Where is the Land of Opportunity?
The Geography of Intergenerational Mobility in the U.S.

Raj Chetty, Harvard
Nathaniel Hendren, Harvard
Patrick Kline, UC-Berkeley
Emmanuel Saez, UC-Berkeley

The opinions expressed in this paper are those of the authors alone and do not necessarily reflect the views of the Internal Revenue Service or the U.S. Treasury Department. This work is a component of a larger project examining the effects of eliminating tax expenditures on the budget deficit and economic activity. Results reported here are contained in the SOI Working Paper "The Economic Impacts of Tax Expenditures: Evidence from Spatial Variation across the U.S.," approved under IRS contract TIRNO-12-P-00374.

Introduction

- United States traditionally hailed as "land of opportunity"
  - Chances of succeeding do not depend heavily on parent's income
- Vast literature has investigated whether this is true empirically [Hauser et al. 1975, Behrman and Taubman 1985, Becker and Tomes 1986, Solon 1992, Zimmerman 1992, Mulligan 1997, Solon 1999, Mazumder 2005]
- Results debated partly due to limitations in data [Black and Devereux 2011]
  - Ex: Mazumder (2005) uses SIPP-SSA sample with 3,000 obs. and imputed earnings for up to 60% of parents

This Paper

- We study intergenerational mobility in the U.S. using administrative data on 40 million children

- We show that the question of whether the U.S. is the "land of opportunity" does not have a clear answer
    - Substantial variation in intergenerational mobility *within* the U.S.
    - Some lands of opportunity and some lands of persistent inequality

Outline

1. National Statistics

2. Geographical Variation in Intergenerational Mobility

3. Correlates of Spatial Differences in Mobility

Data

- Data source: IRS Databank [Chetty, Friedman, Hilger, Saez, Yagan 2011]
  - Selected de-identified data from 1996-2012 income tax returns
  - Includes non-filers via information forms (e.g. W-2's)

Sample Definition

- Primary sample: Current U.S. citizens in 1980-81 birth cohorts
  - 6.3 million children, age 30-32 in 2012
- Expanded sample: 1980-1991 birth cohorts for robustness checks
  - 40 million children, age 20-32 in 2012

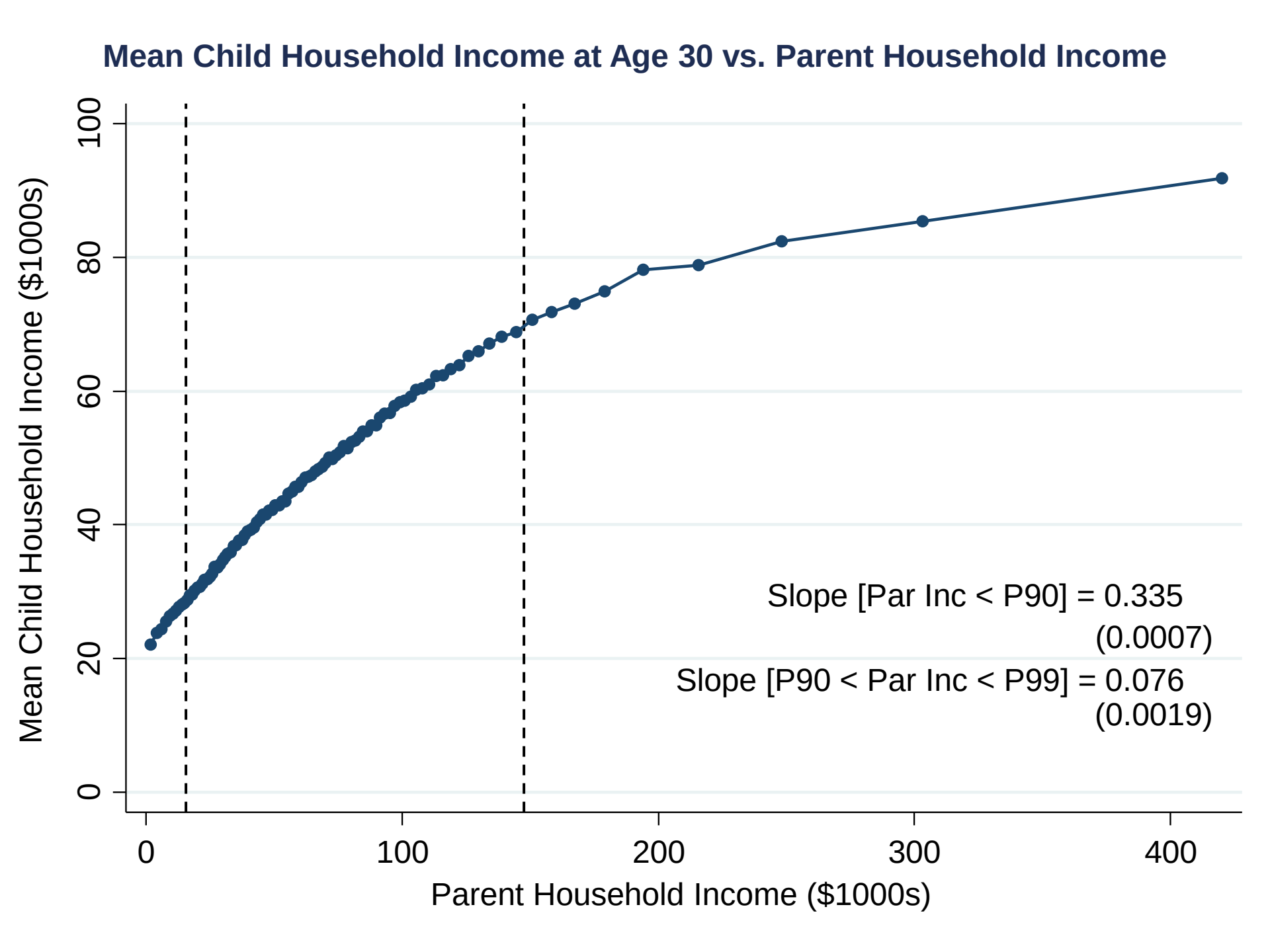
Linking Children to Parents

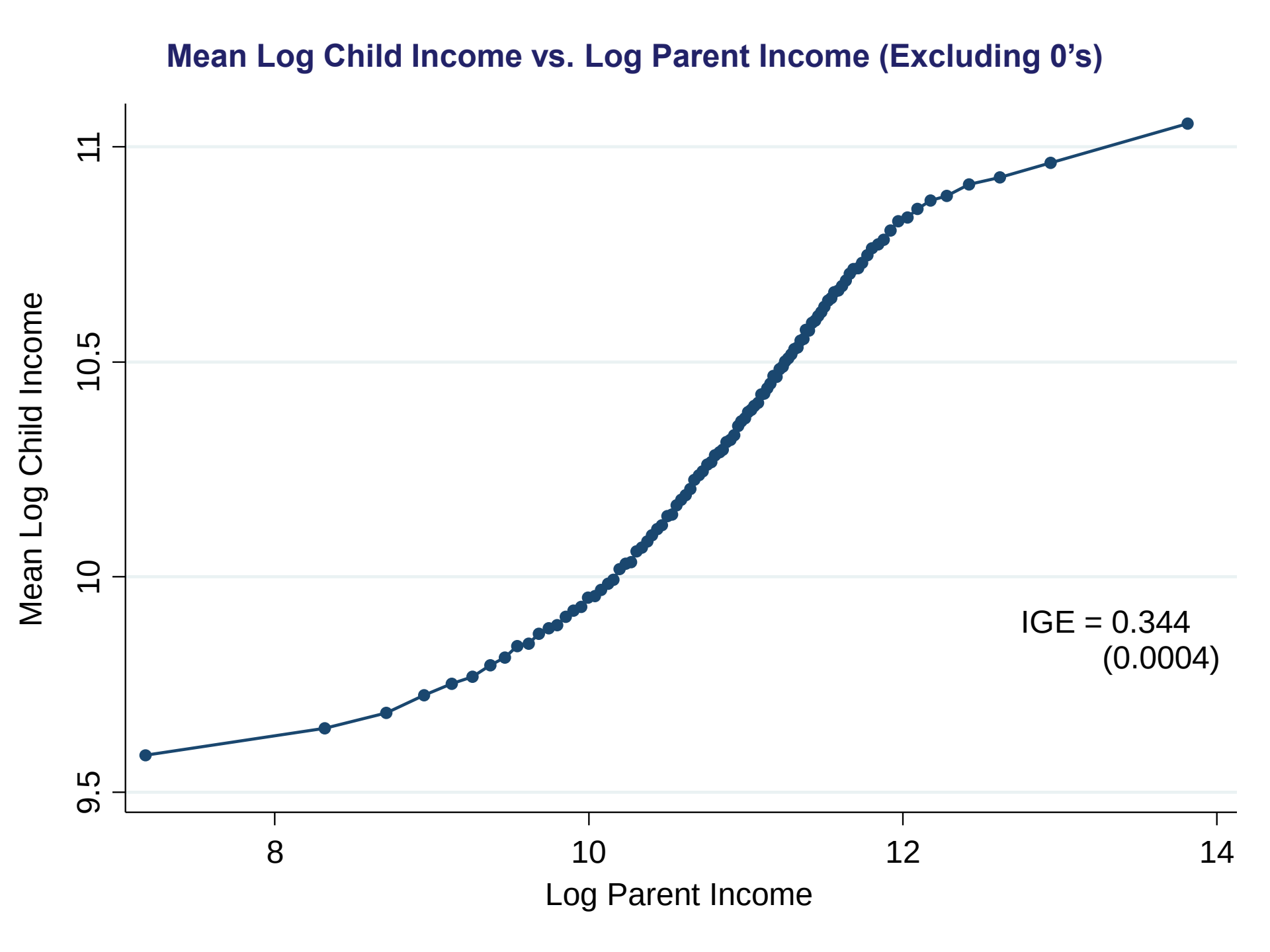
- Parent(s) defined as first person(s) who claim child as a dependent
  - Most children are linked to parents based on tax returns in 1996
- We link approximately 95% of children to parents

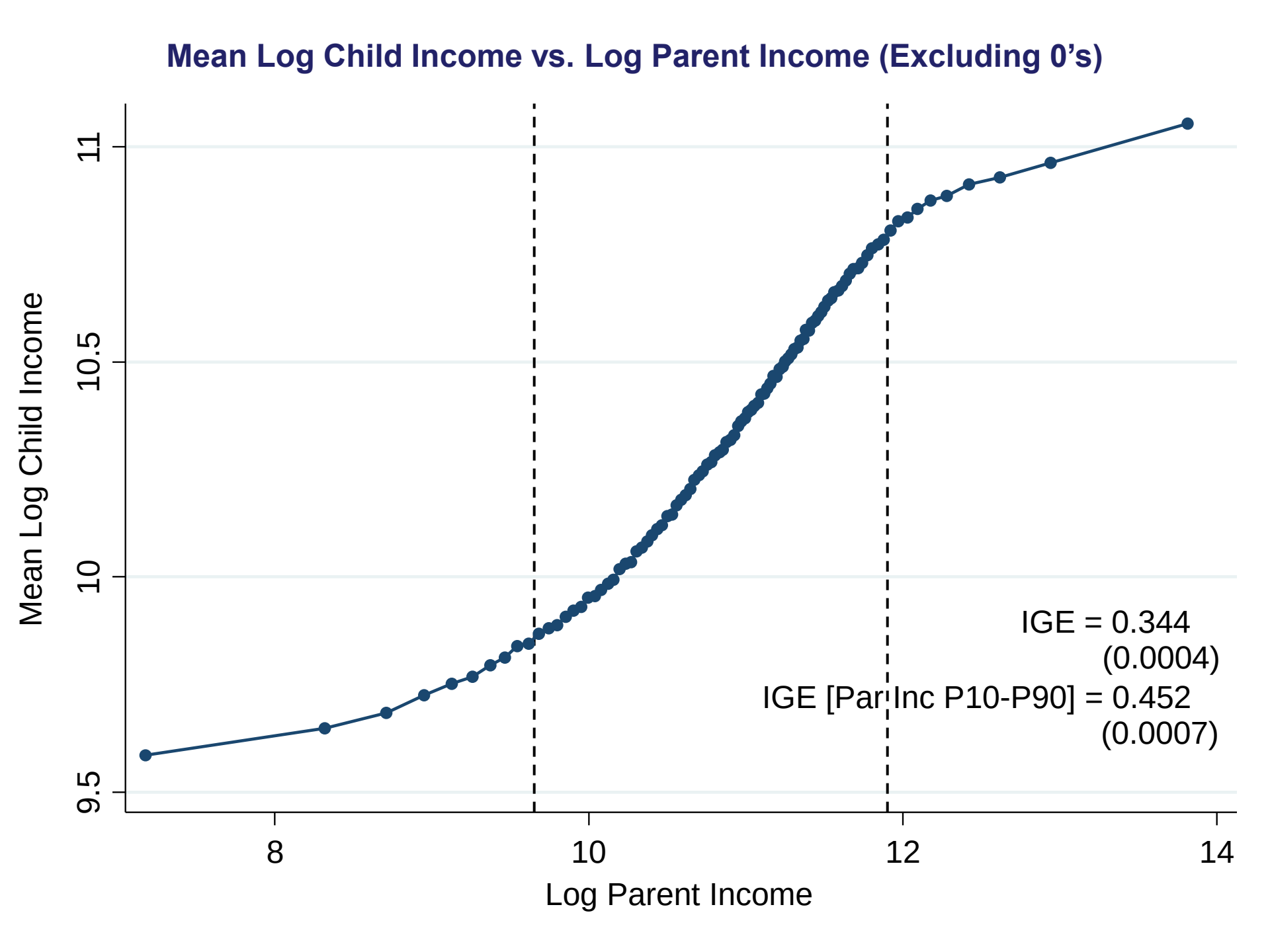
Income Definitions

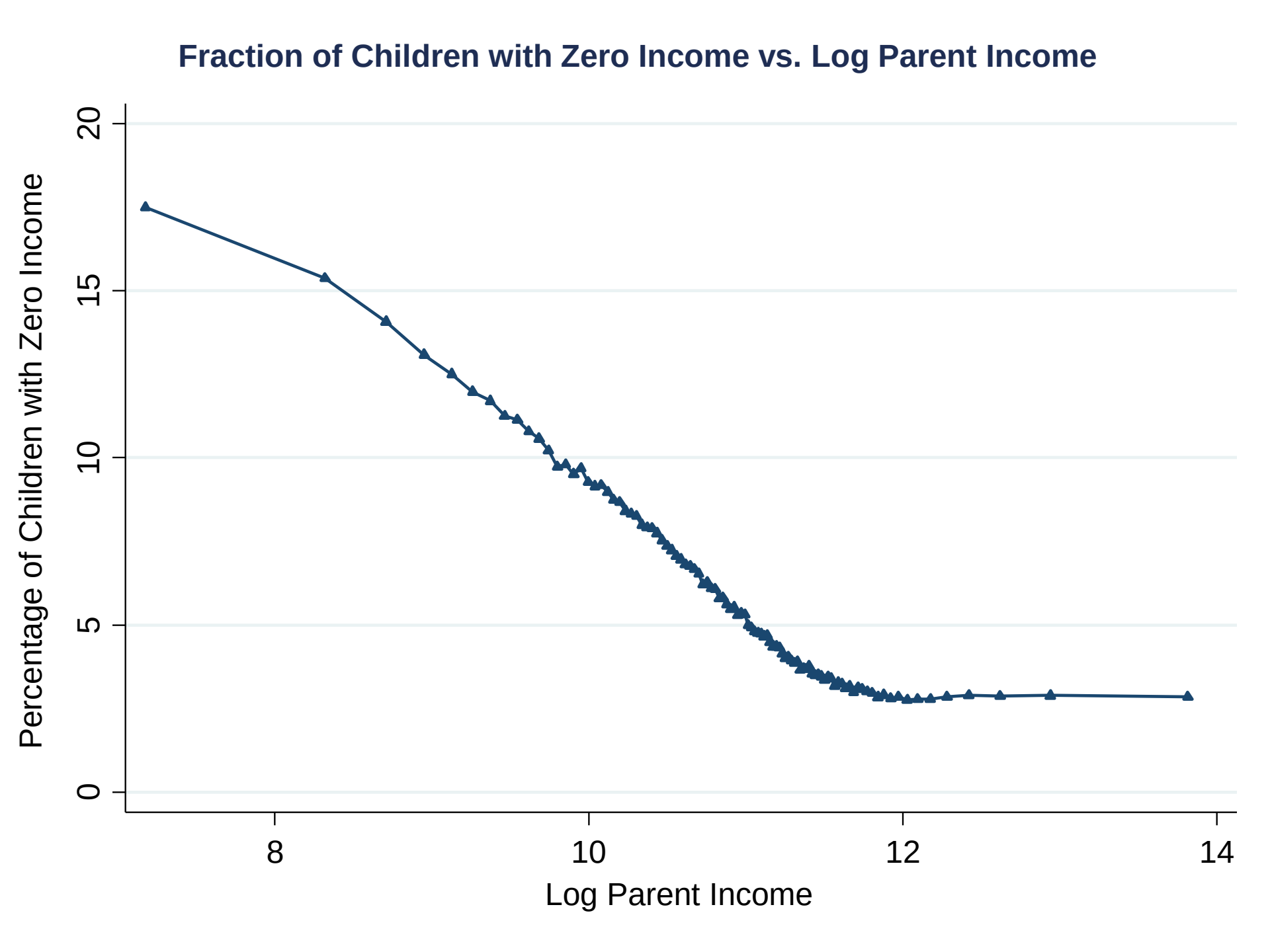
- Parent Income: mean pre-tax household income (AGI+SSDI) between 1996-2000
- Child Income: mean pre-tax household income between 2010-2012
- For non-filers, use W-2 wage earnings + SSDI + UI income
  - If no 1040 and no W-2, code income as 0
- These **household** level definitions capture total resources in the household
  - Spatial patterns very similar using individual income but IGE magnitudes lower, especially for daughters [Chadwick and Solon 2002]

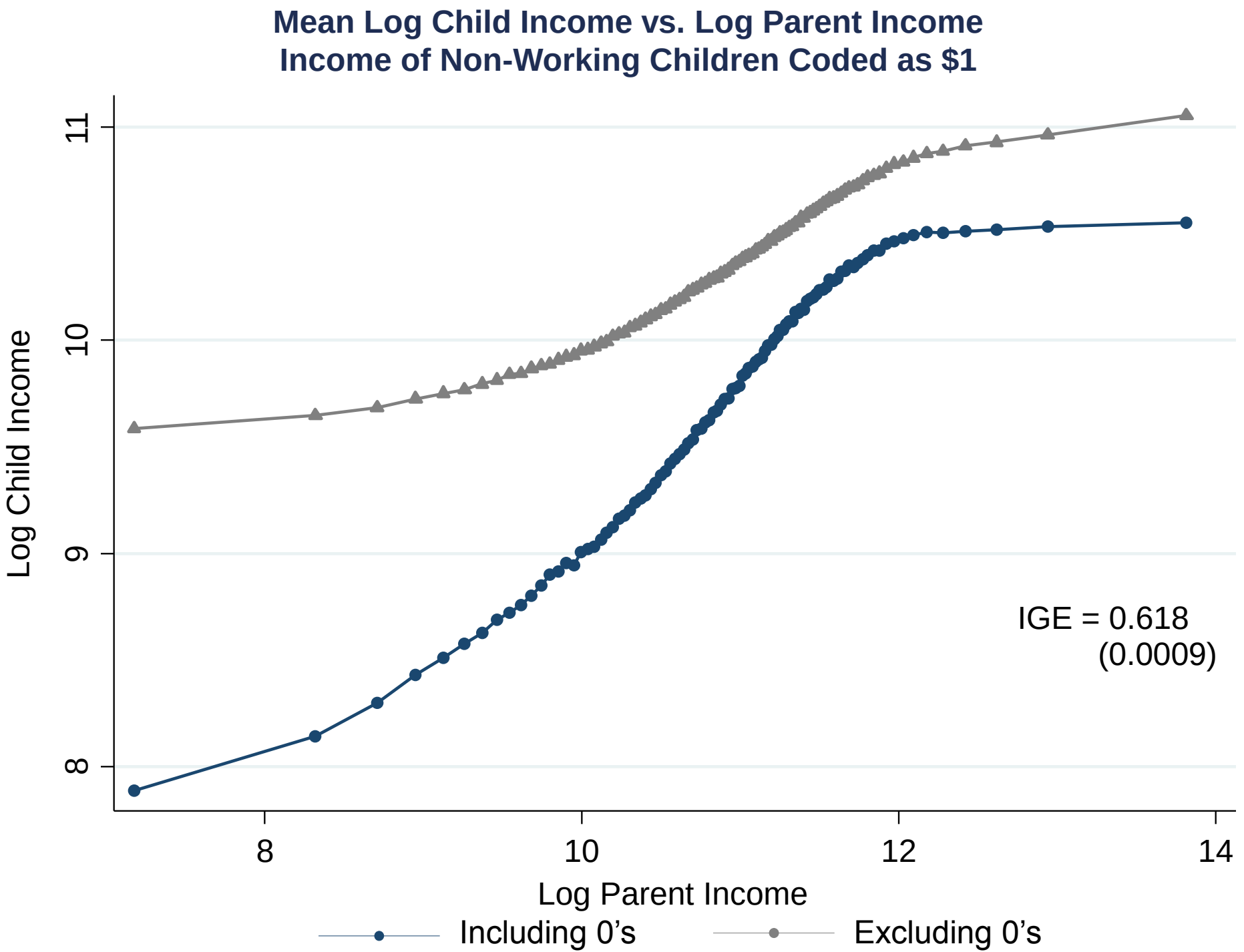
Part 1
National Statistics


Mean Child Household Income at Age 30 vs. Parent Household Income
Mean Child Household Income ($1000s)
0
20
40
60
80
100
0
100
200
300
400
Parent Household Income ($1000s)
Slope [Par Inc < P90] = 0.335
(0.0007)
Slope [P90 < Par Inc < P99] = 0.076
(0.0019)


Mean Log Child Income vs. Log Parent Income (Excluding 0's)
Mean Log Child Income
9.5
10
10.5
11
8
10
12
14
Log Parent Income
IGE = 0.344
(0.0004)

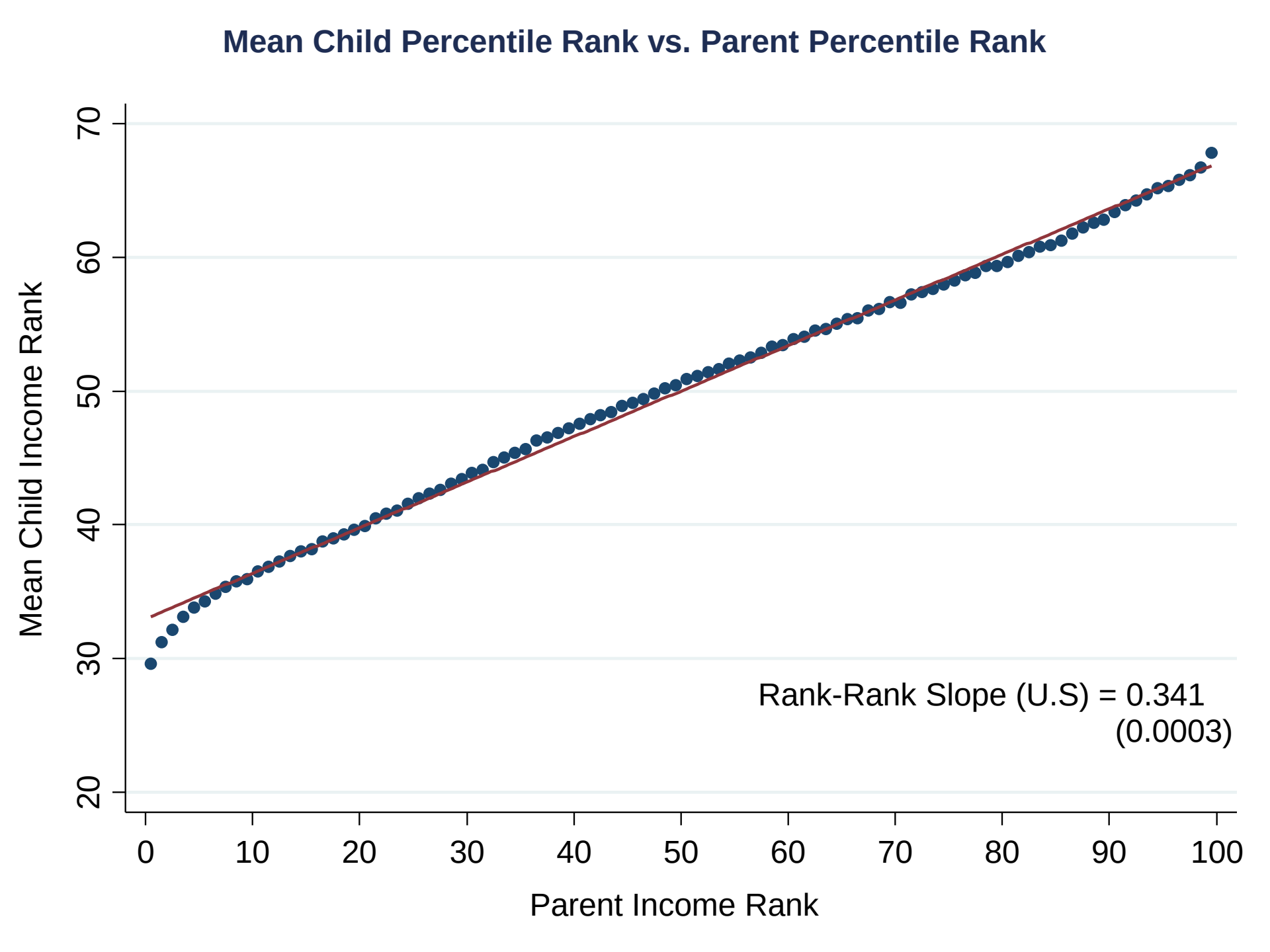

Mean Log Child Income vs. Log Parent Income (Excluding 0's)
Mean Log Child Income
9.5
10
10.5
11
8
10
12
14
Log Parent Income
IGE = 0.344
(0.0004)
IGE [Par Inc P10-P90] = 0.452
(0.0007)

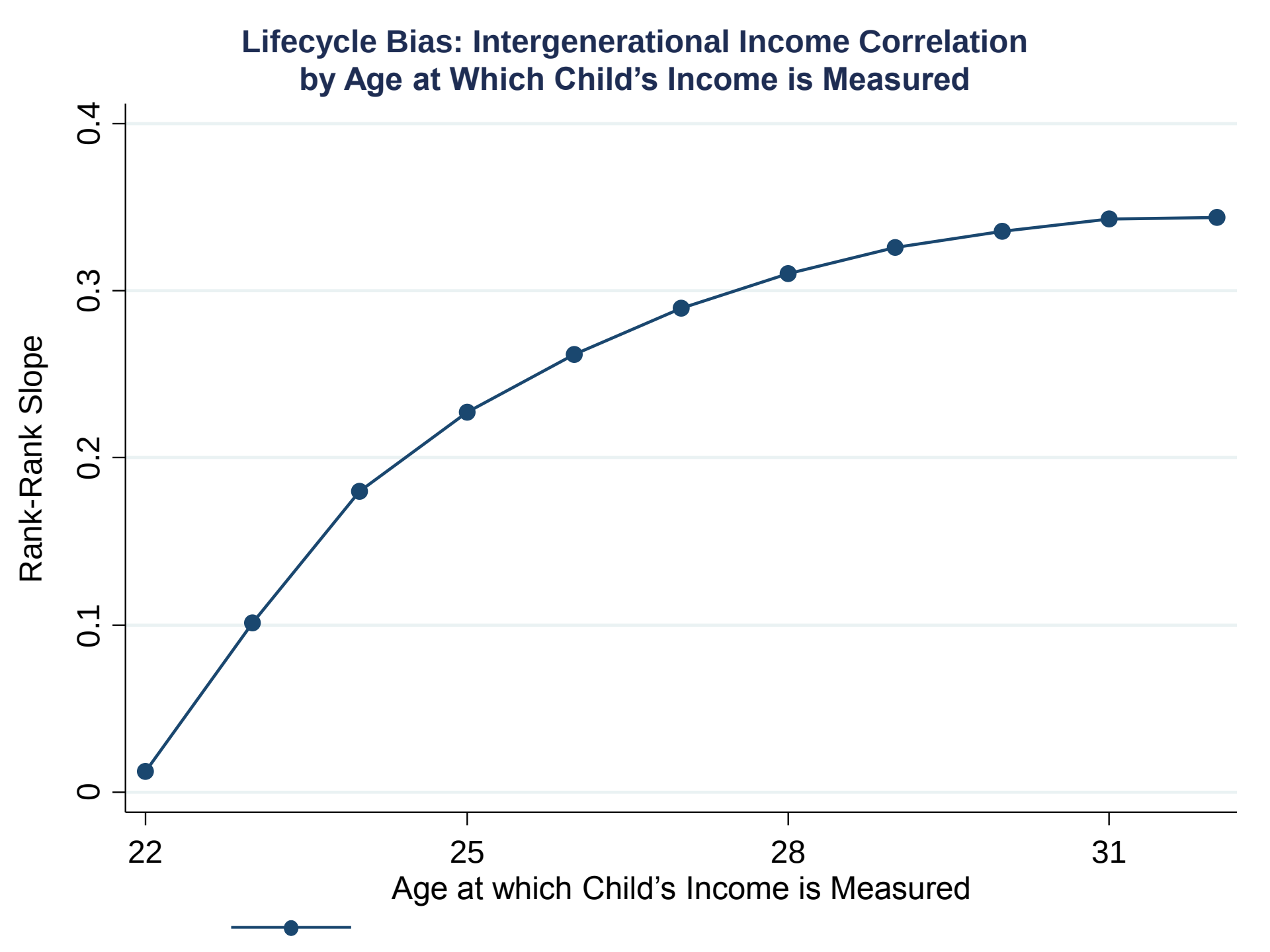

Fraction of Children with Zero Income vs. Log Parent Income
Percentage of Children with Zero Income
0
5
10
15
20
8
10
12
14
Log Parent Income

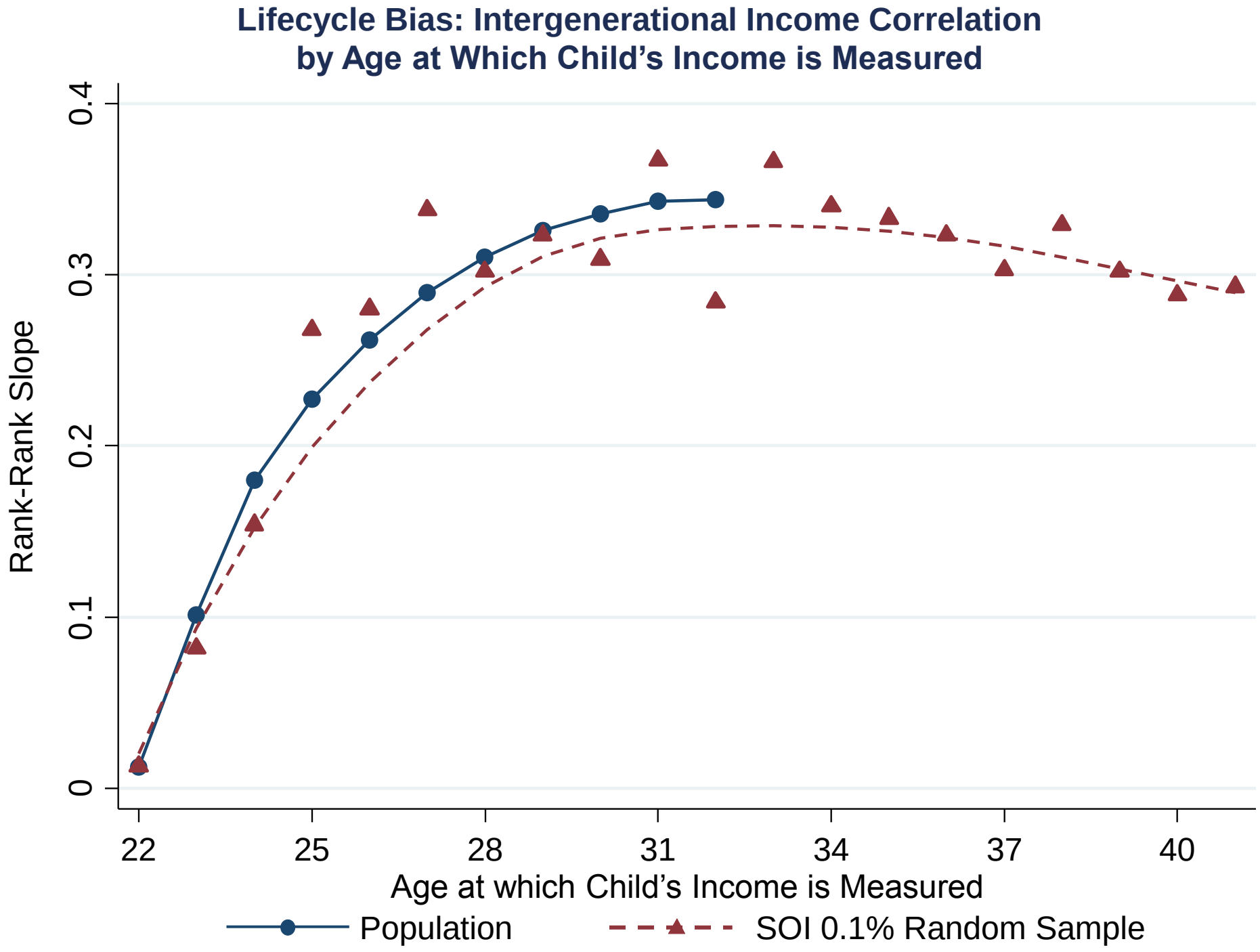

Mean Log Child Income vs. Log Parent Income
Income of Non-Working Children Coded as $1
Log Child Income
11
10
9
8
8
10
12
14
Log Parent Income
IGE = 0.618
(0.0009)
Including 0's
Excluding 0's

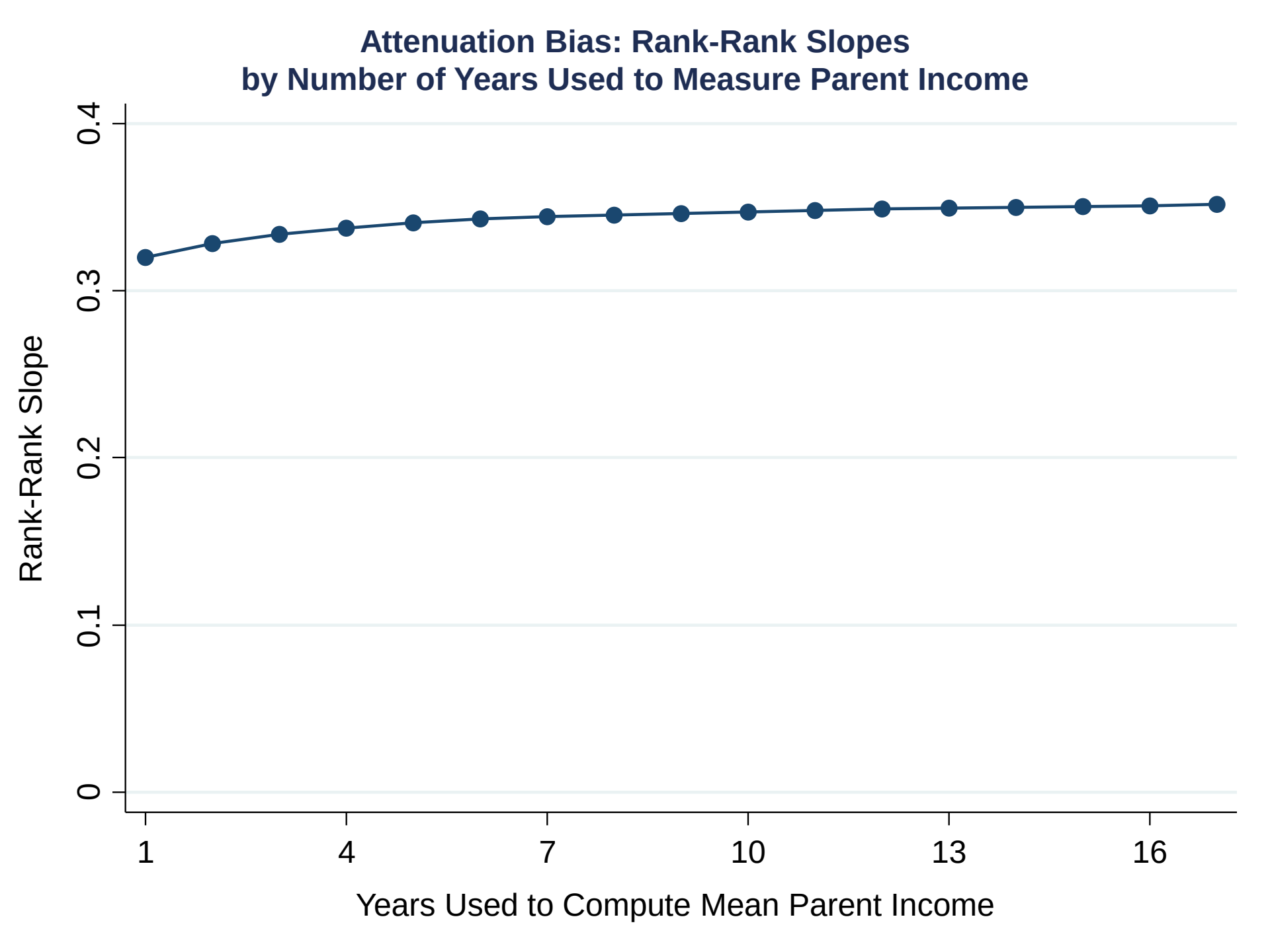
Rank-Rank Specification

- To handle zeros and non-linearity, we use a *rank-rank* specification (similar to Dahl and DeLeire 2008)
  - Rank children based on their incomes relative to other children same in birth cohort
  - Rank parents of these children based on their incomes relative to other parents in this sample

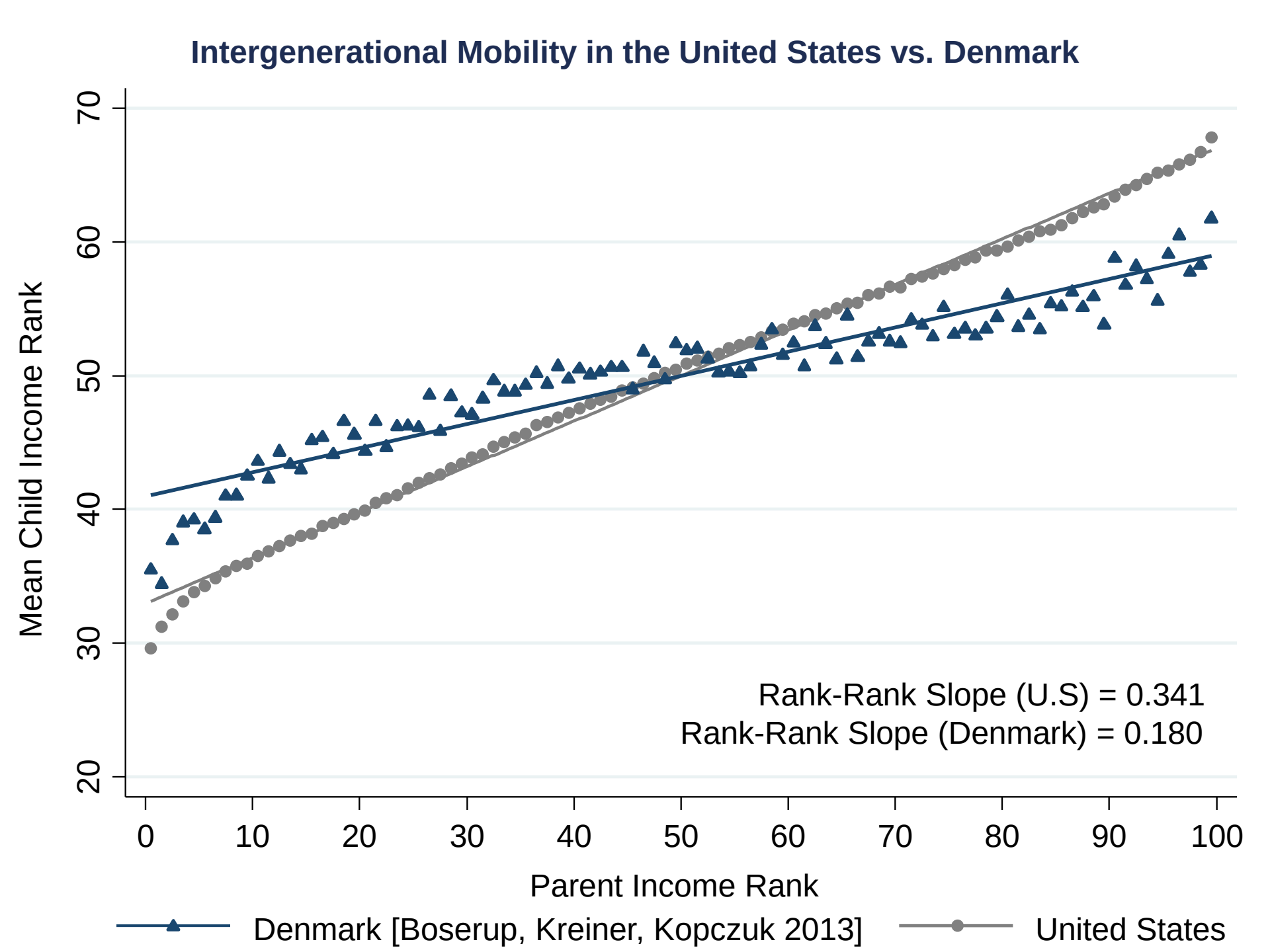

Mean Child Percentile Rank vs. Parent Percentile Rank
Mean Child Income Rank
20
30
40
50
60
70
0
10
20
30
40
50
60
70
80
90
100
Parent Income Rank
Rank-Rank Slope (U.S) = 0.341
(0.0003)


Lifecycle Bias: Intergenerational Income Correlation
by Age at Which Child's Income is Measured
Rank-Rank Slope
0
0.1
0.2
0.3
0.4
22
25
28
31
Age at which Child's Income is Measured


Lifecycle Bias: Intergenerational Income Correlation
by Age at Which Child's Income is Measured
Rank-Rank Slope
0
0.1
0.2
0.3
0.4
22
25
28
31
34
37
40
Age at which Child's Income is Measured
Population
SOI 0.1% Random Sample


Attenuation Bias: Rank-Rank Slopes
by Number of Years Used to Measure Parent Income
Rank-Rank Slope
0
0.1
0.2
0.3
0.4
1
4
7
10
13
16
Years Used to Compute Mean Parent Income

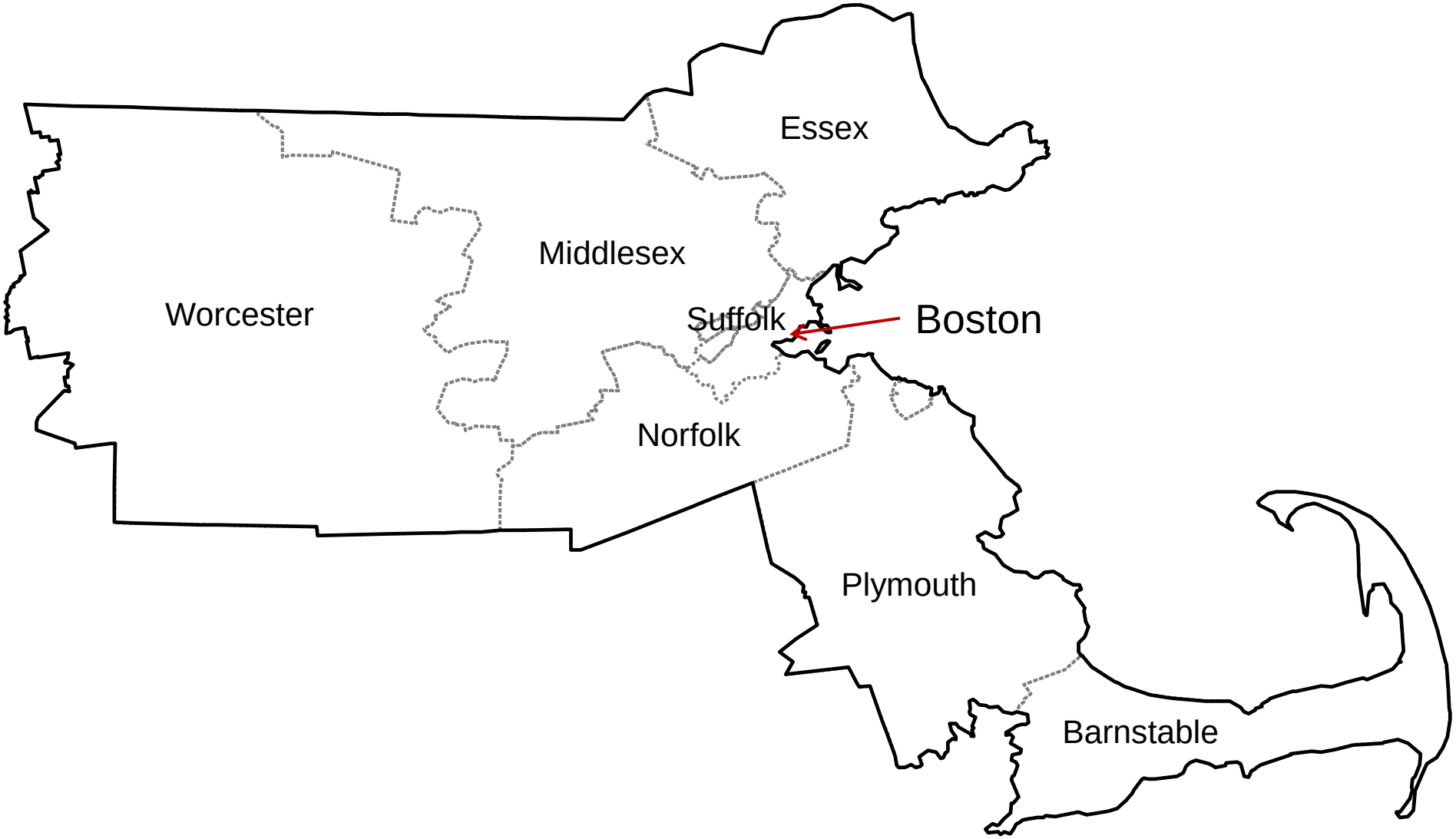
Part 2
Geographical Variation


Intergenerational Mobility in the United States vs. Denmark
Mean Child Income Rank
20
30
40
50
60
70
0
10
20
30
40
50
60
70
80
90
100
Parent Income Rank
Rank-Rank Slope (U.S) = 0.341
Rank-Rank Slope (Denmark) = 0.180
Denmark [Boserup, Kreiner, Kopczuk 2013]
United States

Geographical Variation within the U.S.

- We study variation in intergenerational mobility at the level of Commuting Zones (CZ's)
  - CZ's are aggregations of counties based on commuting patterns in 1990 census [Tolbert and Sizer 1996, Autor and Dorn 2012]
  - Similar to metro areas but cover rural areas as well

The Boston Commuting Zone

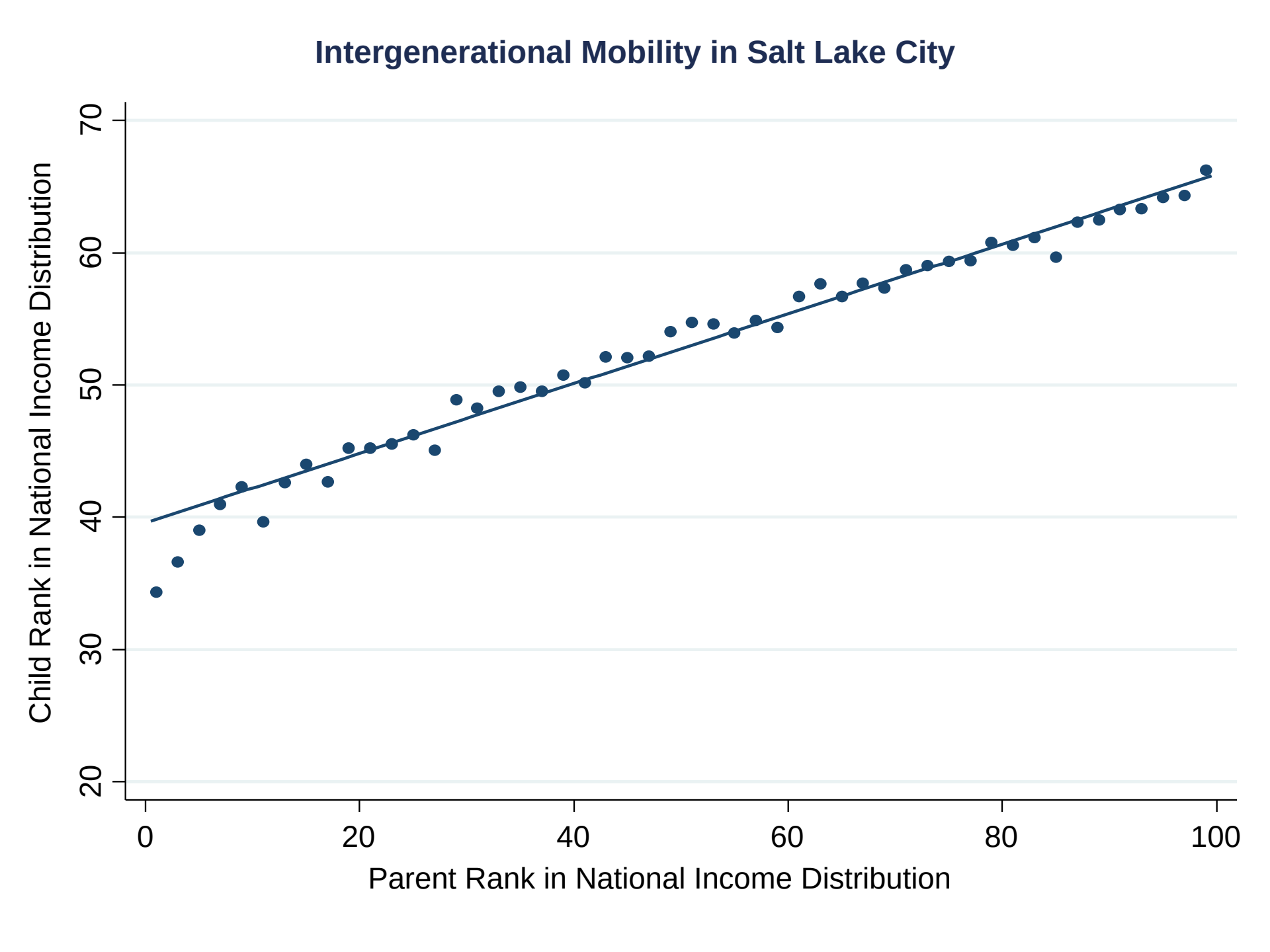


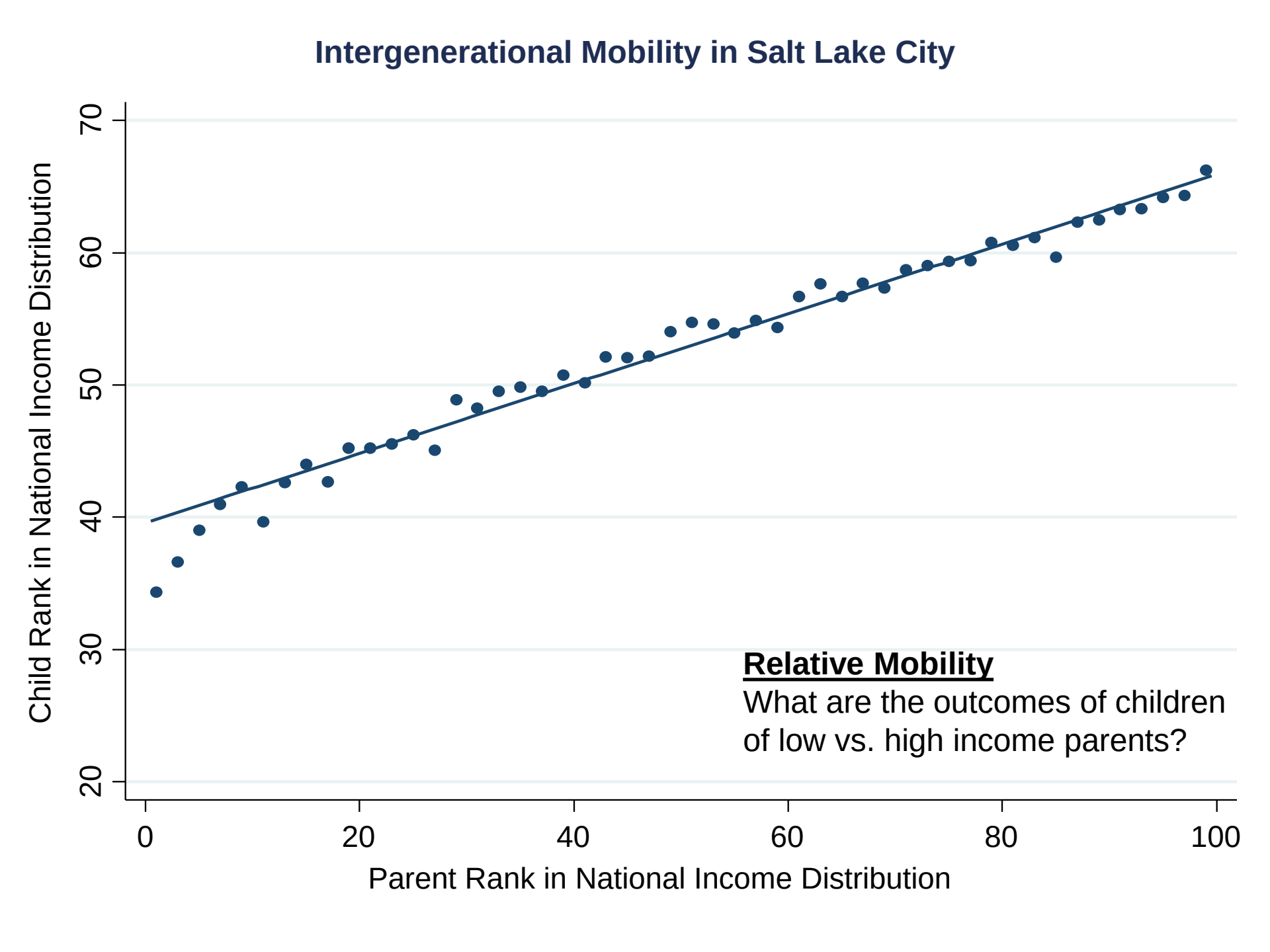
Geographical Definitions

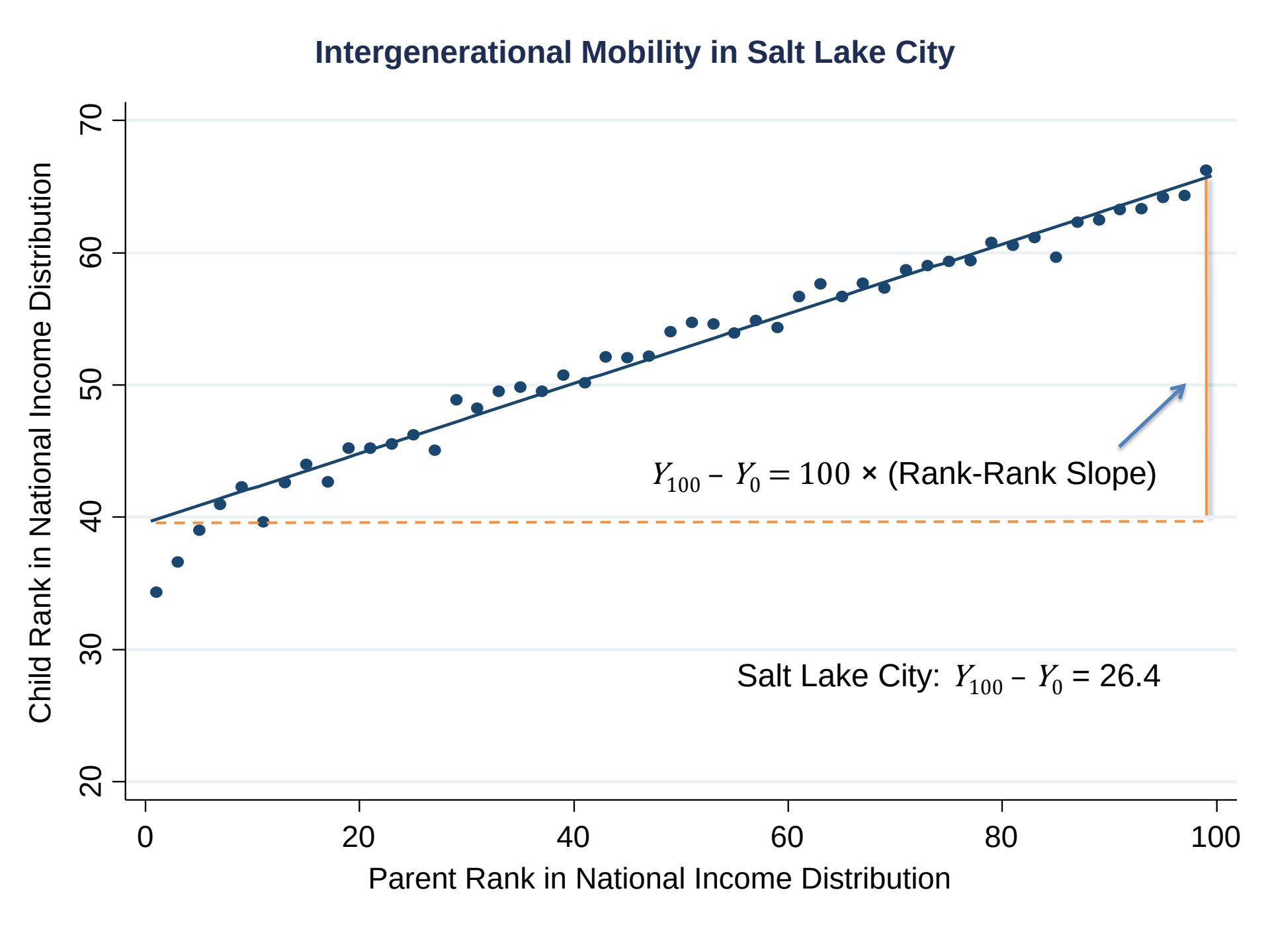
- Divide children into locations based on where they grew up
  - CZ from which parents filed tax return when they first claimed the child as a dependent
  - Permanently assign child to this CZ, no matter where she lives now
- For 1980 cohort, this is typically location when child is age 16
  - Verify using younger cohorts that measuring location at earlier ages yields very similar results

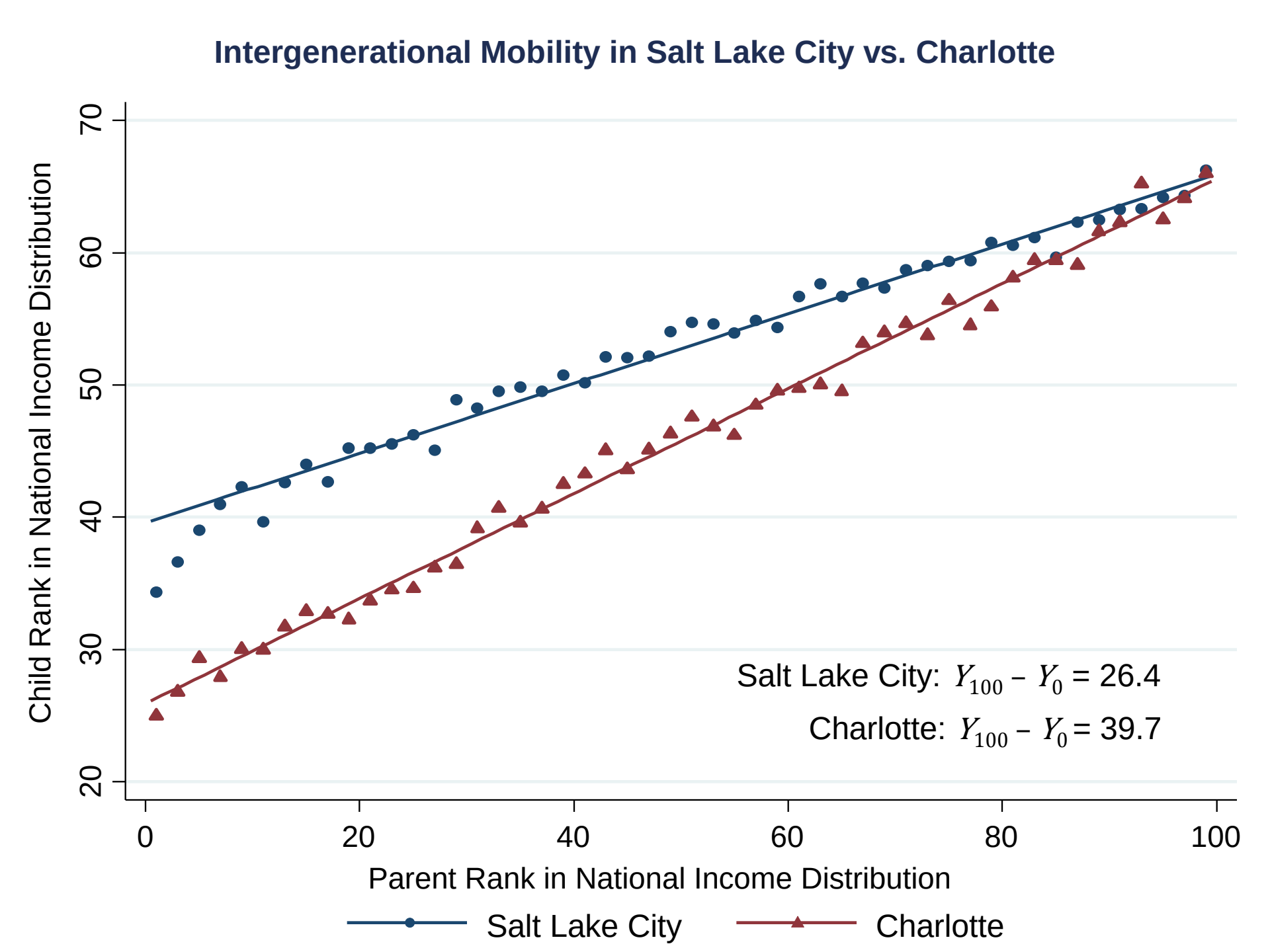
Defining Income Ranks

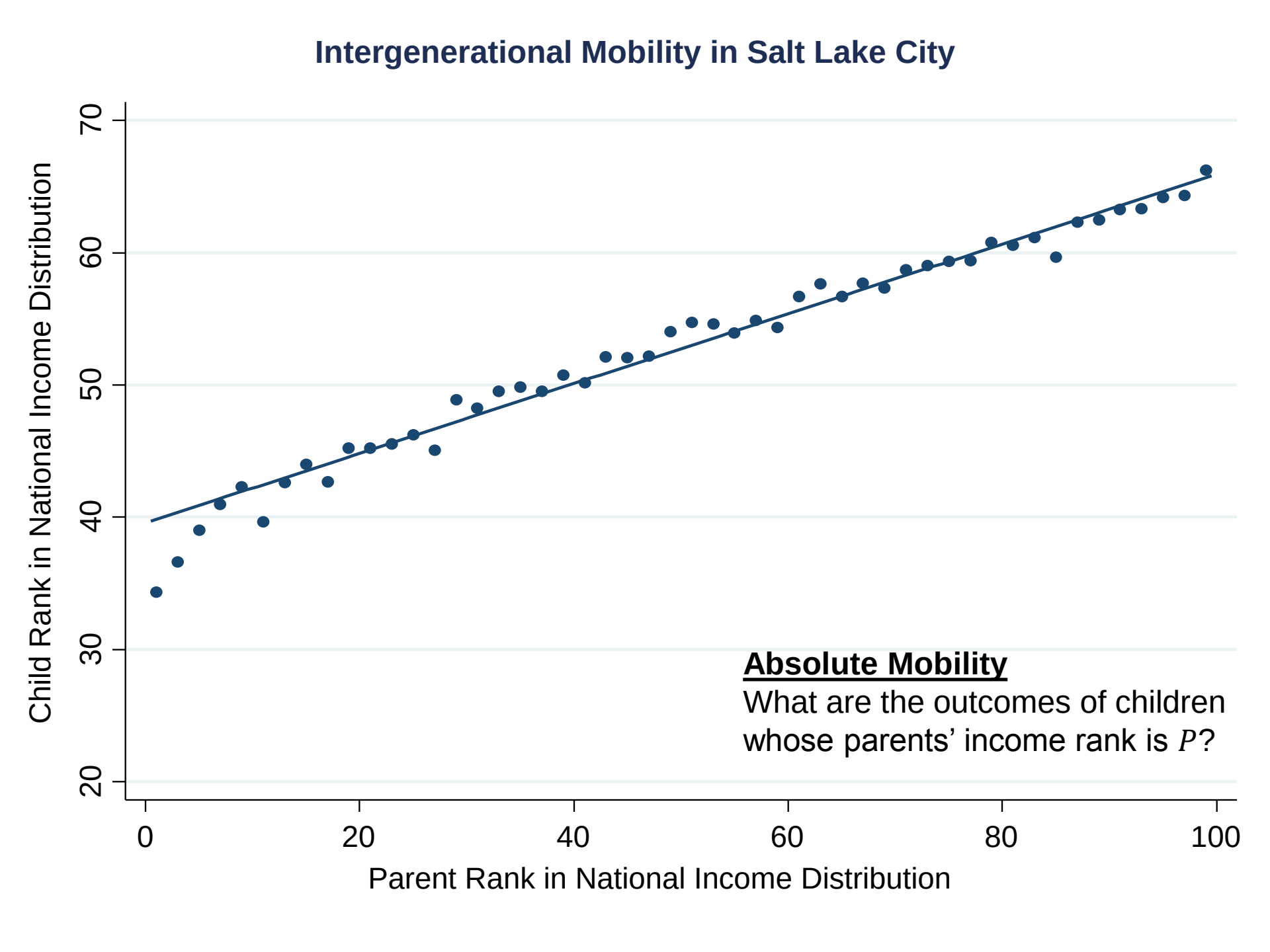
- In every CZ, we measure parent and child incomes using ranks in the *national* income distribution
    - This allows us to identify both relative and absolute mobility
- Important because more relative mobility is not necessarily desirable from a normative perspective

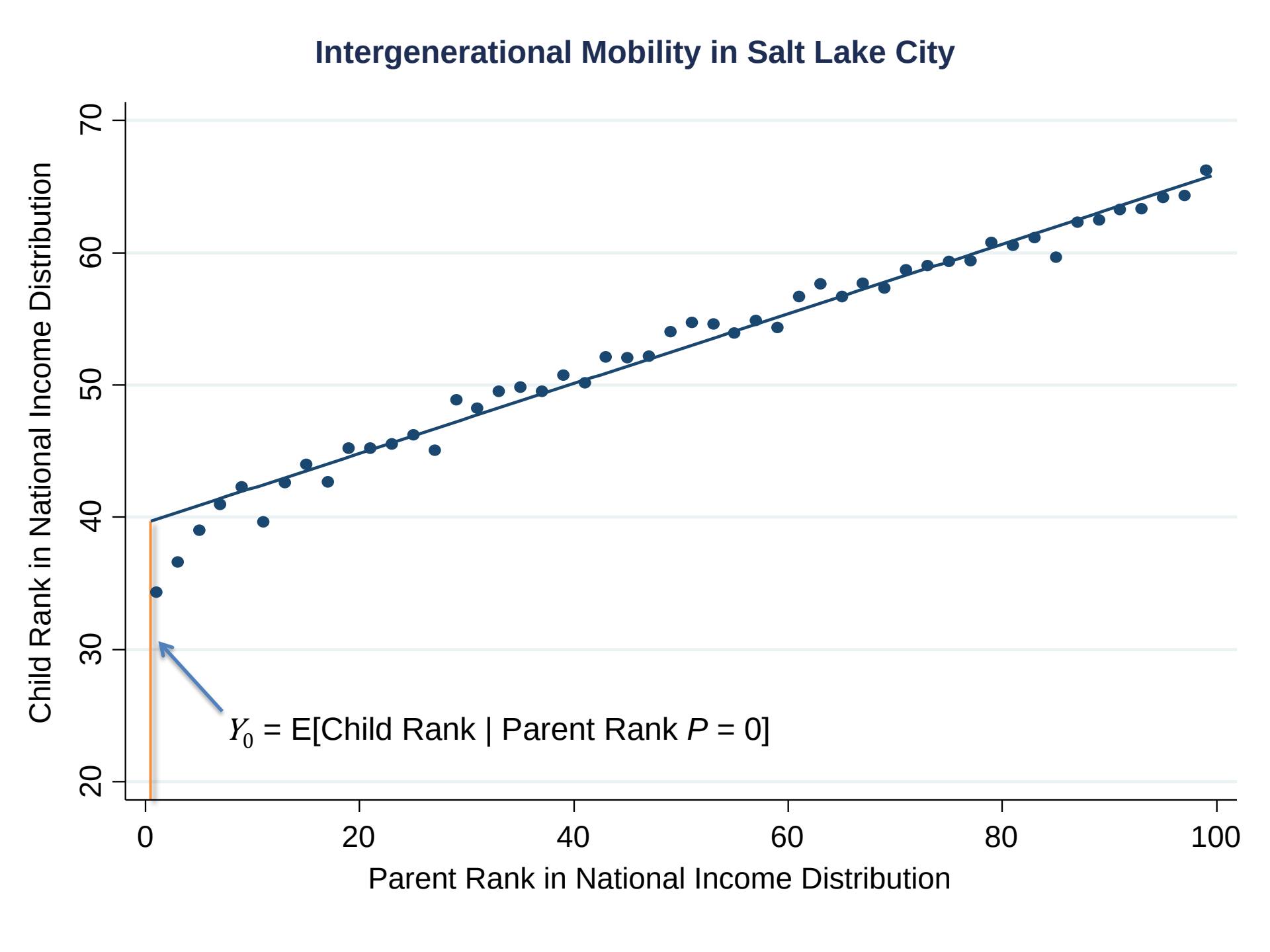

Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution

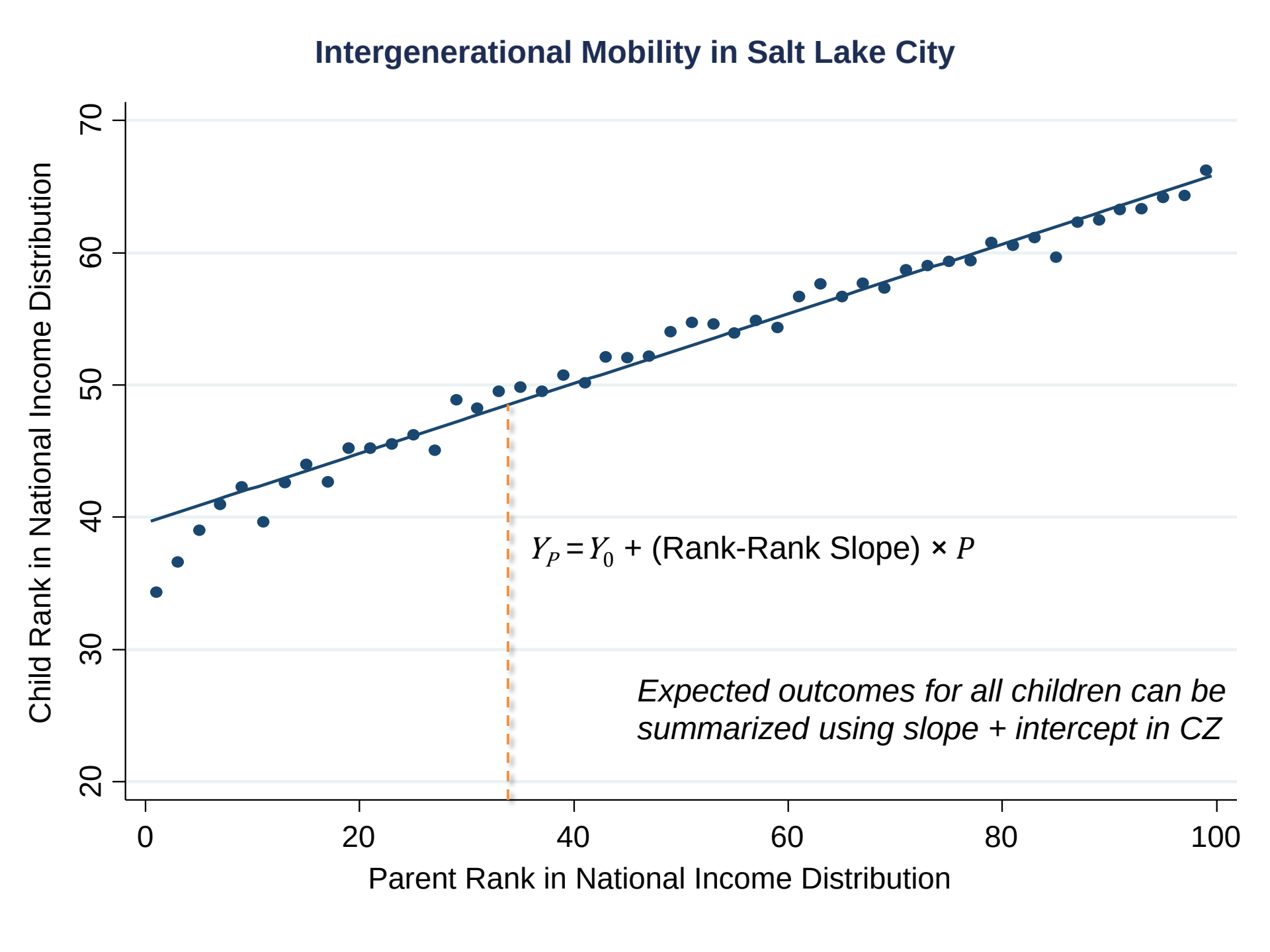

Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Relative Mobility
What are the outcomes of children of low vs. high income parents?

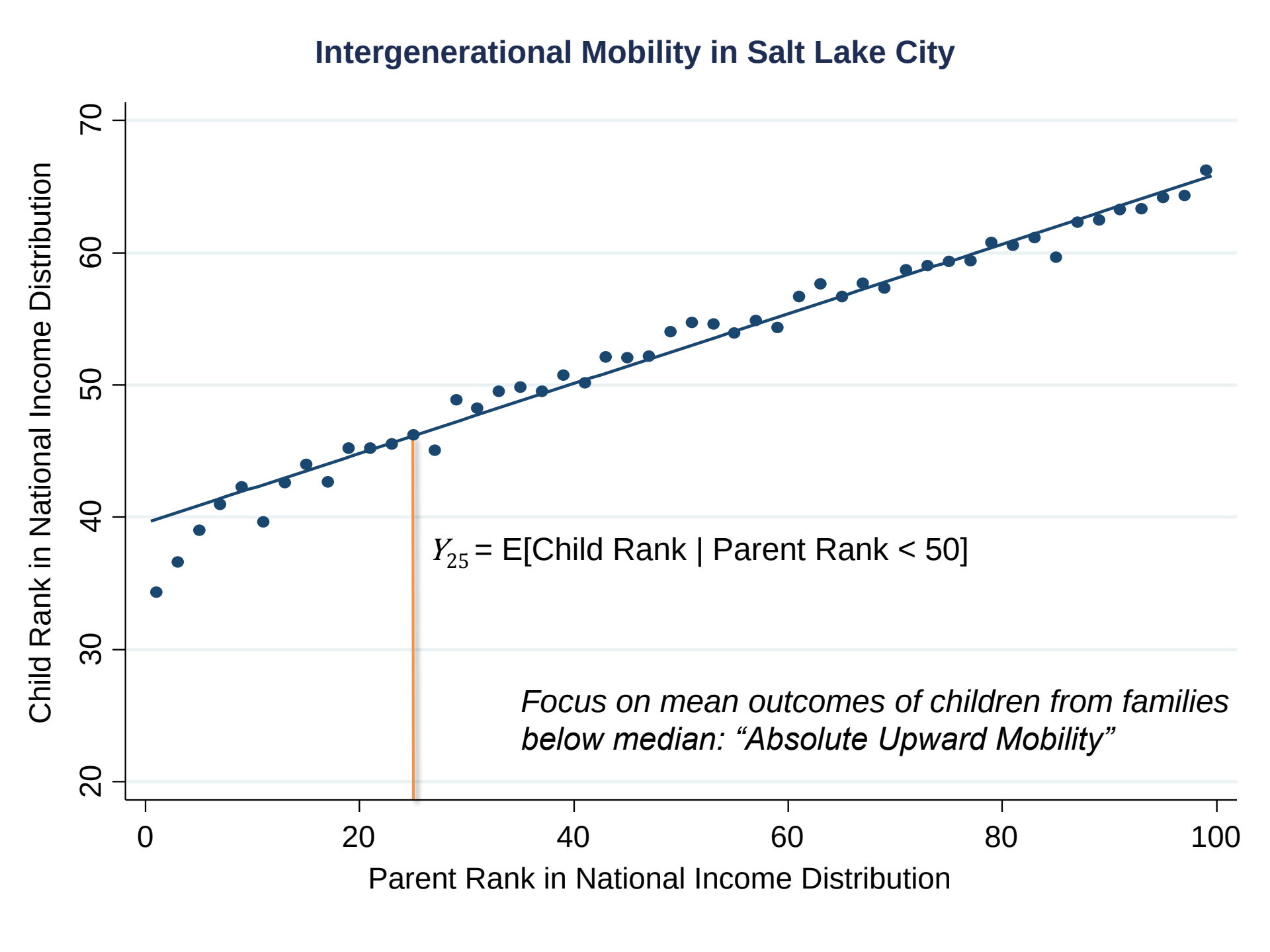

Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
$Y_{100} - Y_0 = 100 \times$ (Rank-Rank Slope)
Salt Lake City: $Y_{100} - Y_0 = 26.4$

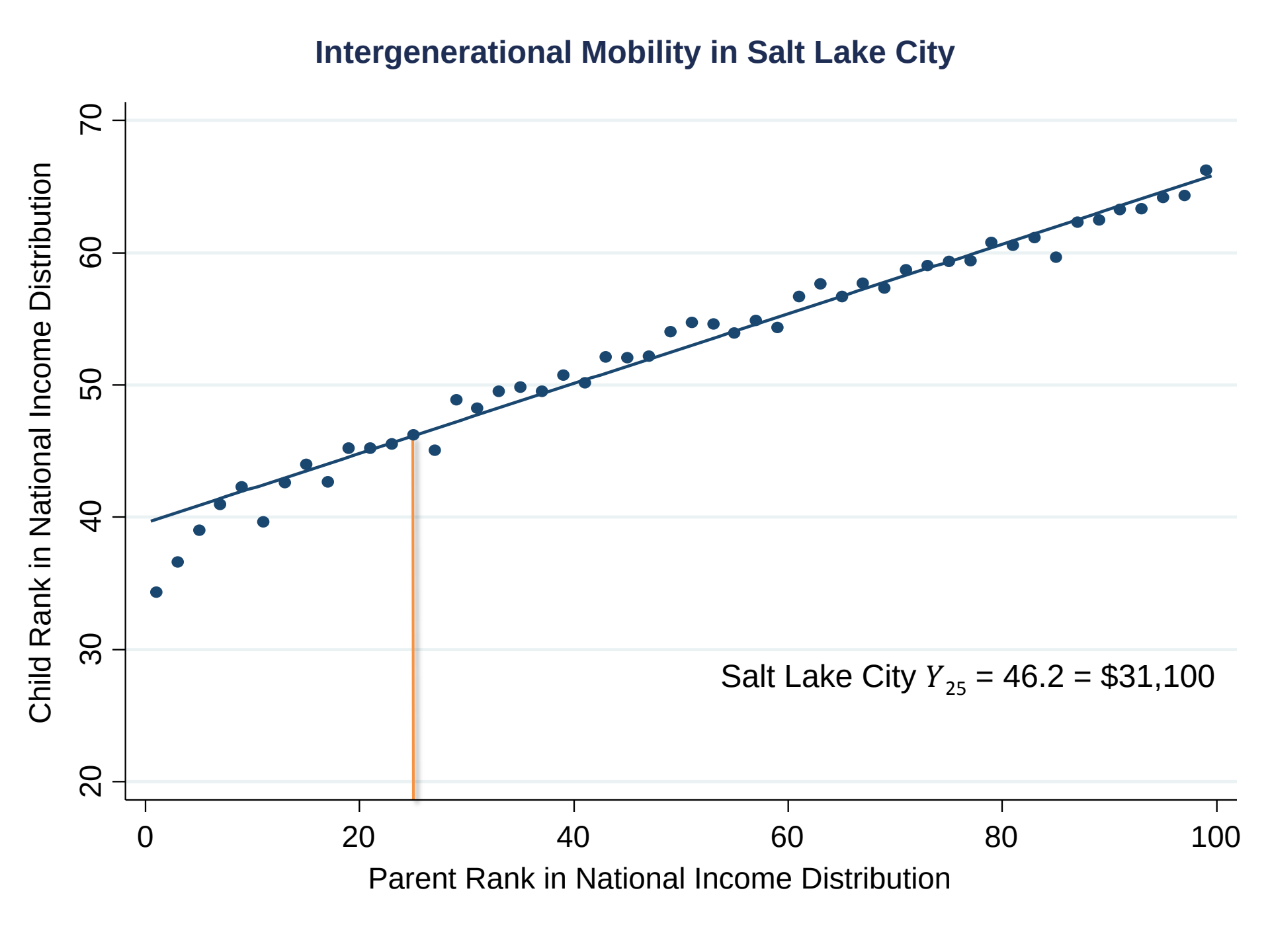

Intergenerational Mobility in Salt Lake City vs. Charlotte
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Salt Lake City: $Y_{100} - Y_0 = 26.4$
Charlotte: $Y_{100} - Y_0 = 39.7$
Salt Lake City
Charlotte

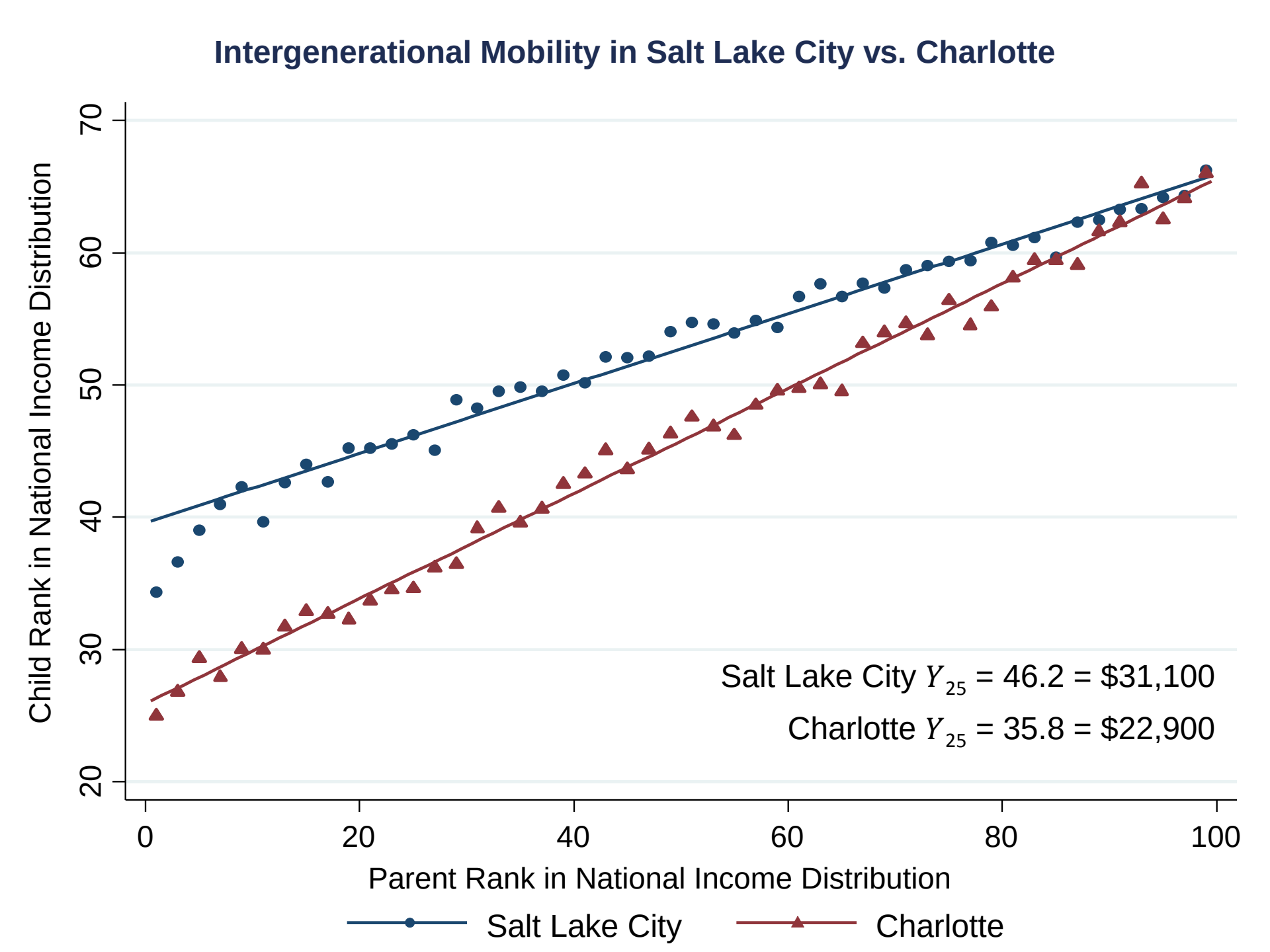

Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Absolute Mobility
What are the outcomes of children whose parents' income rank is P?

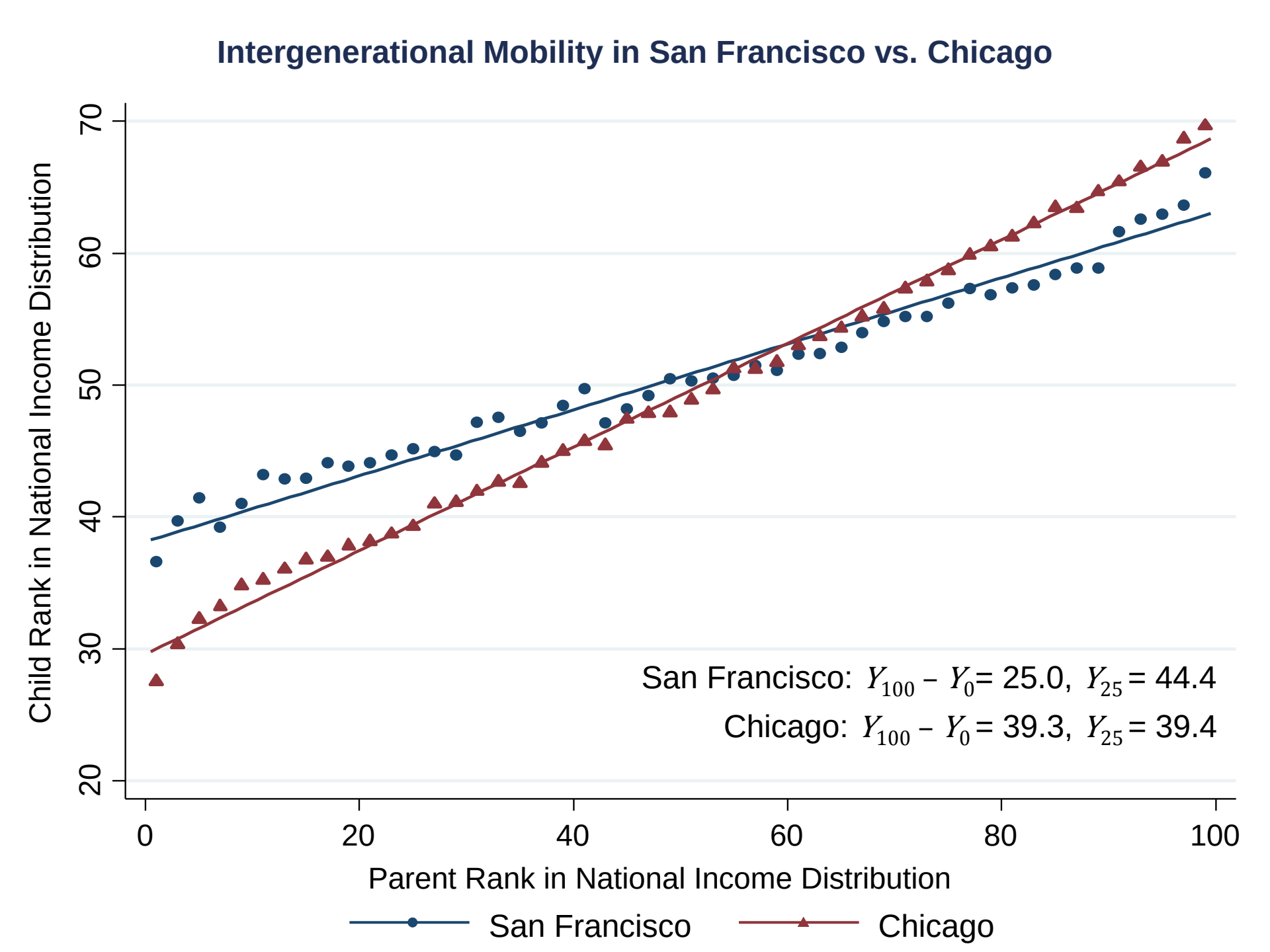

Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Y_0 = E[Child Rank | Parent Rank P = 0]


Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
$Y_P = Y_0$ + (Rank-Rank Slope) × P
Expected outcomes for all children can be summarized using slope + intercept in CZ


Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Y_{25} = E[Child Rank | Parent Rank < 50]
Focus on mean outcomes of children from families below median: "Absolute Upward Mobility"


Intergenerational Mobility in Salt Lake City
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Salt Lake City Y_{25} = 46.2 = $31,100


Intergenerational Mobility in Salt Lake City vs. Charlotte
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
Salt Lake City Y_{25} = 46.2 = $31,100
Charlotte Y_{25} = 35.8 = $22,900
Salt Lake City
Charlotte


Intergenerational Mobility in San Francisco vs. Chicago
Child Rank in National Income Distribution
20
30
40
50
60
70
0
20
40
60
80
100
Parent Rank in National Income Distribution
San Francisco: $Y_{100} - Y_0 = 25.0$, $Y_{25} = 44.4$
Chicago: $Y_{100} - Y_0 = 39.3$, $Y_{25} = 39.4$
San Francisco
Chicago

Mobility Estimates by CZ

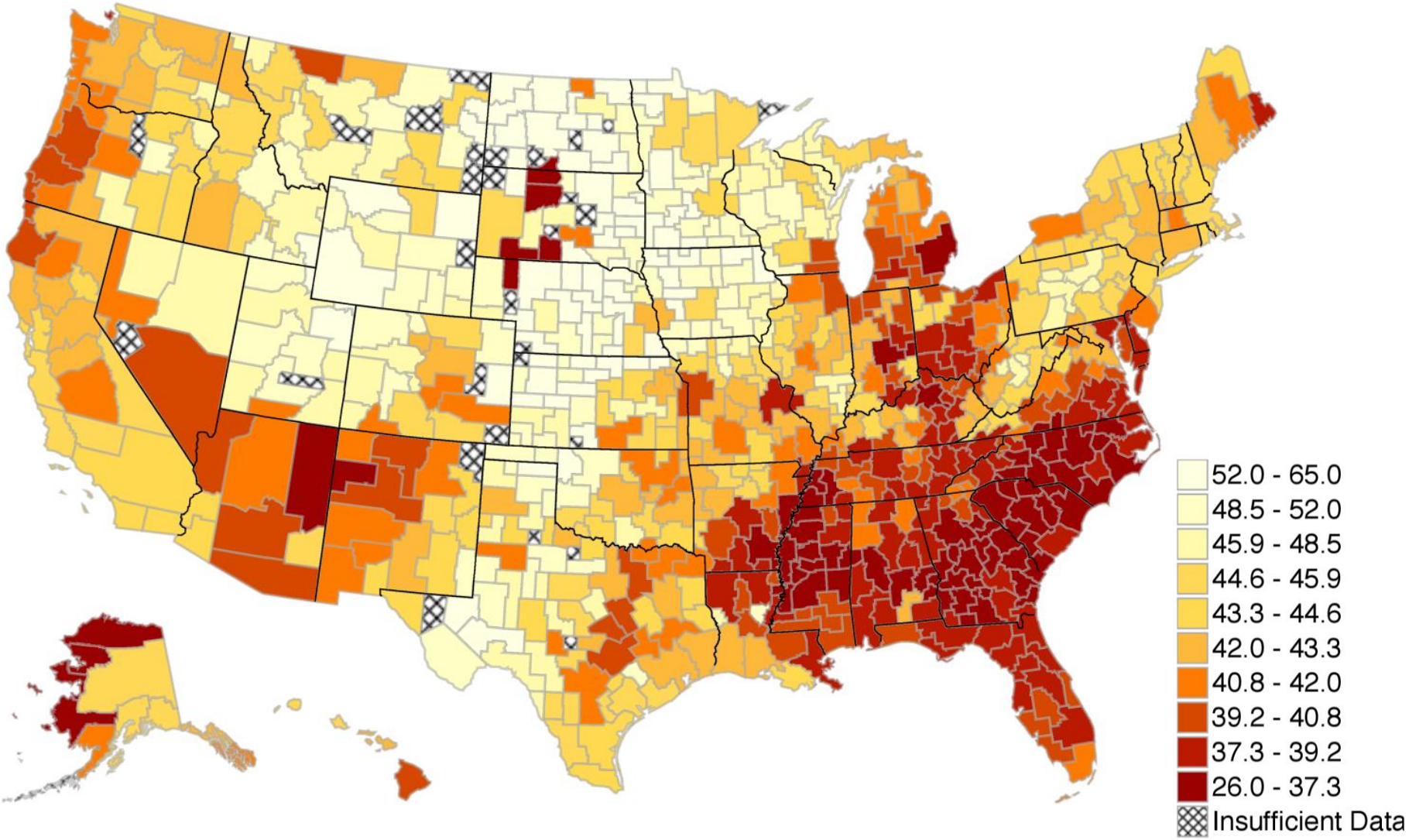
- In each CZ, regress child national rank on parent national rank in micro data:

$$Rank_{\text{child}} = \alpha + \beta Rank_{\text{parent}}$$

  - Relative mobility $= 100 \times \beta$
  - Absolute upward mobility $= \alpha + 25 \times \beta$

The Geography of Upward Mobility in the United States

Mean Child Percentile Rank for Parents at 25th Percentile (Y_{25})



Note: Lighter Color = More Absolute Upward Mobility

Highest Absolute Mobility In The 50 Largest CZs

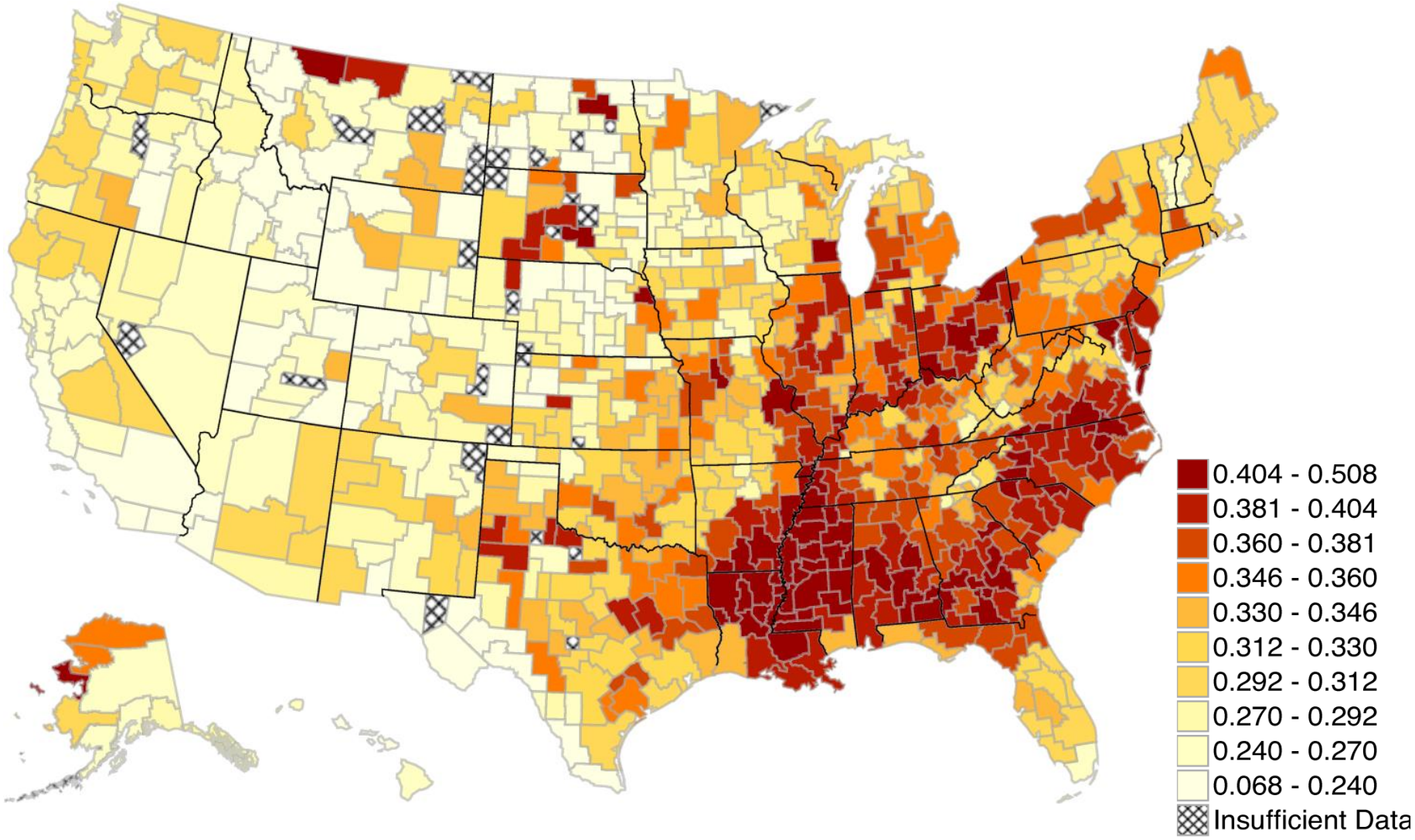
Upward Mobility Rank	CZ Name	Y_{25}	$Y_{100} - Y_0$	P(Child in Q5| Parent in Q1)
1	Salt Lake City, UT	46.2	0.264	10.83%
2	Pittsburgh, PA	45.2	0.359	9.51%
3	San Jose, CA	44.7	0.235	12.93%
4	Boston, MA	44.6	0.322	10.49%
5	San Francisco, CA	44.4	0.250	12.15%
6	San Diego, CA	44.3	0.237	10.44%
7	Manchester, NH	44.2	0.296	10.02%
8	Minneapolis, MN	44.2	0.338	8.52%
9	Newark, NJ	44.1	0.350	10.24%
10	New York, NY	43.8	0.330	10.50%

Lowest Absolute Mobility In The 50 Largest CZs

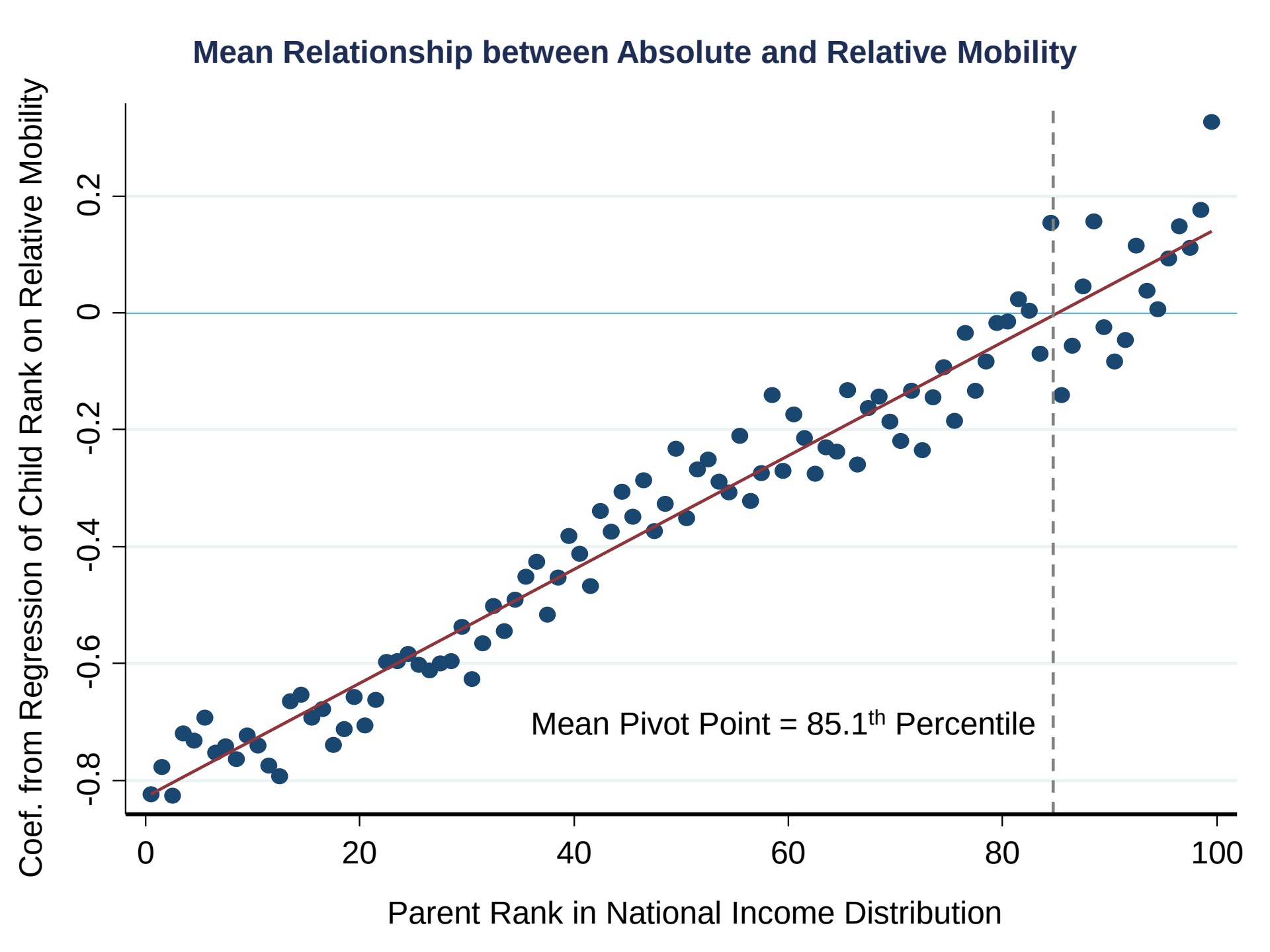
Upward Mobility Rank	CZ Name	Y_{25}	$Y_{100} - Y_0$	P(Child in Q5| Parent in Q1)
41	Nashville, TN	38.2	0.357	5.73%
42	New Orleans, LA	38.2	0.397	5.12%
43	Cincinnati, OH	37.9	0.429	5.12%
44	Columbus, OH	37.7	0.406	4.91%
45	Jacksonville, FL	37.5	0.361	4.92%
46	Detroit, MI	37.3	0.358	5.46%
47	Indianapolis, IN	37.2	0.398	4.90%
48	Raleigh, NC	36.9	0.389	5.00%
49	Atlanta, GA	36.0	0.366	4.53%
50	Charlotte, NC	35.8	0.397	4.38%

Relative Mobility Across Areas in the U.S.

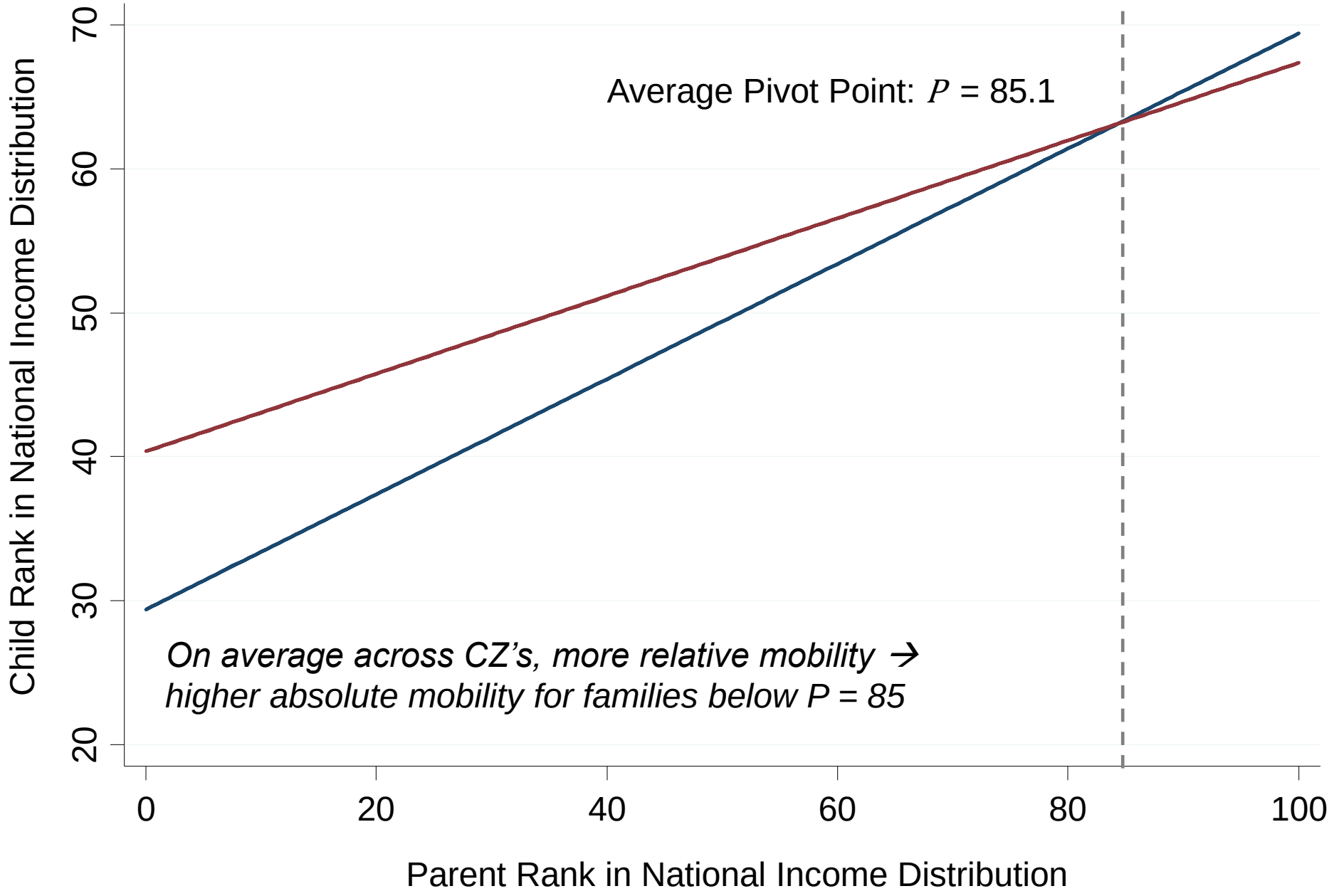
Rank-Rank Slopes ($Y_{100} - Y_0$) by Commuting Zone



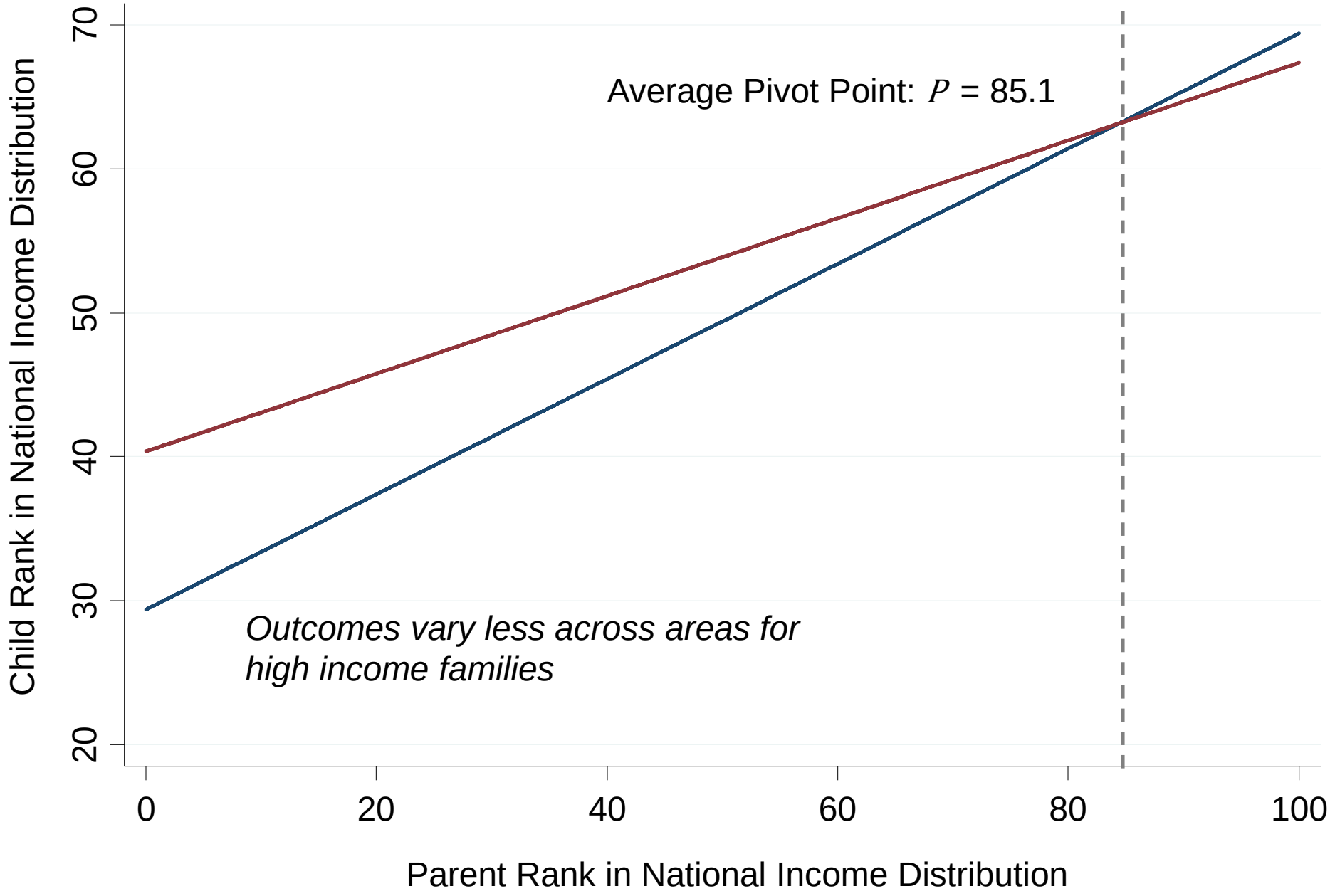
Corr. with baseline $\bar{y}_{25}$ = -0.68 (unweighted), -0.61 (pop-weighted)


Mean Relationship between Absolute and Relative Mobility
Coef. from Regression of Child Rank on Relative Mobility
0.2
0
-0.2
-0.4
-0.6
-0.8
0
20
40
60
80
100
Parent Rank in National Income Distribution
Mean Pivot Point = 85.1th Percentile

Mean Relationship between Absolute and Relative Mobility



Mean Relationship between Absolute and Relative Mobility

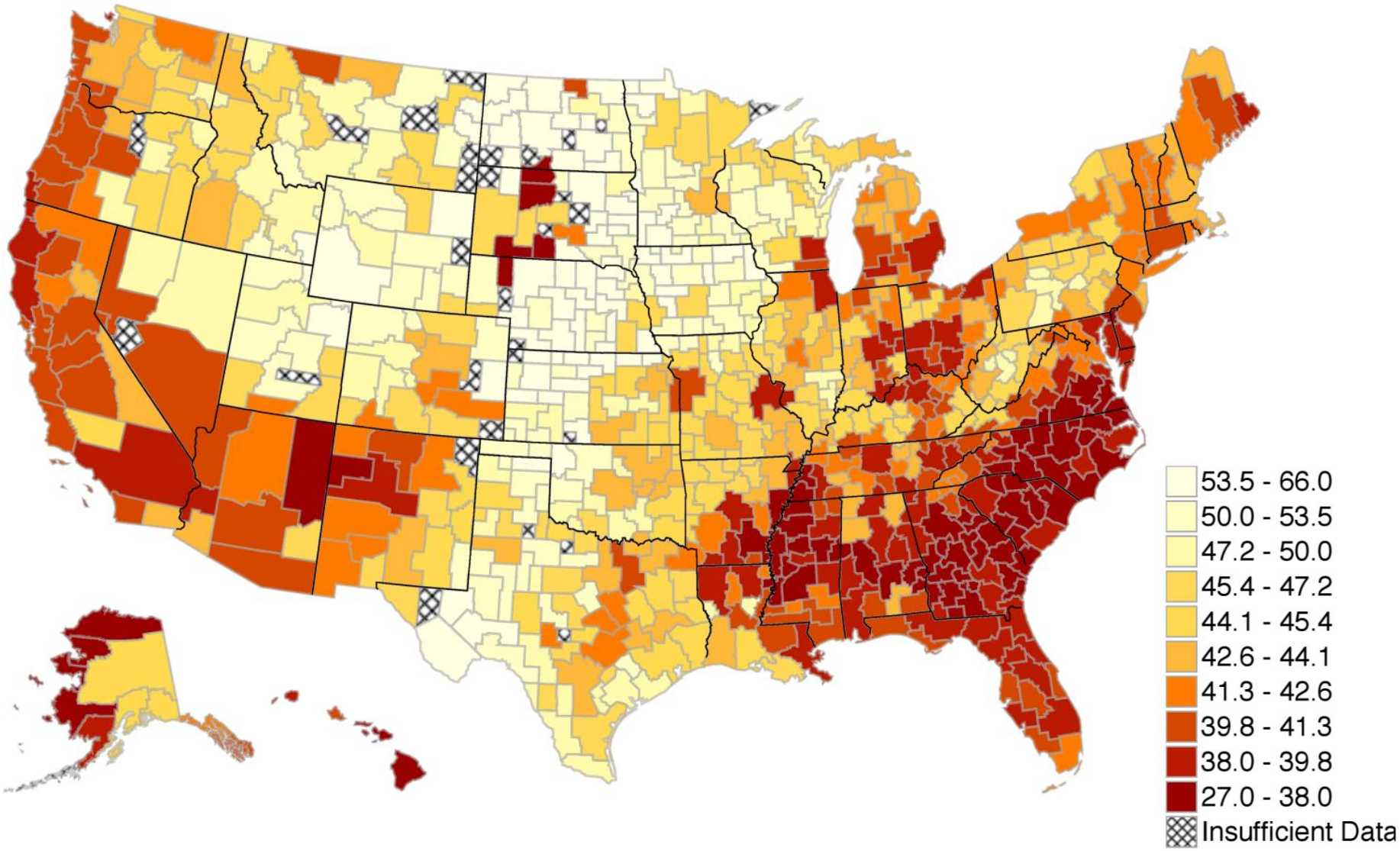


Stability of Intergenerational Mobility Measures Across Areas

	Correlation with Baseline Specification	
Alternative Measures	Y_{25}	$Y_{100} - Y_0$
Cohort 83-5	0.96	0.96
Cohort 86-88	0.82	0.88
Cost-of-Living Adjusted	0.86	0.99
Indiv. Inc. Male Children	0.96	0.95
Parent Income 2011/12	0.94	0.98
Local Ranks Relative Mobility		0.96
College Attendance (18-21)	0.53	0.72
Teen Birth Rate (Females)	-0.64	-0.68

Upward Mobility (Y_{25}) Adjusted for Differences in Cost of Living

Parent and Child Income Deflated by Cost of Living Based on ACCRA data

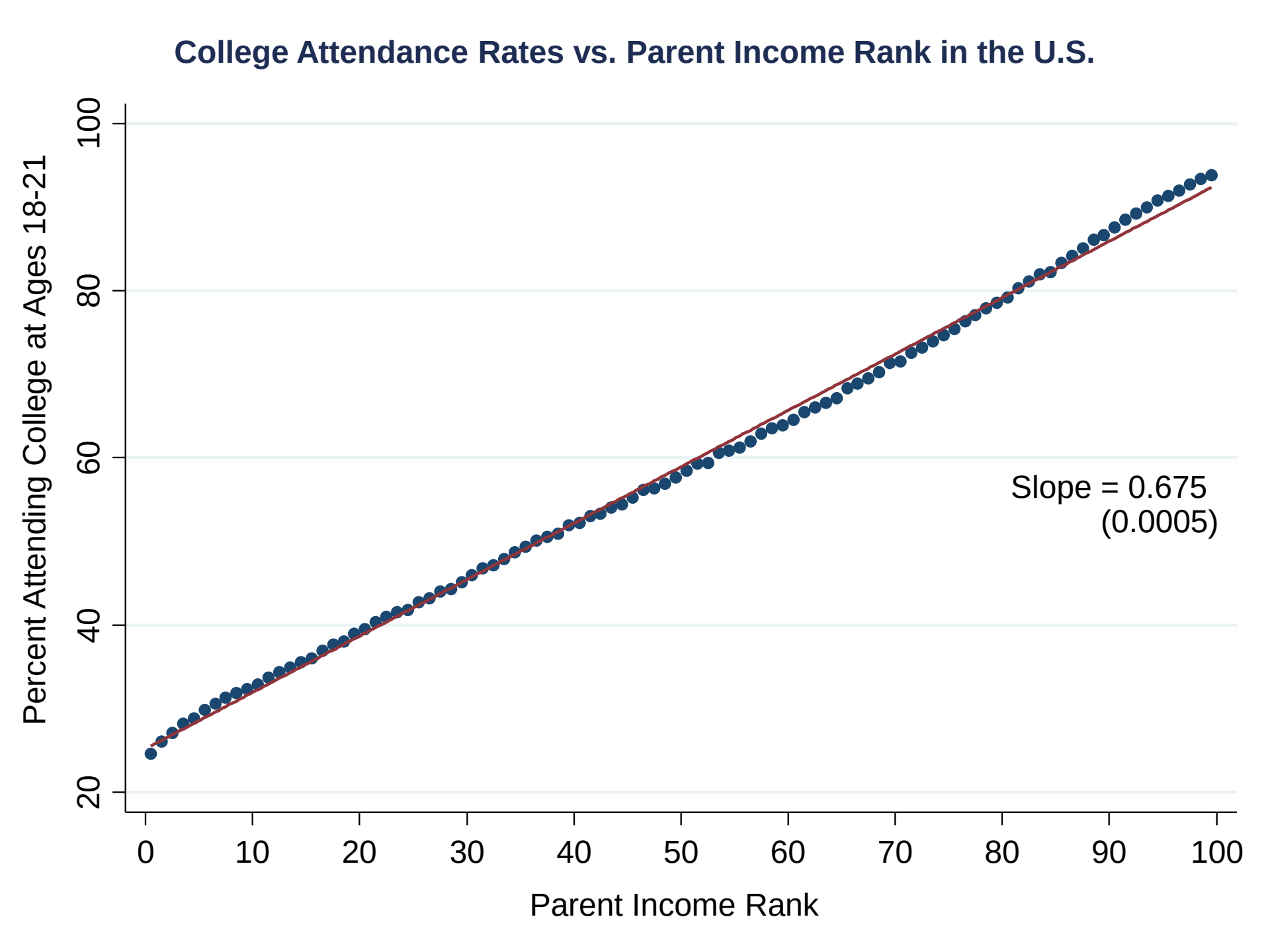


Corr. with baseline $\bar{y}_{25}$ = 0.98 (unweighted), 0.86 (pop-weighted)

Part 3
Correlates of Intergenerational Mobility

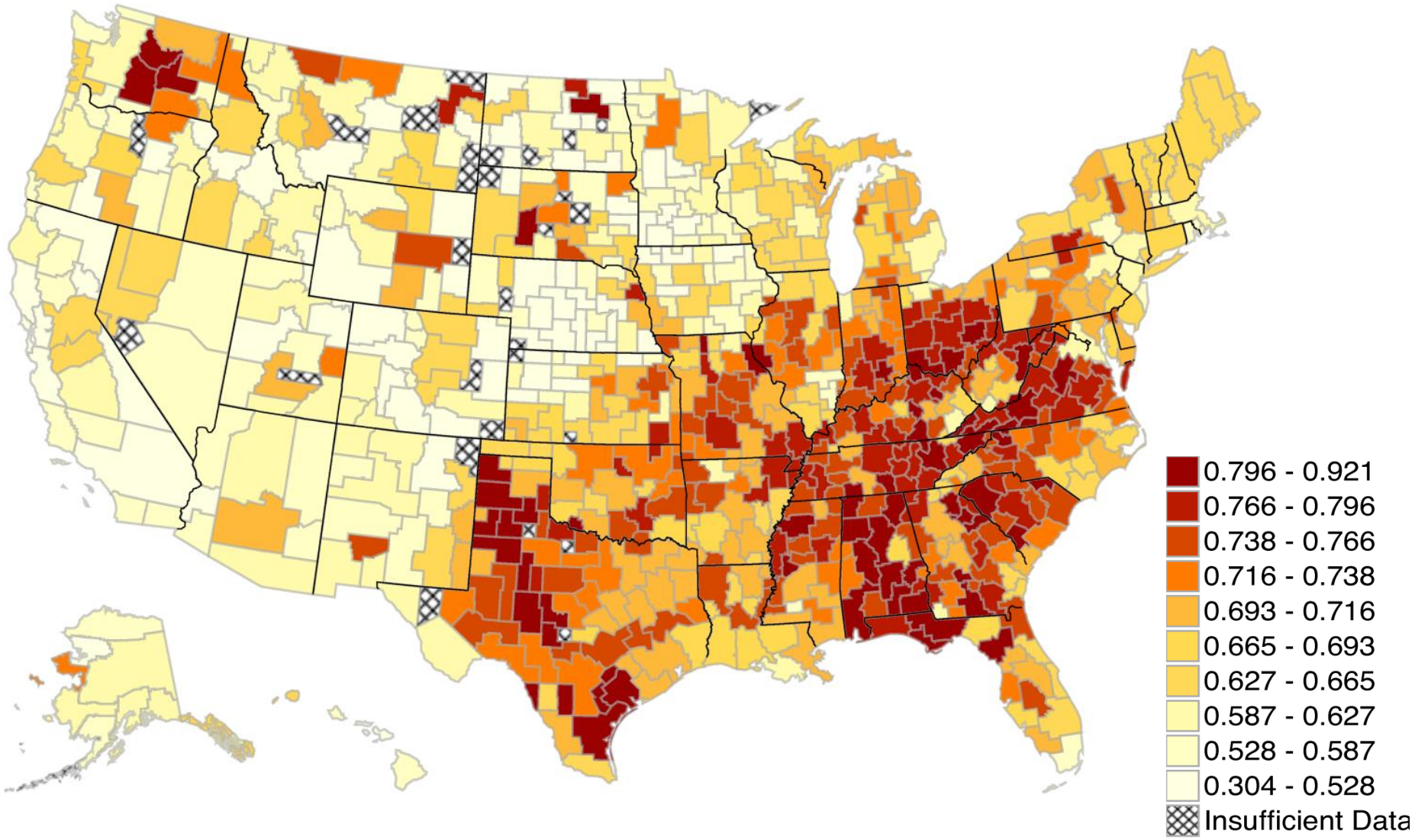
Correlates of Intergenerational Mobility

- Correlate differences in mobility with observable factors
  - Focus on hypotheses proposed in sociology and economics literature and public debate
  - Goal: stylized facts to guide search for causal mechanisms
- First clues into potential mechanisms: timing
  - Spatial variation in inequality emerges at very early ages
  - Well before children start working

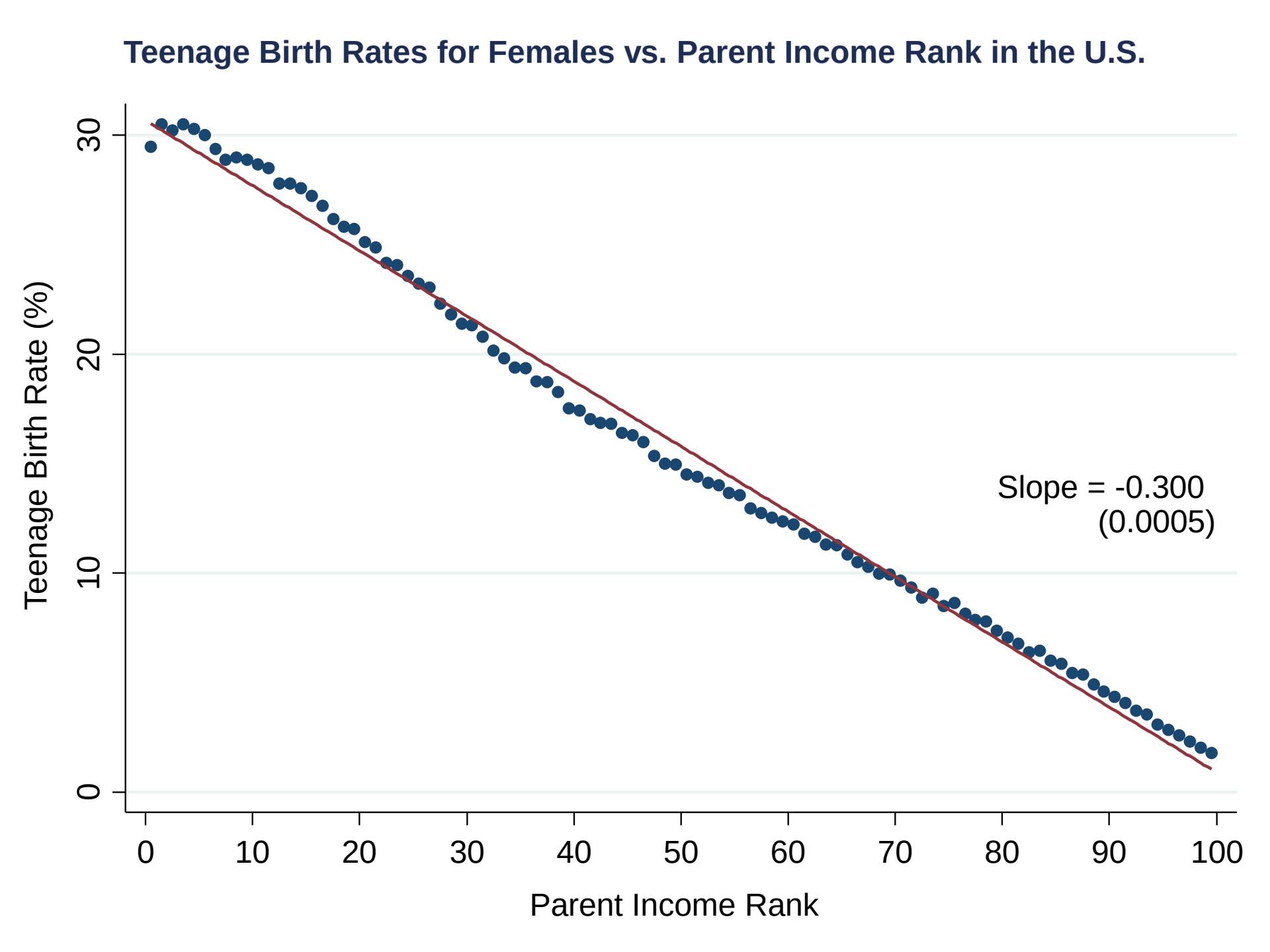

College Attendance Rates vs. Parent Income Rank in the U.S.
Percent Attending College at Ages 18-21
20
40
60
80
100
0
10
20
30
40
50
60
70
80
90
100
Parent Income Rank
Slope = 0.675
(0.0005)

College-Income Gradients by Area

Slopes from Regression of College Attendance (Age 18-21) on Parent Inc. Rank

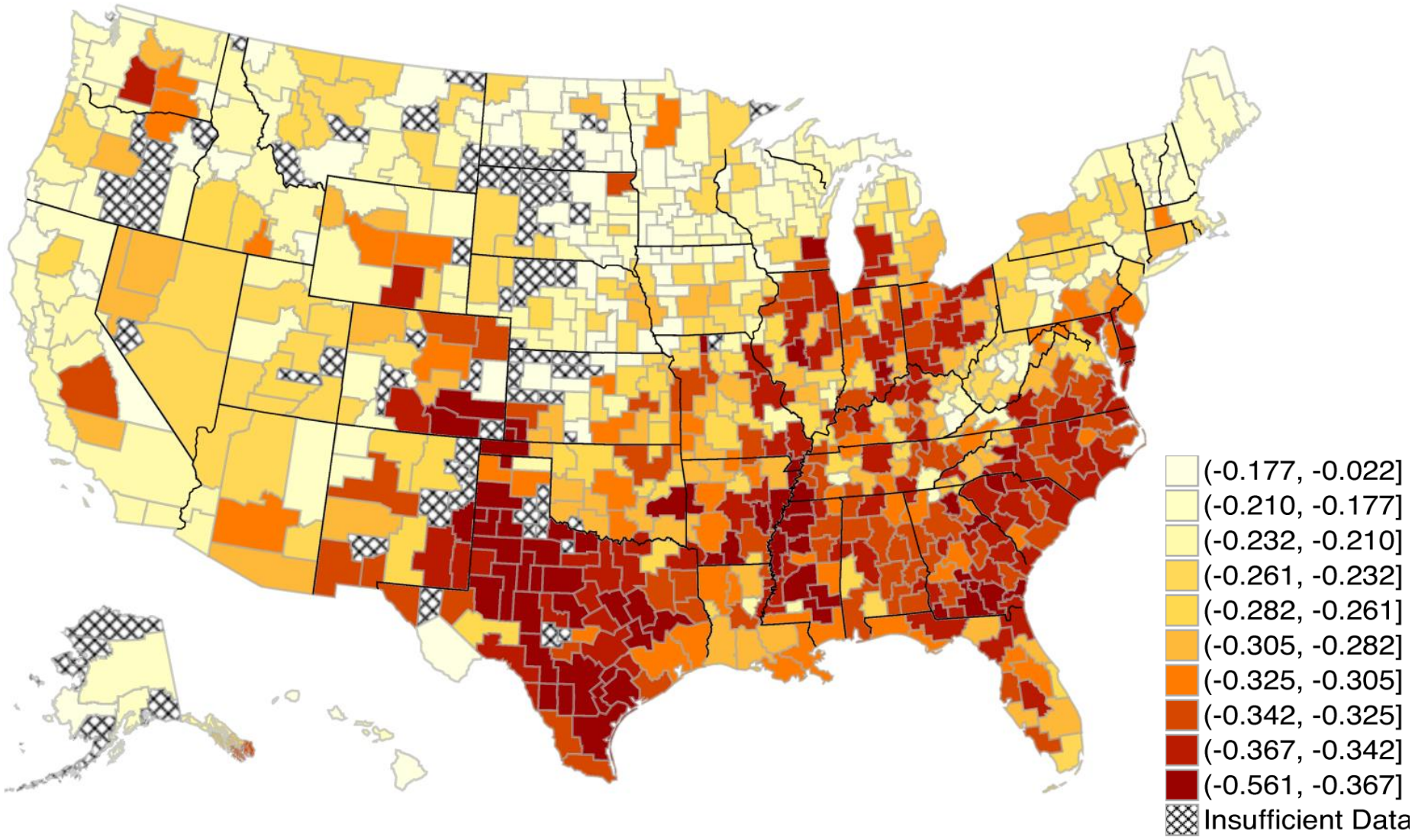


Corr. with baseline $\bar{y}_{100}$- $\bar{y}_0$ = 0.68 (unweighted), 0.72 (pop-weighted)


Teenage Births for Females vs. Parent Income Rank in the U.S.
Teenage Birth Rate (%)
0
10
20
30
0
10
20
30
40
50
60
70
80
90
100
Parent Income Rank
Slope = -0.300
(0.0005)

Teenage Birth Gradients by Area

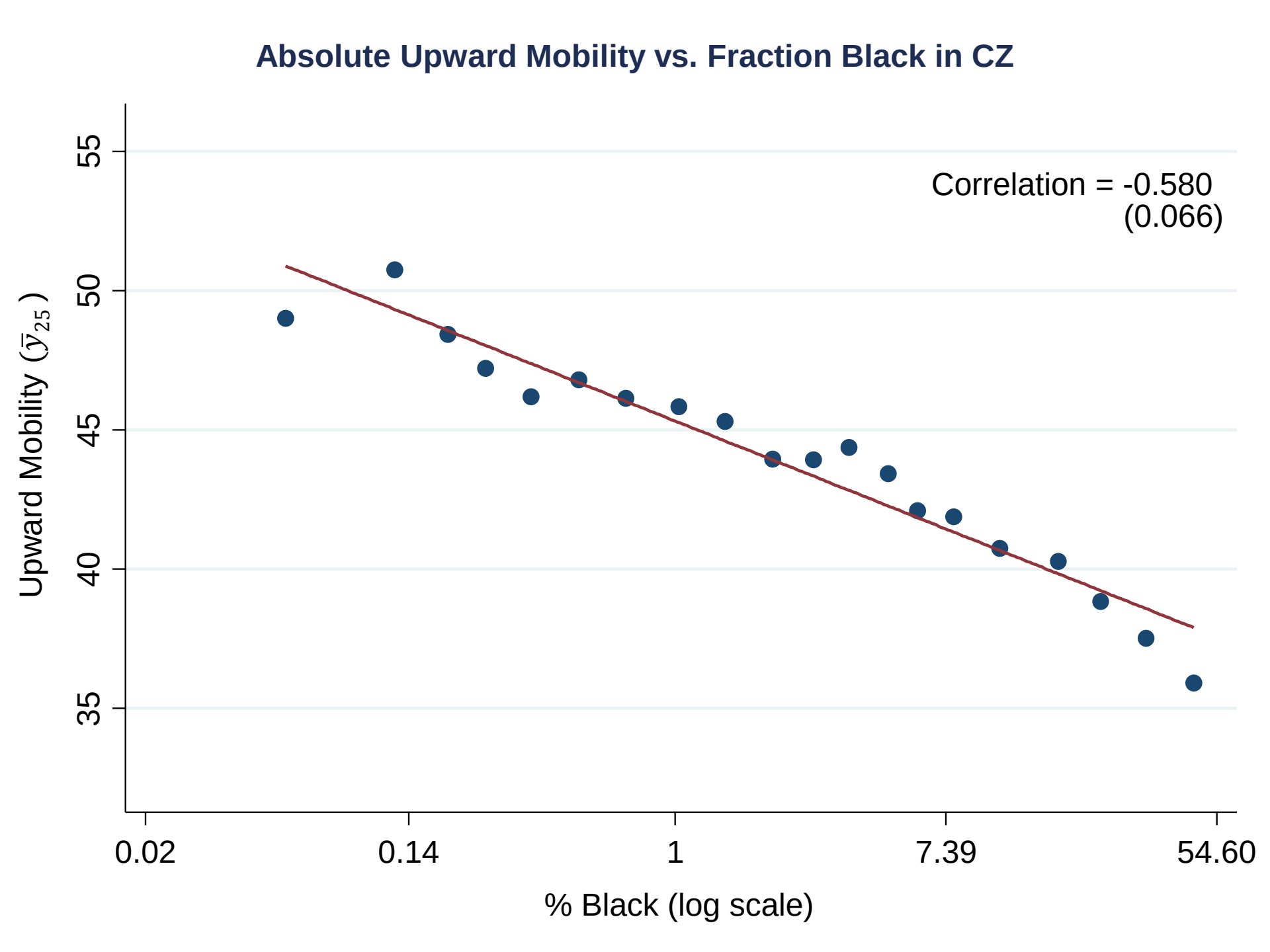
Slopes from Regression of Teenage Birth on Parent Inc. Rank



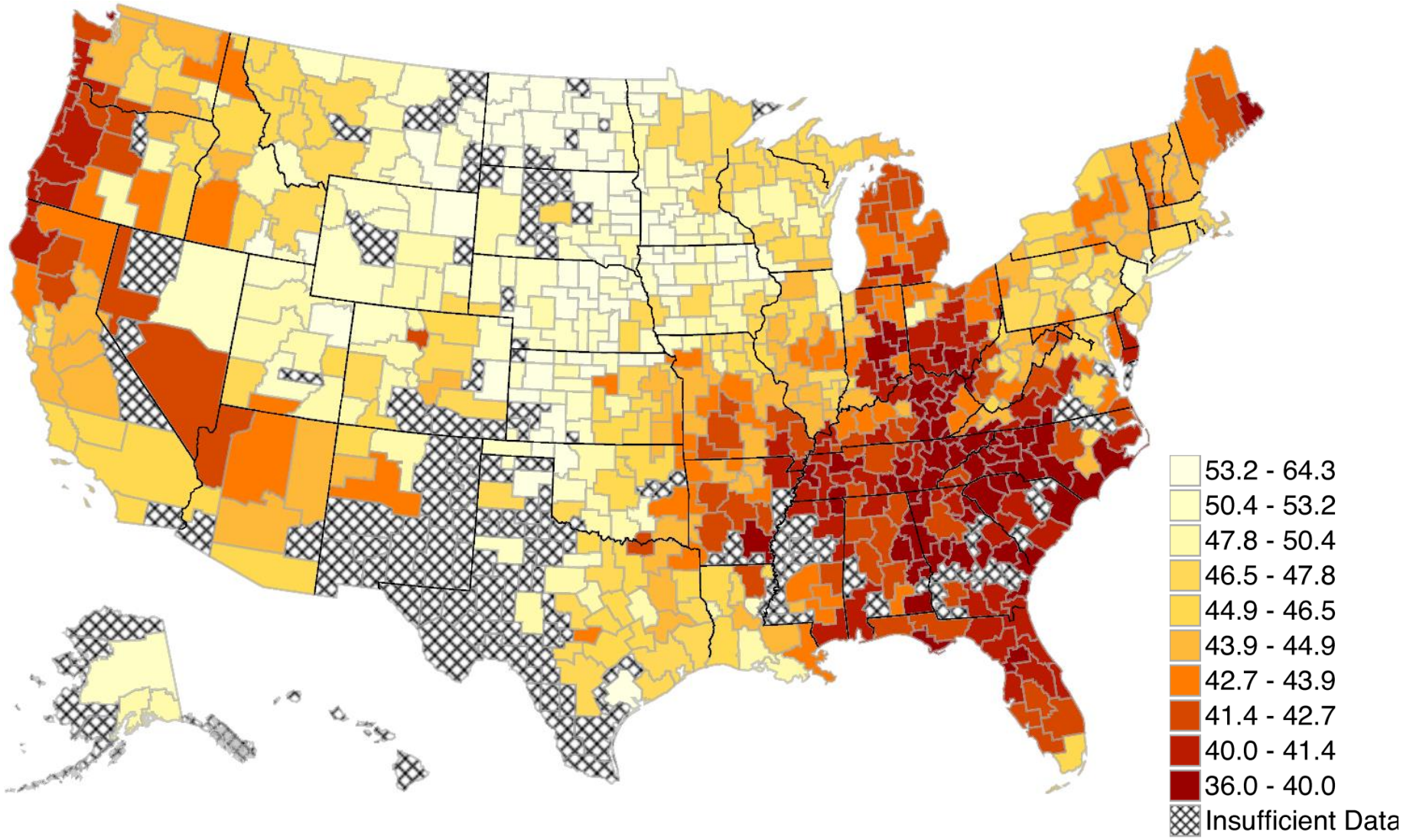
Corr. with baseline $\bar{y}_{100}$- $\bar{y}_0$ = -0.58 (unweighted), -0.68 (pop-weighted)

Correlates of Intergenerational Mobility

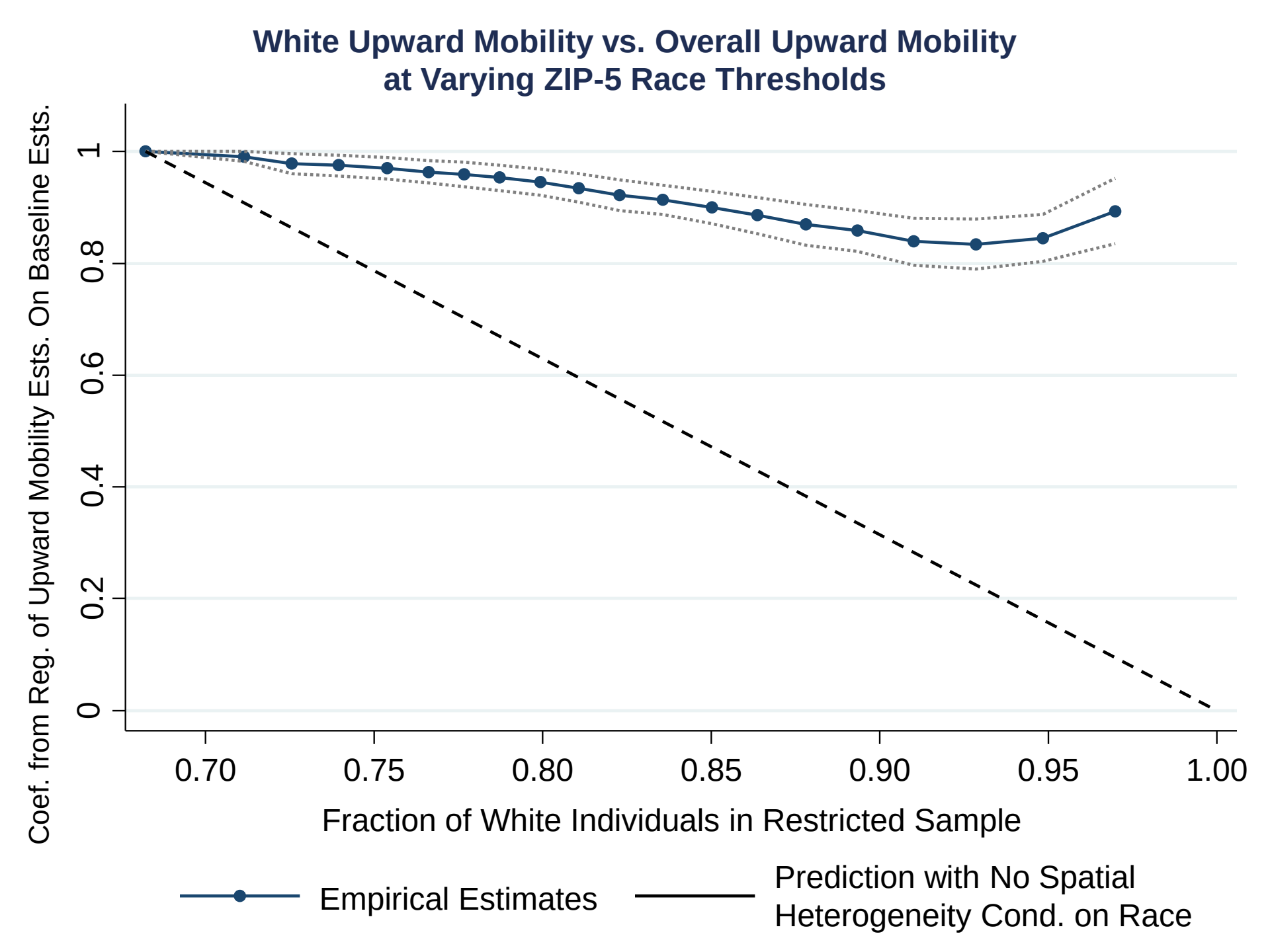
- Early emergence of gradients points to factors that affect children when growing up (or anticipatory responses to later factors)
  - E.g. schools or family characteristics [e.g., Mulligan 1999]
- Start by exploring racial differences
  - Most obvious pattern from map: upward mobility lower in areas with larger African-American population


Absolute Upward Mobility vs. Fraction Black in CZ
Correlation = -0.580
(0.066)
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
0.02
0.14
1
7.39
54.60
% Black (log scale)

Upward Mobility (Y_{25}) for ZIP-5's with ≥ 80% White Residents



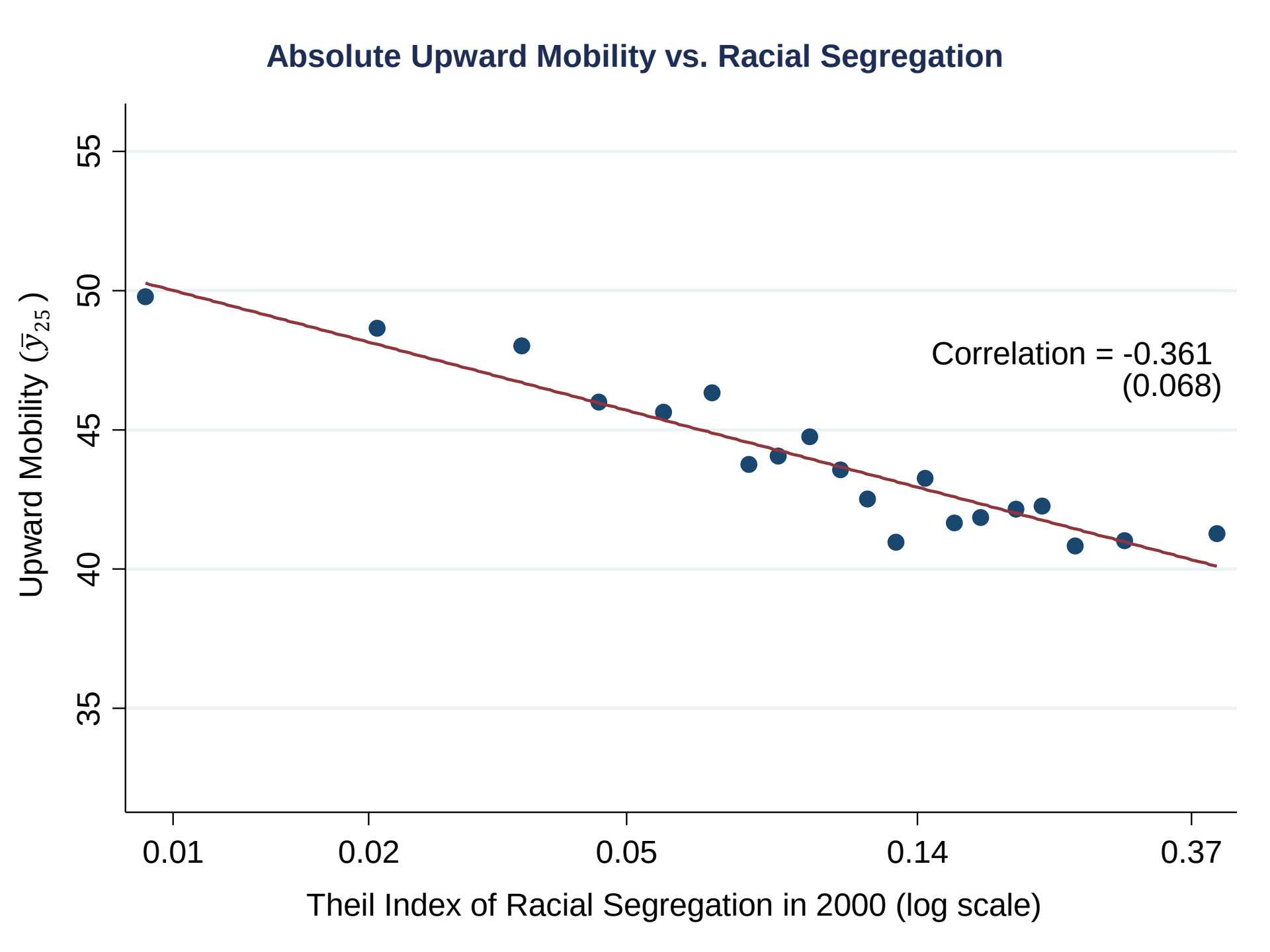
Corr. with baseline $\bar{y}_{25}$ = 0.91 (unweighted), 0.73 (pop-weighted)


White Upward Mobility vs. Overall Upward Mobility
at Varying ZIP-5 Race Thresholds
Coef. from Reg. of Upward Mobility Ests. On Baseline Ests.
0
0.2
0.4
0.6
0.8
1
0.70
0.75
0.80
0.85
0.90
0.95
1.00
Fraction of White Individuals in Restricted Sample
Empirical Estimates
Prediction with No Spatial
Heterogeneity Cond. on Race

Race and Upward Income Mobility

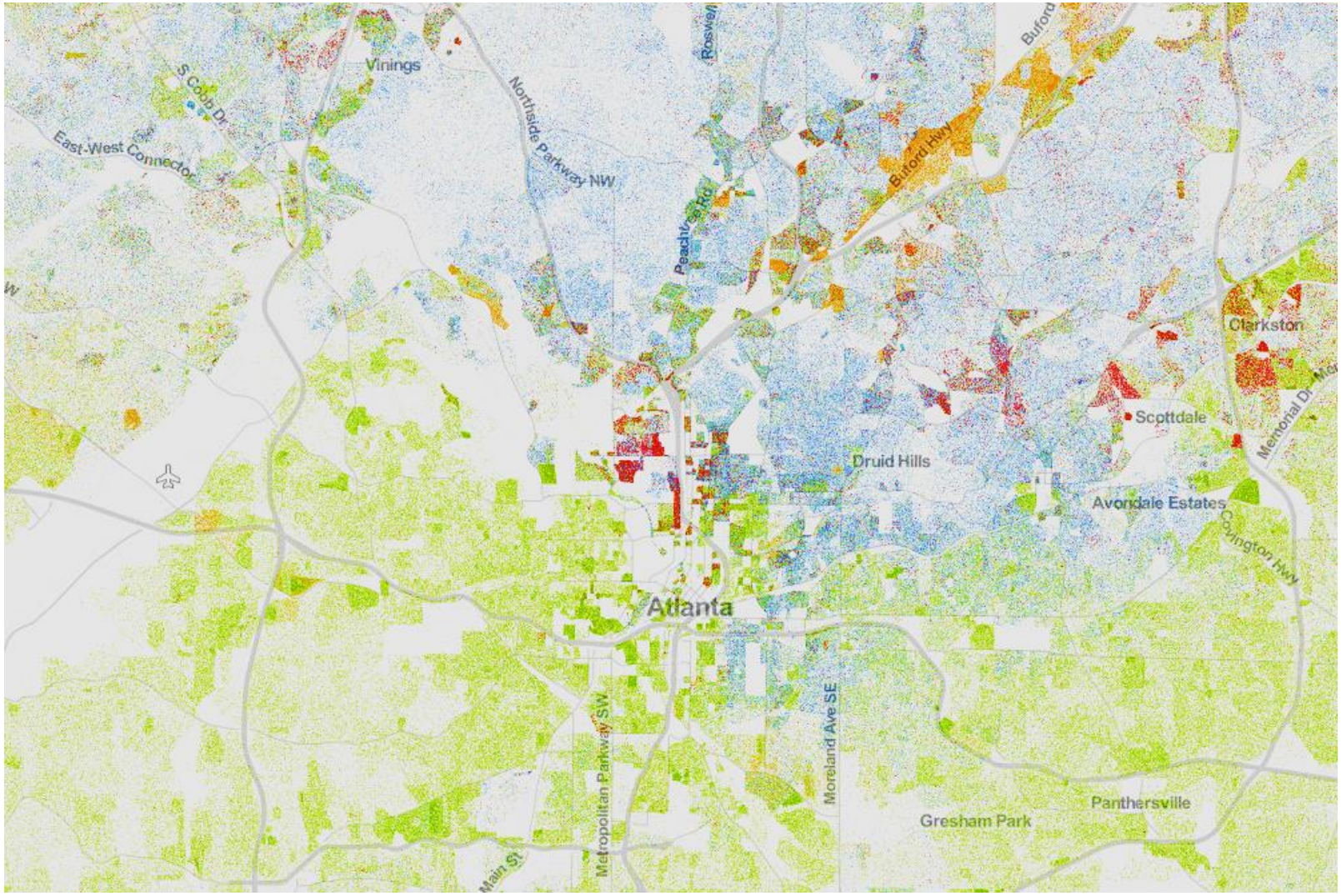
- Racial shares matter at community level for *both* blacks and whites

- One potential mechanism: racial and income segregation
  - Historical legacy of greater segregation in areas with larger African-American population
  - Racial segregation is associated with greater income segregation
  - Such segregation could affect both low-income blacks and whites [Wilson 1987, Massey and Denton 1988, Cutler and Glaeser 1997, Graham and Sharkey 2013]


Absolute Upward Mobility vs. Racial Segregation
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.361
(0.068)
0.01
0.02
0.05
0.14
0.37
Theil Index of Racial Segregation in 2000 (log scale)

Racial Segregation in Atlanta

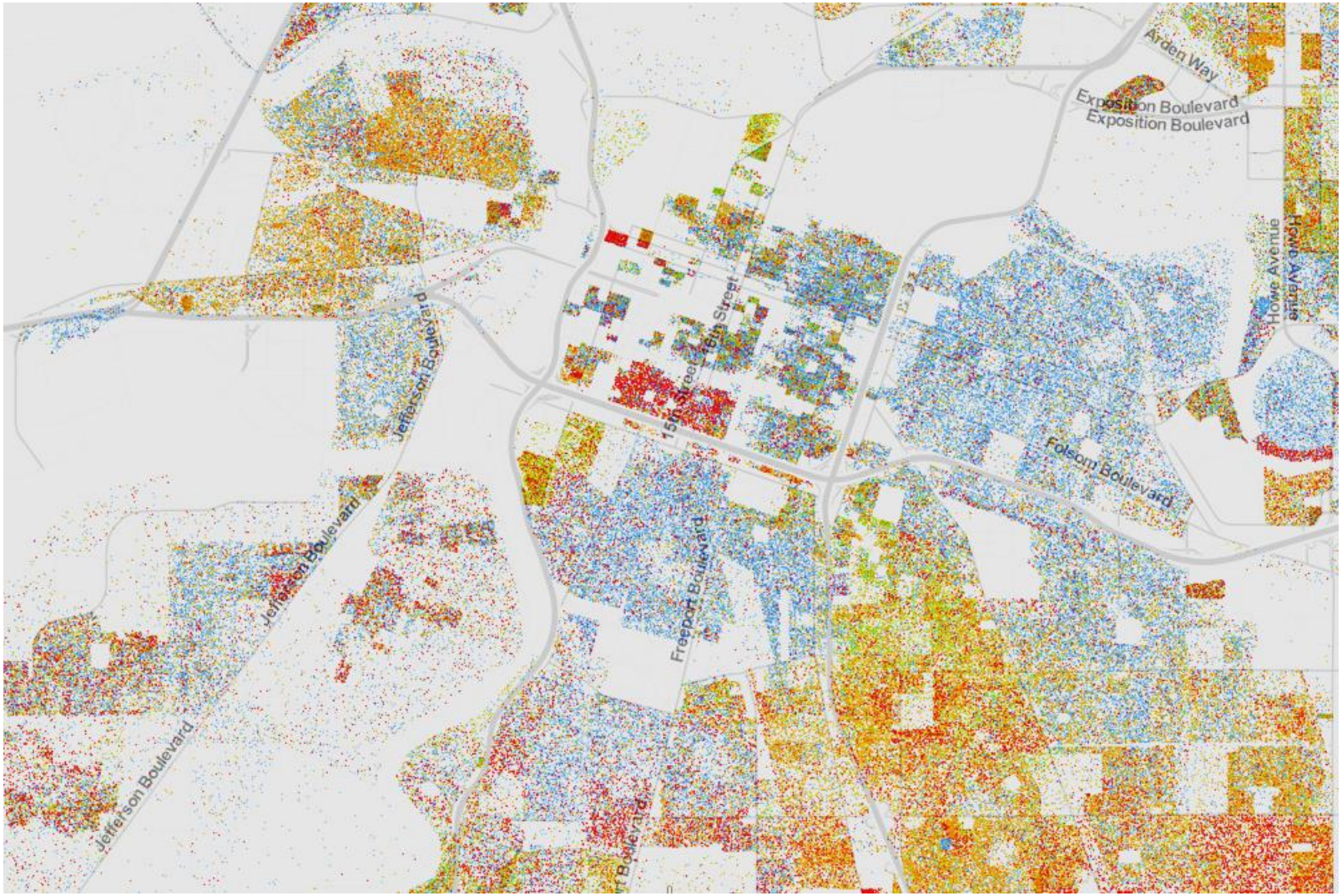
Whites (blue), Blacks (green), Asians (red), Hispanics (orange)



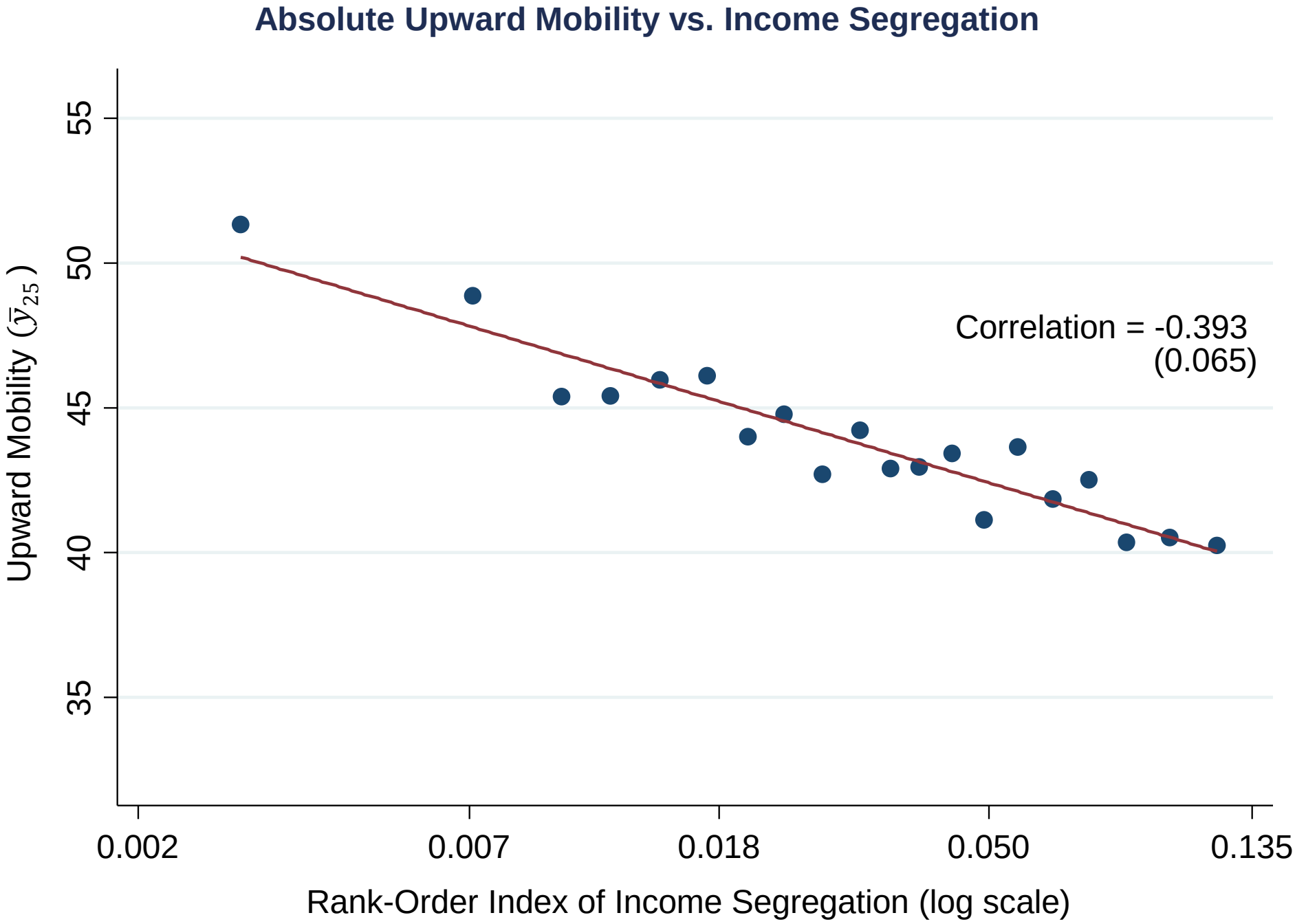
Source: Cable (2013) based on Census 2010 data

Racial Segregation in Sacramento

Whites (blue), Blacks (green), Asians (red), Hispanics (orange)



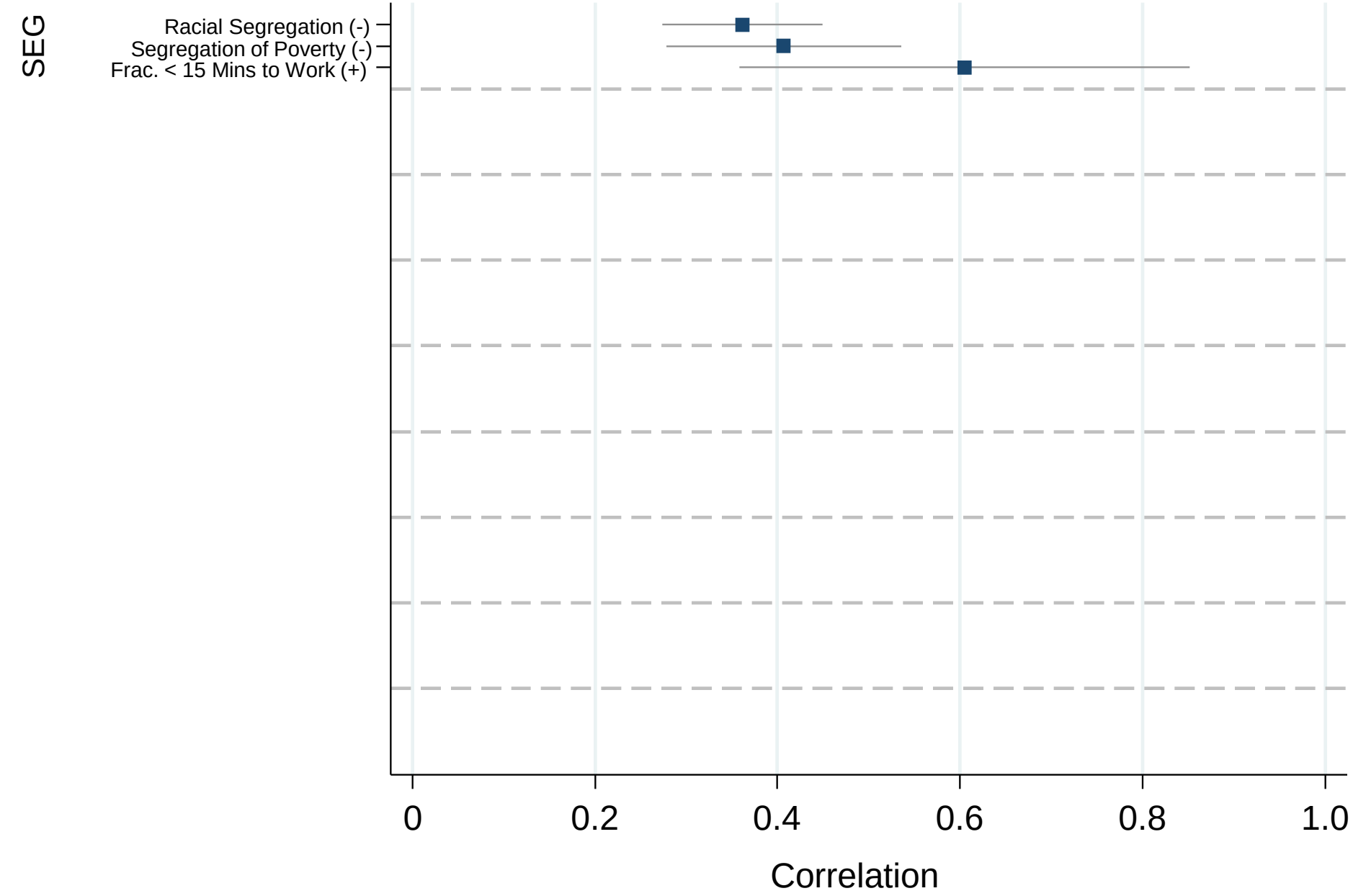
Source: Cable (2013) based on Census 2010 data


Absolute Upward Mobility vs. Income Segregation
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.393
(0.065)
0.002
0.007
0.018
0.050
0.135
Rank-Order Index of Income Segregation (log scale)

Intergenerational Mobility and Segregation

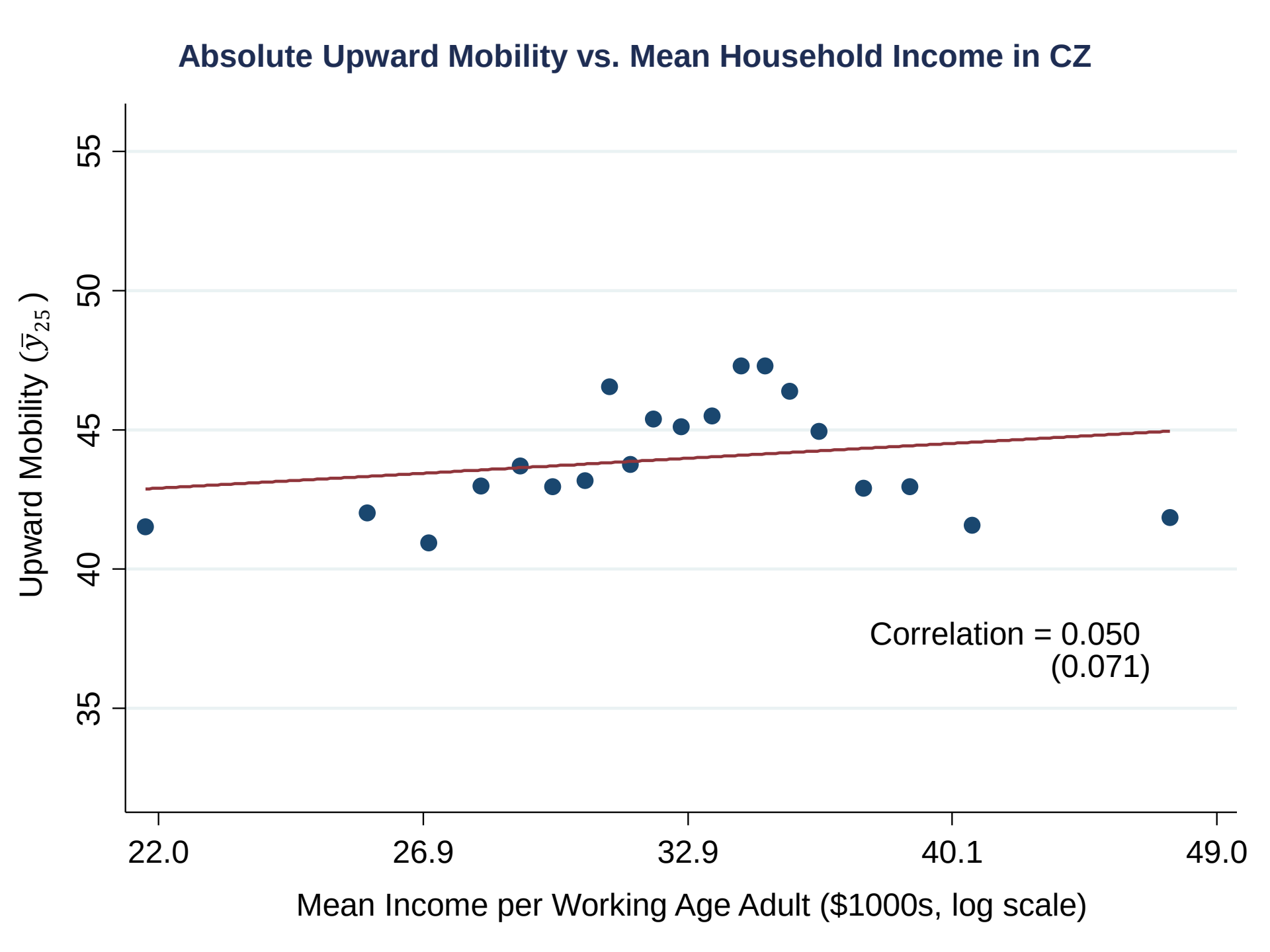
Dep. Var.:	Upward Mobility Y_{25}						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Racial Segregation	-0.361	-0.360					
	(0.045)	(0.068)					
Income Segregation			-0.393				-0.058
			(0.065)				(0.090)
Segregation of Poverty (<p25)				-0.508	-0.408		
				(0.155)	(0.166)		
Segregation of Affluence (>p75)				0.108	0.216		
				(0.140)	(0.171)		
Share with Commute < 15 Mins						0.605	0.571
						(0.126)	(0.165)
Urban Areas Only		x			x		
R-Squared	0.131	0.130	0.154	0.167	0.052	0.366	0.368
Observations	709	325	709	709	325	709	709

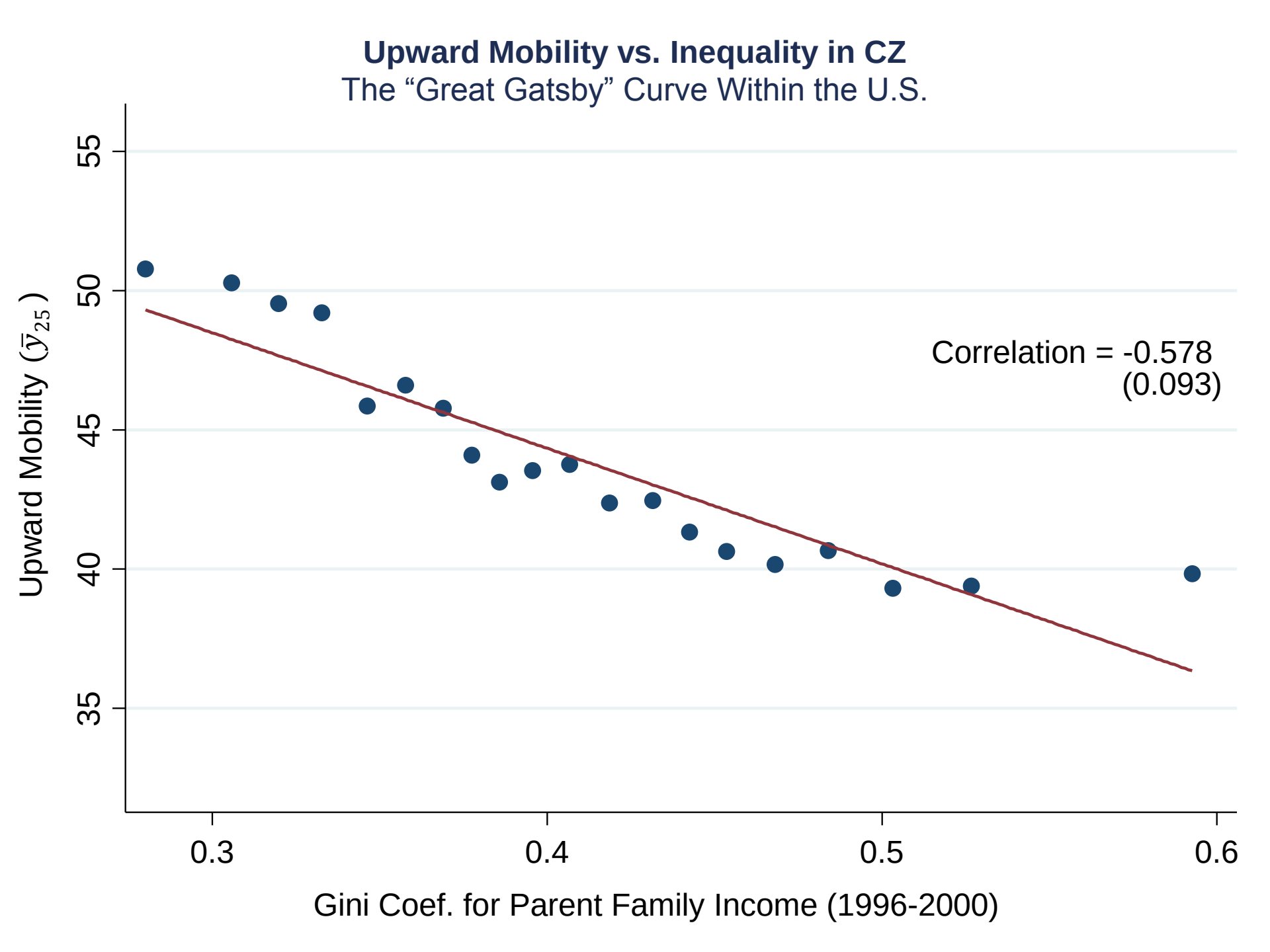
Spatial Correlates of Upward Mobility

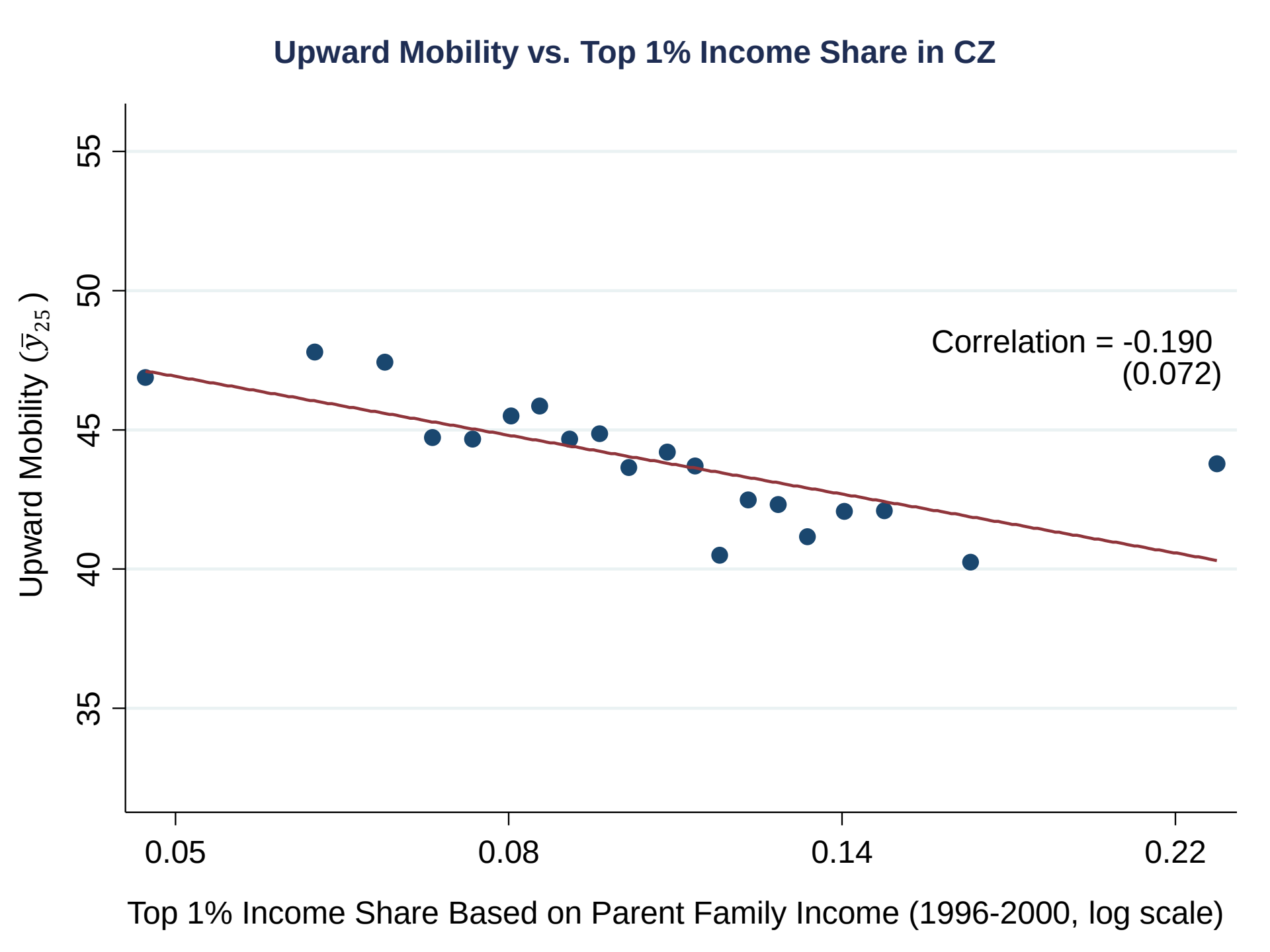


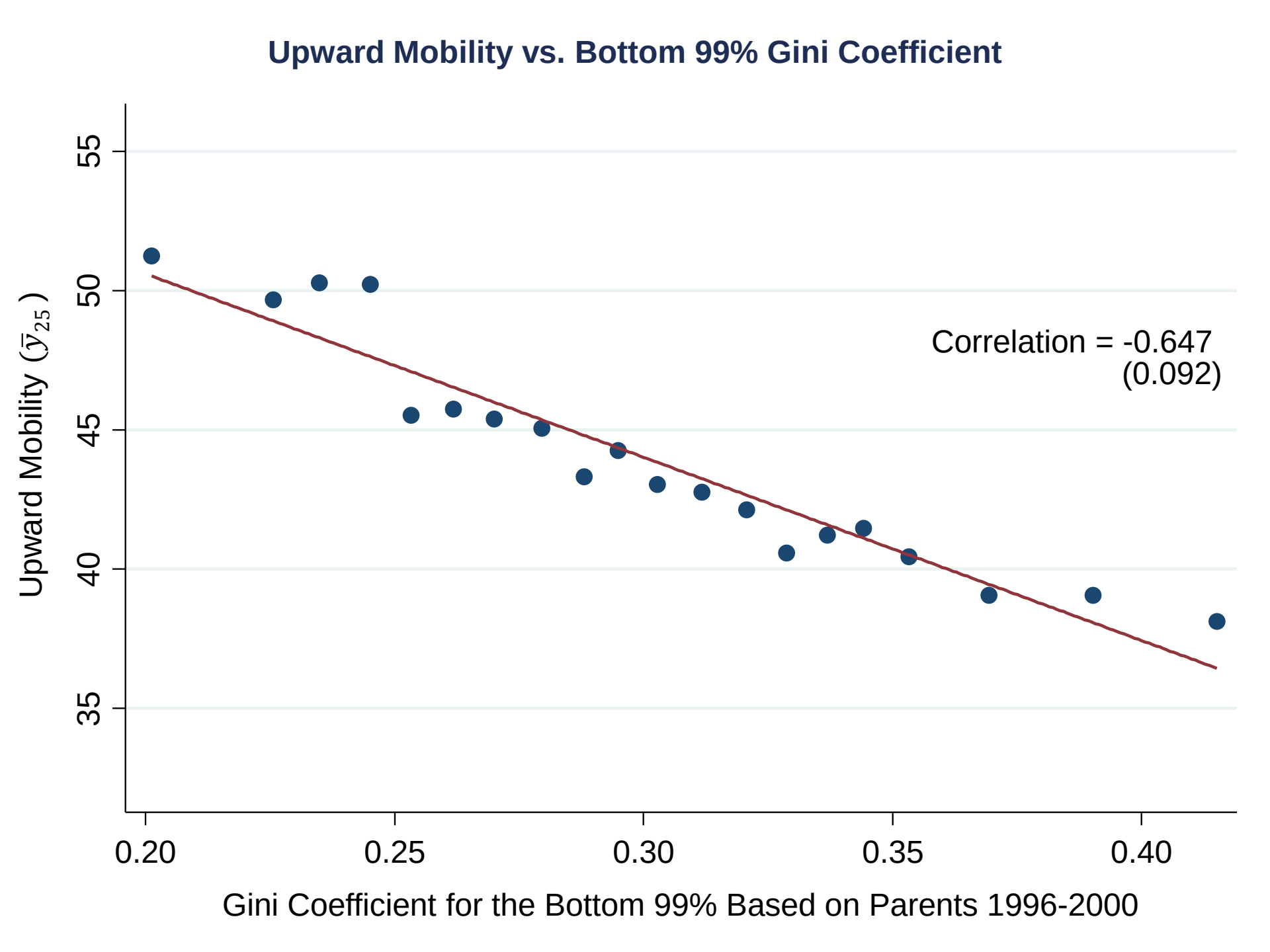
Income Distribution and Upward Income Mobility

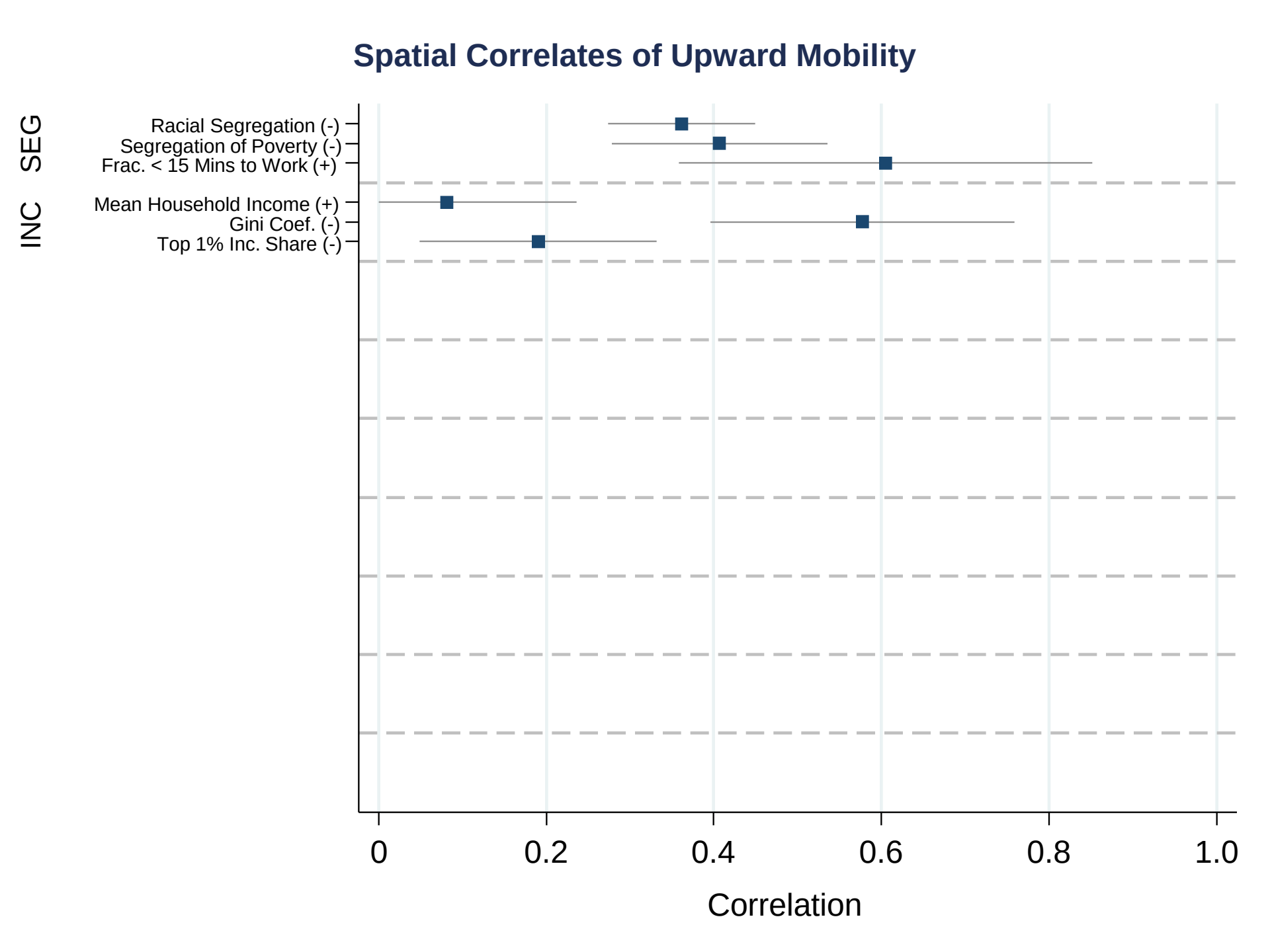
- Next, investigate properties of local income distribution: mean income levels and inequality
  - Many economic channels for link between static income distribution and intergenerational mobility [e.g. Becker and Tomes 1979, Han and Mulligan 2001, Solon 2004]
  - Inequality is negatively correlated with intergenerational mobility across countries [e.g. Corak 2013]


Absolute Upward Mobility vs. Mean Household Income in CZ
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = 0.050
(0.071)
22.0
26.9
32.9
40.1
49.0
Mean Income per Working Age Adult ($1000s, log scale)


Upward Mobility vs. Inequality in CZ
The "Great Gatsby" Curve Within the U.S.
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.578
(0.093)
0.3
0.4
0.5
0.6
Gini Coef. for Parent Family Income (1996-2000)

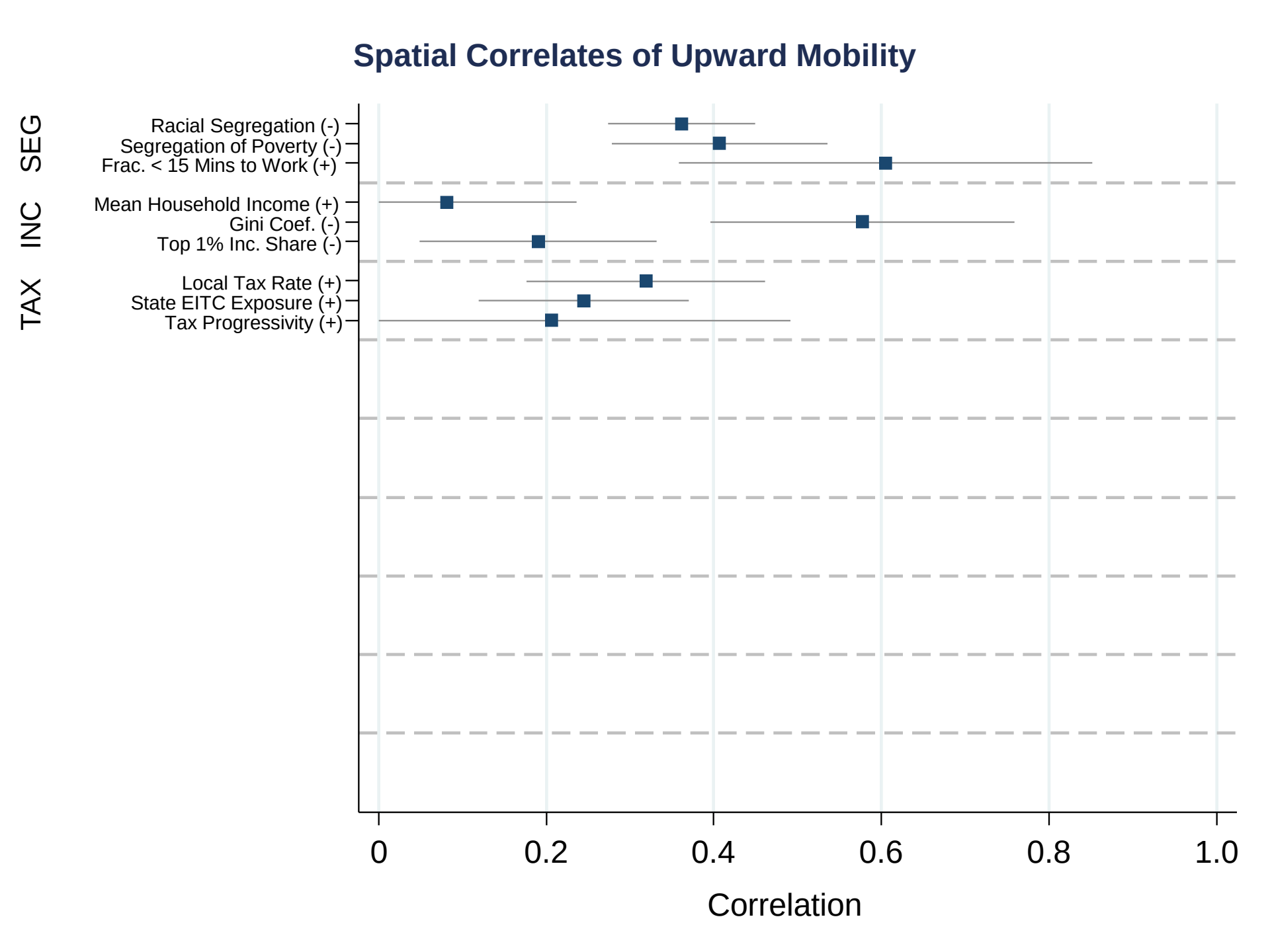

Upward Mobility vs. Top 1% Income Share in CZ
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.190
(0.072)
0.05
0.08
0.14
0.22
Top 1% Income Share Based on Parent Family Income (1996-2000, log scale)

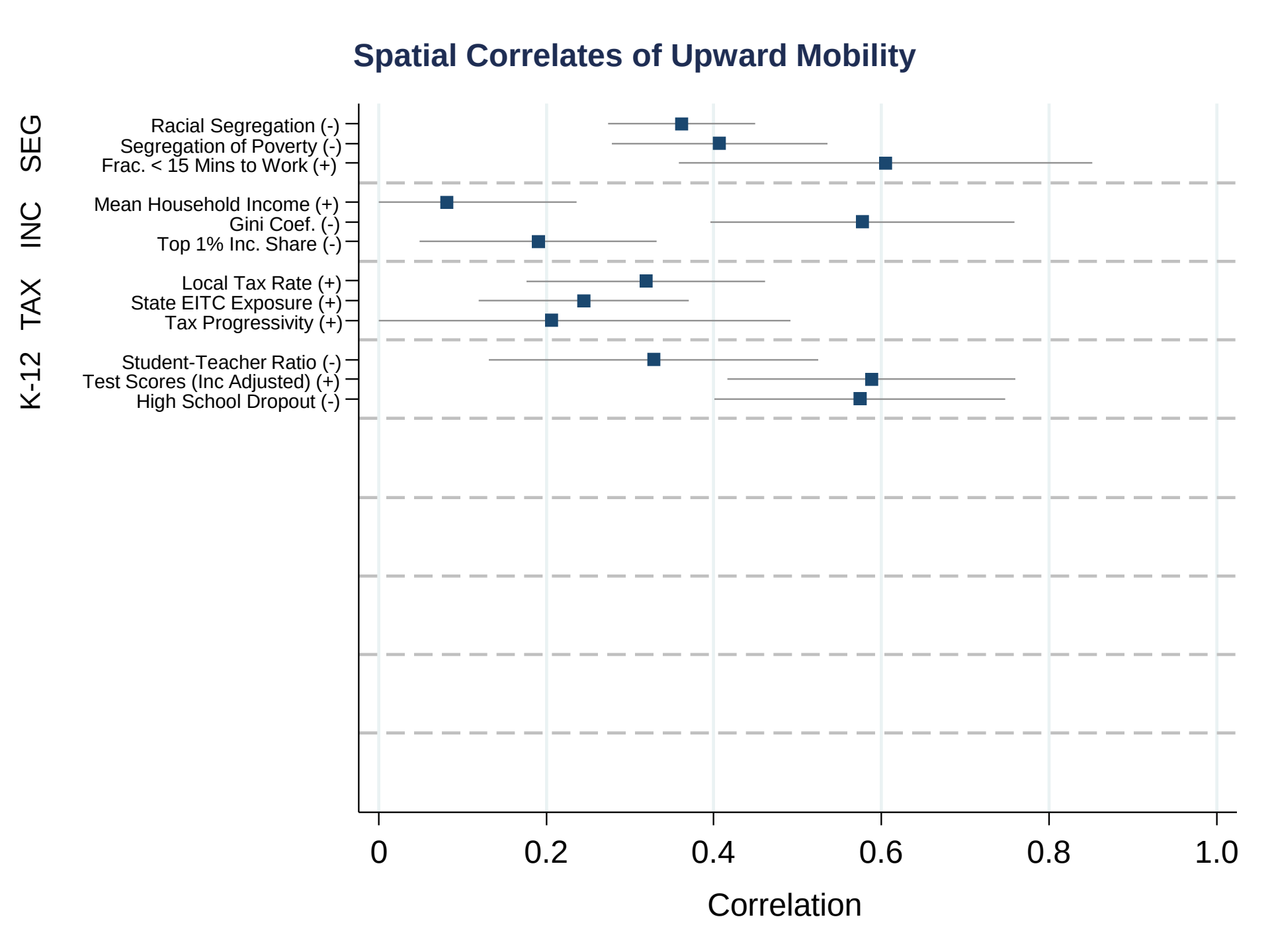

Upward Mobility vs. Bottom 99% Gini Coefficient
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.647
(0.092)
0.20
0.25
0.30
0.35
0.40
Gini Coefficient for the Bottom 99% Based on Parents 1996-2000

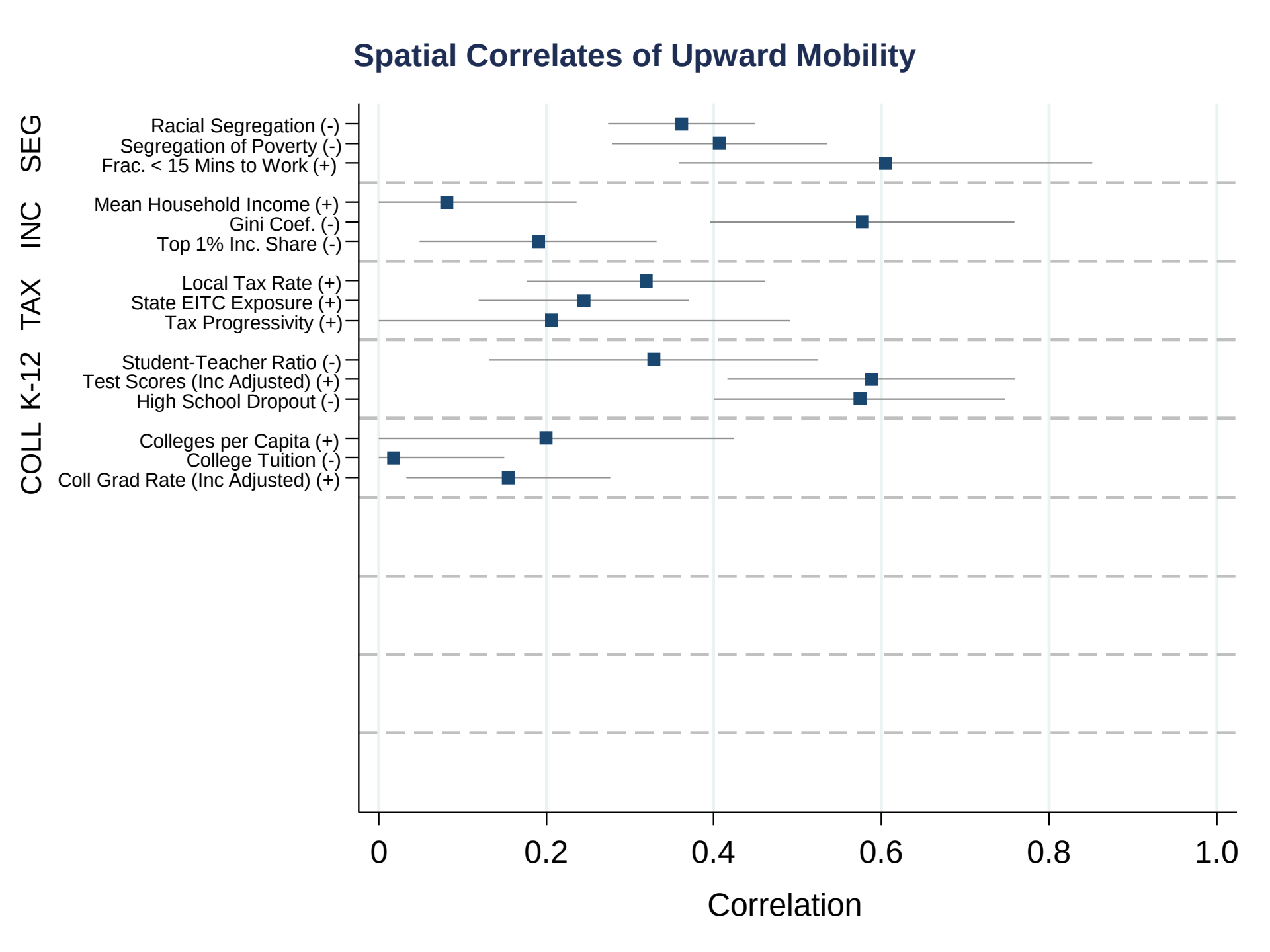

Spatial Correlates of Upward Mobility
SEG
INC
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
0
0.2
0.4
0.6
0.8
1.0
Correlation

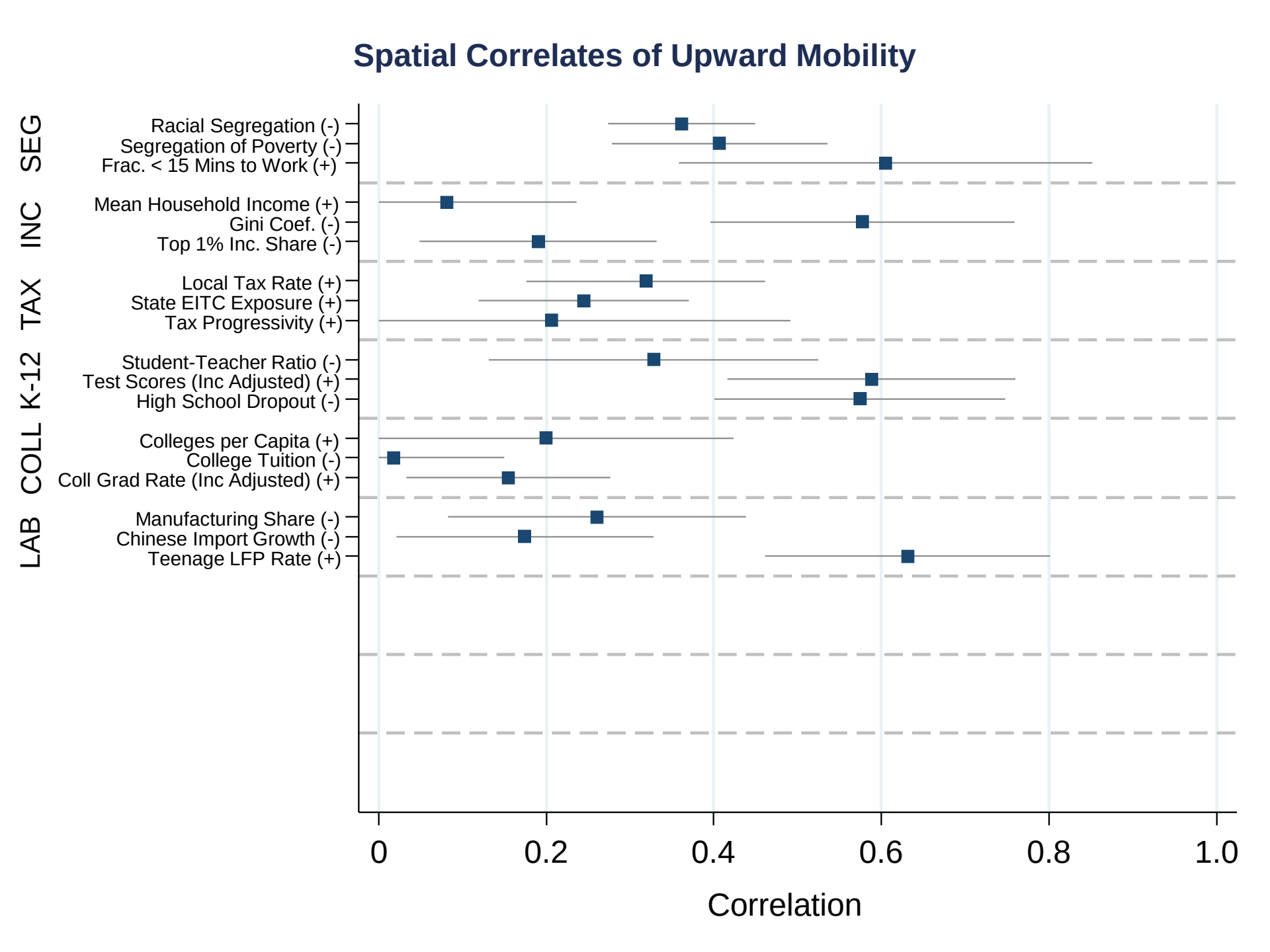
Absolute Mobility and Inequality: The Great Gatbsy Curve

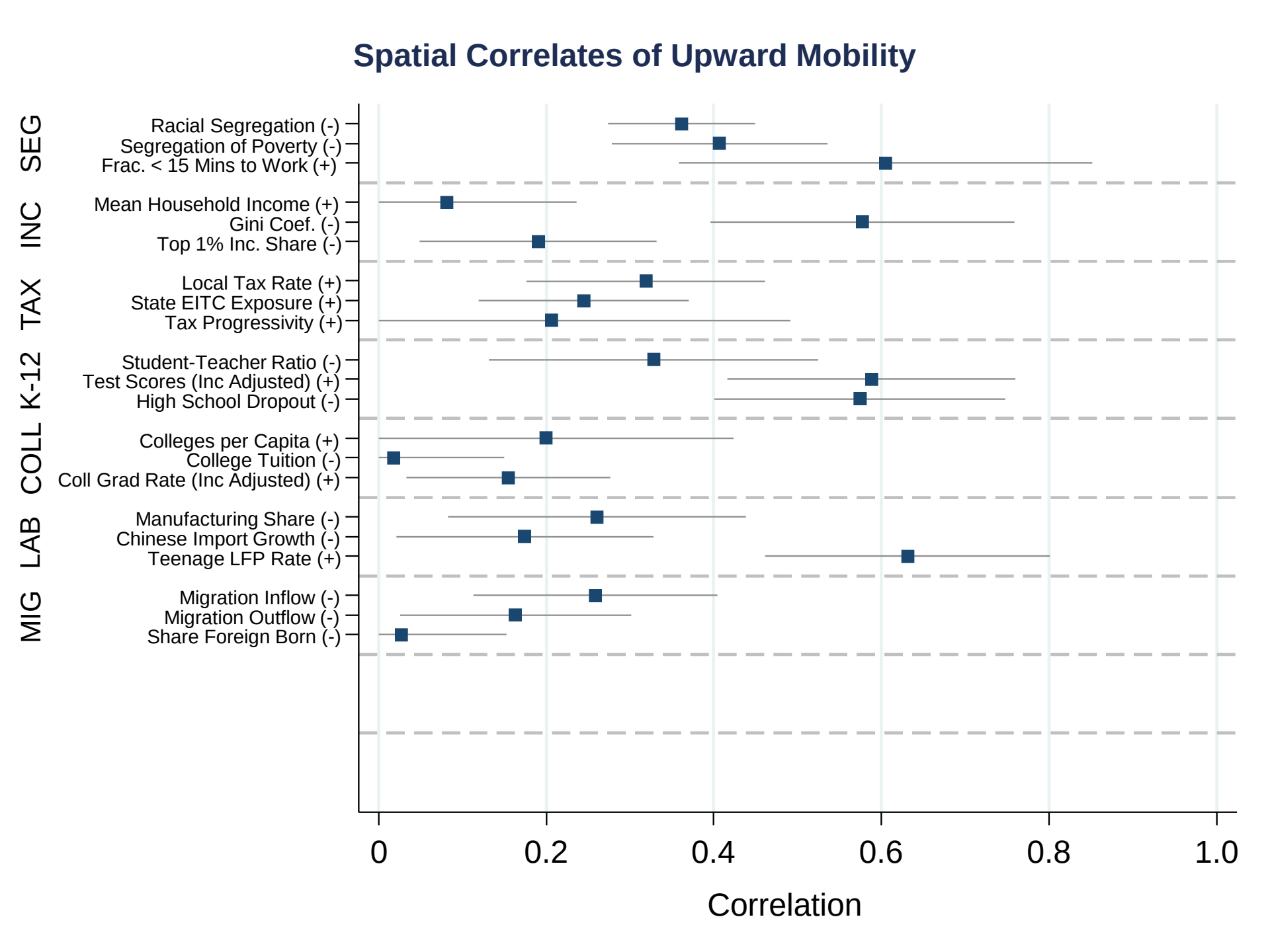
	Variation Across CZs Within U.S.			Variation Across Countries		
	Upward Mobility Y_{25}	Upward Mobility Y_{25}	Upward Mobility Y_{25}	Log-Log Elasticity 1985	Log-Log Elasticity 1985	Log-Log Elasticity 2005
	(1)	(2)	(3)	(4)	(5)	(6)
Gini coefficient	-0.578			0.72		
	(0.093)			(0.22)		
Gini bottom 99%		-0.634	-0.624		0.62	0.78
		(0.090)	(0.113)		(0.27)	(0.27)
Top 1% income share		-0.123	0.029		0.30	-0.11
		(0.035)	(0.039)		(0.32)	(0.28)
CZ intersects MSA			X			
R-Squared	0.334	0.433	0.380	0.52	0.54	0.53
Number of observations	709	709	325	13	13	12

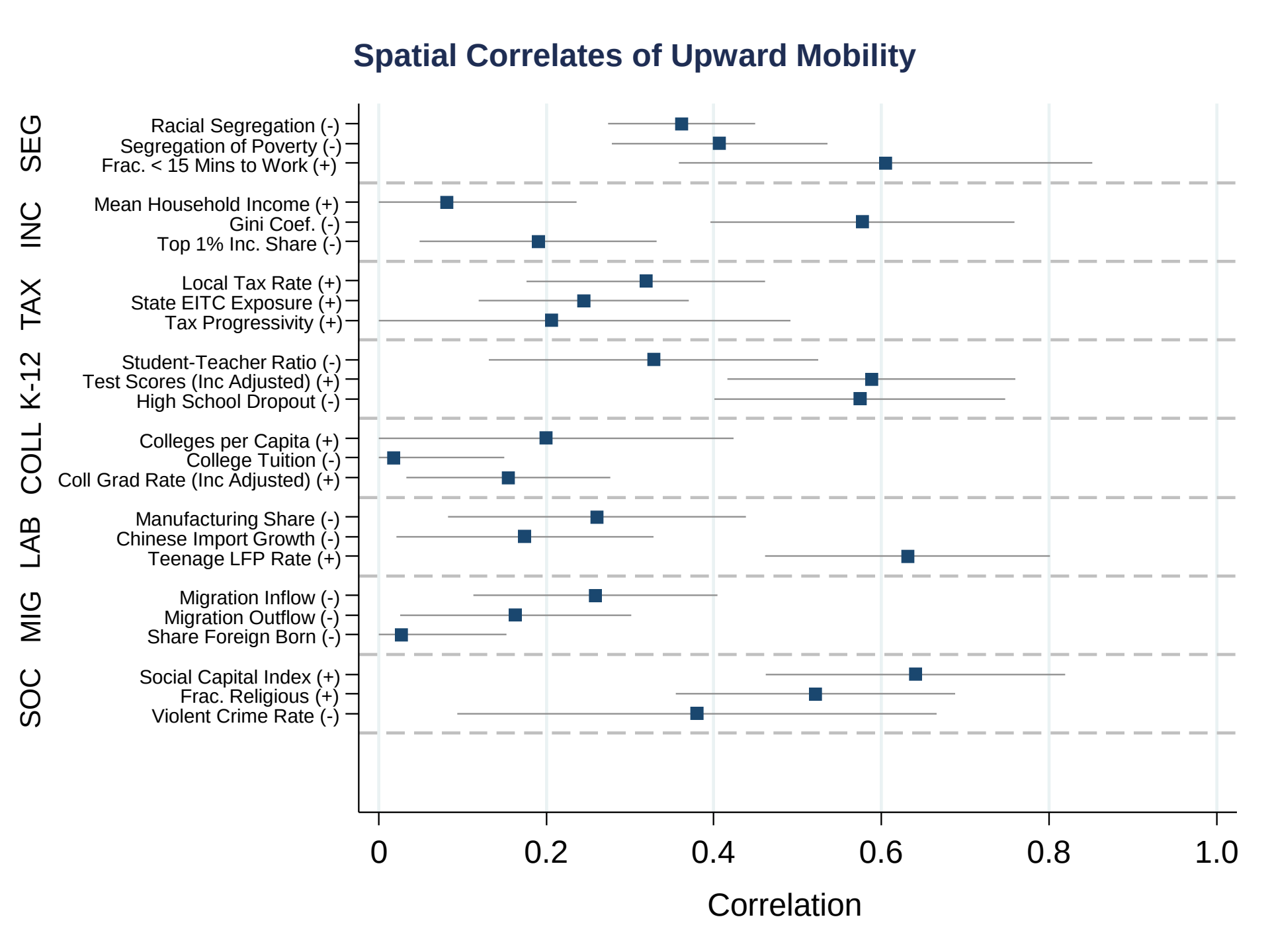

Spatial Correlates of Upward Mobility
SEG
INC
TAX
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
0
0.2
0.4
0.6
0.8
1.0
Correlation

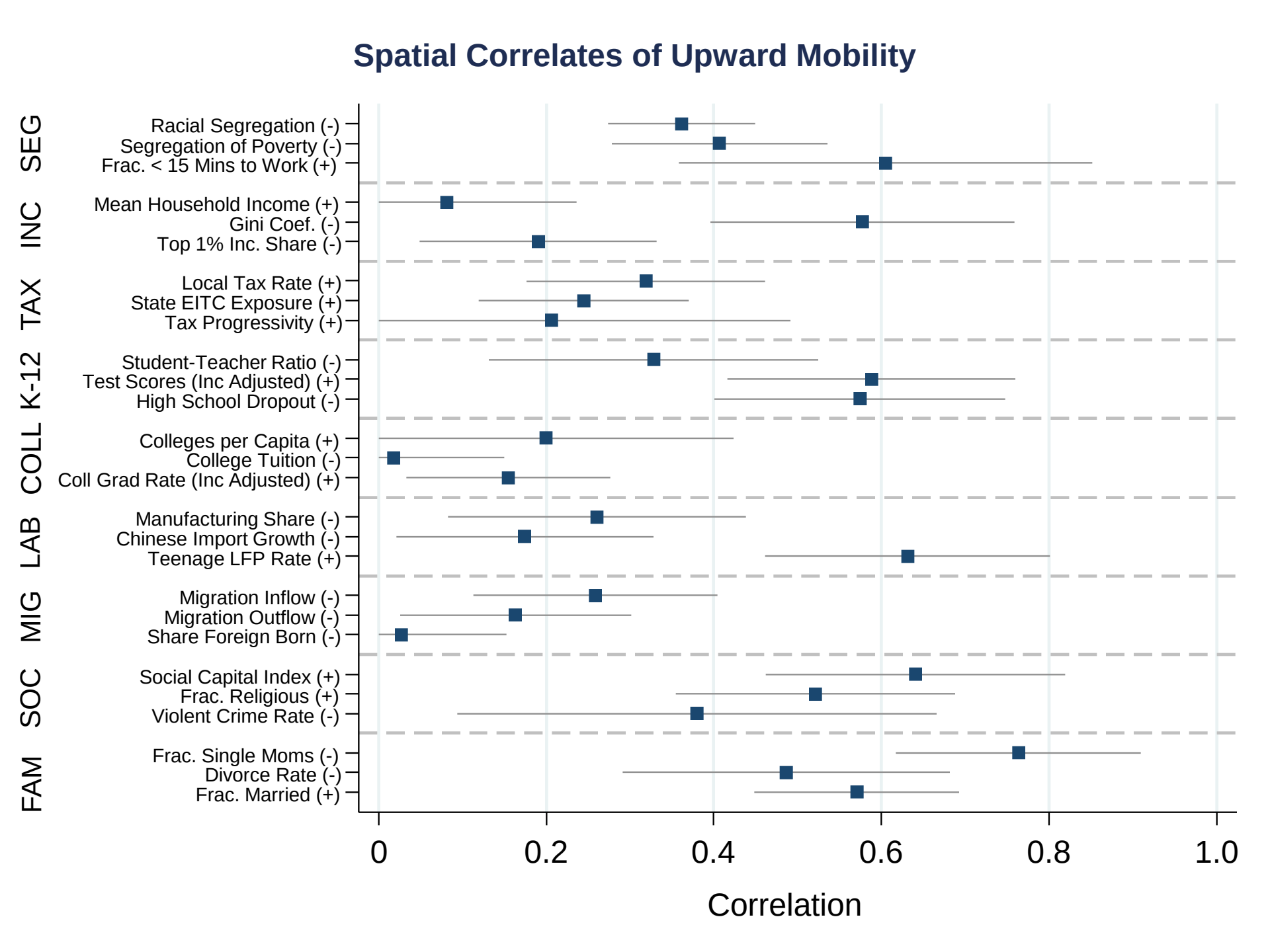

Spatial Correlates of Upward Mobility
SEG
INC
TAX
K-12
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
0
0.2
0.4
0.6
0.8
1.0
Correlation

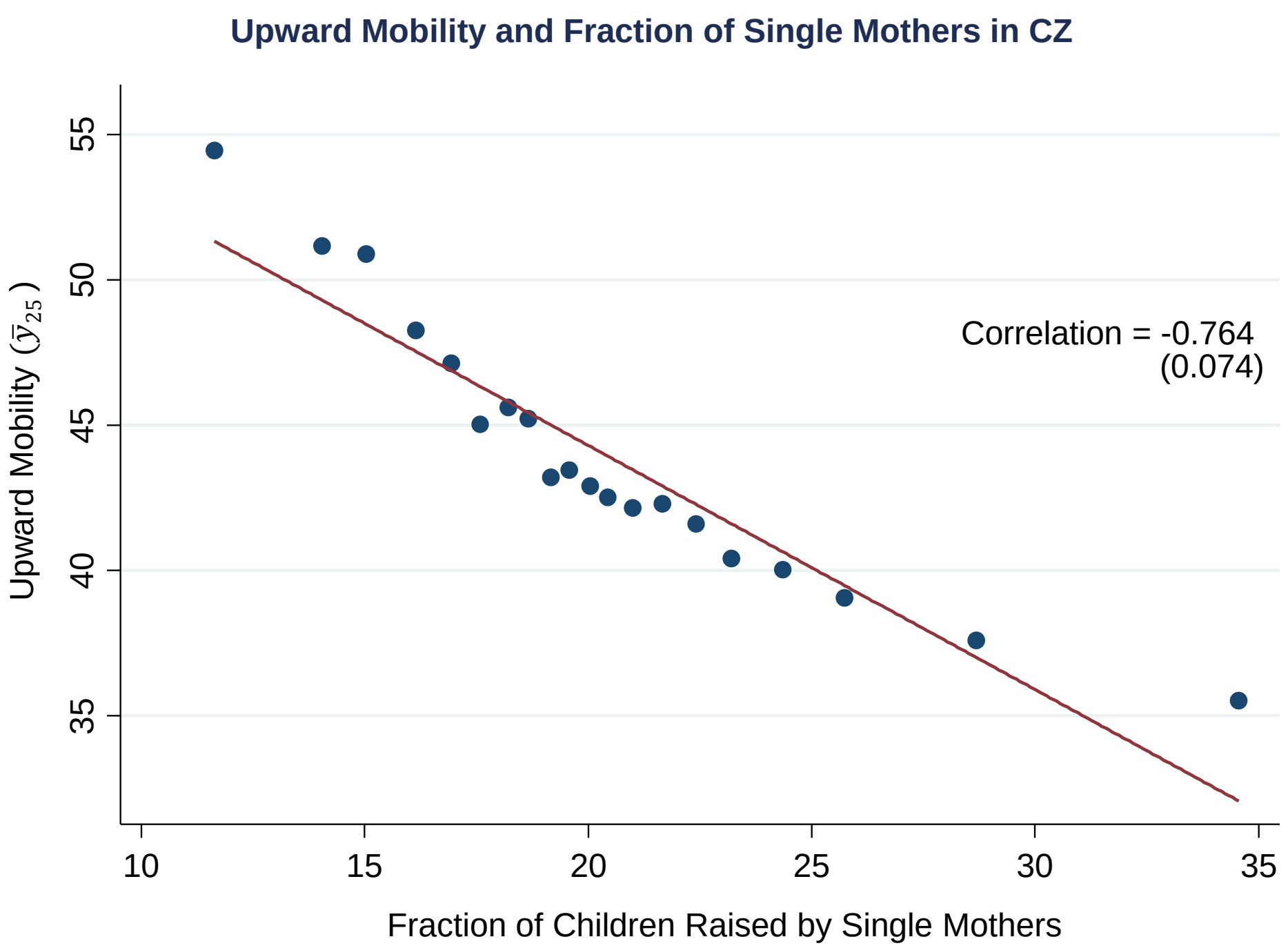

Spatial Correlates of Upward Mobility
SEG
INC
TAX
K-12
COLL
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
Colleges per Capita (+)
College Tuition (-)
Coll Grad Rate (Inc Adjusted) (+)
0
0.2
0.4
0.6
0.8
1.0
Correlation

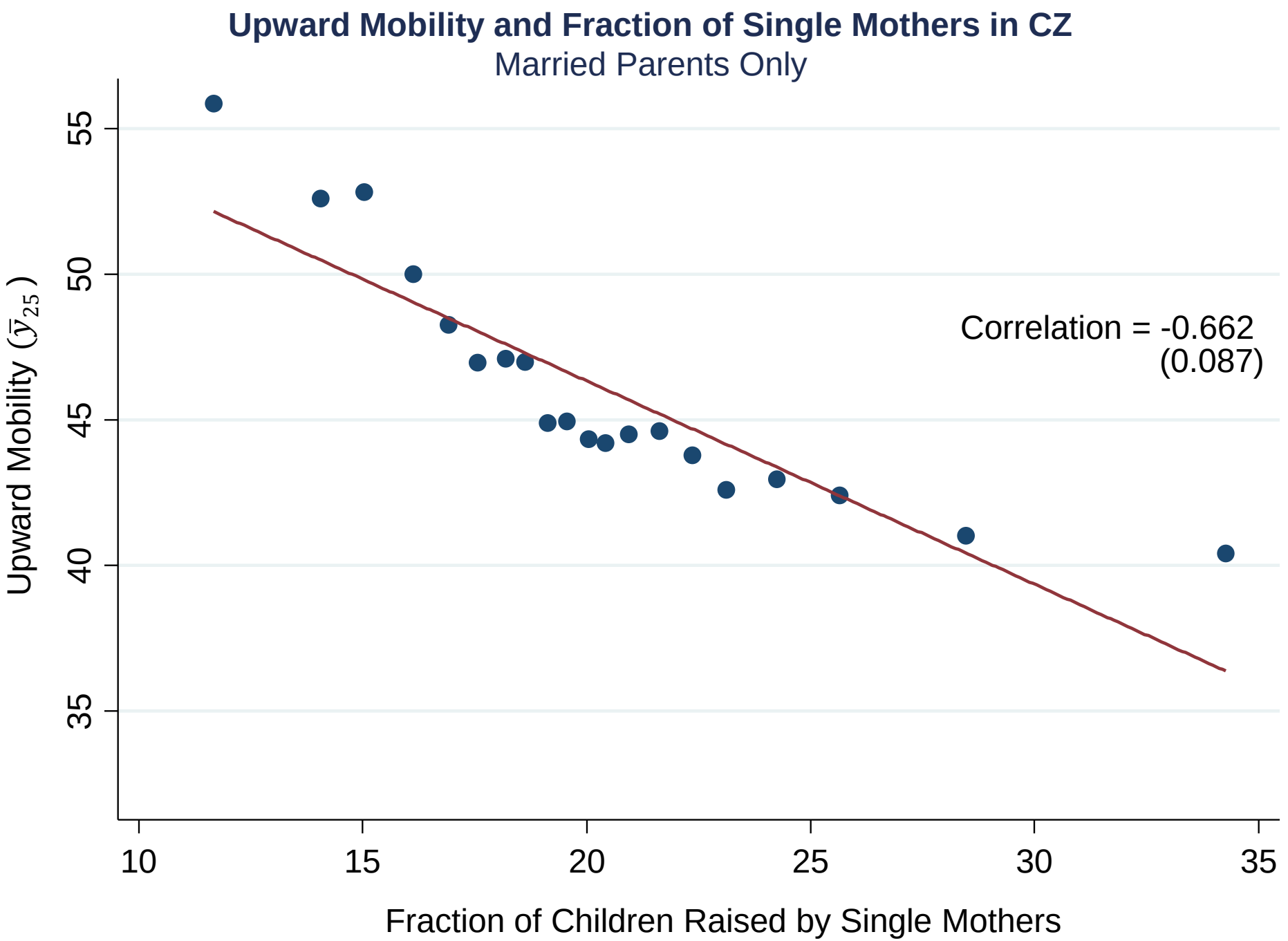

Spatial Correlates of Upward Mobility
SEG
INC
TAX
K-12
COLL
LAB
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
Colleges per Capita (+)
College Tuition (-)
Coll Grad Rate (Inc Adjusted) (+)
Manufacturing Share (-)
Chinese Import Growth (-)
Teenage LFP Rate (+)
0
0.2
0.4
0.6
0.8
1.0
Correlation

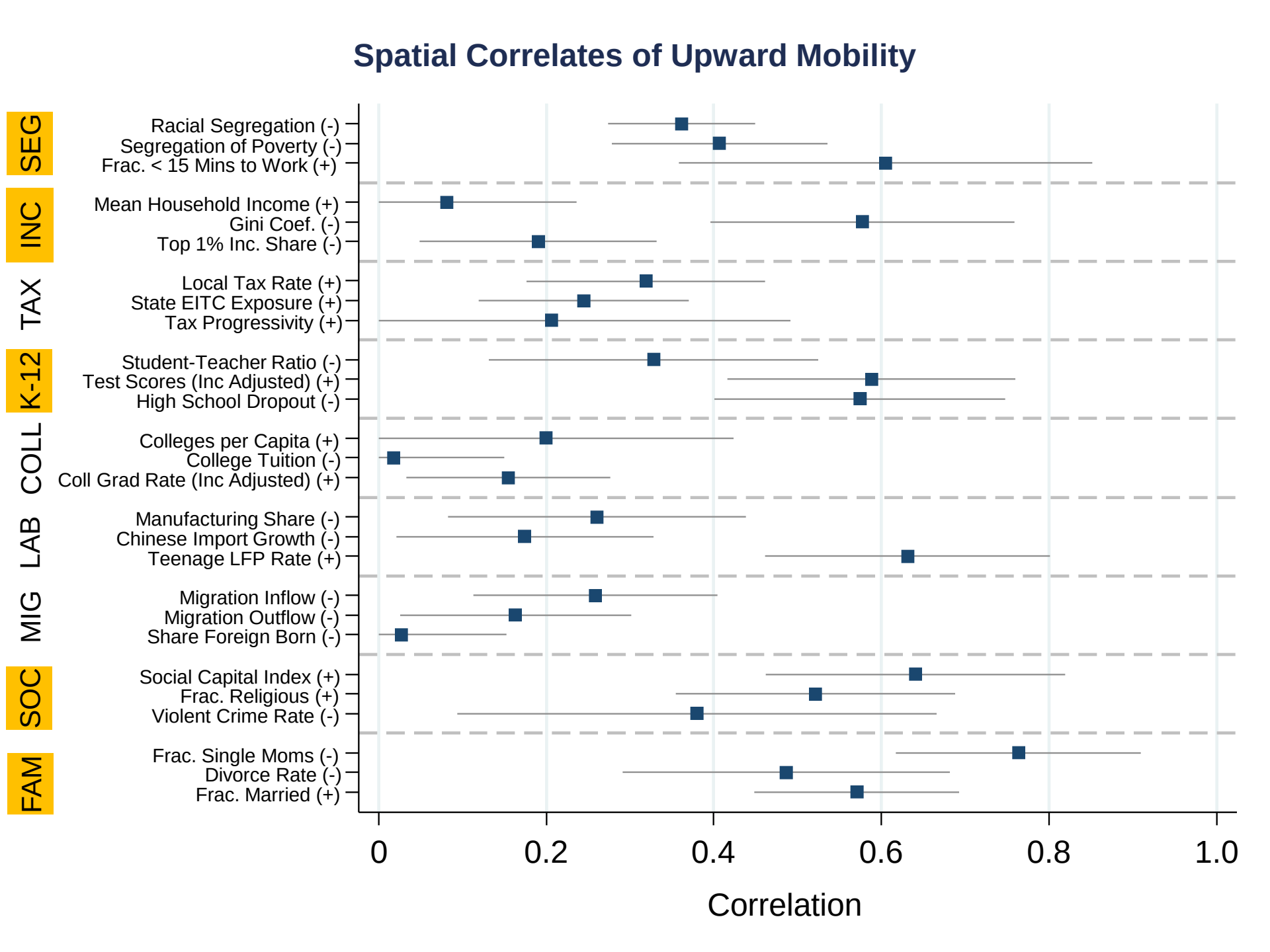

Spatial Correlates of Upward Mobility
SEG
INC
TAX
K-12
COLL
LAB
MIG
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
Colleges per Capita (+)
College Tuition (-)
Coll Grad Rate (Inc Adjusted) (+)
Manufacturing Share (-)
Chinese Import Growth (-)
Teenage LFP Rate (+)
Migration Inflow (-)
Migration Outflow (-)
Share Foreign Born (-)
0
0.2
0.4
0.6
0.8
1.0
Correlation


Spatial Correlates of Upward Mobility
SEG
INC
TAX
K-12
COLL
LAB
MIG
SOC
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
Colleges per Capita (+)
College Tuition (-)
Coll Grad Rate (Inc Adjusted) (+)
Manufacturing Share (-)
Chinese Import Growth (-)
Teenage LFP Rate (+)
Migration Inflow (-)
Migration Outflow (-)
Share Foreign Born (-)
Social Capital Index (+)
Frac. Religious (+)
Violent Crime Rate (-)
0
0.2
0.4
0.6
0.8
1.0
Correlation


Spatial Correlates of Upward Mobility
SEG
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
INC
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
TAX
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
K-12
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
COLL
Colleges per Capita (+)
College Tuition (-)
Coll Grad Rate (Inc Adjusted) (+)
LAB
Manufacturing Share (-)
Chinese Import Growth (-)
Teenage LFP Rate (+)
MIG
Migration Inflow (-)
Migration Outflow (-)
Share Foreign Born (-)
SOC
Social Capital Index (+)
Frac. Religious (+)
Violent Crime Rate (-)
FAM
Frac. Single Moms (-)
Divorce Rate (-)
Frac. Married (+)
0
0.2
0.4
0.6
0.8
1.0
Correlation


Upward Mobility and Fraction of Single Mothers in CZ
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.764
(0.074)
10
15
20
25
30
35
Fraction of Children Raised by Single Mothers


Upward Mobility and Fraction of Single Mothers in CZ
Married Parents Only
Upward Mobility ($\bar{y}_{25}$)
55
50
45
40
35
Correlation = -0.662
(0.087)
10
15
20
25
30
35
Fraction of Children Raised by Single Mothers


Spatial Correlates of Upward Mobility
SEG
INC
TAX
K-12
COLL
LAB
MIG
SOC
FAM
Racial Segregation (-)
Segregation of Poverty (-)
Frac. < 15 Mins to Work (+)
Mean Household Income (+)
Gini Coef. (-)
Top 1% Inc. Share (-)
Local Tax Rate (+)
State EITC Exposure (+)
Tax Progressivity (+)
Student-Teacher Ratio (-)
Test Scores (Inc Adjusted) (+)
High School Dropout (-)
Colleges per Capita (+)
College Tuition (-)
Coll Grad Rate (Inc Adjusted) (+)
Manufacturing Share (-)
Chinese Import Growth (-)
Teenage LFP Rate (+)
Migration Inflow (-)
Migration Outflow (-)
Share Foreign Born (-)
Social Capital Index (+)
Frac. Religious (+)
Violent Crime Rate (-)
Frac. Single Moms (-)
Divorce Rate (-)
Frac. Married (+)
0
0.2
0.4
0.6
0.8
1.0
Correlation

Comparison of Alternative Hypotheses

Dep. Var.:	Upward Mobility (Y_{25})			
	(1)	(2)	(3)	(4)
Racial Segregation	-0.085	-0.112	-0.165	
	(0.029)	(0.020)	(0.034)	
Gini Bottom 99%	-0.050	-0.019	-0.313	
	(0.063)	(0.039)	(0.064)	
High School Dropout Rate	-0.157	-0.142	-0.286	
	(0.061)	(0.030)	(0.067)	
Social Capital Index	0.284	0.109	0.296	
	(0.056)	(0.053)	(0.065)	
Fraction Single Mothers	-0.484	-0.438		-0.808
	(0.070)	(0.072)		(0.085)
Fraction Black				0.056
				(0.073)
State FEs		**X**		
R-squared	0.705	0.848	0.605	0.584
Observations	709	709	709	709

Conclusion

- Substantial variation in upward and relative mobility across the U.S.
  - Implies CZ-level neighborhood effects are 60% as large as parent-child income correlation
  - Intergenerational mobility is shaped by environment and may therefore be manipulable (not pure genetics)

Future Research

- Key questions for future work:

1. Is the variation due to differences in people (sorting) or places?
    - Currently studying this question by analyzing individuals who move across areas [Chetty and Hendren 2014]
2. If place effects, what policies cause improvements in mobility?
    - To facilitate this work, we have posted statistics on mobility online at www.equality-of-opportunity.org

Download CZ-Level Data on Social Mobility

www.equality-of-opportunity.org/data

Downloadable Data on Intergenerational Mobility

Data Description		
Preferred Mobility Measures by Commuting Zone	Stata file	Excel file
Online Data Table 1: National 100 by 100 Transition Matrix	Stata file	Excel file
Online Data Table 2: Marginal Income Distributions by Centile	Stata file	Excel file
Online Data Table 3: Intergenerational Mobility Statistics and Selected Covariates by County	Stata file	Excel file
Online Data Table 4: Intergenerational Mobility Statistics by Metropolitan Statistical Area	Stata file	Excel file
Online Data Table 5: Intergenerational Mobility Statistics by Commuting Zone	Stata file	Excel file
Online Data Table 6: Quintile-Quintile Transition Matrices by Commuting Zone	Stata file	Excel file
Online Data Table 7: Income Distributions by Commuting Zone	Stata file	Excel file
Online Data Table 8: Commuting Zone Characteristics	Stata file	Excel file
Online Data Table 9: Commuting Zone Characteristics Definitions and Data Sources		Excel file
Geographic Crosswalks (Tolbert and Sizer 1996, Autor and Dorn 2009 & 2013)	Zip file	
Replication Stata Code and Datasets	Zip file	
Downloadable Map of Absolute Upward Mobility		

Version 2.0, released January 17, 2014. For Version 1.0 (released on July 22, 2013), click here. Version 2.0 reports statistics using the 1980-82 birth cohorts (rather than 1980-81) and includes new data such as mobility statistics by county and MSA, new CZ-level covariates, and marginal income distributions for parents and children.

For more information on the data, please email info@equality-of-opportunity.org