# Social Capital and Economic Mobility

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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]

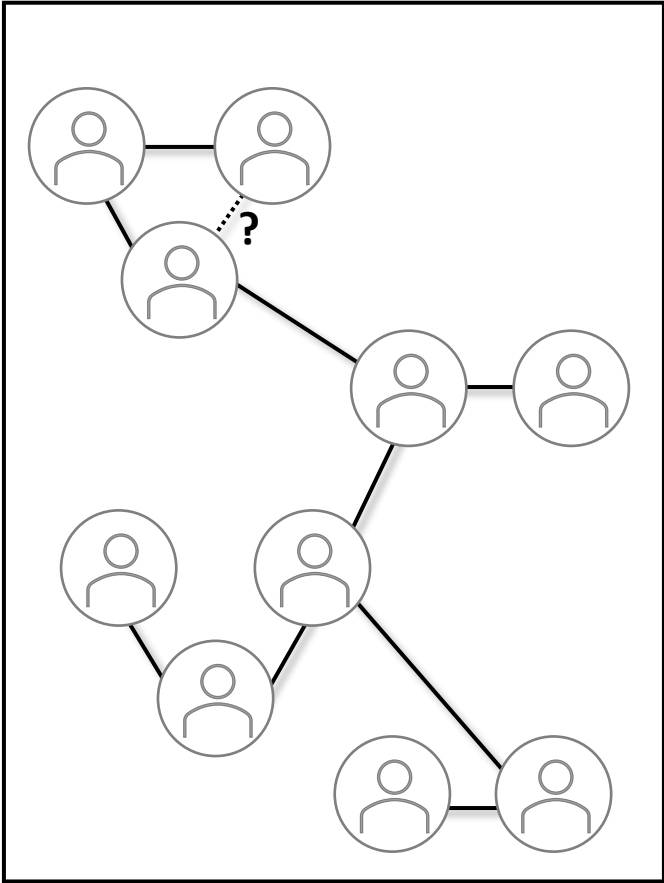- Potential importance of social capital? [e.g., Putnam 2016]

What is "Social Capital"? Three Concepts from the Prior Literature

Connectedness

High-SES
Low-SES
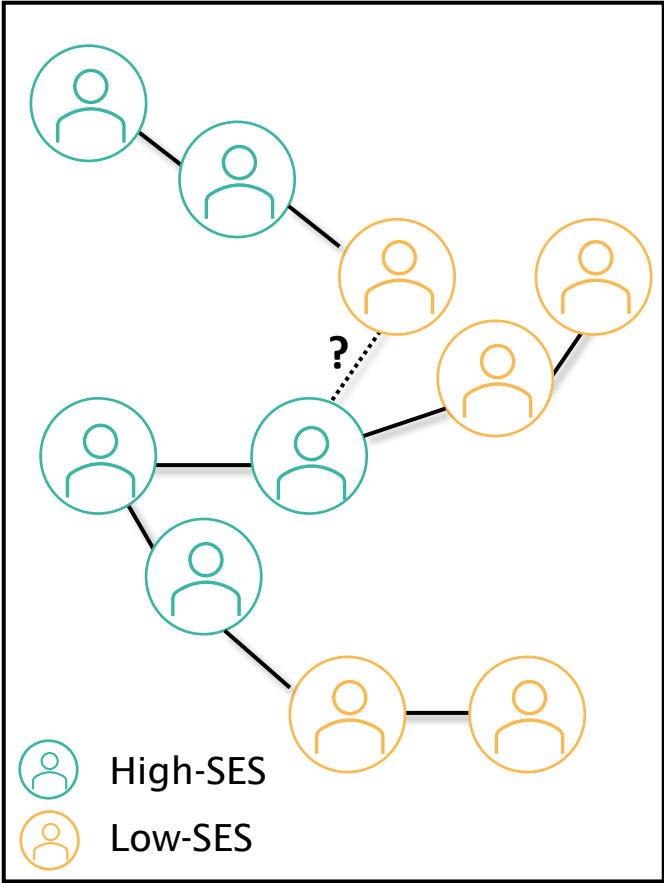
Loury 1977; Bourideu 1986;
Lin and Dumin 1986; Putnam 2016

Cohesiveness

Coleman 1988; Jackson et al. 2012

Civic Engagement

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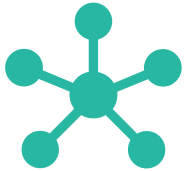Glaeser, Laibson, Sacerdote 2002

The research: Two Papers

Measure Social Capital Using Data from Facebook

Analyze Associations with **Economic Mobility**

Identify **Determinants** of Social Connections

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
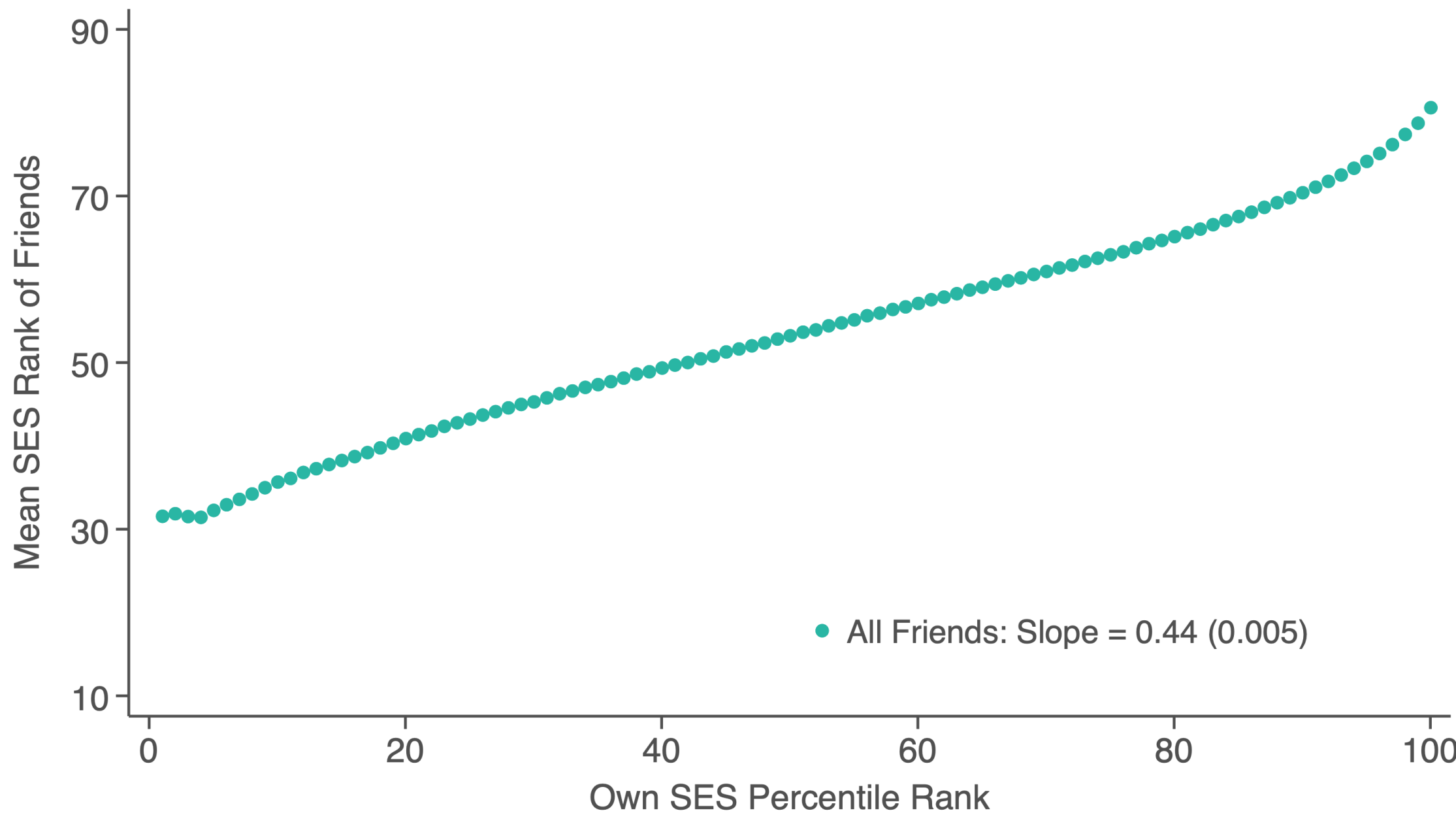
- Construct an index of socioeconomic status (SES) by combining several proxies: ZIP code, college, phone model price, …

- 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

Mean SES Rank of Friends (y-axis): 10, 30, 50, 70, 90

Own SES Percentile Rank (x-axis): 0, 20, 40, 60, 80, 100
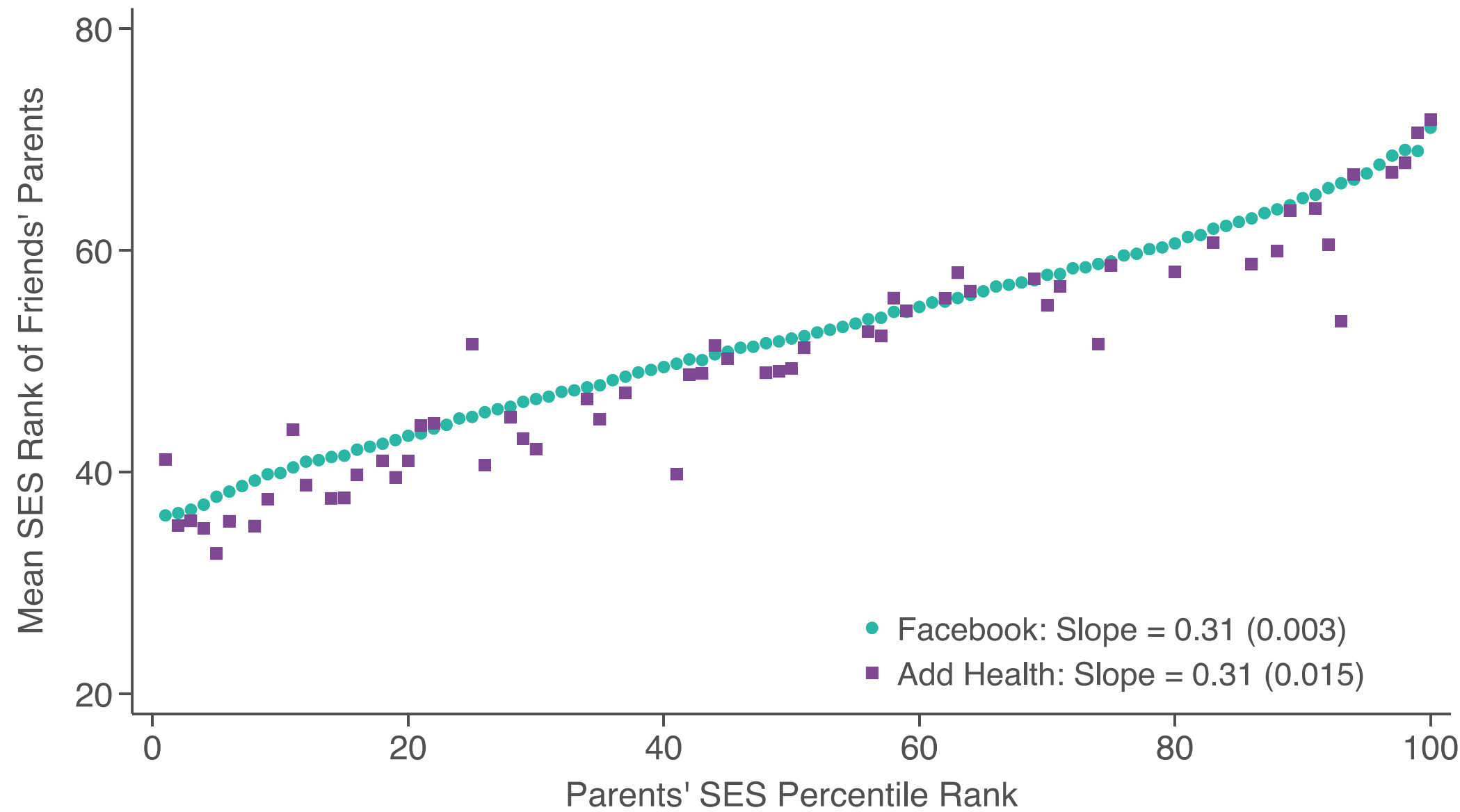
● All Friends: Slope = 0.44 (0.005)
■ Top 10 Friends: Slope = 0.46 (0.006)
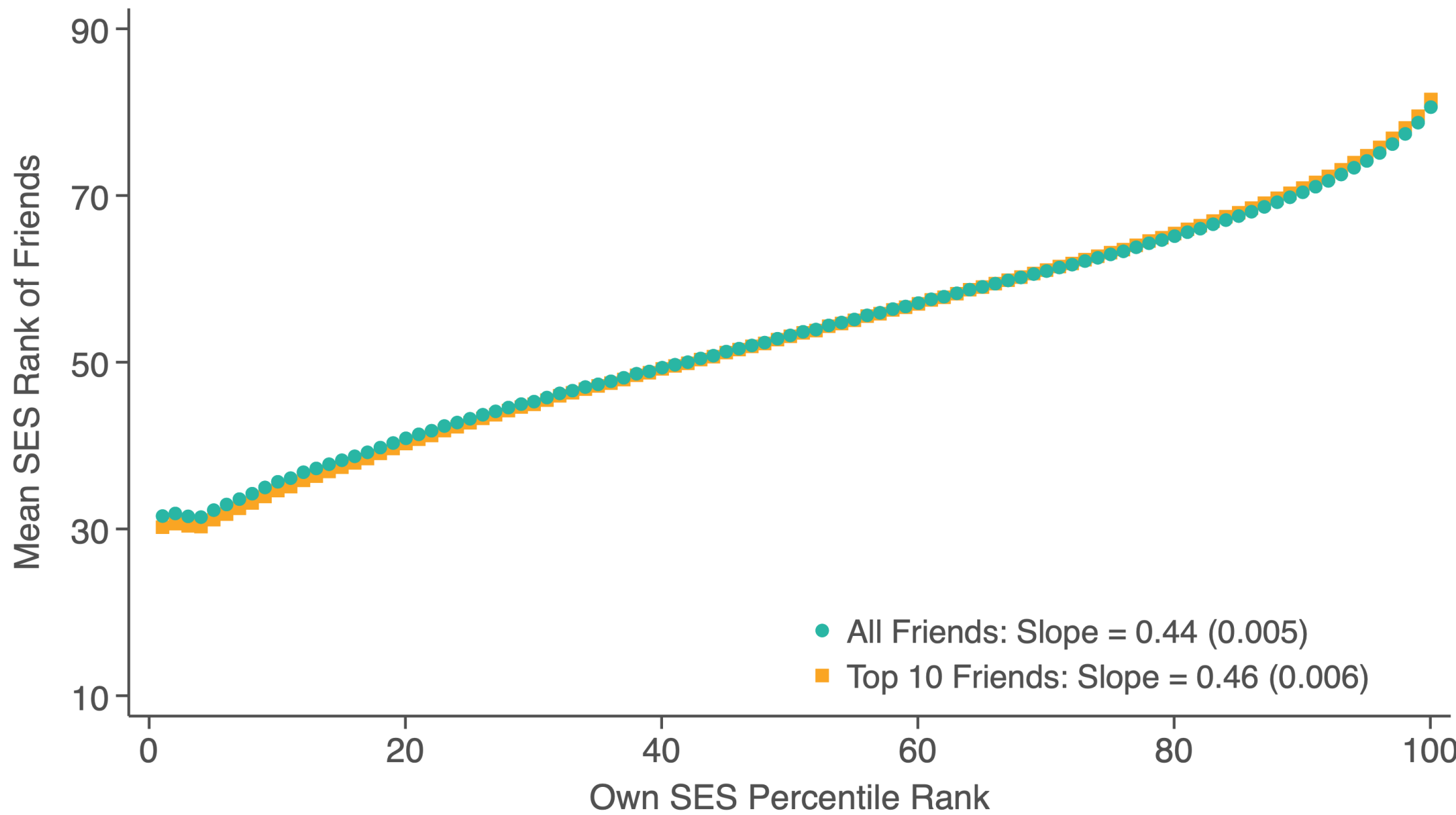
Homophily by SES in Facebook Data vs. Add Health Survey Data
Mean Parents Rank of Five Best Friends in High School vs. Own Parents' Rank

Facebook: Slope = 0.31 (0.003)
Add Health: Slope = 0.31 (0.015)

Mean SES Rank of Friends' Parents (y-axis)
Parents' SES Percentile Rank (x-axis)

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:

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

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

Economic Connectedness vs Share Above Poverty Line, by County

Correlation: 0.61

Economic Connectedness (y-axis)

Share Above Poverty Line (%) (x-axis)
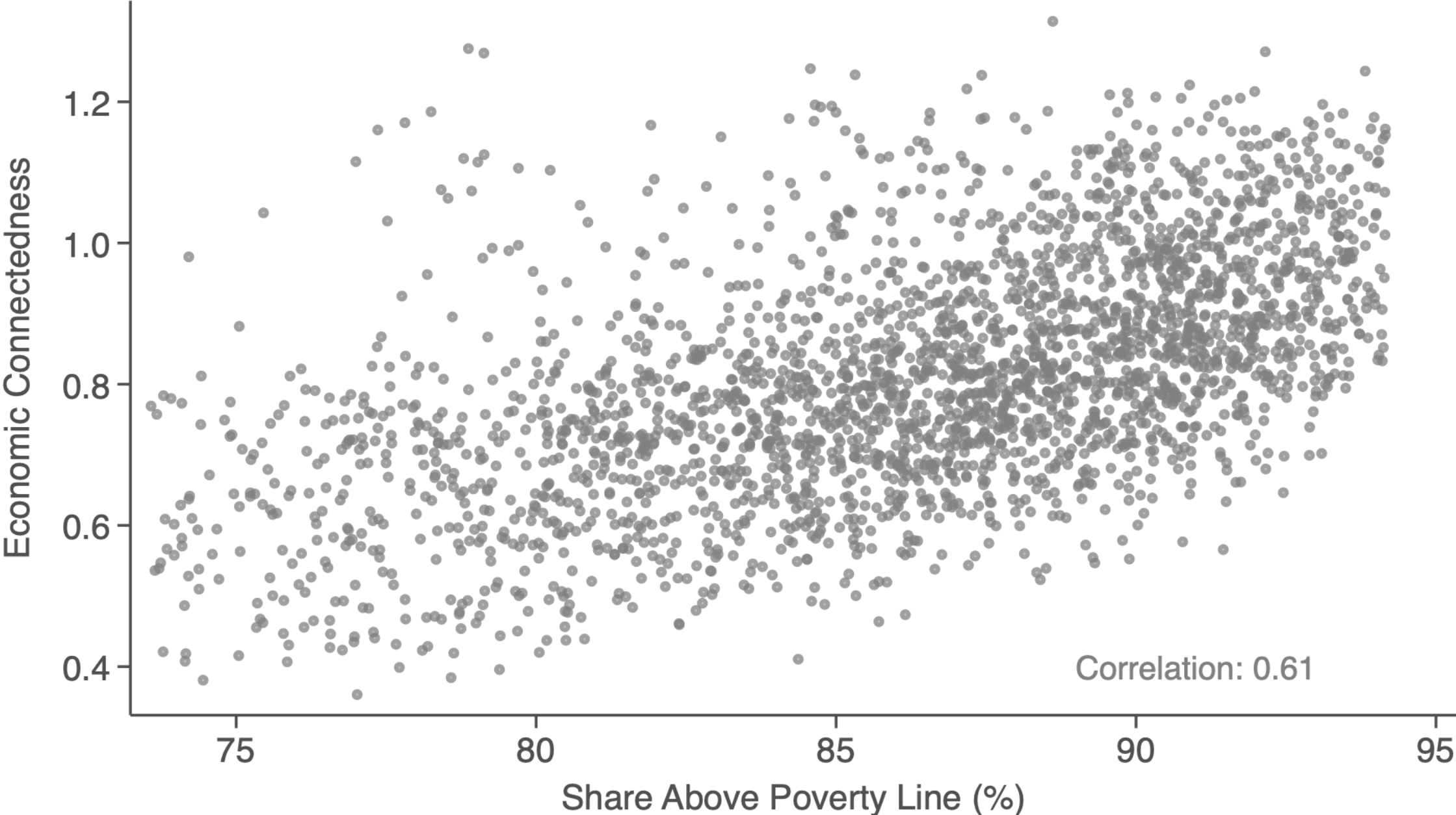
Correlation Matrix of County-Level Social Capital Measures

	(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
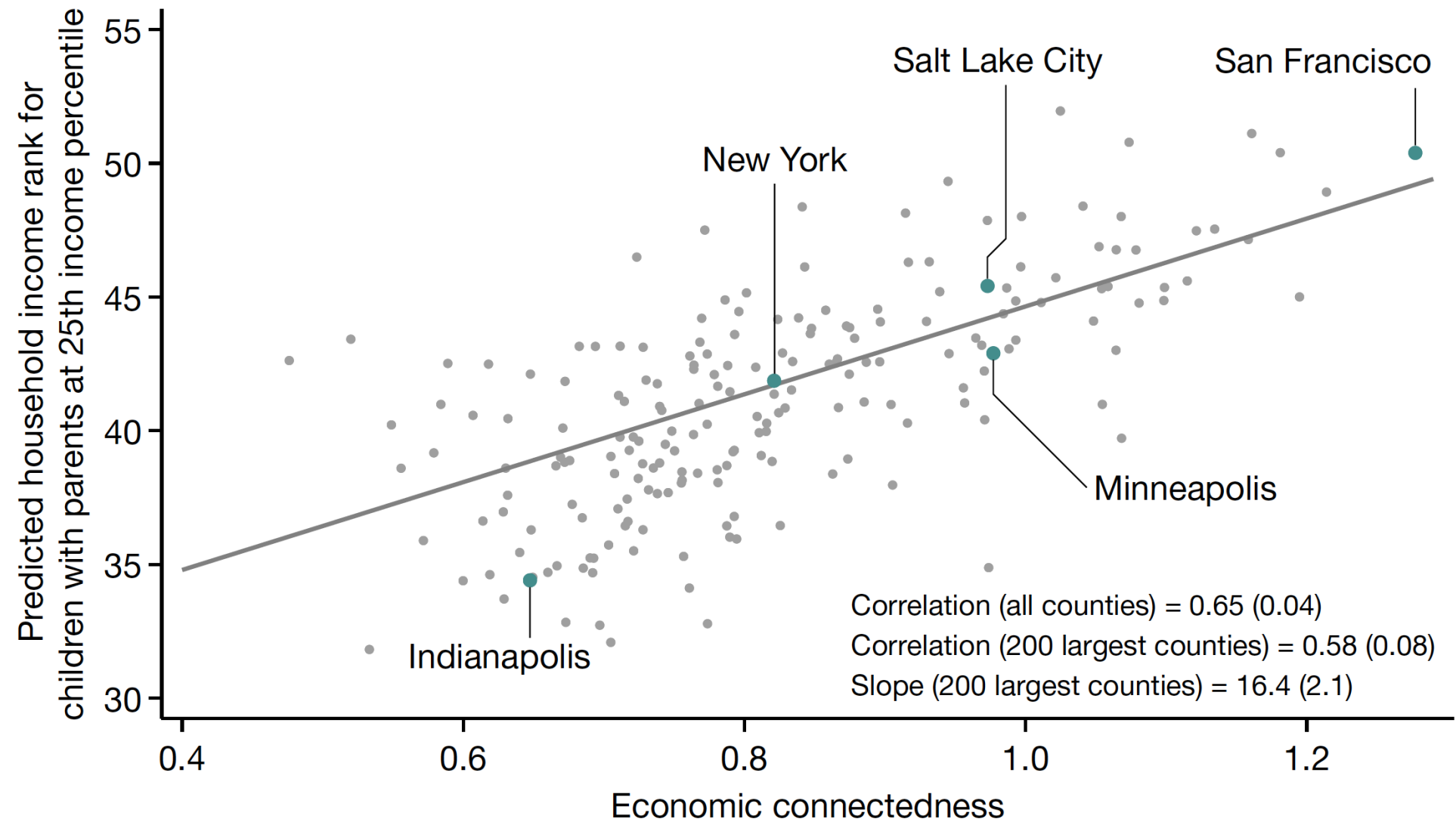Social Capital

Association
with Economic
Mobility

Determinants
of Economic
Connectedness

Targeting
Interventions

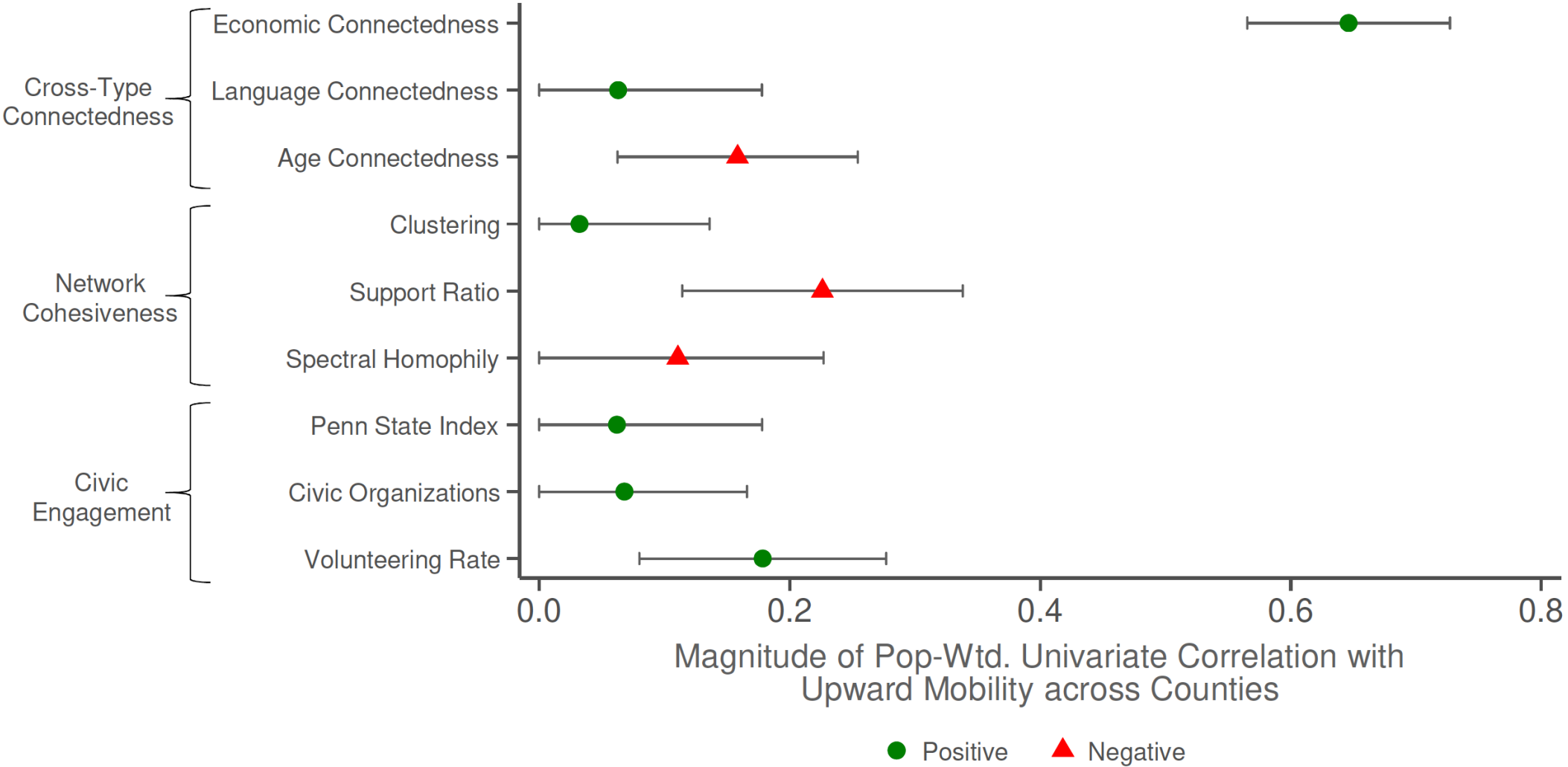# Association with Economic Mobility

Upward Mobility vs. Economic Connectedness, by County
200 Largest Counties

Correlation (all counties) = 0.65 (0.04)
Correlation (200 largest counties) = 0.58 (0.08)
Slope (200 largest counties) = 16.4 (2.1)

Correlations between Upward Mobility and Measures of Social Capital
County-level Univariate Correlations

Cross-Type Connectedness
- Economic Connectedness
- Language Connectedness
- Age Connectedness

Network Cohesiveness
- Clustering
- Support Ratio
- Spectral Homophily

Civic Engagement
- Penn State Index
- Civic Organizations
- Volunteering Rate

Magnitude of Pop-Wtd. Univariate Correlation with Upward Mobility across Counties

● Positive   ▲ Negative

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

Slope = 9.8 (1.4)
Signal Correlation = 0.44 (0.06)
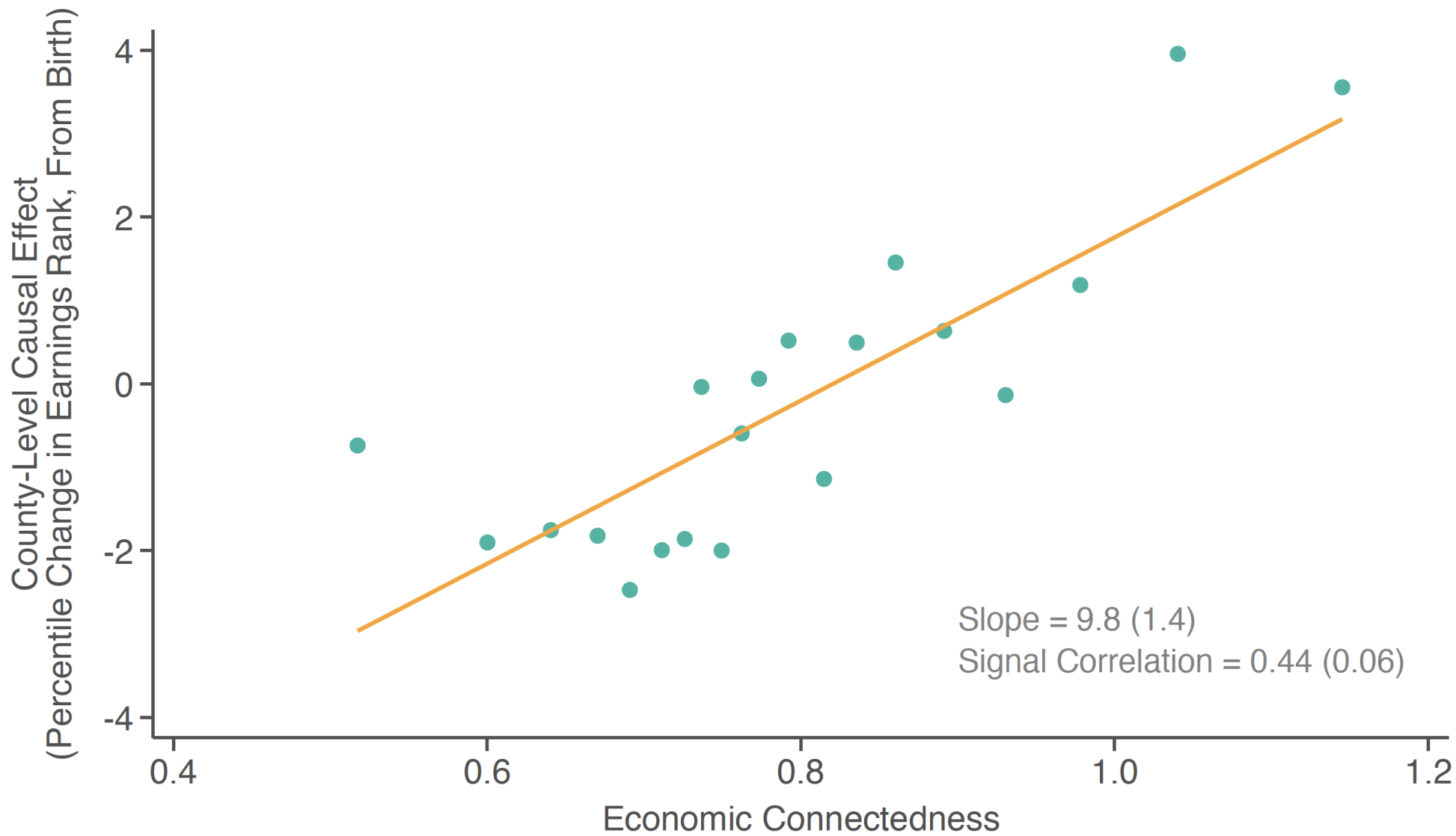
Economic Connectedness vs. Other Neighborhood Characteristics

- 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
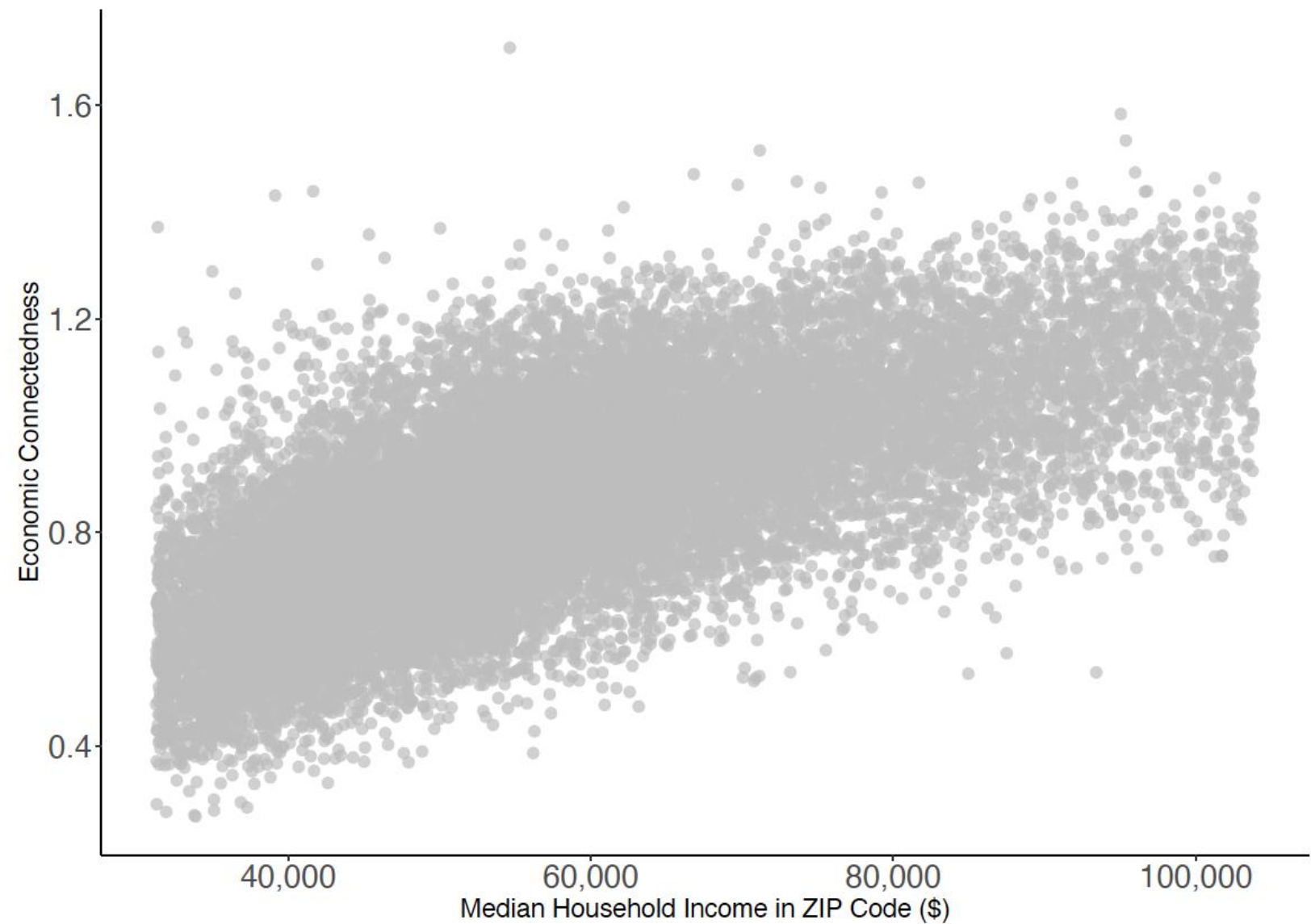
Upward Mobility vs. Economic Connectedness, Inequality, and Segregation
OLS Regression Estimates, Across Counties and ZIP codes

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***	-0.103
	(-0.084)	(-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***	-0.103				
	(-0.084)	(-0.091)				
Share Black			-0.204***	-0.014	-0.250***	0.035*
			(0.057)	(0.071)	(0.018)	(0.018)
Economic Connectedness		0.577***		0.468***		0.631***
		(0.063)		(0.083)		(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."
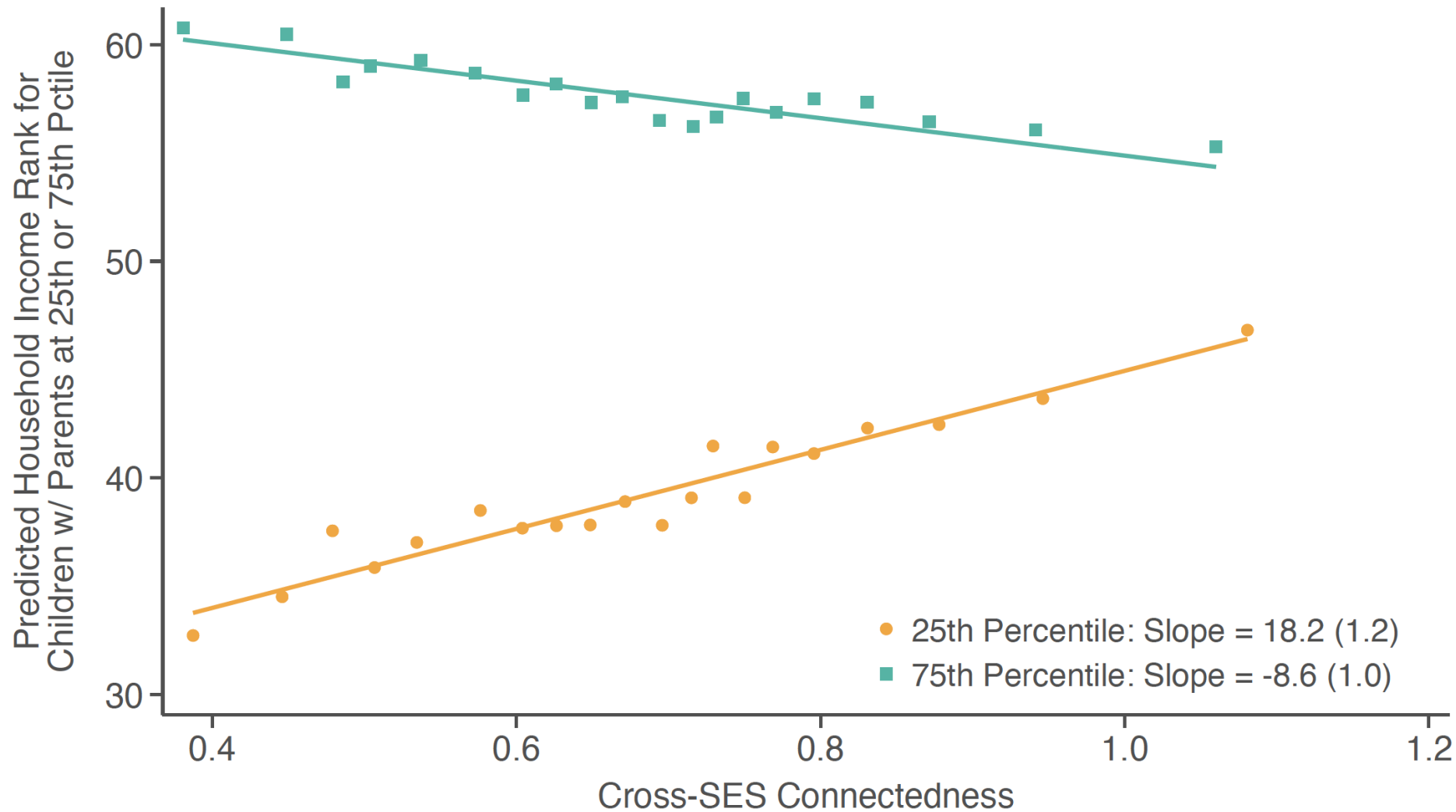
Lack of connectedness provides a (statistical) explanation

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

Legend:
- 25th Percentile: Slope = 18.2 (1.2)
- 75th Percentile: Slope = -8.6 (1.0)

X-axis: Cross-SES Connectedness

Y-axis: Predicted Household Income Rank for Children w/ Parents at 25th or 75th Pctile

Economic Mobility vs. Cross-SES Connectedness for Low- vs. High-SES Individuals
County-Level, Controlling for Share of High-SES Residents

Predicted Household Income Rank for Children w/ Parents at 25th or 75th Pctile (y-axis)

Cross-SES Connectedness (x-axis)

● 25th Percentile: Slope = 16.1 (2.4)
■ 75th Percentile: Slope = -2.4 (1.6)