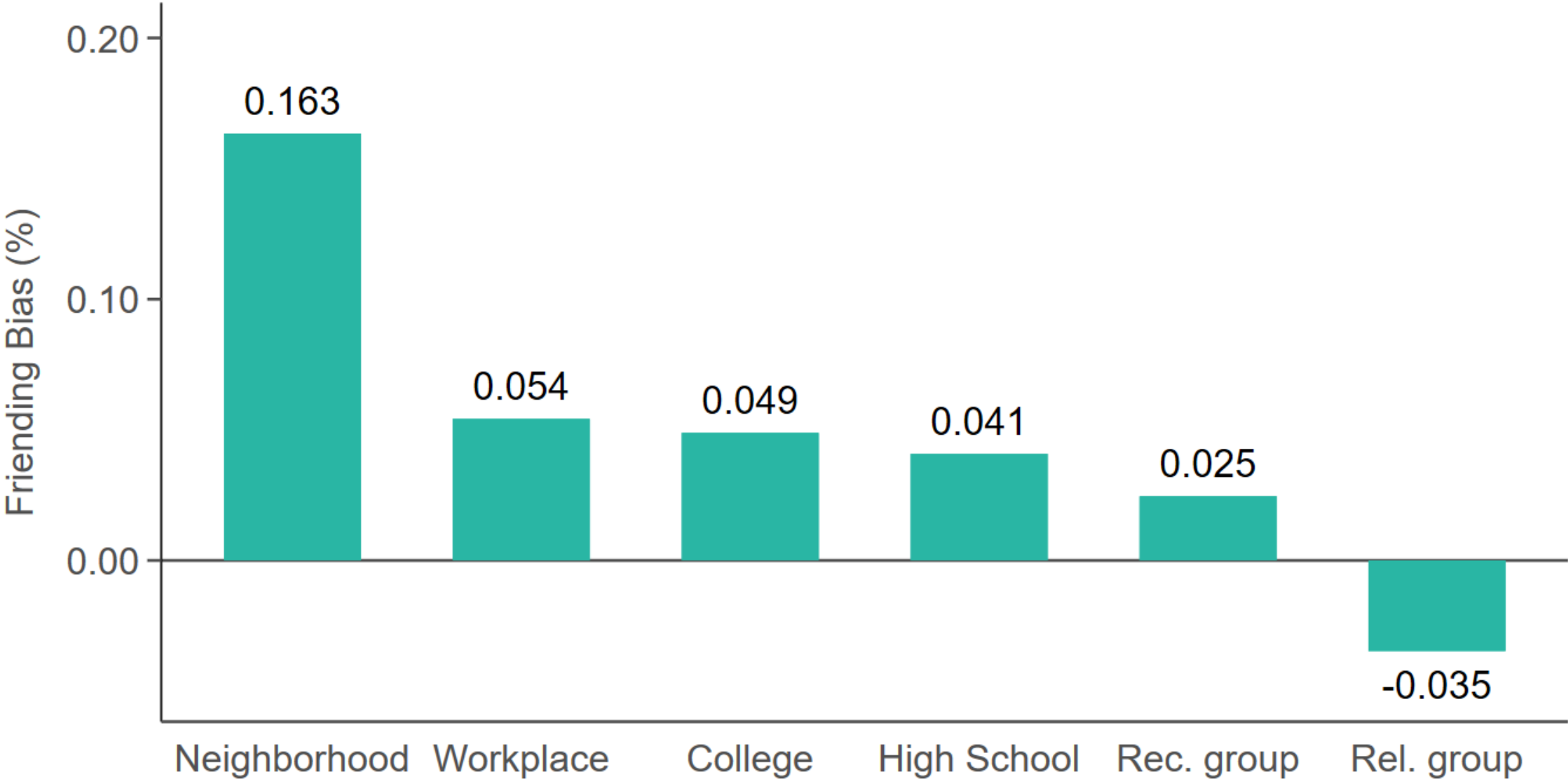


Exposure to Above-Median SES Peers By Setting

Low-SES People



Friending Bias for Low-SES People, By Setting



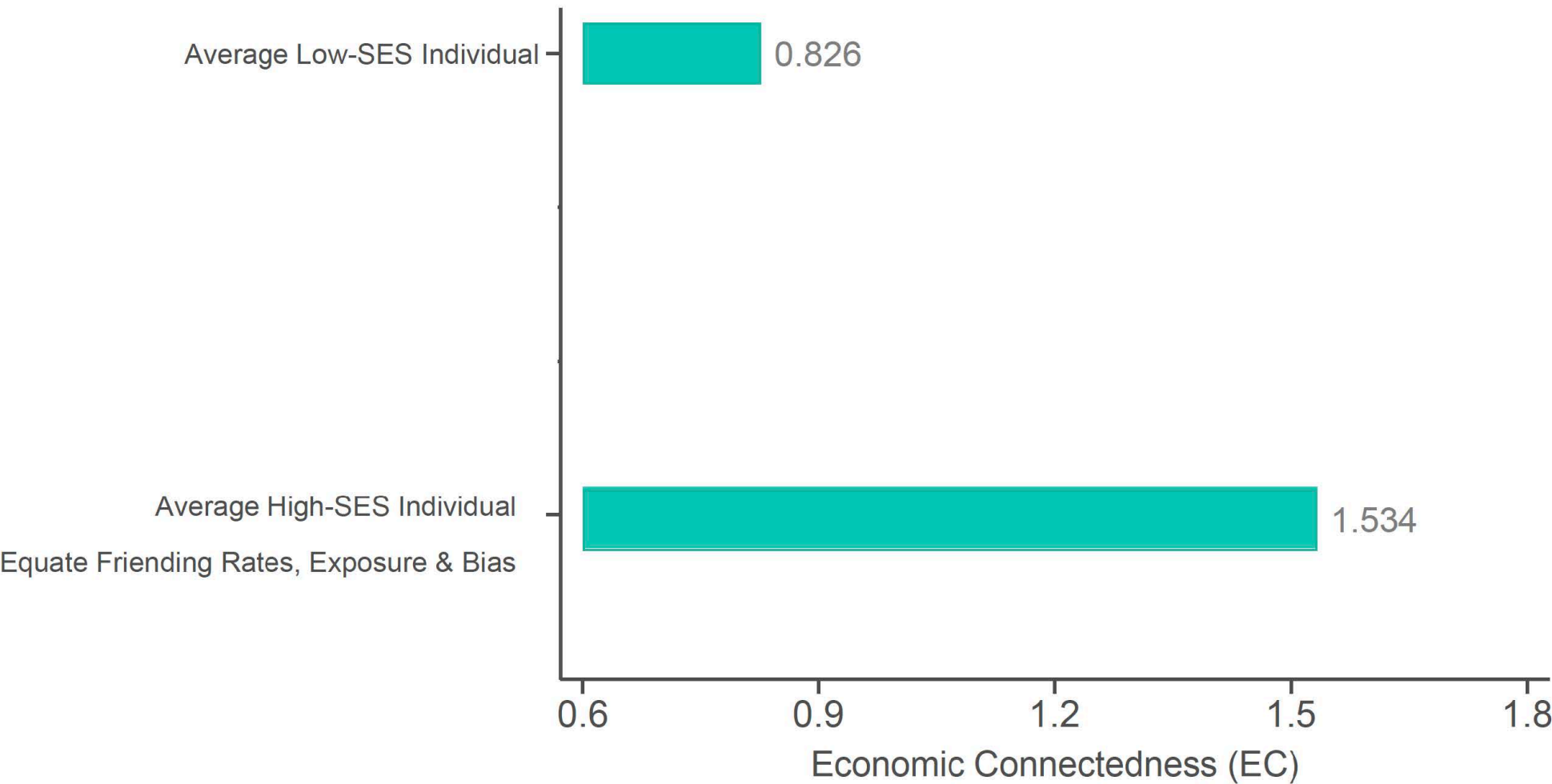
Measuring the Importance of Exposure vs. Friending Bias

- We just measured the mean values of three components that determine connectedness: friend shares, exposure, and friending bias by setting and SES
- Now use these parameters to quantify the contribution of each channel in explaining why low-SES people have fewer high-SES friends

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

Decomposition Analysis: Group Importance, Exposure, and Friending Bias

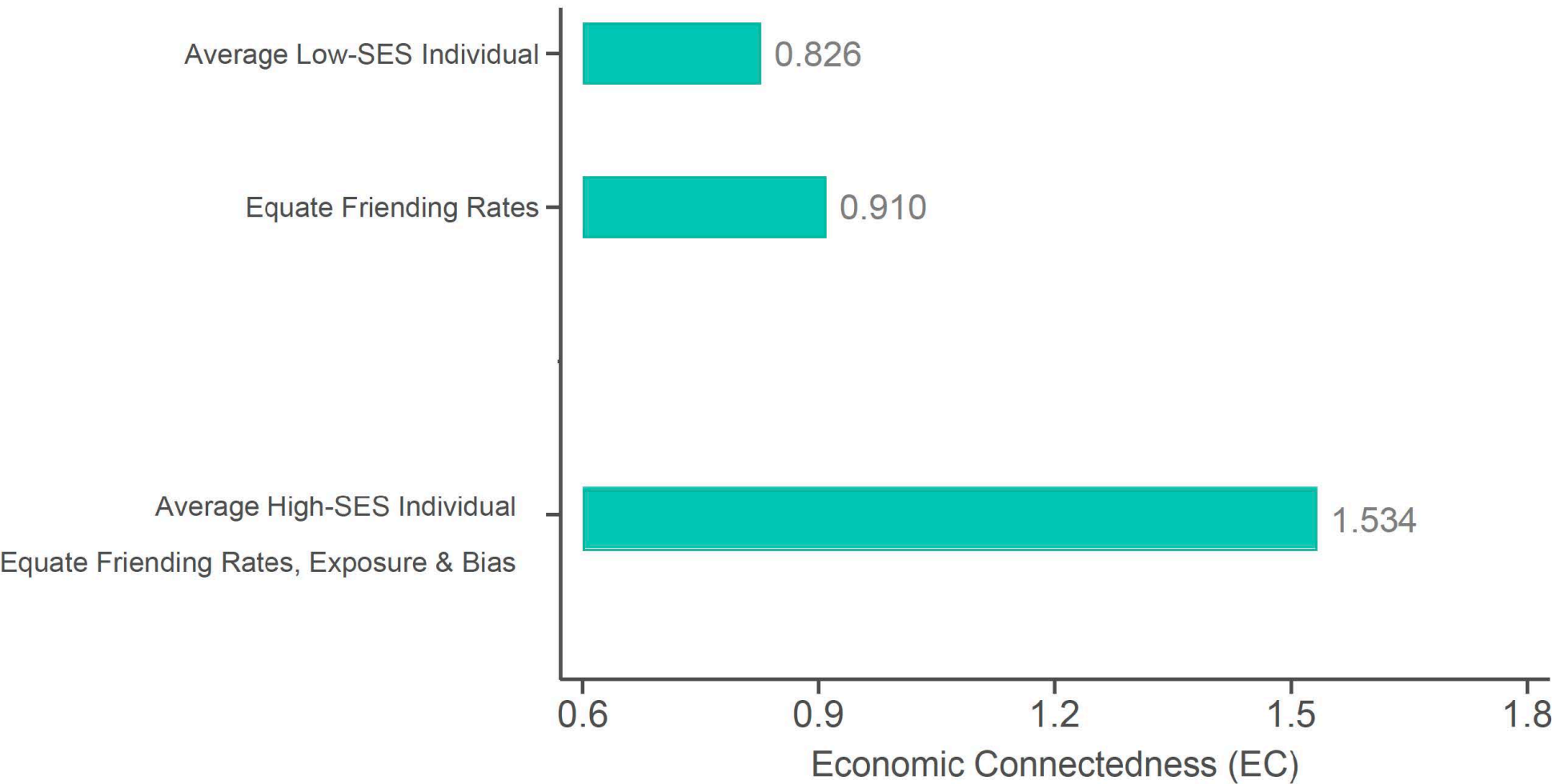
Low-SES vs. High-SES Individuals



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

Decomposition Analysis: Group Importance, Exposure, and Friending Bias

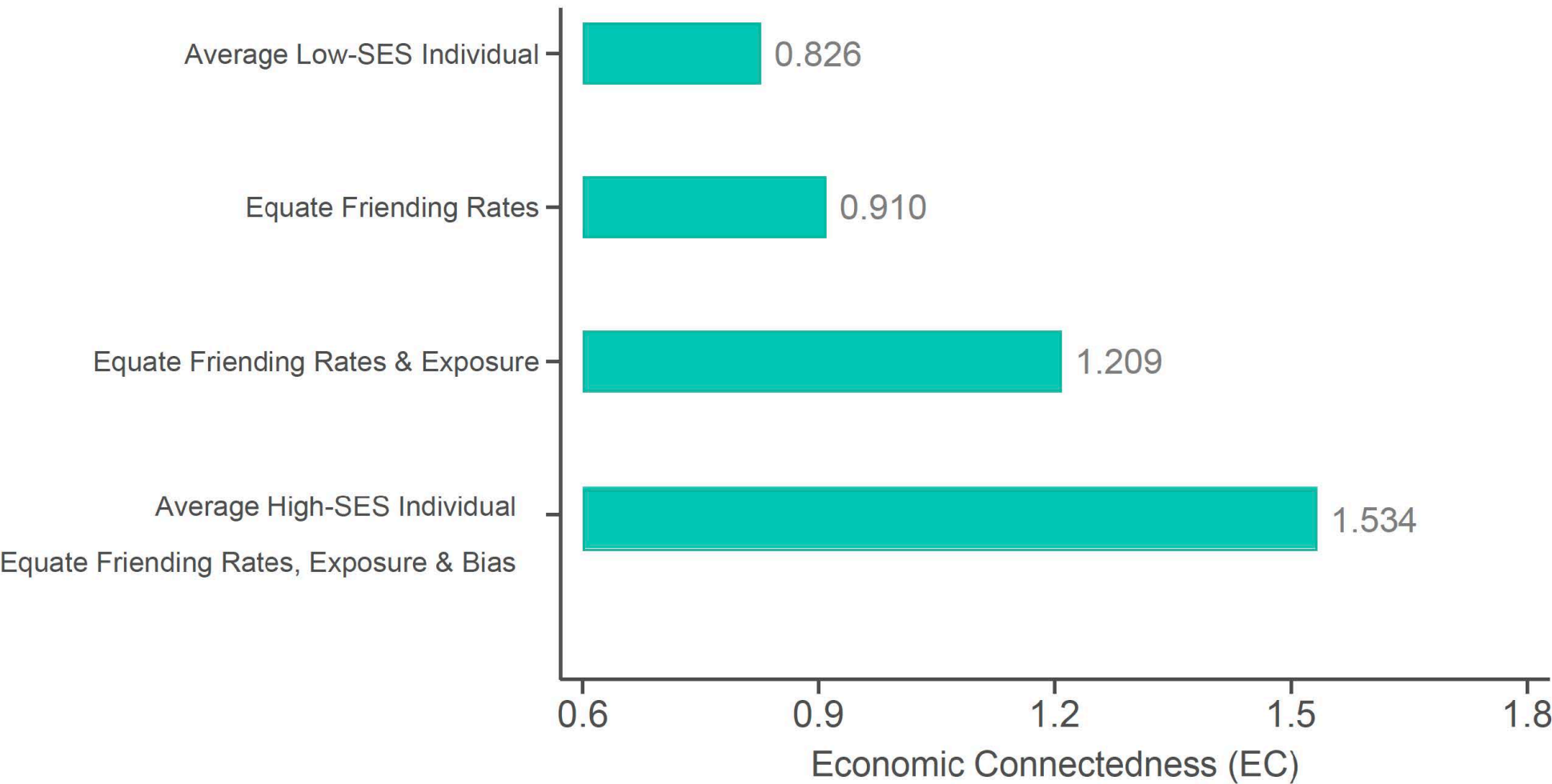
Low-SES vs. High-SES Individuals



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Decomposition Analysis: Group Importance, Exposure, and Friending Bias

Low-SES vs. High-SES Individuals



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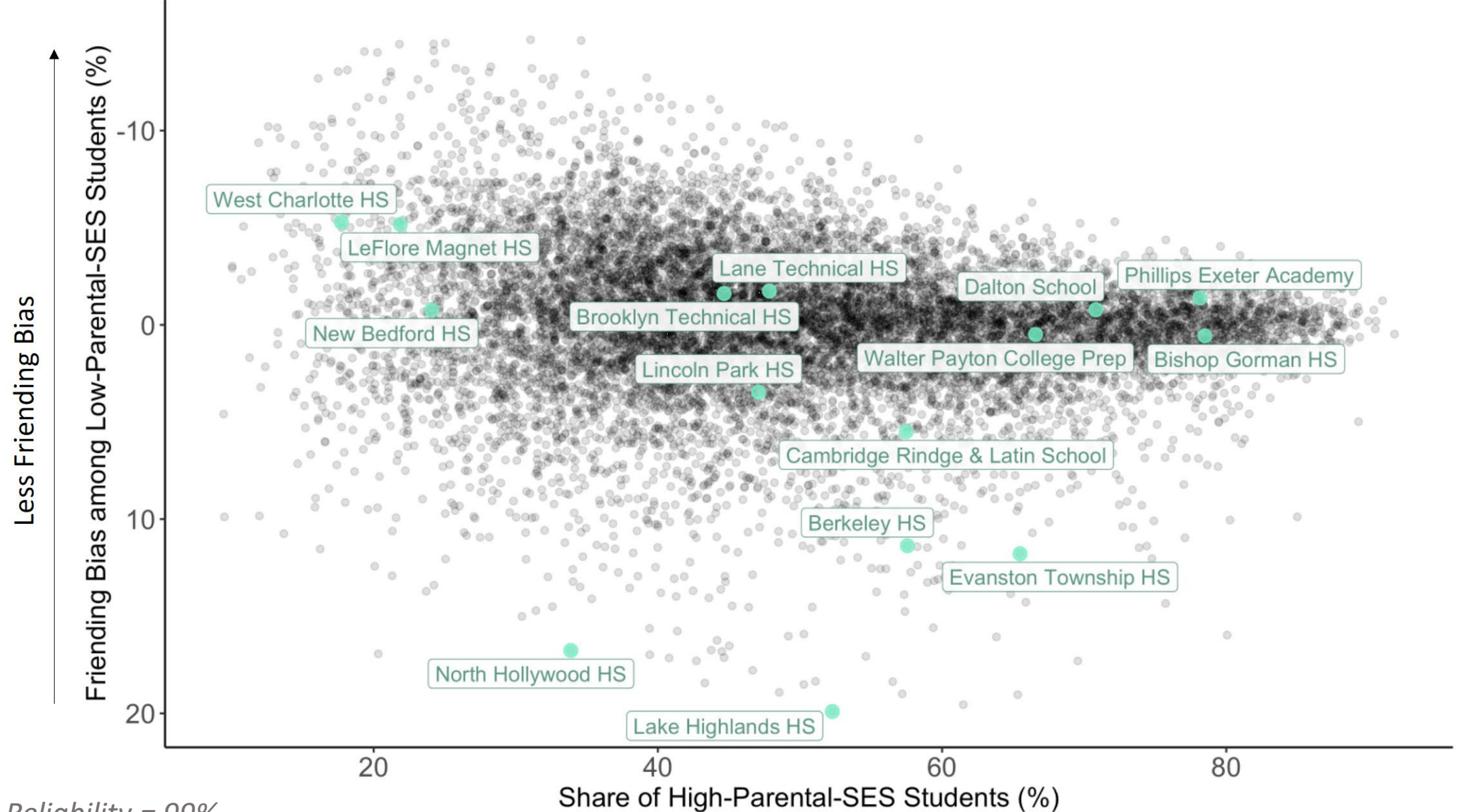
Determinants
of Economic
Connectedness

Targeting
Interventions

Interventions to Increase Connectedness

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

Among Low-SES Students in 1990-2000 Birth Cohorts



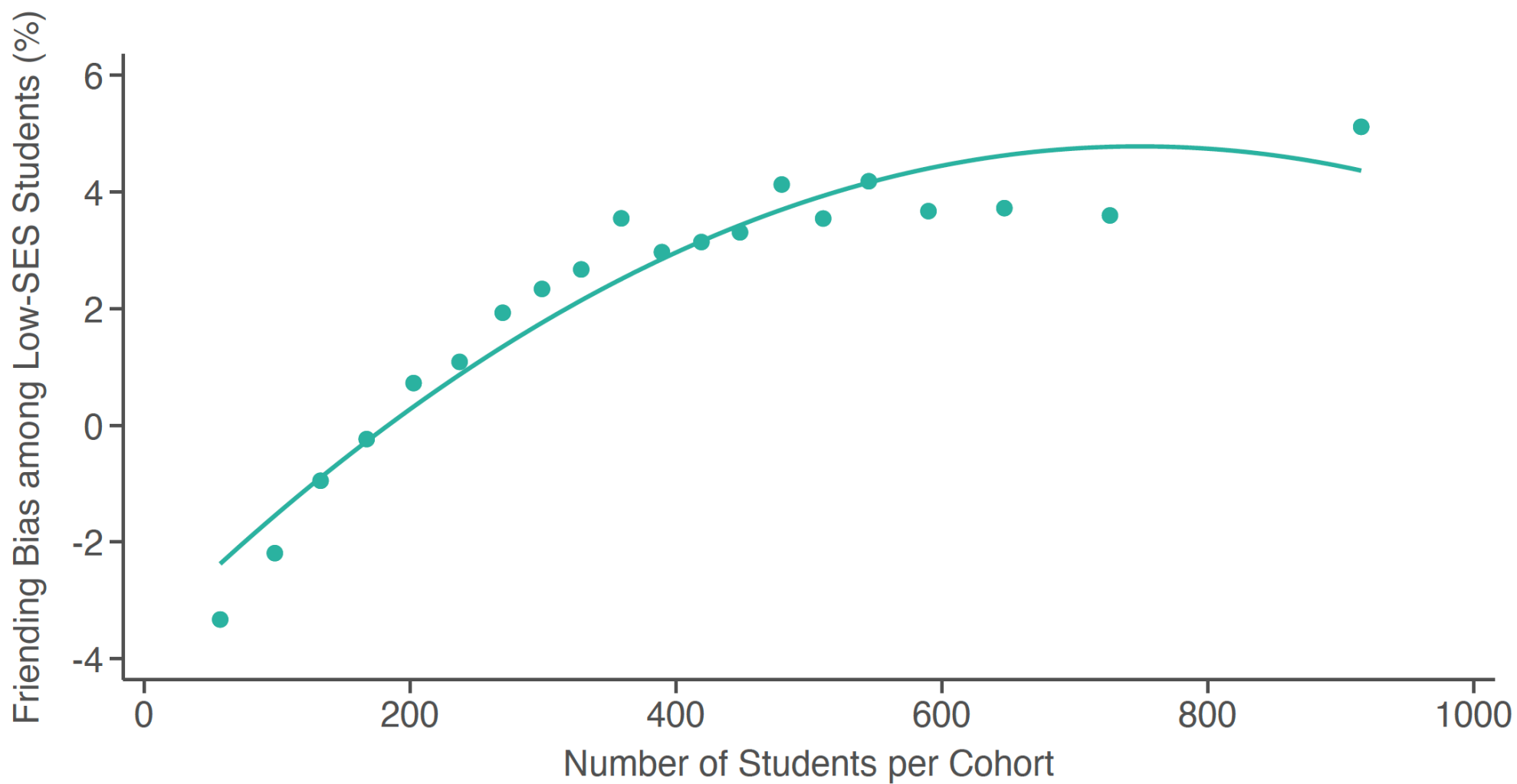
Exposure Reliability = 99%

Friend Bias Reliability = 58%

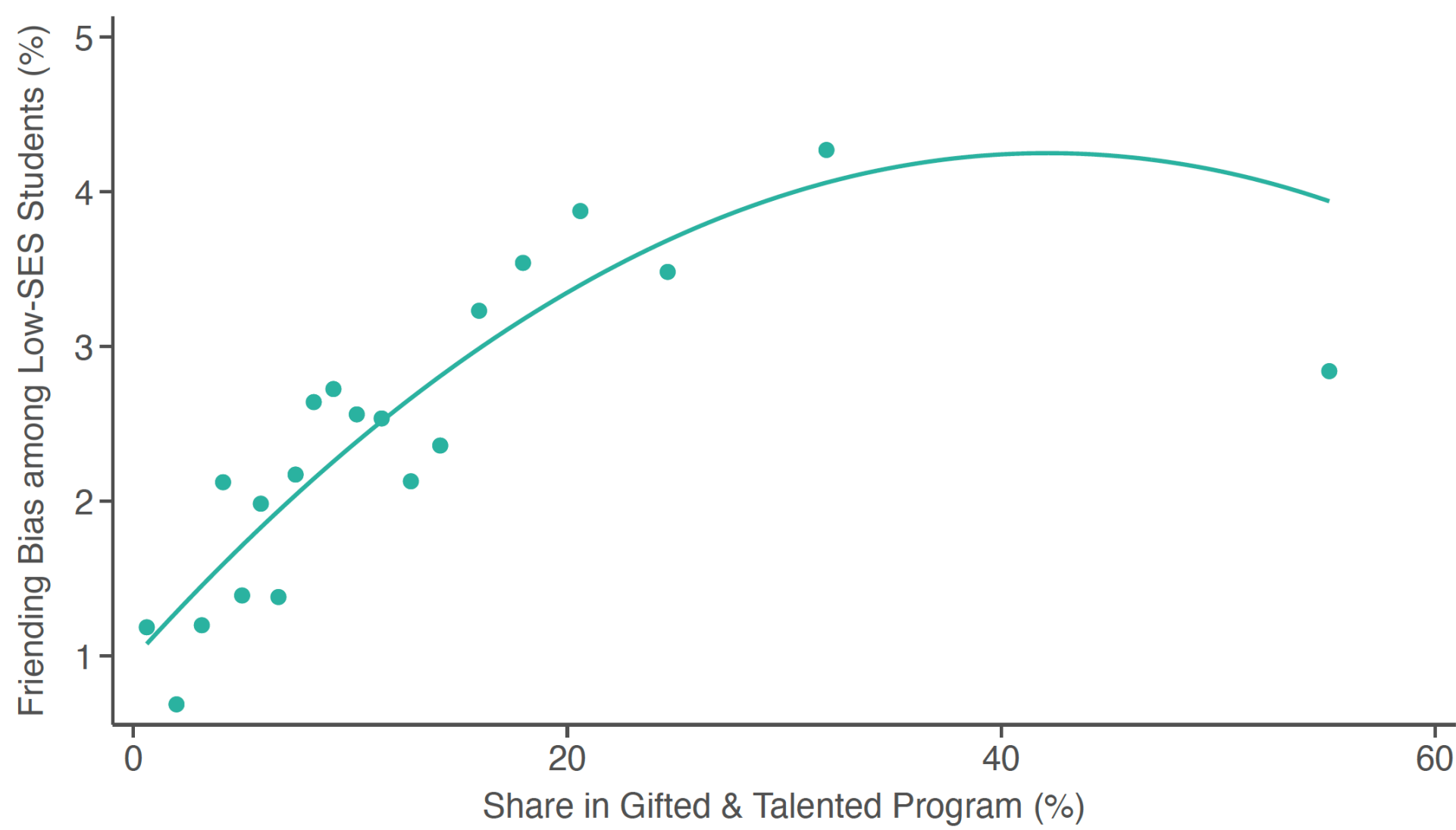
Determinants of Exposure and Friending Bias

- Well known that exposure is shaped by policies such as zoning laws and school boundaries
 - Extensive literatures on segregation in neighborhoods (zoning, tipping), school integration (busing, school choice), college access, ...
- Friending bias is also shaped by institutions and policy choices...

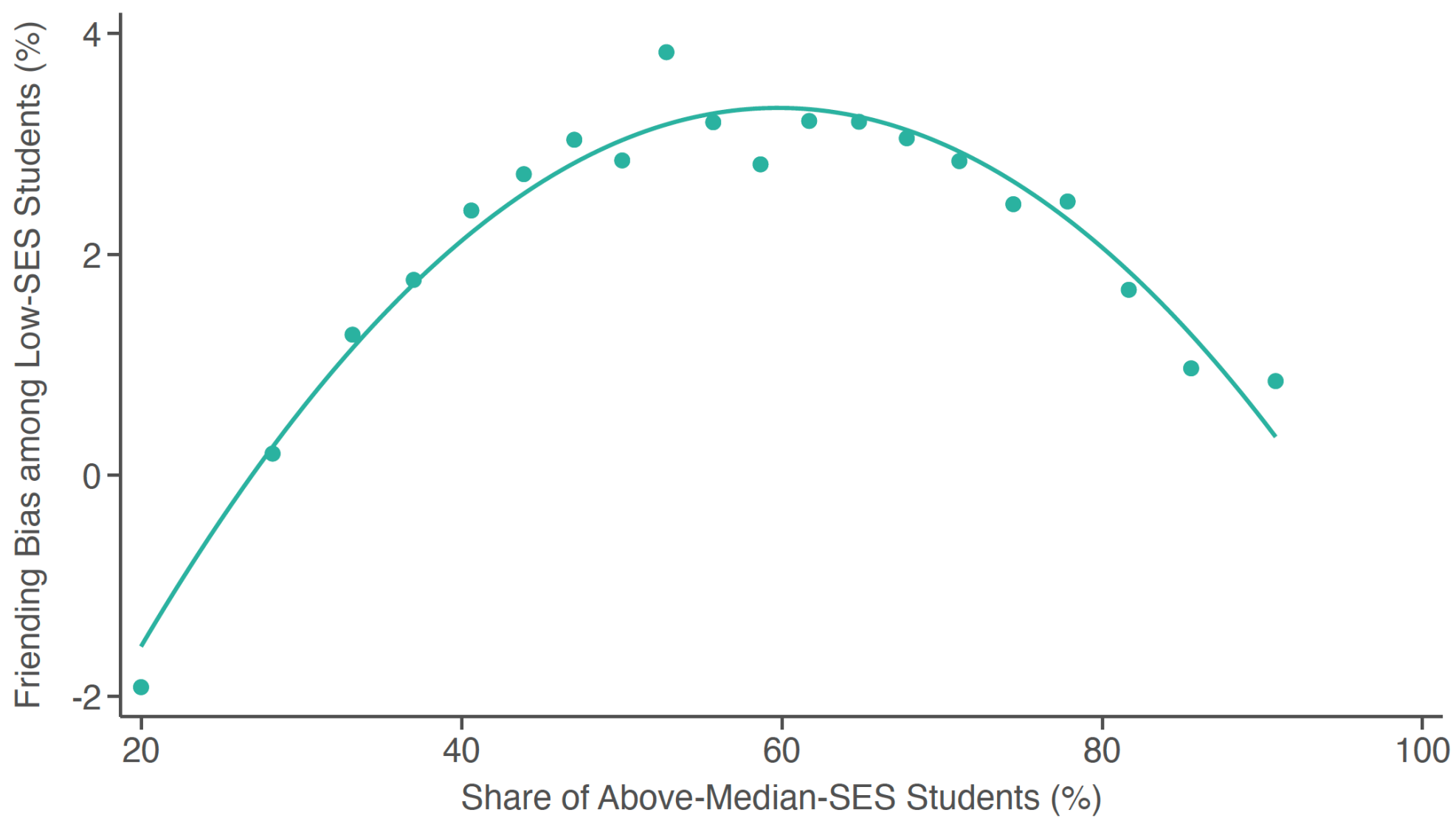
Friending Bias in High Schools vs. School Size



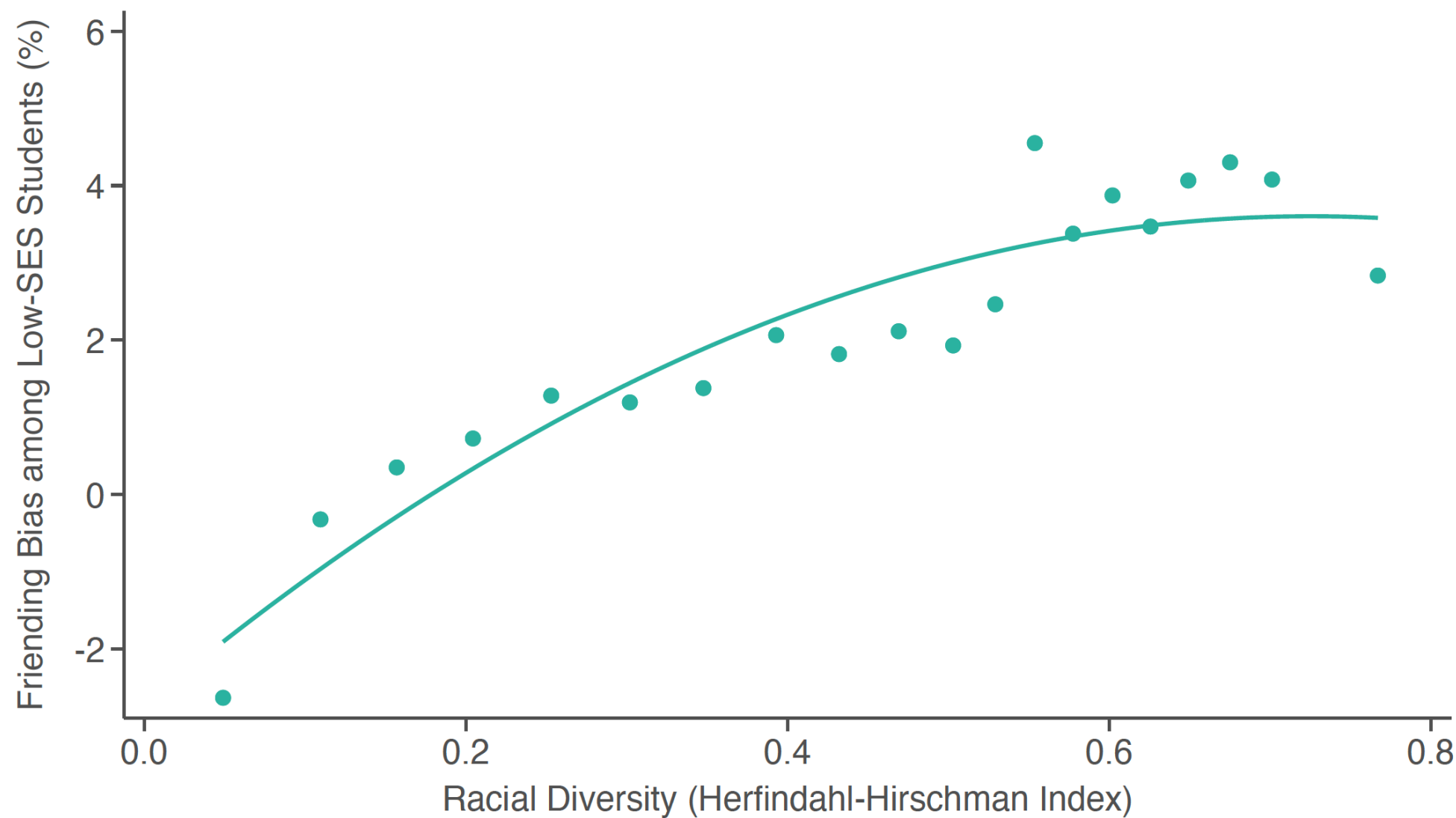
Friending Bias in High Schools vs. Gifted and Talented Program Share



Friending Bias in High Schools vs. Share of High-SES Students



Friending Bias in High Schools vs. Racial Diversity



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.

An 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 Works to Reduce Friending Bias

Inner City Weightlifting (ICW)



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.**

Conclusions

- 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

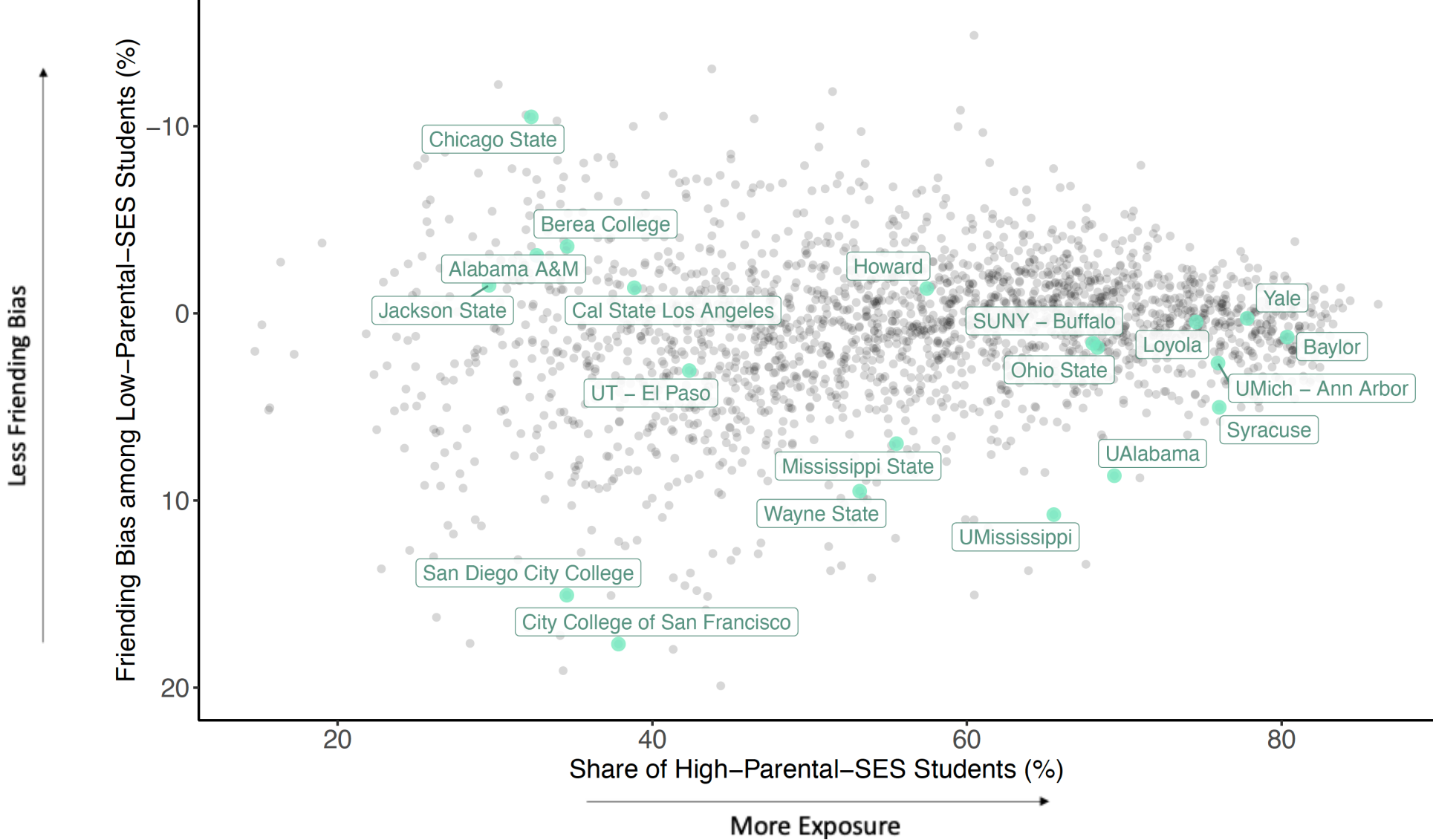
Broader Implications

- More generally, social connections appear central in many recent programs that have shown promise in increasing upward mobility
 - Ex: Creating Moves to Opportunity (neighborhoods) and YearUp (job training)
[Bergman, Chetty, DeLuca, Hendren, Katz, Palmer 2020; Katz, Roth, Hendra, Schaberg 2020]
- Designing policies going forward to provide not just economic resources but relevant socioeconomic connections may be valuable for expanding opportunity
 - Data released publicly here (available for download at www.socialcapital.org) can be used to target such interventions and better understand the determinants and impacts of social capital

Supplementary Slides

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

Among Low-SES Students in 1990-2000 Birth Cohorts



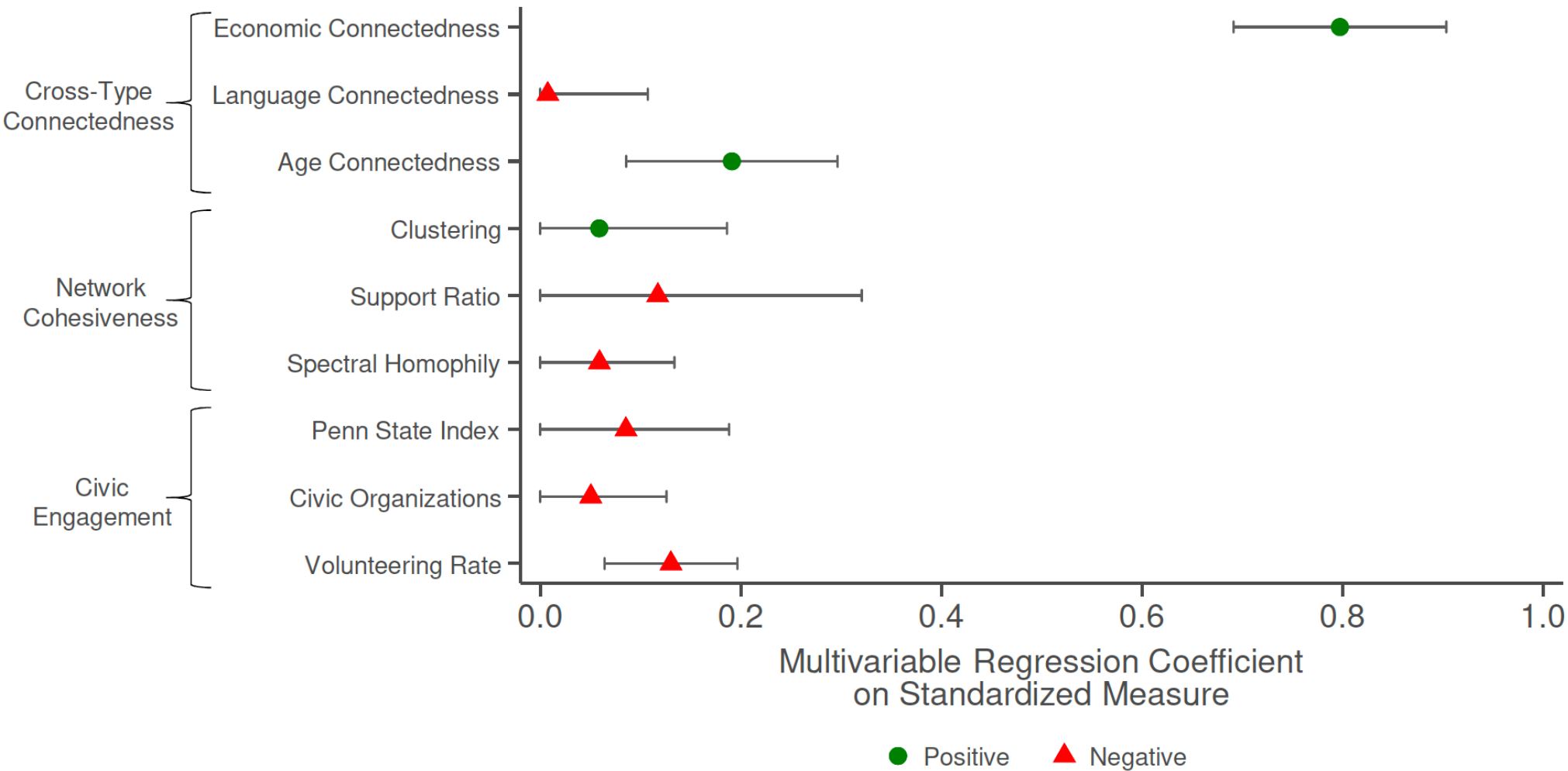
Difference in Friending Bias Exhibited in Other Groups vs. Religious Groups

Members of Religious Groups

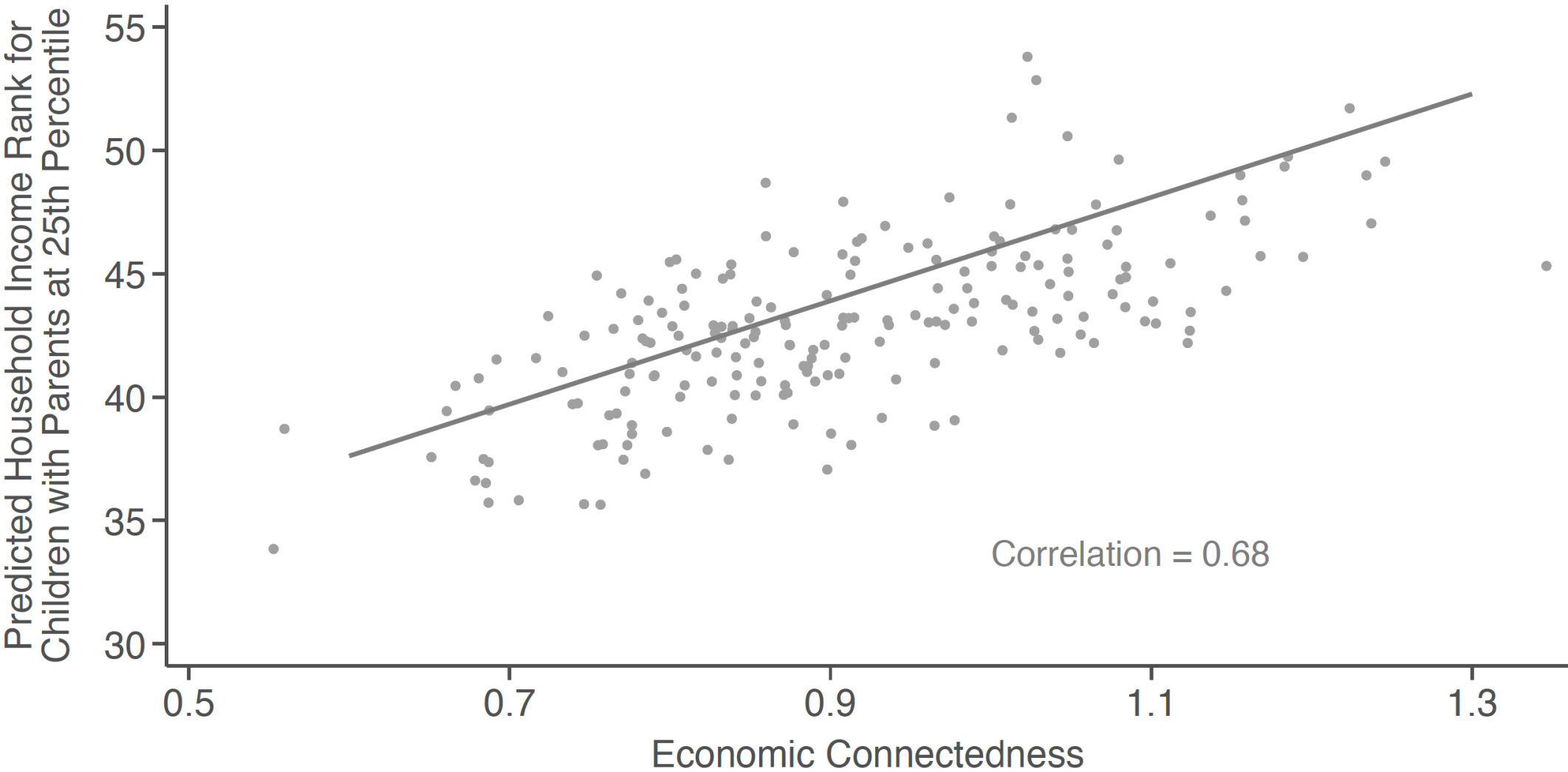


Correlations between Upward Mobility and Measures of Social Capital

Coefficients from County-level Multivariable Regression



Selection on Race: Upward Mobility vs. EC in Counties with >90% White Residents

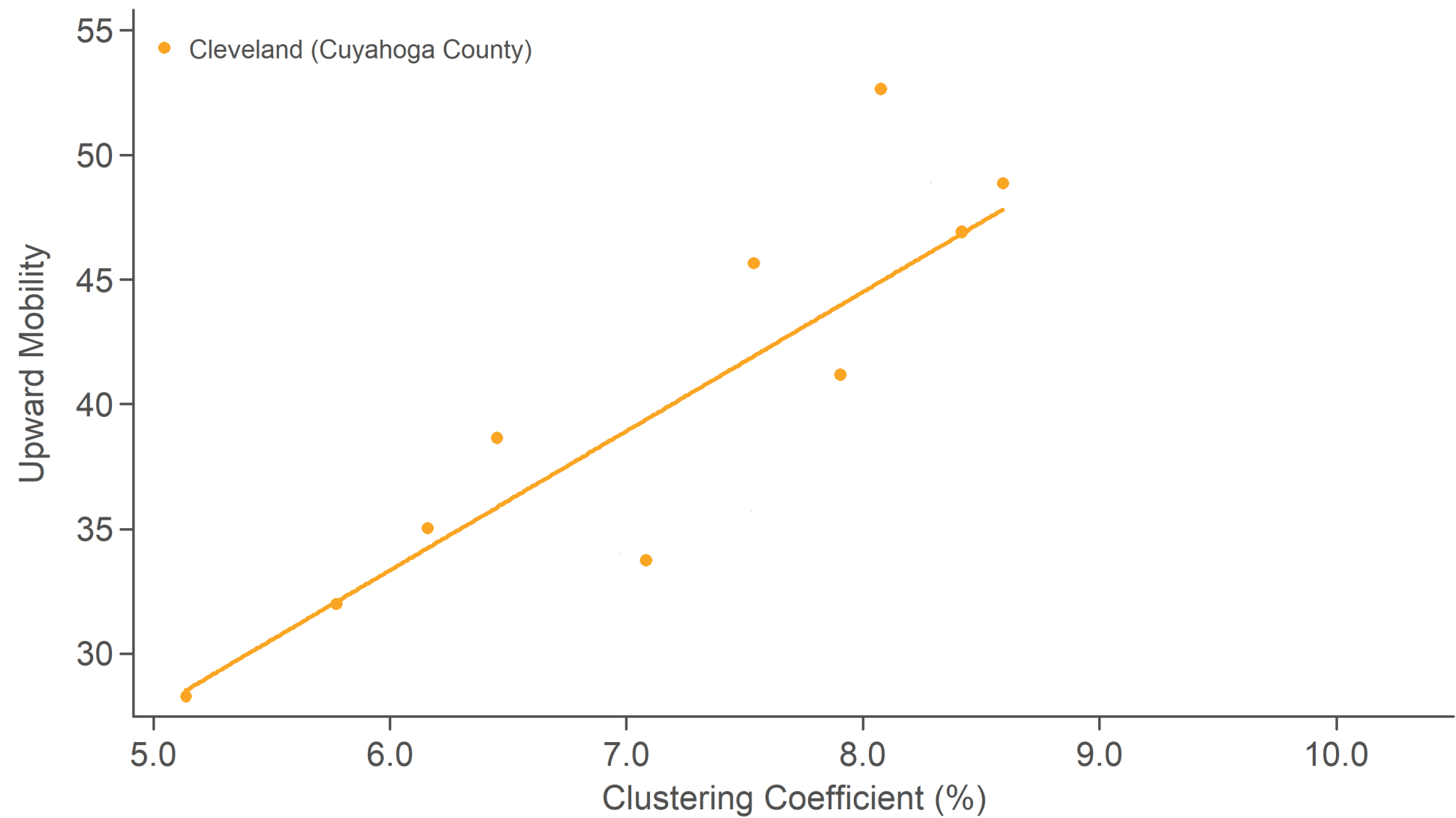


Associations between Friending Bias, Exposure, and Upward Mobility across Counties and ZIP Codes

Dependent Variable:	log(Upward Mobility)						log(Causal Upward Income Mobility)
	ZIP Codes				Counties		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

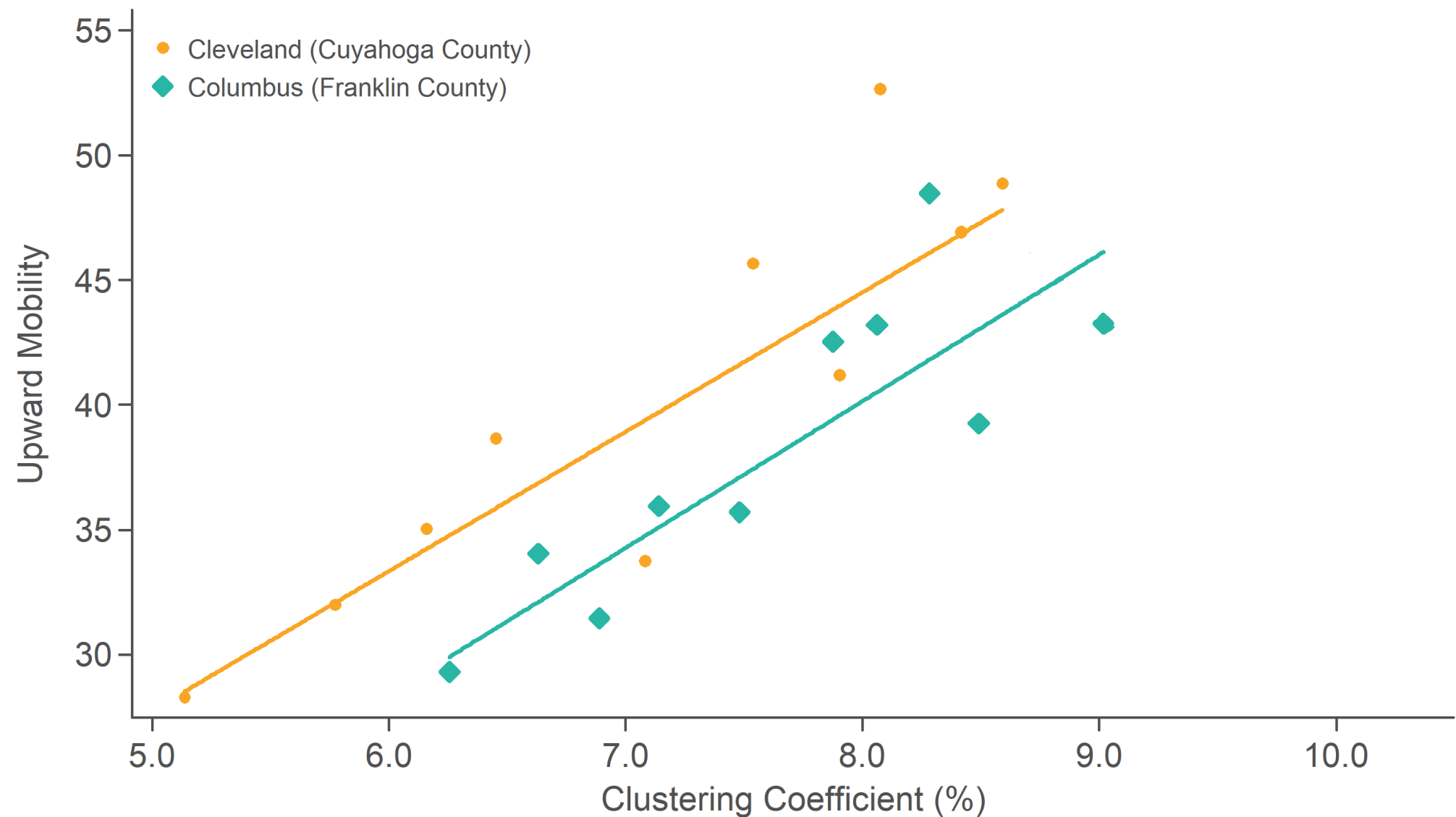
Relationship between Clustering and Upward Mobility

Across ZIP Codes for Four Counties in Ohio



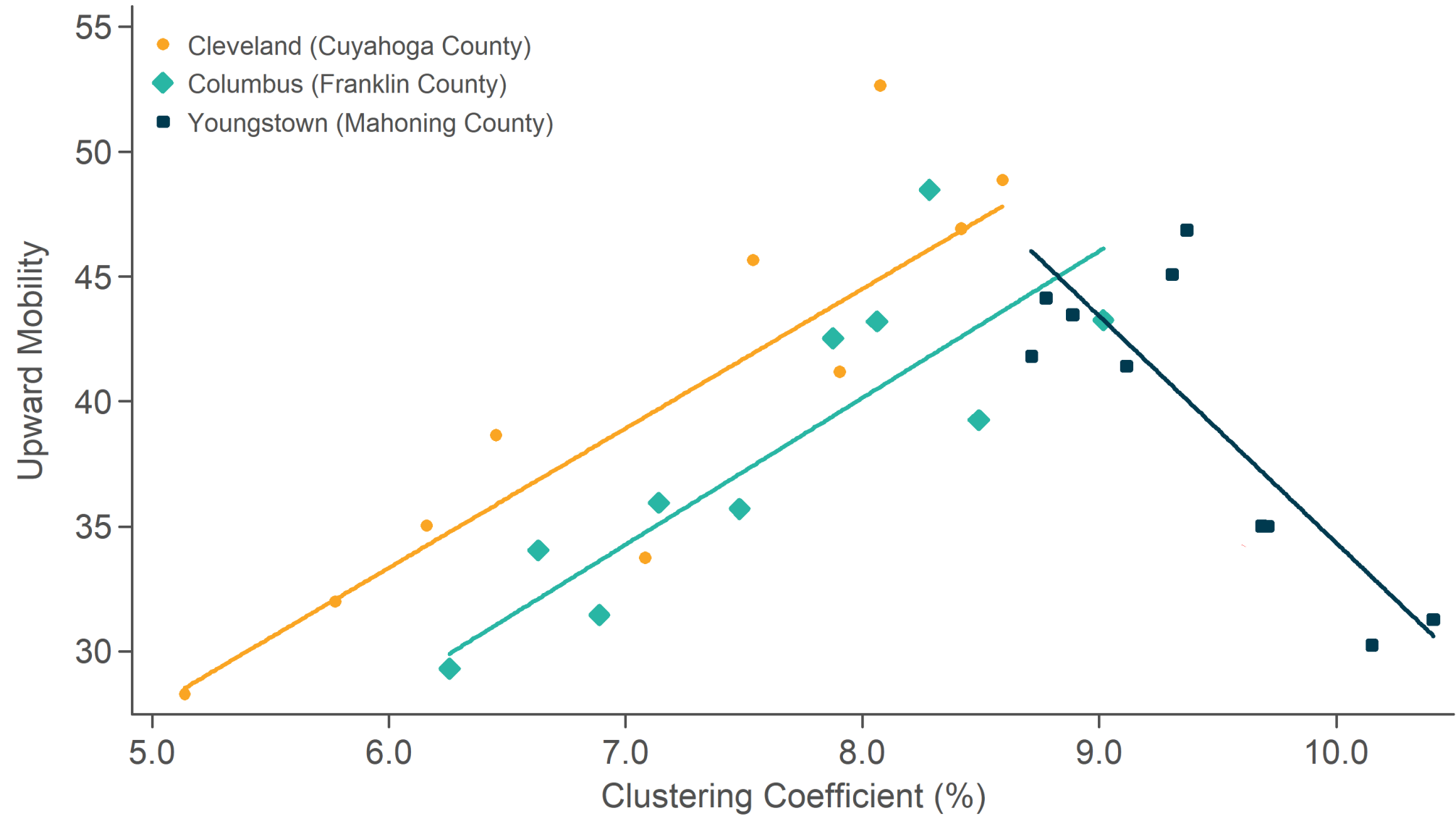
Relationship between Clustering and Upward Mobility

Across ZIP Codes for Four Counties in Ohio



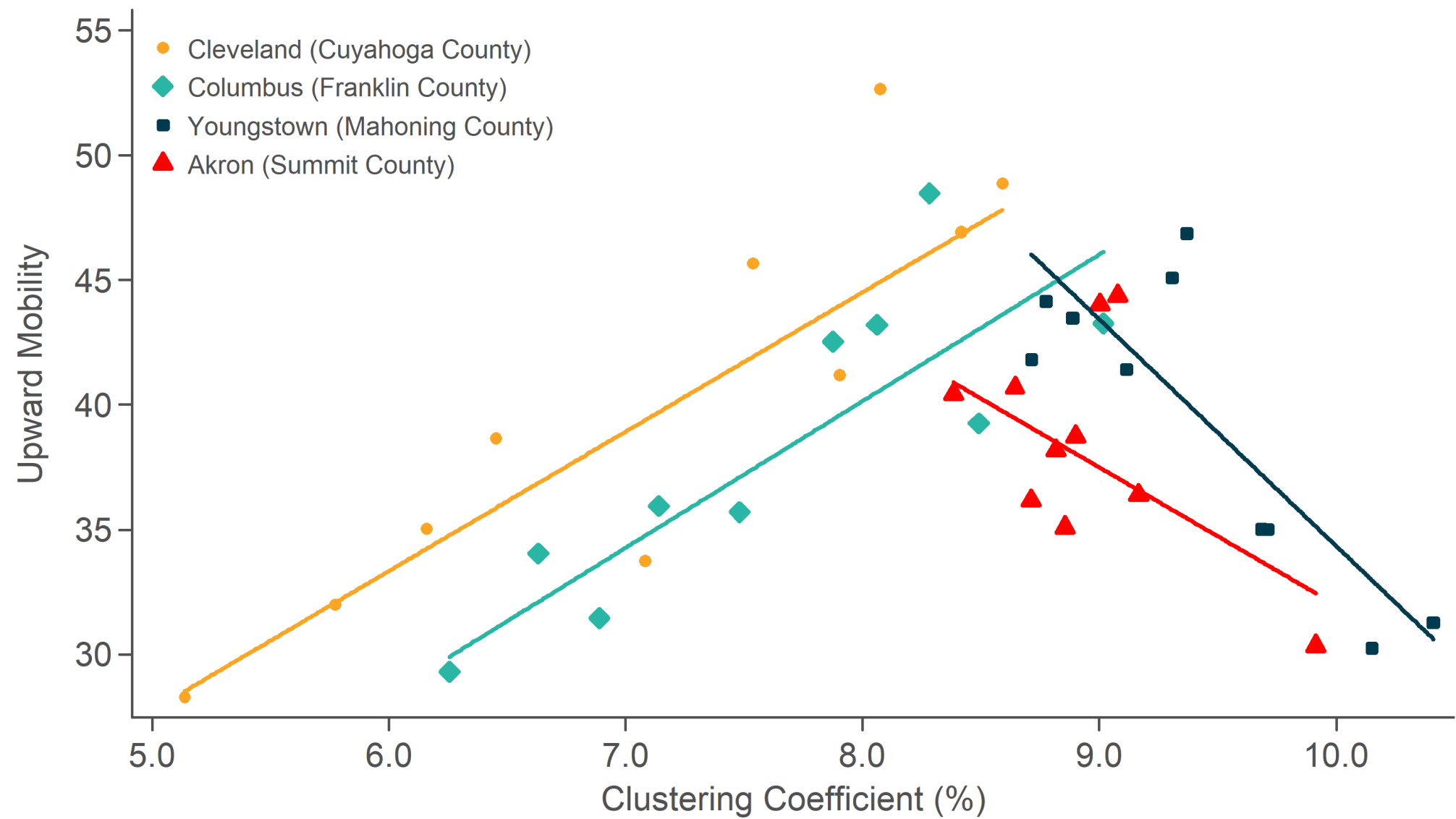
Relationship between Clustering and Upward Mobility

Across ZIP Codes for Four Counties in Ohio



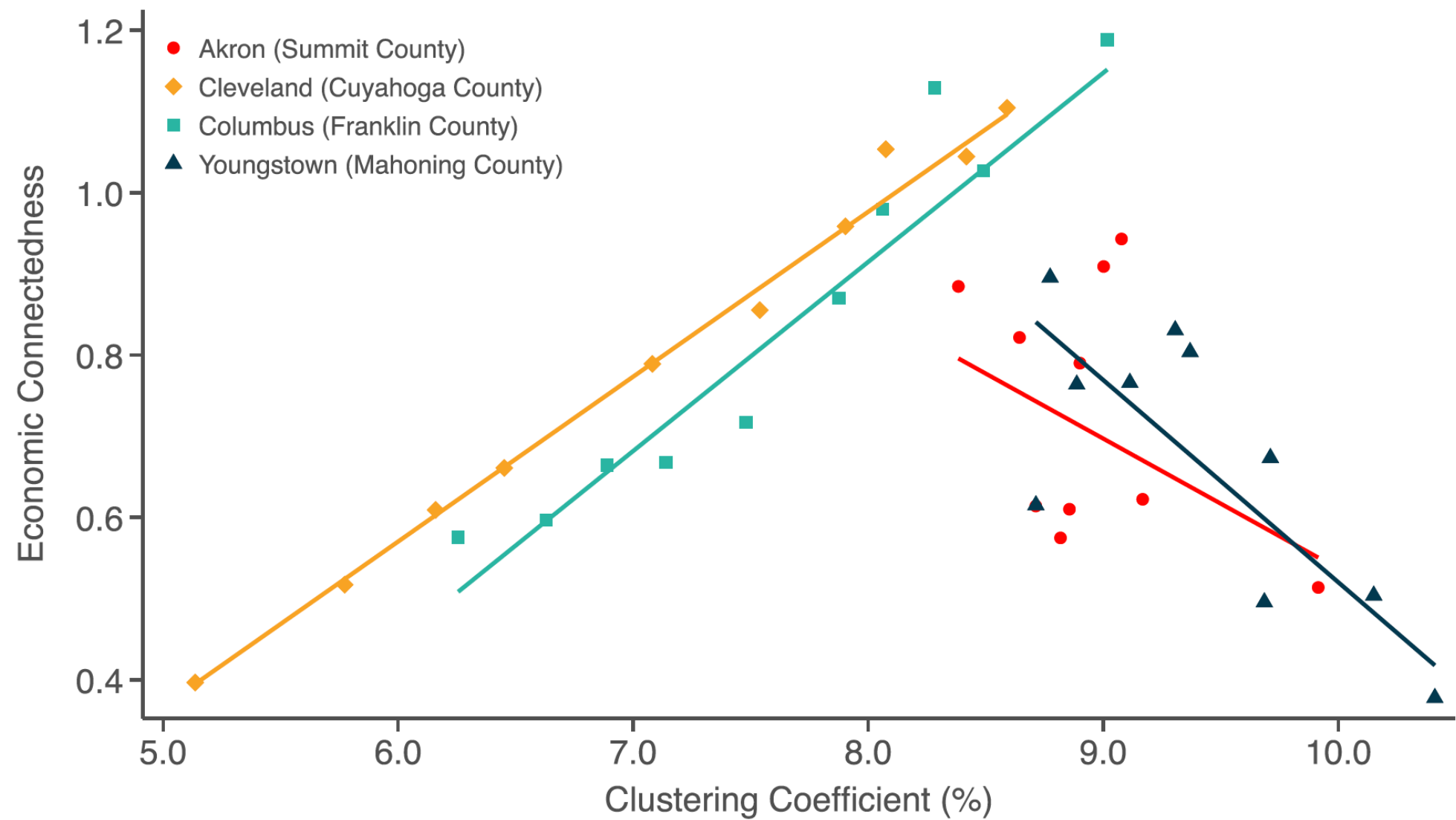
Relationship between Clustering and Upward Mobility

Across ZIP Codes for Four Counties in Ohio



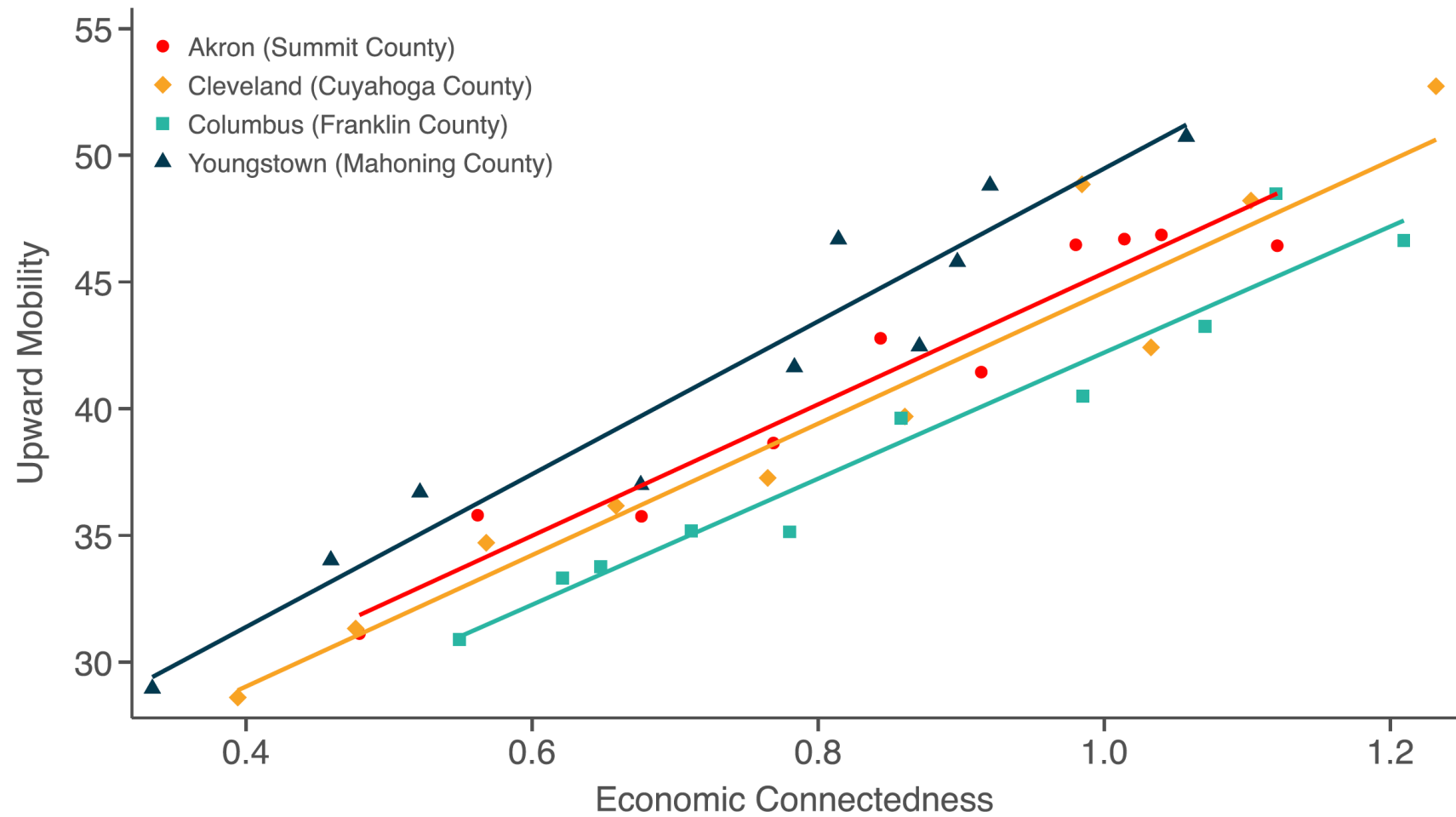
Relationship between Clustering and Economic Connectedness

Across ZIP Codes for Four Counties in Ohio

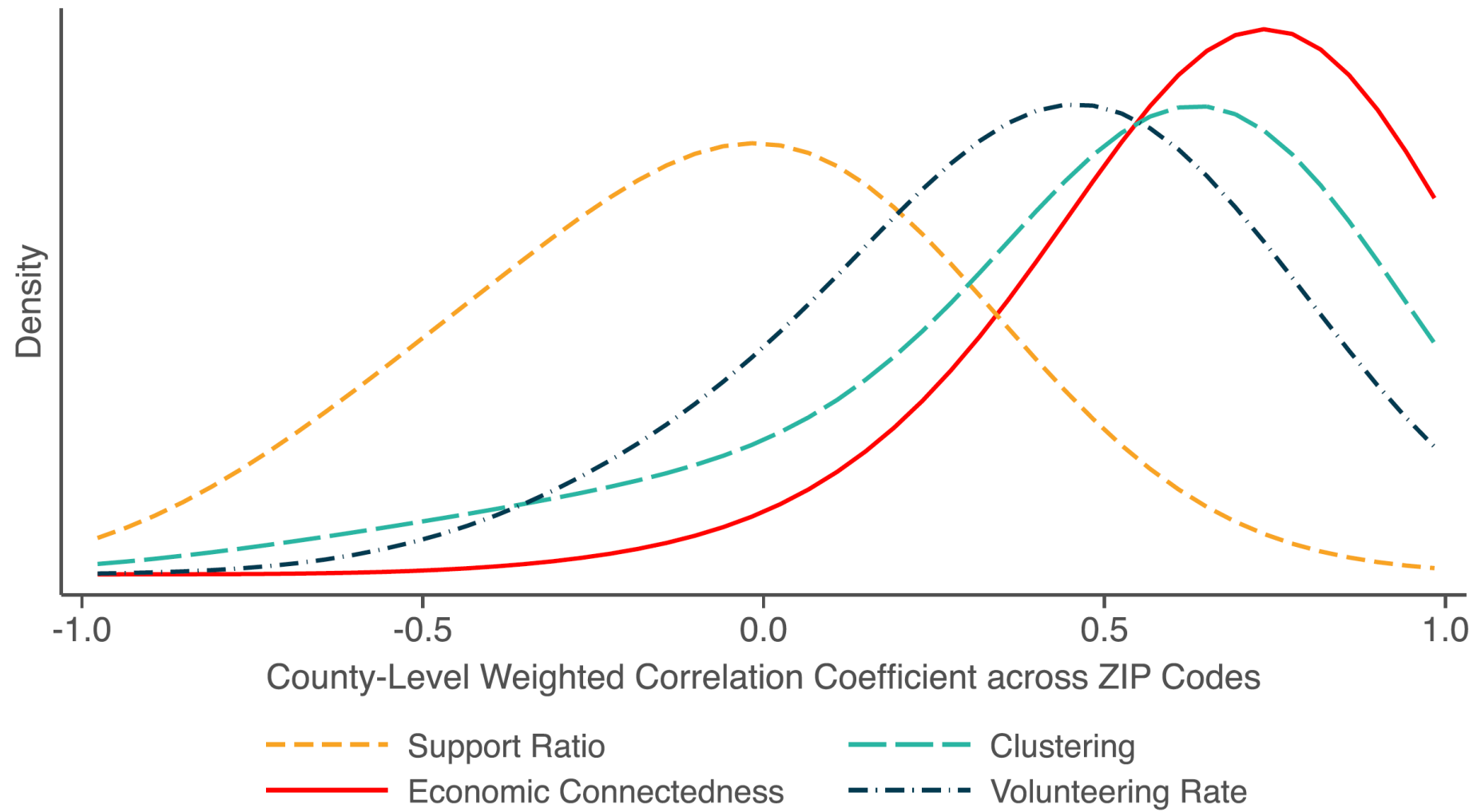


Relationship between Upward Mobility and Economic Connectedness

Across ZIP Codes for Four Counties in Ohio



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

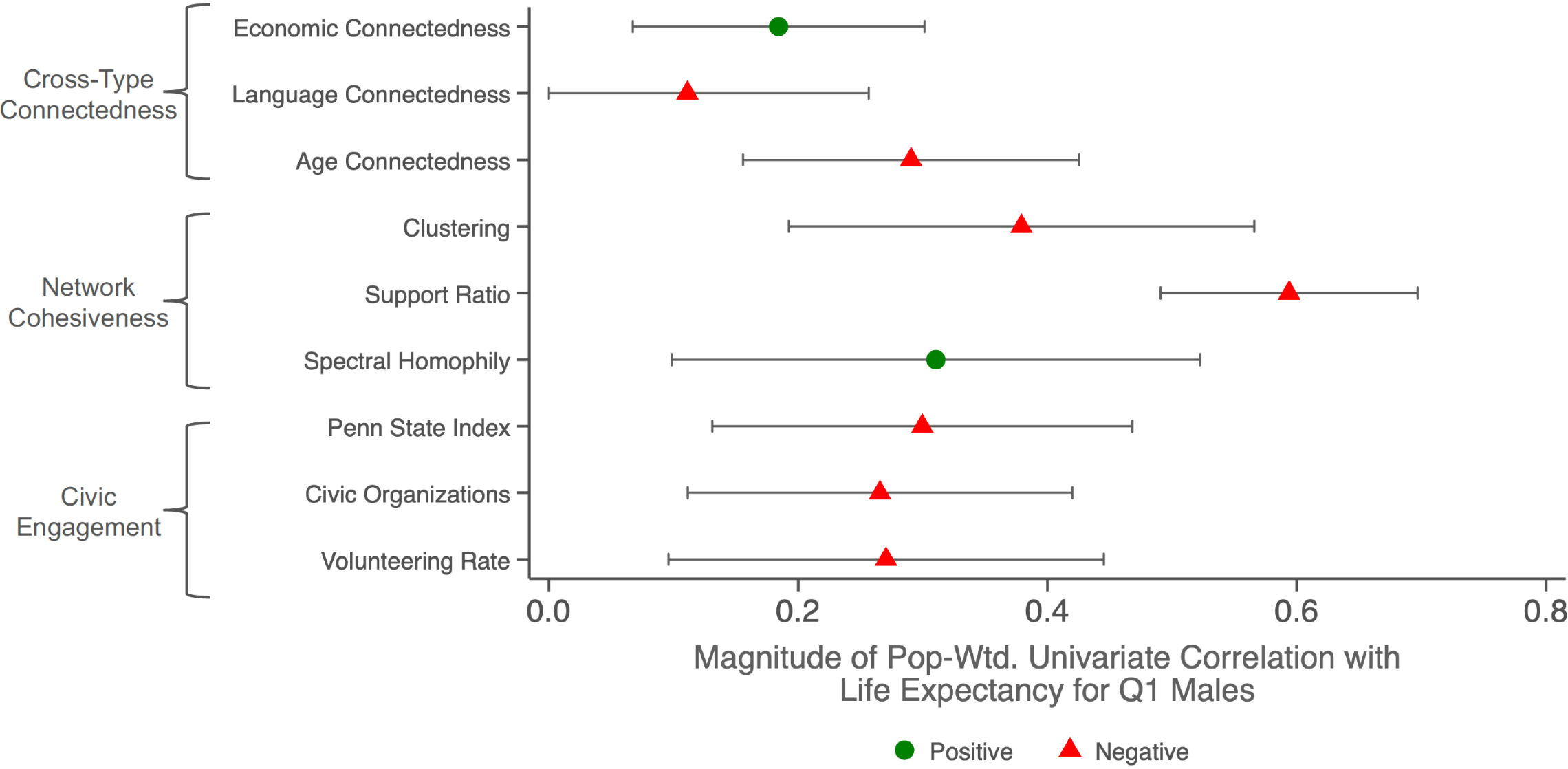


Different Types of Social Capital Matter for Different Outcomes

- 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

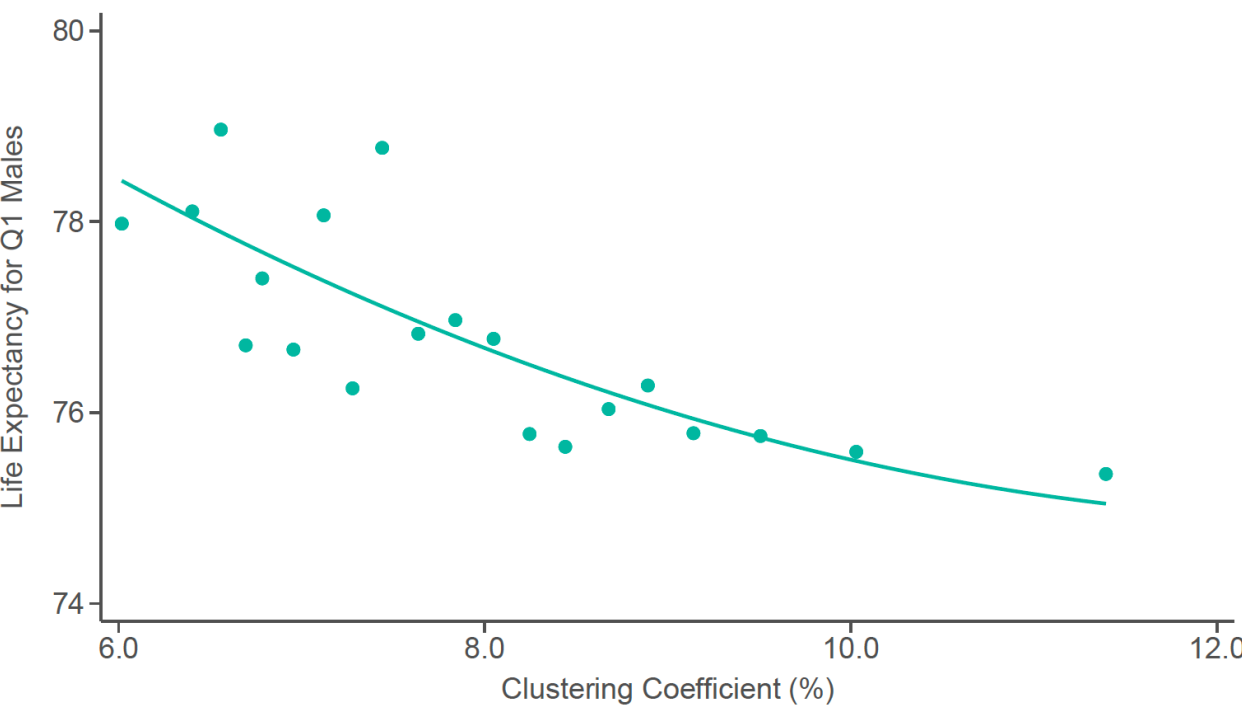
Univariate County-level Correlations



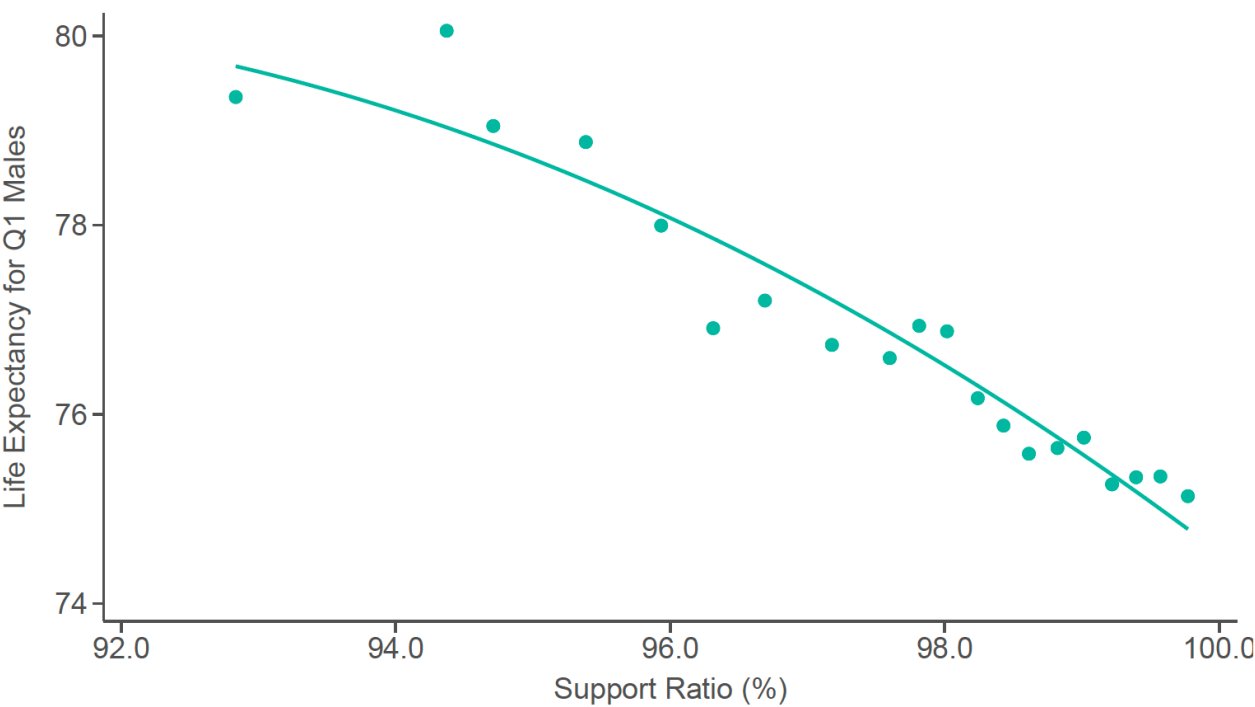
Correlations between Social Capital and Life Expectancy at Age 40 for Bottom-Income-Quartile Men

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



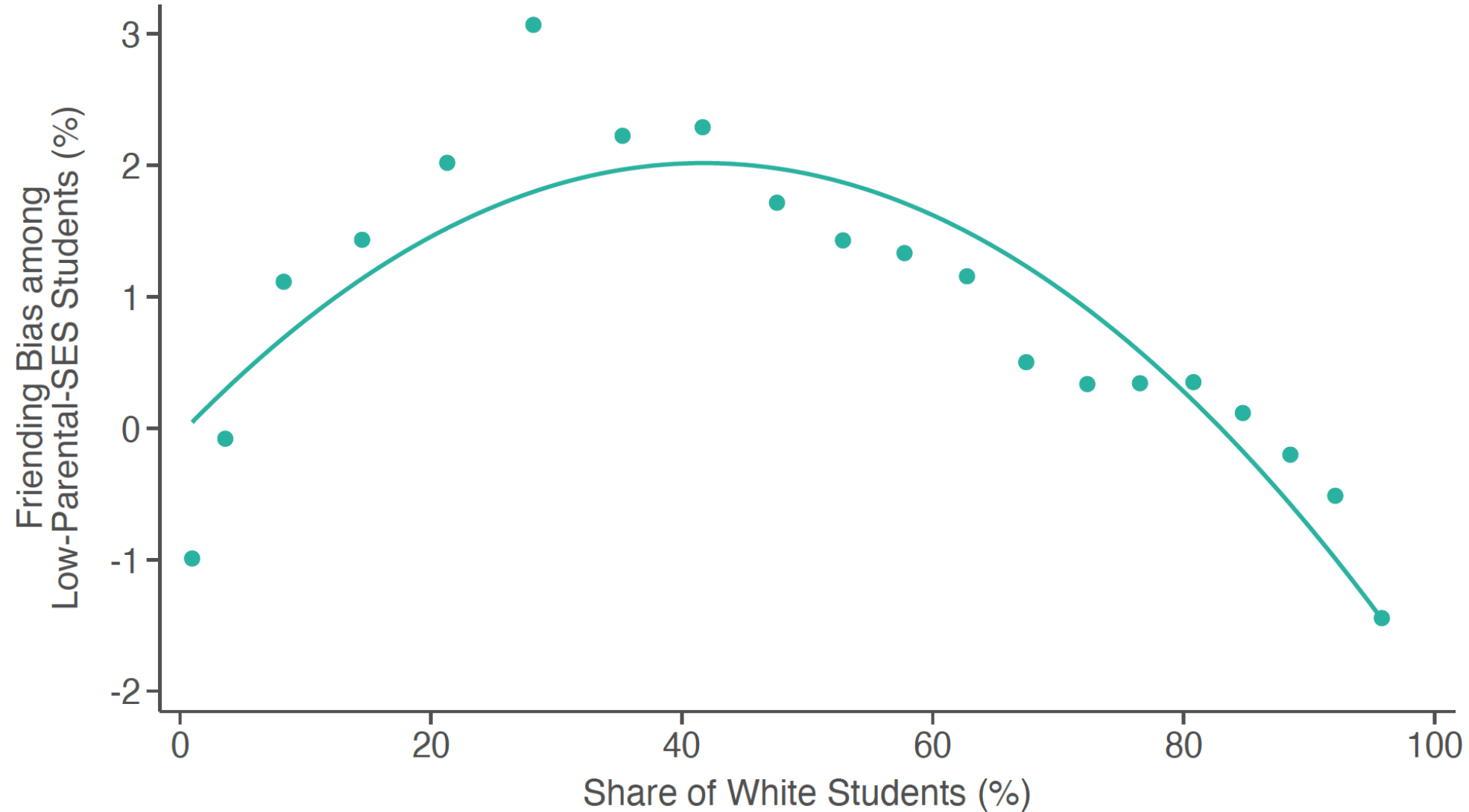
Friendling Bias in High Schools vs. Gifted & Talented Enrollment

Bias Measured using Parental SES



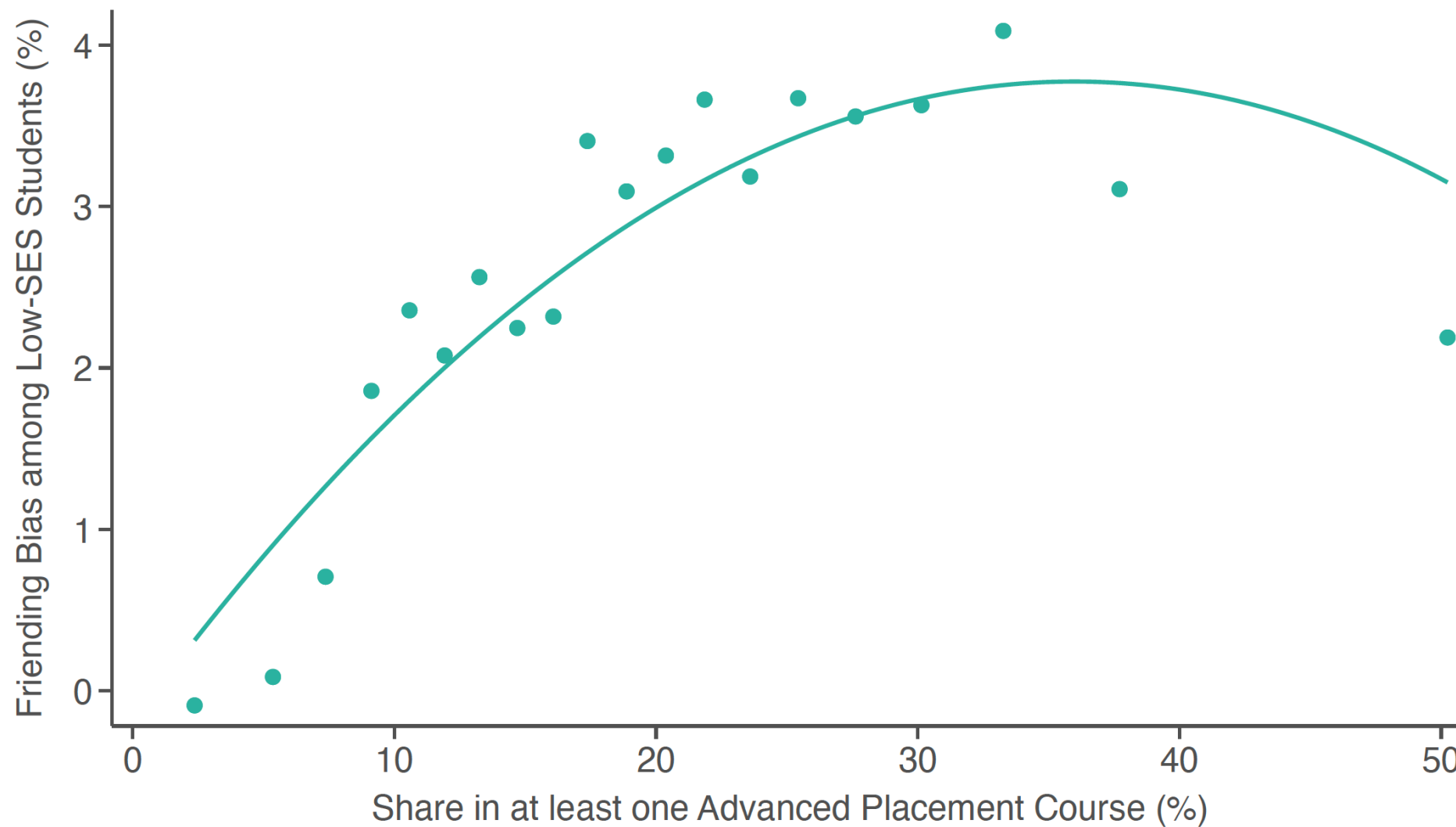
Friending Bias in High Schools vs. Share of White Students

Bias Measured using Parental SES



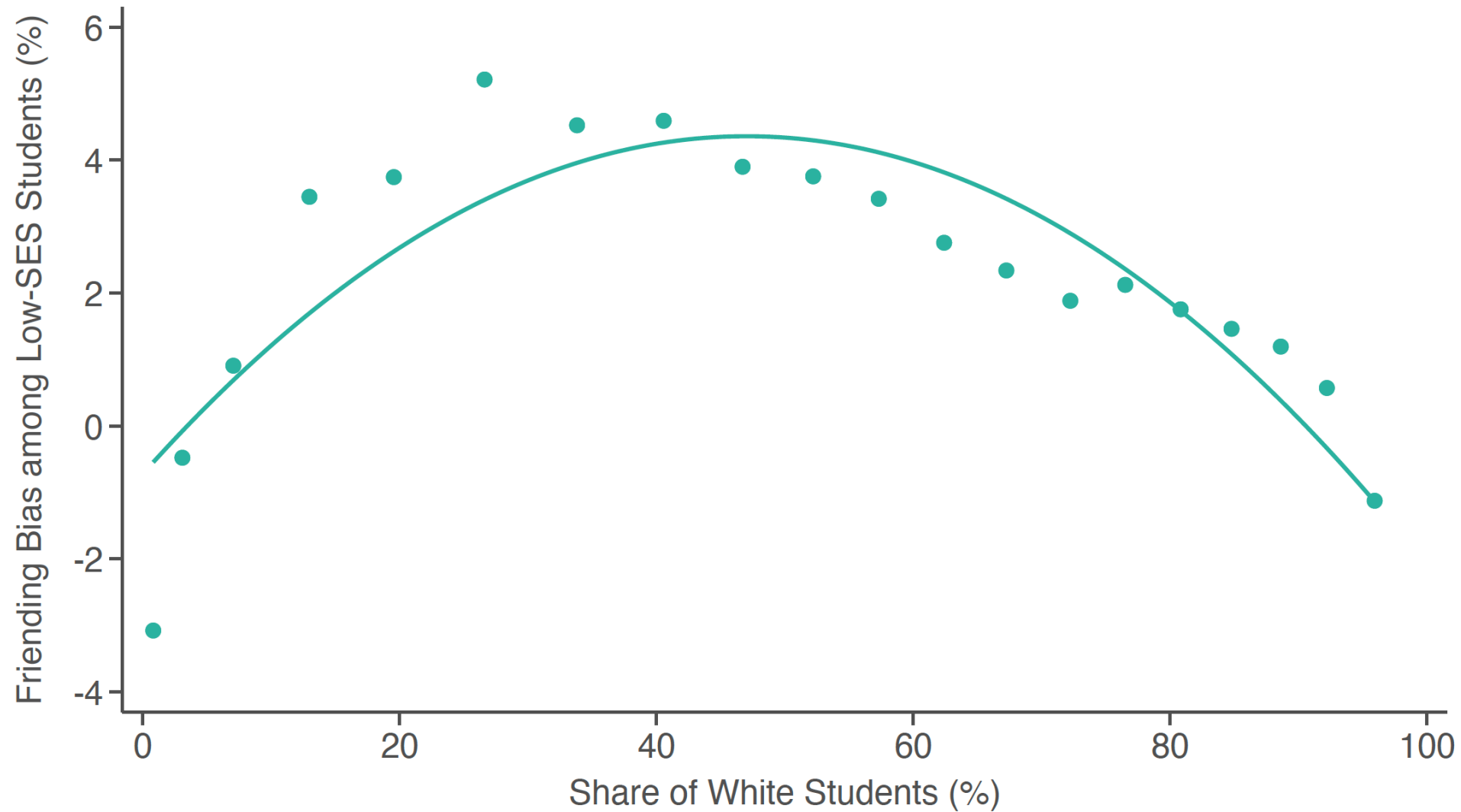
Friending Bias in High Schools vs. AP Enrollment

Bias Measured using Own SES



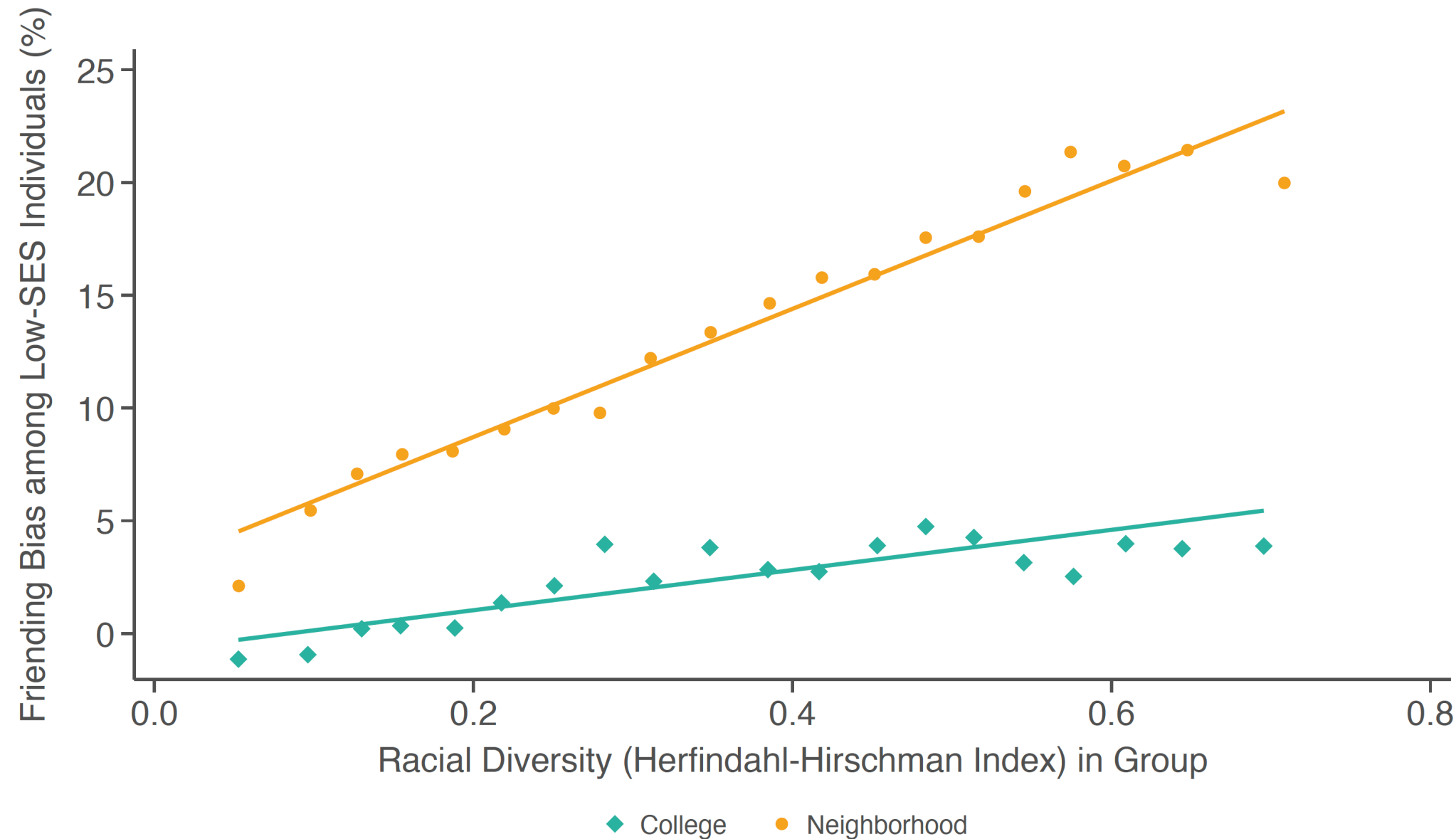
Friending Bias in High Schools vs. Share of White Students

Bias Measured using Own SES

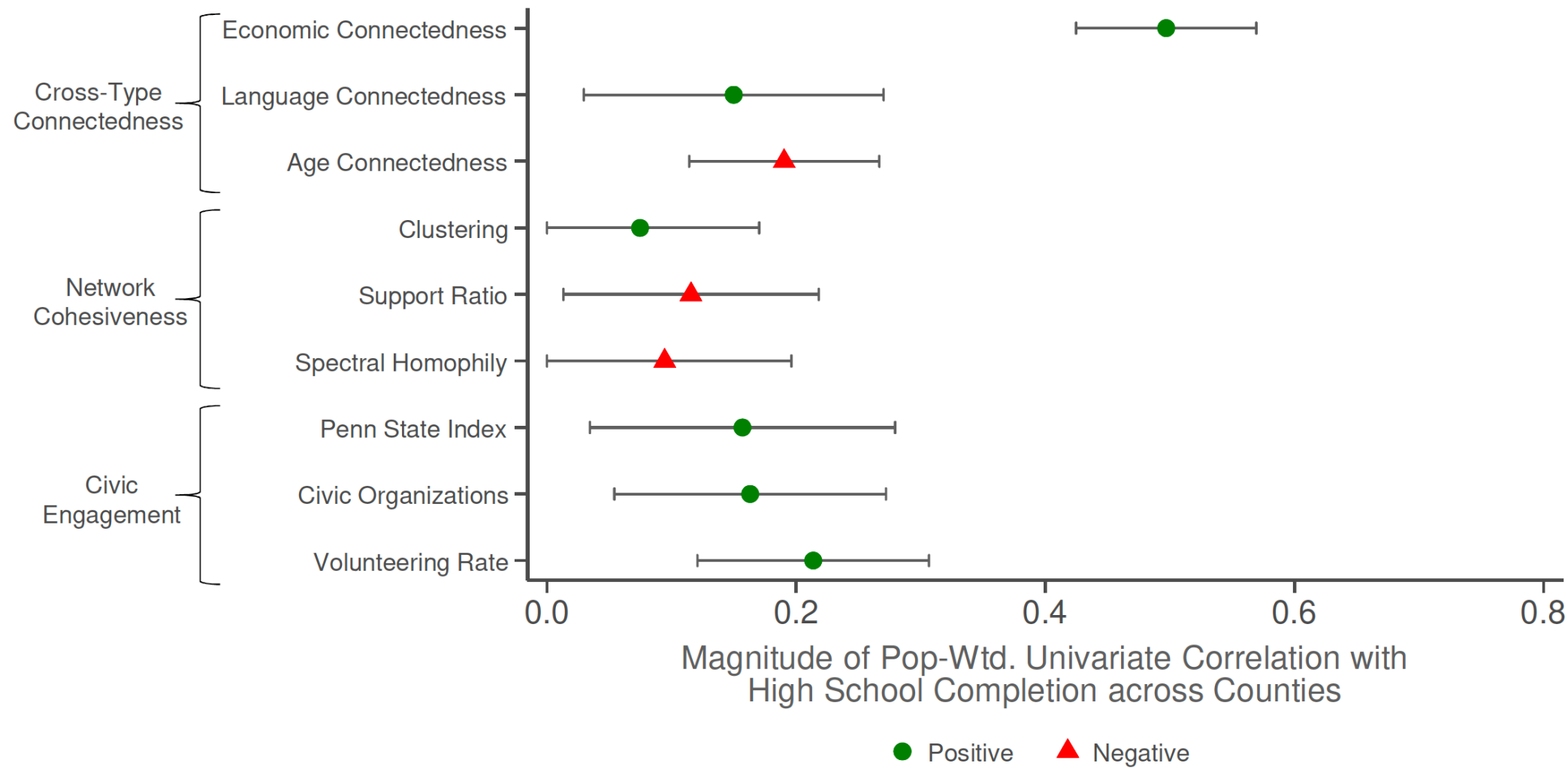


Racial Diversity vs. Friending Bias

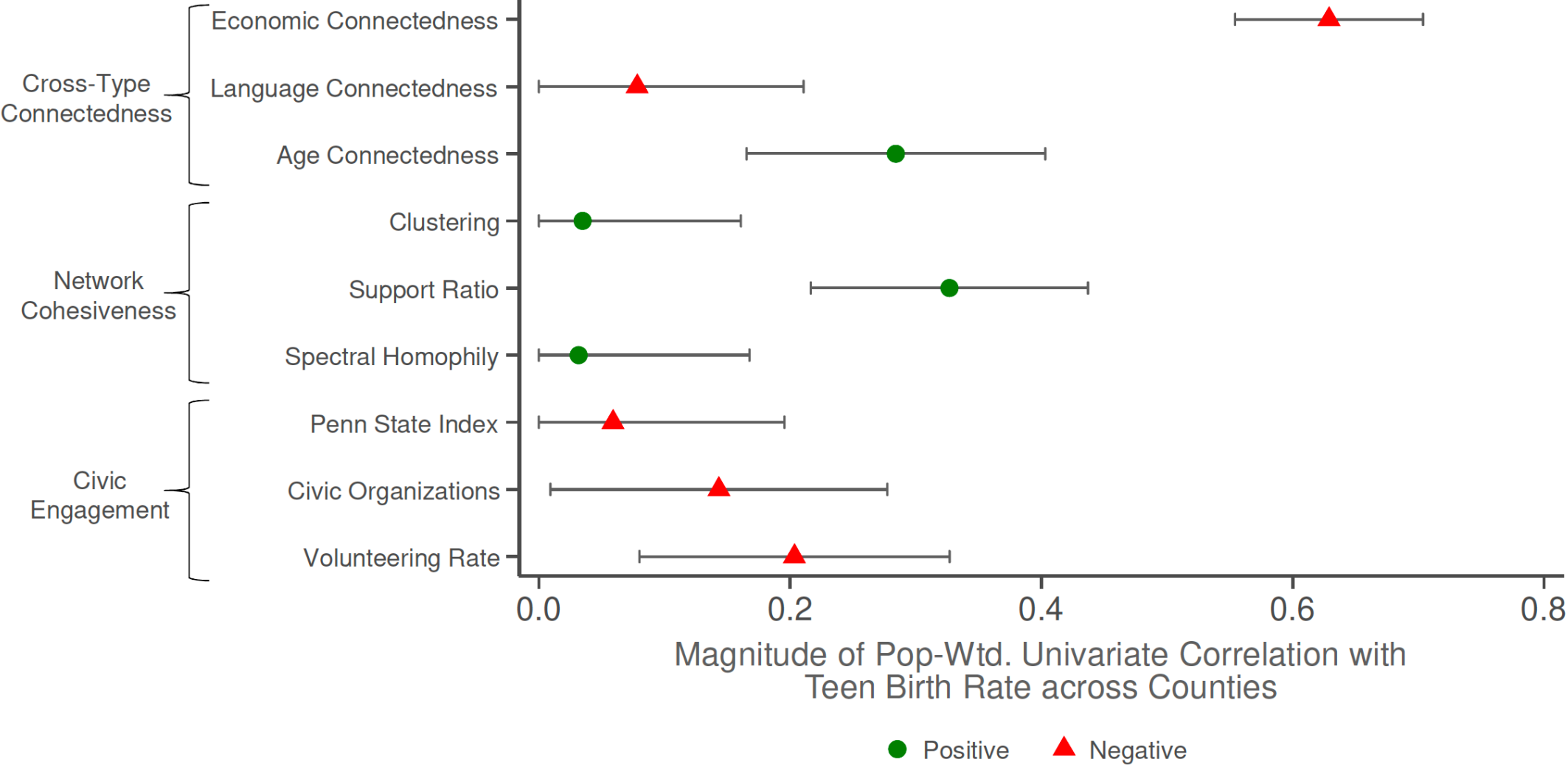
In Colleges and Neighborhoods



Correlations with High School Completion Rate for Children with Parents at 25th Percentile

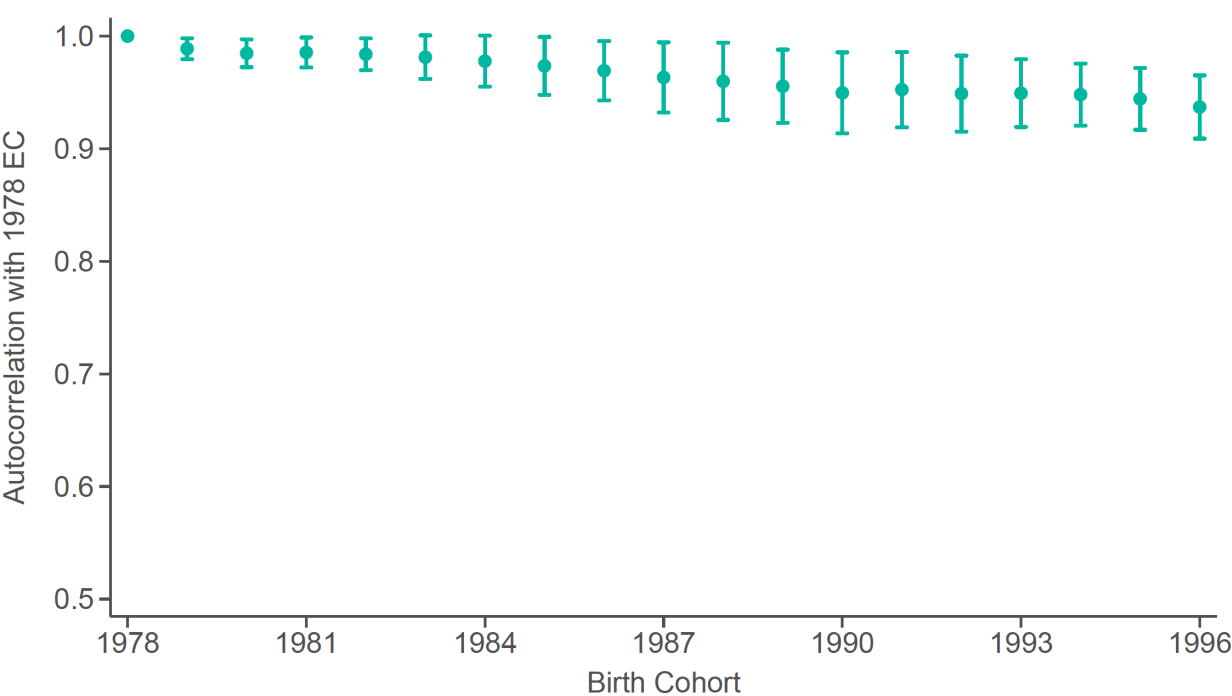


Correlations with Teen Birth Rate for Women with Parents at 25th Percentile

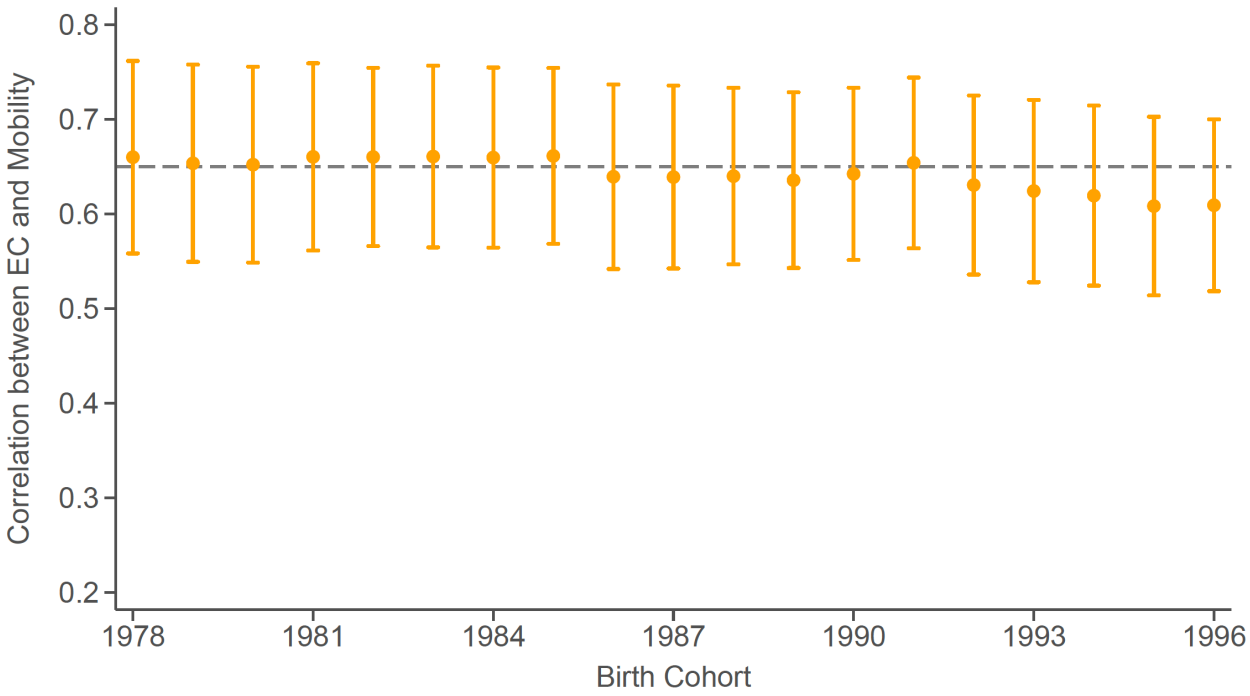


Stability of County-Level Economic Connectedness Across Cohorts

A. Autocorrelation of Economic Connectedness Across Counties by Cohort

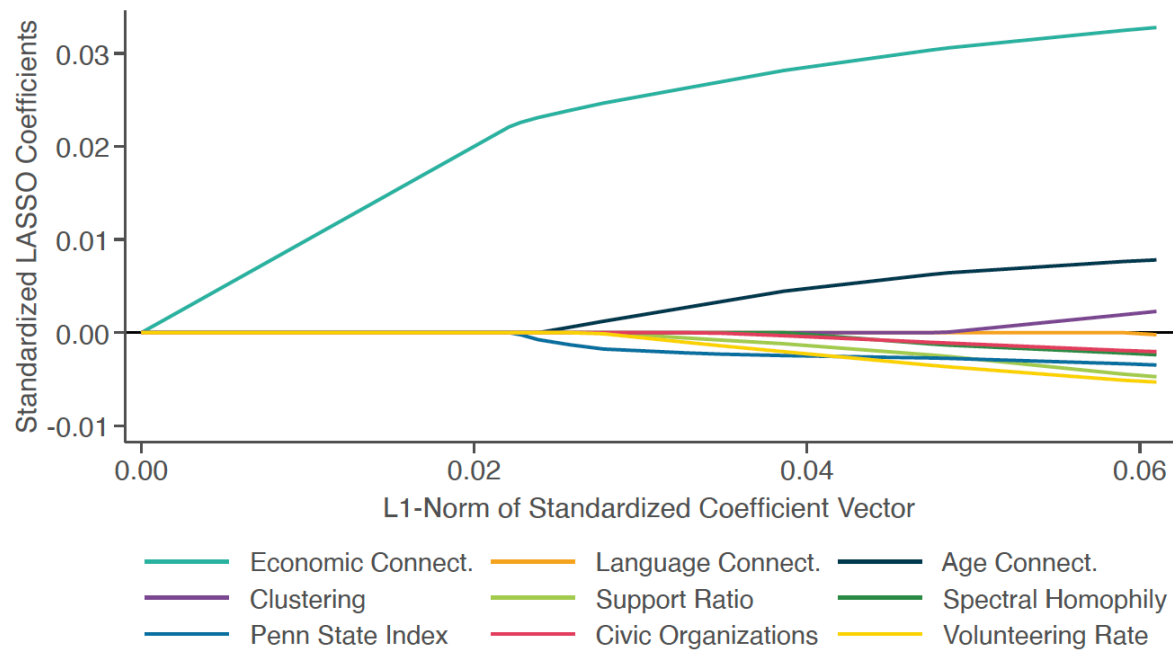


B. Correlation between Upward Mobility for 1978-83 Cohorts and Cohort-Specific EC

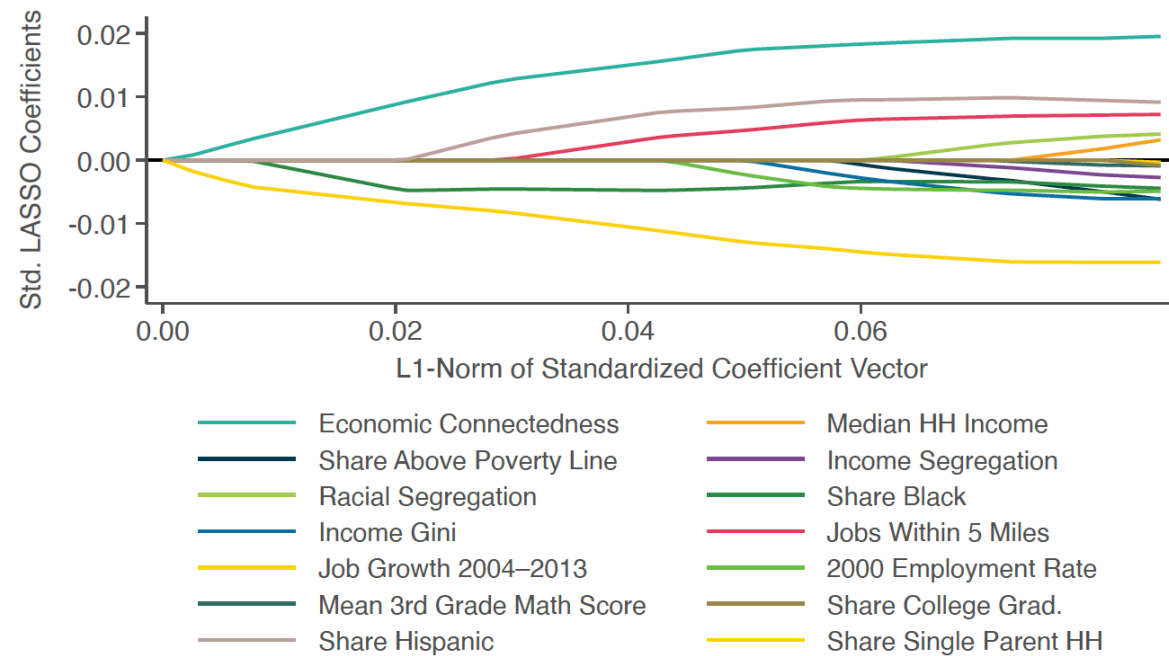


LASSO Estimates

A. LASSO for Social Capital Measures

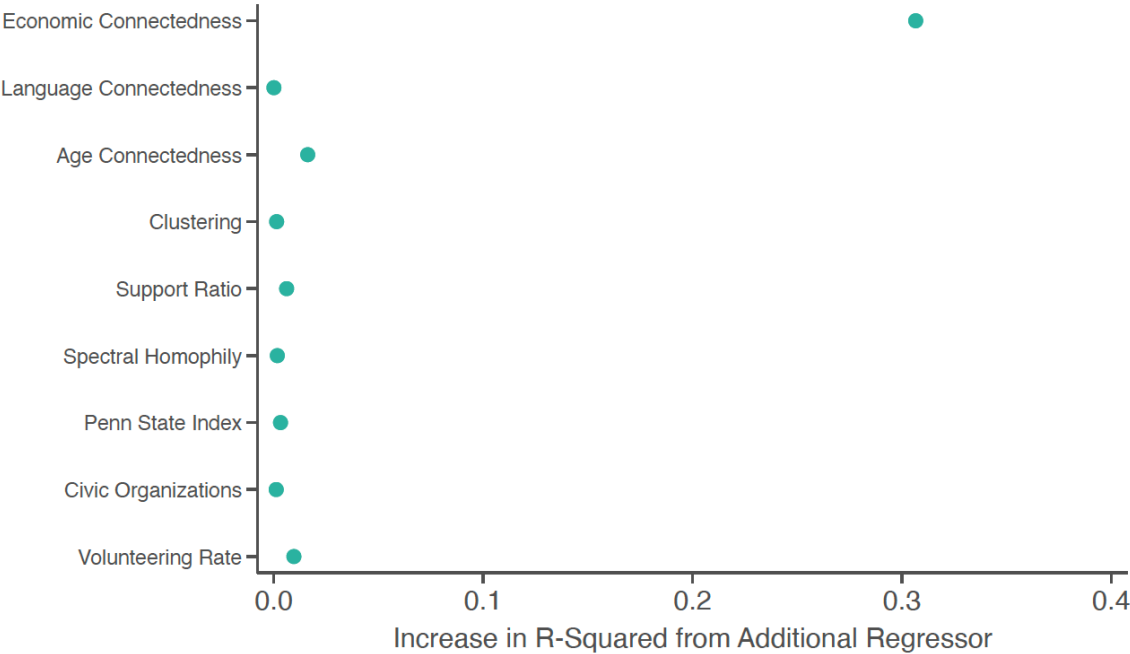


B. LASSO Including Other Neighborhood Characteristics

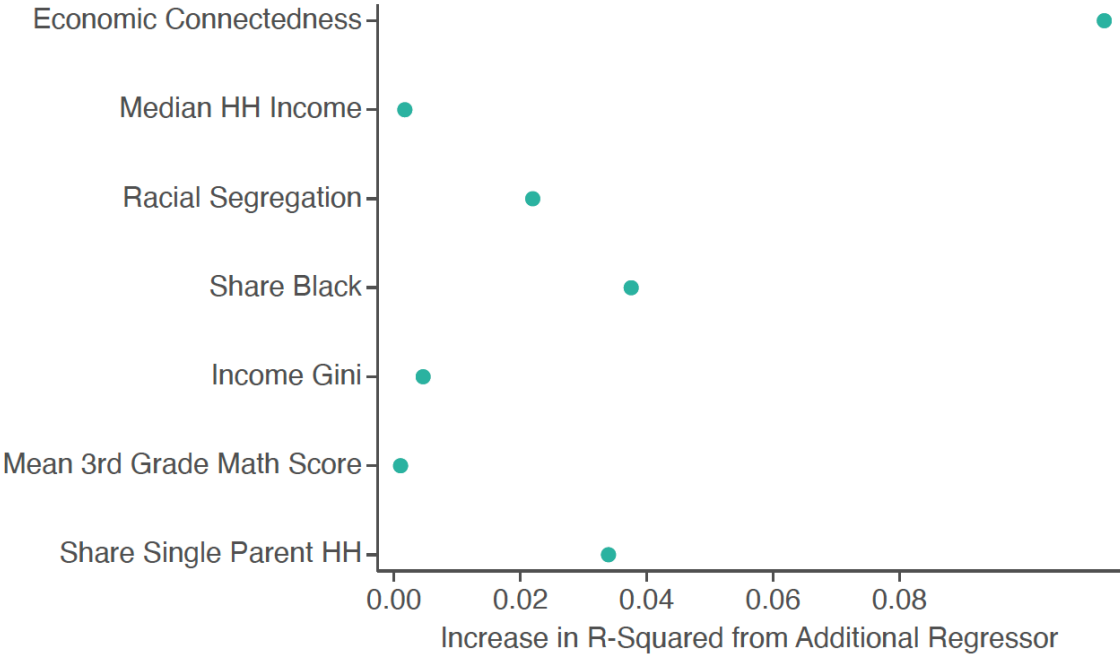


Incremental R-Squared of Predictors

C. Additional R-Squared for Social Capital Measures

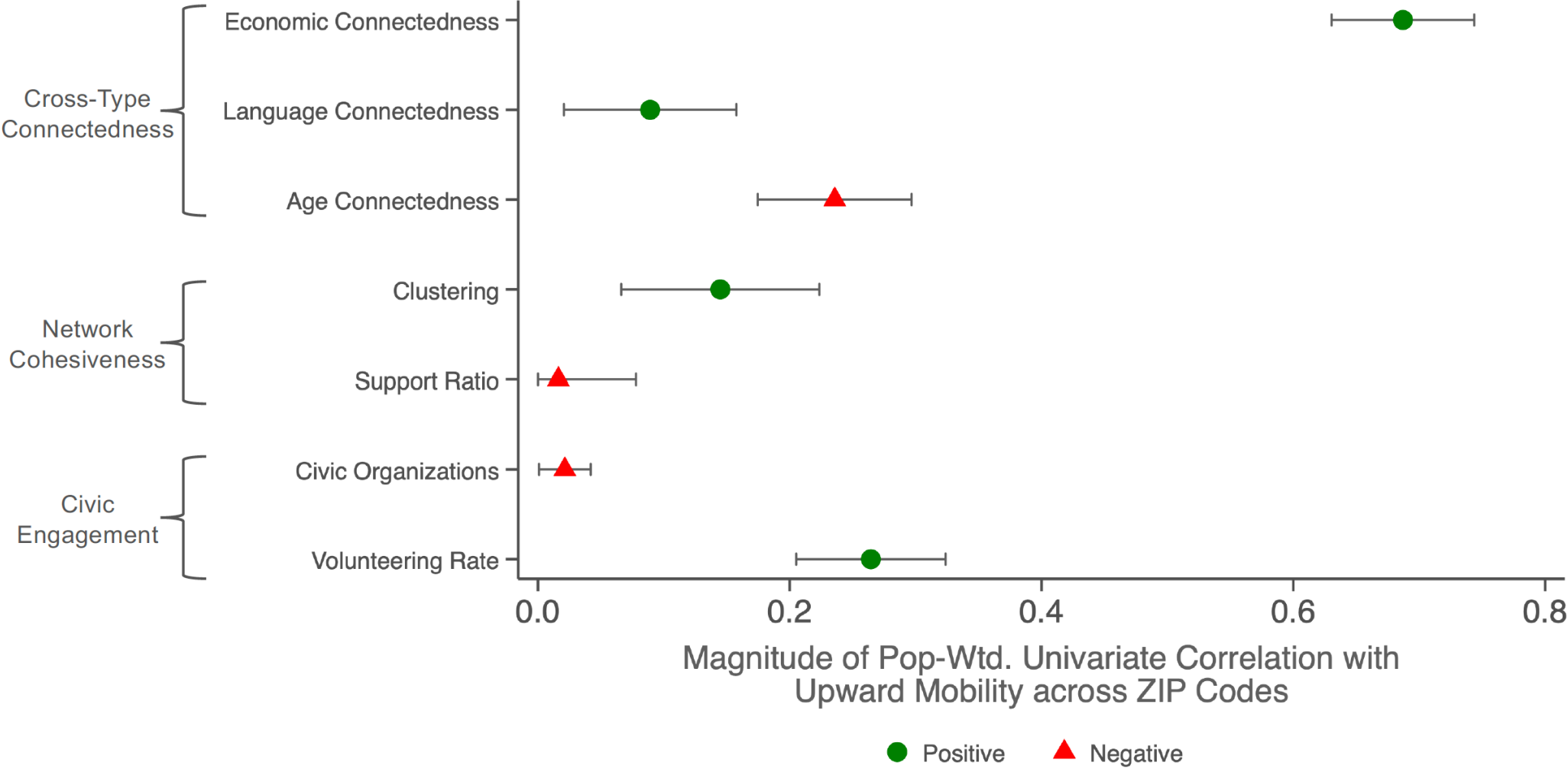


D. Additional R-Squared Incl. Other Nbhd. Characteristics



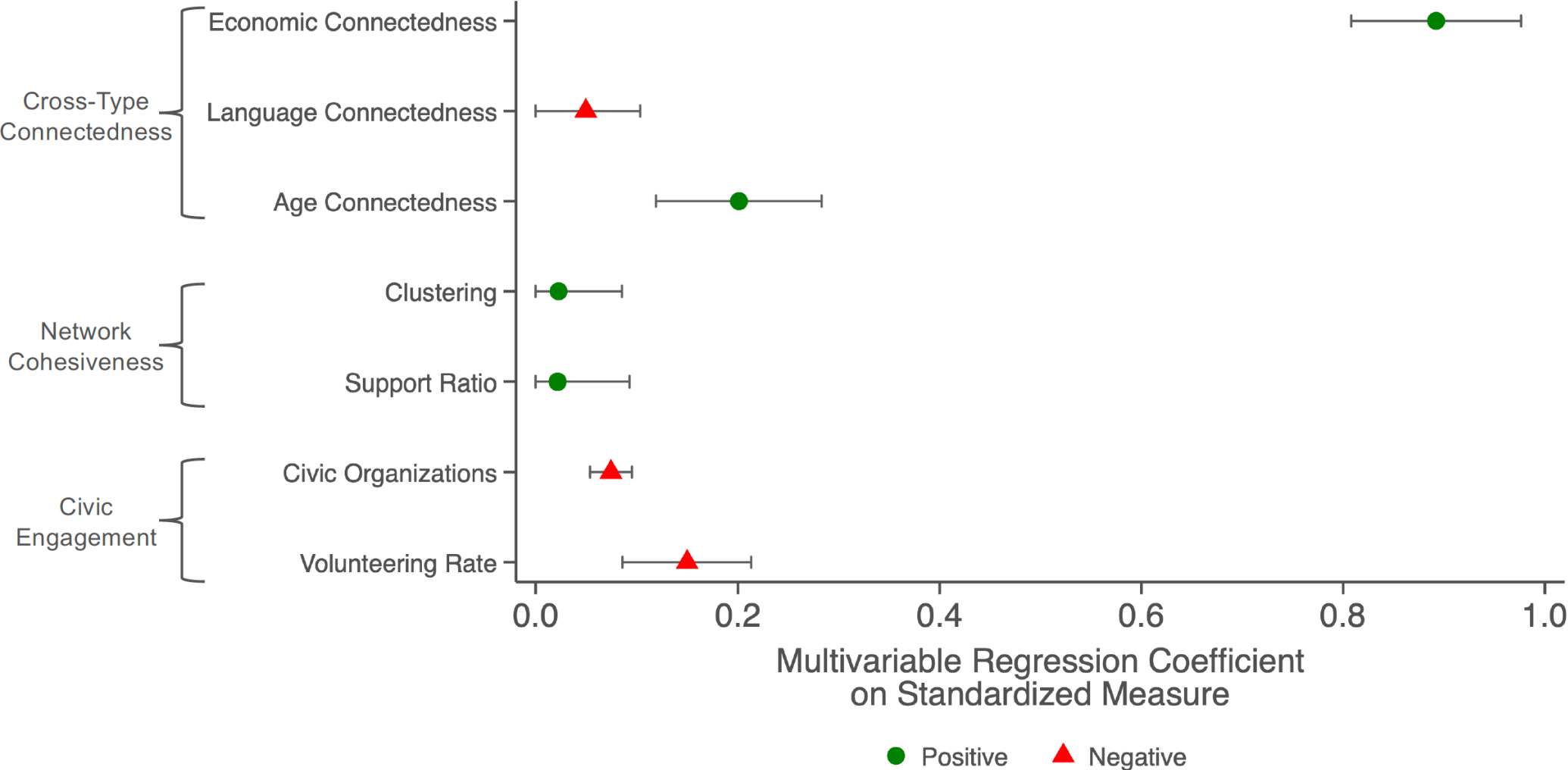
Correlations between Upward Mobility and Measures of Social Capital

ZIP-level Univariate Correlations



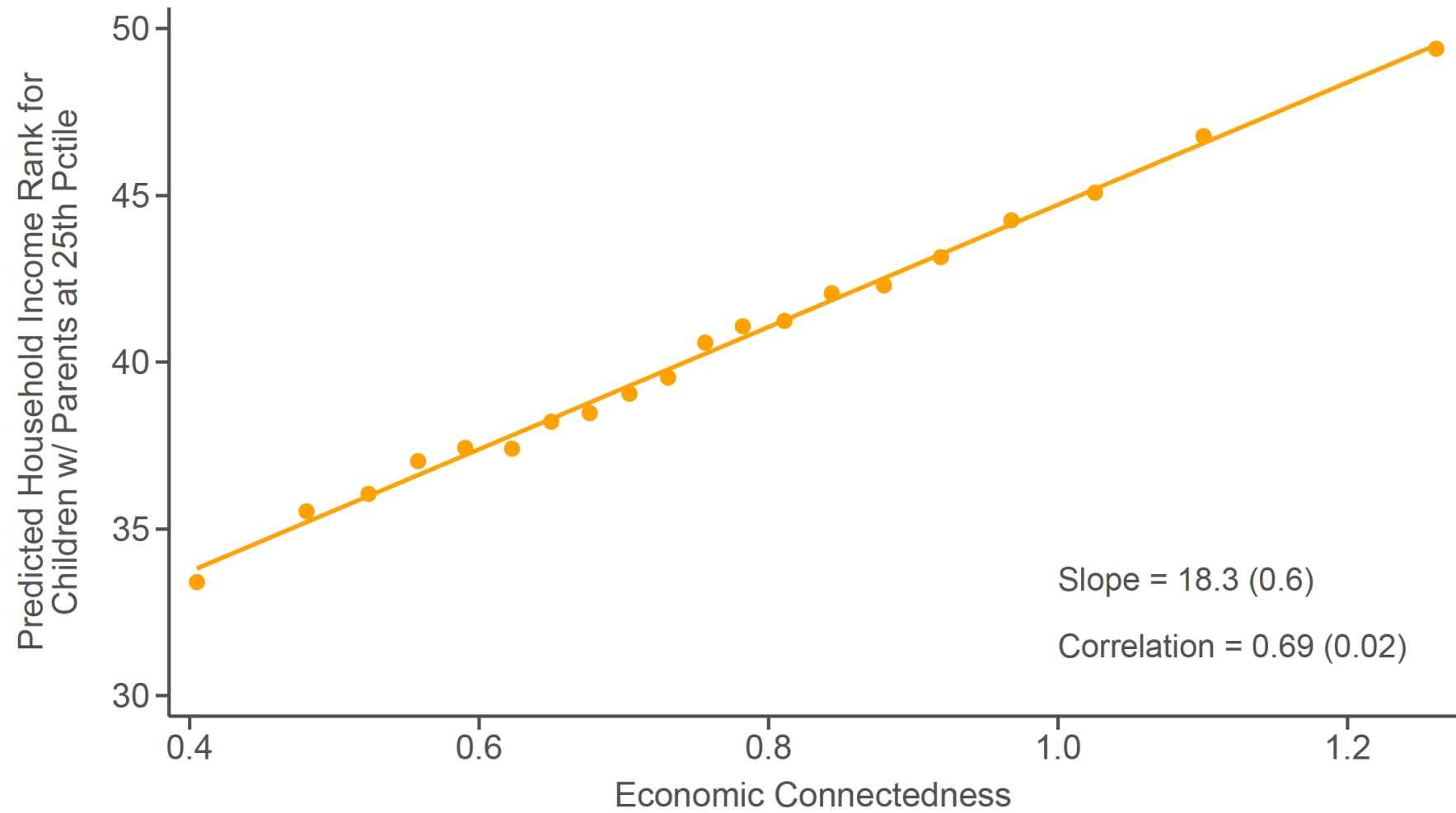
Correlations between Upward Mobility and Measures of Social Capital

Coefficients from ZIP-level Multivariable Regression



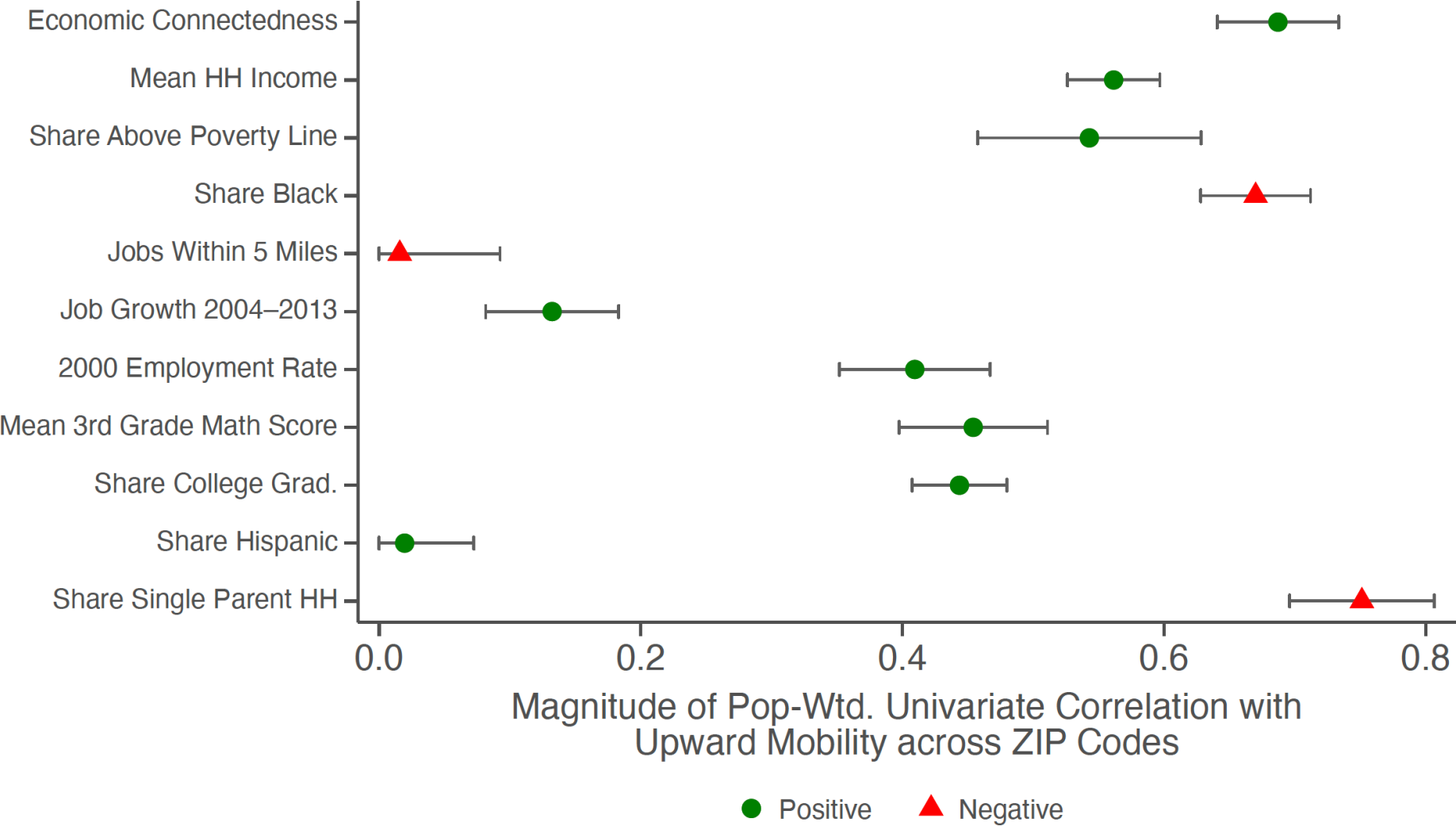
Relationship between Upward Mobility and EC

ZIP-level Regression



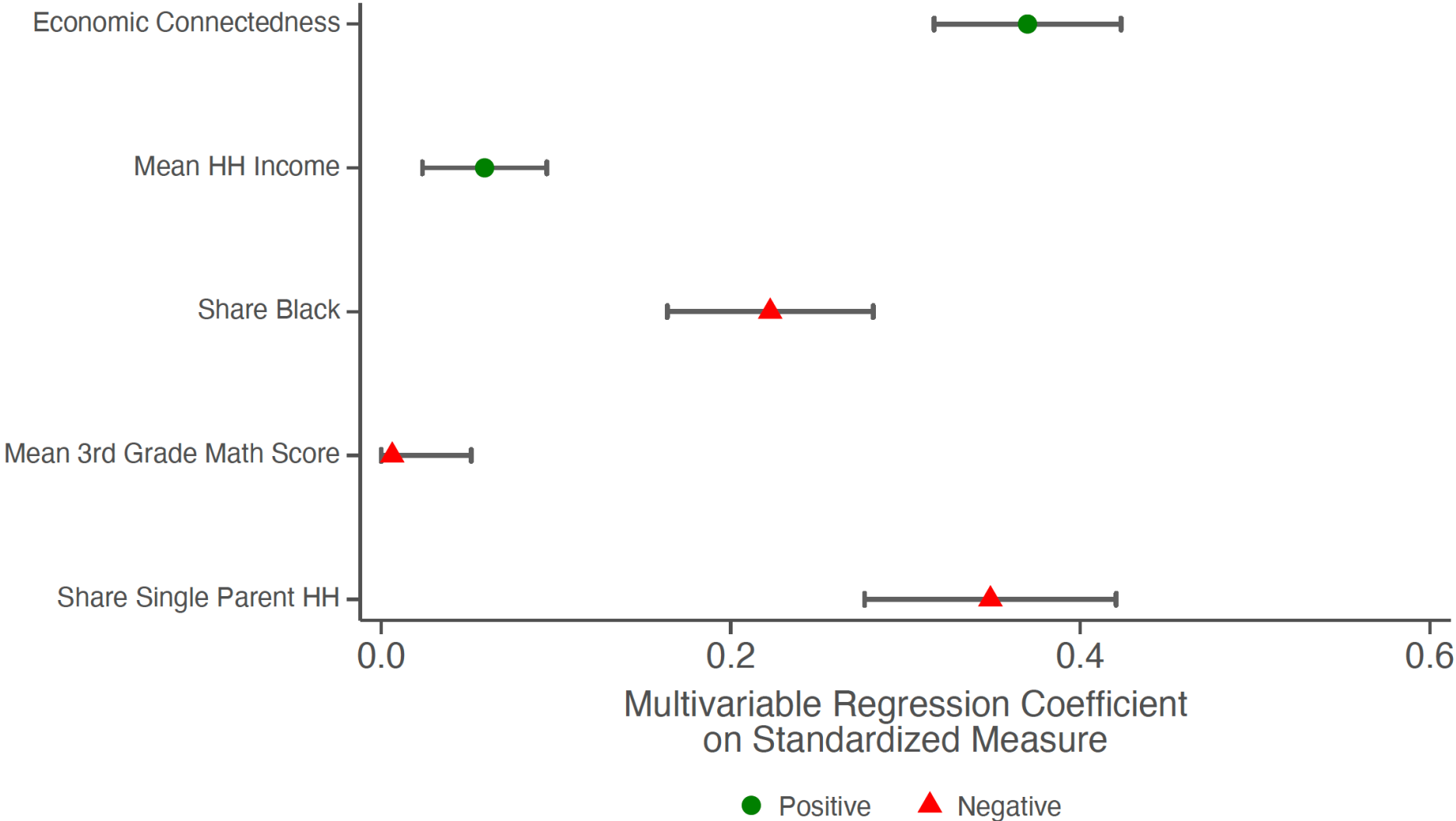
Relationship between Upward Mobility and EC

ZIP-level Univariate Correlations



Relationship between Upward Mobility and EC

Coefficients from ZIP-level Multivariate Regression



Associations between Race-Specific Upward Income Mobility and Economic Connectedness

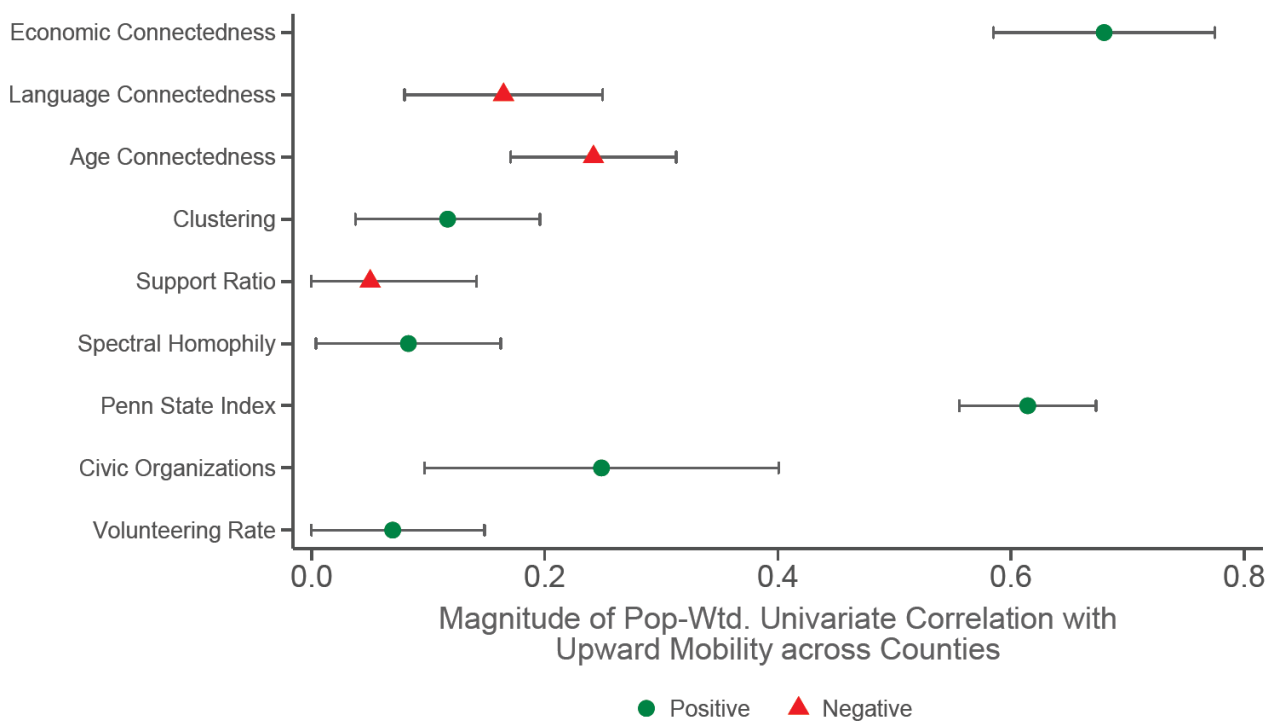
Racially Homogeneous Areas

Upward Mobility for:	White Individuals				Black Individuals		Hispanic Individuals	
	Counties		ZIP Codes		ZIP Codes		ZIP Codes	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Economic Connectedness	0.68*** (0.04)	0.69*** (0.05)	0.69*** (0.02)	0.69*** (0.02)	0.61*** (0.13)	0.65*** (0.16)	0.36* (0.15)	0.31 (0.21)
Sample	>80% White	>90% White	>80% White	>90% White	>80% Black	>90% Black	>80% Hispanic	>90% Hispanic
Observations	1,955	1,427	16,087	12,058	247	105	174	63
Focal Race Share in Sample	90%	95%	91%	95%	90%	95%	89%	94%

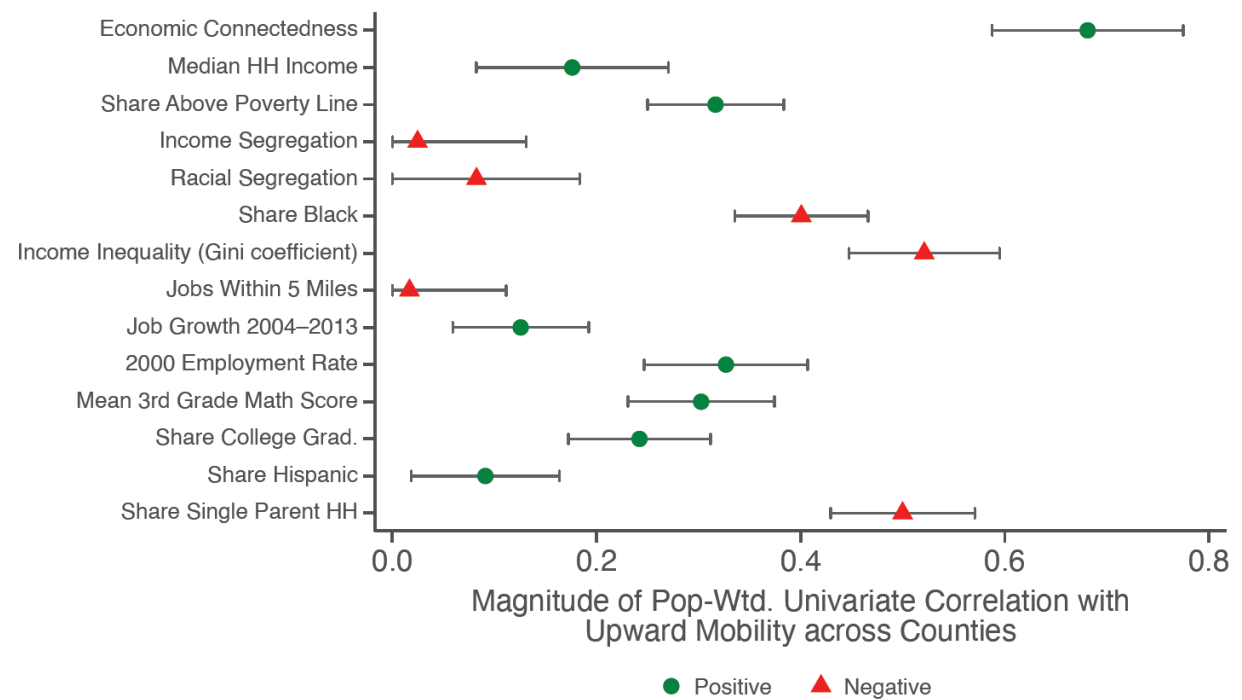
Social Capital and Upward Mobility in Counties with Predominantly White Residents

Univariate Correlations with Upward Mobility

C. Univariate Correlations between Upward Mobility and Social Capital

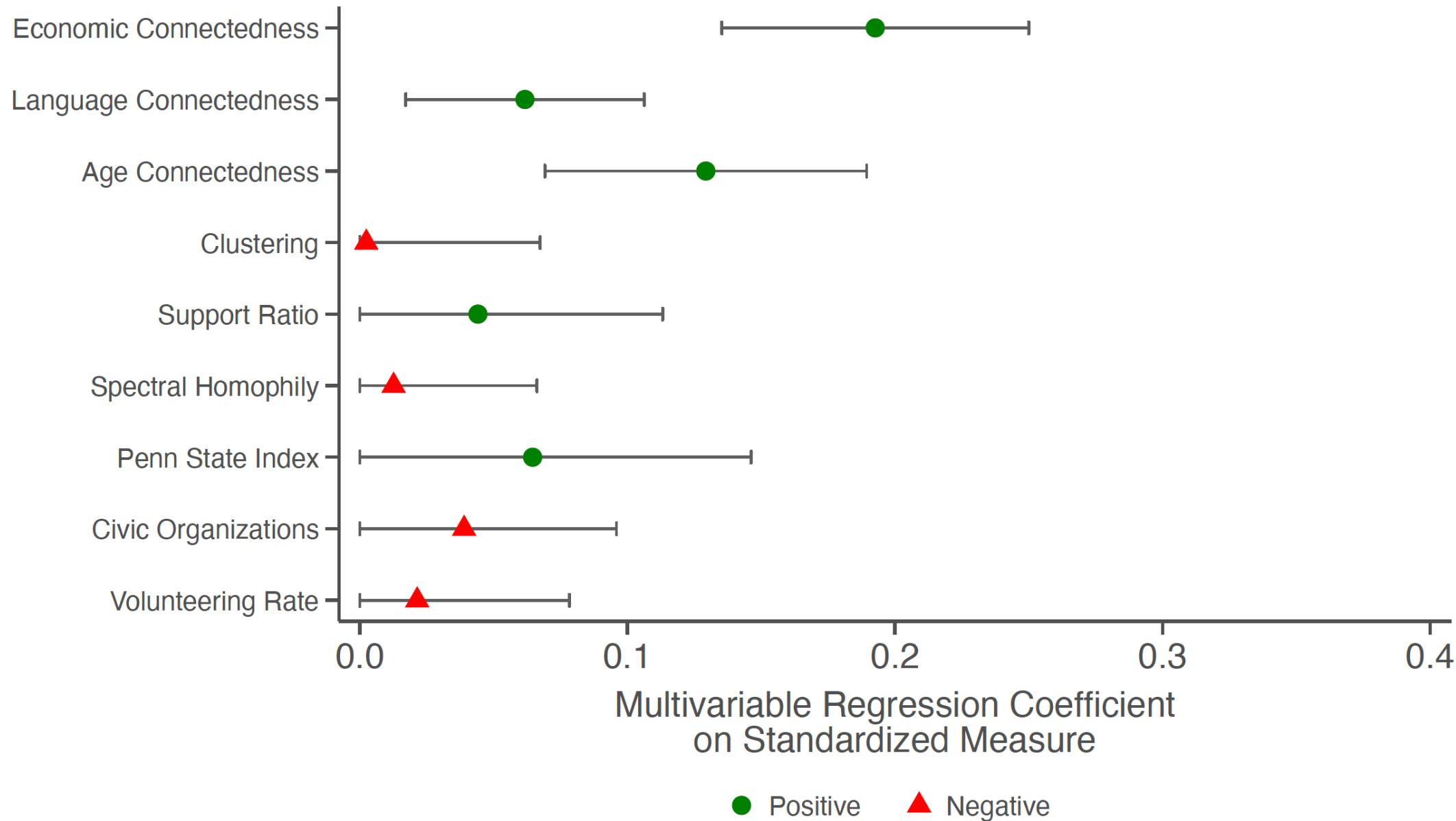


D. Univariate Correlations between Upward Mobility and Other Neighborhood Characteristics



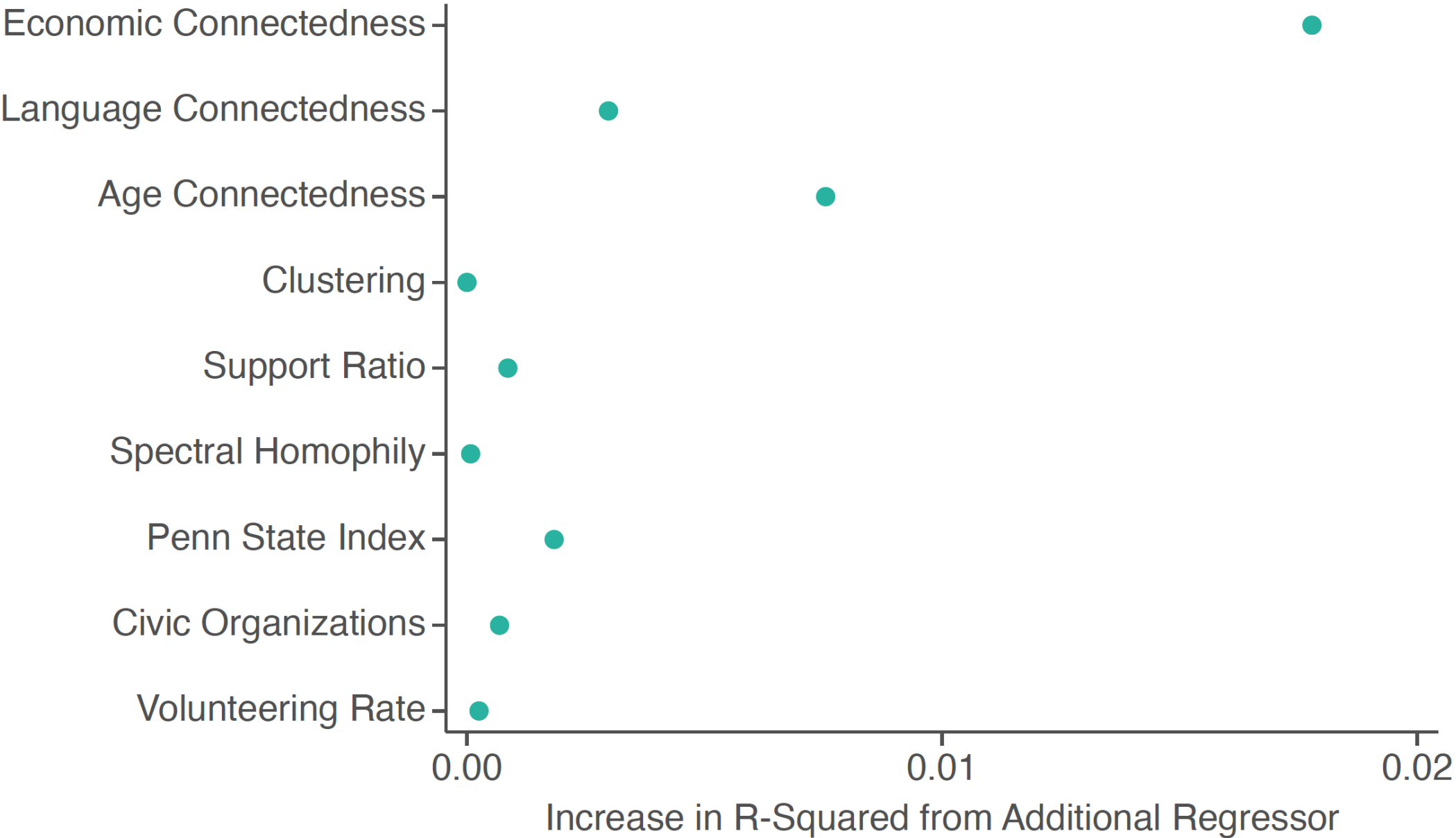
Regression of Counties' Causal Effects on Upward Mobility on Social Capital

Multivariable Regression Coefficients



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

Incremental R-Squared



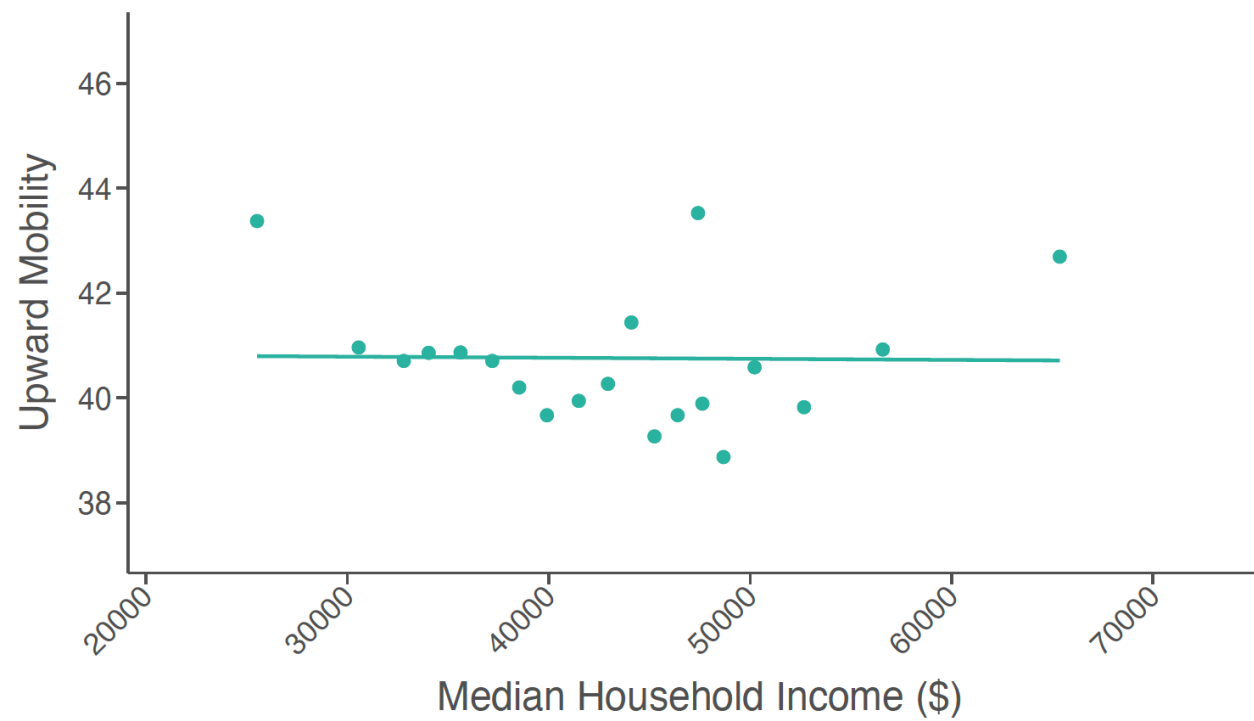
Upward Mobility, EC, and Income Levels across Counties

Median Household Income vs. Upward Mobility

A. Upward Mobility vs. Median Income, by County



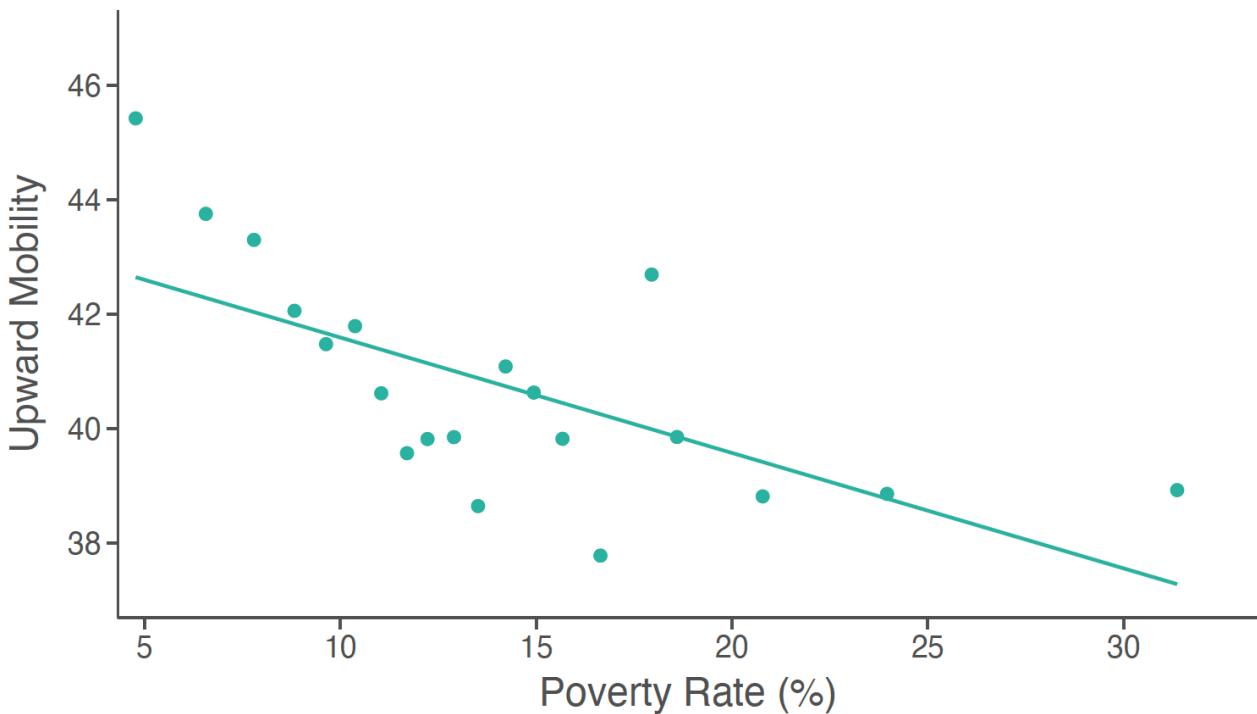
B. Upward Mobility vs. Median Income Controlling for EC, by County



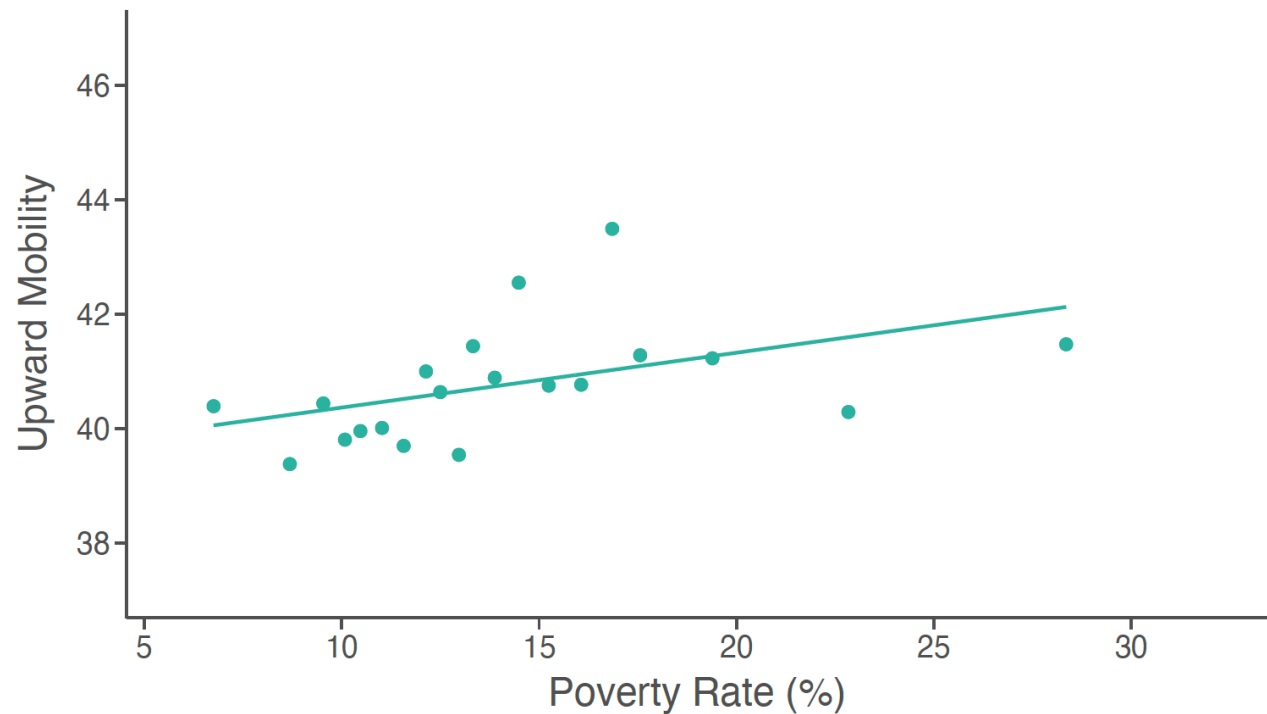
Upward Mobility, EC, and Income Levels across Counties

Poverty Rate vs. Upward Mobility

C. Upward Mobility vs. Poverty Rate, by County



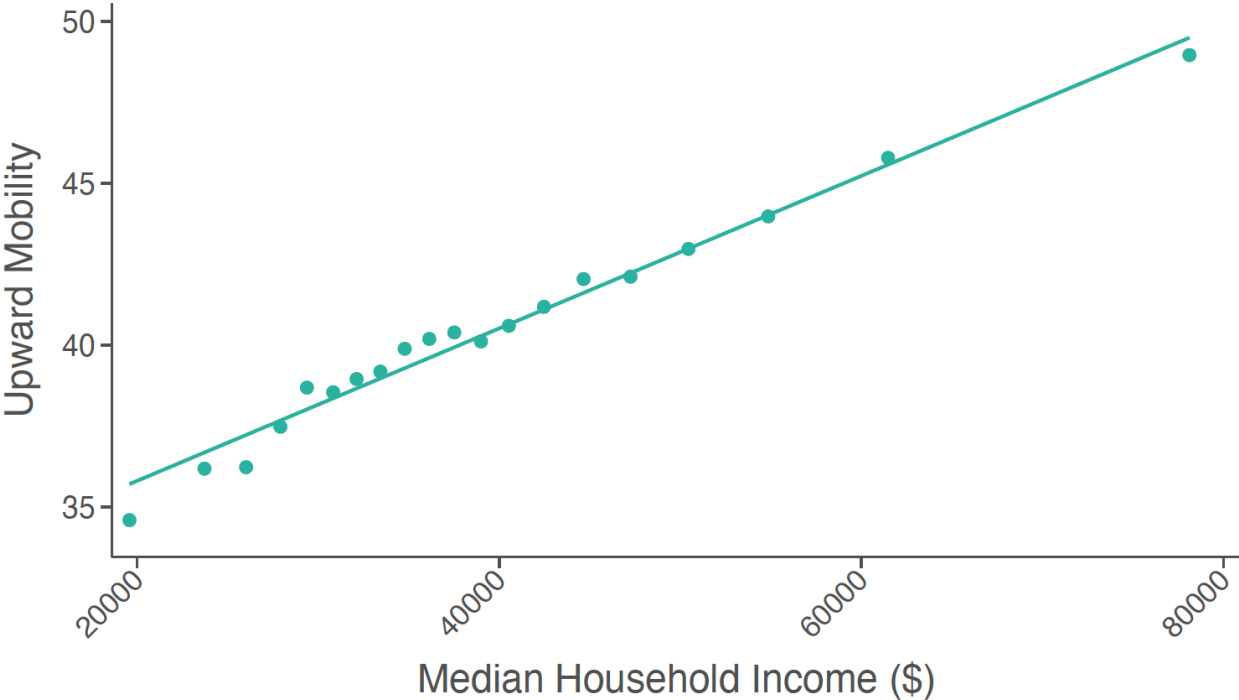
D. Upward Mobility vs. Poverty Rate Controlling for EC, by County



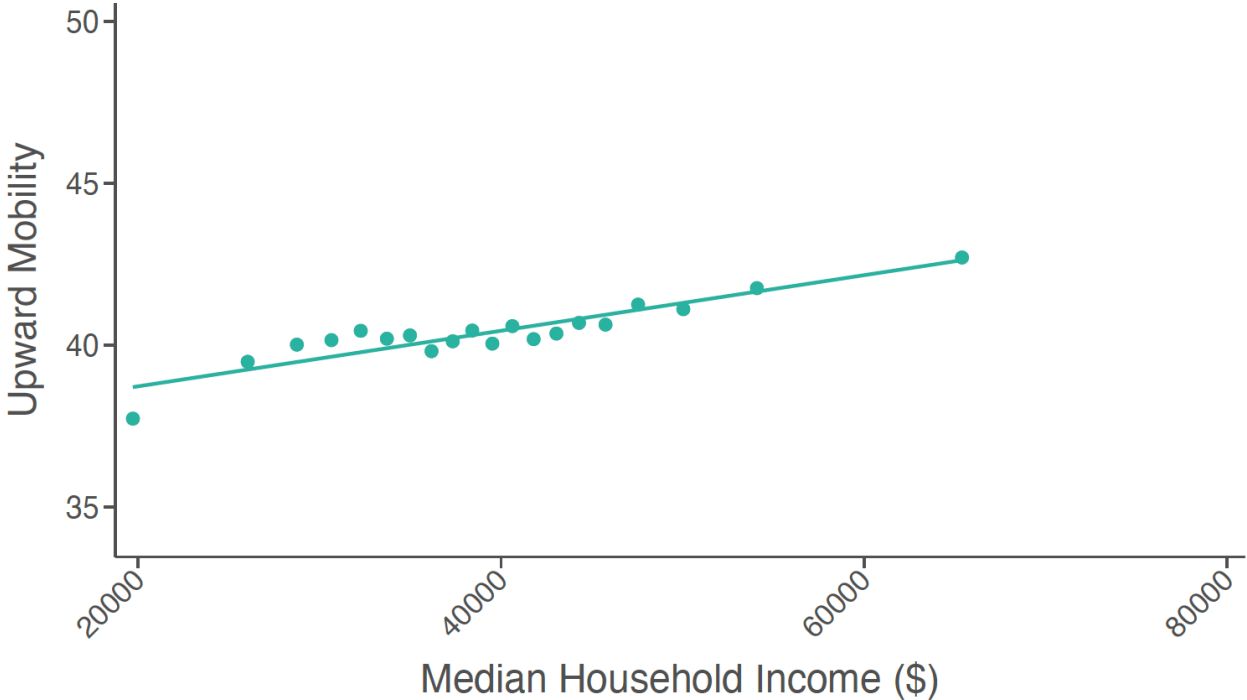
Upward Mobility, EC, and Income Levels across ZIPs

Median Household Income vs. Upward Mobility

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



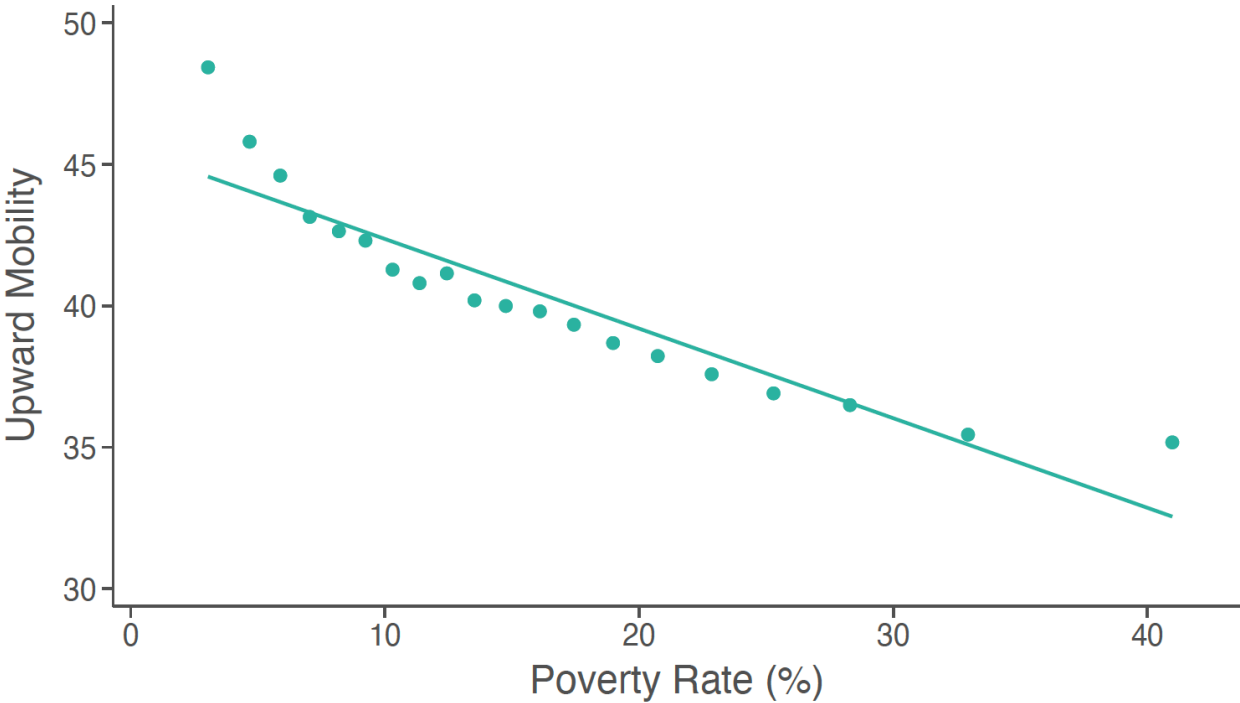
B. Upward Mobility vs. Median Income Controlling for EC, by ZIP Code



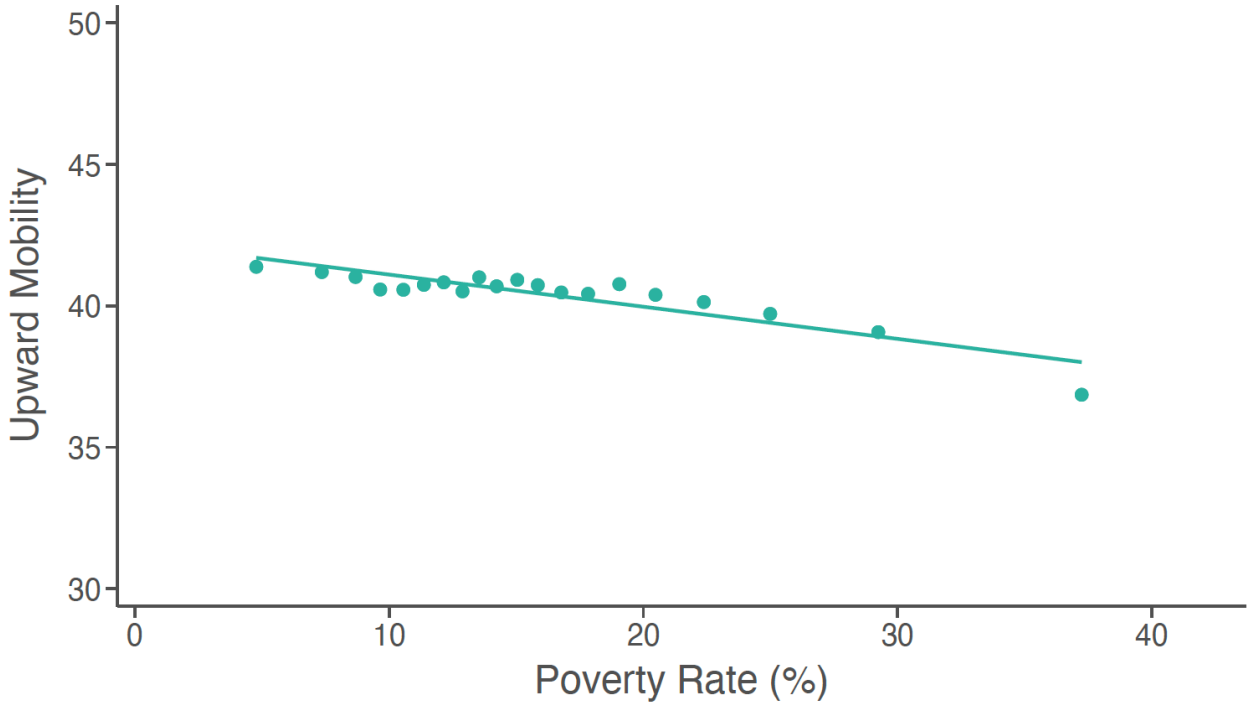
Upward Mobility, EC, and Income Levels across ZIPs

Poverty Rate vs. Upward Mobility

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



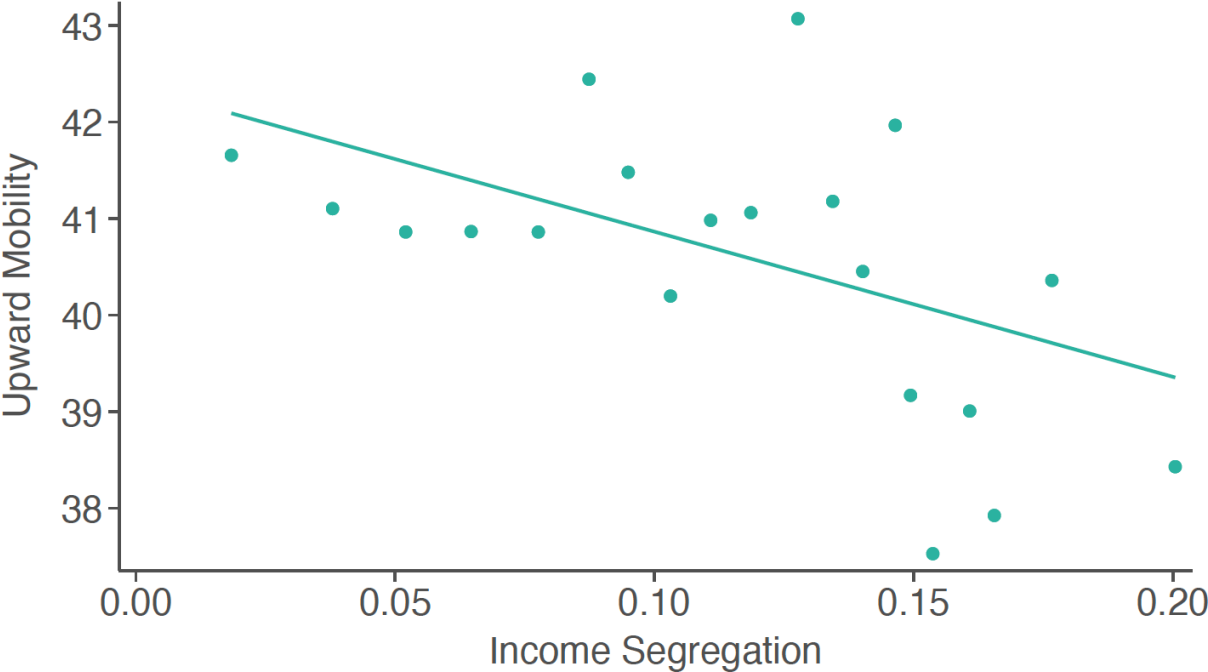
D. Upward Mobility vs. Poverty Rate Controlling for EC, by ZIP Code



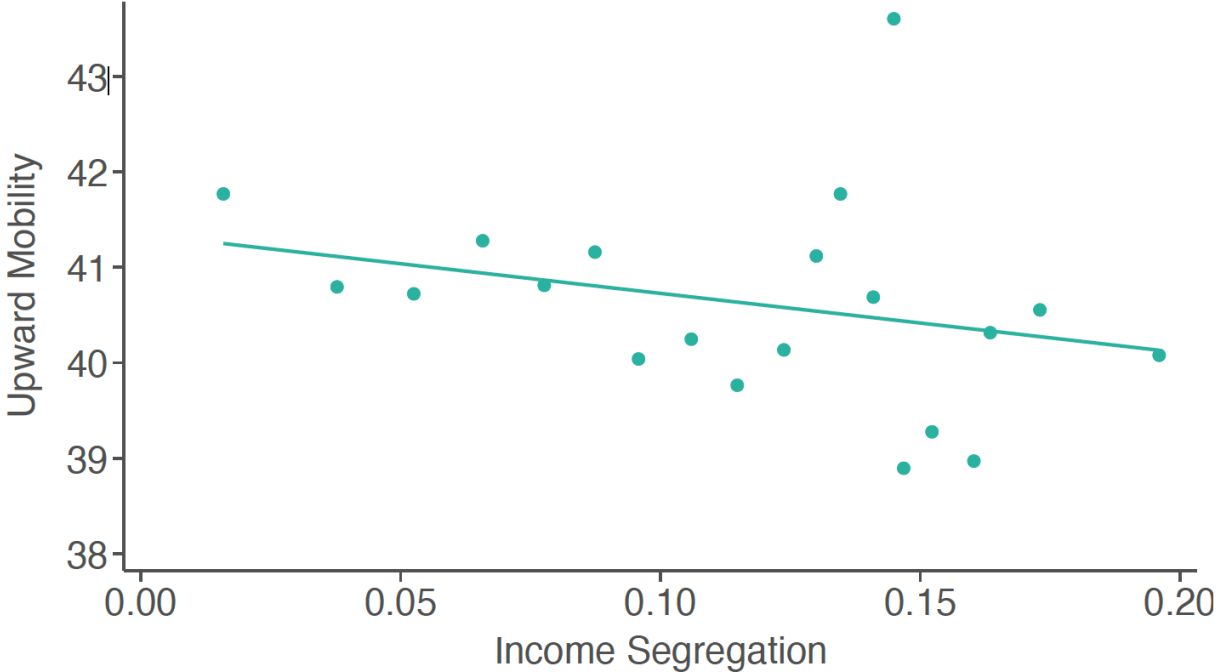
Upward Mobility, EC, and Inequality and Segregation across Counties

Income Segregation vs. Upward Mobility

A. Upward Mobility vs. Income Segregation, by County



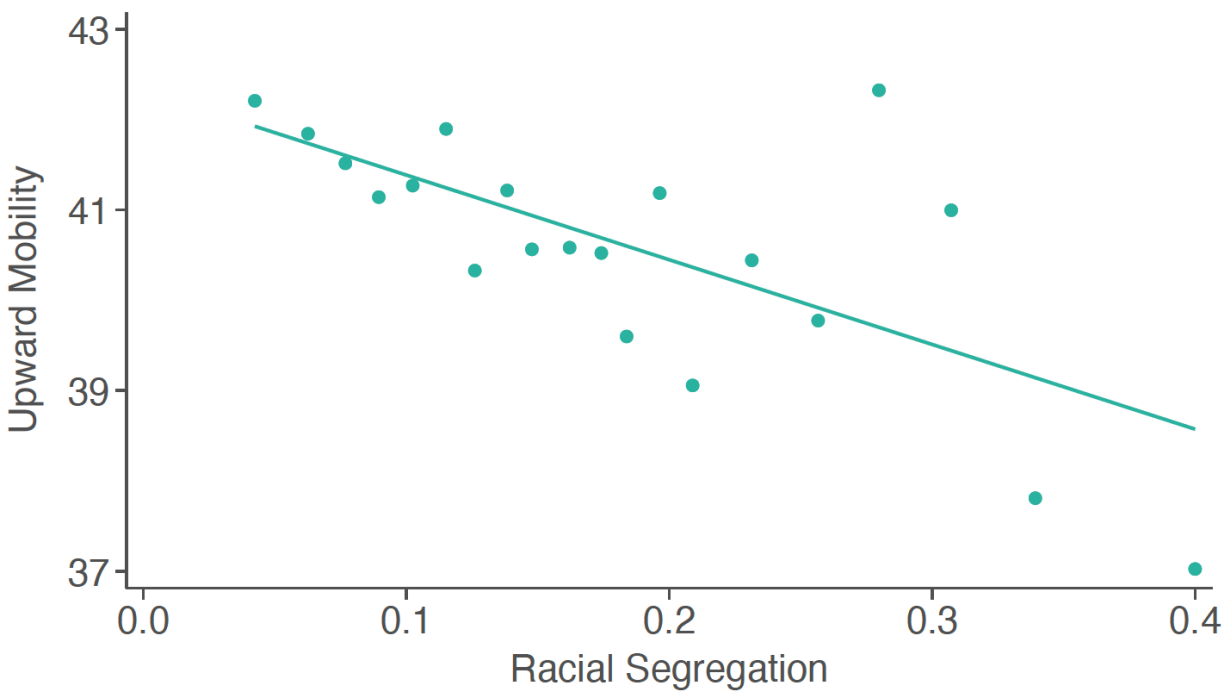
B. Upward Mobility vs. Income Segregation Controlling for EC, by County



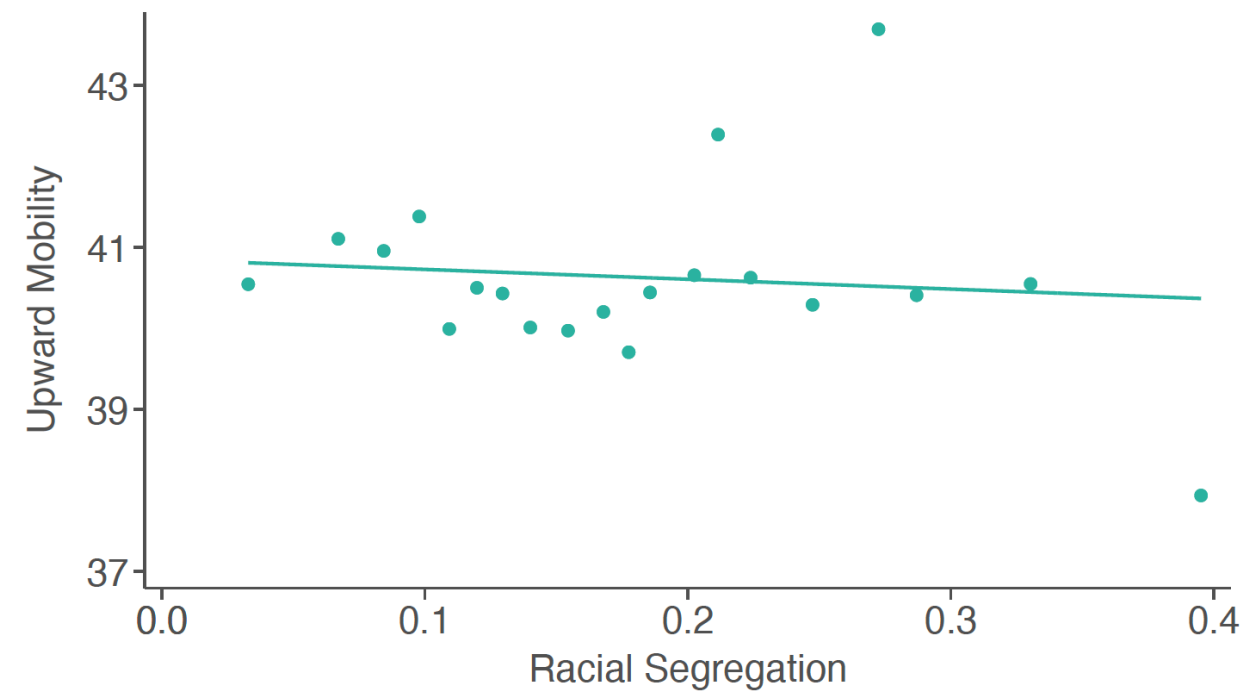
Upward Mobility, EC, and Inequality and Segregation across Counties

Racial Segregation vs. Upward Mobility

C. Upward Mobility vs. Racial Segregation, by County



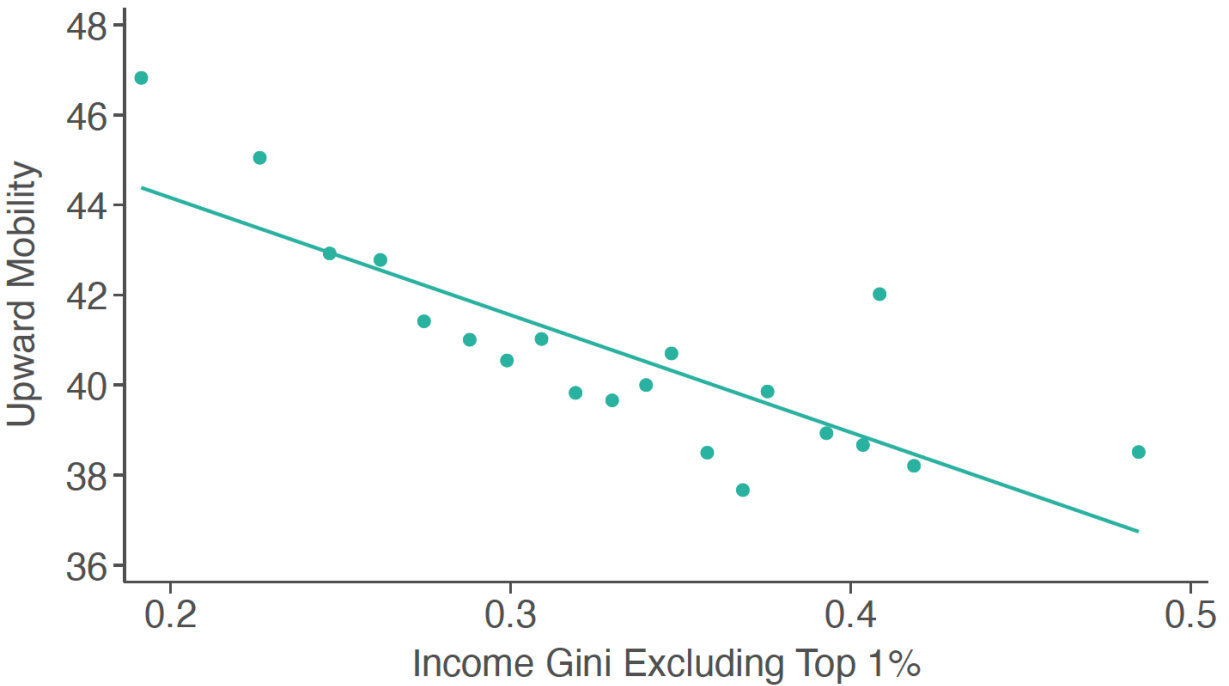
D. Upward Mobility vs. Racial Segregation Controlling for EC, by County



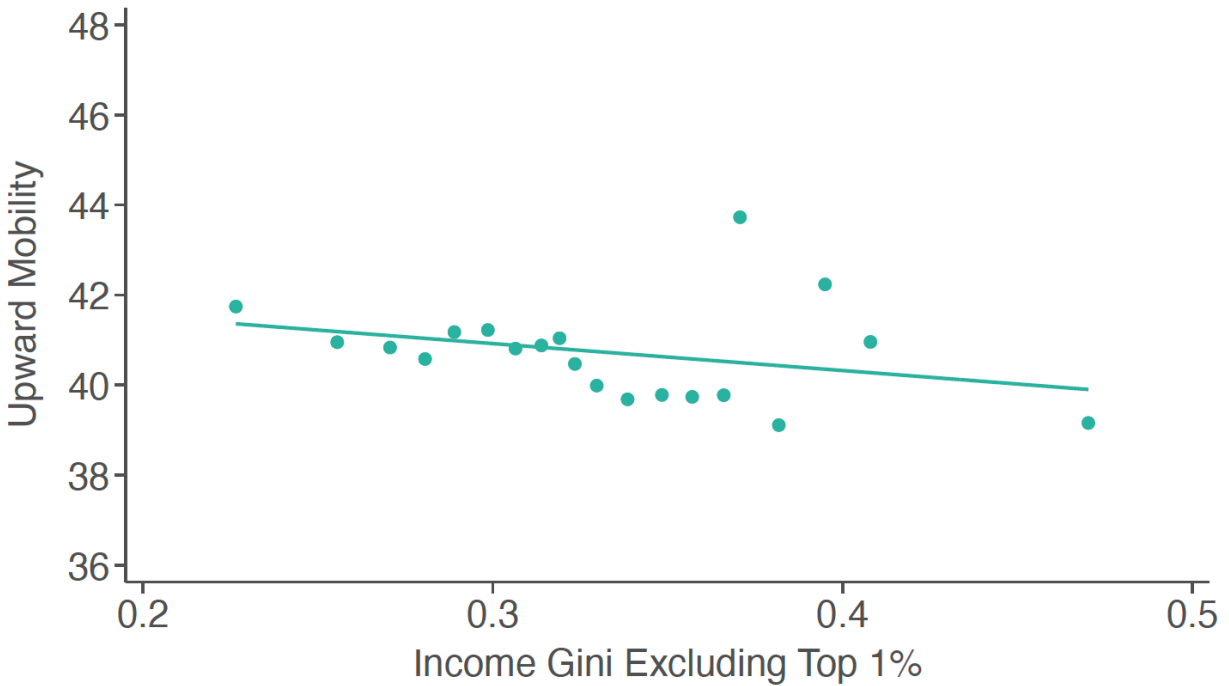
Upward Mobility, EC, and Inequality and Segregation across Counties

Gini Coefficient vs. Upward Mobility

E. Upward Mobility vs. Gini Coefficient, by County



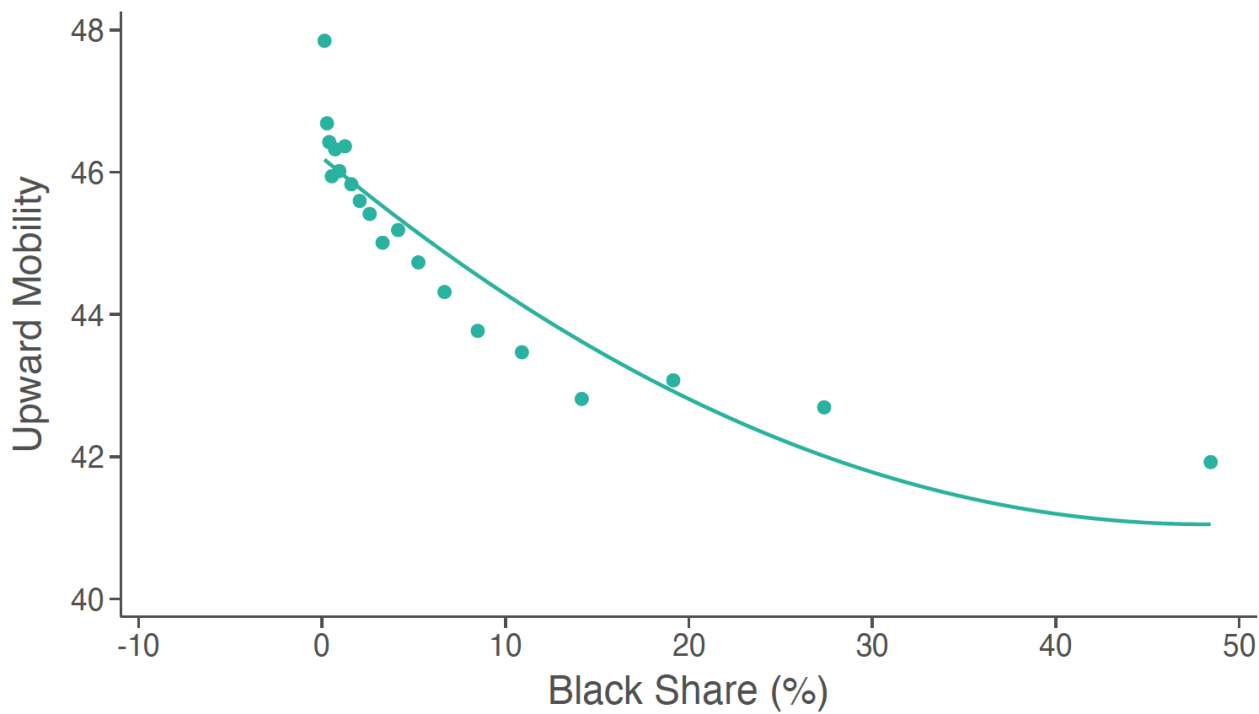
F. Upward Mobility vs. Gini Coefficient Controlling for EC, by County



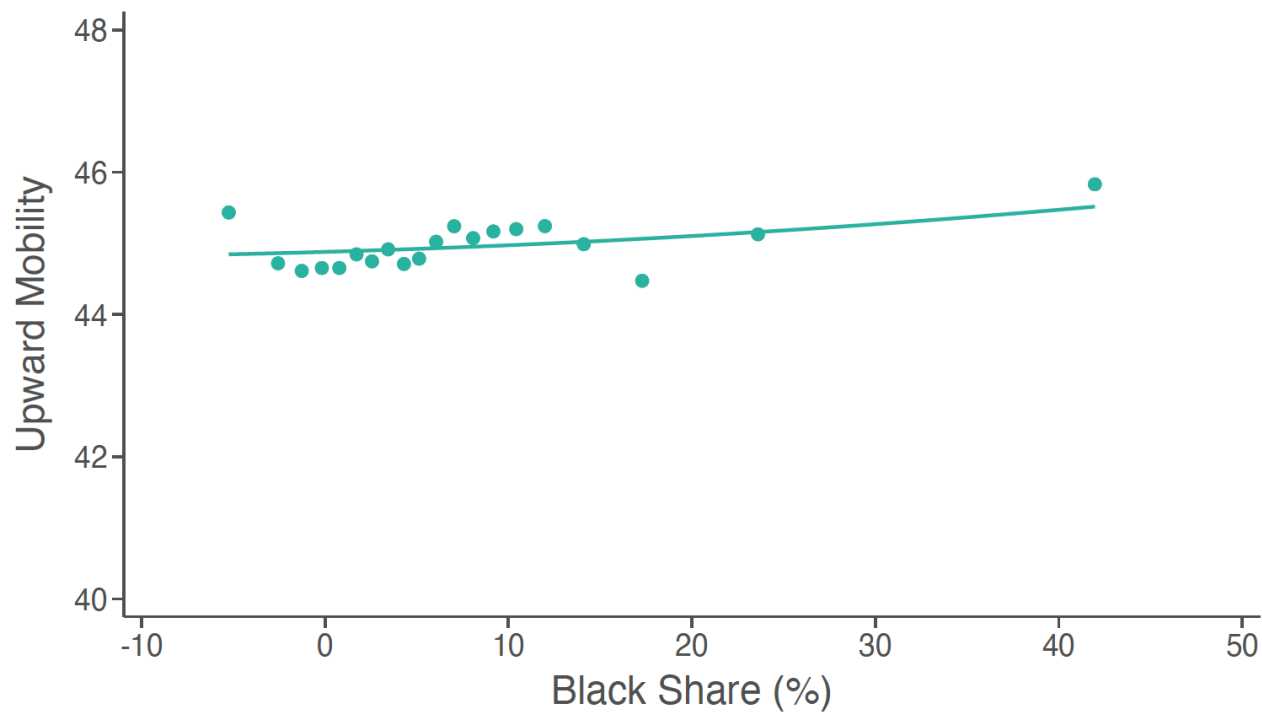
Upward Mobility, EC, and Share of Black Residents across ZIPs

Black Share vs. Upward Mobility for White Individuals

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



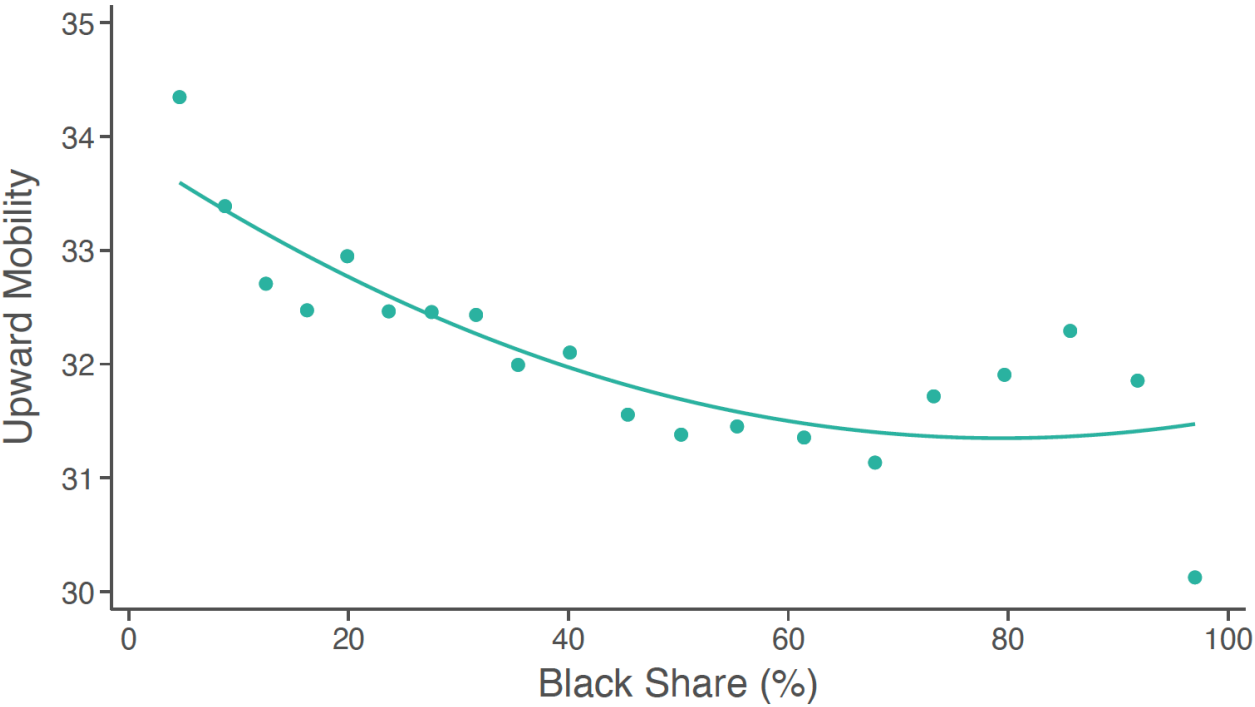
B. Upward Mobility for White Individuals vs. Black Share Controlling for EC, by ZIP Code



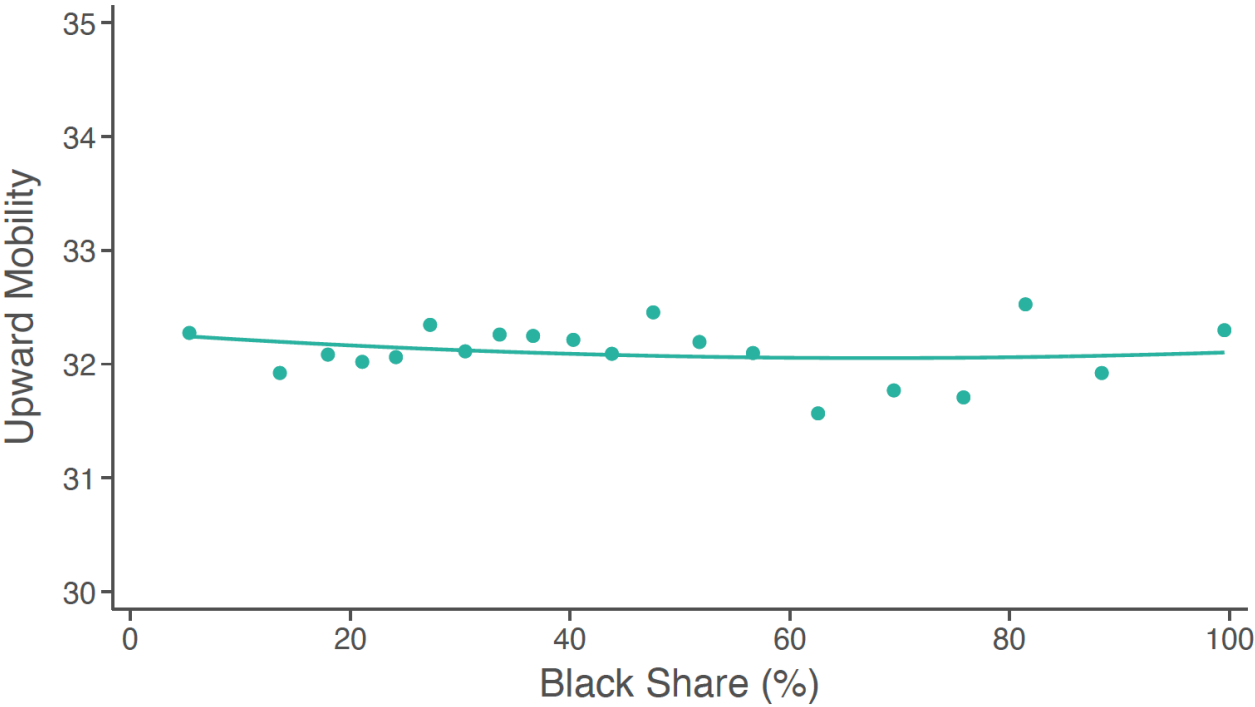
Upward Mobility, EC, and Share of Black Residents across ZIPs

Black Share vs. Upward Mobility for Black Individuals

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

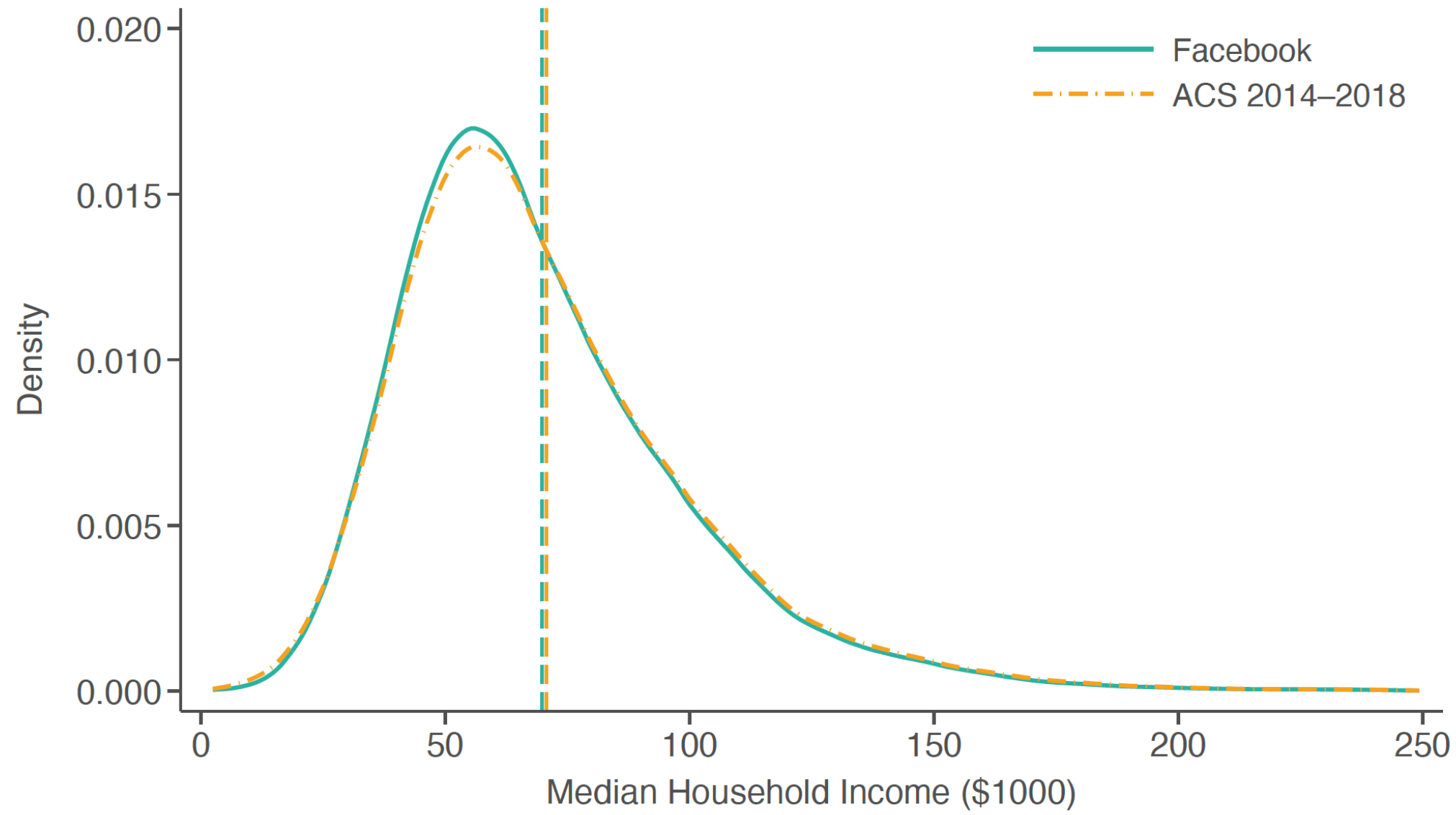


D. Upward Mobility for Black Individuals vs. Black Share Controlling for EC, by ZIP Code



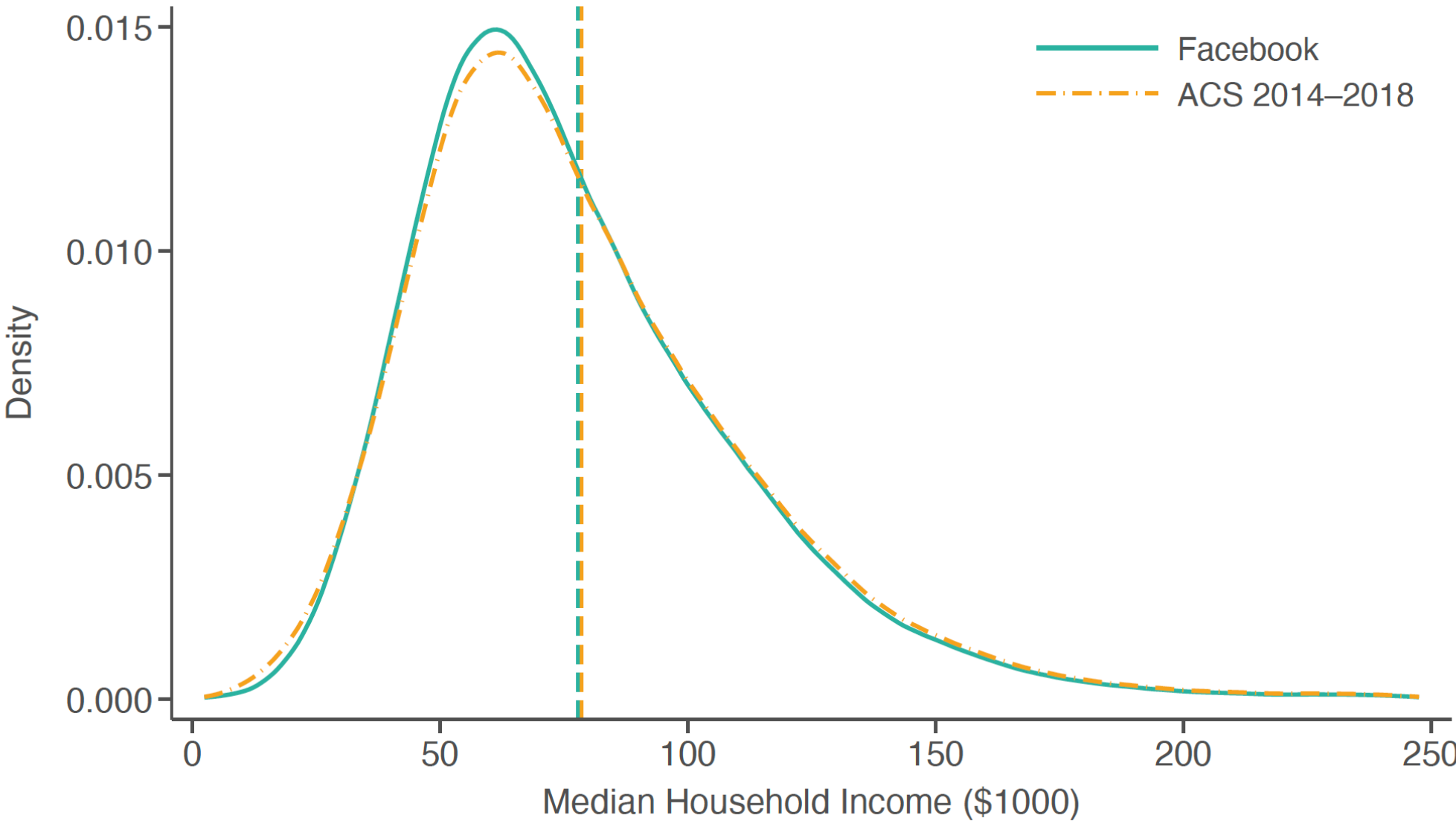
Distribution of ZIP-level Incomes in Facebook Data vs. ACS

Ages 25 to 44



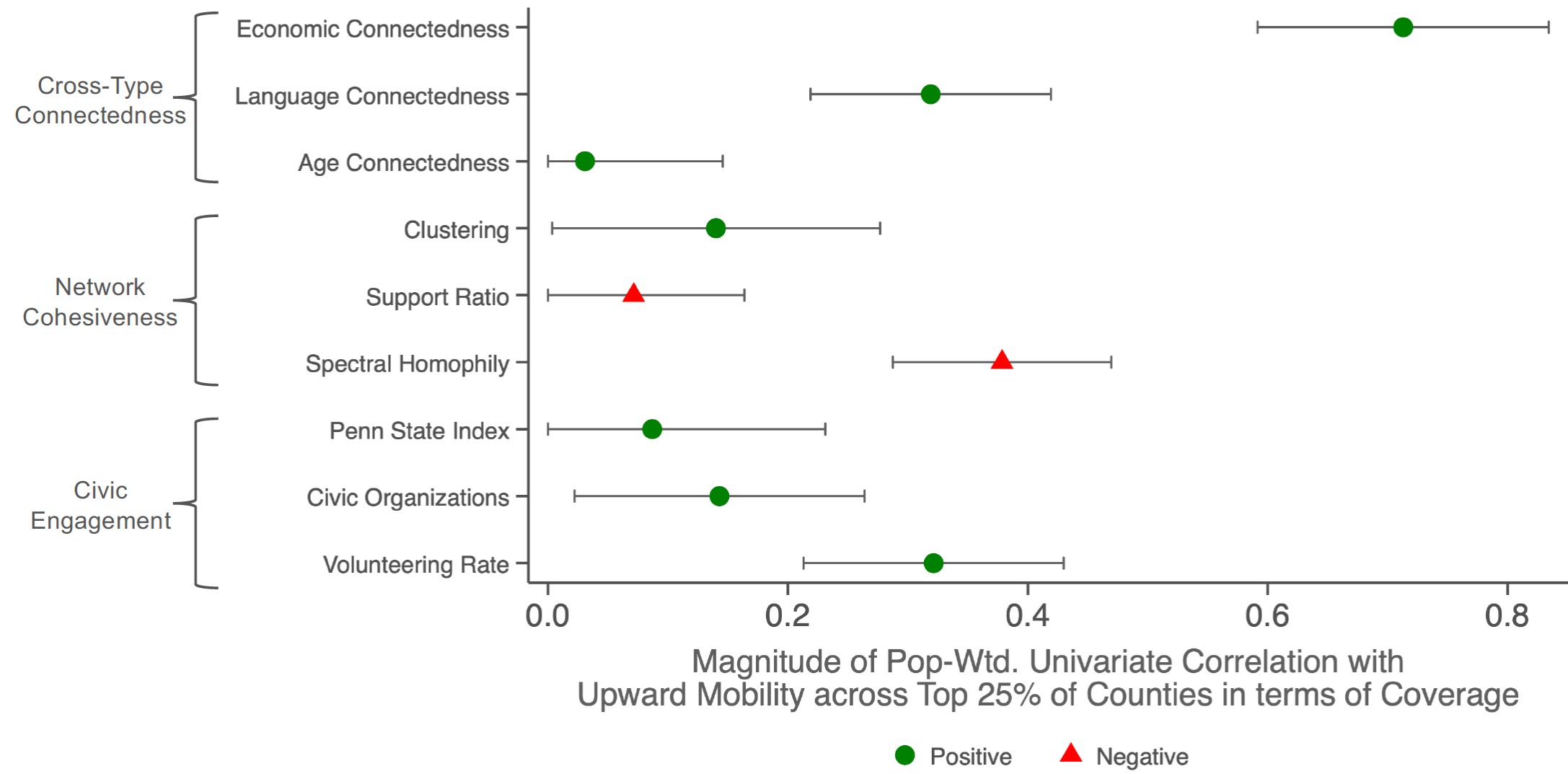
Distribution of ZIP-level Incomes in Facebook Data vs. ACS

Ages 45 to 64



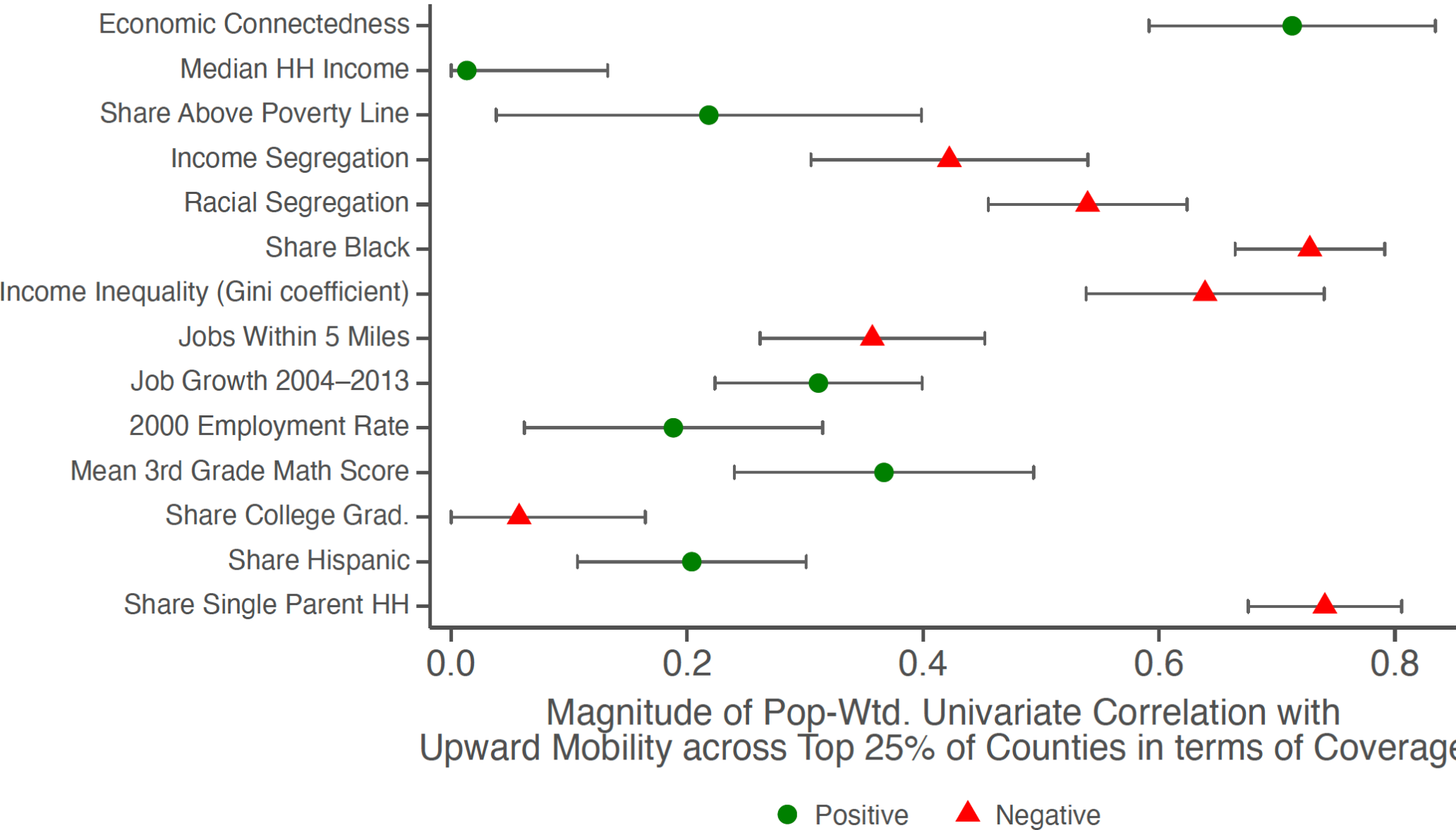
County-level Correlations for Top 25% of Counties by FB Coverage Rates

Social Capital vs. Upward Mobility

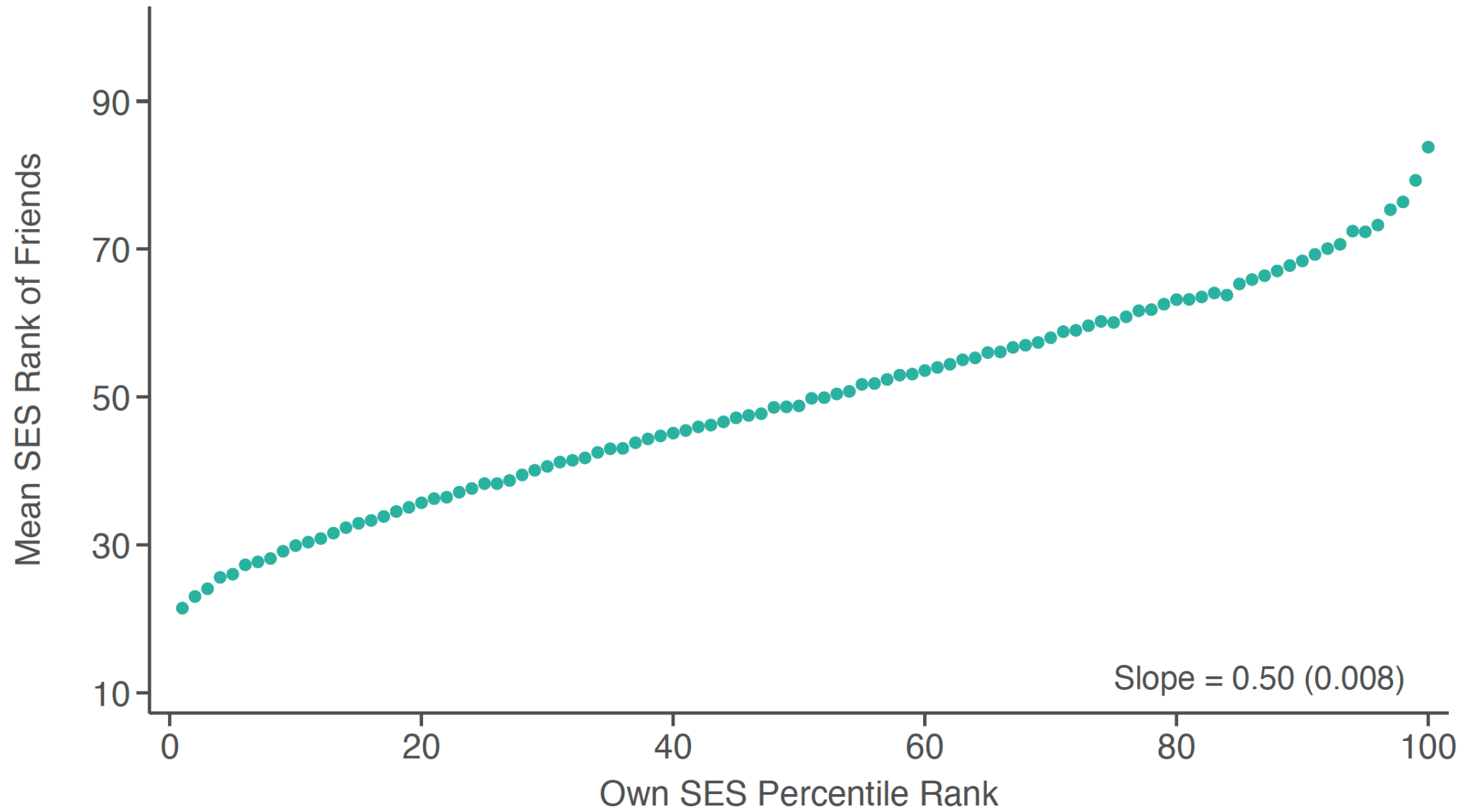


County-level Correlations for Top 25% of Counties by FB Coverage Rates

Neighbourhood Characteristics vs. Upward Mobility

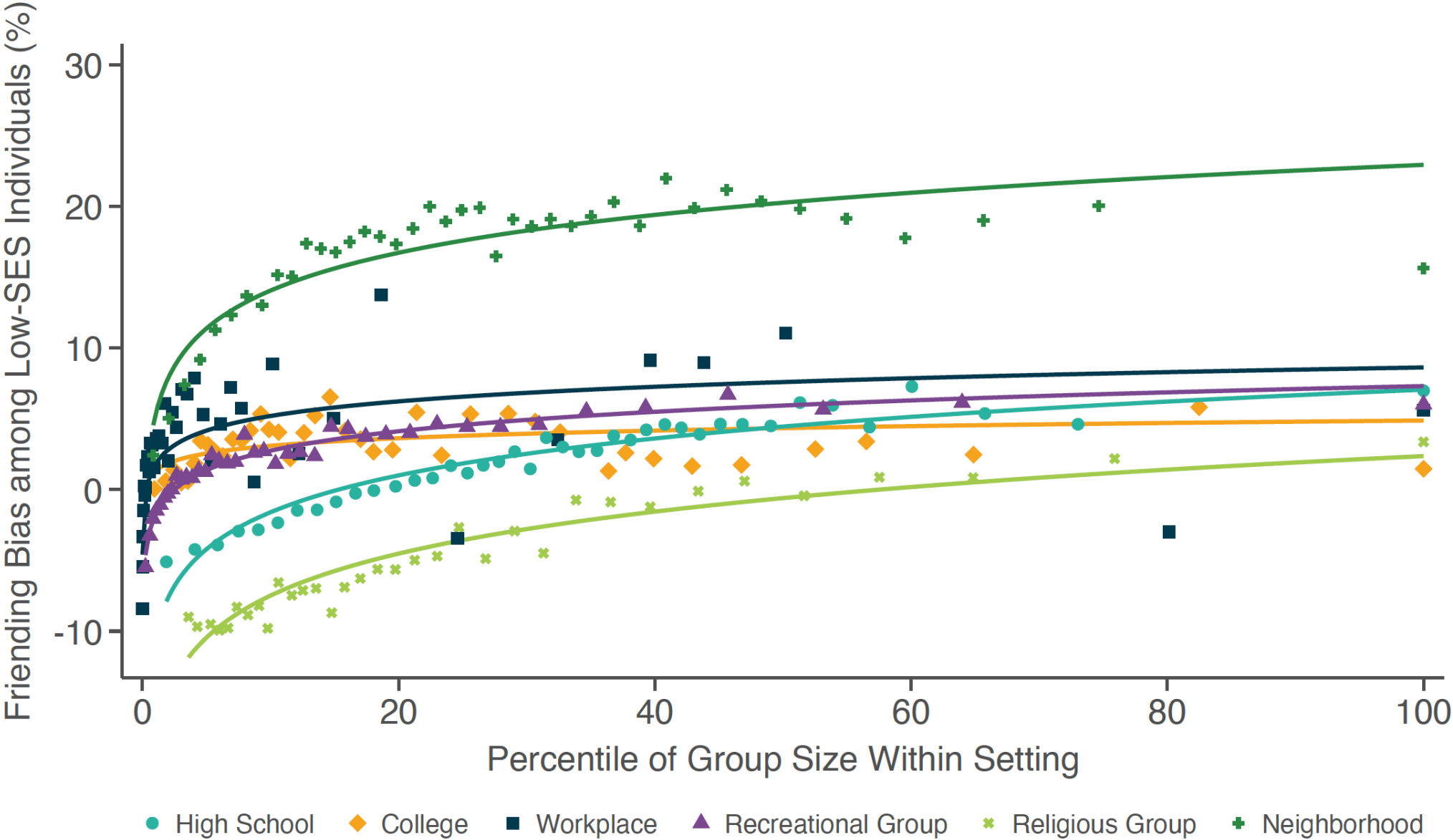


Relationship Between Friends' and Own SES on Instagram



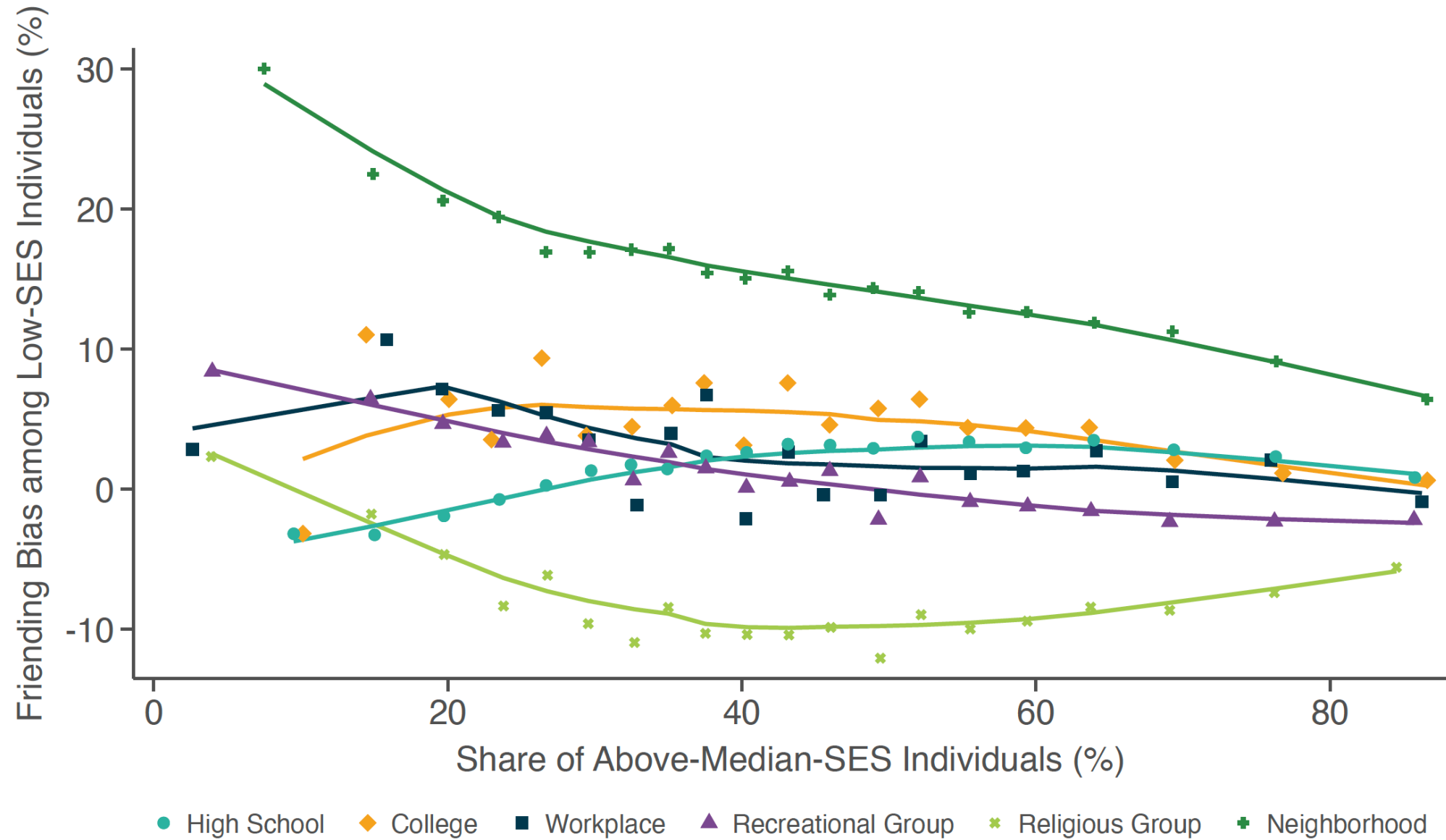
Predictors of Friending Bias across Settings

Friending Bias vs. Group Size



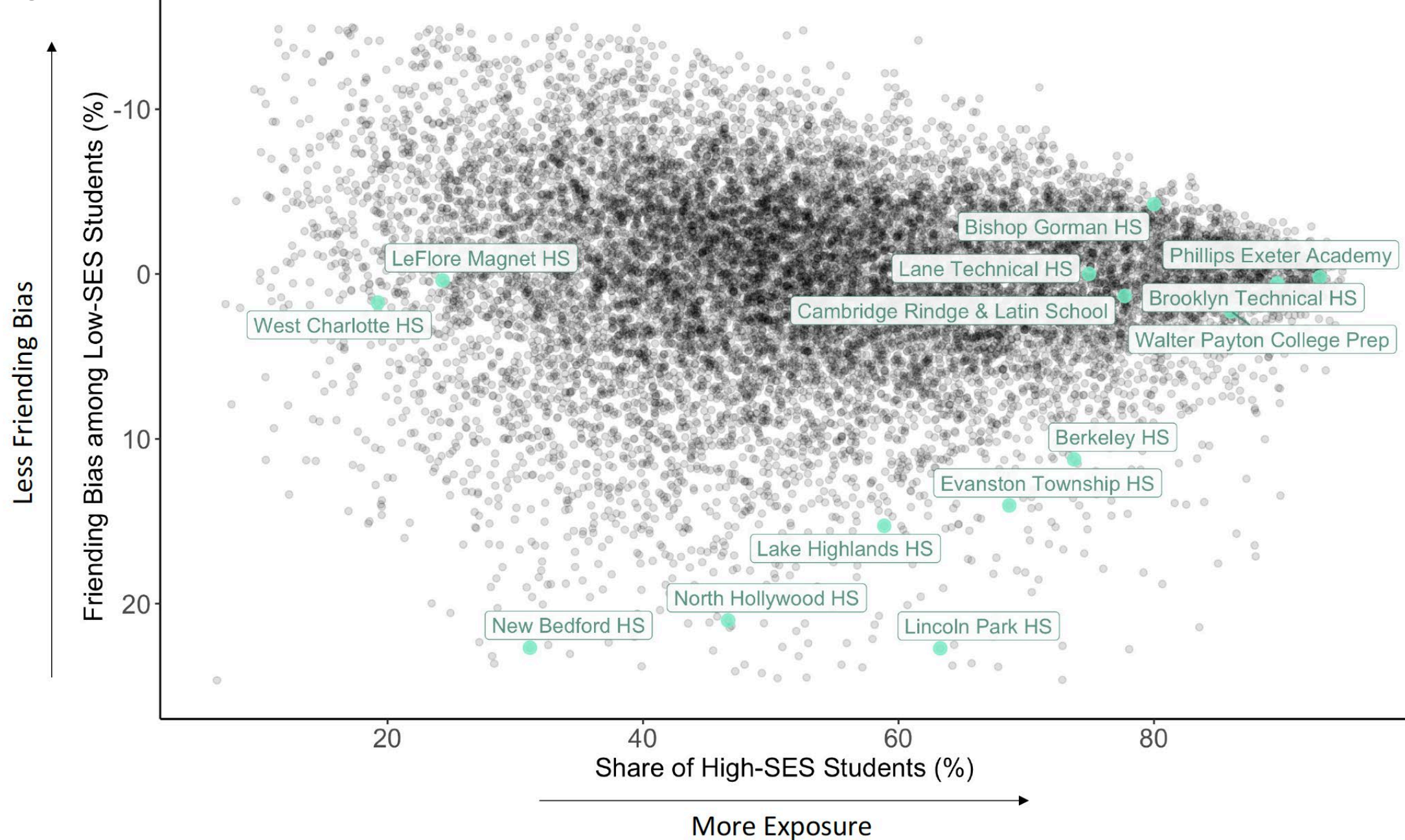
Predictors of Friending Bias across Settings

Friending Bias vs. High-SES Exposure



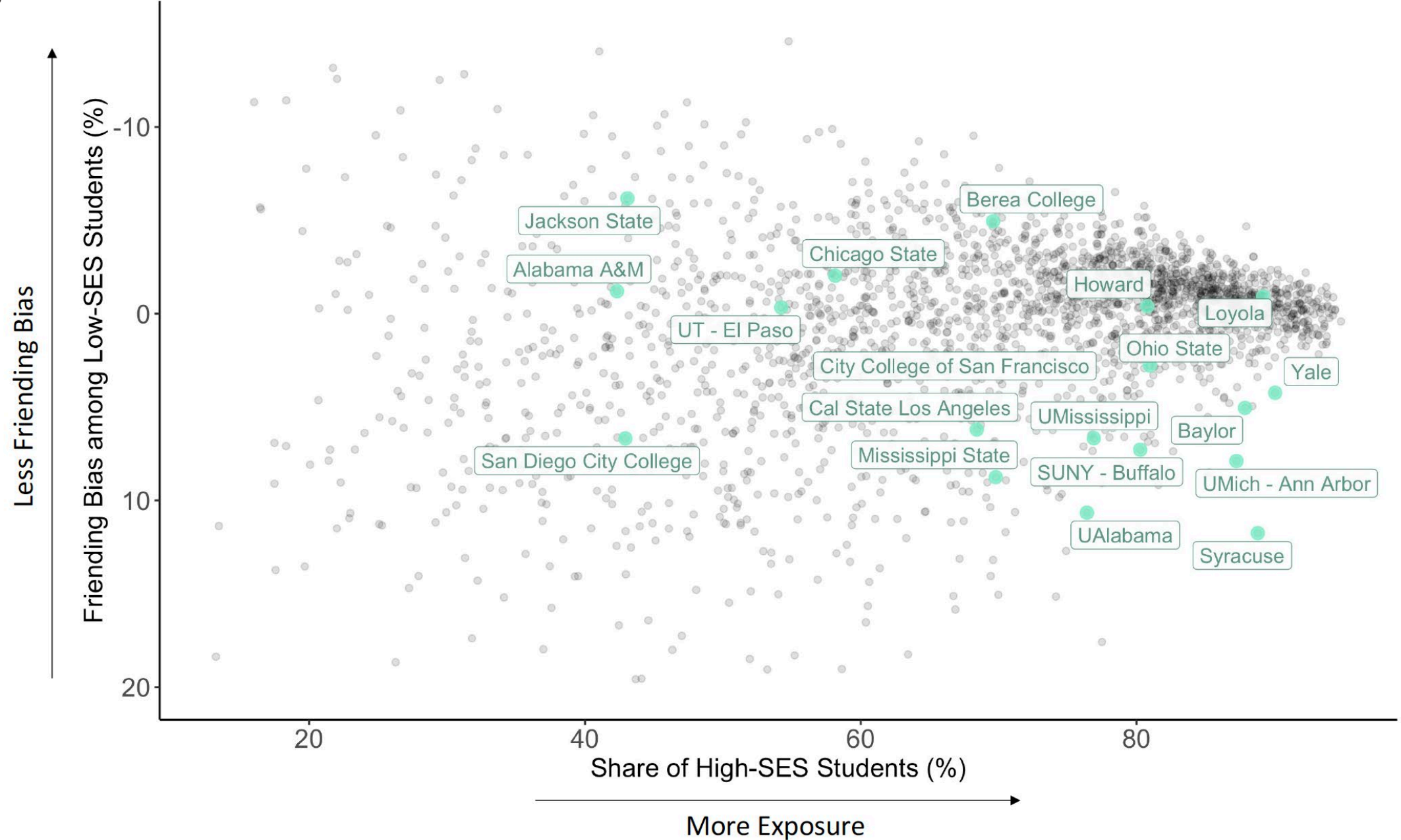
Friending Bias vs. Exposure to High-SES Students, by High School

Among **Low-Own-SES** Students in 1990-2000 Birth Cohorts



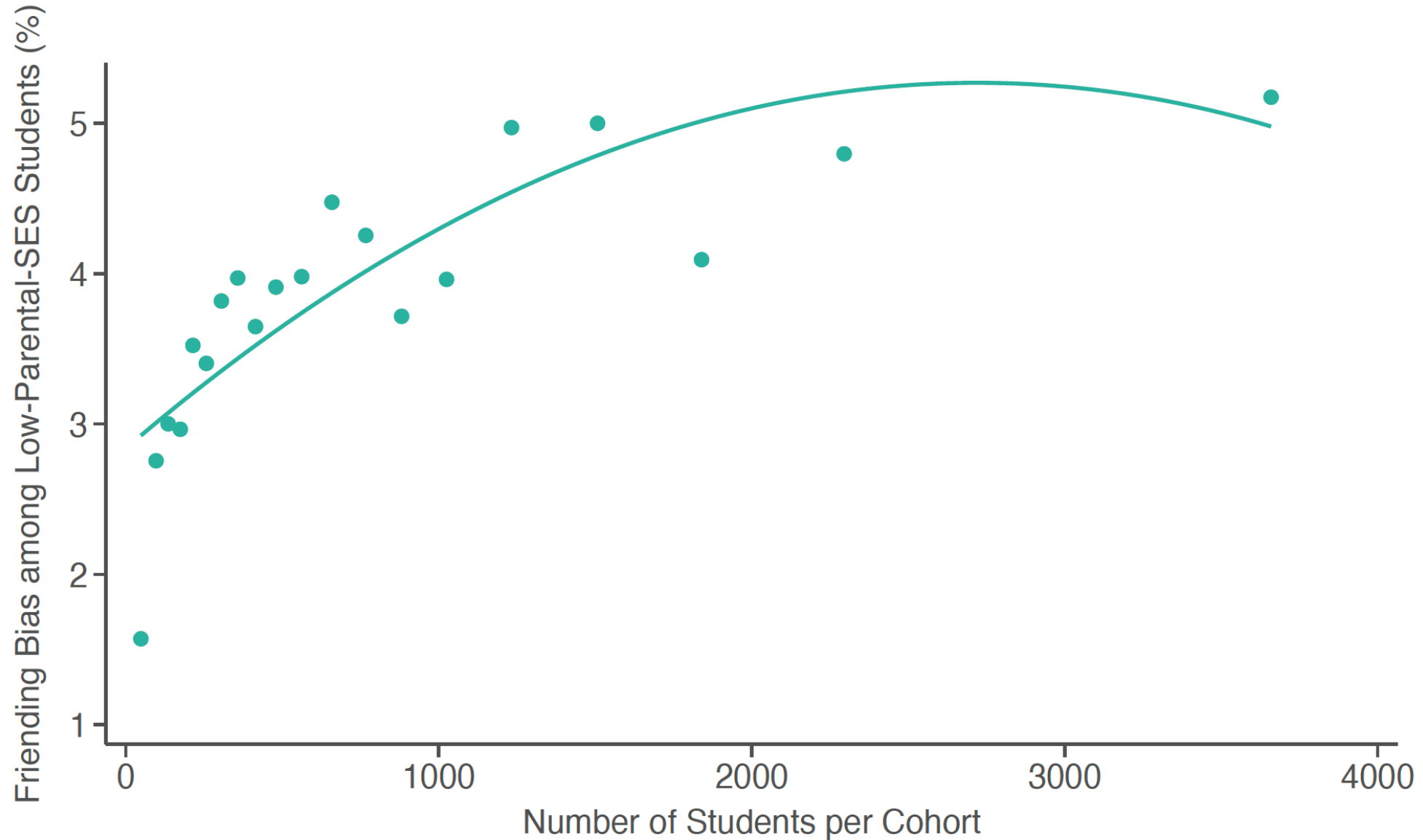
Friending Bias vs. Exposure to High-SES Students, by College

Among **Low-Own-SES** Students in 1990-2000 Birth Cohorts



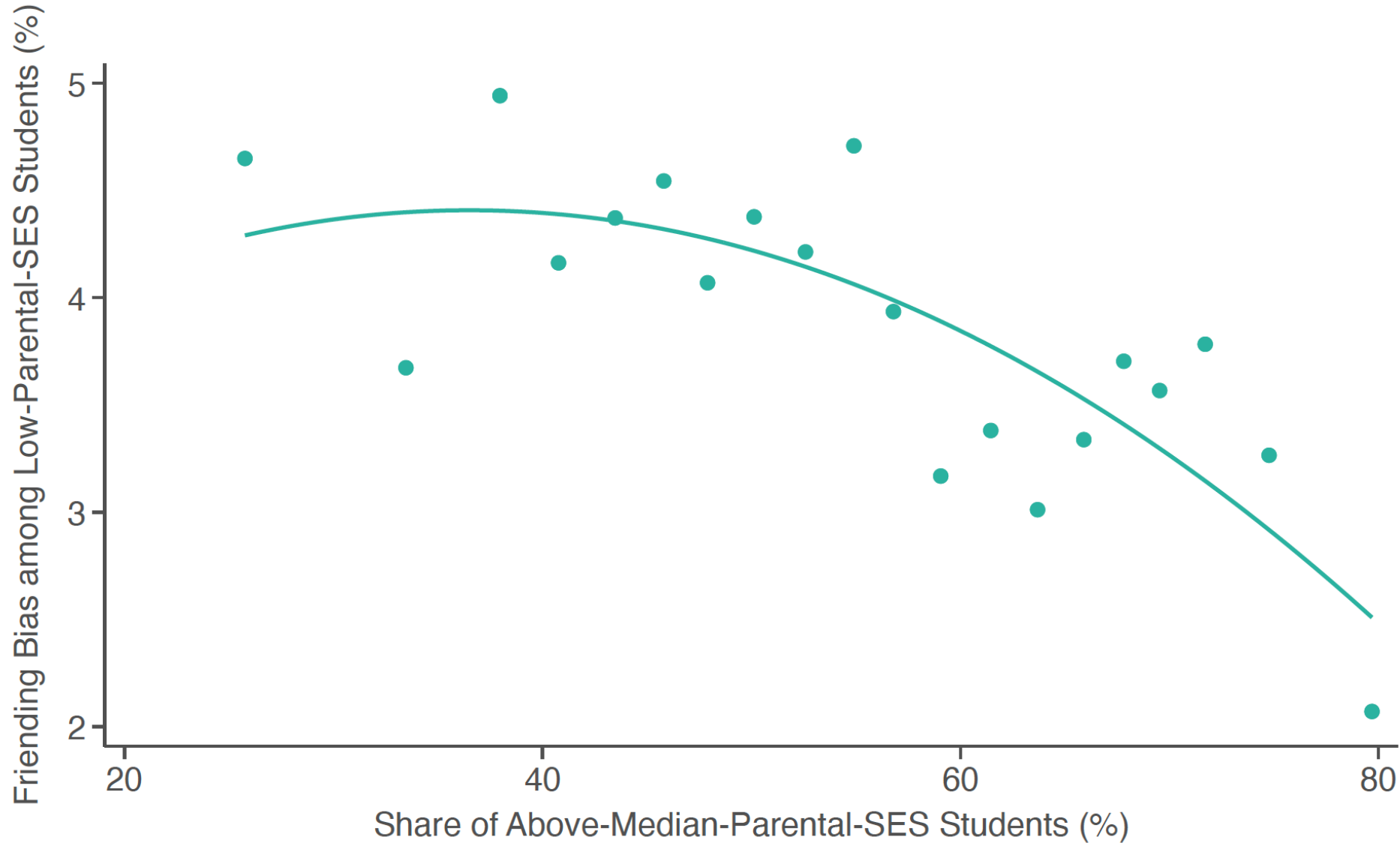
Friending Bias in Colleges vs. School Cohort Size

Bias Measured using Parental SES



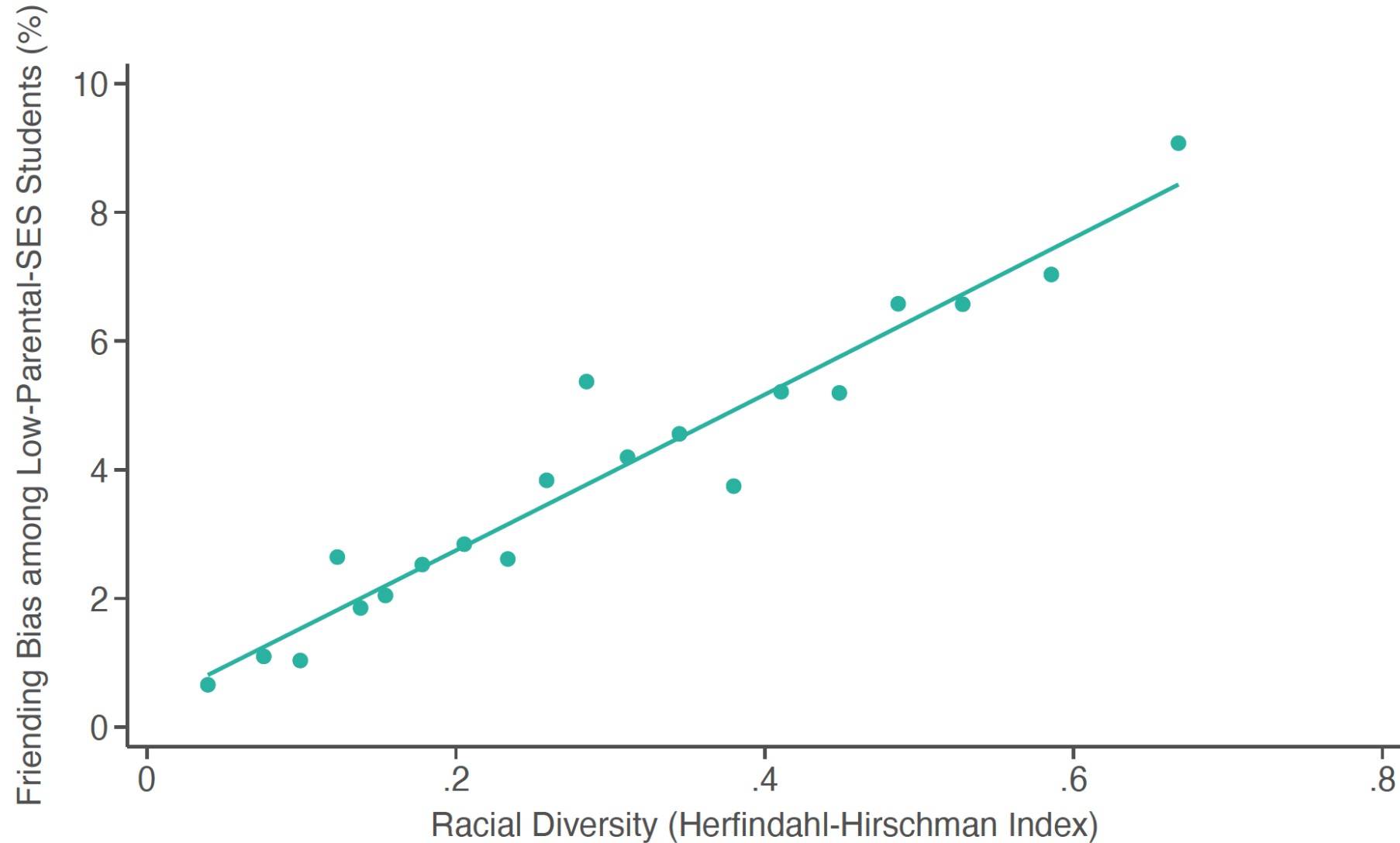
Friending Bias in Colleges vs. Exposure

Bias Measured using Parental SES



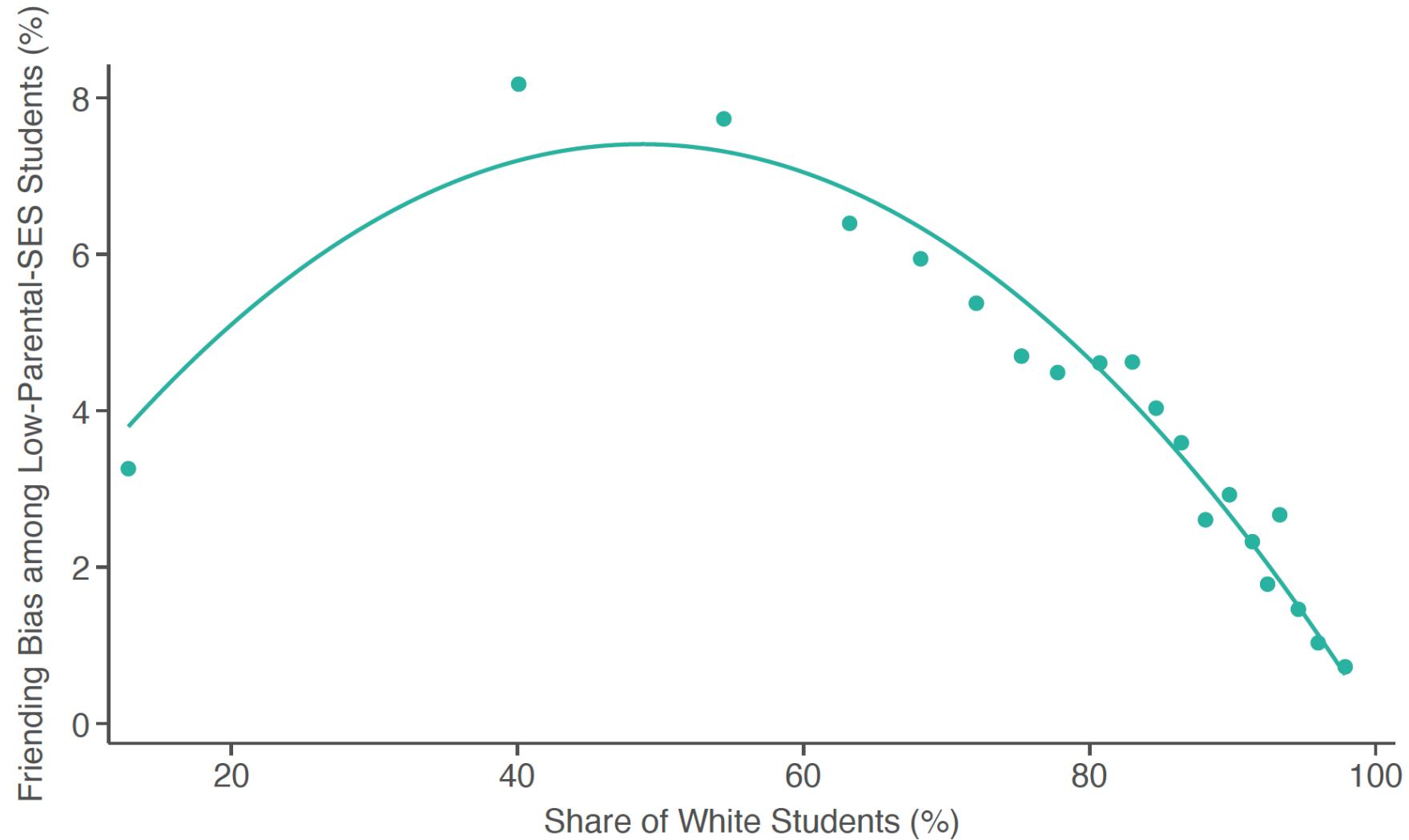
Friending Bias in Colleges vs. Racial Diversity

Bias Measured using Parental SES



Friending Bias in Colleges vs. Share White

Bias Measured using Parental SES



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

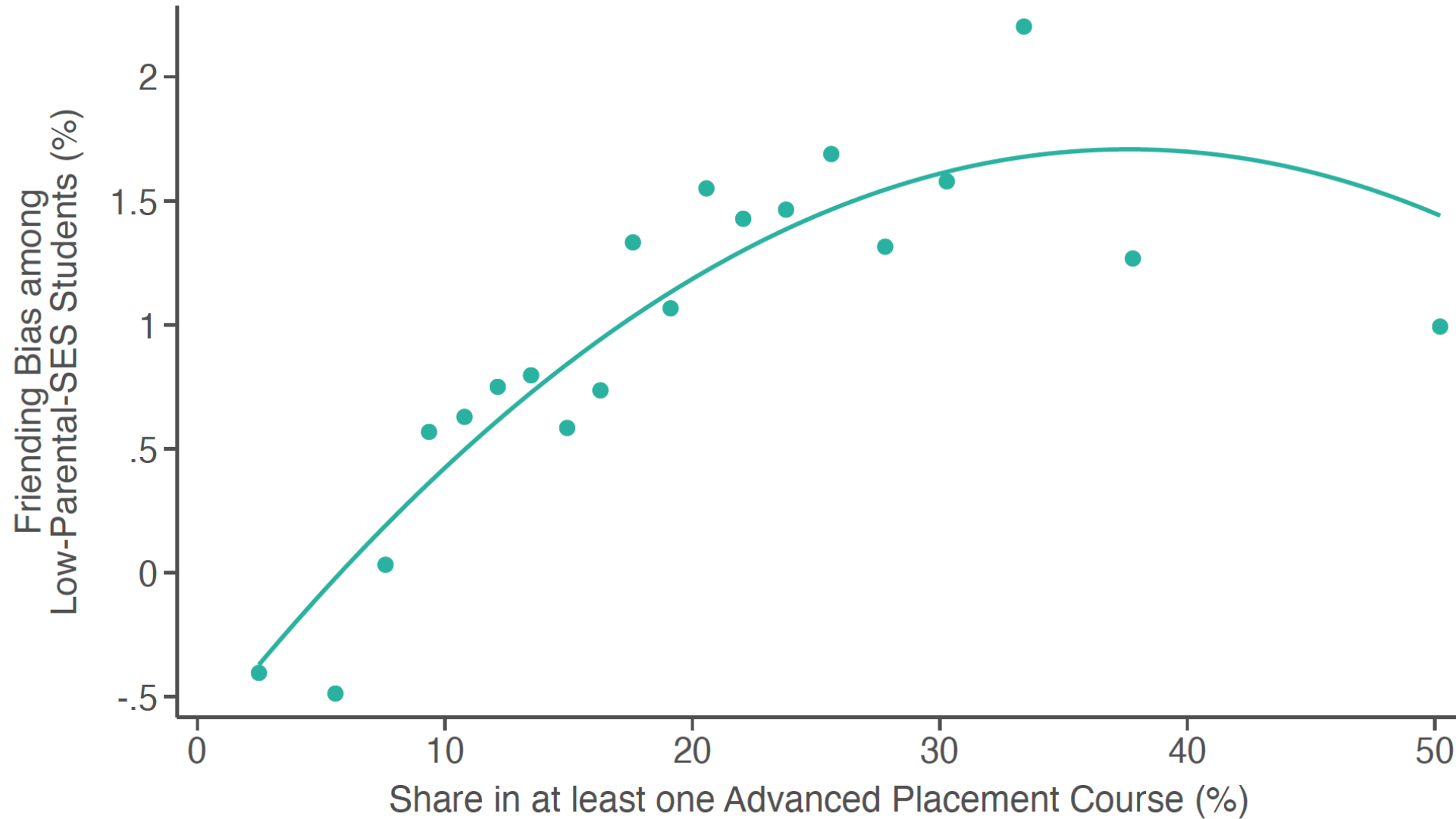
BARR: Interracial friendships that had been building and blossoming, even though it was more difficult, beginning in the elementary schools, and then really flourishing in the middle school, just sort of come to an abrupt halt.

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.

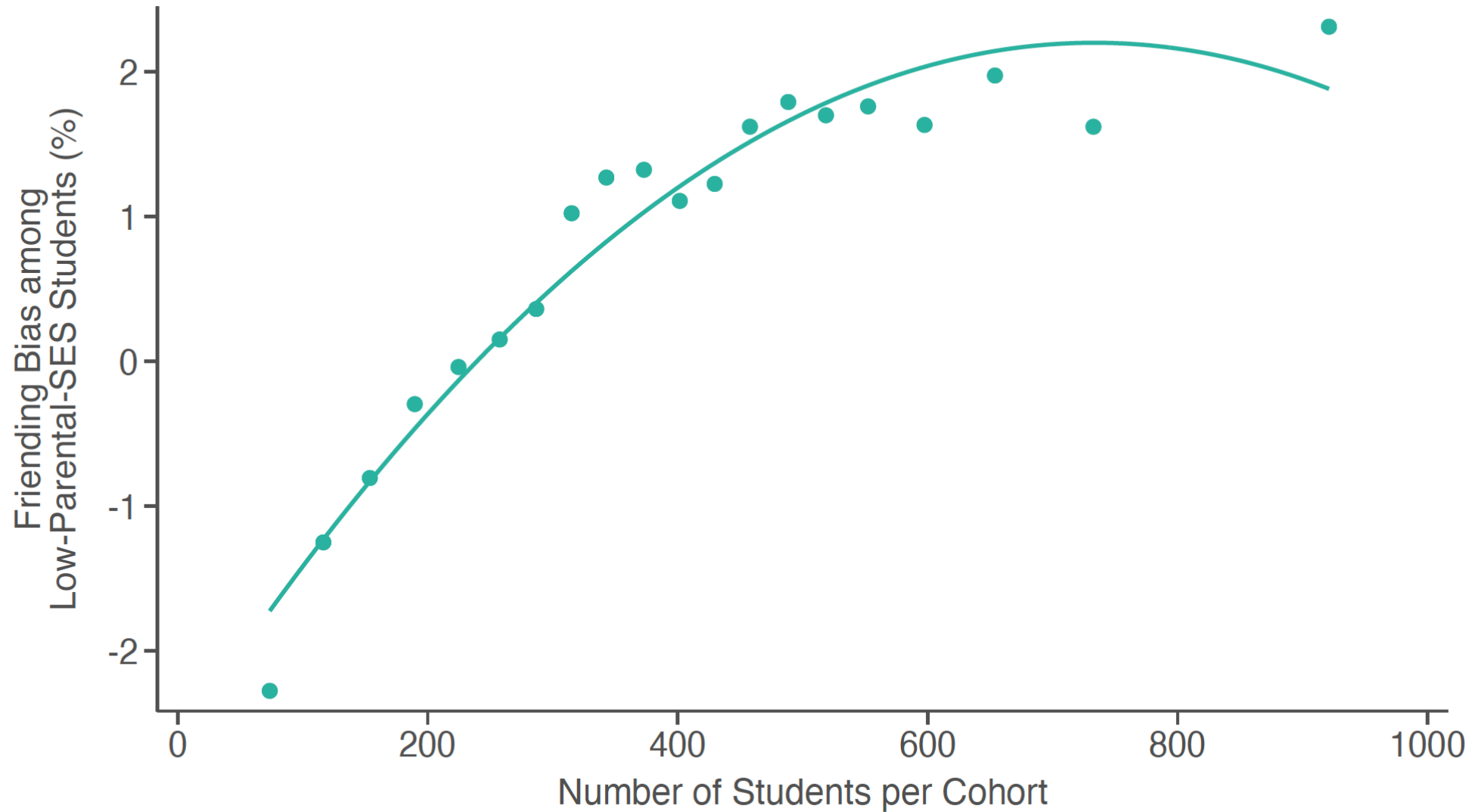
Friending Bias in High Schools vs. AP Enrollment

Bias Measured using Parental SES



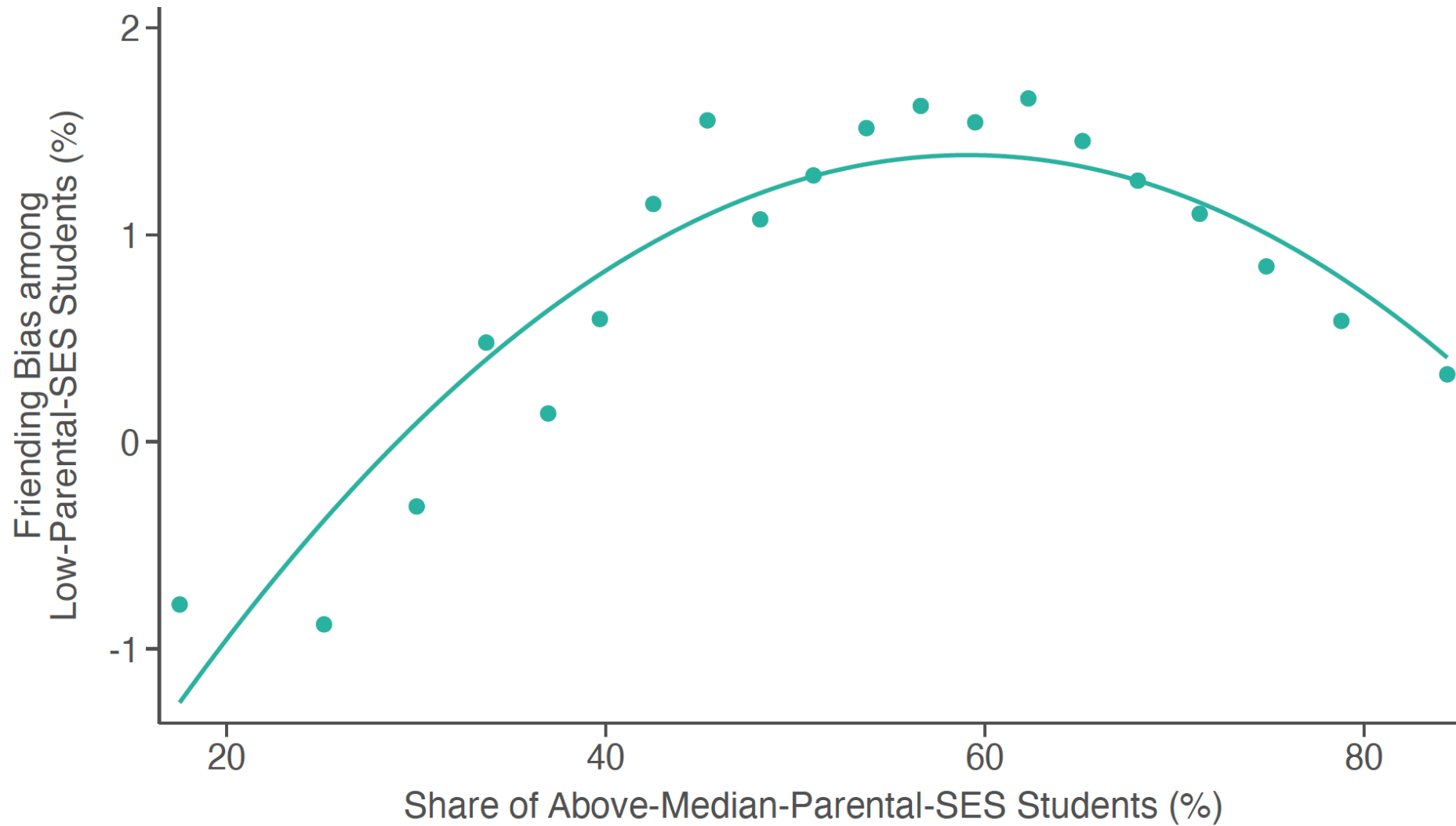
Friending Bias in High Schools vs. School Size

Bias Measured using Parental SES



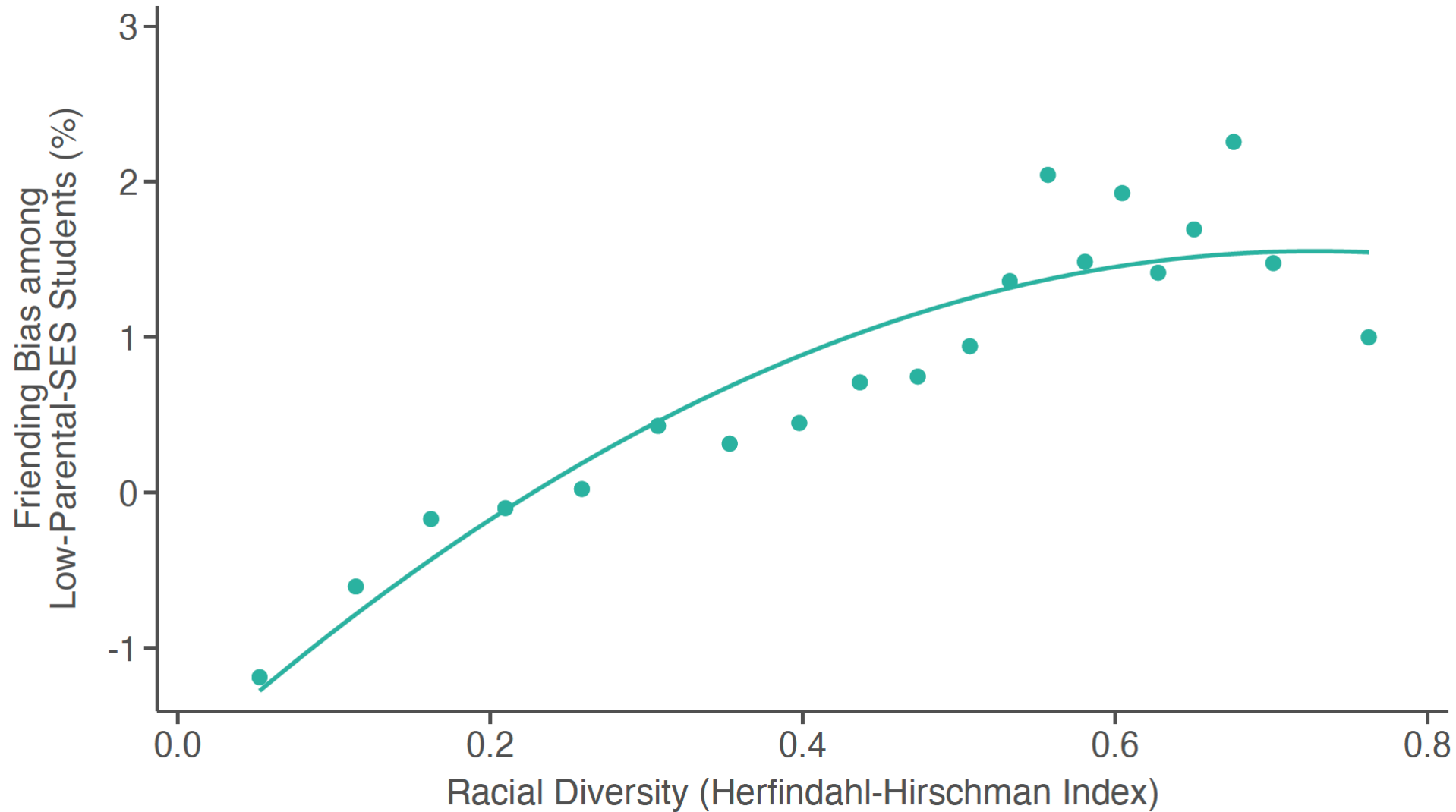
Friending Bias in High Schools vs. Socioeconomic Diversity

Bias Measured using Parental SES



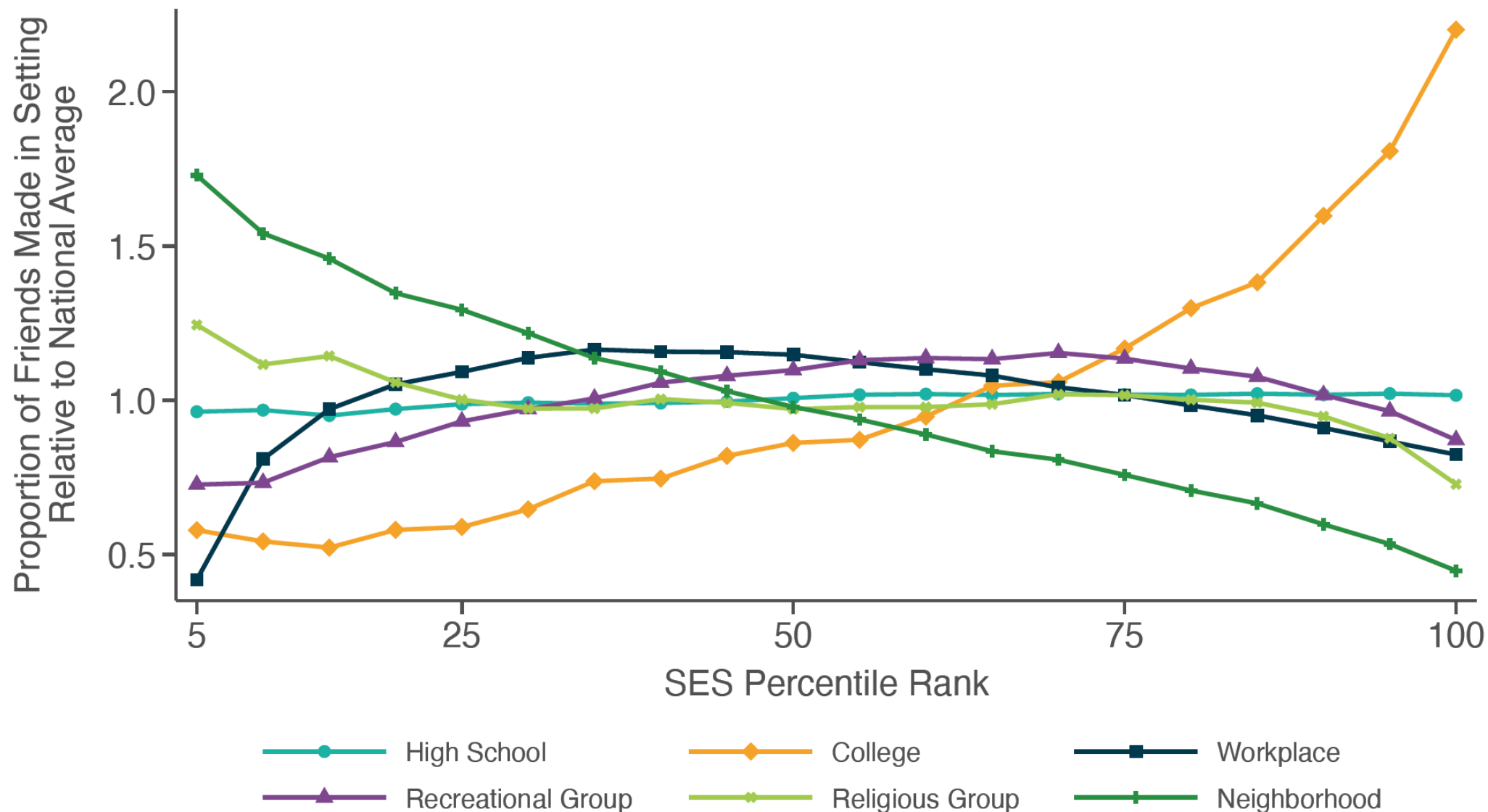
Friending Bias in High Schools vs. Racial Diversity

Bias Measured using Parental SES



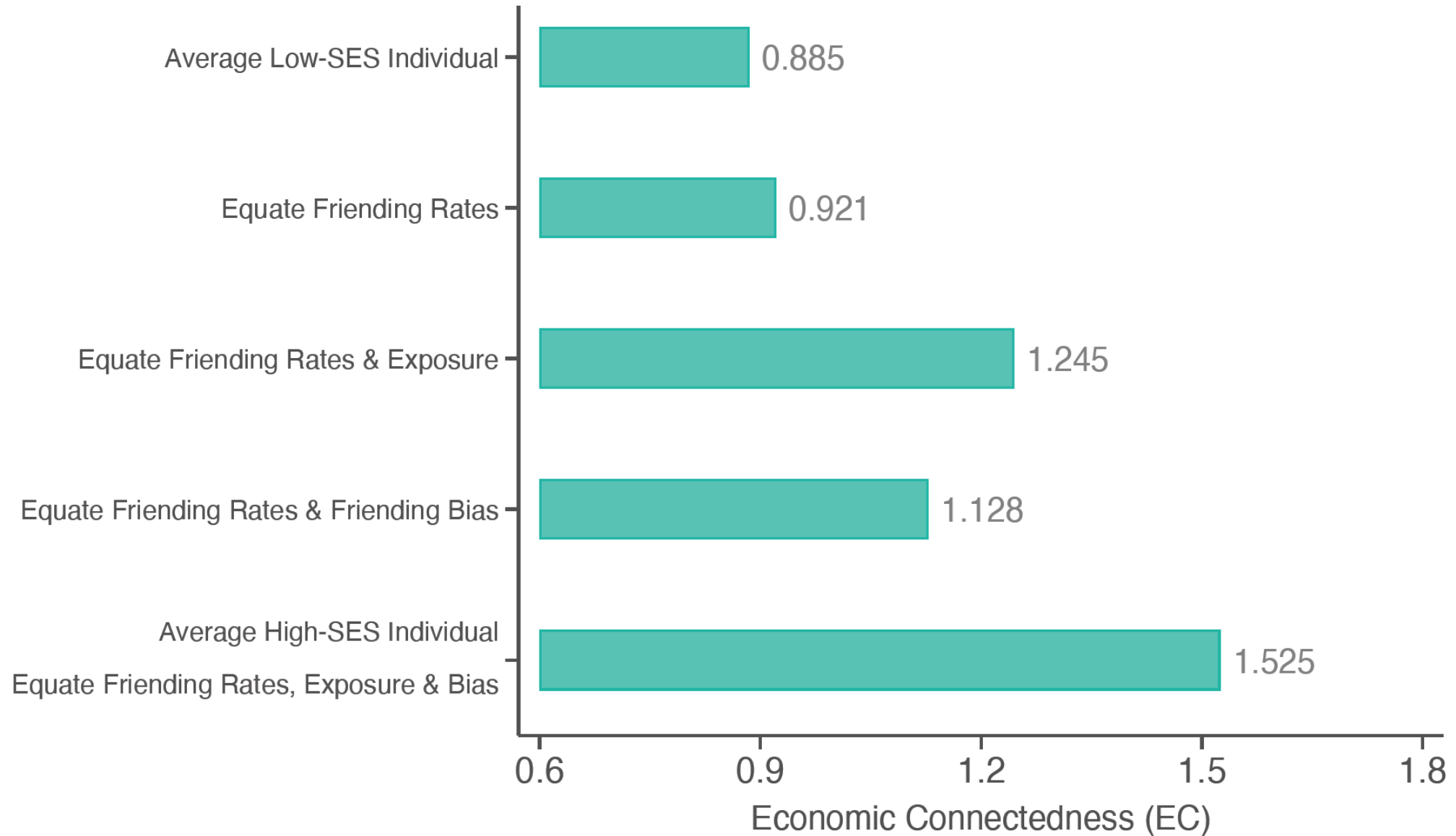
Friending Rates by Setting

Correcting for Underreporting of Group Memberships



Decomposing EC

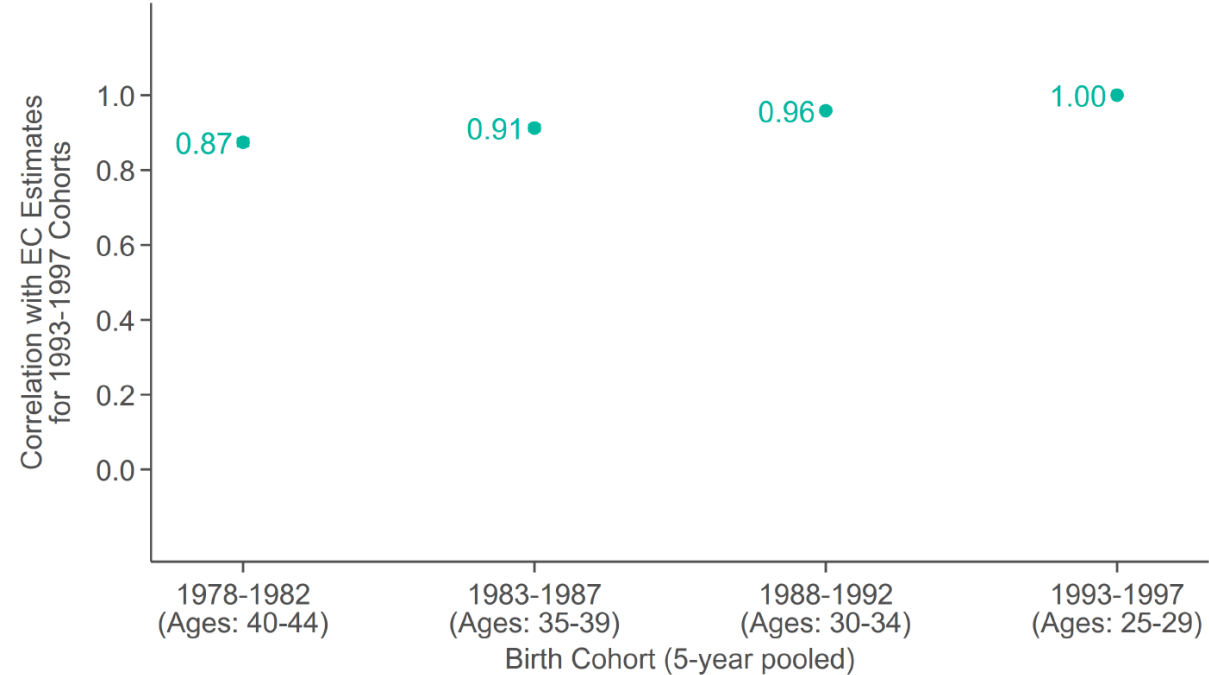
Correcting for Underreporting of Group Memberships



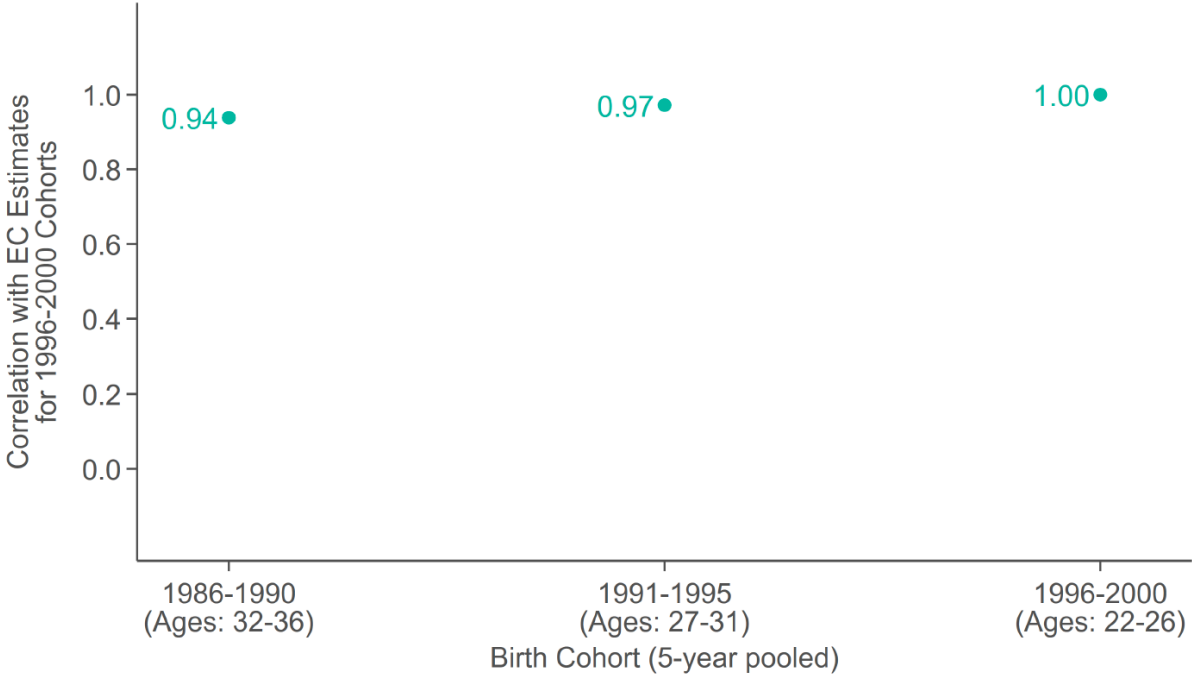
Autocorrelation of EC by Birth Cohort

Across High Schools

A. High Schools: Own SES



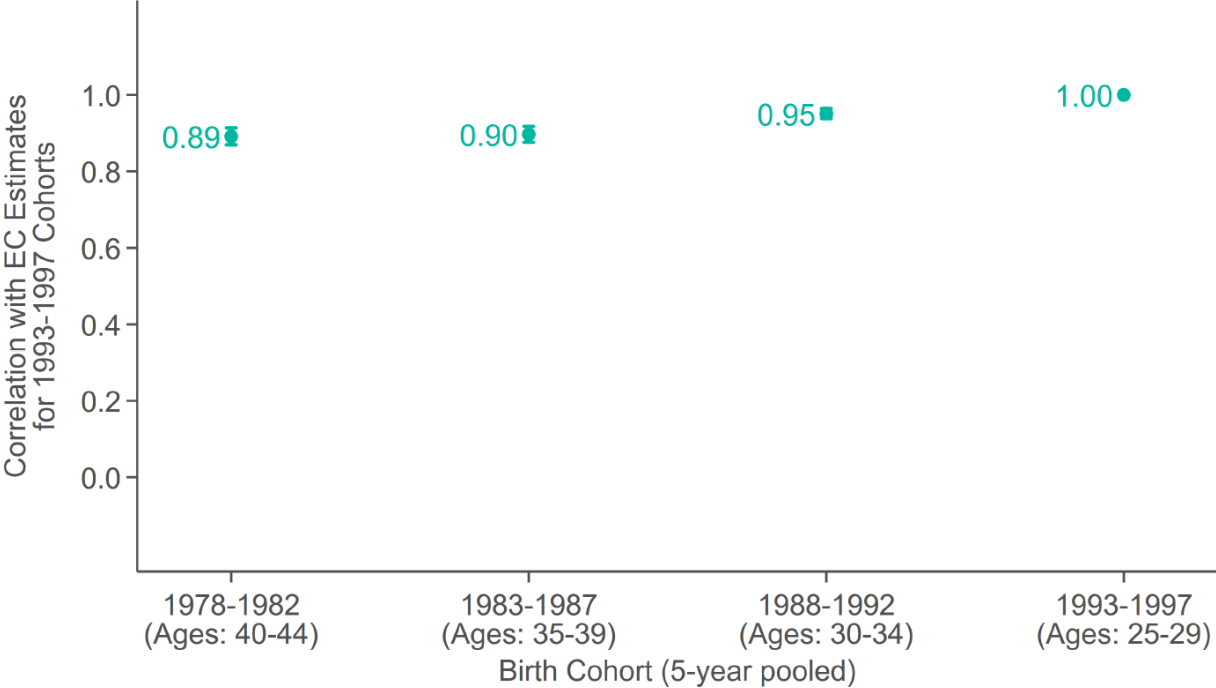
B. High Schools: Parental SES



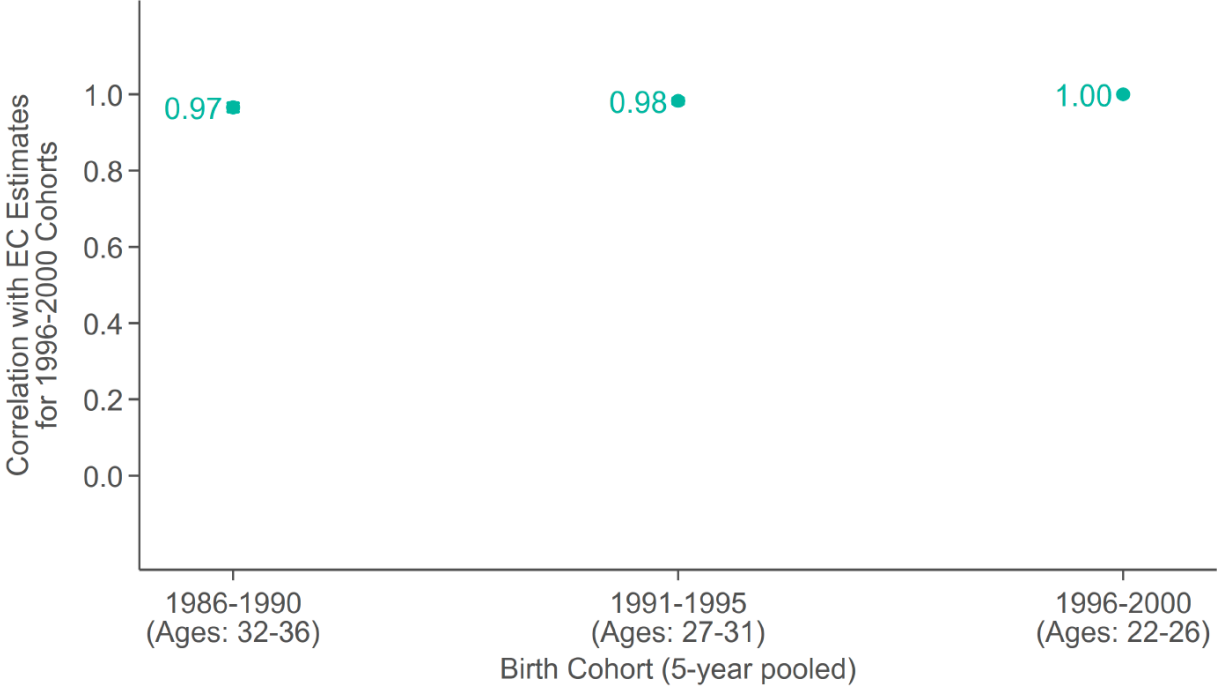
Autocorrelation of EC by Birth Cohort

Across Colleges

C. Colleges: Own SES



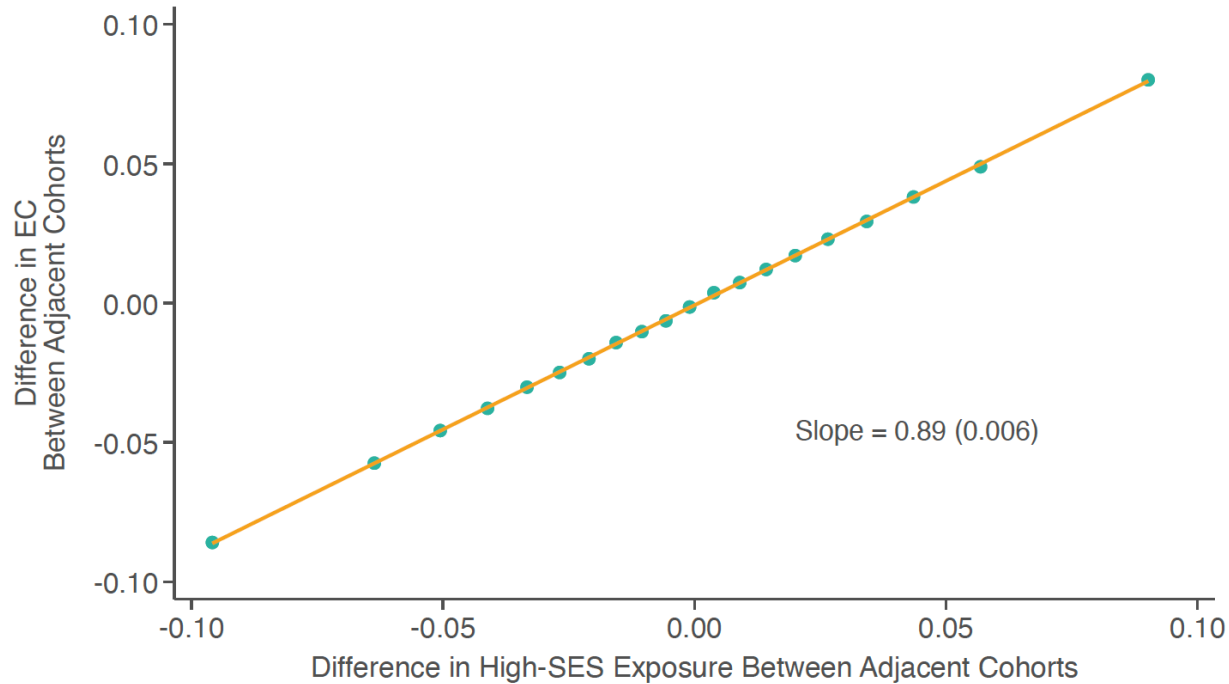
D. Colleges: Parental SES



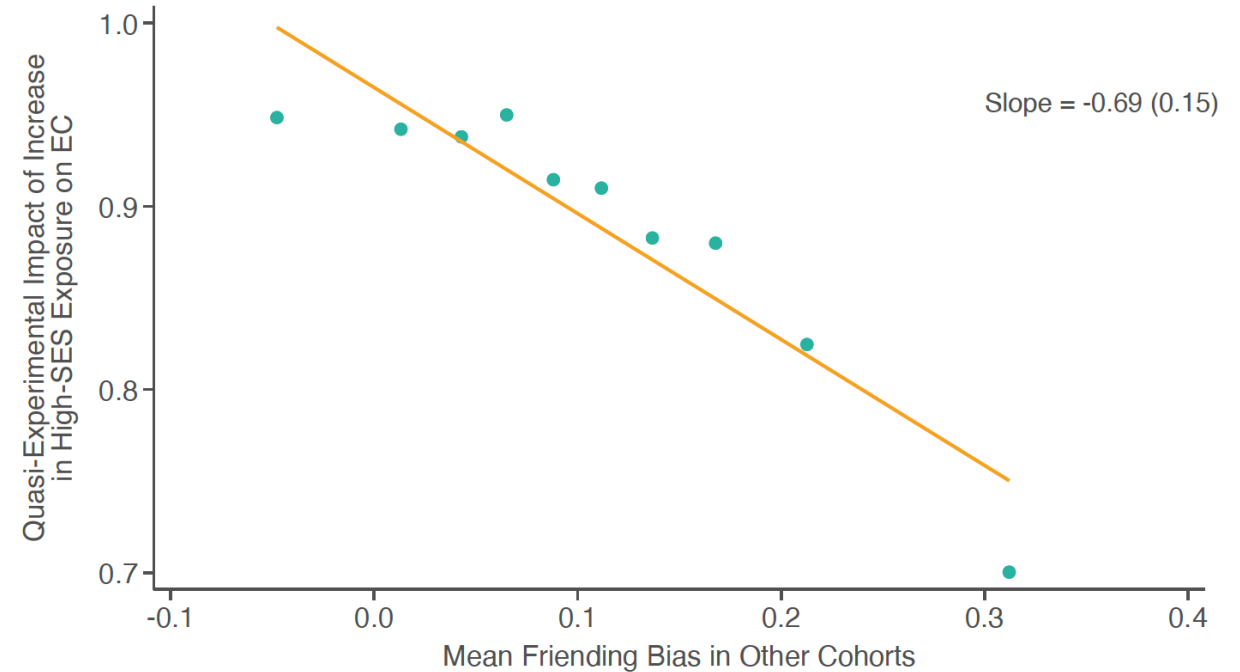
Causal Effects of Changes in Socioeconomic Integration on Economic Connectedness in High Schools: Sensitivity Analysis

Using First Differences

A. Cohort-Level Changes in Connectedness vs. Changes in Share of High-SES Students, Using First-Differences



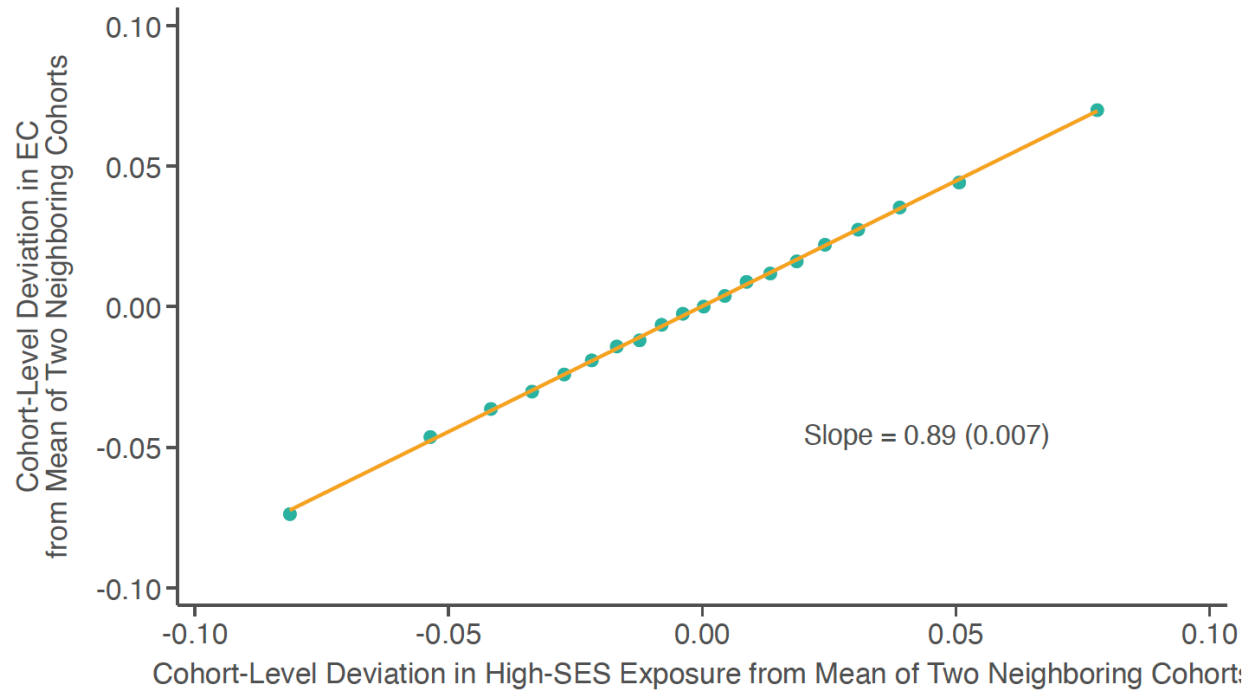
B. Causal Impact of High-SES Share on Connectedness by Level of Friending Bias, Using First-Differences



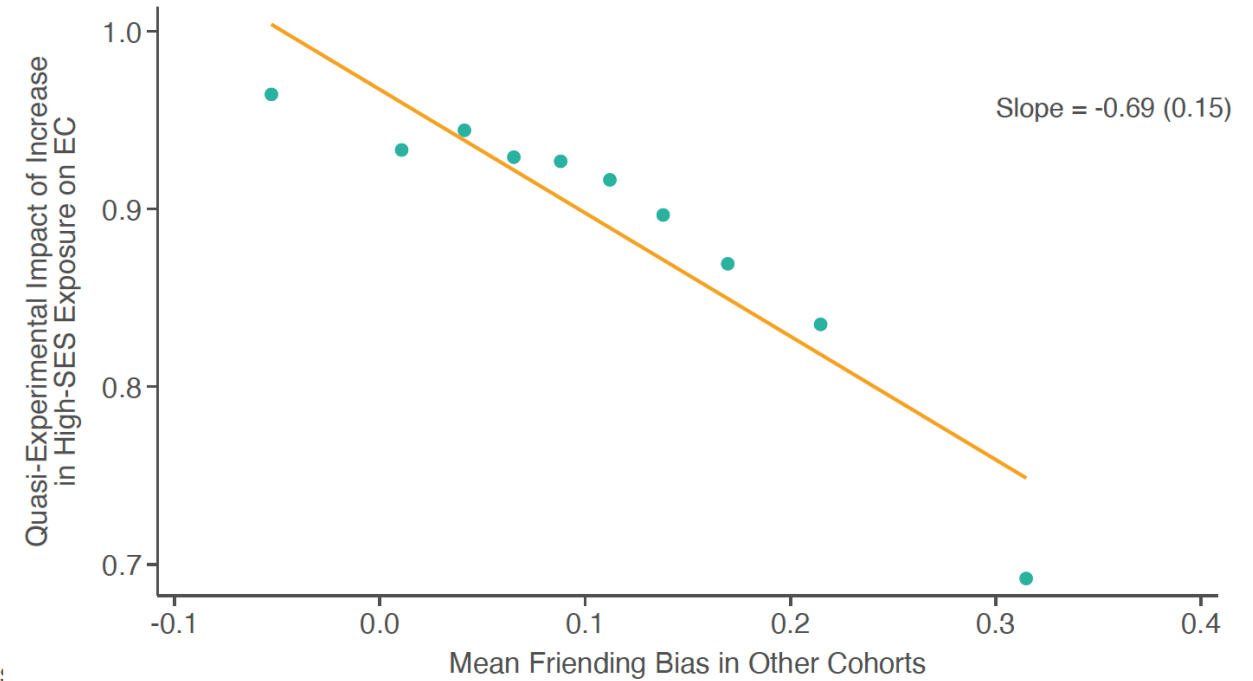
Causal Effects of Changes in Socioeconomic Integration on Economic Connectedness in High Schools: Sensitivity Analysis

Using Neighboring Cohorts

C. Cohort-Level Changes in Connectedness vs. Changes in Share of High-SES Students, Using Neighboring Cohorts



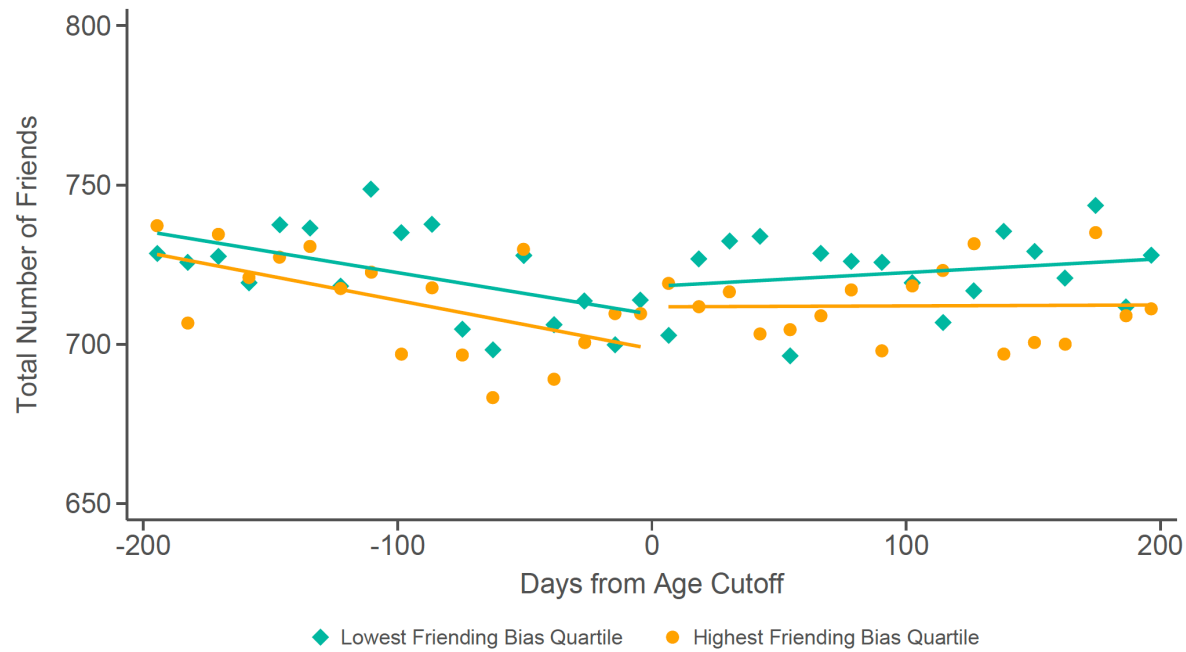
D. Causal Impact of High-SES Share on Connectedness by Level of Friending Bias, Using Neighboring Cohorts



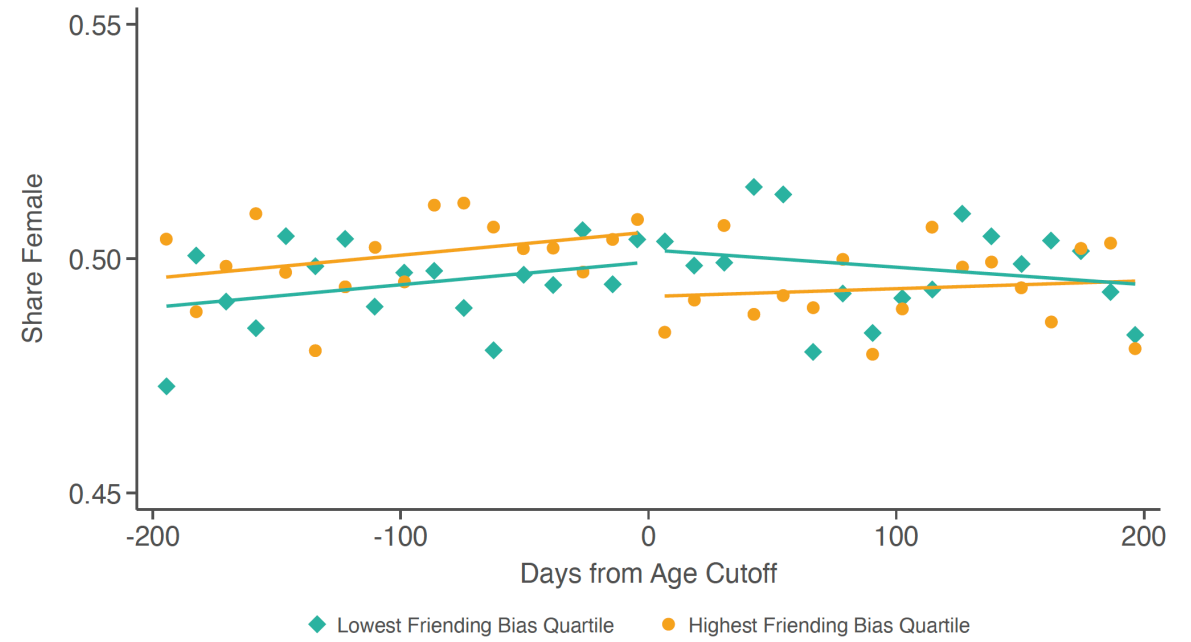
Balance Tests for RD Design

Number of Friends and Share Female

A. Number of Friends

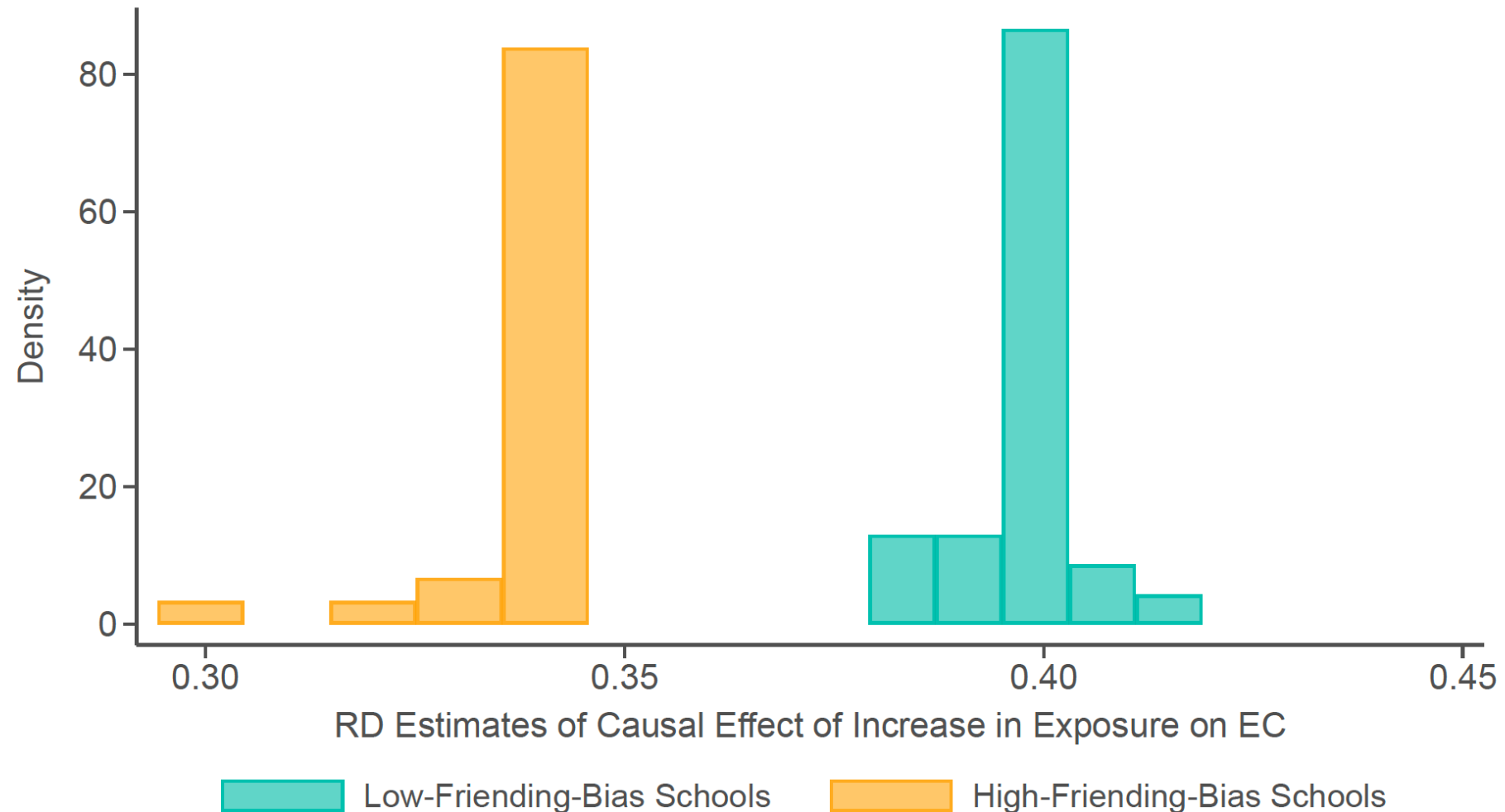


B. Share Female



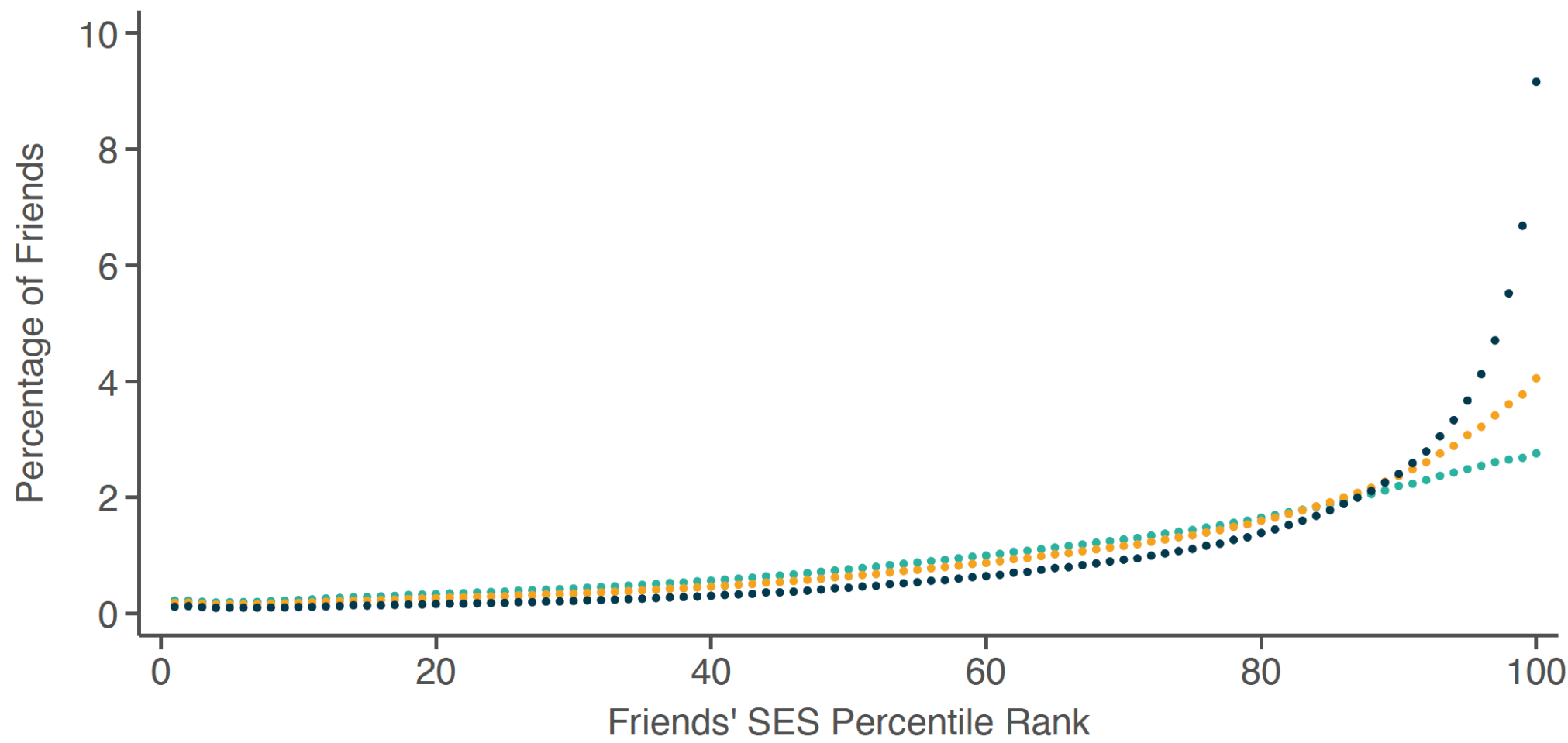
Causal Effects on Exposure on EC

Histogram of RD Estimates, Varying Bandwidth Around School Entry Cutoff



Proportion of Friendships by SES Percentile Rank

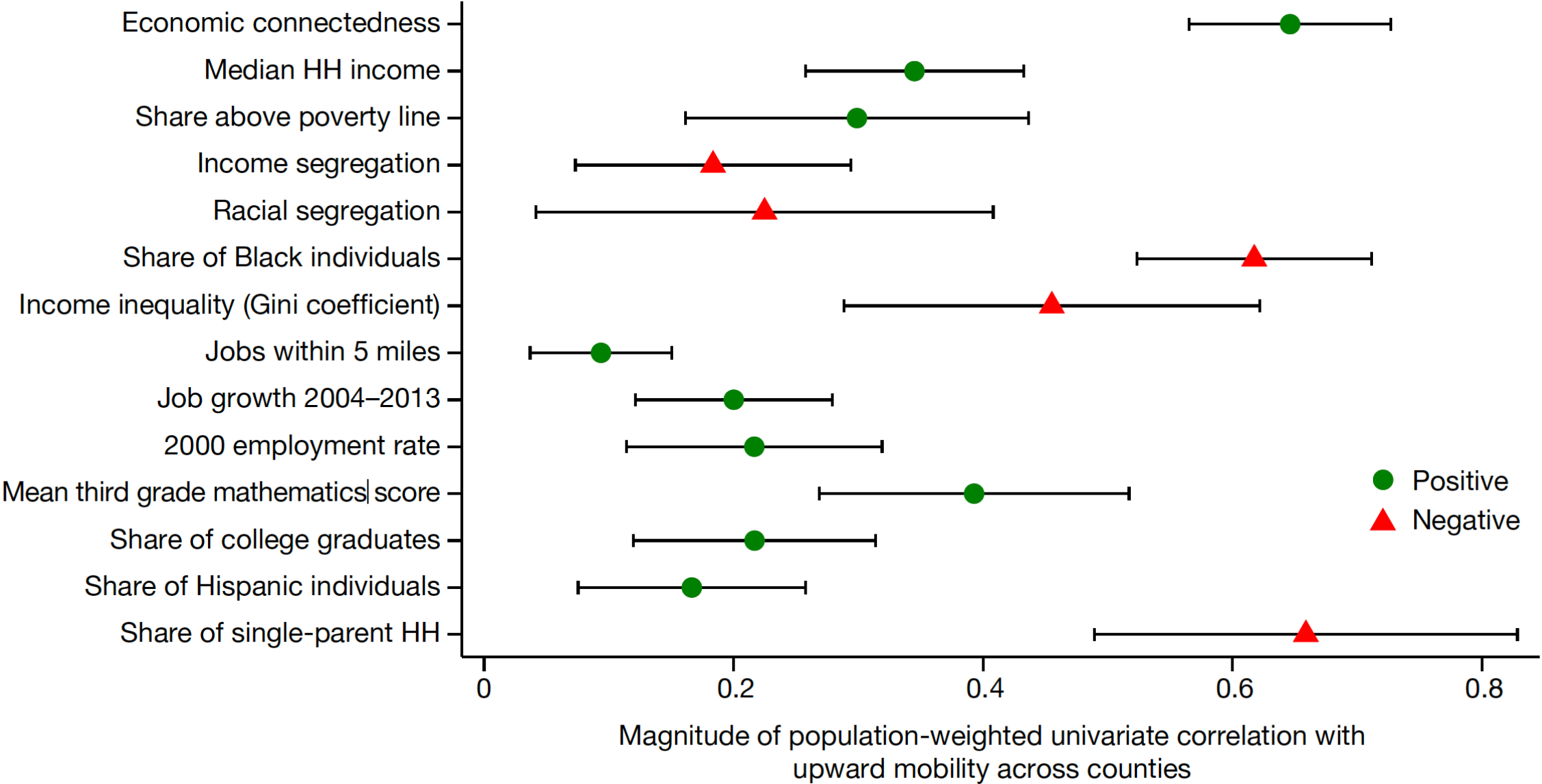
Proportion of Friends by SES Percentile Rank for Individuals in the Upper Tail



- Individuals at 90th SES percentile
- Individuals at 95th SES percentile
- Individuals at 100th SES percentile

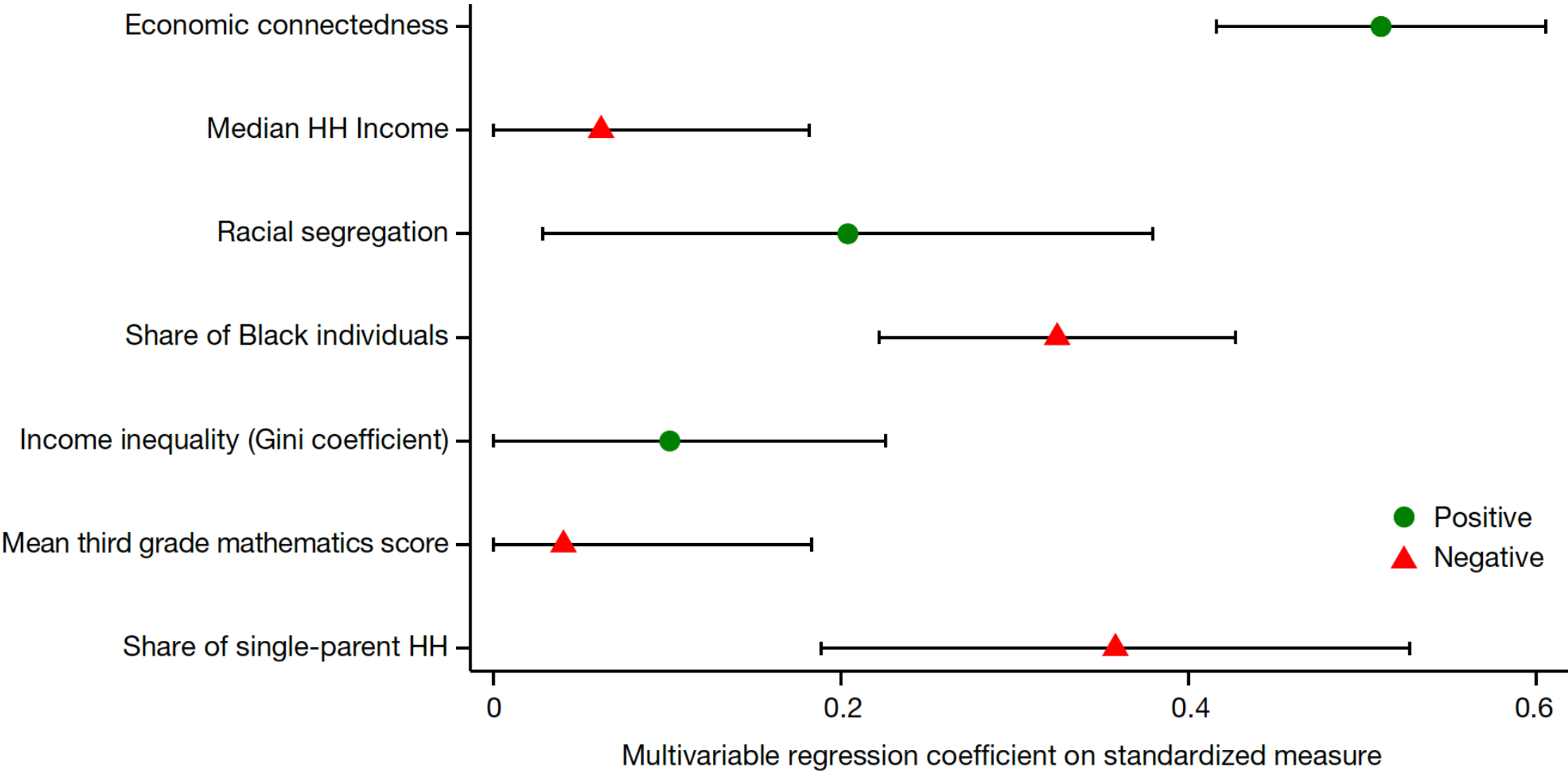
Correlations between Upward Mobility and Neighborhood Characteristics

County-level Univariate Correlations



Correlations between Upward Mobility and Neighborhood Characteristics

County-level Multivariable Regression Coefficients



EC By Setting

Low-SES vs. High-SES People



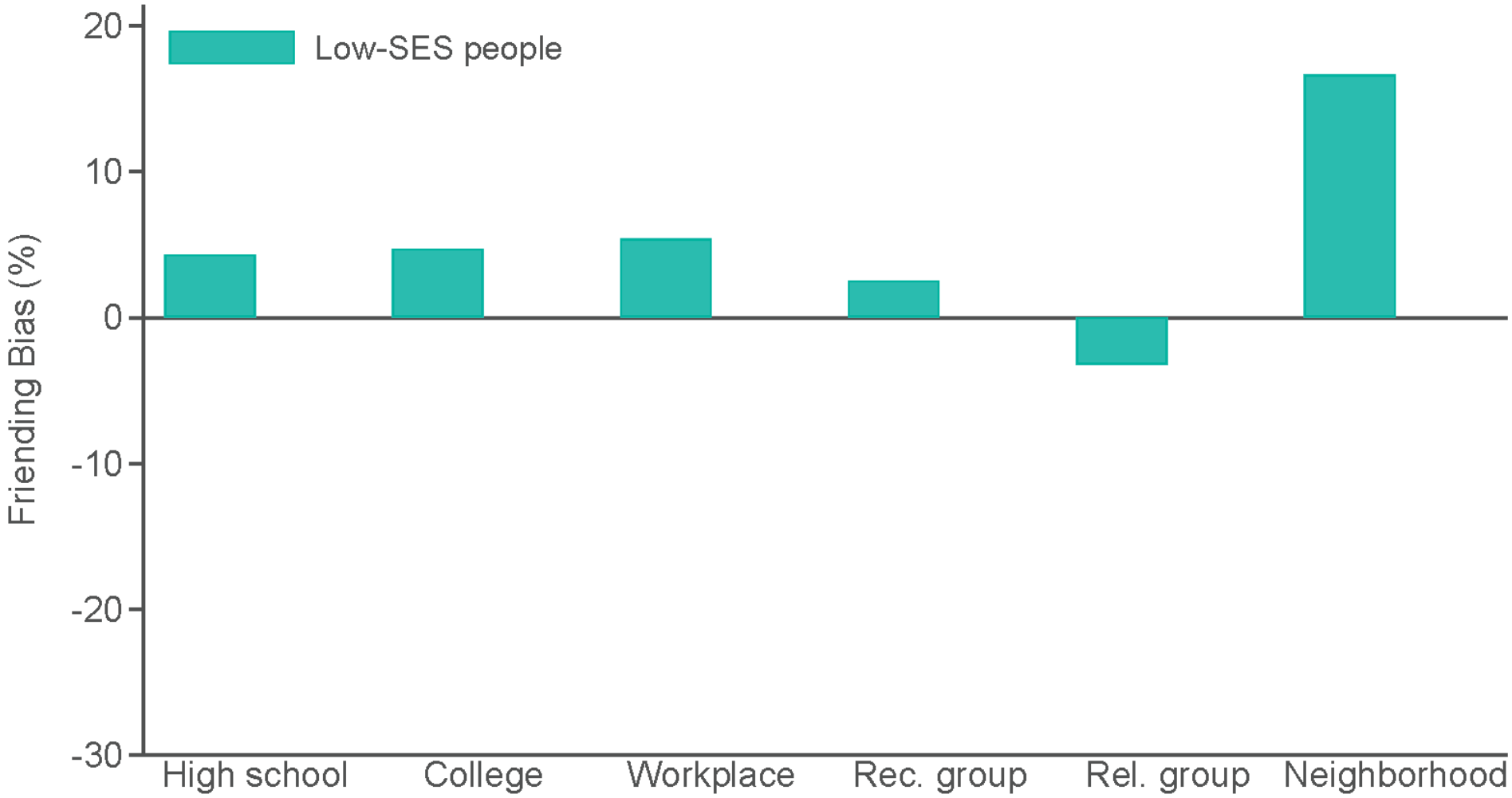
Exposure By Setting

Low-SES vs. High-SES People



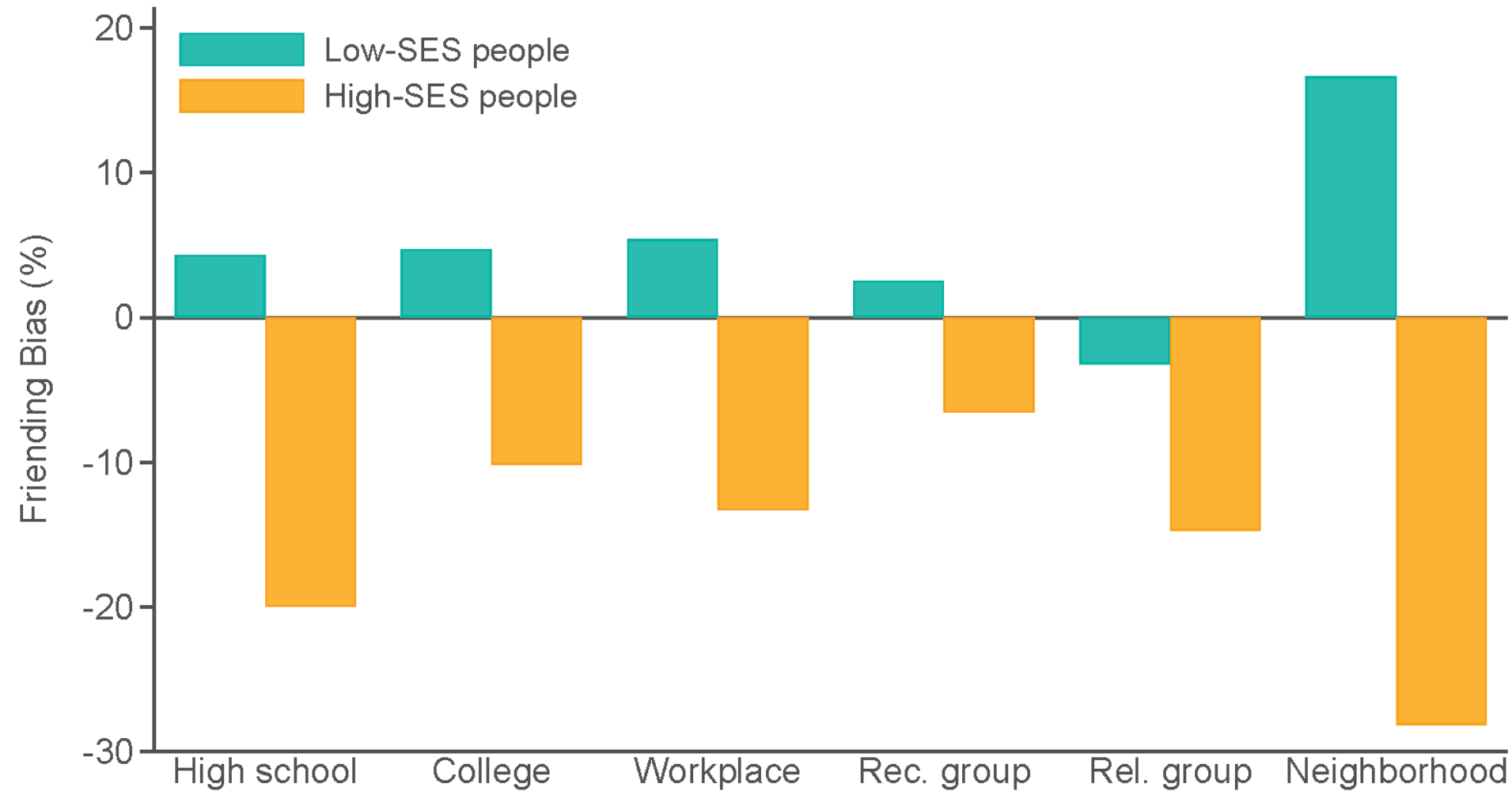
Friending Bias By Setting

Low-SES People



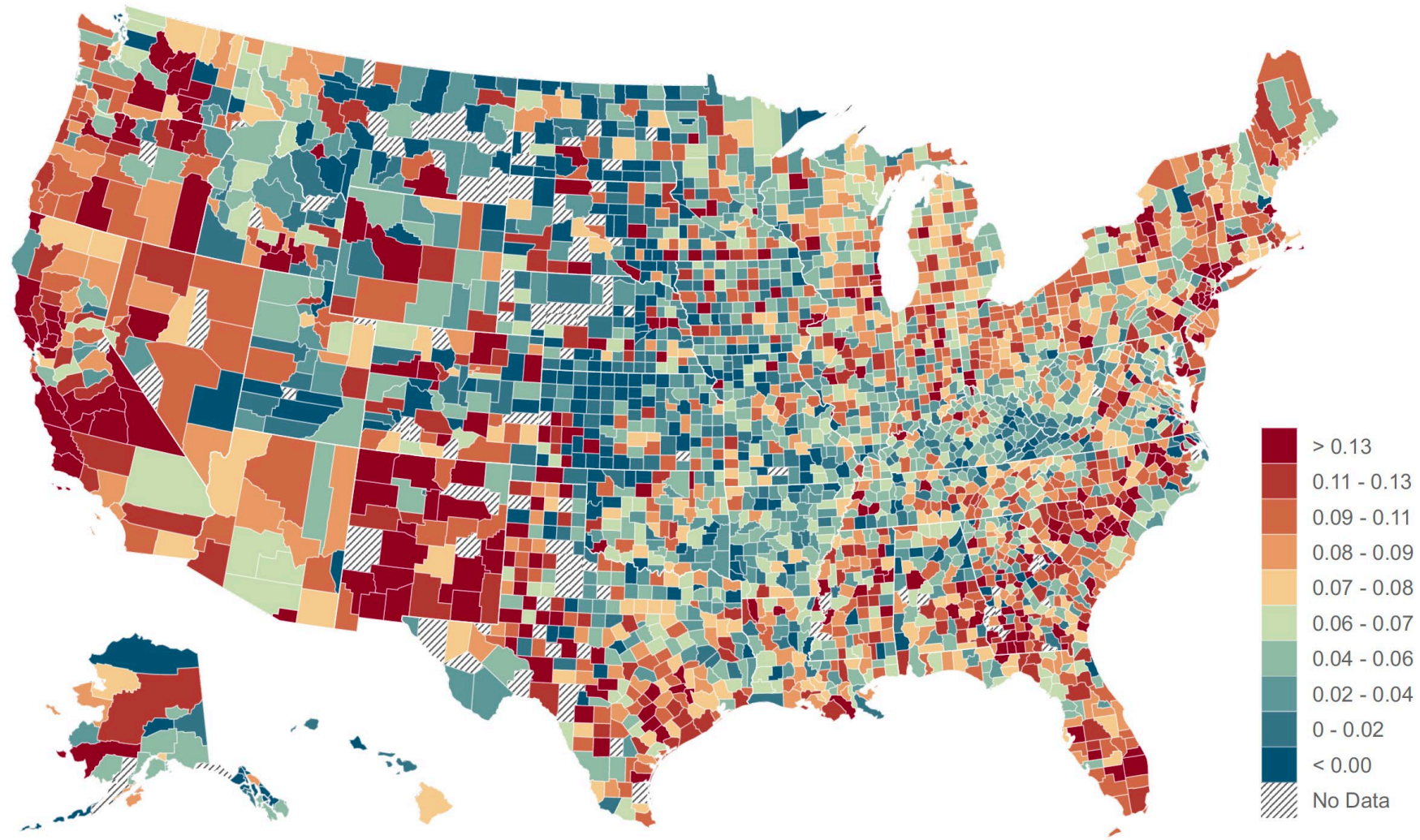
Friending Bias By Setting

Low-SES vs. High-SES People



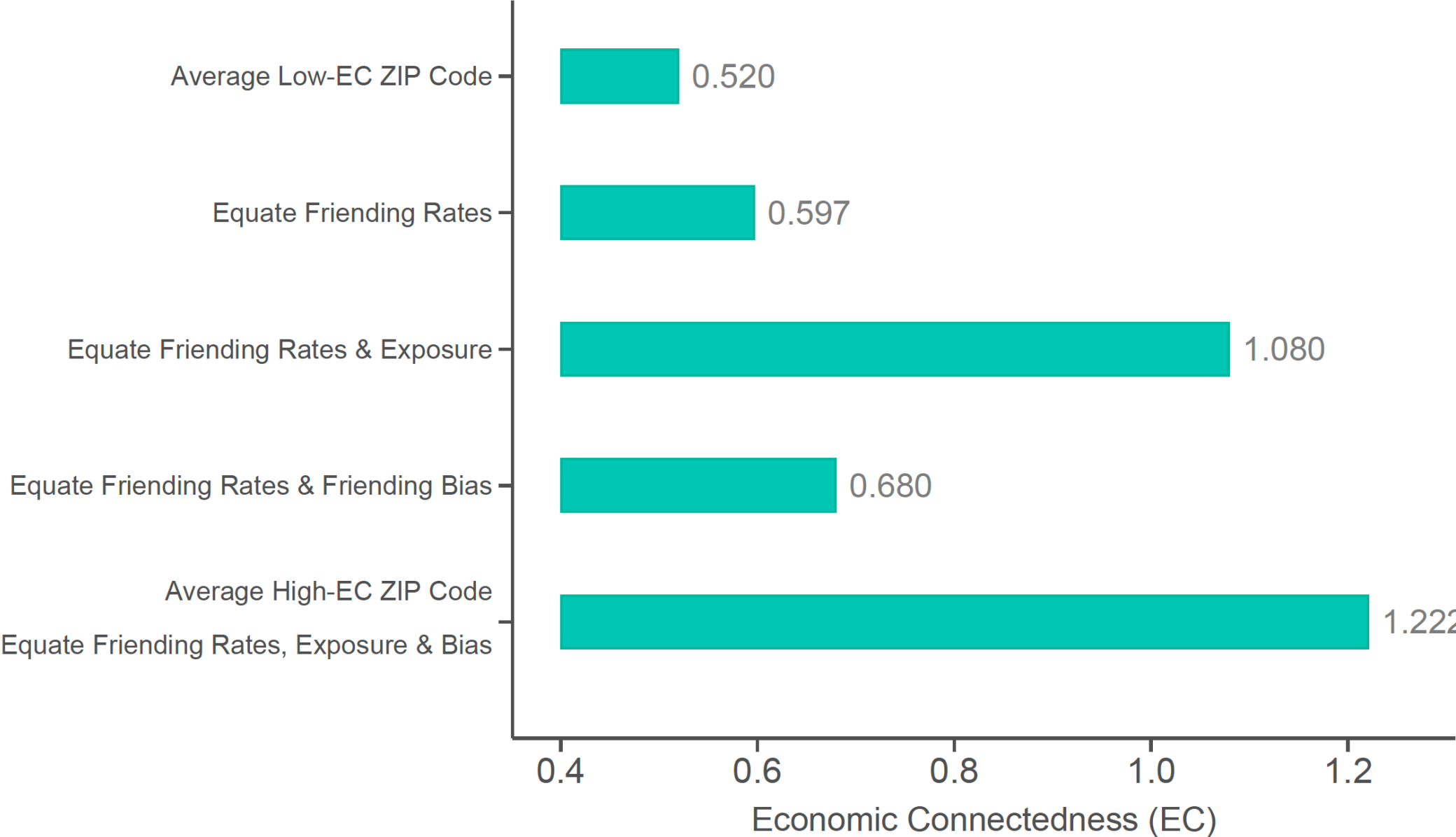
Friending Bias of Low-SES Individuals by County

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

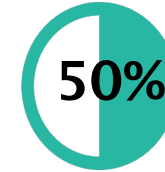
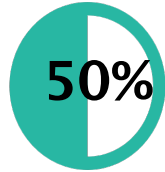


Determinants of Economic Connectedness

Exposure
*Segregation by
Income*

vs.

Friending Bias
*Interaction Conditional
on Exposure*

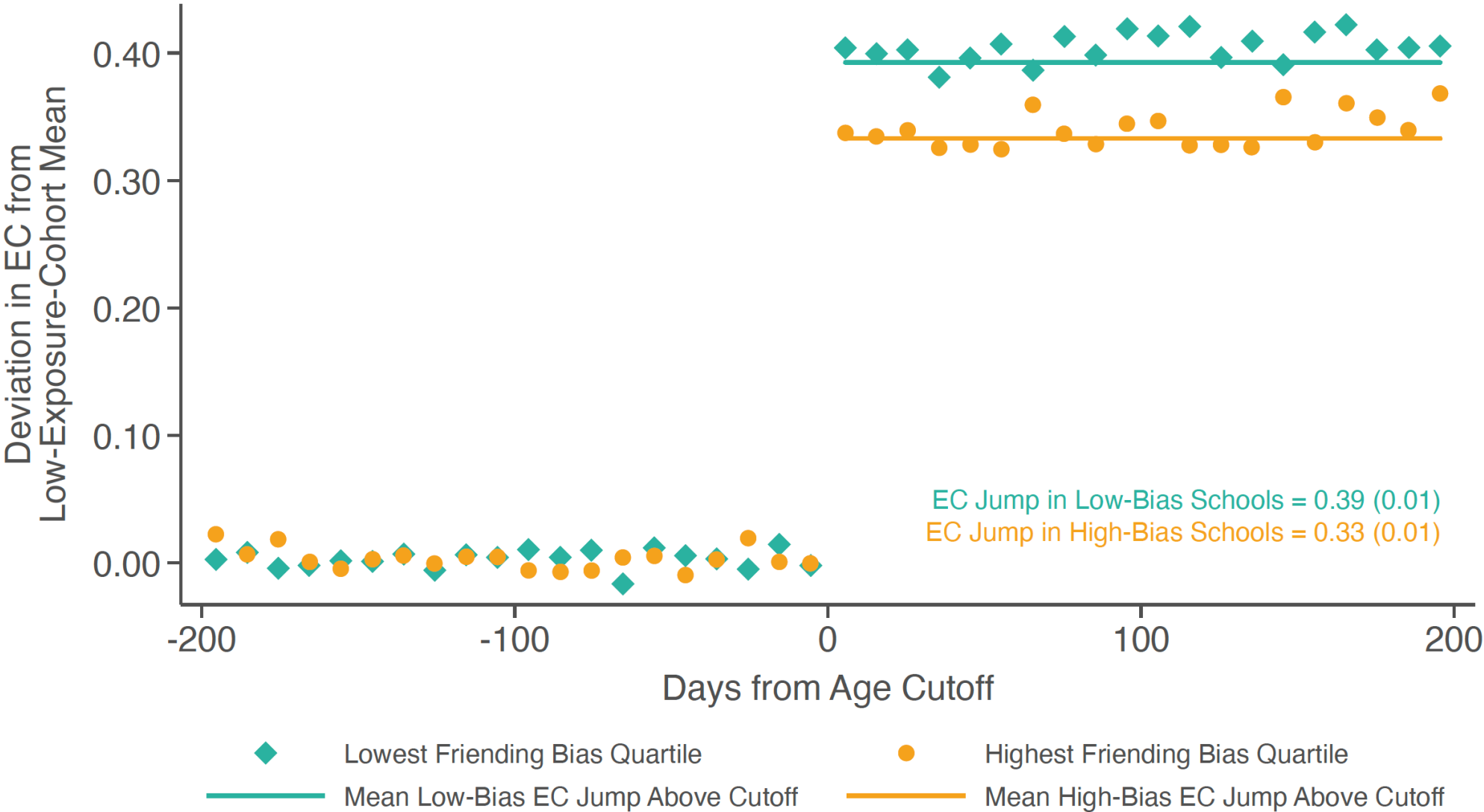


*“Every time I walked across Eutaw Street, I witnessed the exchange of realities. As I grew older, I’ve come to learn that this was how Baltimore works. Millionaires could live on one side of a street, and the projects could be on the other side. **Those two worlds would never cross, never make friends,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

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

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

