Mobility Report Cards: The Role of Colleges in Intergenerational Mobility

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The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and do not necessarily represent the views of the U.S. Department of Treasury.

Introduction

- What role do colleges play in intergenerational income mobility?
  - Large returns to college attendance suggest that higher education can be an important pathway to upward mobility
  - But inequality in access between high- and low-income families may limit (or even reverse) this effect
- Evaluating colleges' role in mobility requires analysis of two factors:
  - [Outcomes] Which colleges are most effective in helping children climb the income ladder?
  - [Access] How can we increase access to such colleges for students from low-income families?

Prior Research

- Prior work on these questions typically uses quasi-experimental methods to analyze outcomes and access at a subset of colleges
  - Outcomes: significant returns to college attendance and "quality," based on studies of specific colleges

    [Mincer 1958, …, Dale Krueger 2002, Black Smith 2004, Hoekstra 2009, Zimmerman 2012, Hastings Neilson Zimmerman 2014, Hoxby 2015, Andrews Imberman Lovenheim 2016]

  - Access: few children from low-income families at elite colleges, even after tuition cuts; tuition matters more at other colleges

    [e.g., Bowen Bok 1998, Avery Hoxby Jackson Burek Pope 2006, Pallais Turner 2006, Goodman 2008, Deming Dynarski 2009, Hill Atta Gambhir Winston 2011, Hoxby Avery 2013, Marx Turner 2014, Angrist Autor Hudson Pallais 2015]

This Paper

- We take a different approach: a descriptive characterization of mobility for *all* colleges and students in the U.S.

- For each college, construct a publicly available *Mobility Report Card* that measures children's earnings outcomes and parents' incomes

  - Use de-identified data from population tax returns

  - Build upon statistics in College Scorecard (2015) by including all students and fully characterizing joint income distributions

- Use variance decompositions to document a set of facts on access, outcomes, and mobility rates across colleges

This Paper

- We do not identify the causal effects (“value added”) of colleges

- Instead, our descriptive approach highlights the colleges that deserve further study as potential engines of mobility

  - Ex: certain public colleges (e.g., Cal State LA, City Univ. of New York) have excellent outcomes while providing low-income access

Outline

1. Access: Parents' Marginal Income Distributions by College
2. Outcomes: Distributions of Students' Earnings by College
3. Differences in Mobility Rates Across Colleges
4. Trends in Access and Mobility Rates

Data

- Data source: de-identified data from 1996-2014 income tax returns
  - Includes data on income of non-filers through information returns filed by employers (W-2 forms)
- Primary sample: all children in 1980-82 birth cohorts claimed as dependents by tax filers in the U.S.
  - Earliest cohorts where we can link almost all children to parents
  - Approximately 11 million children
- Extended sample: 1978-1991 birth cohorts
  - Used to study changes in access over time and for robustness

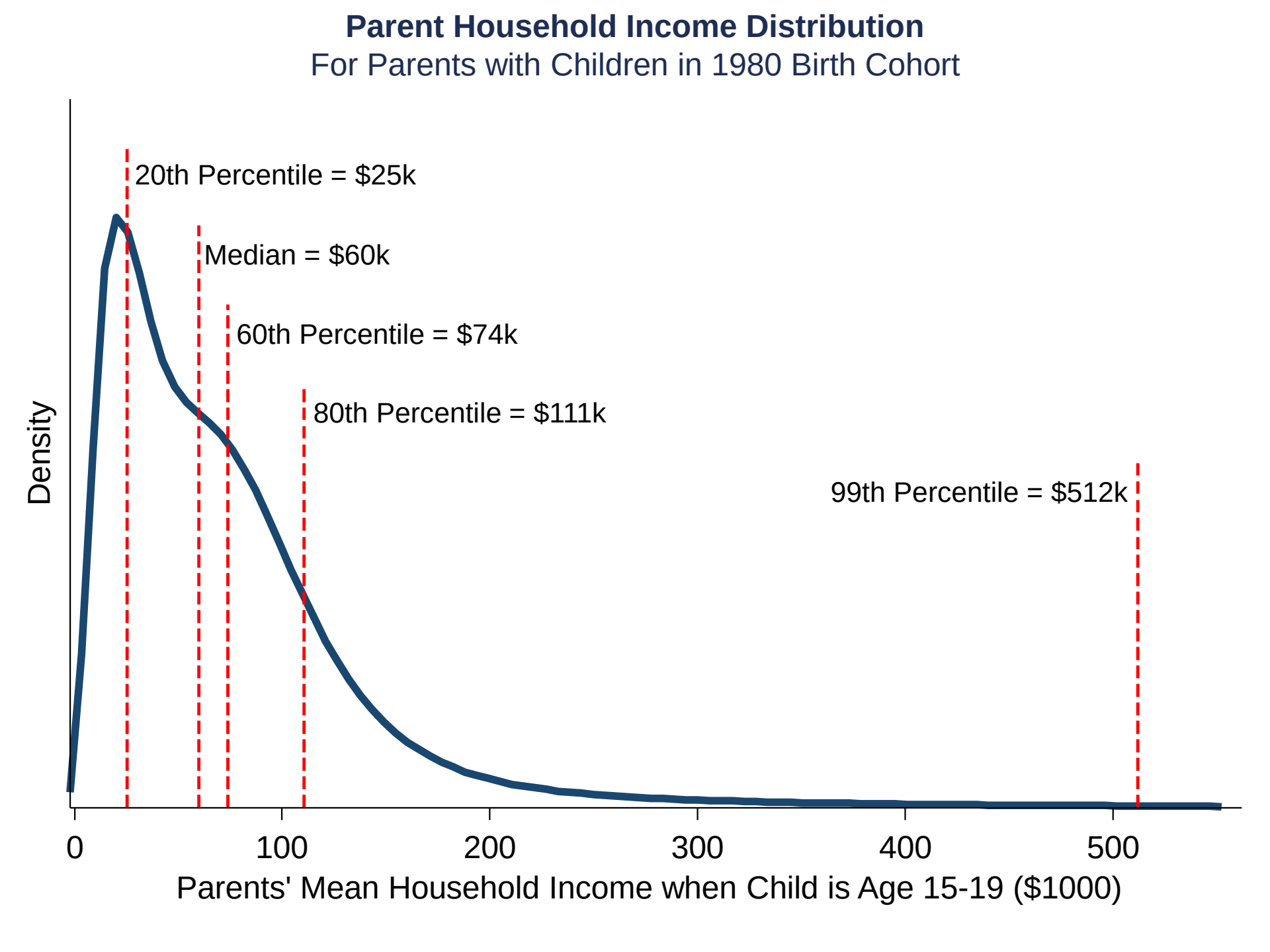
Measuring College Attendance

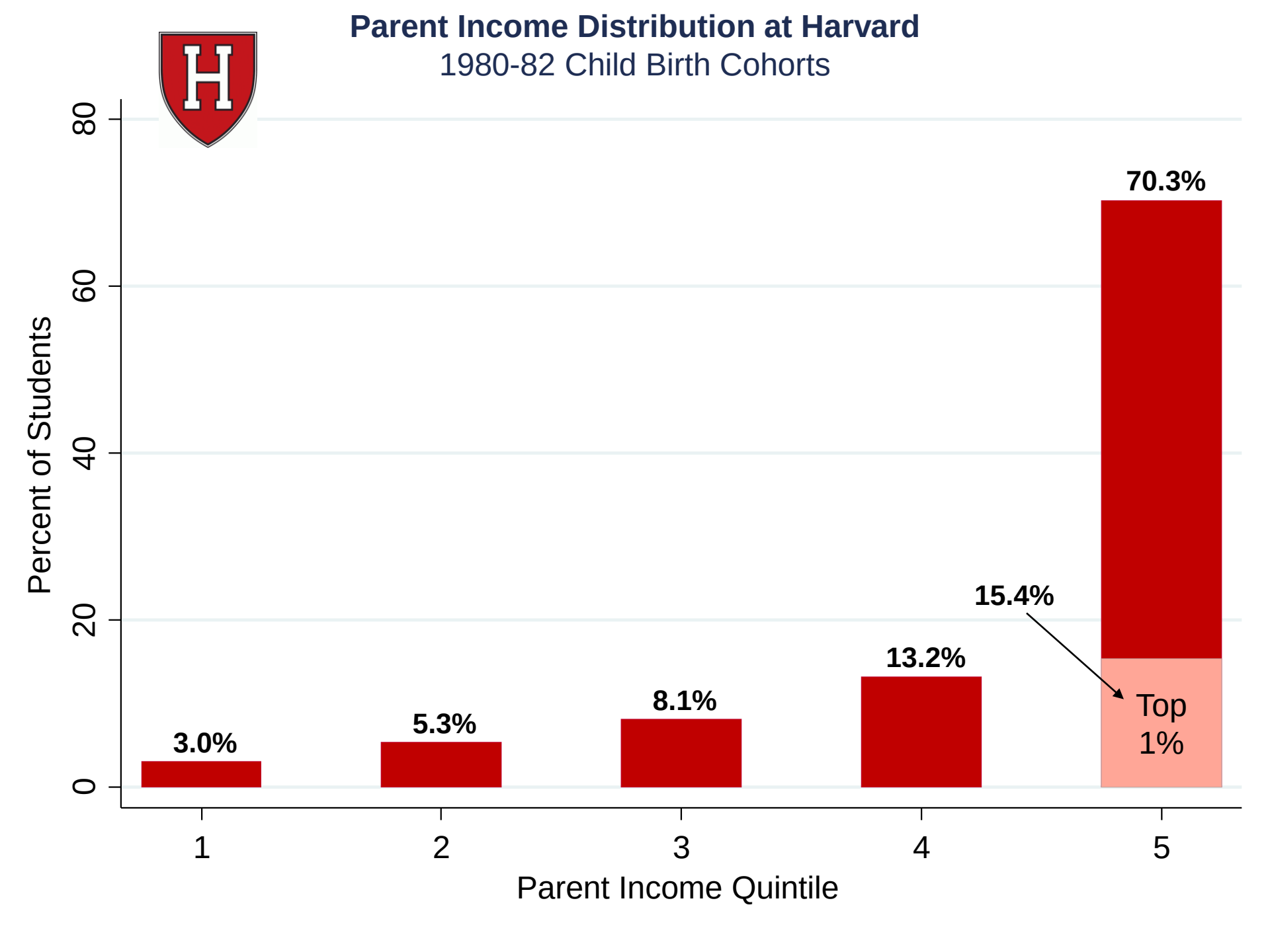
- All Title IV institutions report student attendance to IRS on Form 1098-T
  - 1098-T data covers 95% of enrolled students; students who pay no tuition sometimes not covered
  - Use Dept. of Ed data (NSLDS) on students receiving Pell grants to identify these students
- Baseline: define college attendance as most-attended college between ages 19-22
  - Similar results obtained with alternative definitions (e.g., college attended at age 20)
- Following established disclosure standards, all college-specific numbers are estimates (approx. +/- 1% measurement error)

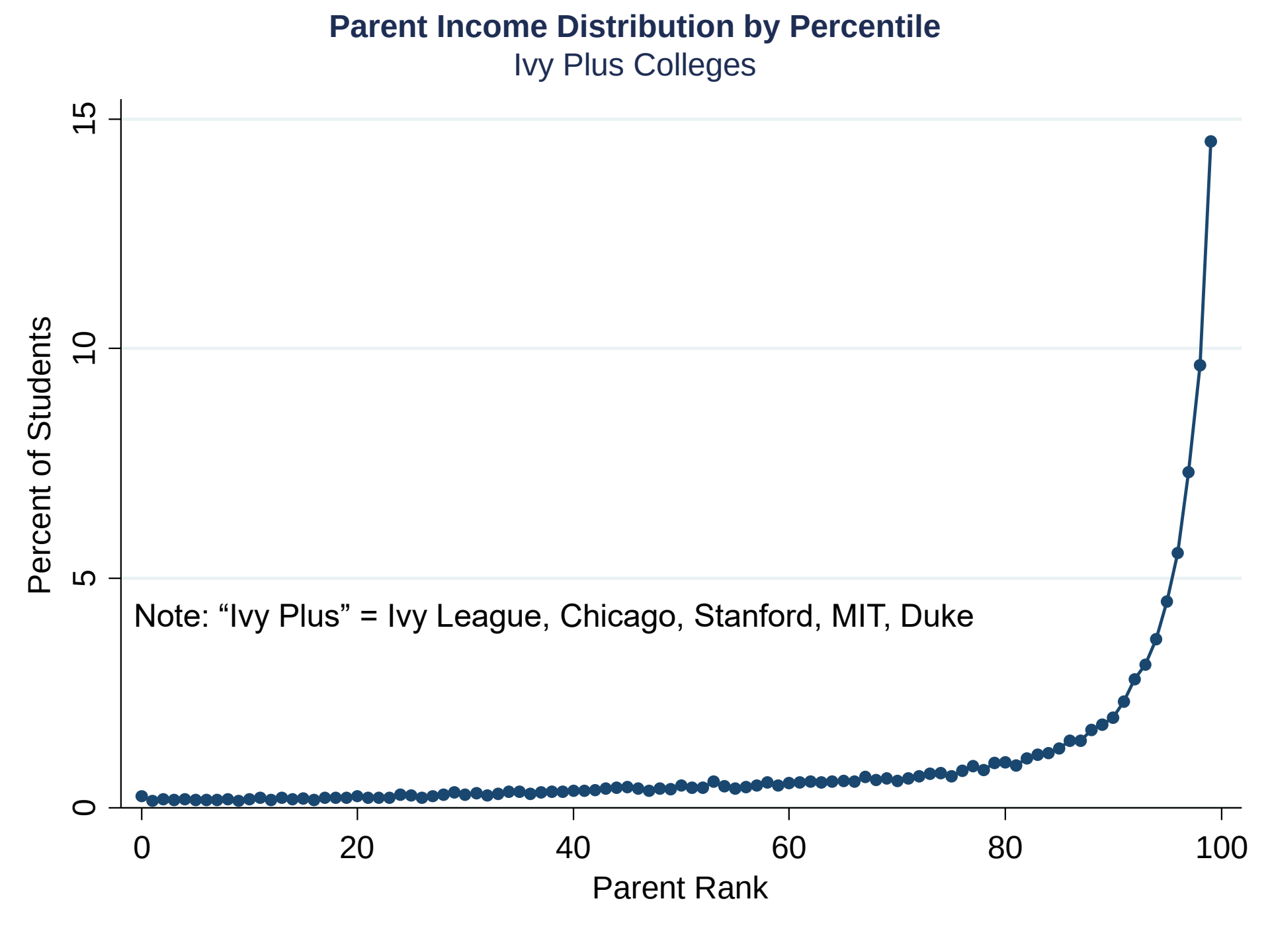
Part 1
Access: Parents' Income Distributions by College

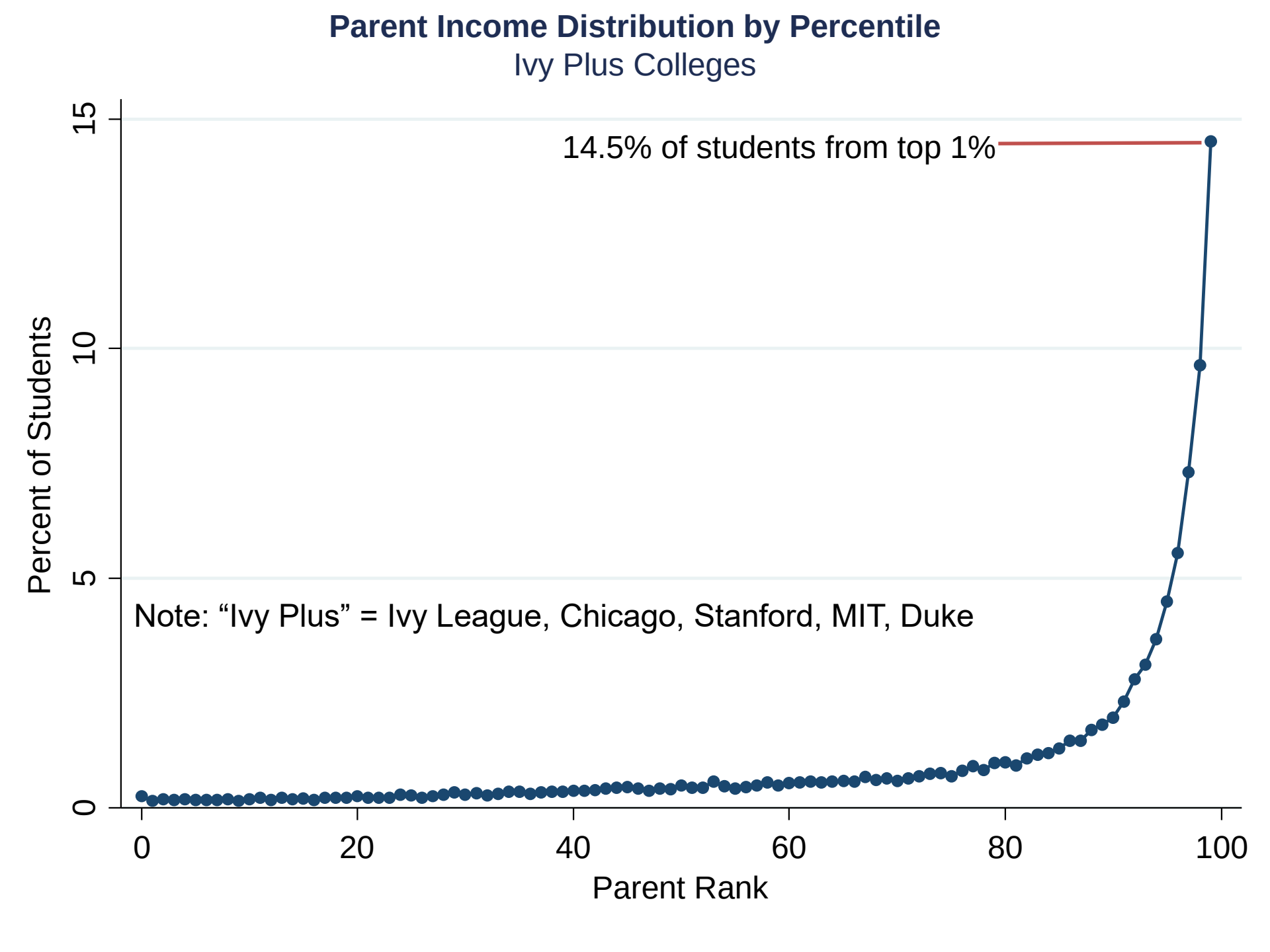
Measuring Parent Income

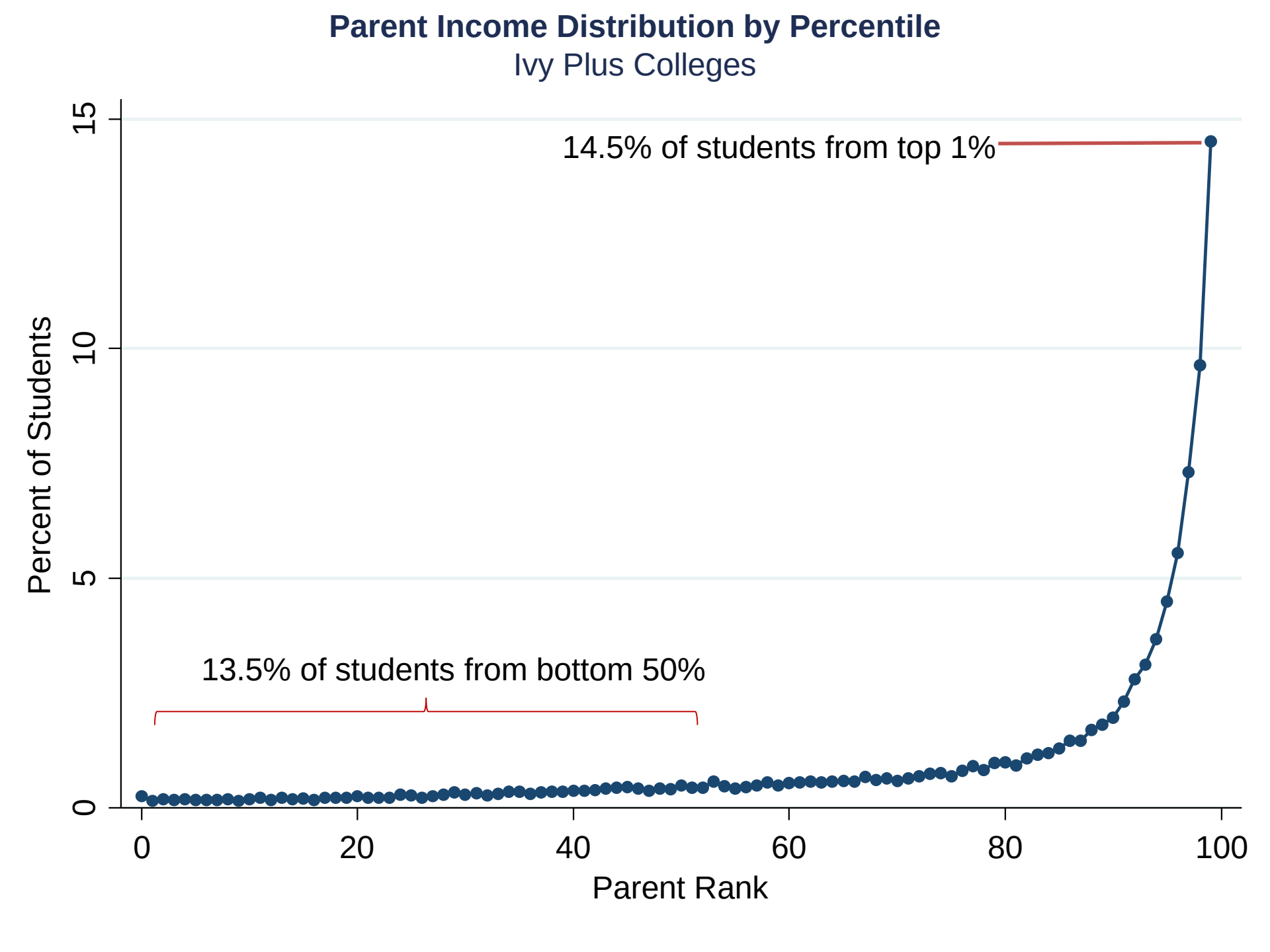
- Parent income: mean pre-tax **household** income during five year period when child is aged 15-19
  - For filers, use Adjusted Gross Income reported on form 1040
  - For non-filers, use W-2 wage earnings + UI income
  - All incomes measured in 2015 dollars
- Focus on percentile ranks, ranking parents relative to other parents with children in same birth cohort

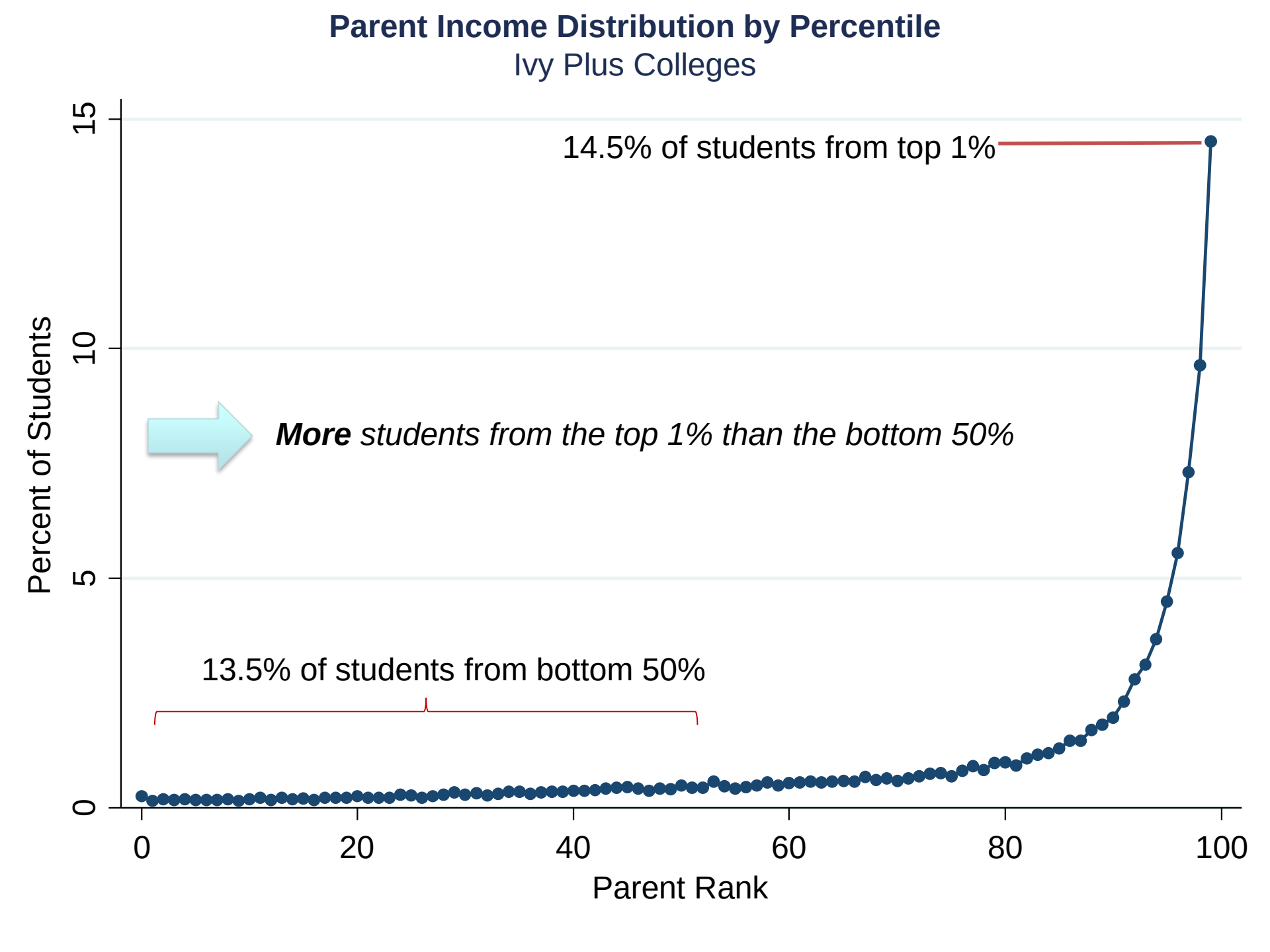

Parent Household Income Distribution
For Parents with Children in 1980 Birth Cohort
20th Percentile = $25k
Median = $60k
60th Percentile = $74k
80th Percentile = $111k
99th Percentile = $512k
Density
0
100
200
300
400
500
Parents' Mean Household Income when Child is Age 15-19 ($1000)

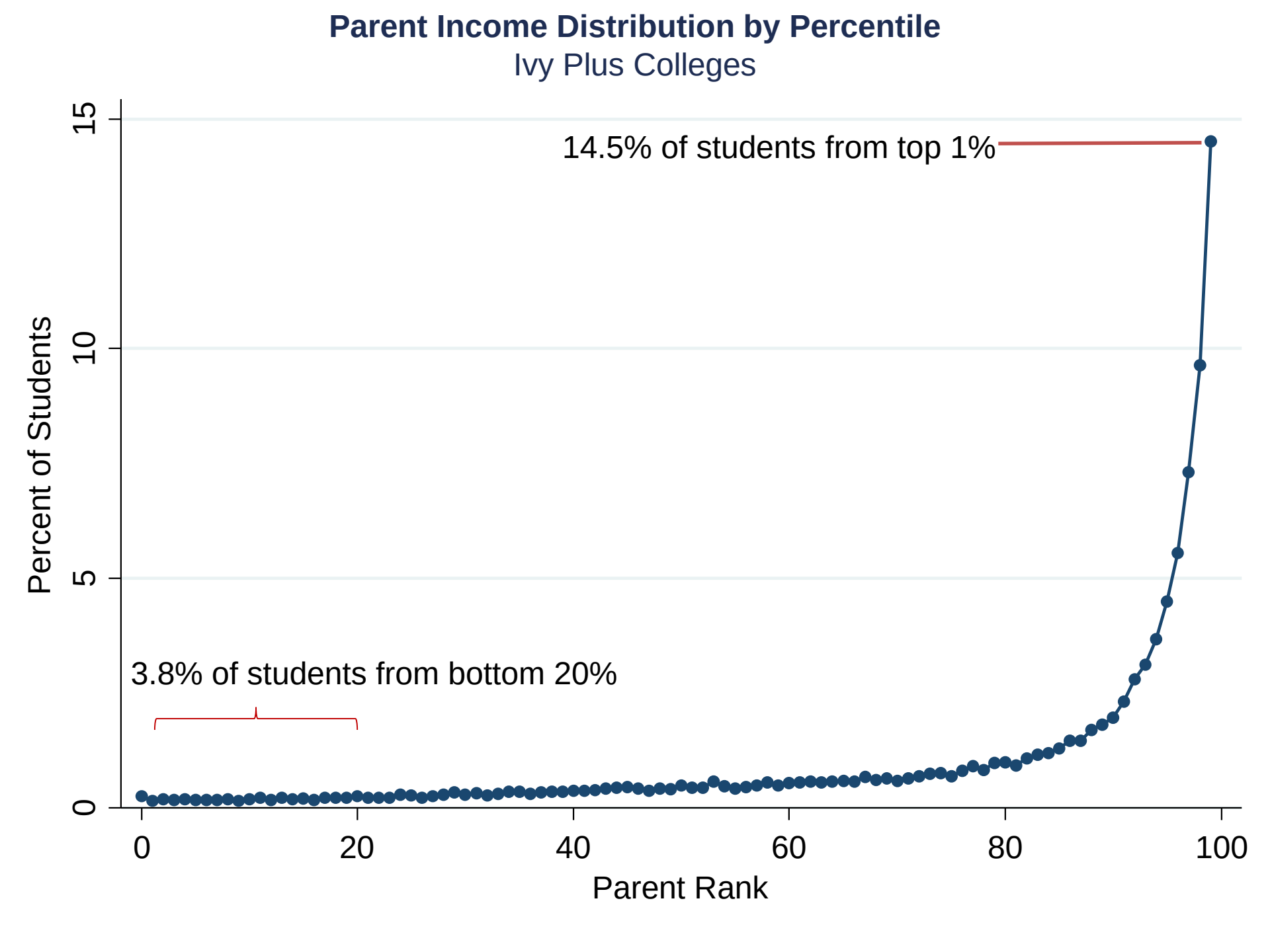

Parent Income Distribution at Harvard
1980-82 Child Birth Cohorts
Percent of Students
0
20
40
60
80
3.0%
5.3%
8.1%
13.2%
15.4%
70.3%
Top
1%
1
2
3
4
5
Parent Income Quintile

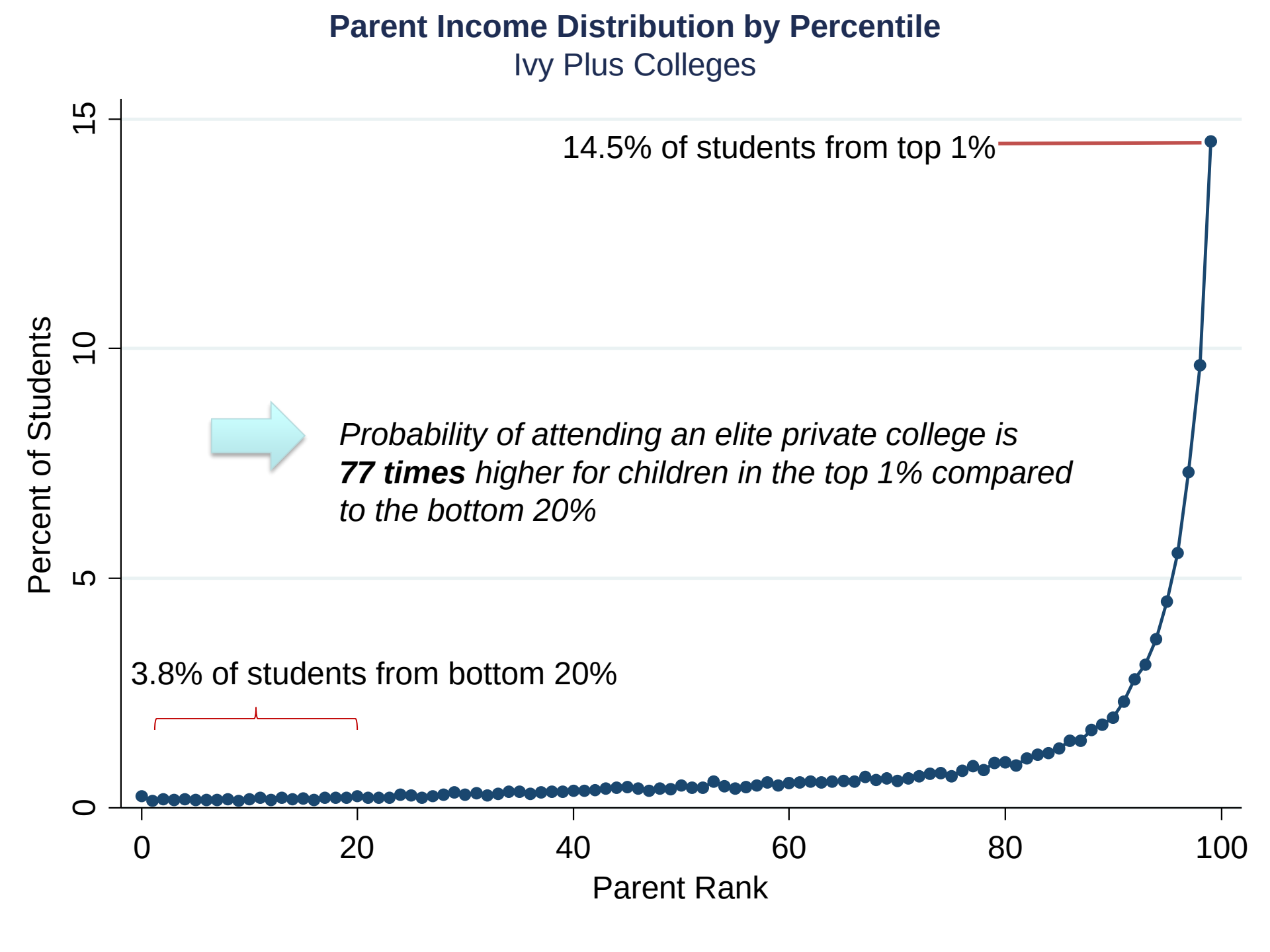

Parent Income Distribution by Percentile
Ivy Plus Colleges
Percent of Students
0
5
10
15
Note: “Ivy Plus” = Ivy League, Chicago, Stanford, MIT, Duke
0
20
40
60
80
100
Parent Rank

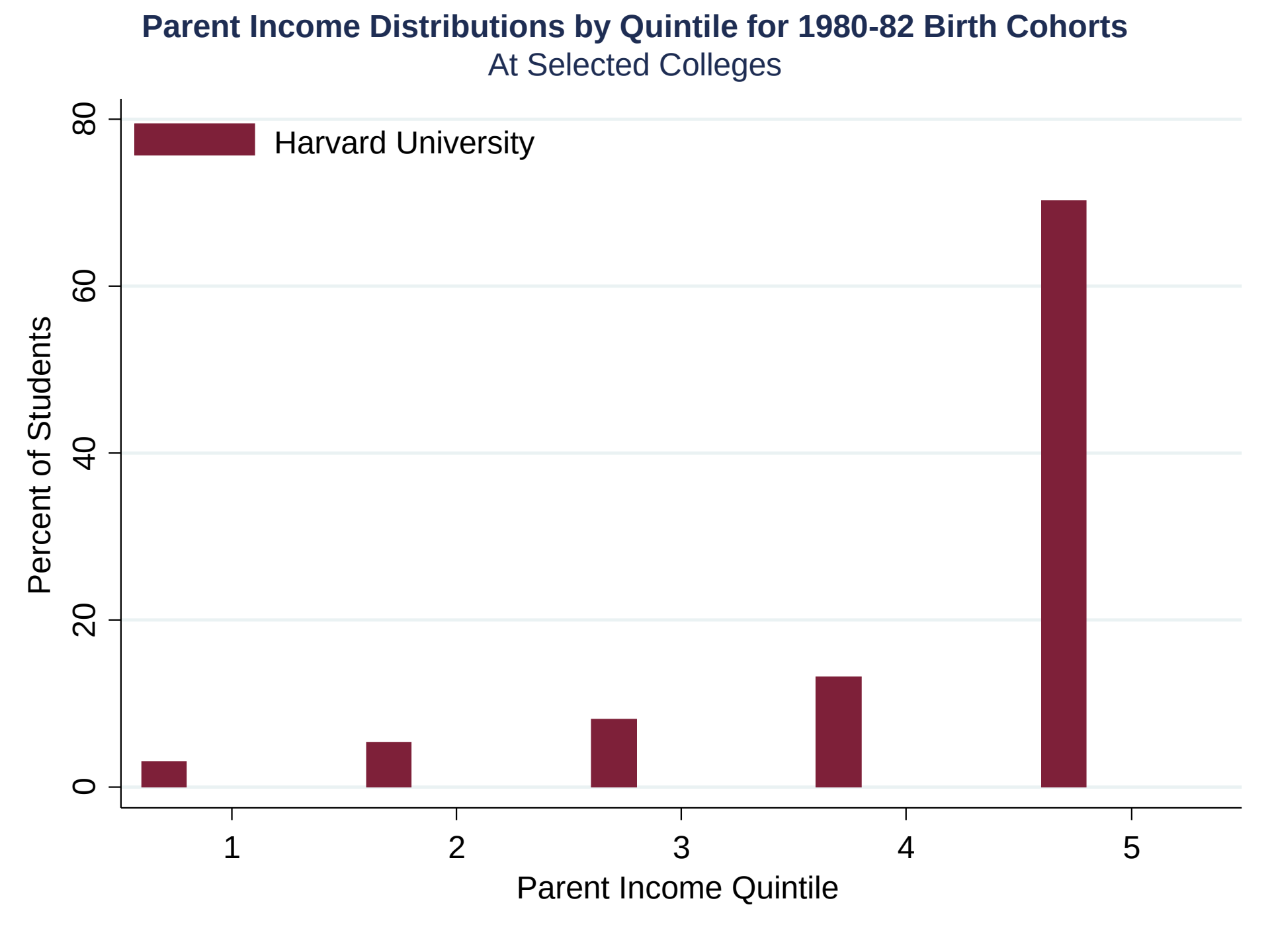

Parent Income Distribution by Percentile
Ivy Plus Colleges
14.5% of students from top 1%
Note: “Ivy Plus” = Ivy League, Chicago, Stanford, MIT, Duke
Percent of Students
0
5
10
15
0
20
40
60
80
100
Parent Rank

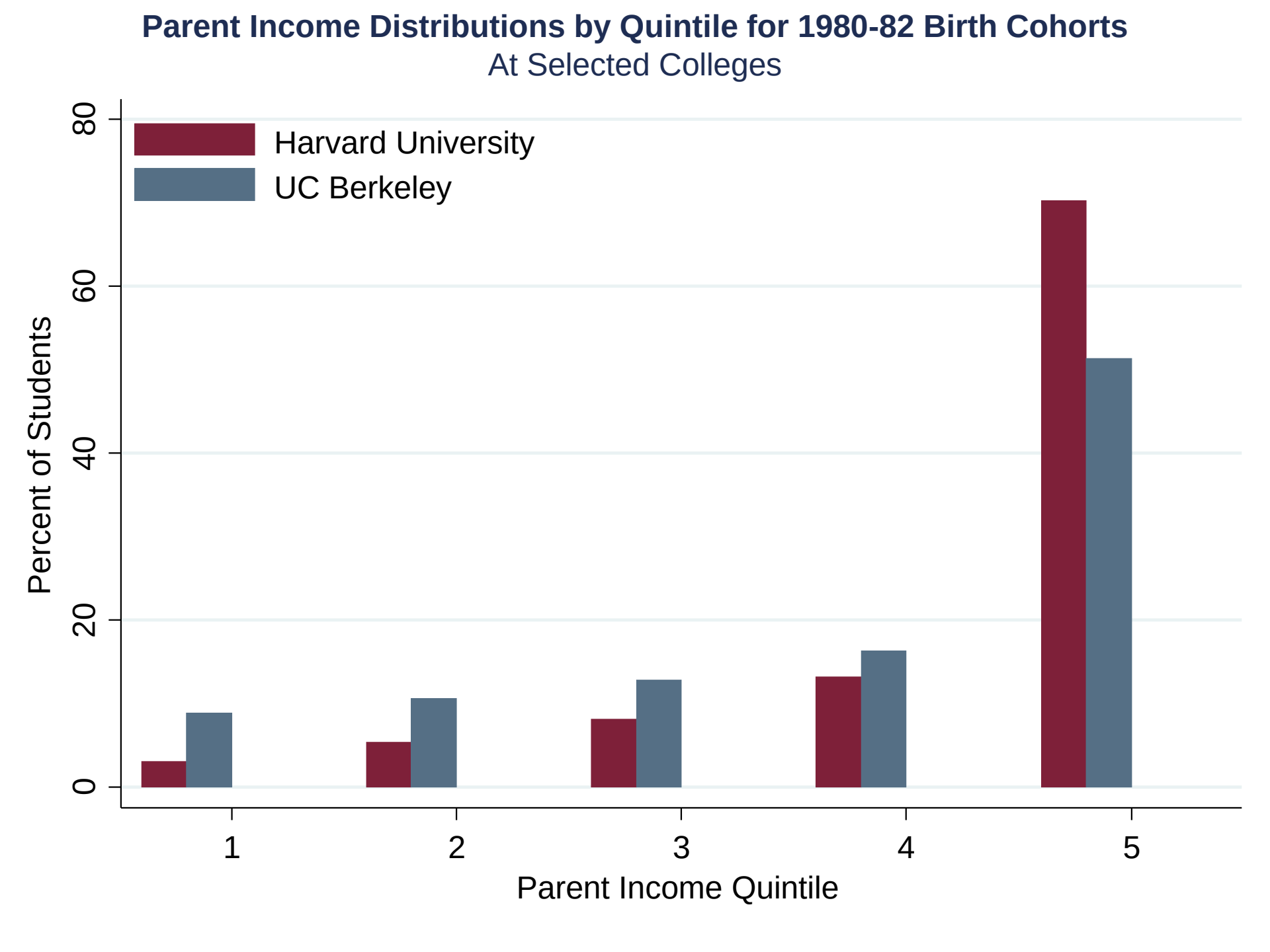

Parent Income Distribution by Percentile
Ivy Plus Colleges
14.5% of students from top 1%
13.5% of students from bottom 50%
Percent of Students
0
5
10
15
0
20
40
60
80
100
Parent Rank

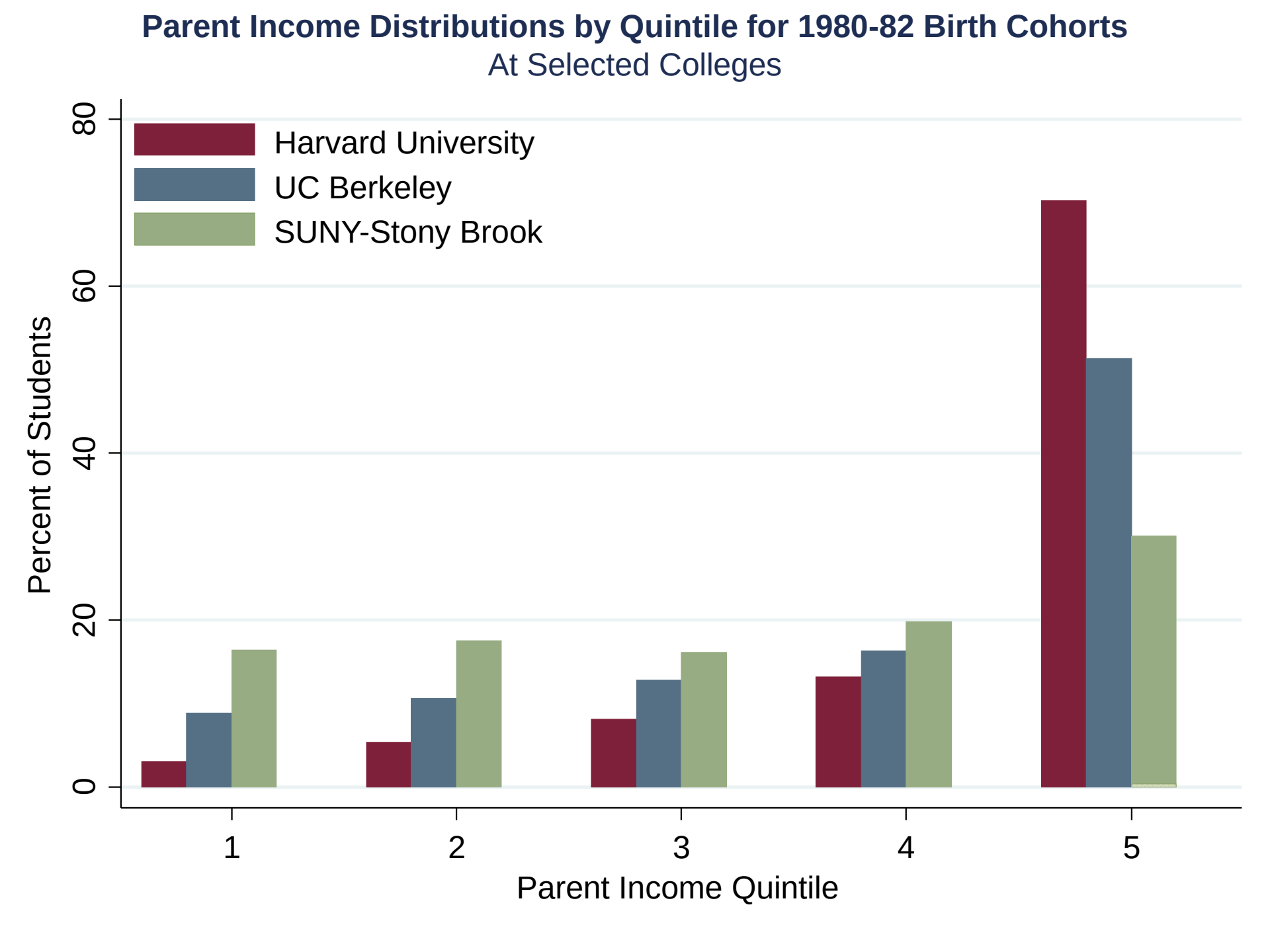

Parent Income Distribution by Percentile
Ivy Plus Colleges
14.5% of students from top 1%
More students from the top 1% than the bottom 50%
13.5% of students from bottom 50%
Percent of Students
0
5
10
15
0
20
40
60
80
100
Parent Rank

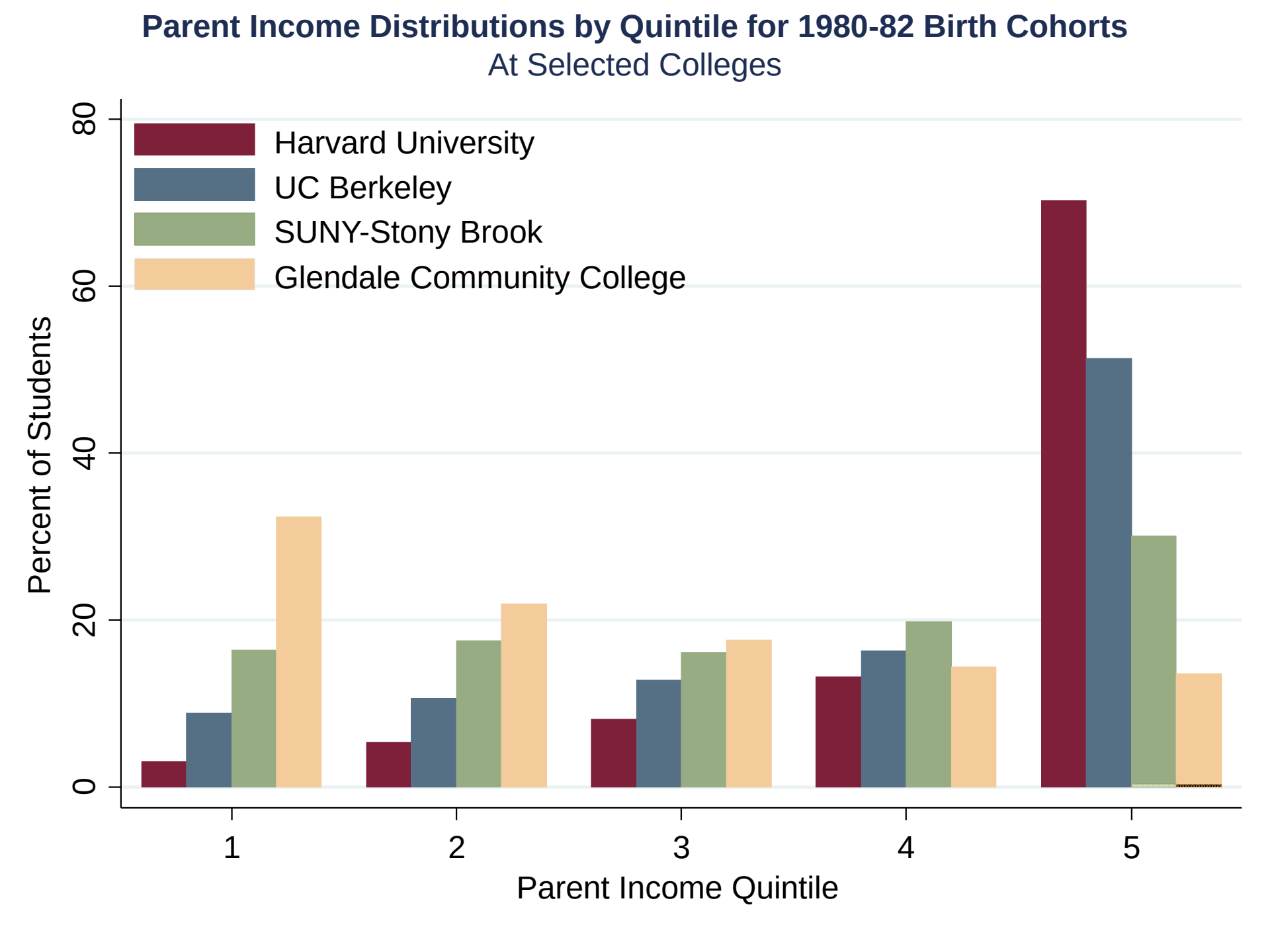

Parent Income Distribution by Percentile
Ivy Plus Colleges
14.5% of students from top 1%
3.8% of students from bottom 20%
Percent of Students
0
5
10
15
0
20
40
60
80
100
Parent Rank

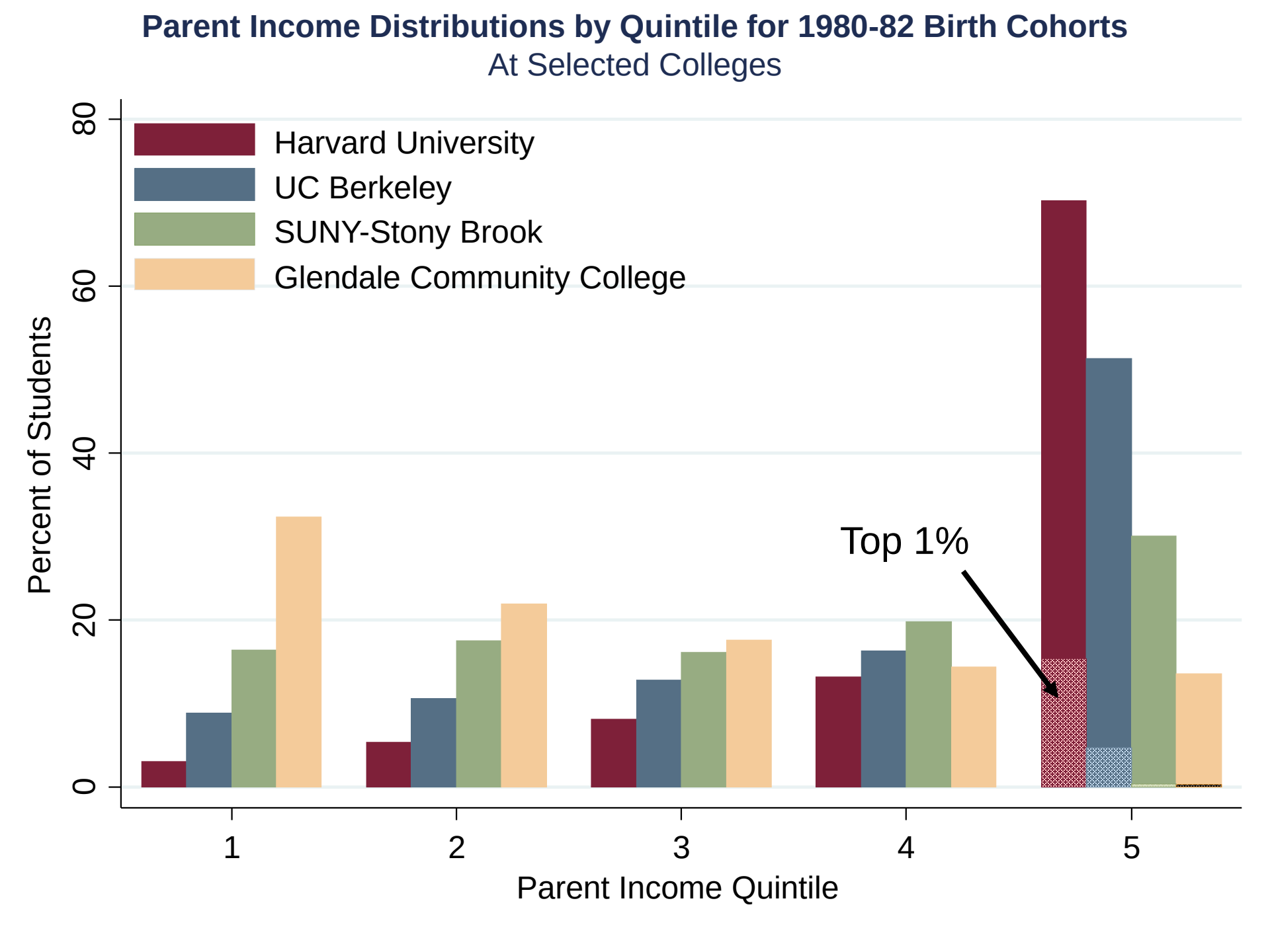

Parent Income Distribution by Percentile
Ivy Plus Colleges
14.5% of students from top 1%
Probability of attending an elite private college is
77 times higher for children in the top 1% compared
to the bottom 20%
3.8% of students from bottom 20%
Percent of Students
0
5
10
15
0
20
40
60
80
100
Parent Rank

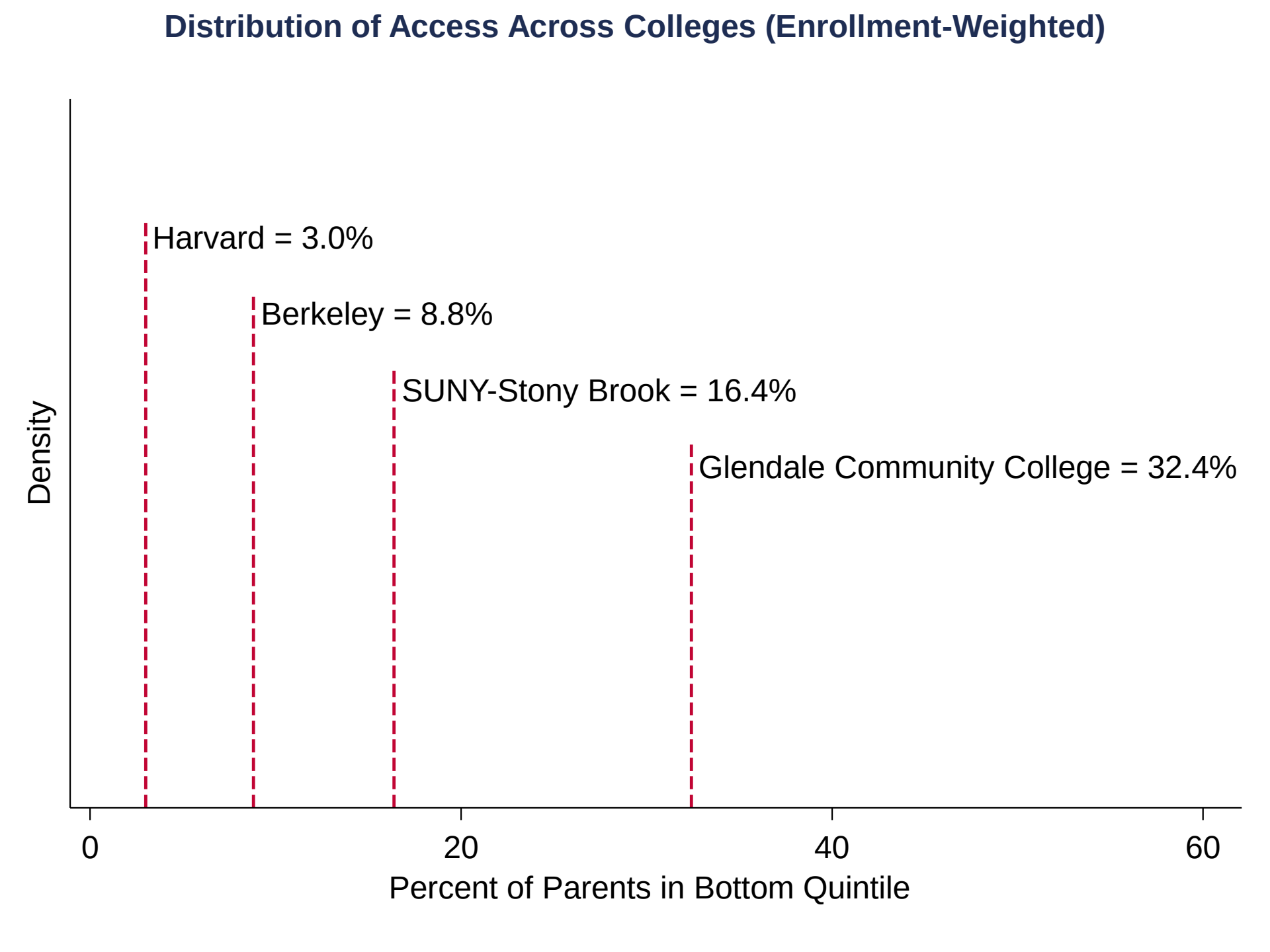

Parent Income Distributions by Quintile for 1980-82 Birth Cohorts
At Selected Colleges
Harvard University
Percent of Students
0
20
40
60
80
1
2
3
4
5
Parent Income Quintile


Parent Income Distributions by Quintile for 1980-82 Birth Cohorts
At Selected Colleges
Harvard University
UC Berkeley
Percent of Students
0
20
40
60
80
1
2
3
4
5
Parent Income Quintile

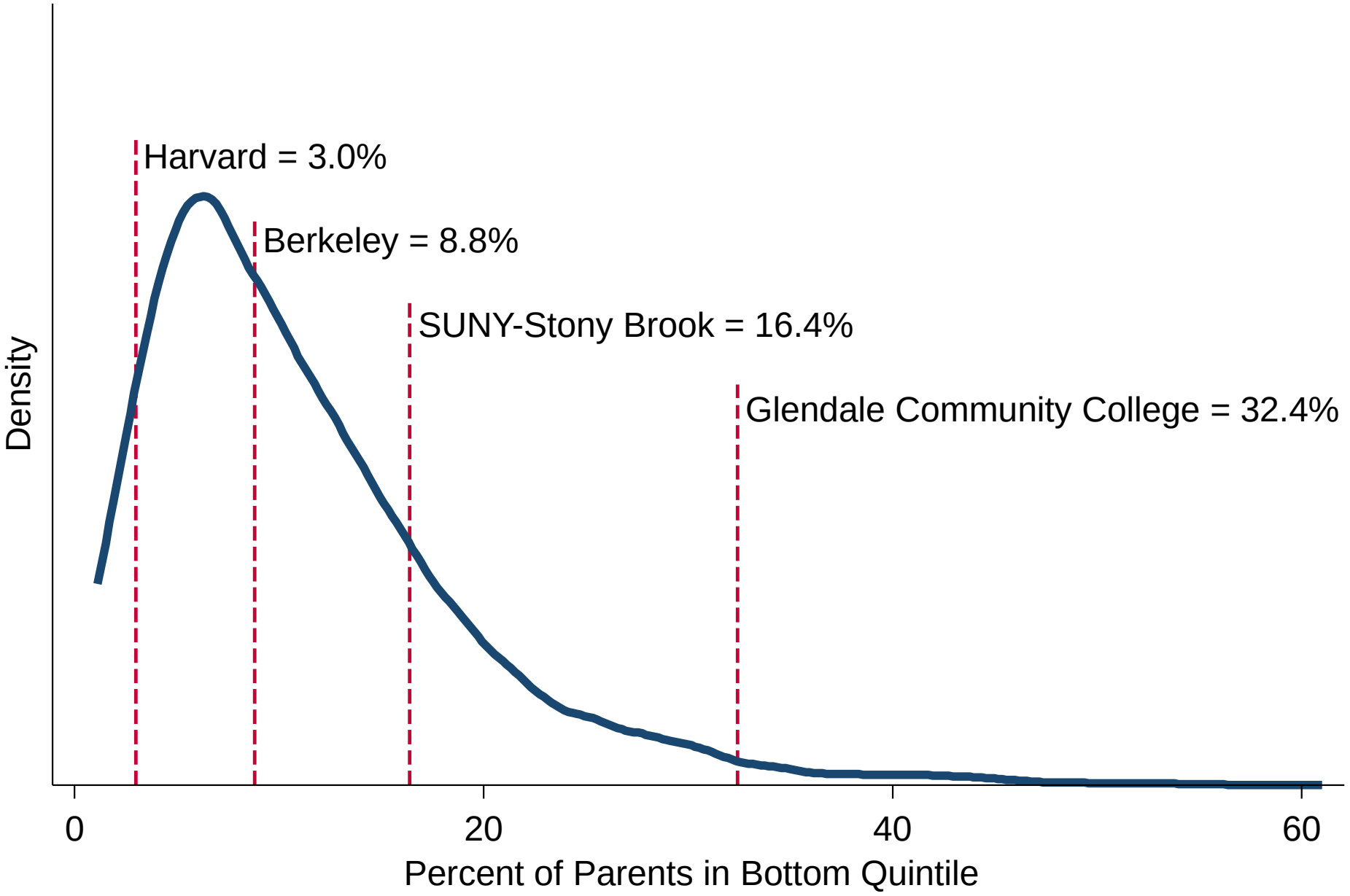

Parent Income Distributions by Quintile for 1980-82 Birth Cohorts
At Selected Colleges
Harvard University
UC Berkeley
SUNY-Stony Brook
Percent of Students
0
20
40
60
80
1
2
3
4
5
Parent Income Quintile

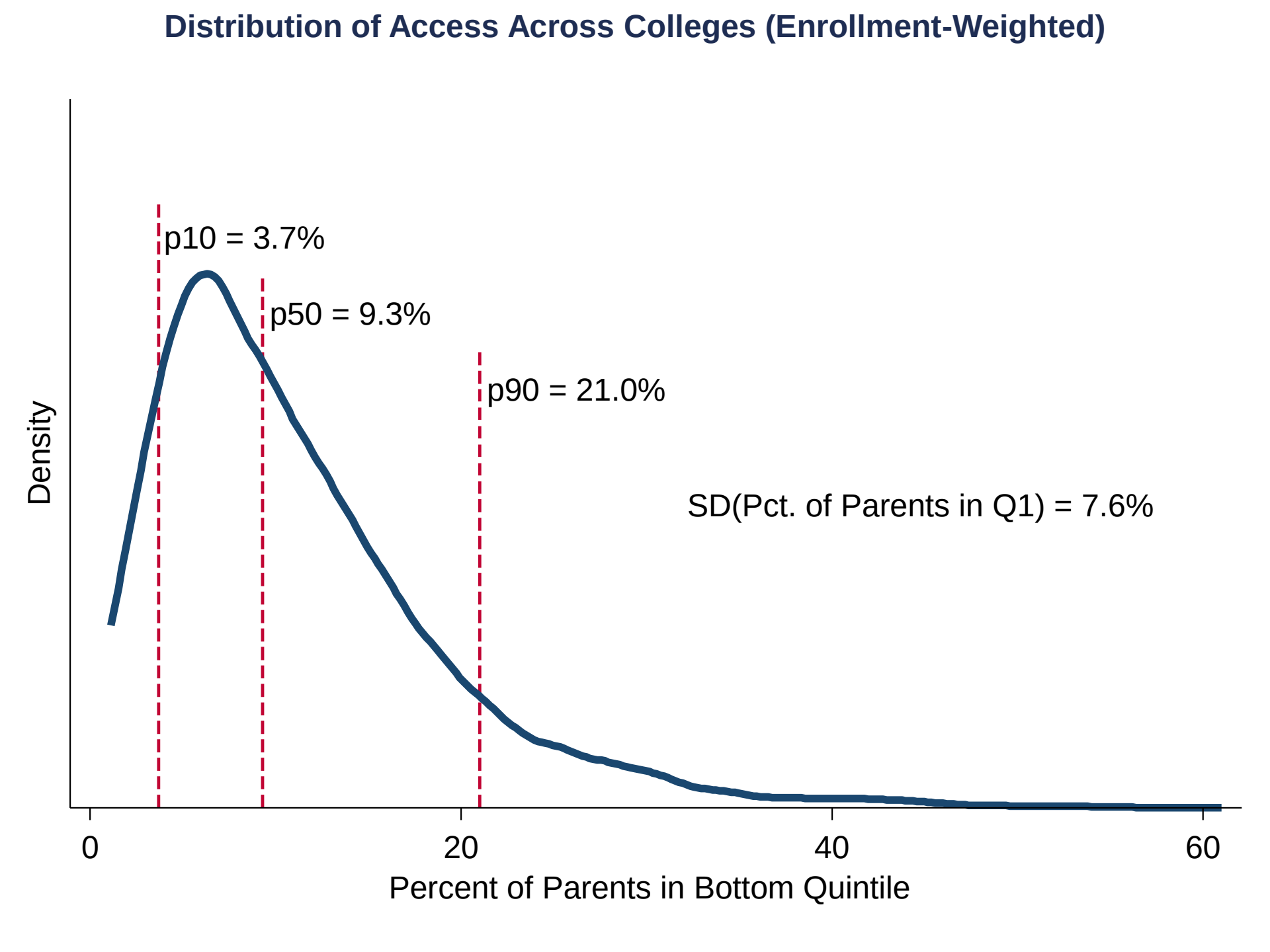

Parent Income Distributions by Quintile for 1980-82 Birth Cohorts
At Selected Colleges
Harvard University
UC Berkeley
SUNY-Stony Brook
Glendale Community College
Percent of Students
0
20
40
60
80
1
2
3
4
5
Parent Income Quintile


Parent Income Distributions by Quintile for 1980-82 Birth Cohorts
At Selected Colleges
Harvard University
UC Berkeley
SUNY-Stony Brook
Glendale Community College
Top 1%
Percent of Students
0
20
40
60
80
1
2
3
4
5
Parent Income Quintile

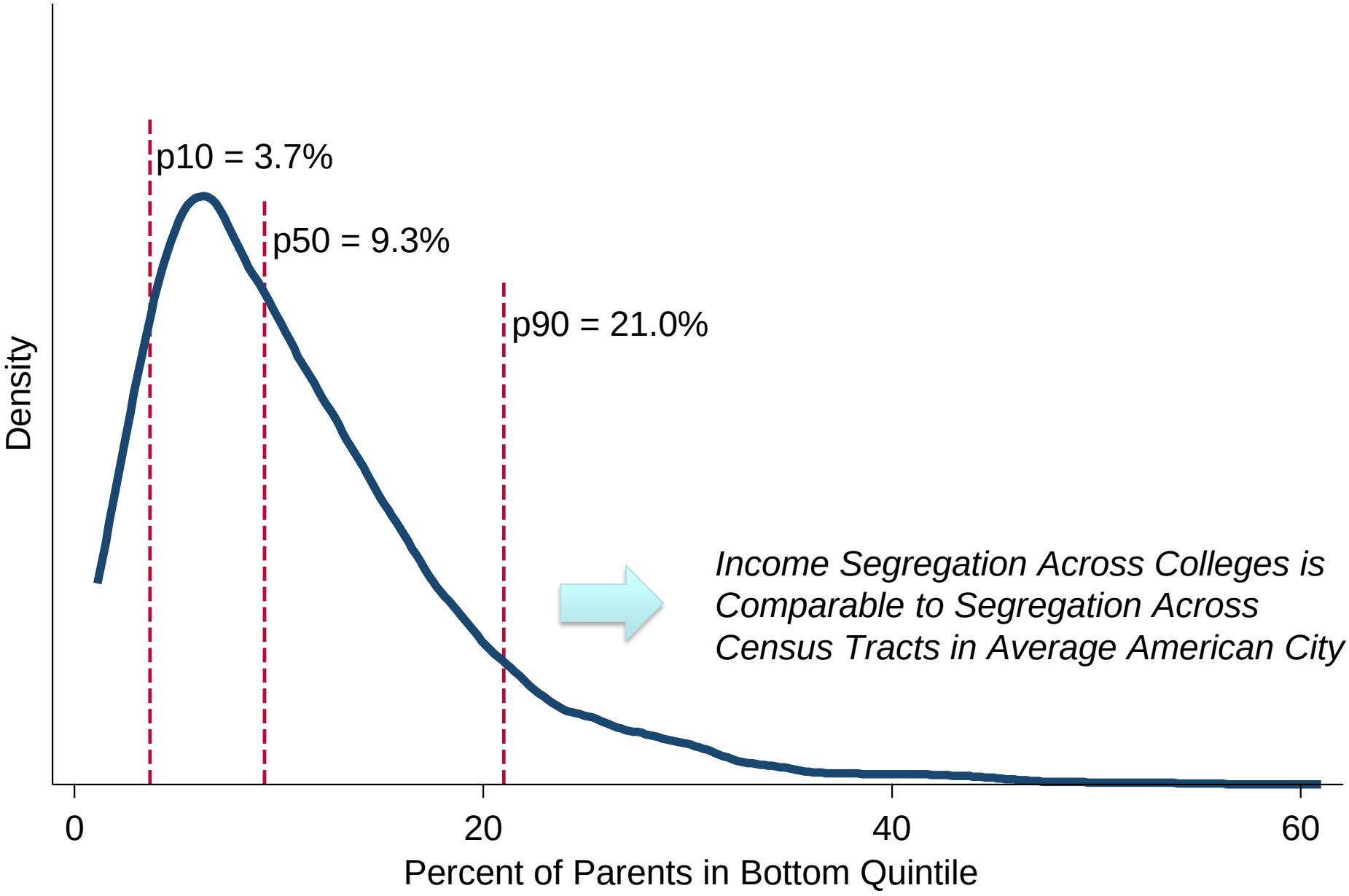

Distribution of Access Across Colleges (Enrollment-Weighted)
Harvard = 3.0%
Berkeley = 8.8%
SUNY-Stony Brook = 16.4%
Glendale Community College = 32.4%
Density
0
20
40
60
Percent of Parents in Bottom Quintile

Distribution of Access Across Colleges (Enrollment-Weighted)




Distribution of Access Across Colleges (Enrollment-Weighted)
p10 = 3.7%
p50 = 9.3%
p90 = 21.0%
SD(Pct. of Parents in Q1) = 7.6%
Density
0
20
40
60
Percent of Parents in Bottom Quintile

Distribution of Access Across Colleges (Enrollment-Weighted)



Lessons on Access

- **Fact #1**: Income segregation across colleges is comparable to segregation across Census tracts in the average American city

- Income is especially concentrated at elite private schools

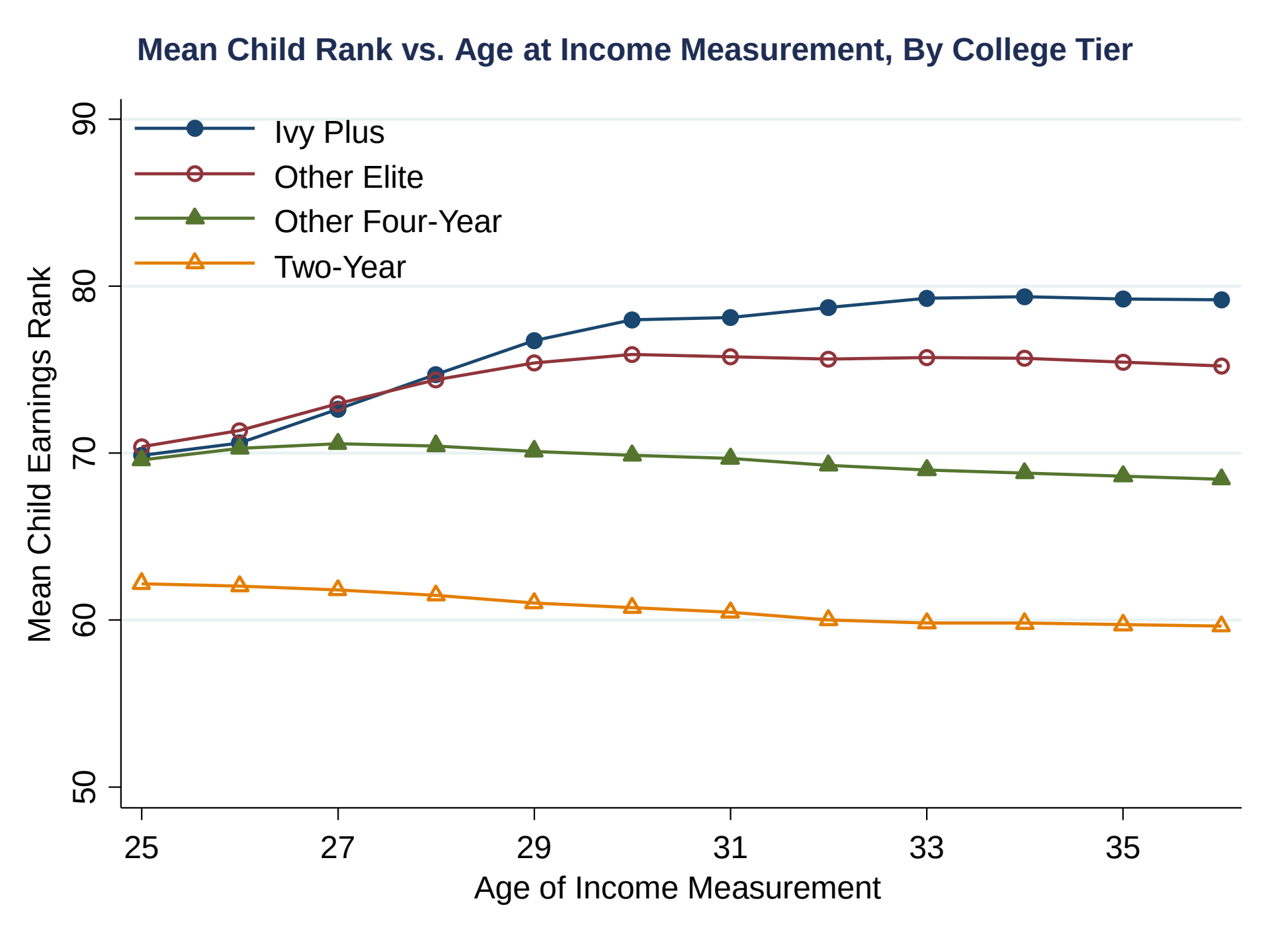
- No evidence of a “missing middle” at elite private colleges

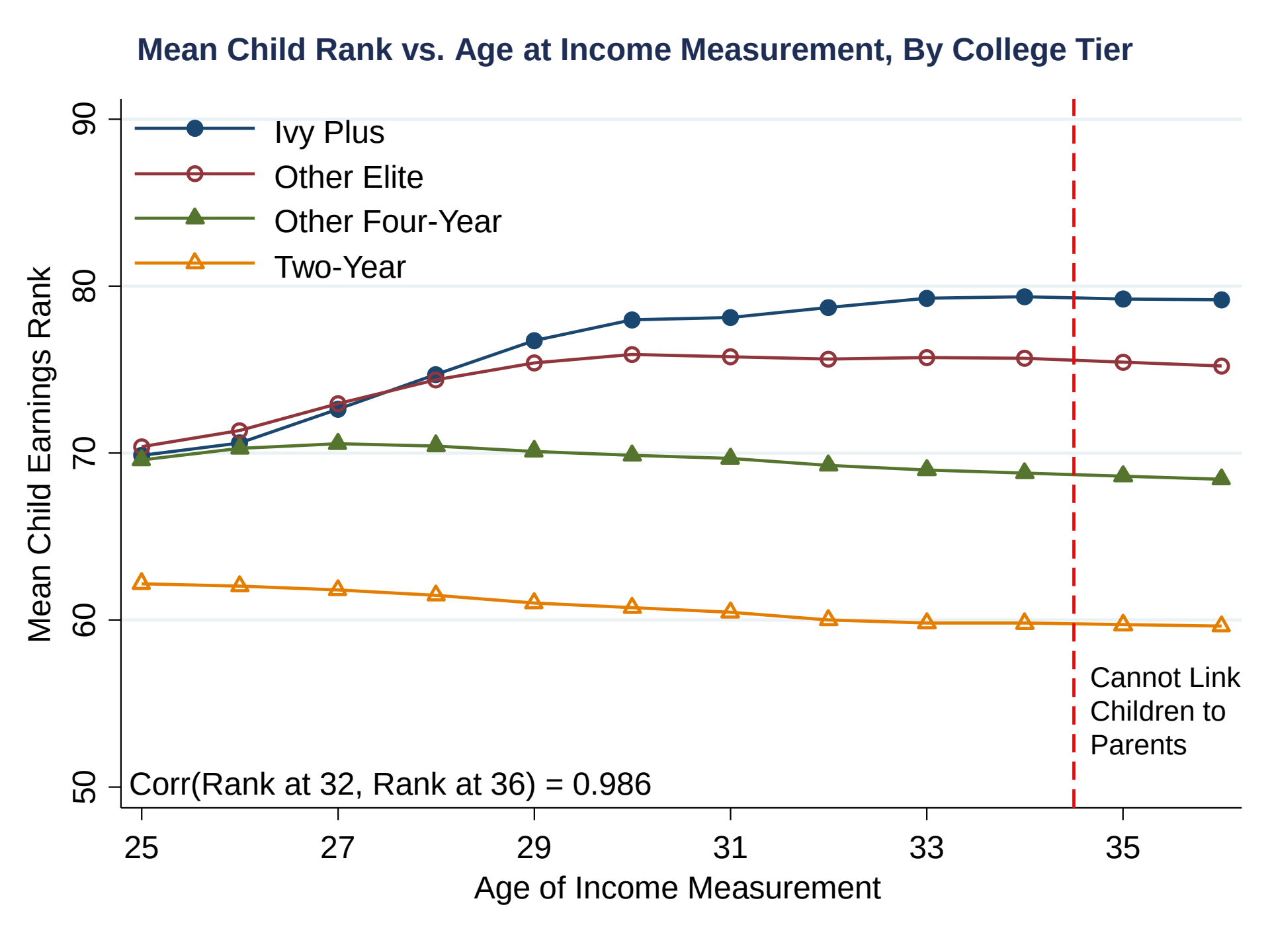
  - Likelihood of attending elite private schools is strictly increasing in parental income, even relative to elite public schools

Part 2
Outcomes: Distributions of Student's Earnings by College

Measuring Student Earnings

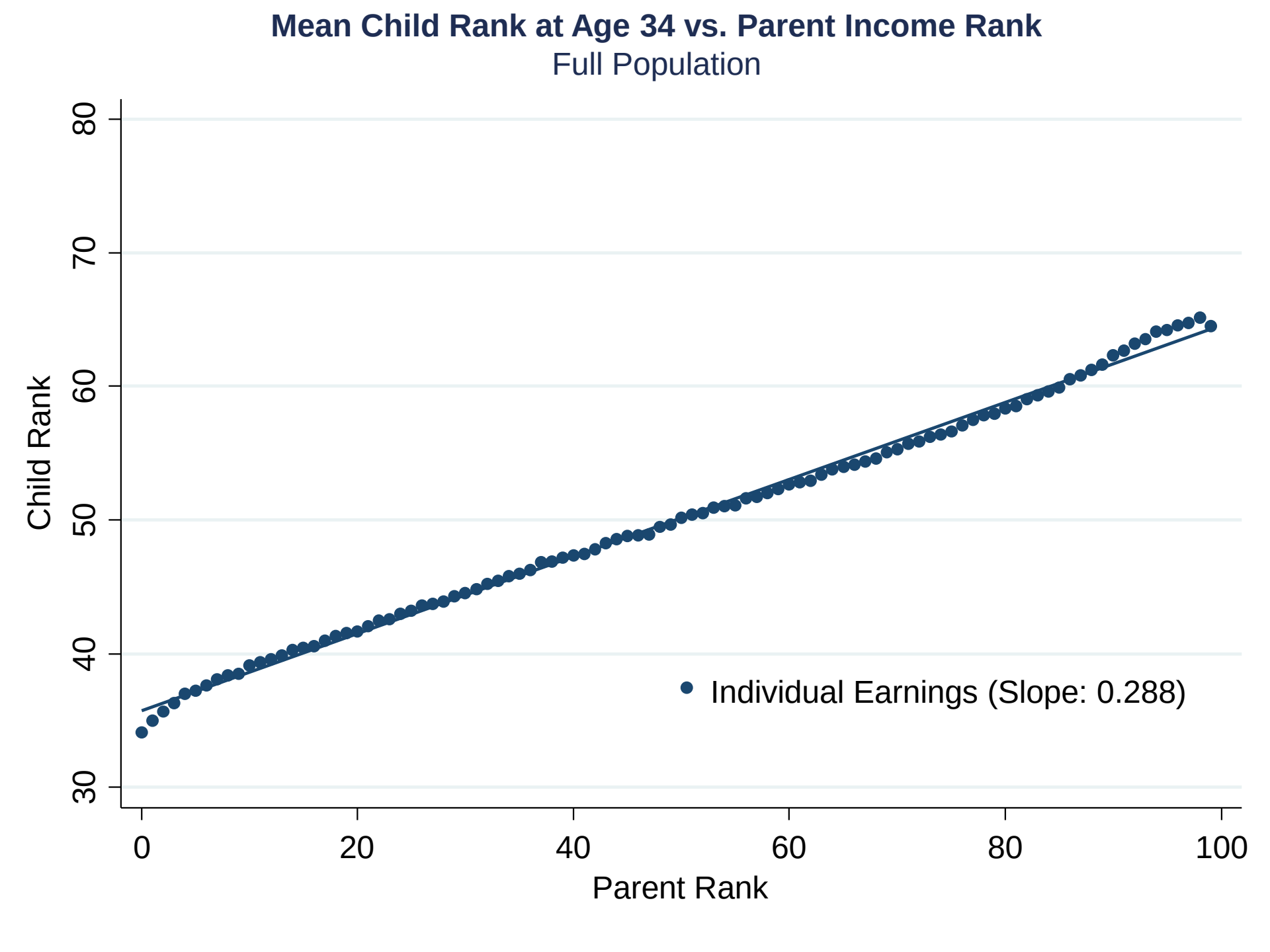
- Individual labor earnings = wages + self-emp. Income + foreign wages
- Compute percentile ranks by ranking children within birth cohorts
- Using data going back to 1978 cohort, we see that ranks stabilize by age 32 at all colleges

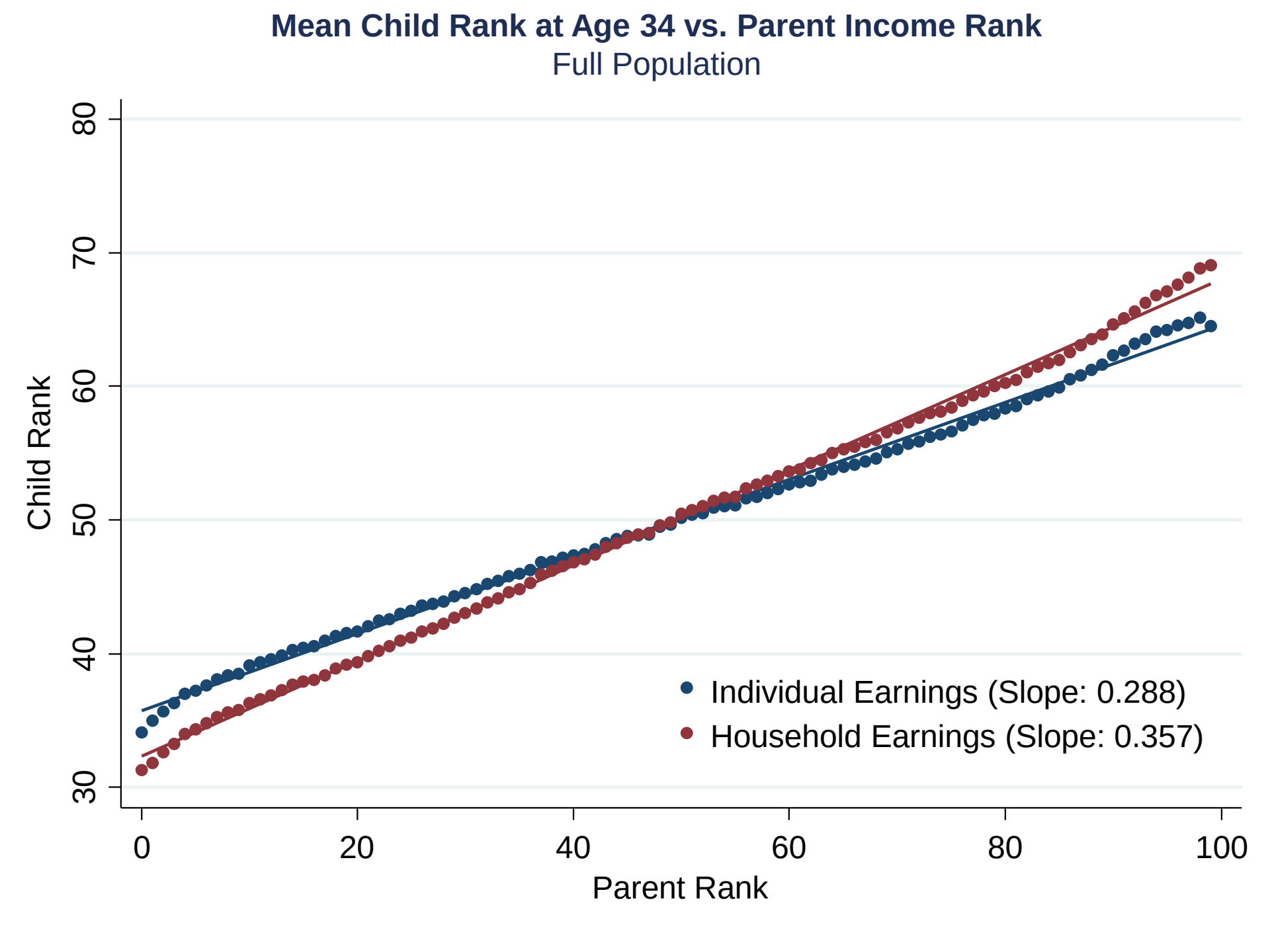

Mean Child Rank vs. Age at Income Measurement, By College Tier
Ivy Plus
Other Elite
Other Four-Year
Two-Year
Mean Child Earnings Rank
90
80
70
60
50
25
27
29
31
33
35
Age of Income Measurement

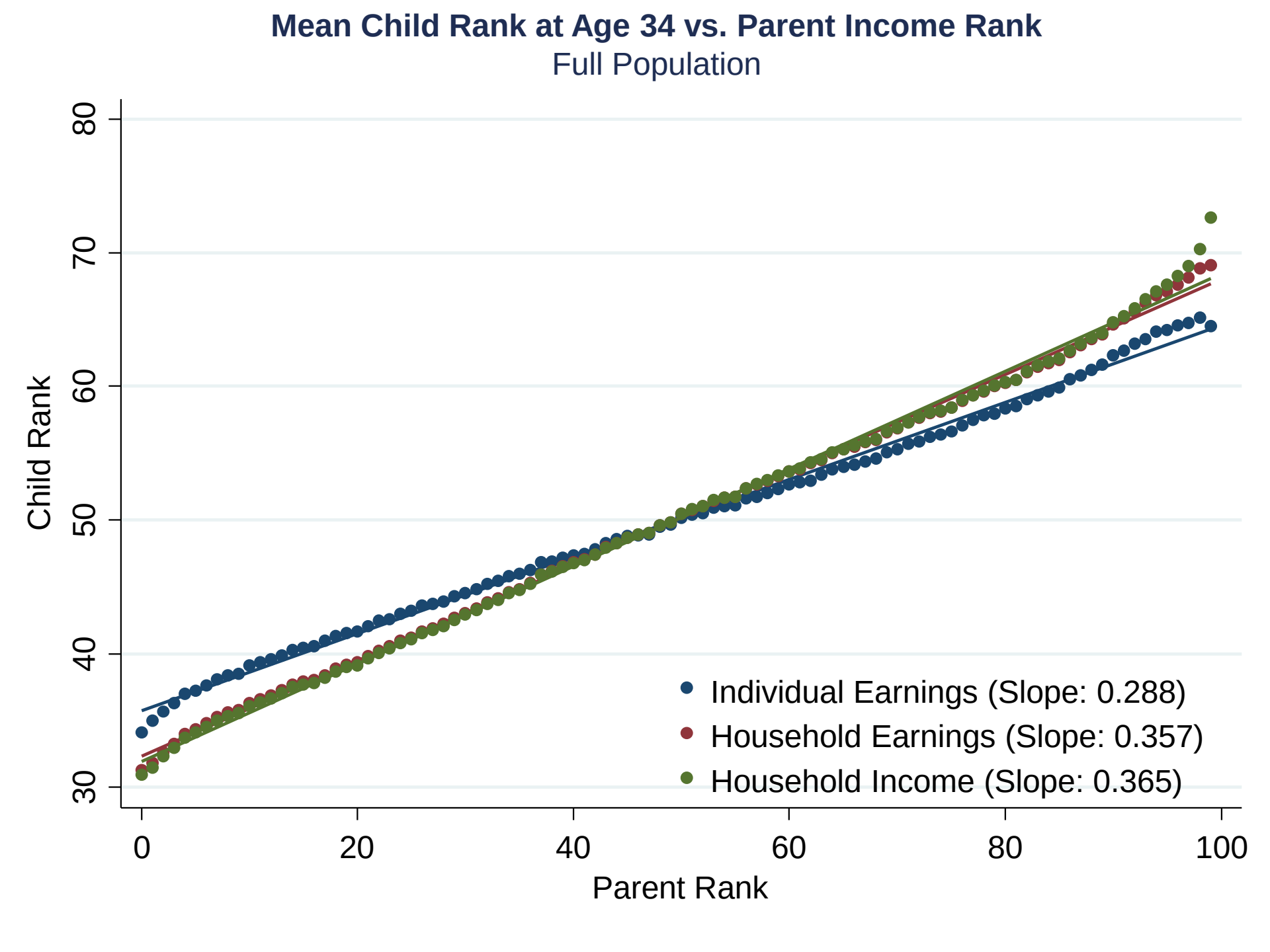

Mean Child Rank vs. Age at Income Measurement, By College Tier
Ivy Plus
Other Elite
Other Four-Year
Two-Year
Mean Child Earnings Rank
90
80
70
60
50
Cannot Link
Children to
Parents
Corr(Rank at 32, Rank at 36) = 0.986
25
27
29
31
33
35
Age of Income Measurement

Measuring Student Earnings

- Individual labor earnings = wages + self-emp. income + foreign wages
- Compute percentile ranks by ranking children within birth cohorts
- Using data going back to 1978 cohort, we see that ranks stabilize by age 32 at all colleges
- Broader income concepts (e.g., AGI) differ from individual labor earnings primarily because of marriage


Mean Child Rank at Age 34 vs. Parent Income Rank
Full Population
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
Individual Earnings (Slope: 0.288)

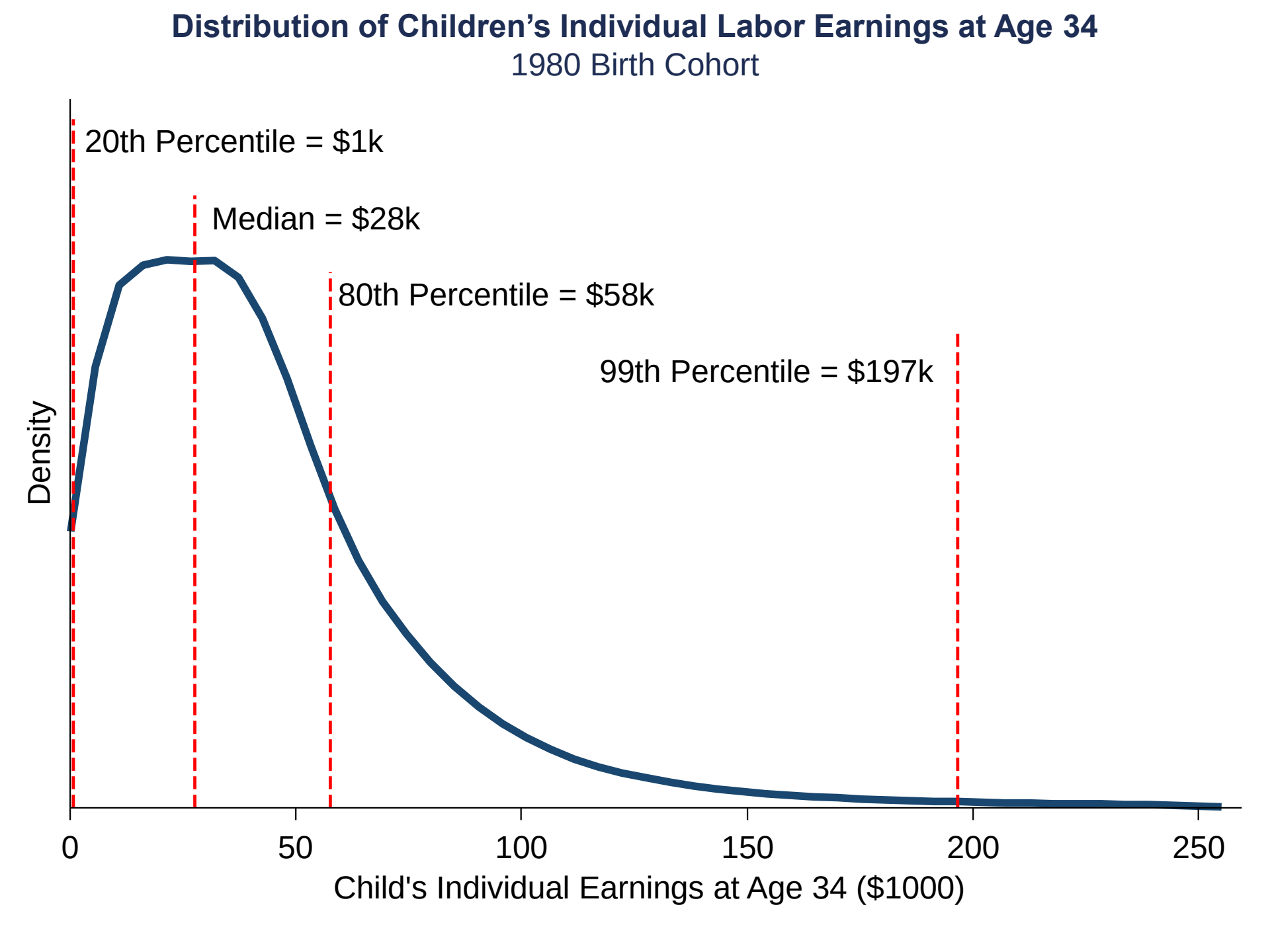

Mean Child Rank at Age 34 vs. Parent Income Rank
Full Population
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
Individual Earnings (Slope: 0.288)
Household Earnings (Slope: 0.357)


Mean Child Rank at Age 34 vs. Parent Income Rank
Full Population
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
Individual Earnings (Slope: 0.288)
Household Earnings (Slope: 0.357)
Household Income (Slope: 0.365)

Measuring Student Earnings

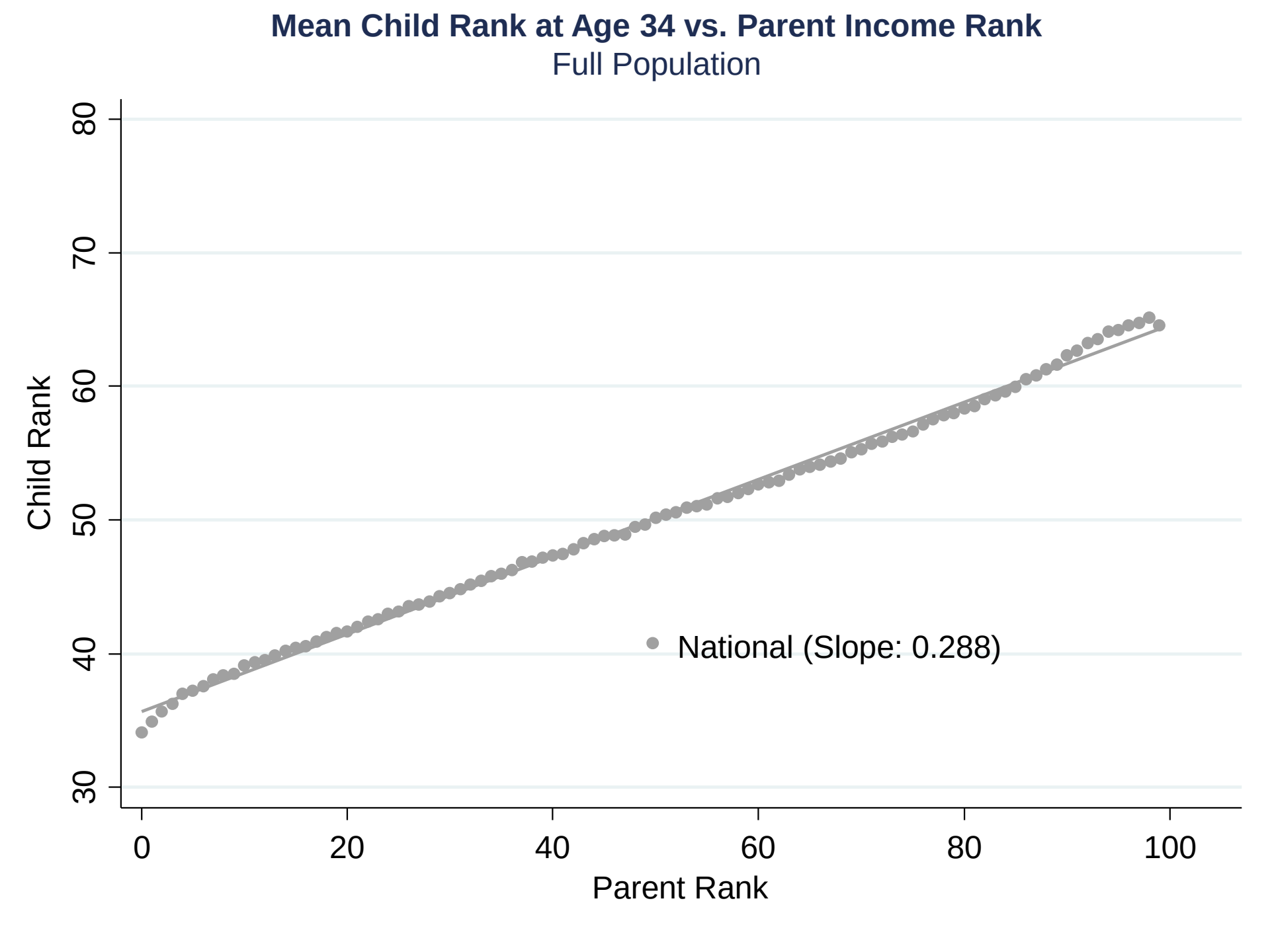
- Individual labor earnings = wages + self-emp. income + foreign wages
- Compute percentile ranks by ranking children within birth cohorts
- Using data going back to 1978 cohort, we see that ranks stabilize by age 32 at all colleges
- Broader income concepts (e.g., AGI) differ from individual labor earnings primarily because of marriage

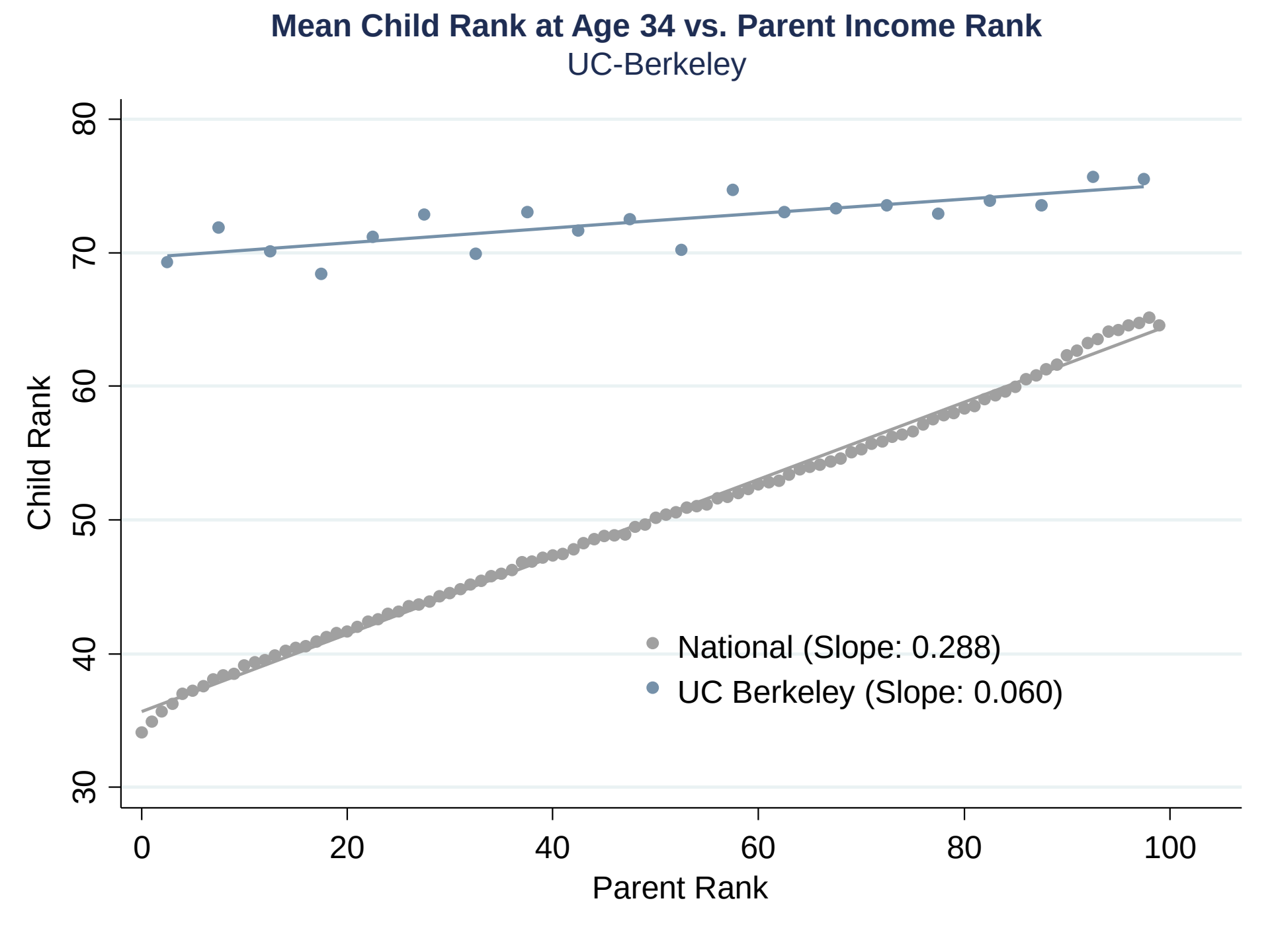
→ Baseline definition: individual earnings in 2014, measured at ages 32-34 for 1980-82 birth cohorts

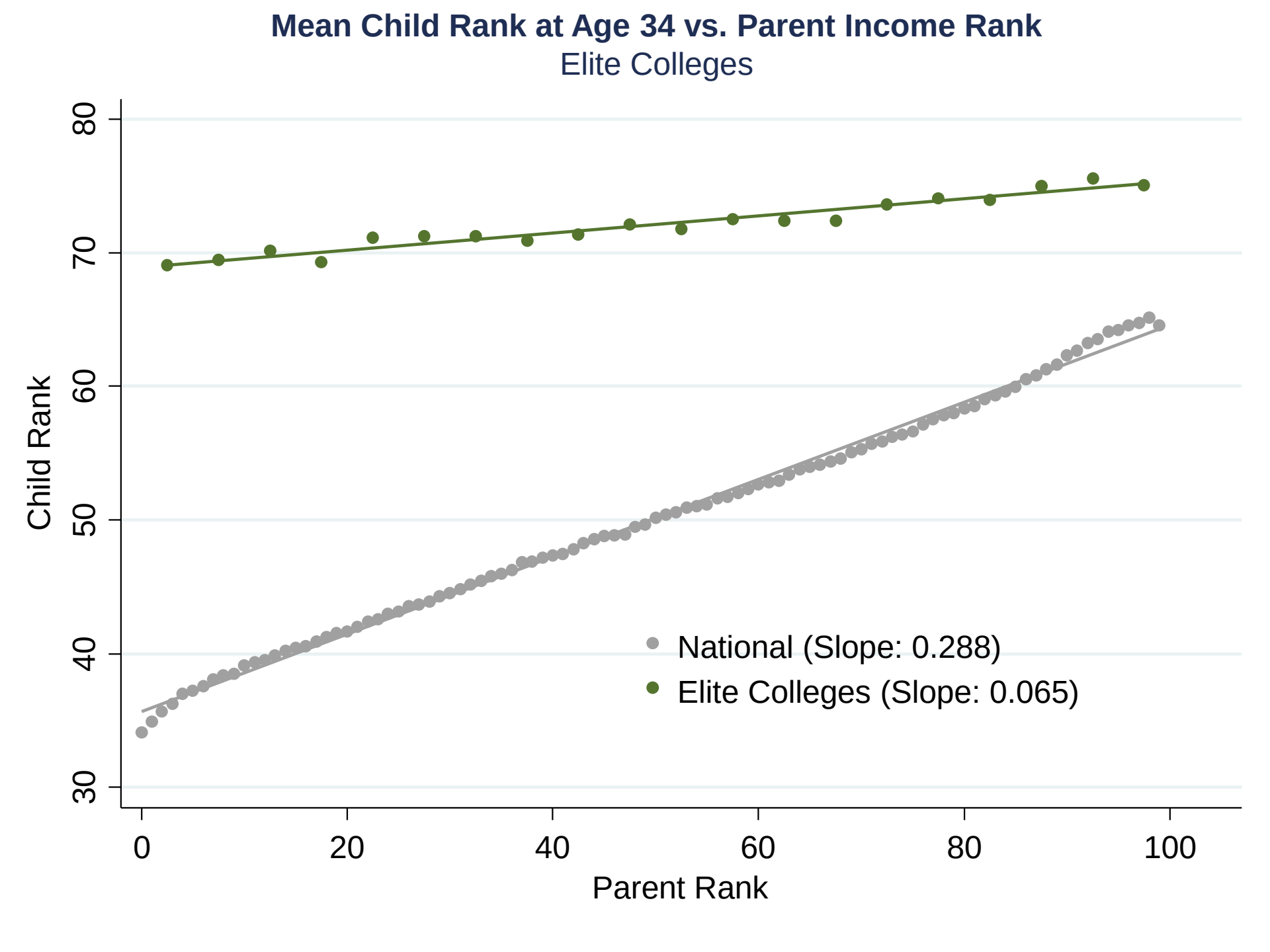

Distribution of Children's Individual Labor Earnings at Age 34
1980 Birth Cohort
20th Percentile = $1k
Median = $28k
80th Percentile = $58k
99th Percentile = $197k
Density
0
50
100
150
200
250
Child's Individual Earnings at Age 34 ($1000)

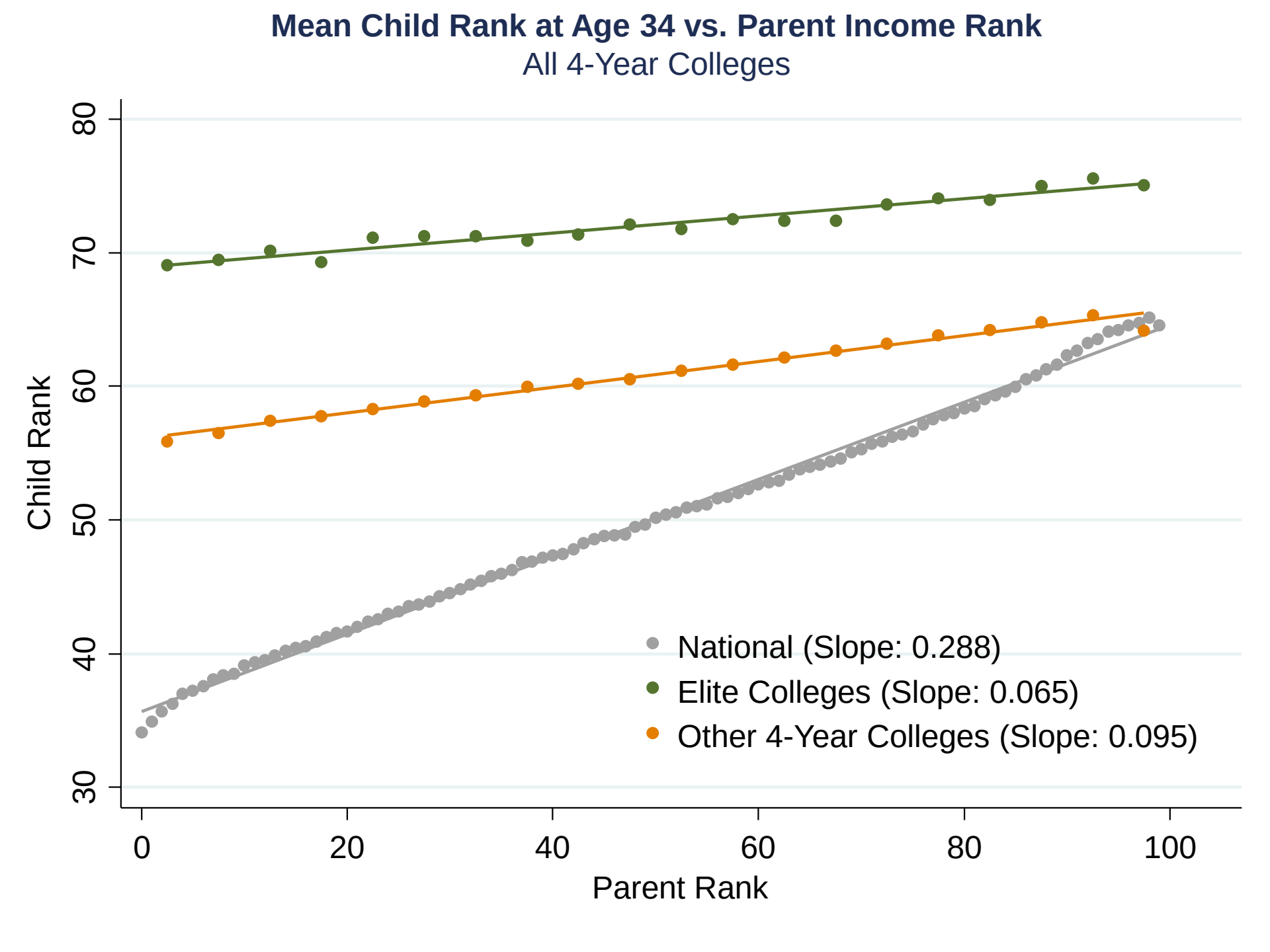
Student Earnings Outcomes by College

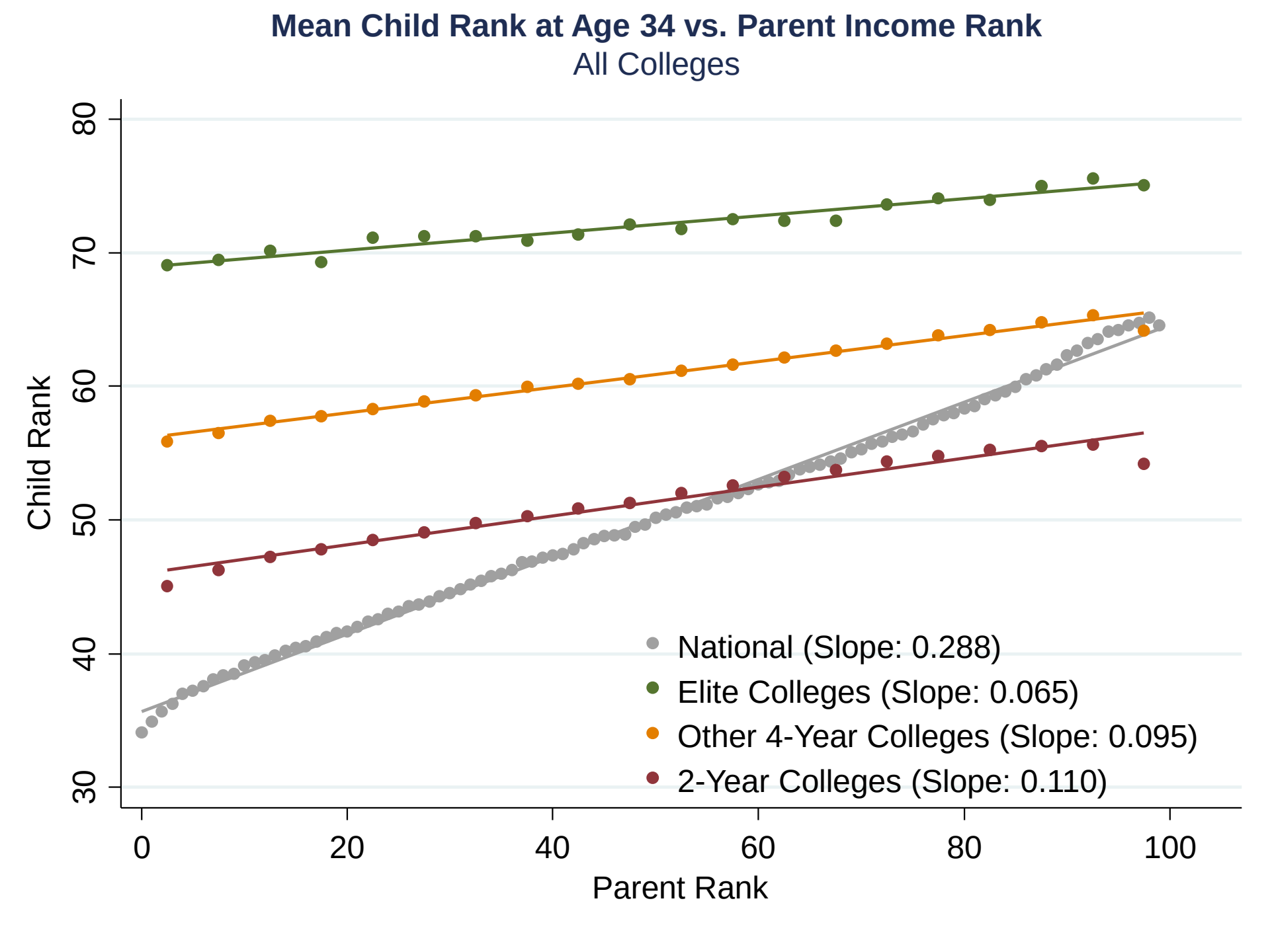
- Characterize children's earnings ranks conditional on their parents' rank by college

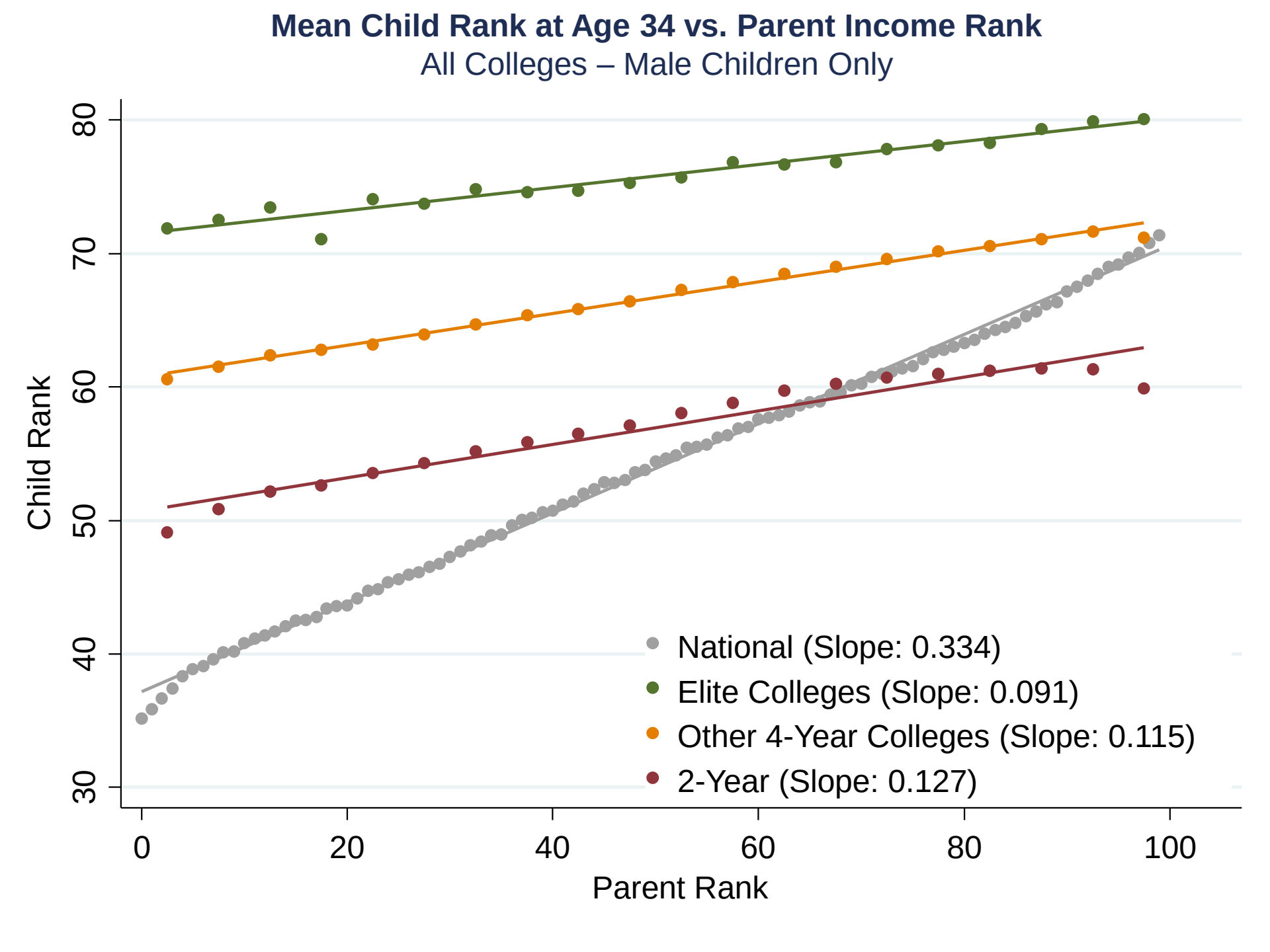

Mean Child Rank at Age 34 vs. Parent Income Rank
Full Population
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
National (Slope: 0.288)


Mean Child Rank at Age 34 vs. Parent Income Rank
UC-Berkeley
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
National (Slope: 0.288)
UC Berkeley (Slope: 0.060)


Mean Child Rank at Age 34 vs. Parent Income Rank
Elite Colleges
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
National (Slope: 0.288)
Elite Colleges (Slope: 0.065)


Mean Child Rank at Age 34 vs. Parent Income Rank
All 4-Year Colleges
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
National (Slope: 0.288)
Elite Colleges (Slope: 0.065)
Other 4-Year Colleges (Slope: 0.095)


Mean Child Rank at Age 34 vs. Parent Income Rank
All Colleges
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
National (Slope: 0.288)
Elite Colleges (Slope: 0.065)
Other 4-Year Colleges (Slope: 0.095)
2-Year Colleges (Slope: 0.110)


Mean Child Rank at Age 34 vs. Parent Income Rank
All Colleges – Male Children Only
Child Rank
30
40
50
60
70
80
0
20
40
60
80
100
Parent Rank
National (Slope: 0.334)
Elite Colleges (Slope: 0.091)
Other 4-Year Colleges (Slope: 0.115)
2-Year (Slope: 0.127)

Lessons on Outcomes

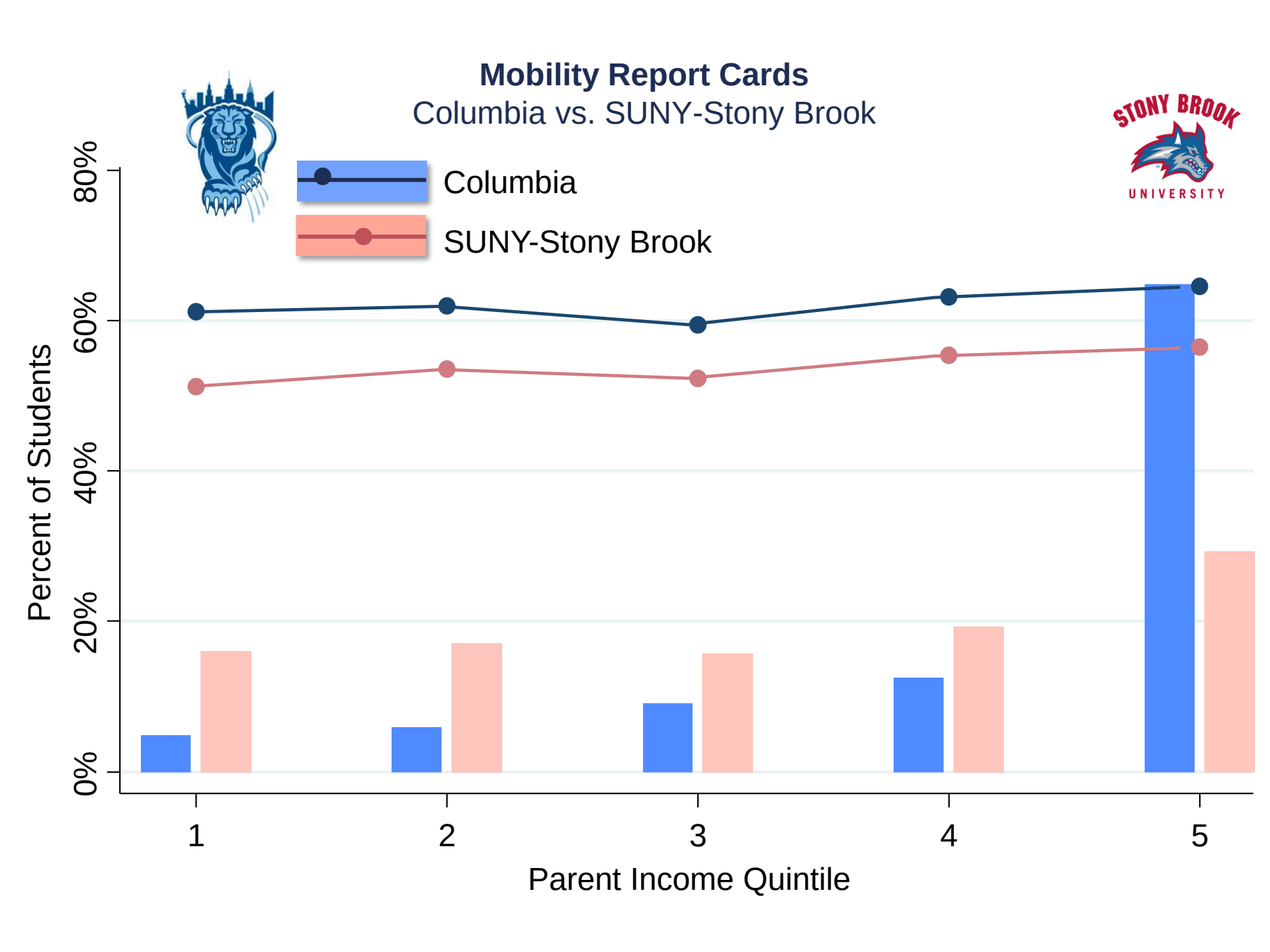
- **Fact #2**: At any given college, students from low- and high- income families have very similar earnings outcomes
  - Colleges effectively "level the playing field" across students with different socioeconomic backgrounds whom they admit
- No indication of "mismatch" of low-SES students who are admitted to selective colleges under current policies
  - Low-SES students at less-selective colleges are unlikely to do better than high-SES students at more-selective colleges
  - Within-college earnings gradient therefore places a tight upper bound on the degree of mismatch
- Any current affirmative action policies for low-income students have little cost to universities in terms of students' outcomes

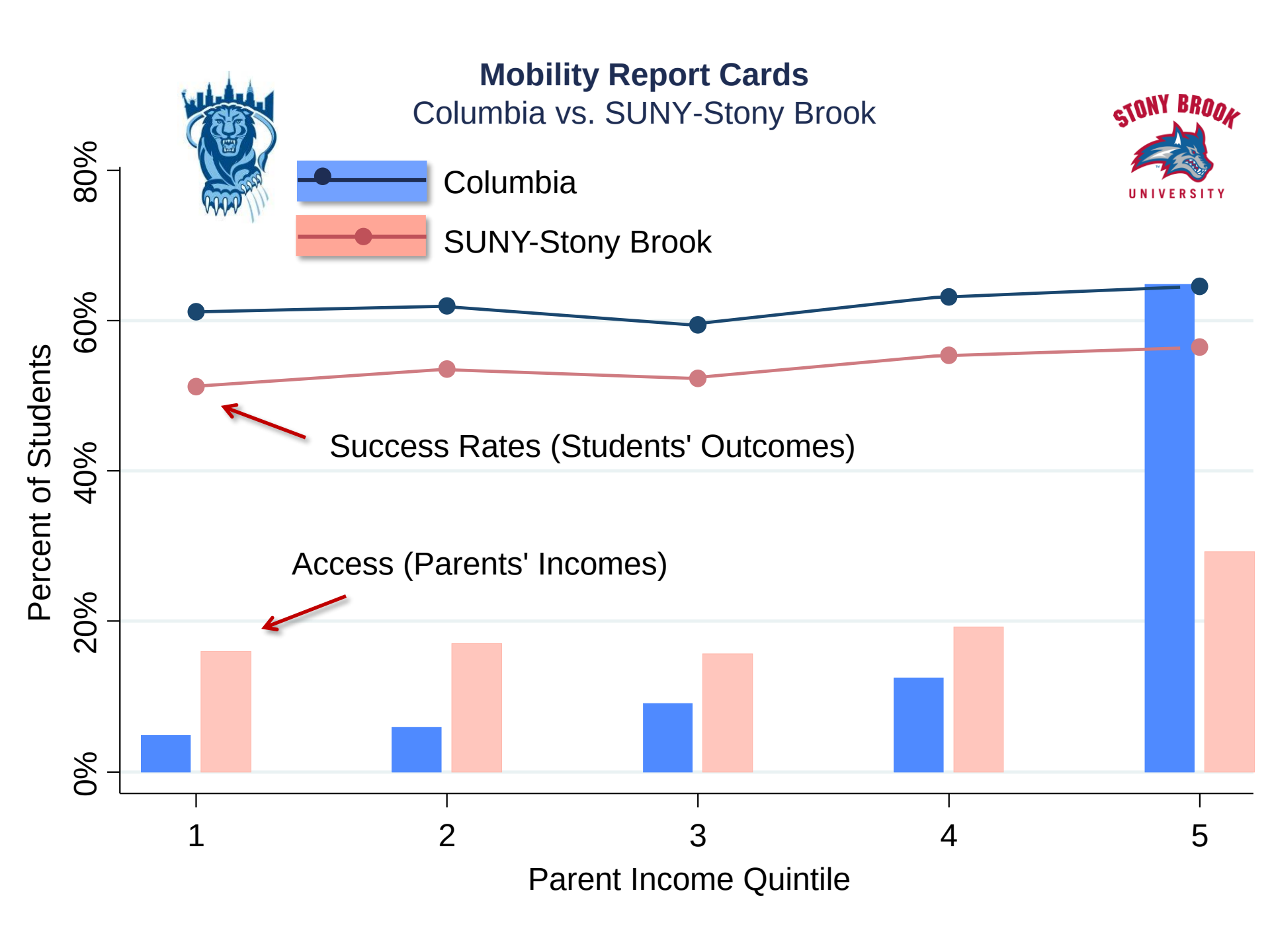
Part 3
Differences in Mobility Rates Across Colleges

Mobility Report Cards

- Combine data on parents' incomes and students' outcomes to characterize colleges' mobility rates

- Begin by measuring upward mobility as reaching top quintile
  - Turn to upper-tail success (reaching top 1%) later


Mobility Report Cards
Columbia vs. SUNY-Stony Brook
Columbia
SUNY-Stony Brook
STONY BROOK
UNIVERSITY
Percent of Students
0%
20%
40%
60%
80%
1
2
3
4
5
Parent Income Quintile


Mobility Report Cards
Columbia vs. SUNY-Stony Brook
STONY BROOK
UNIVERSITY
Columbia
SUNY-Stony Brook
Success Rates (Students' Outcomes)
Access (Parents' Incomes)
Percent of Students
0%
20%
40%
60%
80%
1
2
3
4
5
Parent Income Quintile

Rates of Mobility

- Define a college's *mobility rate* (MR) as the fraction of its students who come from bottom quintile and end up in top quintile

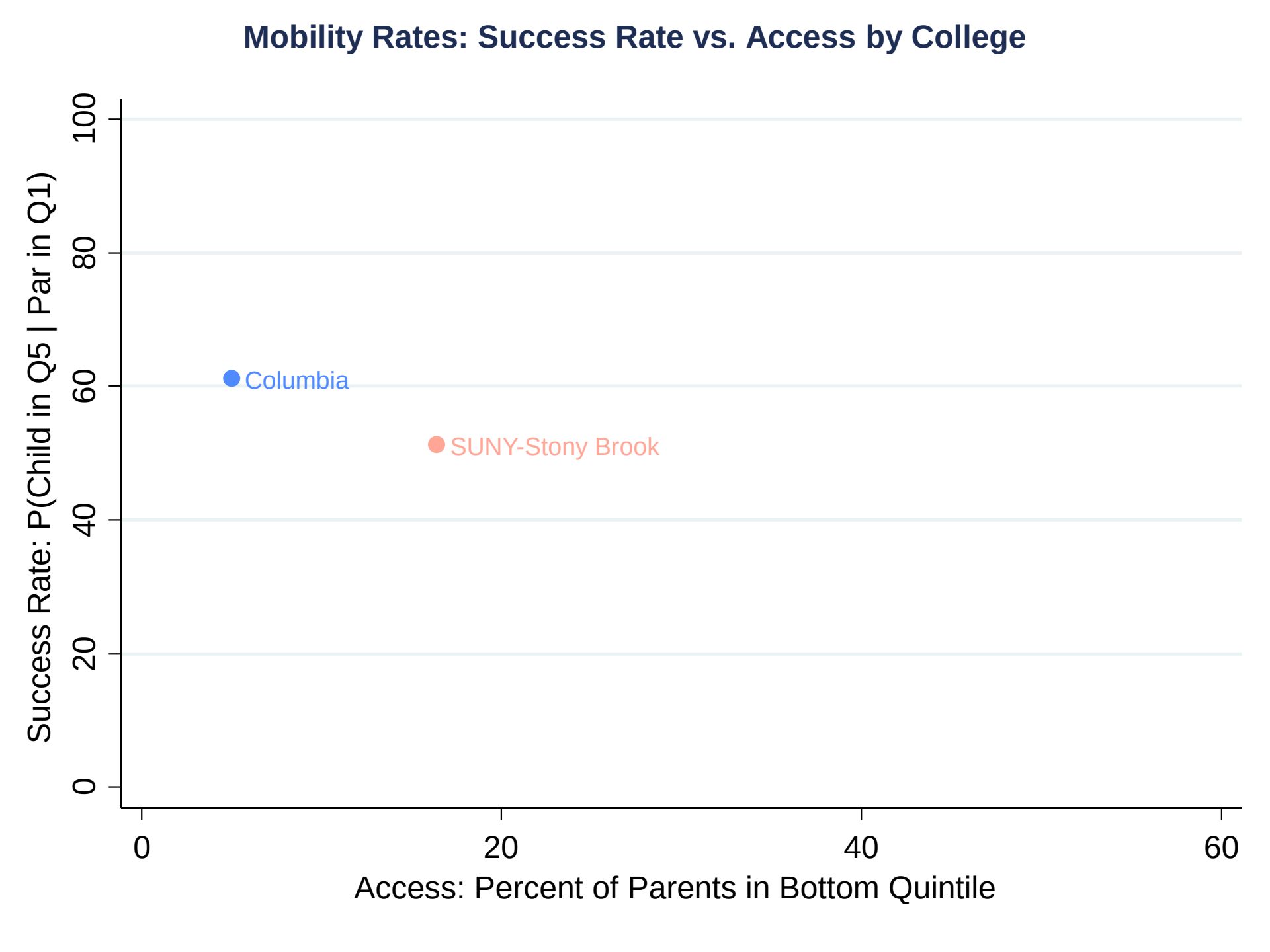
Mobility Rate = Success Rate **x** Access

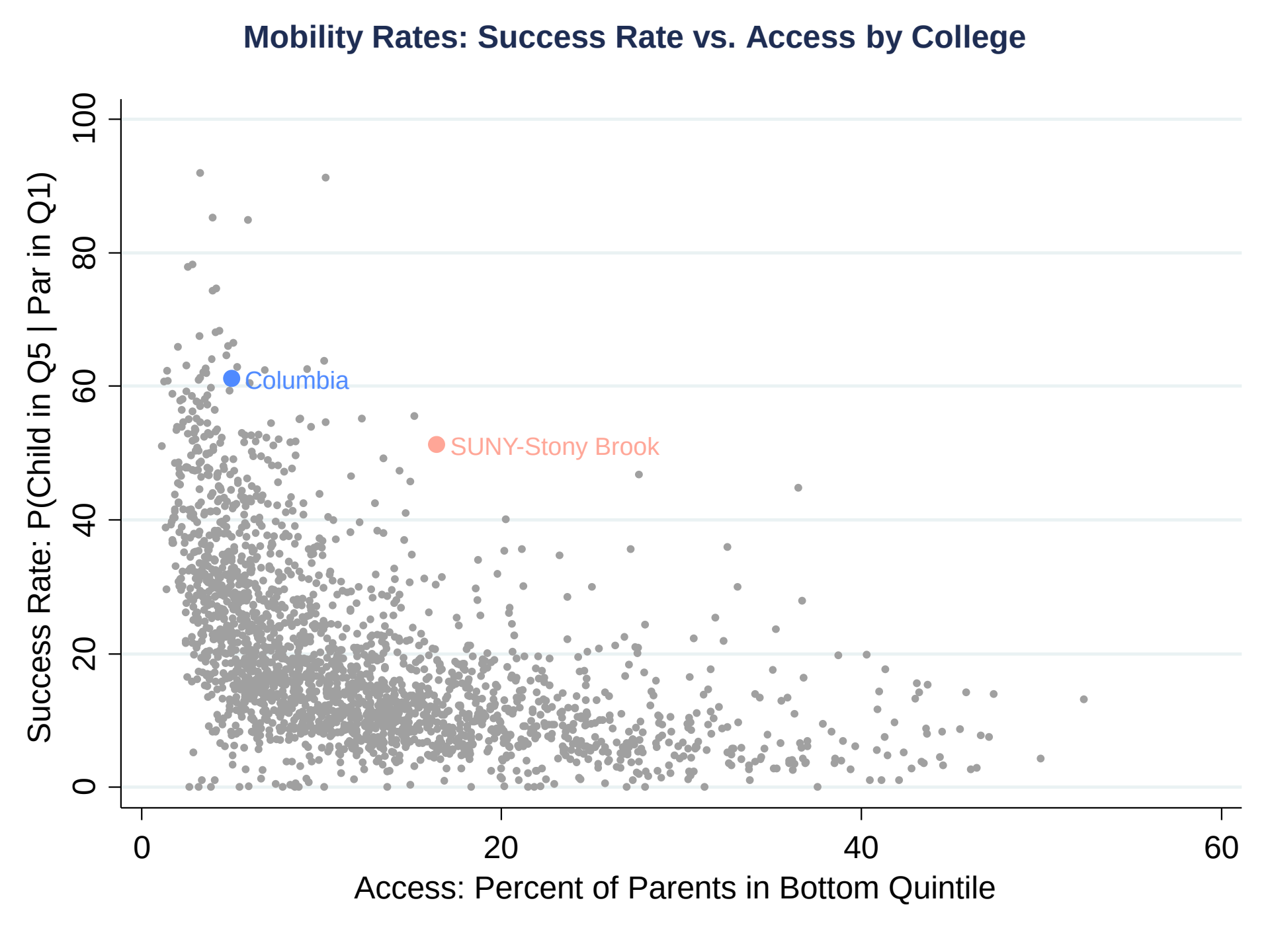
↗ ↗ ↗

P(Child in Q5 & Parent in Q1) P(Child in Q5| Parent in Q1) P(Parent in Q1)

- E.g., SUNY-Stony Brook: 8.4% = 51.2% **x** 16.4%

- The mobility rate should be interpreted as an accounting measure rather than a causal effect


Mobility Rates: Success Rate vs. Access by College
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Columbia
SUNY-Stony Brook
0
20
40
60
Access: Percent of Parents in Bottom Quintile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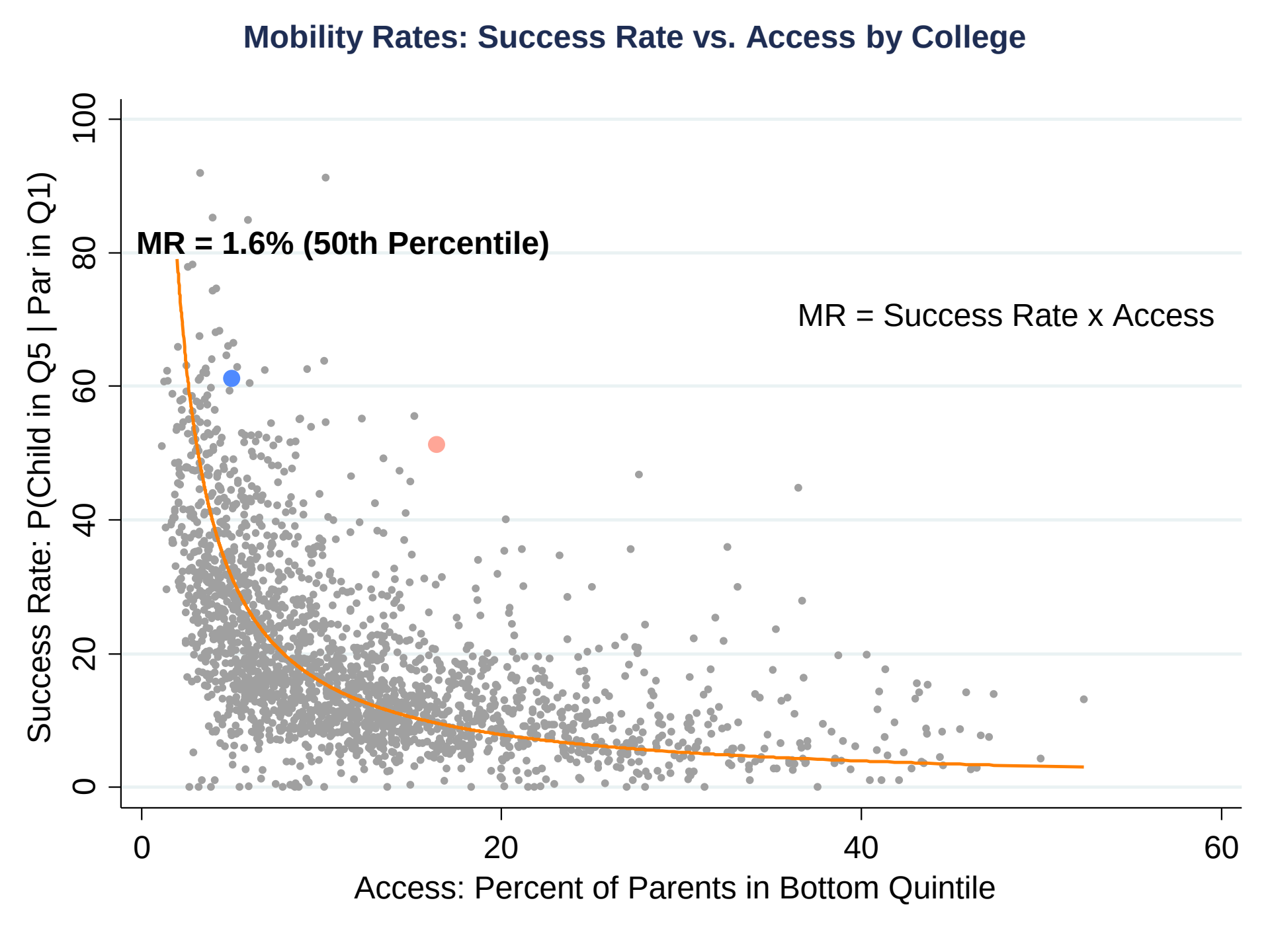
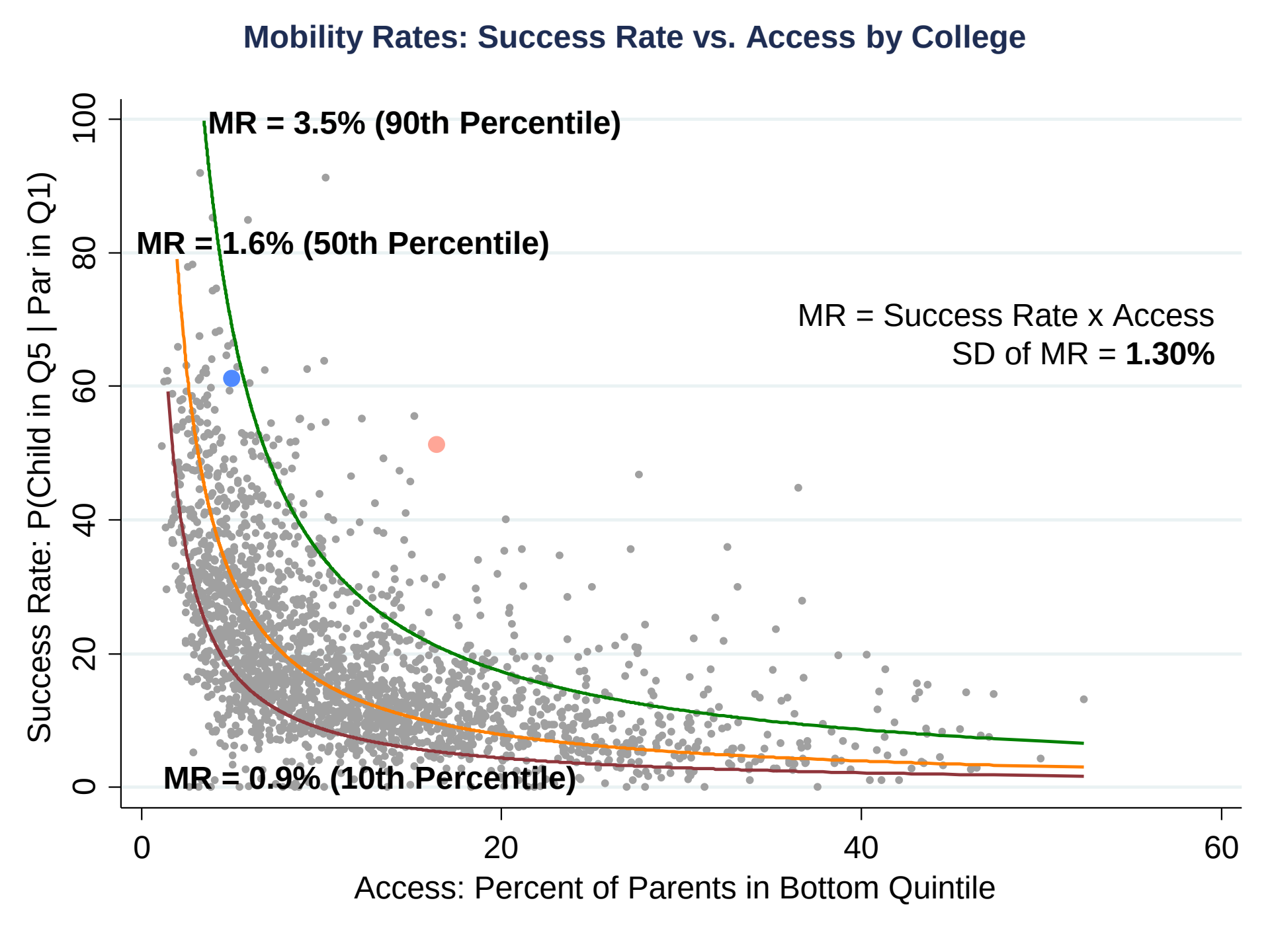
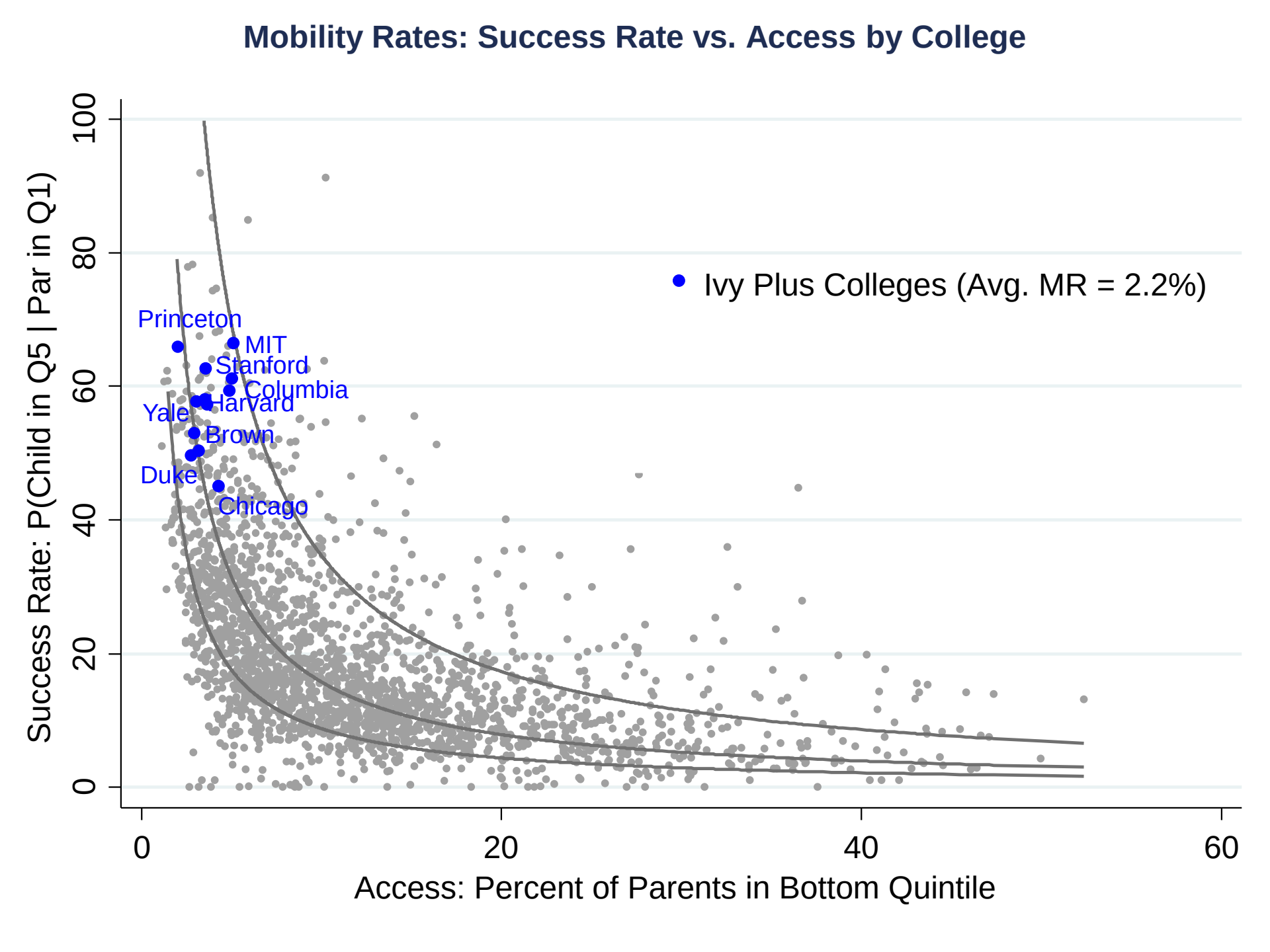
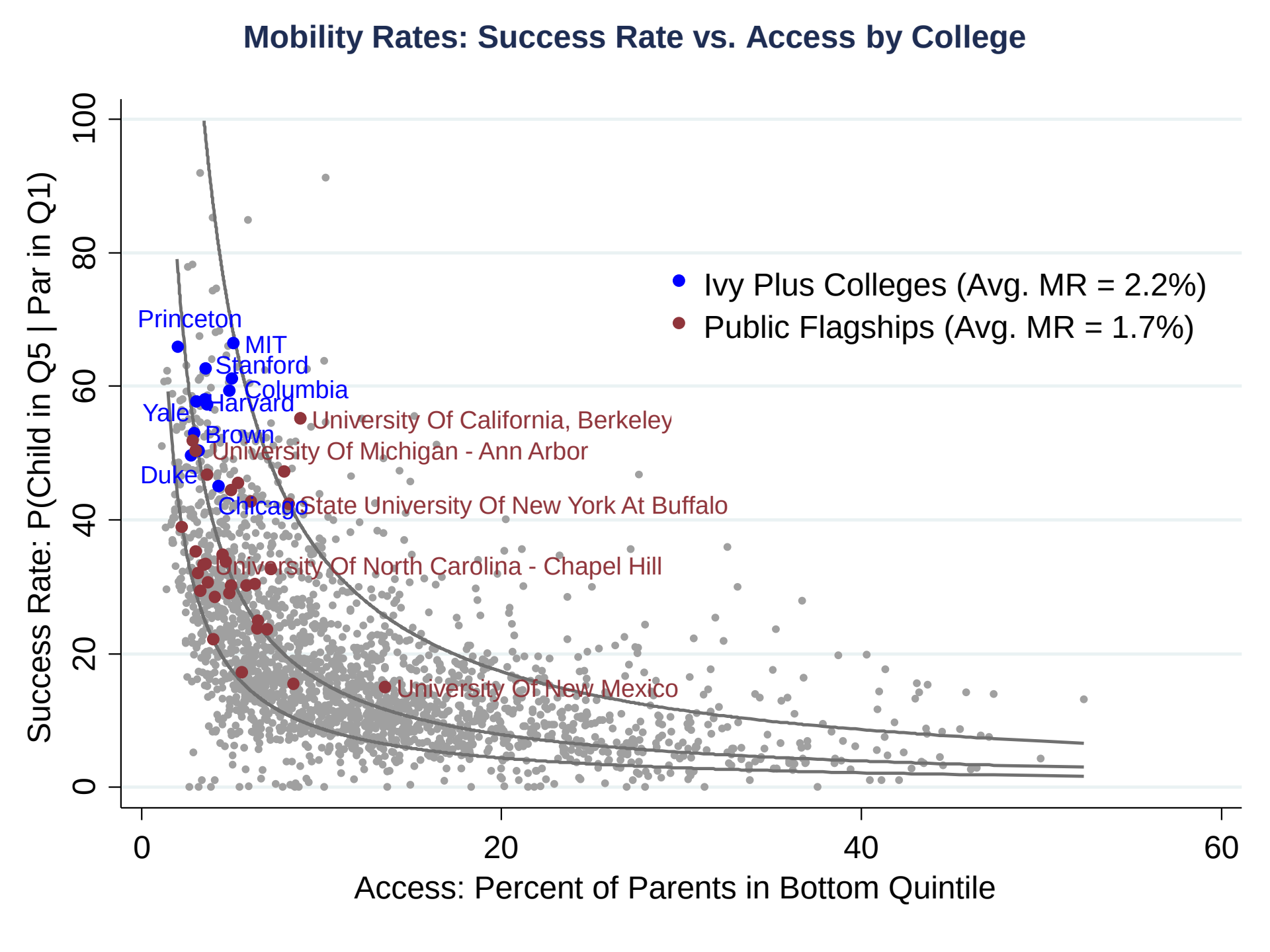
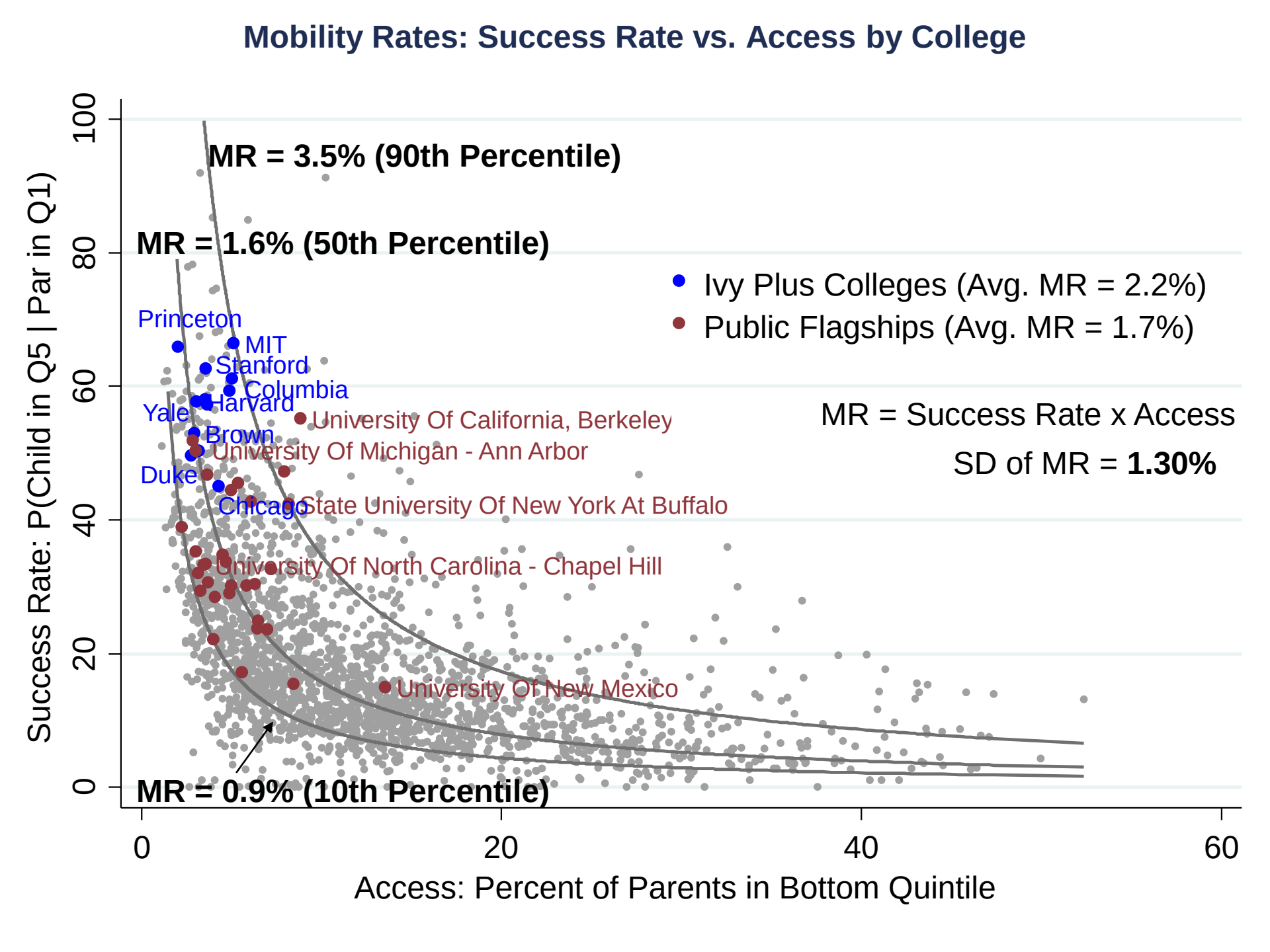
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Columbia
SUNY-Stony Brook
0
20
40
60
Access: Percent of Parents in Bottom Quintile


Mobility Rates: Success Rate vs. Access by College
MR = 1.6% (50th Percentile)
MR = Success Rate x Access
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
0
20
40
60
Access: Percent of Parents in Bottom Quintile


Mobility Rates: Success Rate vs. Access by College
MR = 3.5% (90th Percentile)
MR = 1.6% (50th Percentile)
MR = 0.9% (10th Percentile)
MR = Success Rate x Access
SD of MR = 1.30%
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60


Mobility Rates: Success Rate vs. Access by College
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60
Ivy Plus Colleges (Avg. MR = 2.2%)
Princeton
MIT
Stanford
Columbia
Harvard
Yale
Brown
Duke
Chicago


Mobility Rates: Success Rate vs. Access by College
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60
Ivy Plus Colleges (Avg. MR = 2.2%)
Public Flagships (Avg. MR = 1.7%)
Princeton
MIT
Stanford
Columbia
Harvard
Yale
Brown
Duke
Chicago
University Of California, Berkeley
University Of Michigan - Ann Arbor
State University Of New York At Buffalo
University Of North Carolina - Chapel Hill
University Of New Mexico


Mobility Rates: Success Rate vs. Access by College
MR = 3.5% (90th Percentile)
MR = 1.6% (50th Percentile)
MR = 0.9% (10th Percentile)
Ivy Plus Colleges (Avg. MR = 2.2%)
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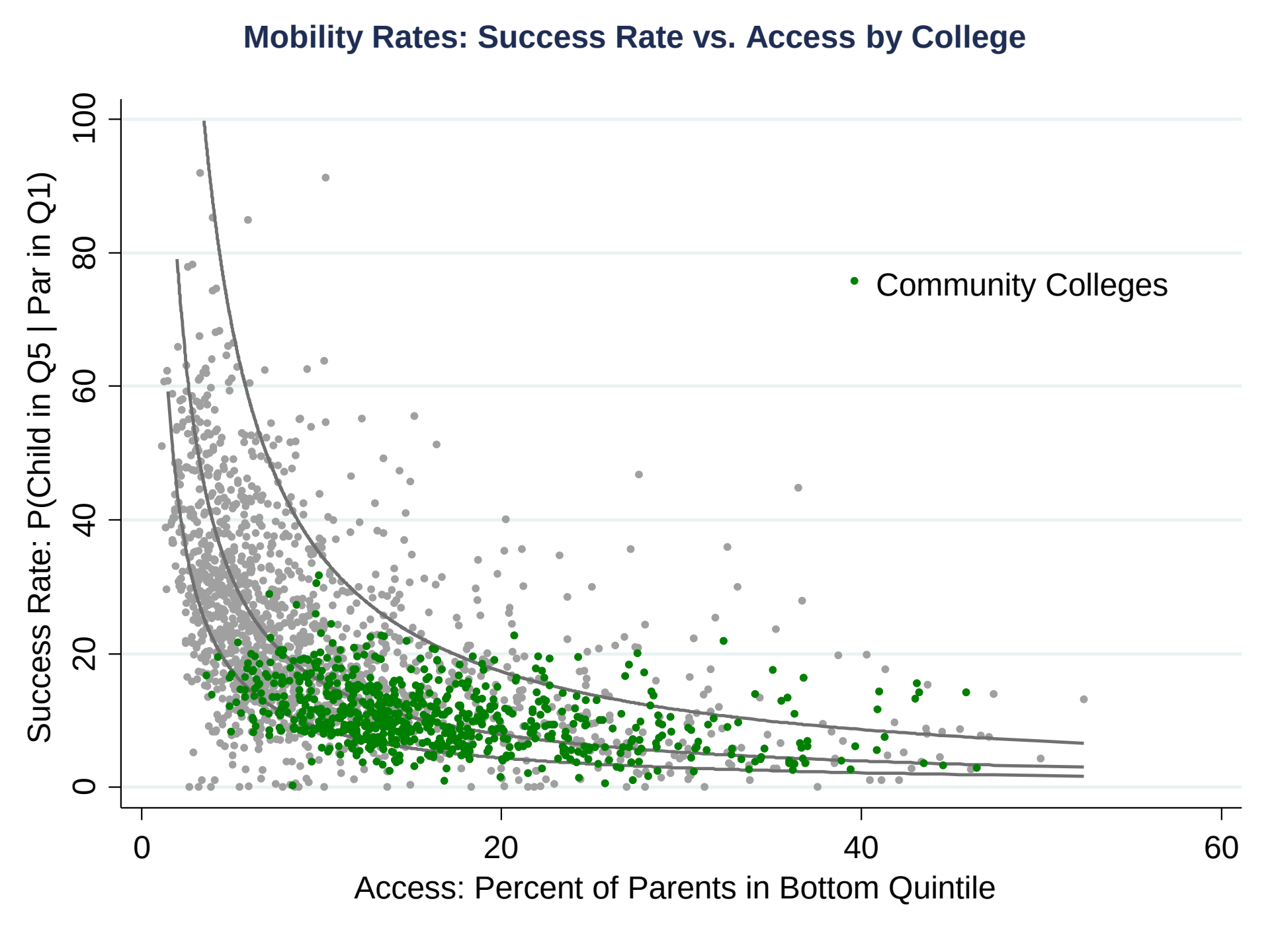
MR = Success Rate x Access
SD of MR = 1.30%
Princeton
MIT
Stanford
Columbia
Harvard
Yale
Brown
Duke
University Of California, Berkeley
University Of Michigan - Ann Arbor
Chicago
State University Of New York At Buffalo
University Of North Carolina - Chapel Hill
University Of New Mexico
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60


Mobility Rates: Success Rate vs. Access by College
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60
Community Colleges

Top 10 Colleges by Mobility Rate (Bottom to Top 20%)

Rank	Name	Mobility Rate	=	Access	x	Success Rate
1	Cal State University – LA	9.9%		33.1%		29.9%
2	Pace University – New York	8.4%		15.2%		55.6%
3	SUNY – Stony Brook	8.4%		16.4%		51.2%
4	Technical Career Institutes	8.0%		40.3%		19.8%
5	University of Texas – Pan American	7.6%		38.7%		19.8%
6	CUNY System	7.2%		28.7%		25.2%
7	Glendale Community College	7.1%		32.4%		21.9%
8	South Texas College	6.9%		52.4%		13.2%
9	Cal State Polytechnic – Pomona	6.8%		14.9%		45.8%
10	University of Texas – El Paso	6.8%		28.0%		24.4%

Top 10 Colleges by Mobility Rate (Bottom to Top 20%)

Rank	Name	Mobility Rate	=	Access	x	Success Rate
1	Cal State University – LA	9.9%		33.1%		29.9%
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3	SUNY – Stony Brook	8.4%		16.4%		51.2%
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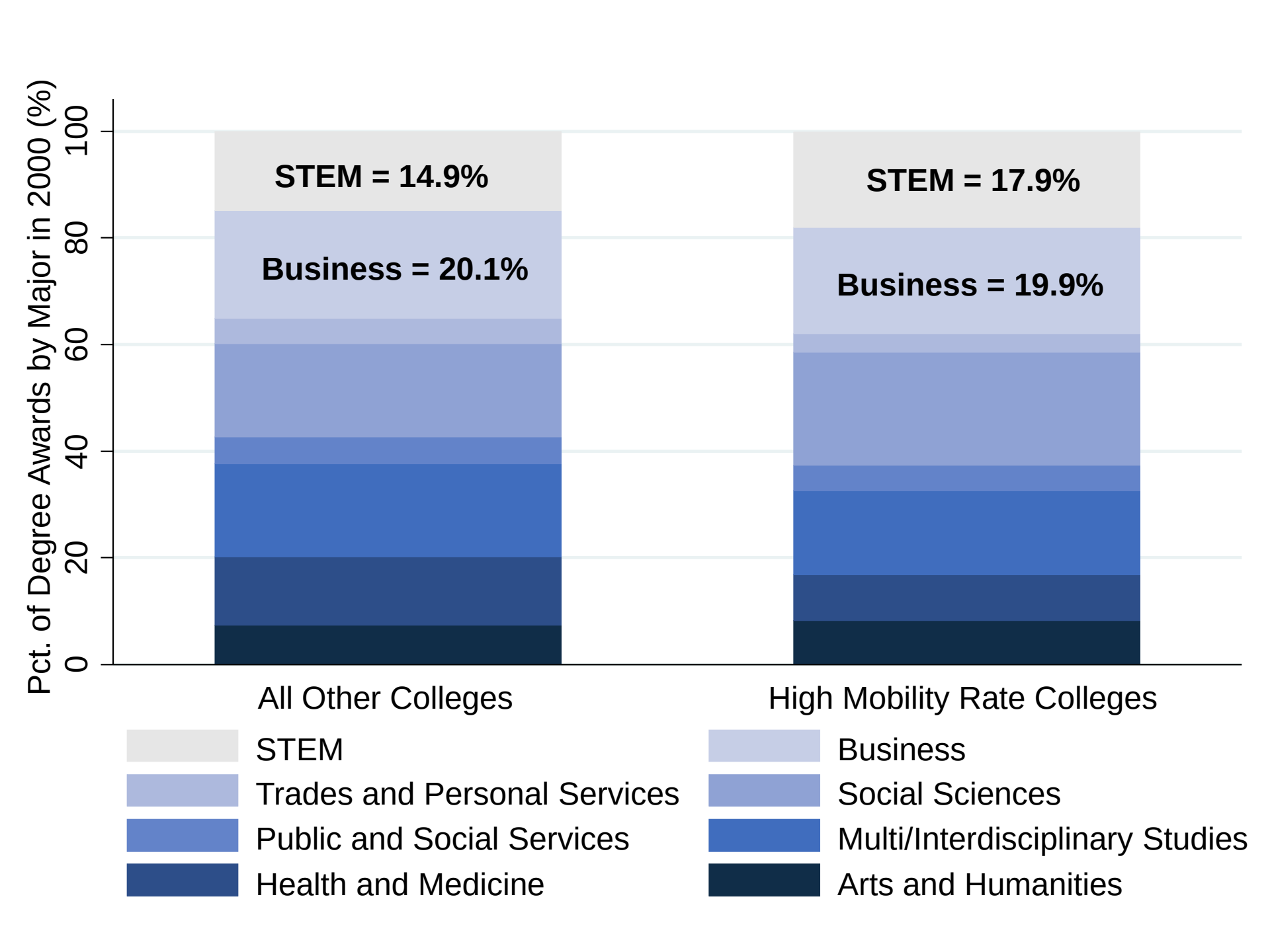
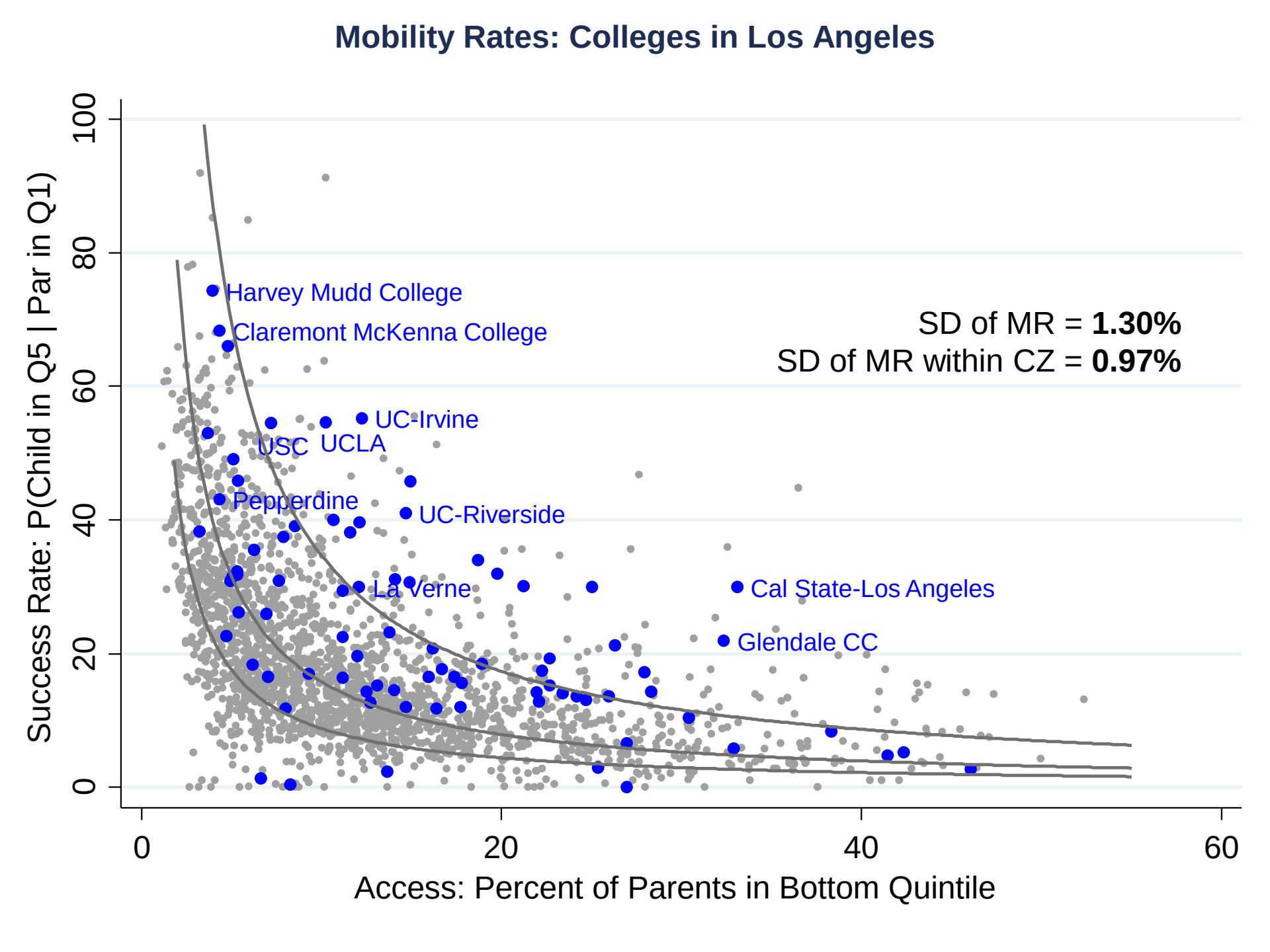
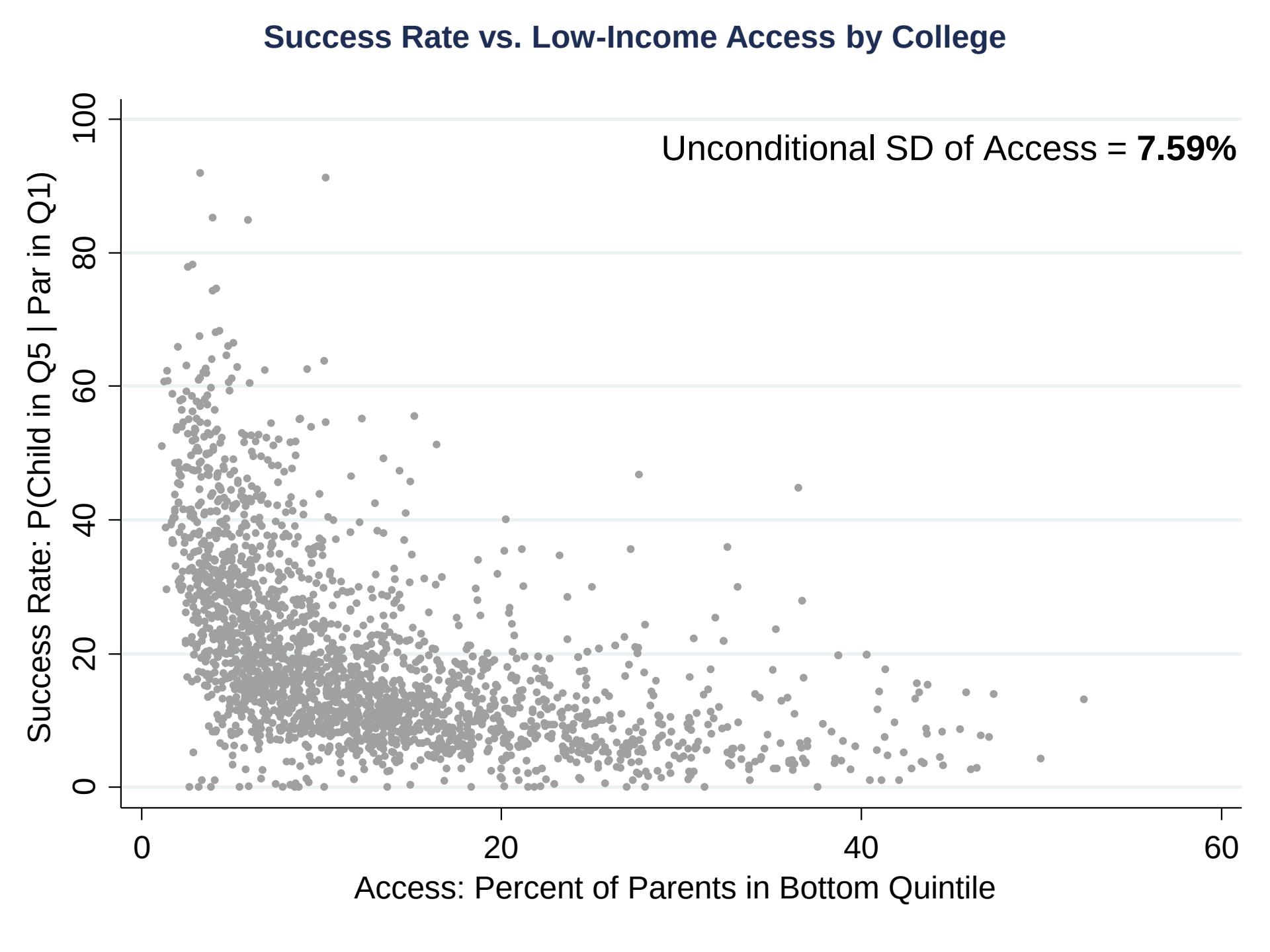
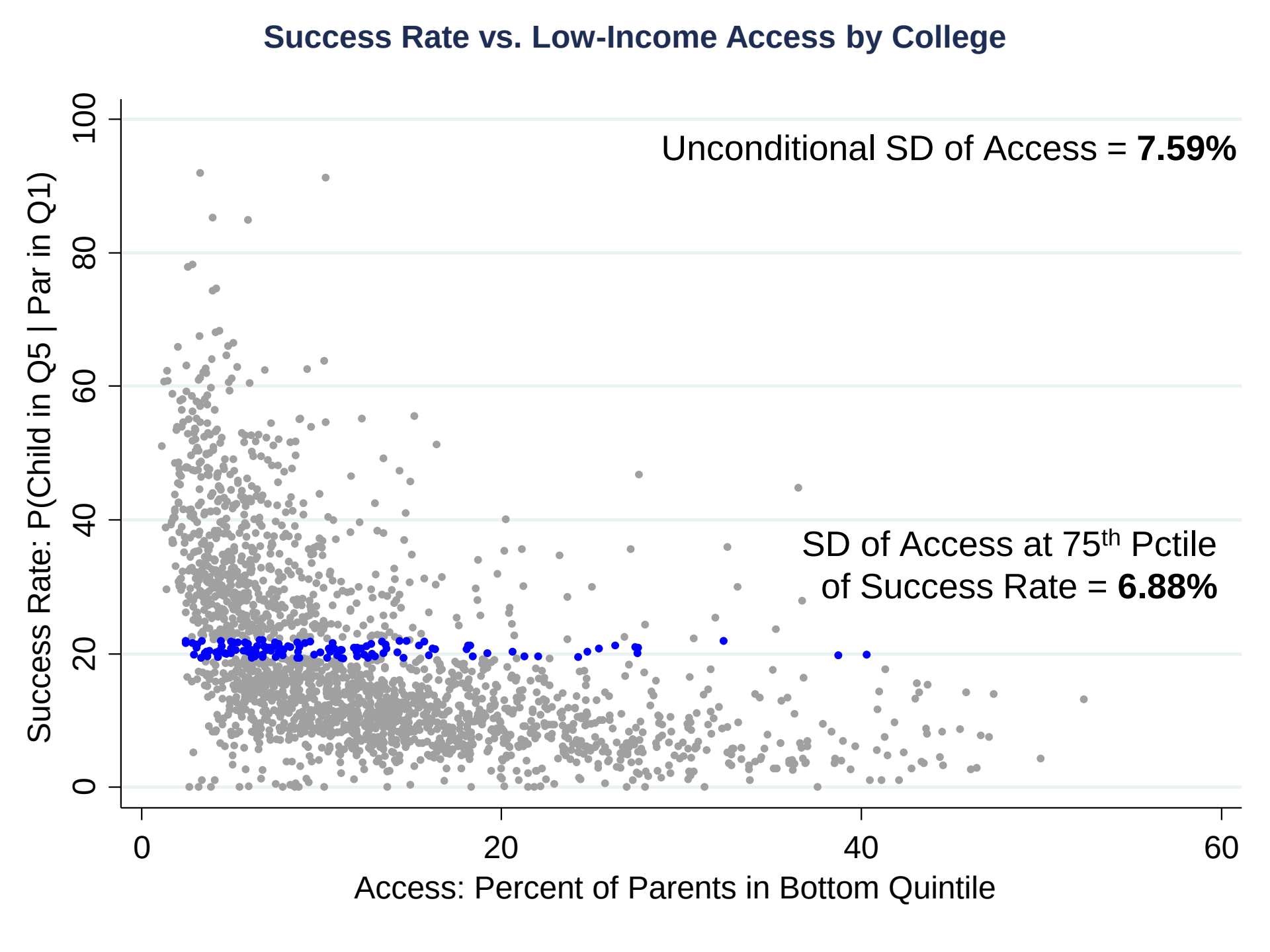

Pct. of Degree Awards by Major in 2000 (%)
0
20
40
60
80
100
STEM = 14.9%
Business = 20.1%
STEM = 17.9%
Business = 19.9%
All Other Colleges
High Mobility Rate Colleges
STEM
Business
Trades and Personal Services
Social Sciences
Public and Social Services
Multi/Interdisciplinary Studies
Health and Medicine
Arts and Humanities

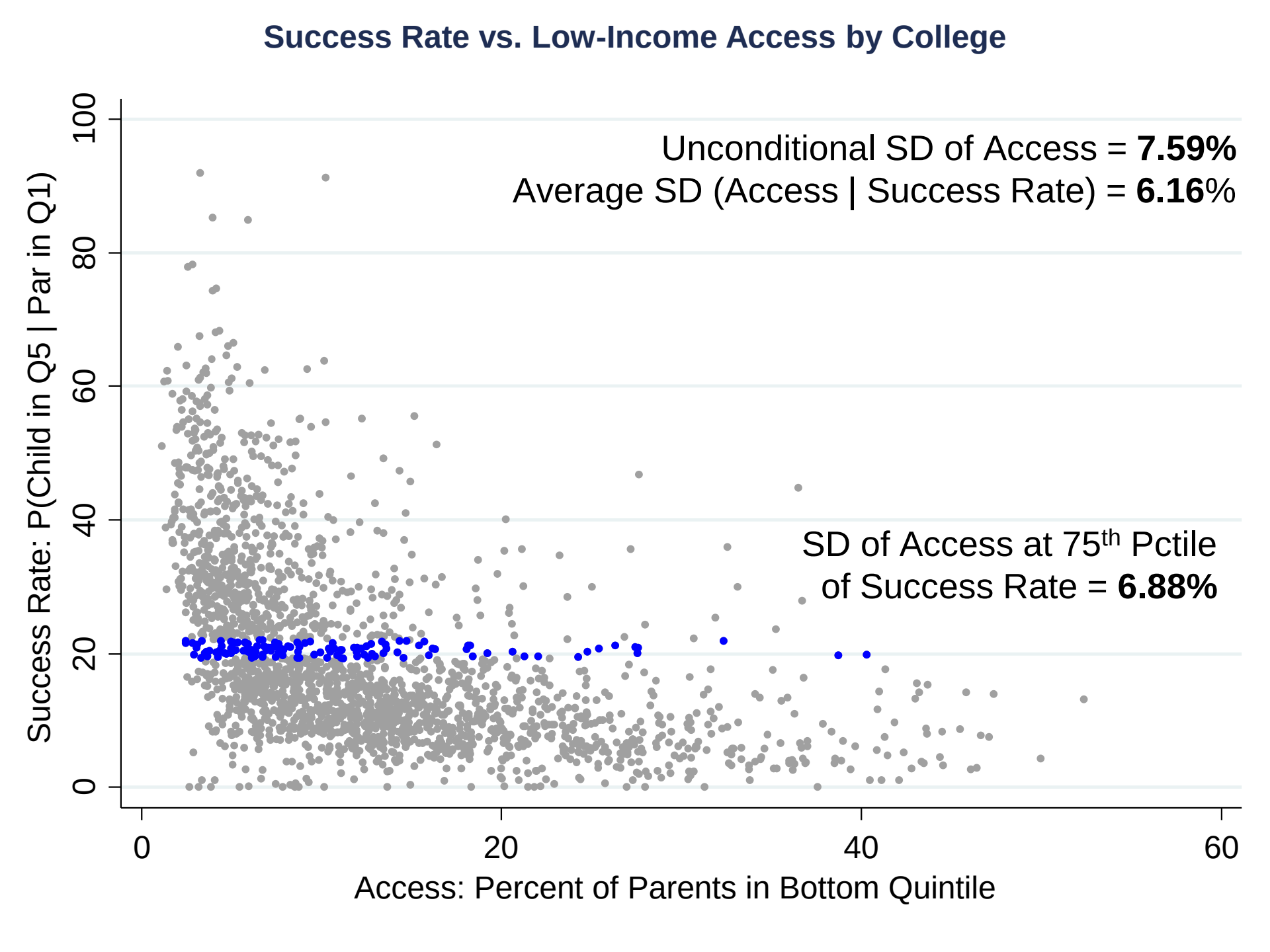

Mobility Rates: Colleges in Los Angeles
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60
Harvey Mudd College
Claremont McKenna College
UC-Irvine
USC
UCLA
Pepperdine
UC-Riverside
La Verne
Cal State-Los Angeles
Glendale CC
SD of MR = 1.30%
SD of MR within CZ = 0.97%

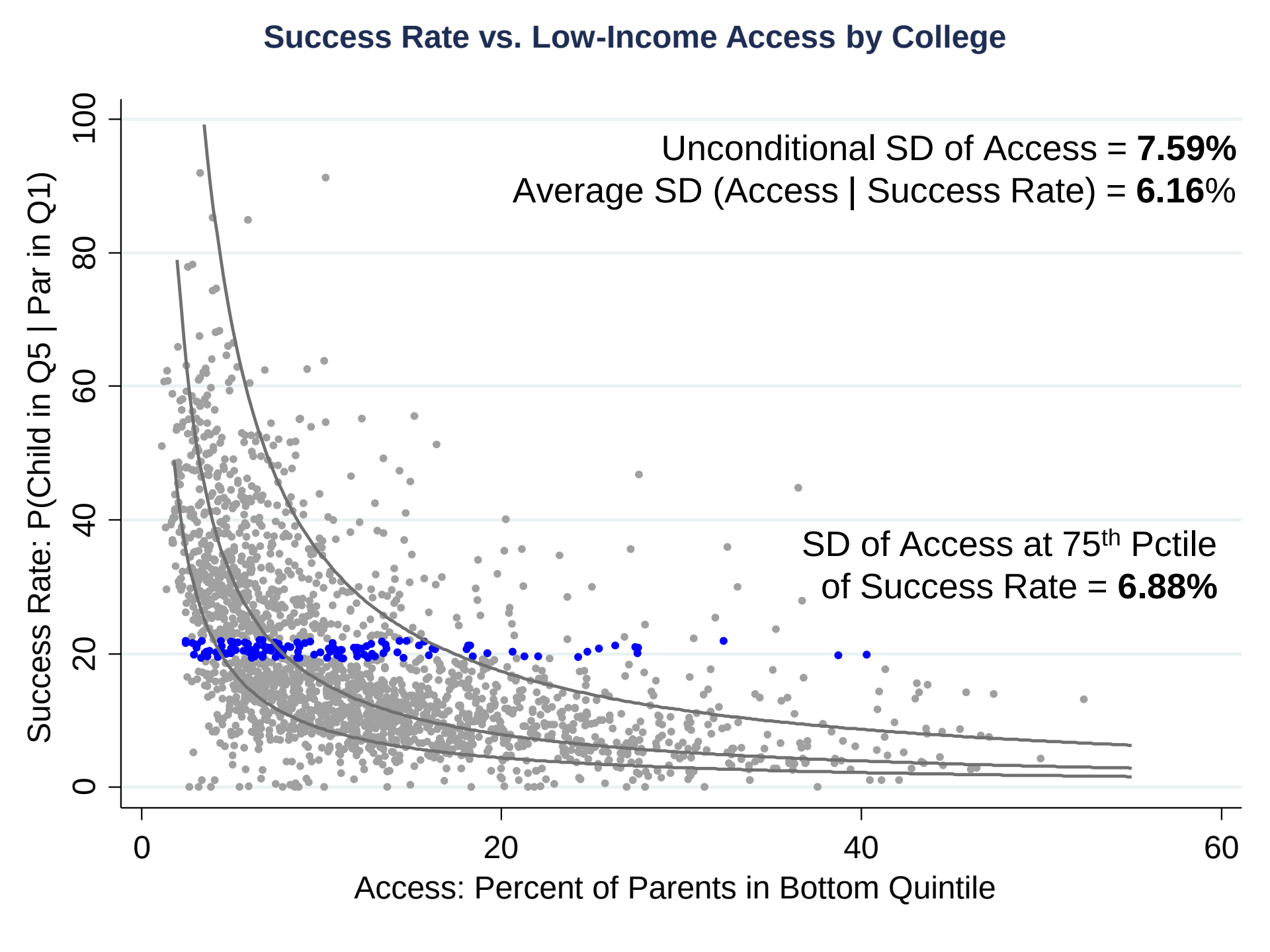
Variation in Access Conditional on Success Rate

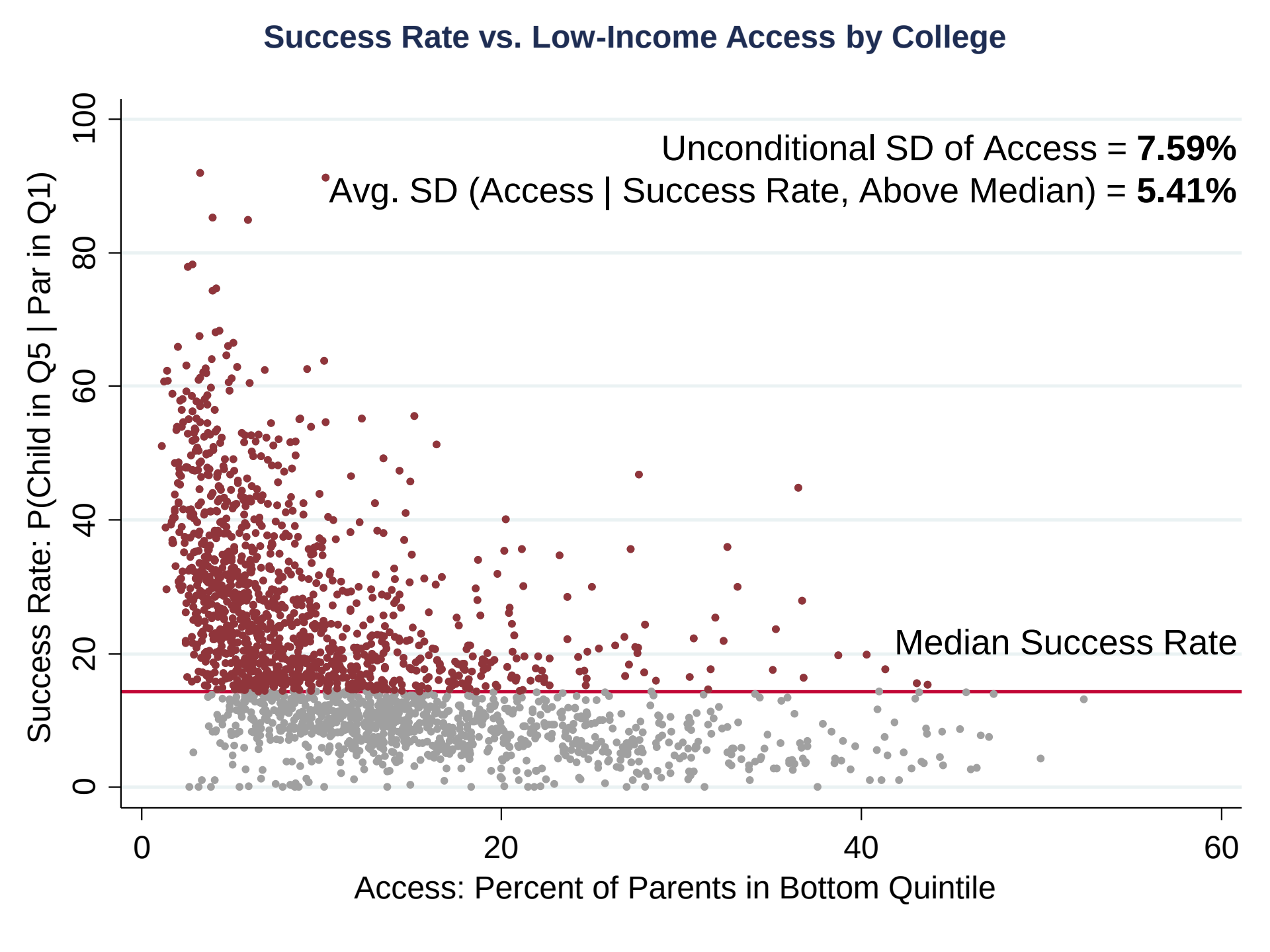
- Much of the variation in mobility rates is driven by differences in access at a given success rate
  - Not just driven by “vertical selection” across colleges that have very different students and outcomes
  - Ex: SUNY-Stony Brook and CUNY have similar success rates to Fordham, NYU, and Wagner, but very different levels of access


Success Rate vs. Low-Income Access by College
Unconditional SD of Access = **7.59%**
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
0
20
40
60
Access: Percent of Parents in Bottom Quintile


Success Rate vs. Low-Income Access by College
Unconditional SD of Access = 7.59%
SD of Access at 75th Pctile
of Success Rate = 6.88%
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
0
20
40
60
Access: Percent of Parents in Bottom Quintile

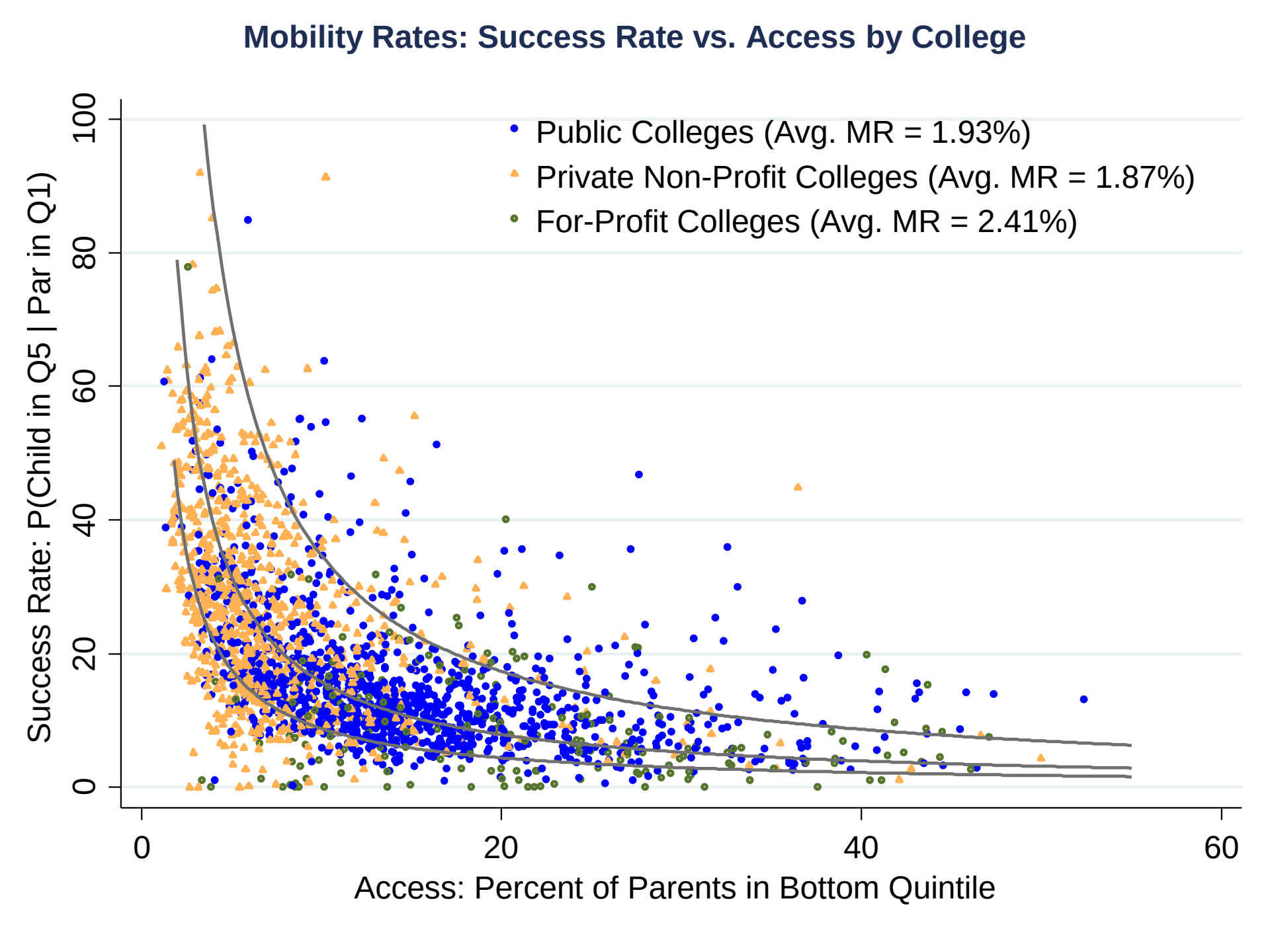

Success Rate vs. Low-Income Access by College
Unconditional SD of Access = 7.59%
Average SD (Access | Success Rate) = 6.16%
SD of Access at 75th Pctile
of Success Rate = 6.88%
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60

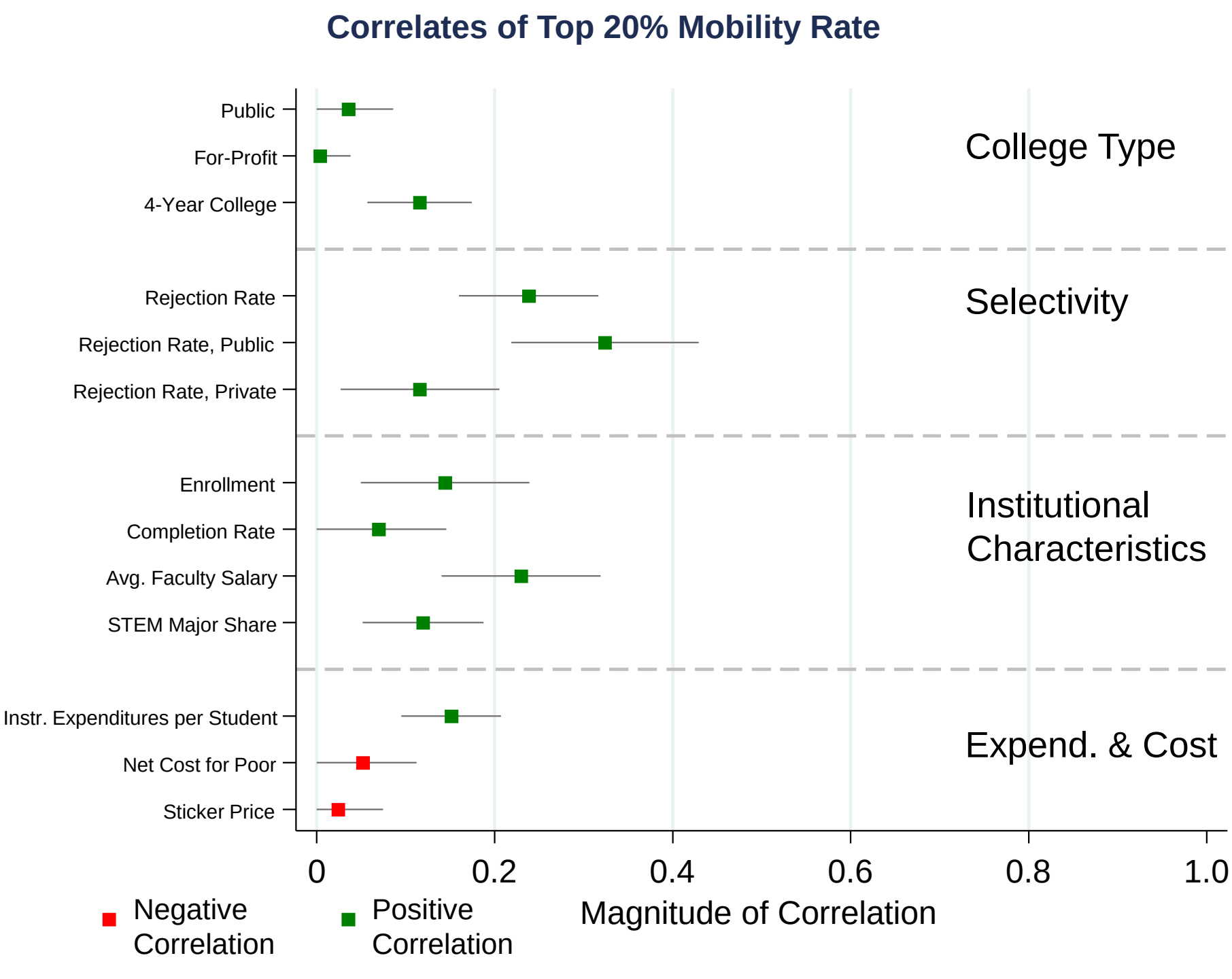

Success Rate vs. Low-Income Access by College
Unconditional SD of Access = 7.59%
Average SD (Access | Success Rate) = 6.16%
SD of Access at 75th Pctile
of Success Rate = 6.88%
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
0
20
40
60
Access: Percent of Parents in Bottom Quintile

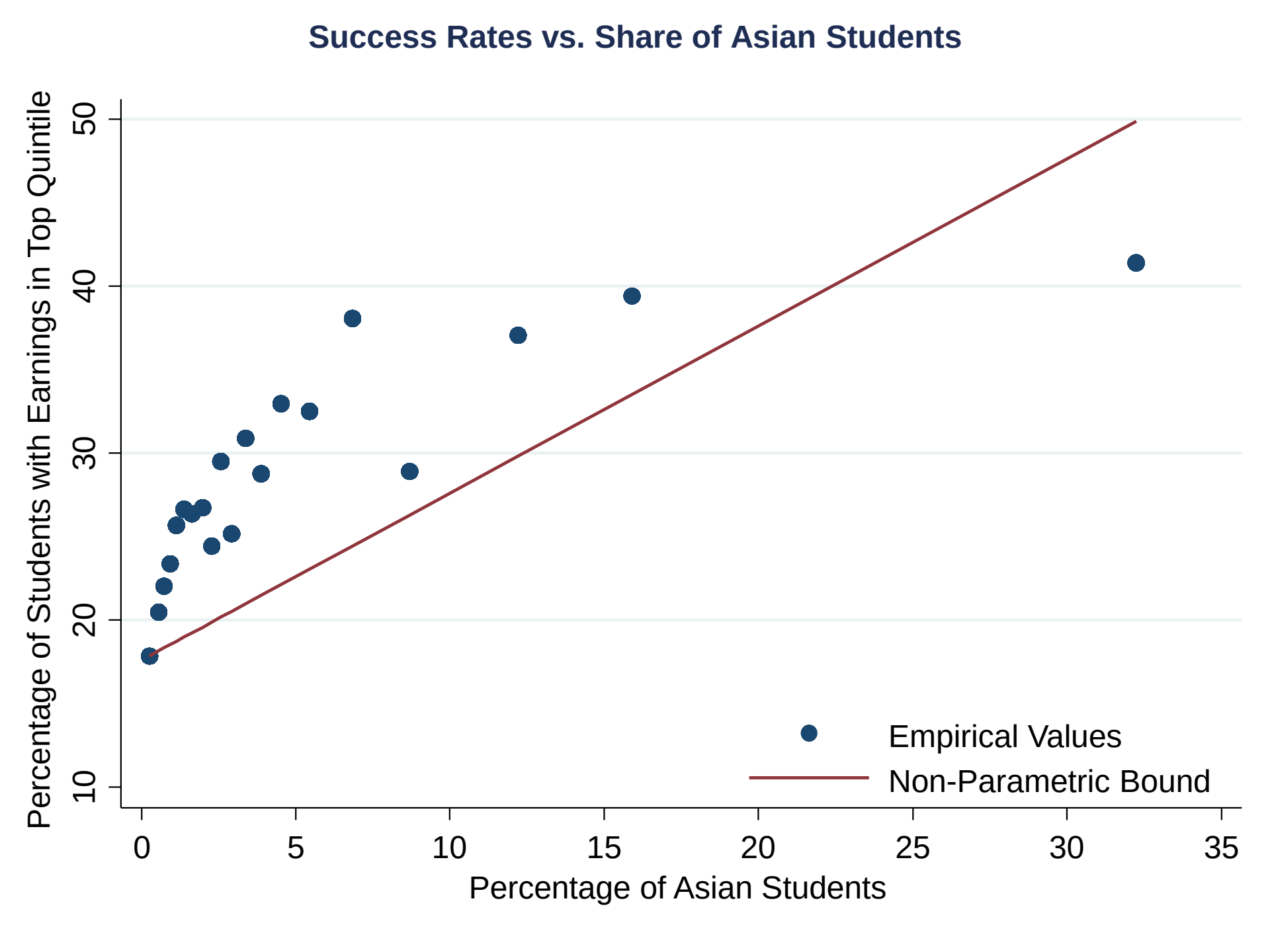

Success Rate vs. Low-Income Access by College
Unconditional SD of Access = 7.59%
Avg. SD (Access | Success Rate, Above Median) = 5.41%
Median Success Rate
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
0
20
40
60
Access: Percent of Parents in Bottom Quintile

Which Colleges Have the Highest Mobility Rates?

- Characterize the types of colleges with high vs. low rates of mobility
  - Correlate Mobility Rate, P(Child in Q5 and Parent in Q1), with various college characteristics
- Analysis is purely descriptive: does not directly identify causal pathways that can be manipulated to change mobility

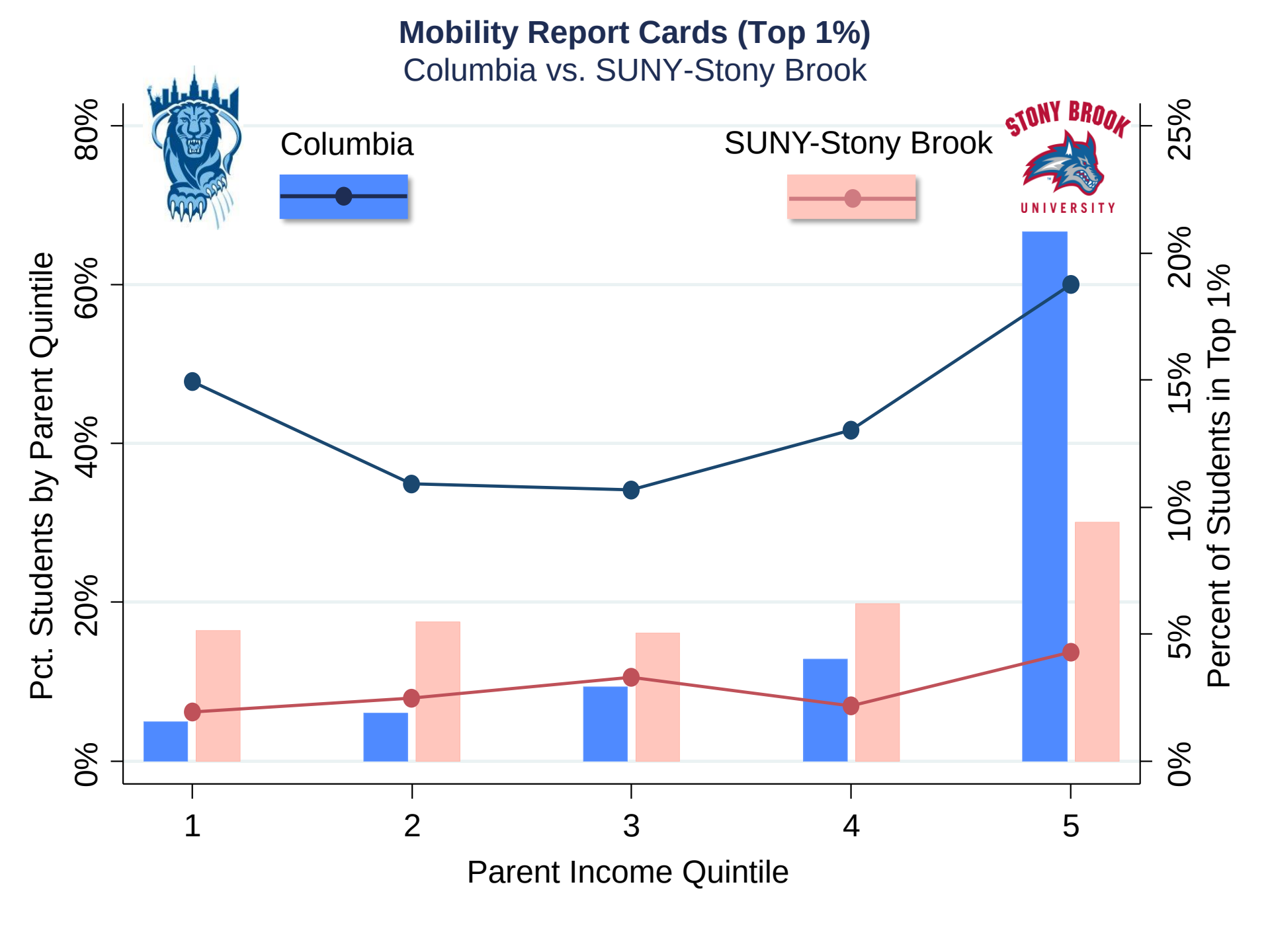

Mobility Rates: Success Rate vs. Access by College
Public Colleges (Avg. MR = 1.93%)
Private Non-Profit Colleges (Avg. MR = 1.87%)
For-Profit Colleges (Avg. MR = 2.41%)
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60

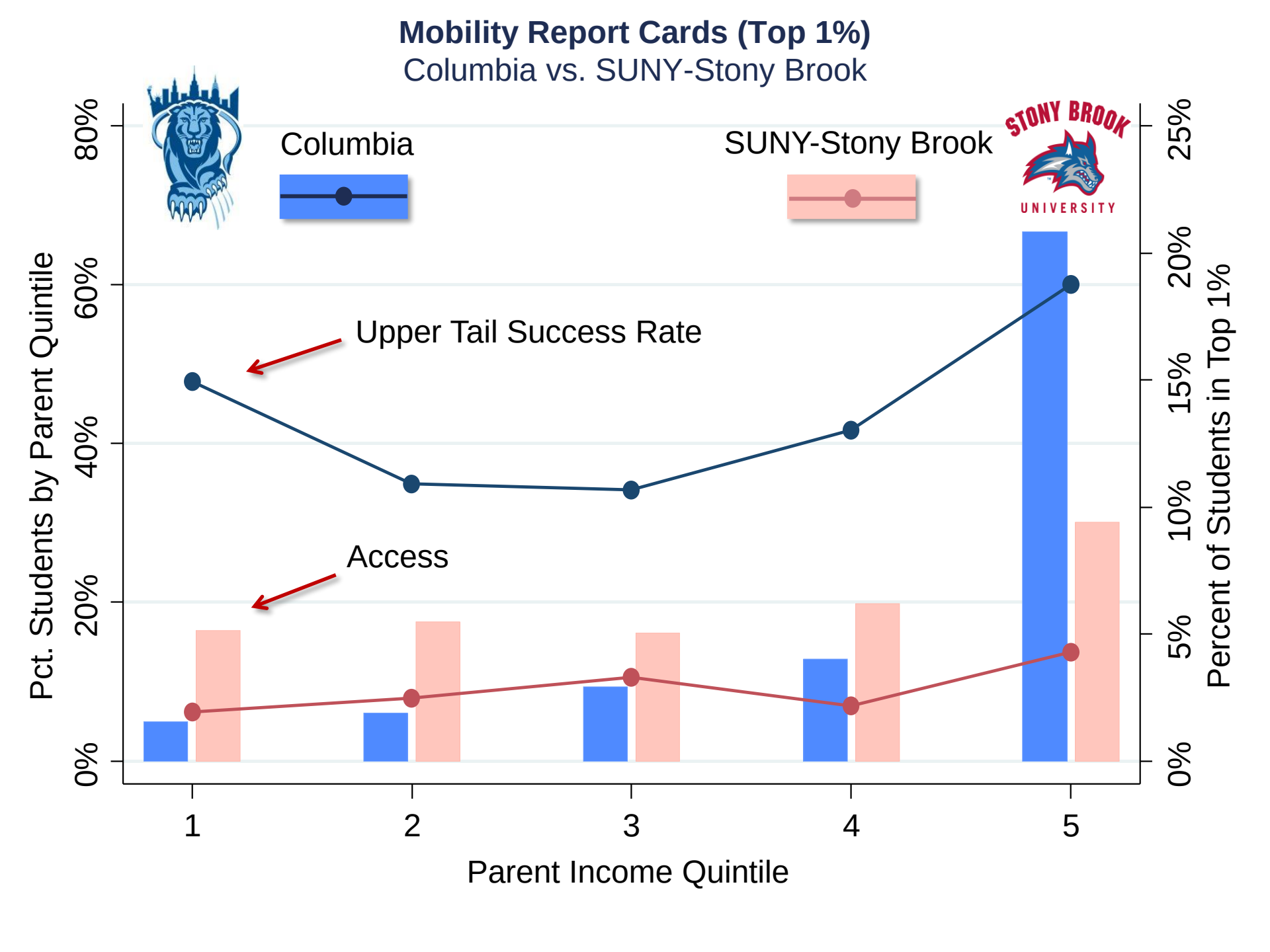

Correlates of Top 20% Mobility Rate
Public
For-Profit
4-Year College
College Type
Rejection Rate
Rejection Rate, Public
Rejection Rate, Private
Selectivity
Enrollment
Completion Rate
Avg. Faculty Salary
STEM Major Share
Institutional Characteristics
Instr. Expenditures per Student
Net Cost for Poor
Sticker Price
Expend. & Cost
0
0.2
0.4
0.6
0.8
1.0
Magnitude of Correlation
Negative Correlation
Positive Correlation

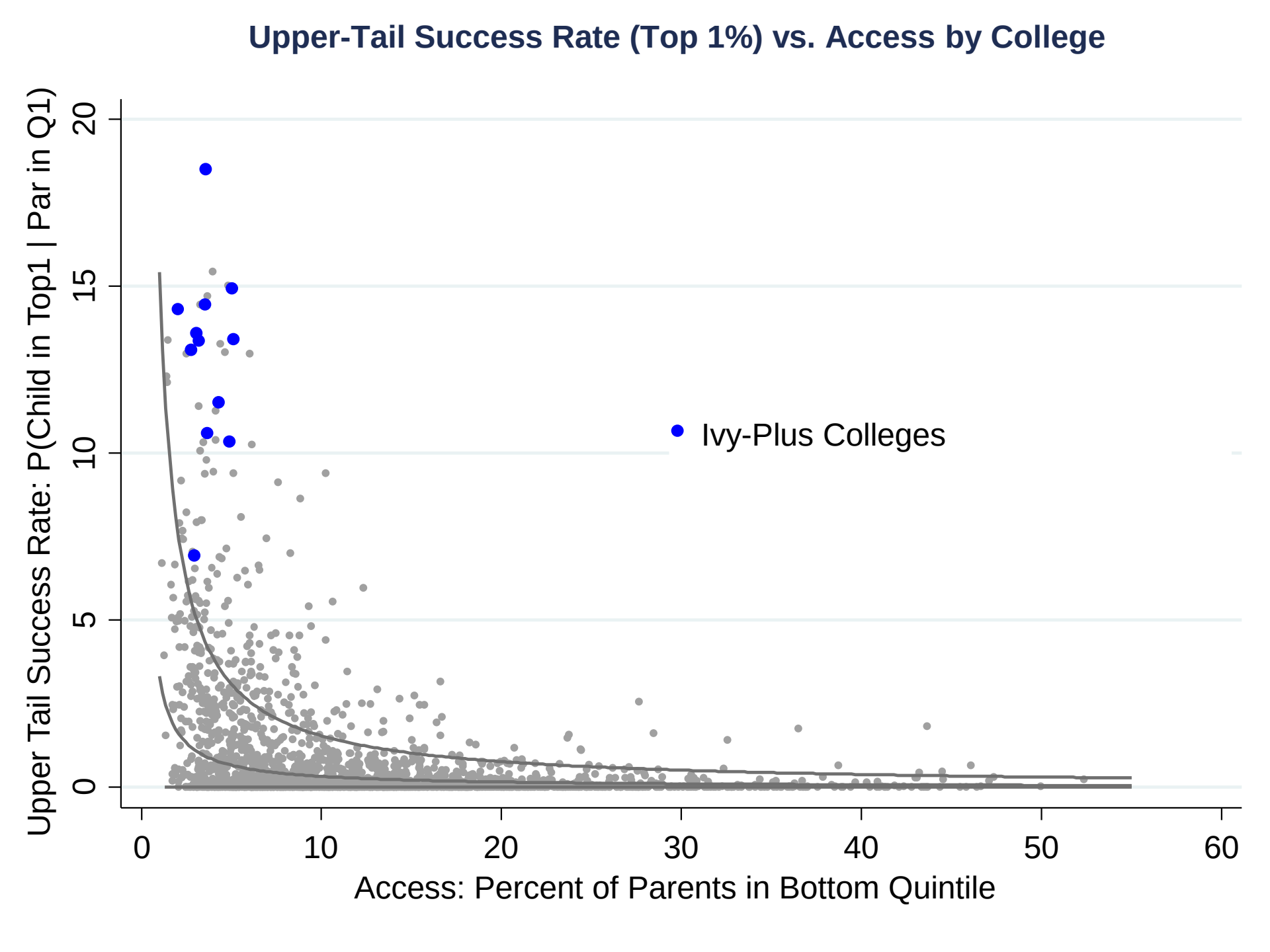

Success Rates vs. Share of Asian Students
Percentage of Students with Earnings in Top Quintile
10
20
30
40
50
0
5
10
15
20
25
30
35
Percentage of Asian Students
Empirical Values
Non-Parametric Bound

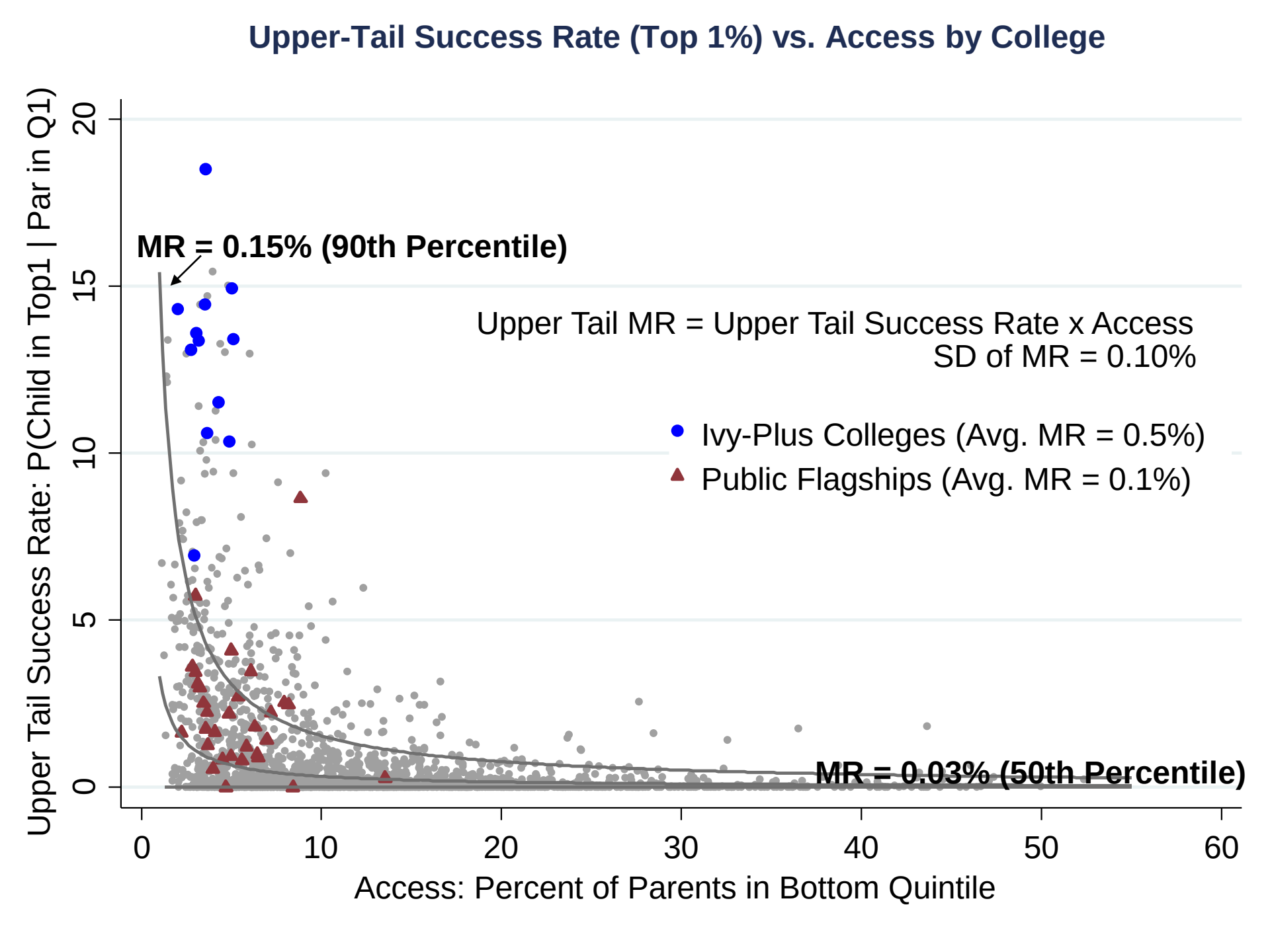
Mobility Rates for Upper-Tail Success

- Now examine mobility rates for upper tail success: fraction of students who come from bottom quintile and reach top 1%


Mobility Report Cards (Top 1%)
Columbia vs. SUNY-Stony Brook
Columbia
SUNY-Stony Brook
STONY BROOK
UNIVERSITY
Pct. Students by Parent Quintile
Percent of Students in Top 1%
0%
20%
40%
60%
80%
0%
5%
10%
15%
20%
25%
1
2
3
4
5
Parent Income Quintile

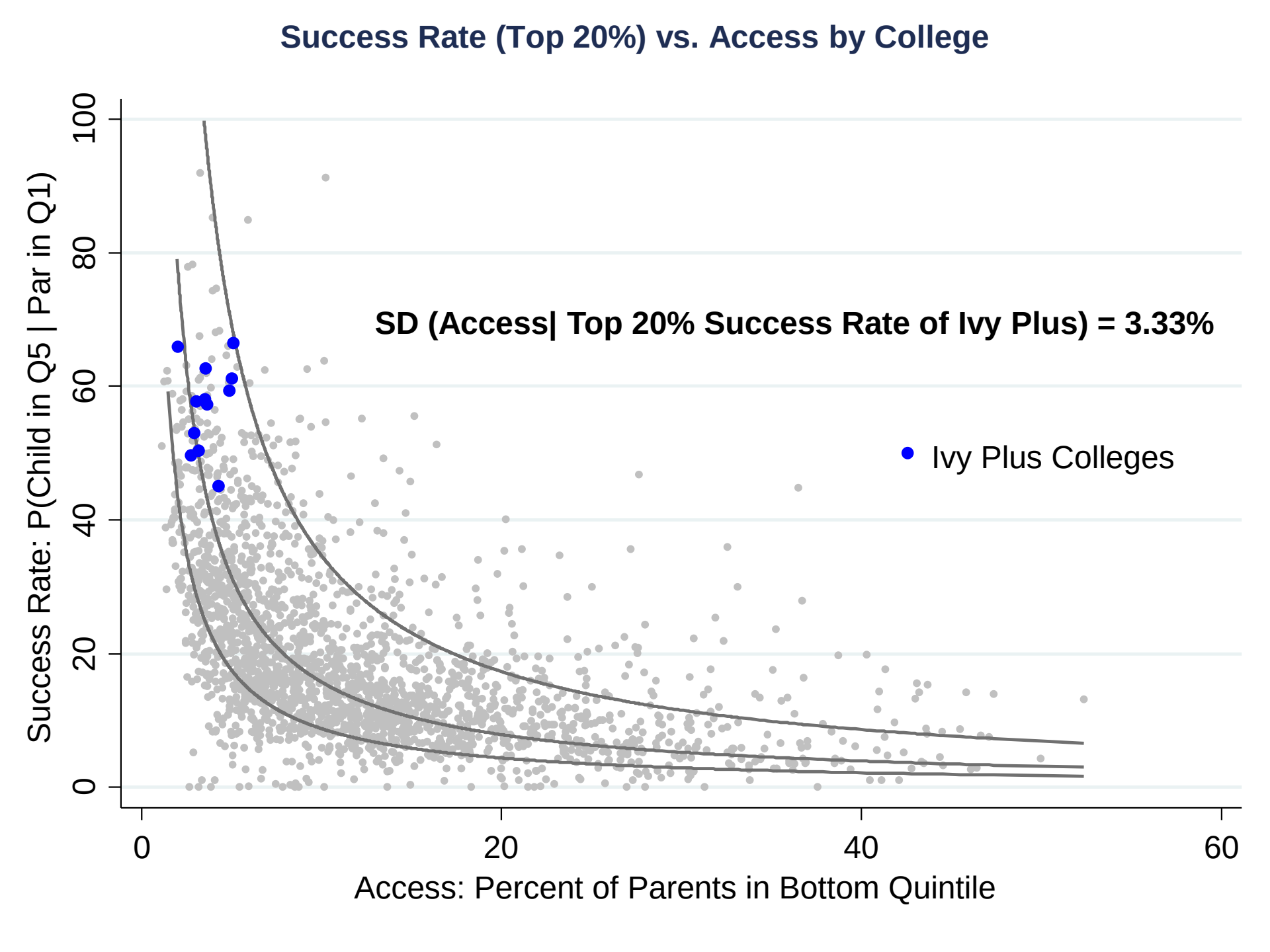

Mobility Report Cards (Top 1%)
Columbia vs. SUNY-Stony Brook
Columbia
SUNY-Stony Brook
STONY BROOK
UNIVERSITY
Upper Tail Success Rate
Access
Pct. Students by Parent Quintile
Percent of Students in Top 1%
0%
20%
40%
60%
80%
0%
5%
10%
15%
20%
25%
1
2
3
4
5
Parent Income Quintile

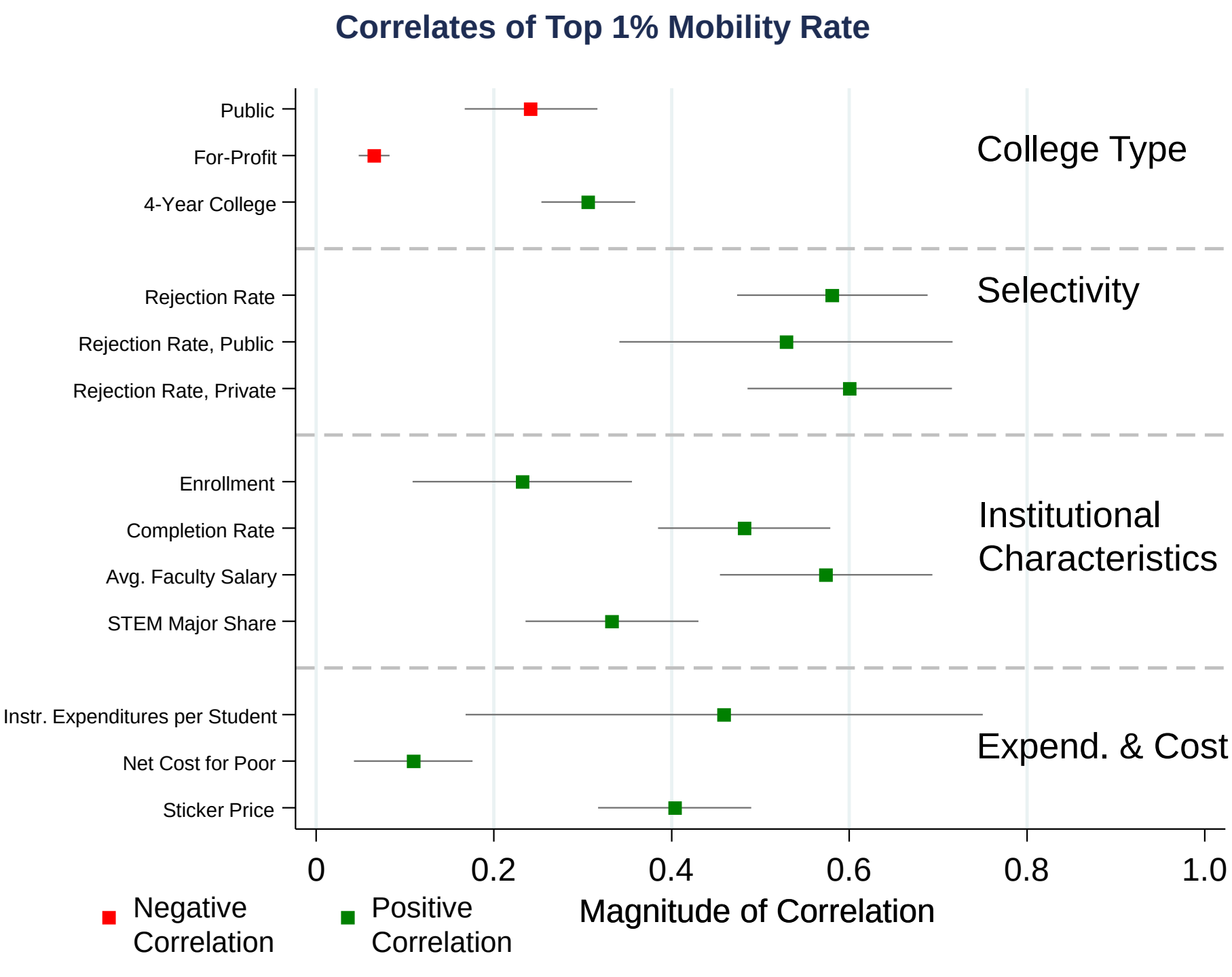

Upper-Tail Success Rate (Top 1%) vs. Access by College
Upper Tail Success Rate: P(Child in Top1 | Par in Q1)
0
5
10
15
20
Ivy-Plus Colleges
0
10
20
30
40
50
60
Access: Percent of Parents in Bottom Quintile

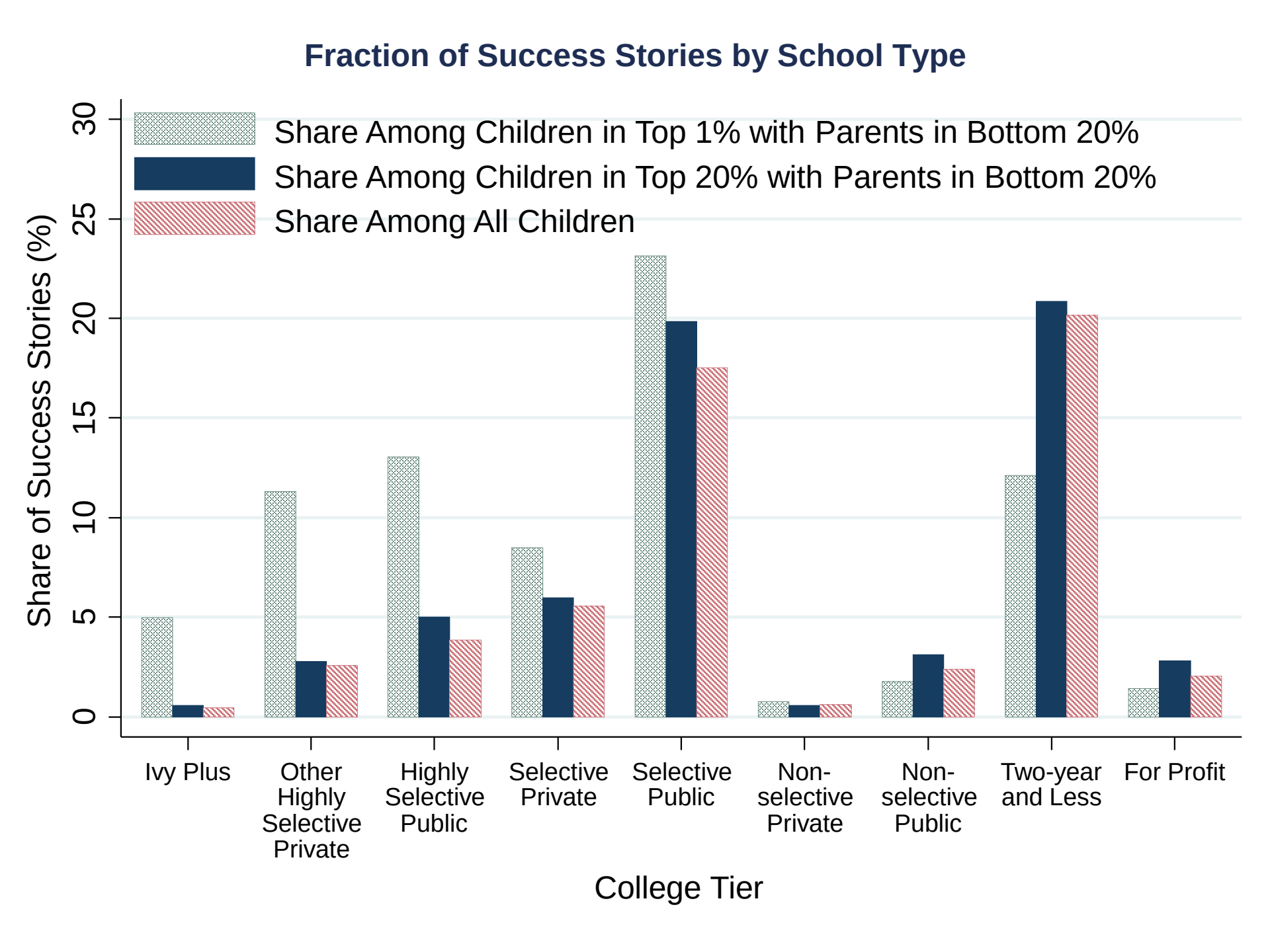

Upper-Tail Success Rate (Top 1%) vs. Access by College
Upper Tail Success Rate: P(Child in Top1 | Par in Q1)
0
5
10
15
20
MR = 0.15% (90th Percentile)
Upper Tail MR = Upper Tail Success Rate x Access
SD of MR = 0.10%
Ivy-Plus Colleges (Avg. MR = 0.5%)
Public Flagships (Avg. MR = 0.1%)
MR = 0.03% (50th Percentile)
0
10
20
30
40
50
60
Access: Percent of Parents in Bottom Quintile

Top 10 Colleges by Mobility Rates for Upper-Tail Success (Top 1%)

Rank	Name	Mobility Rate	=	Access	x	Upper-Tail Success
1	University of California – Berkeley	0.76%		8.8%		8.6%
2	Columbia University	0.75%		5.0%		14.9%
3	MIT	0.68%		5.1%		13.4%
3	Stanford University	0.66%		3.6%		18.5%
4	Swarthmore College	0.61%		4.7%		13.0%
6	Johns Hopkins University	0.54%		3.7%		14.7%
7	New York University	0.52%		6.9%		7.5%
8	University of Pennsylvania	0.51%		3.5%		14.5%
9	Cornell University	0.51%		4.9%		10.4%
10	University of Chicago	0.50%		4.3%		11.5%


Success Rate (Top 20%) vs. Access by College
SD (Access| Top 20% Success Rate of Ivy Plus) = 3.33%
Ivy Plus Colleges
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60


Correlates of Top 1% Mobility Rate
Public
For-Profit
4-Year College
College Type
Rejection Rate
Rejection Rate, Public
Rejection Rate, Private
Selectivity
Enrollment
Completion Rate
Avg. Faculty Salary
STEM Major Share
Institutional Characteristics
Instr. Expenditures per Student
Net Cost for Poor
Sticker Price
Expend. & Cost
0
0.2
0.4
0.6
0.8
1.0
Magnitude of Correlation
Negative Correlation
Positive Correlation


Fraction of Success Stories by School Type
Share Among Children in Top 1% with Parents in Bottom 20%
Share Among Children in Top 20% with Parents in Bottom 20%
Share Among All Children
Share of Success Stories (%)
0
5
10
15
20
25
30
Ivy Plus
Other Highly Selective Private
Highly Selective Public
Selective Private
Selective Public
Non-selective Private
Non-selective Public
Two-year and Less
For Profit
College Tier

Lessons on Mobility Rates

- **Fact #3**: Certain mid-tier public institutions (e.g., CUNY, Cal-State) have the highest bottom-to-top quintile mobility rates

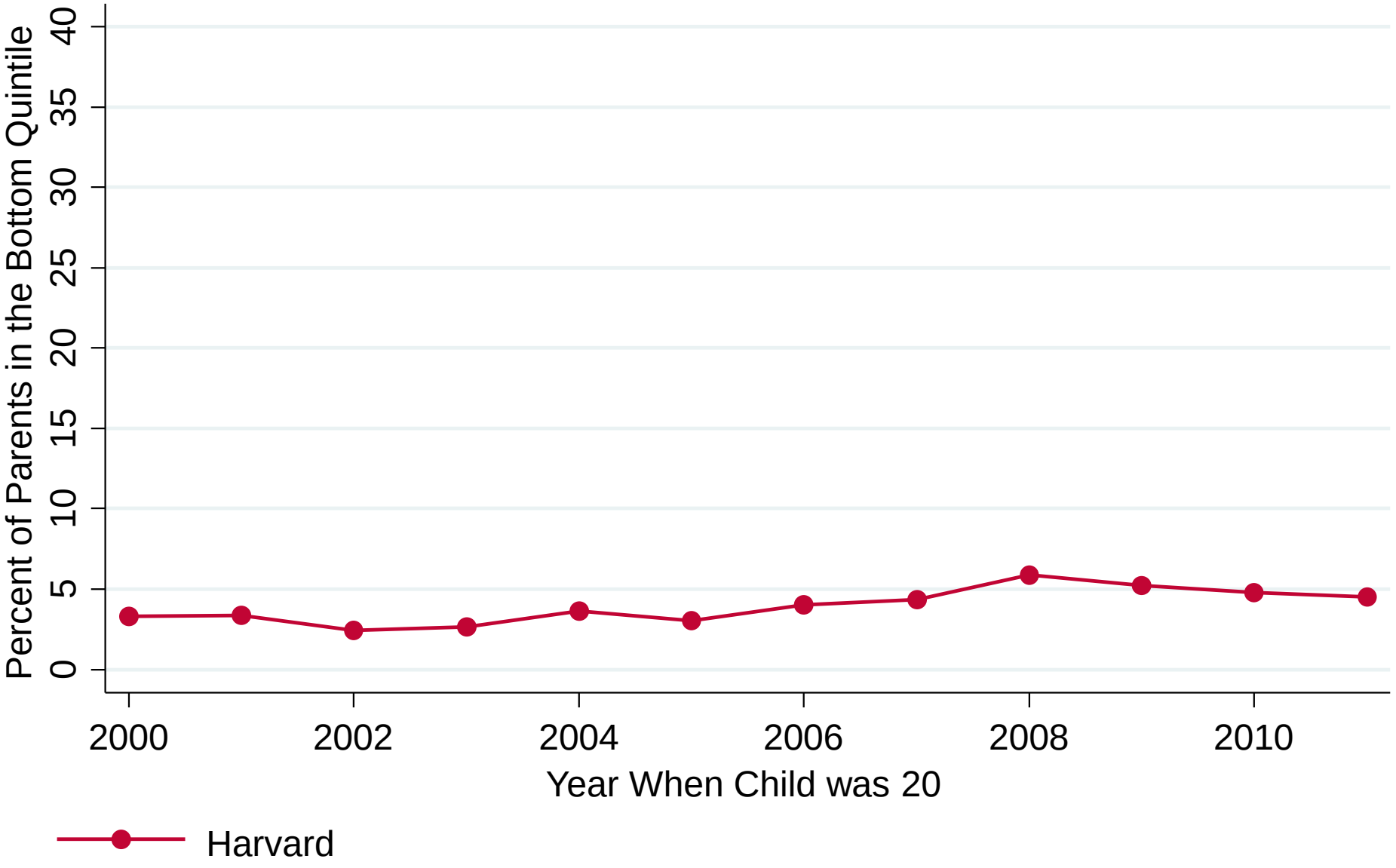
- But highly selective institutions (e.g., Berkeley, Harvard) channel more low-income students to the top 1%

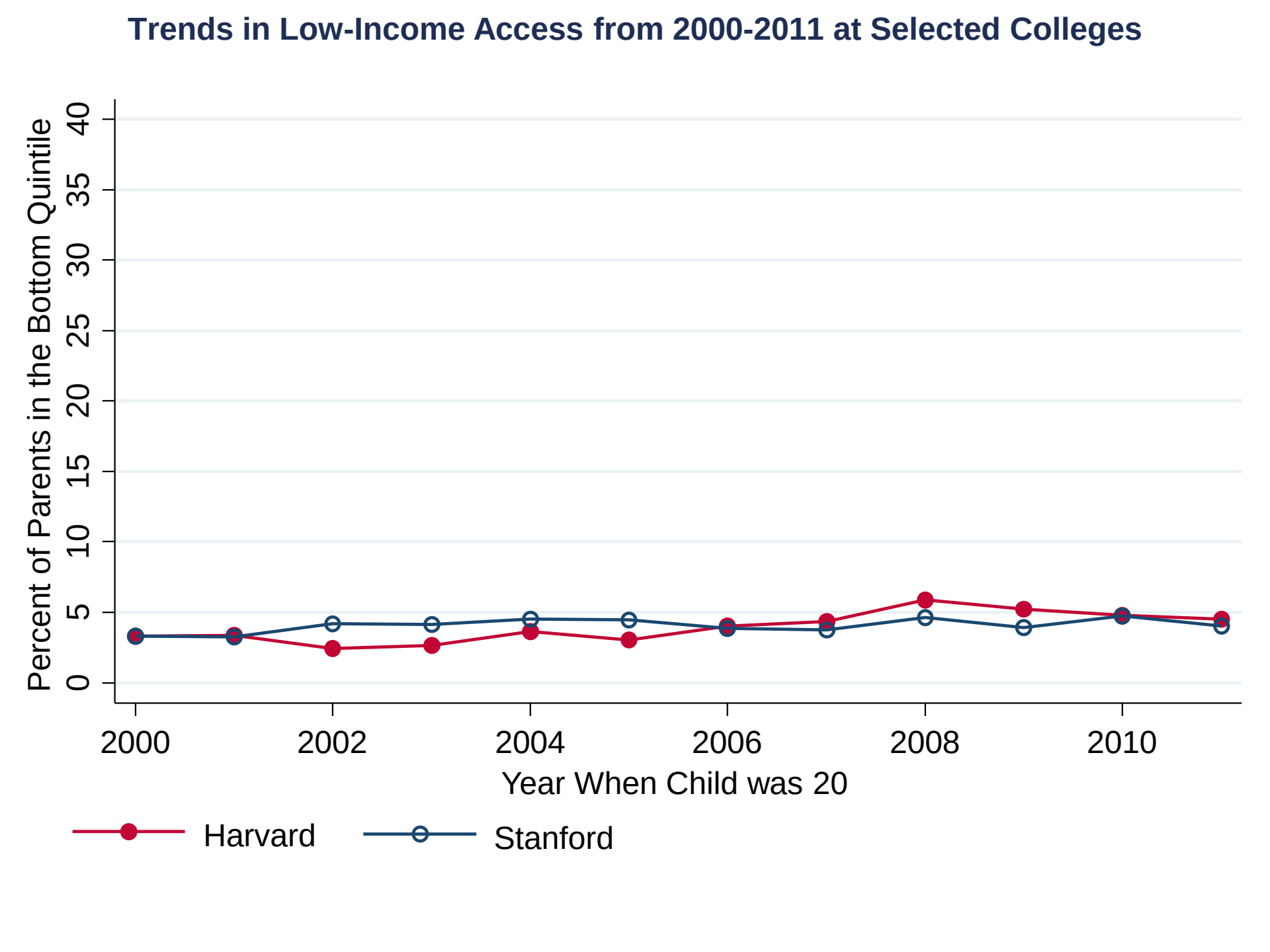
Part 4
Trends in Access and Mobility Rates

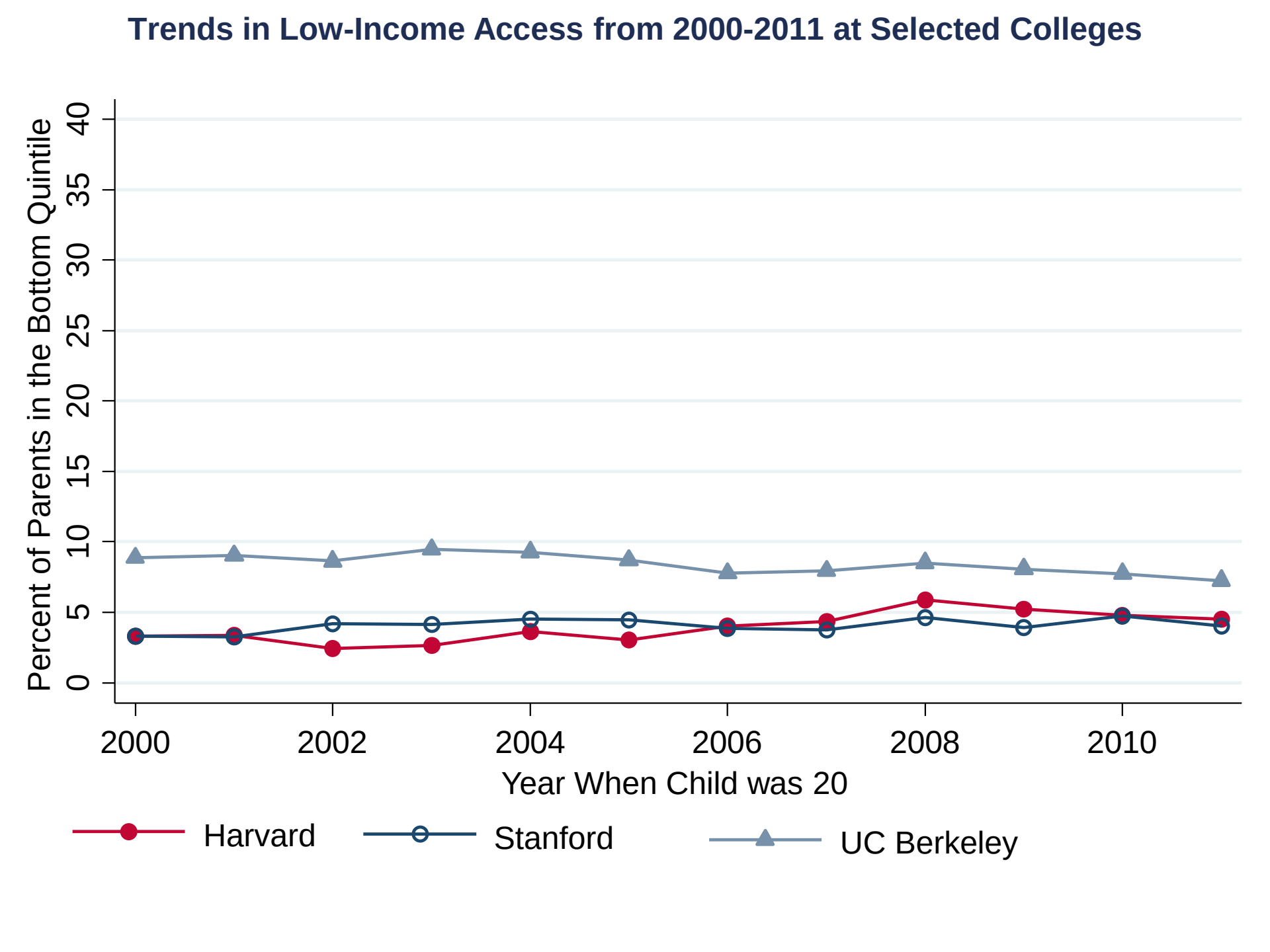
Changes in Access and Mobility Rates

- How have access and mobility rates changed since 2000?
  - Many efforts to expand financial aid at elite private colleges
  - Budgets have been cut at many public colleges
- Begin by examining changes in access from 2000-2011

Trends in Low-Income Access from 2000-2011 at Selected Colleges




Trends in Low-Income Access from 2000-2011 at Selected Colleges
Percent of Parents in the Bottom Quintile
0
5
10
15
20
25
30
35
40
2000
2002
2004
2006
2008
2010
Year When Child was 20
Harvard
Stanford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Year When Child was 20
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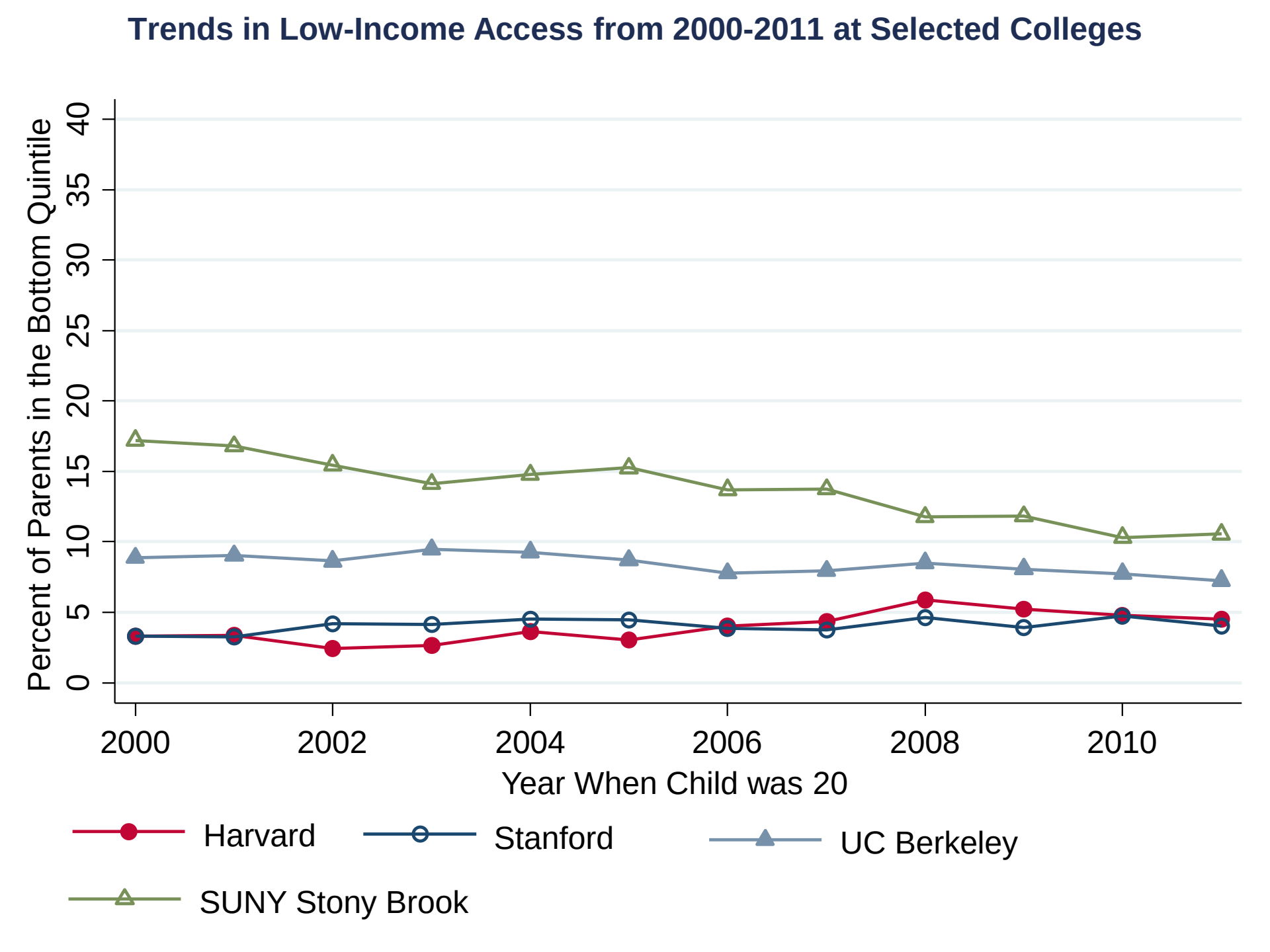
Stanford
UC Berkeley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2000
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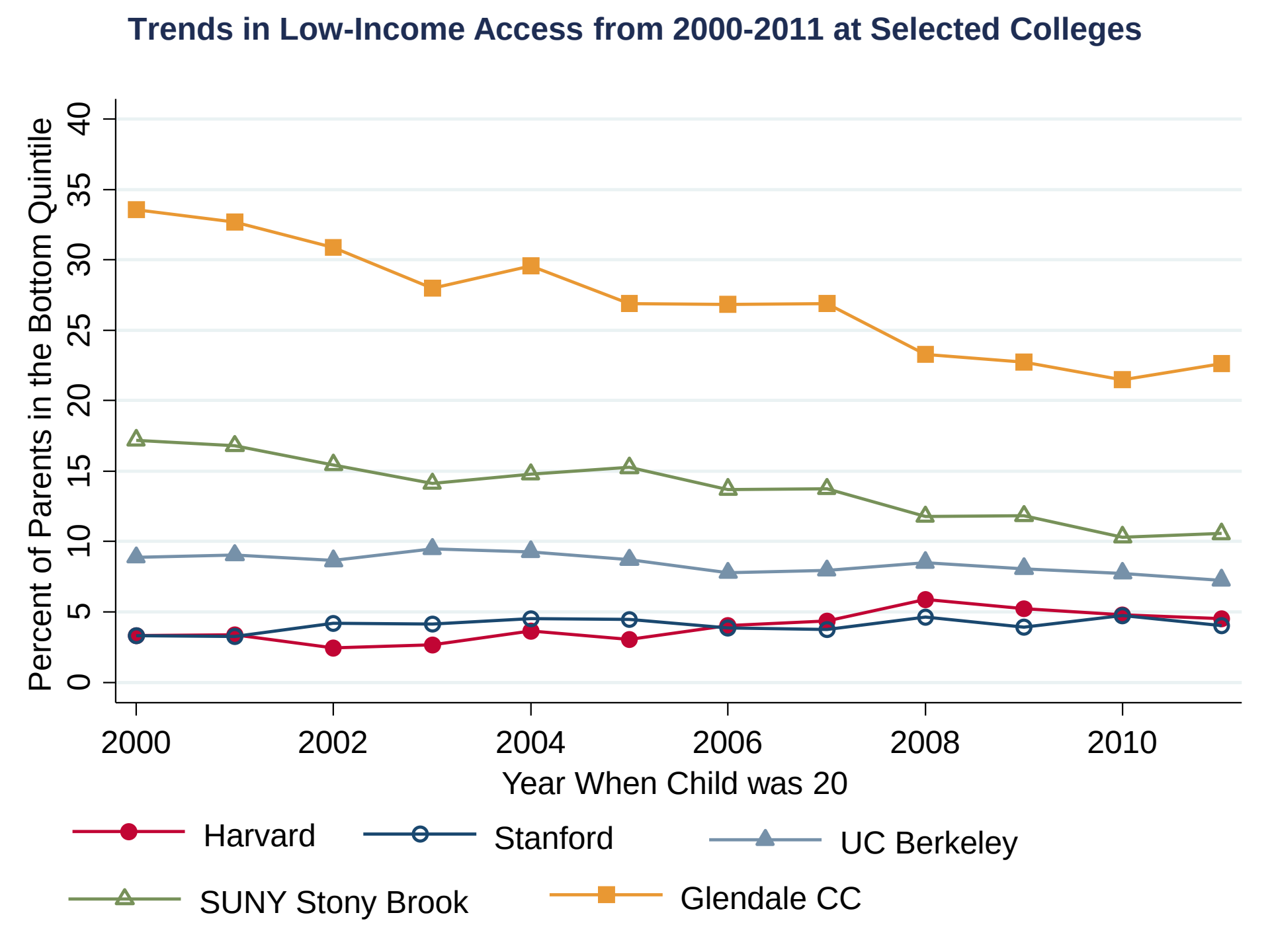
2006
2008
2010
Year When Child was 20
Harvard
Stanford
UC Berkeley
SUNY Stony Brook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2000
2002
2004
2006
2008
2010
Year When Child was 20
Harvard
Stanford
UC Berkeley
SUNY Stony Brook
Glendale CC

Comparison to Trends in Pell Shares

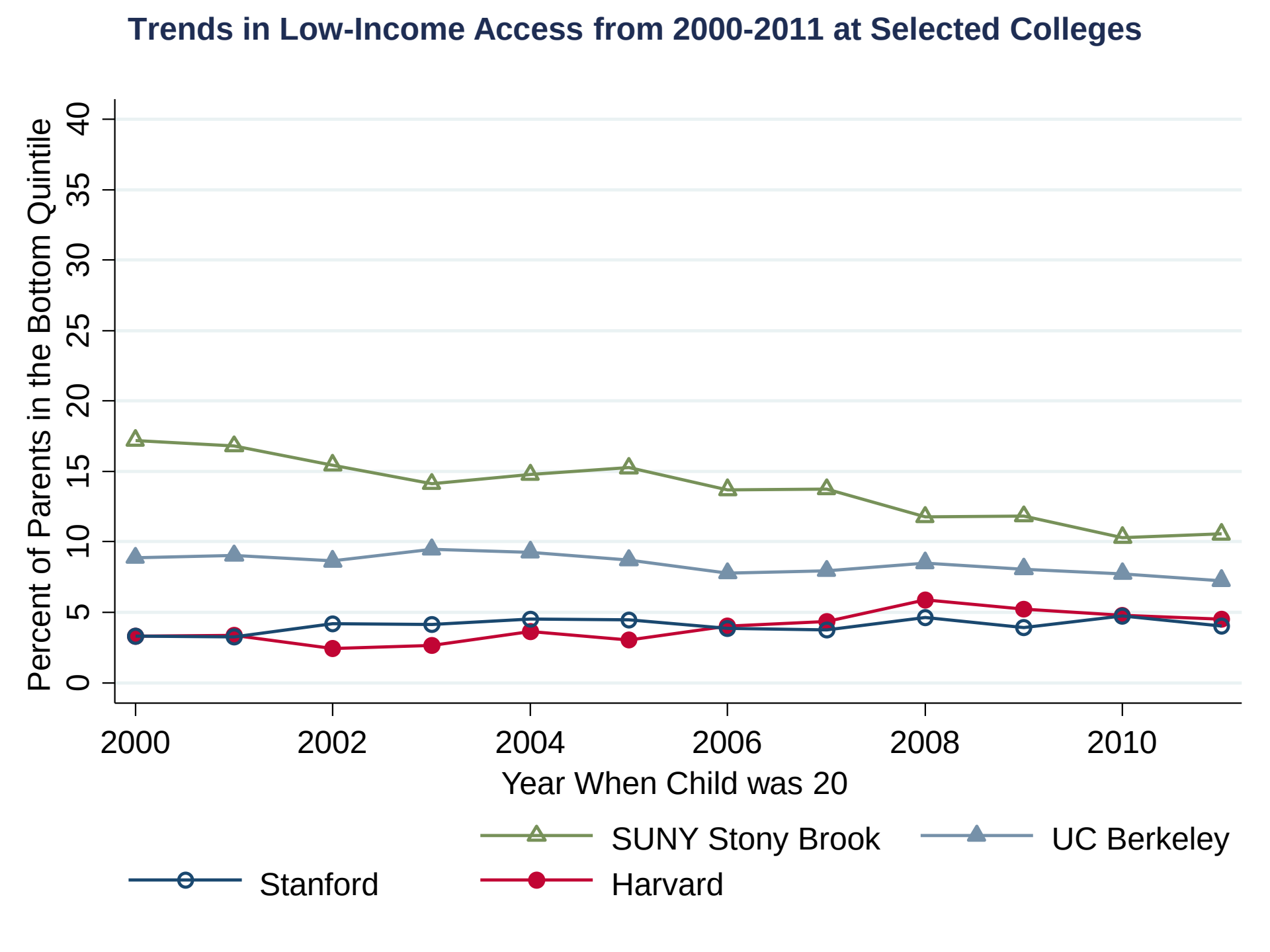
- Our percentile-based statistics show small increases in the fraction of low-income students at elite schools

- Pell statistics suggest much larger increases; why the difference?
  - Pell income eligibility threshold has *increased* since 2000
  - Incomes have *fallen* at the bottom: for parents with college-age kids, 20th pctile fell from $25K to $20K from 1980-1991 cohorts

- Accounting for these factors, increases in Pell shares are consistent with our findings of small changes in quintile shares

Interpretation of Time Trends

- Lack of change in fraction of students from bottom quintile does not mean that changes in financial aid had no effect
  - Counterfactual is unclear: absent these changes, fraction of low-income students might have fallen given decline in incomes
  - Key point is that on net, trends over last 15 years have not led to a significant change in low-income access to elite private colleges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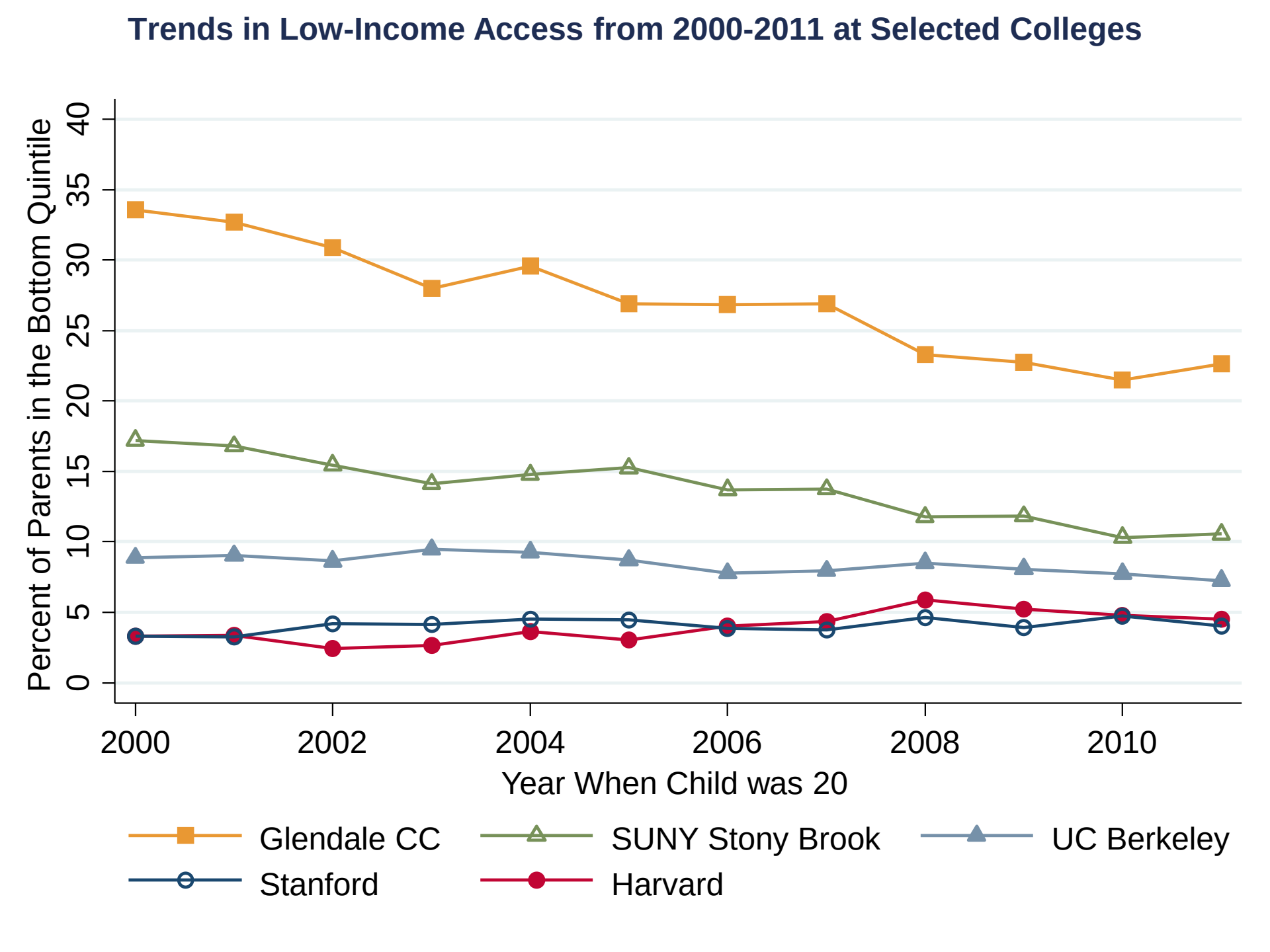
Harvard


Trends in Low-Income Access from 2000-2011 at Selected Colleges
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25
30
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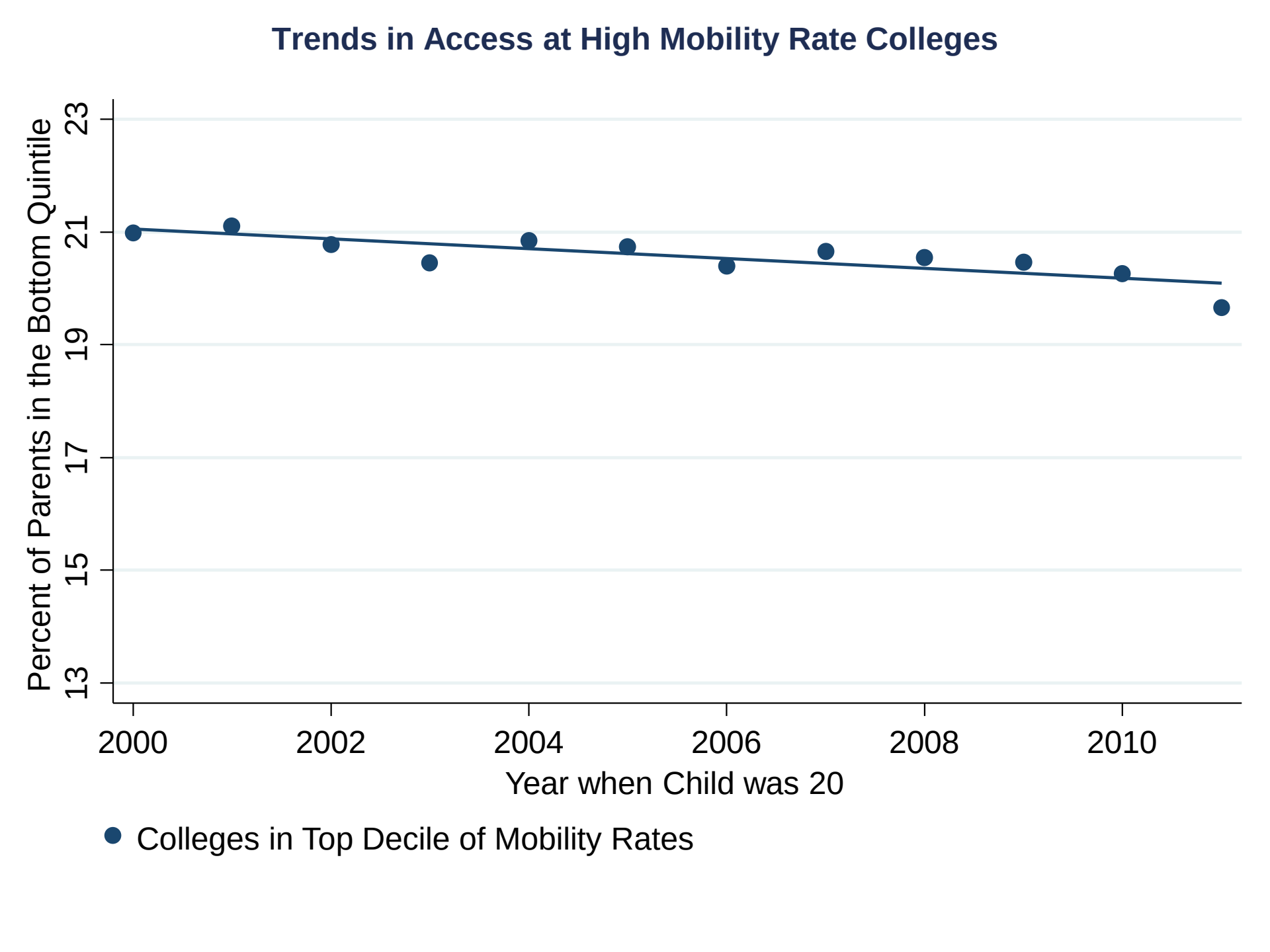
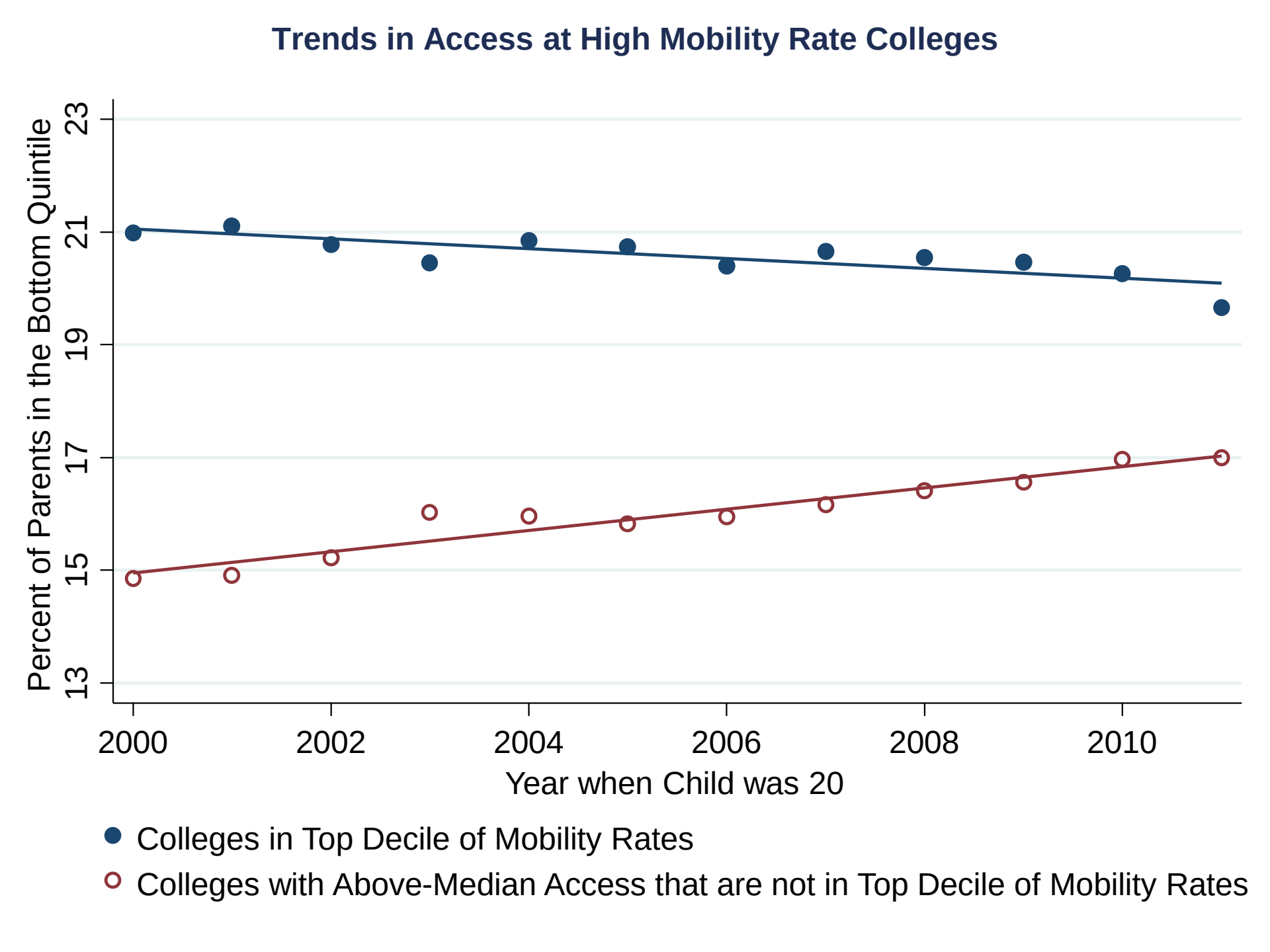
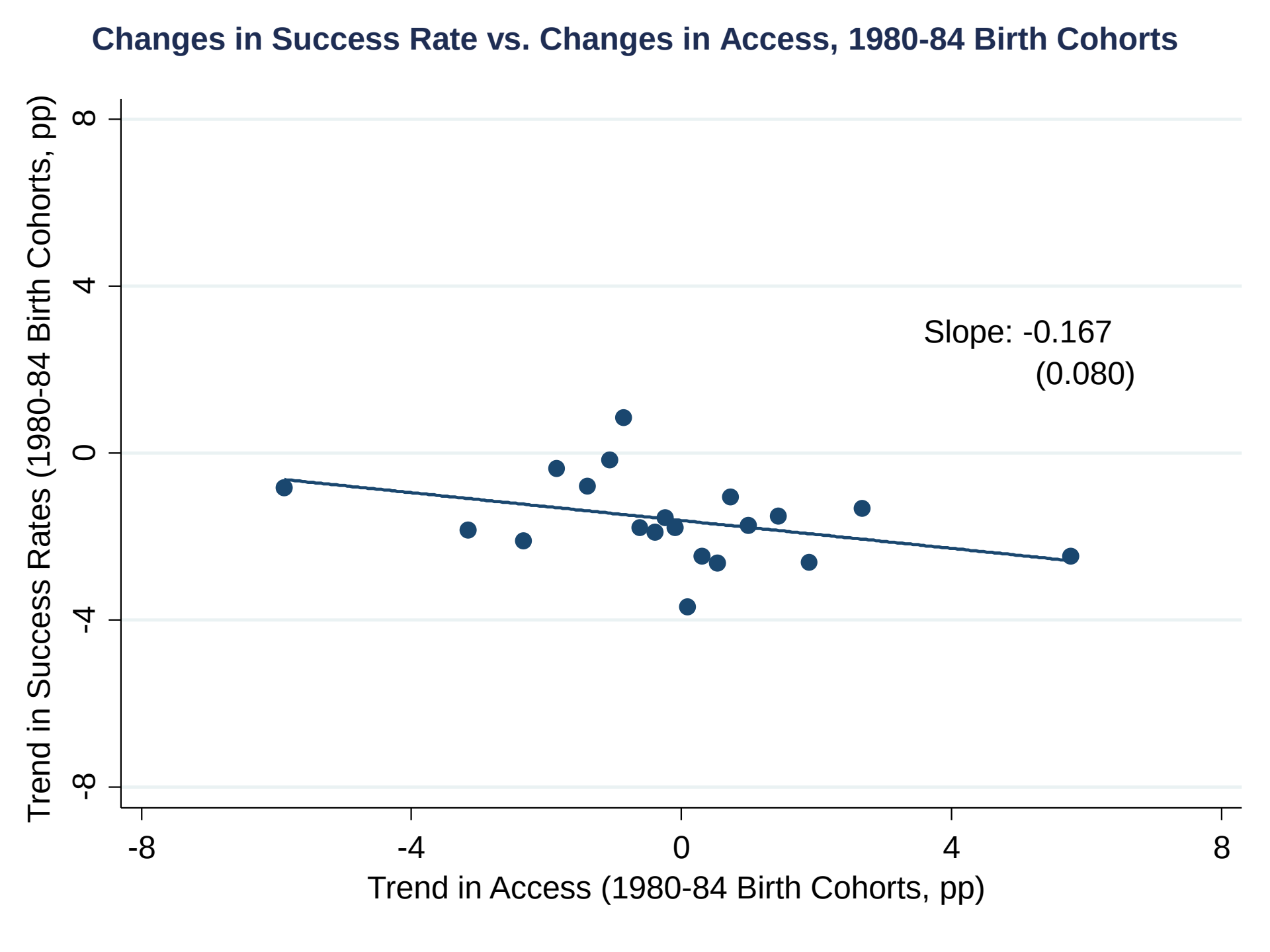
40
2000
2002
2004
2006
2008
2010
Year When Child was 20
Glendale CC
SUNY Stony Brook
UC Berkeley
Stanford
Harvard


Trends in Access at High Mobility Rate Colleges
Percent of Parents in the Bottom Quintile
13
15
17
19
21
23
2000
2002
2004
2006
2008
2010
Year when Child was 20
Colleges in Top Decile of Mobility Rates


Trends in Access at High Mobility Rate Colleges
Percent of Parents in the Bottom Quintile
13
15
17
19
21
23
2000
2002
2004
2006
2008
2010
Year when Child was 20
Colleges in Top Decile of Mobility Rates
Colleges with Above-Median Access that are not in Top Decile of Mobility Rates

Changes in Success Rates and Mobility

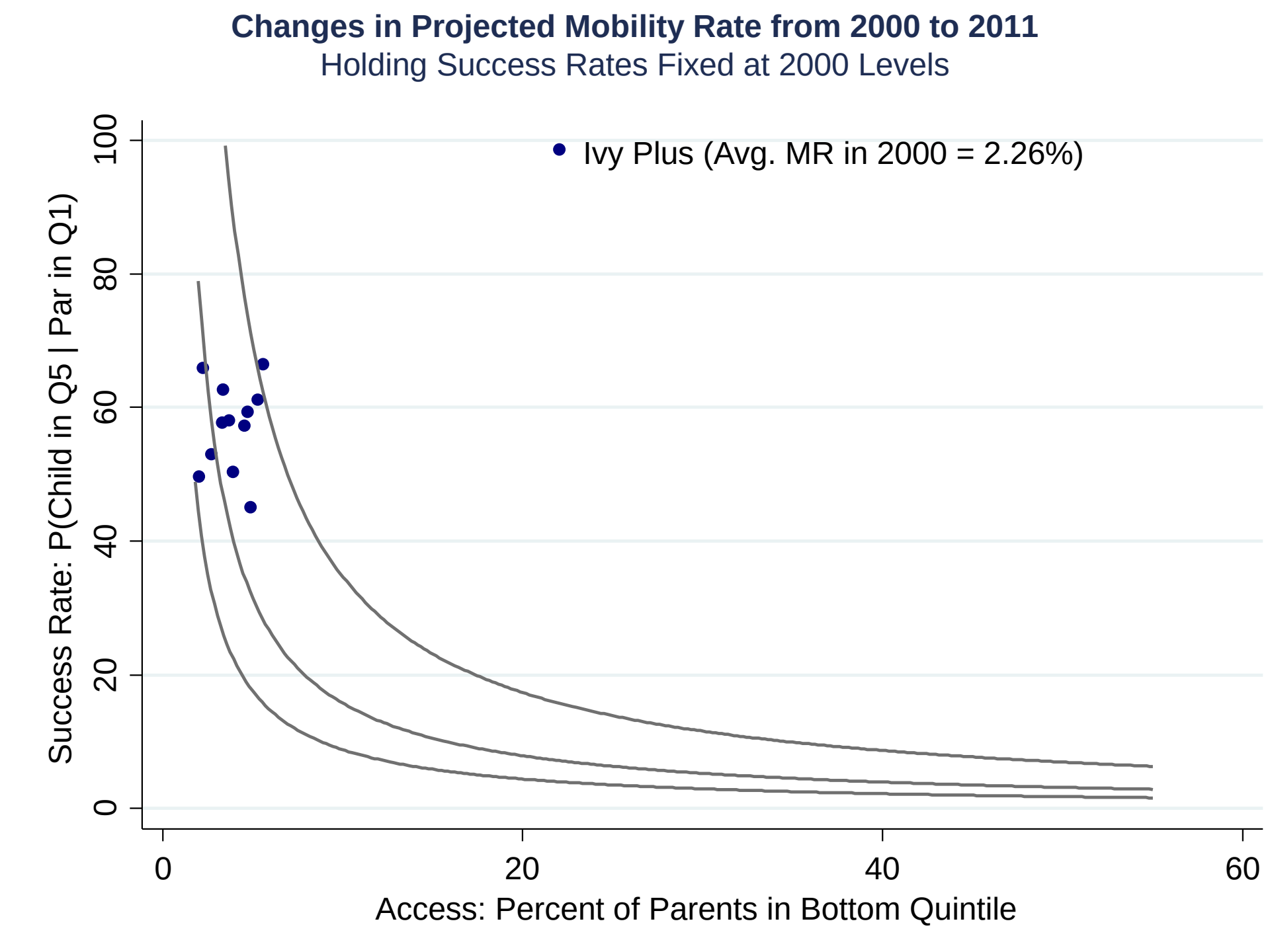
- Have reductions in access been offset by increases in success rates?
  - Can only measure students' earnings reliably for all schools up to 1984 birth cohort (whose earnings are measured at 30 in 2014)
- Regress changes in success rates on changes in access, conditional on school fixed effects

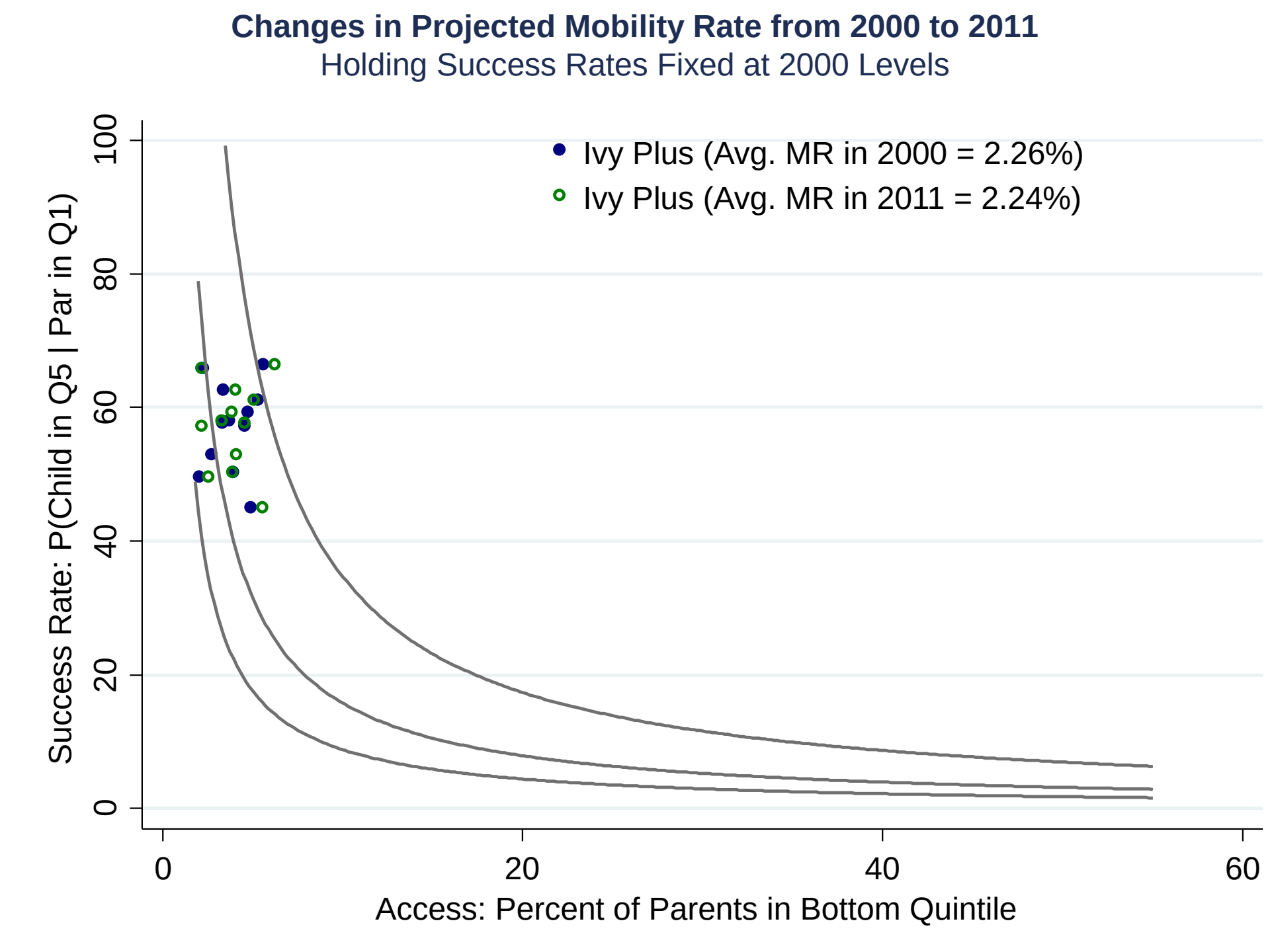

Changes in Success Rate vs. Changes in Access, 1980-84 Birth Cohorts
Slope: -0.167
(0.080)
Trend in Success Rates (1980-84 Birth Cohorts, pp)
8
4
0
-4
-8
-8
-4
0
4
8
Trend in Access (1980-84 Birth Cohorts, pp)

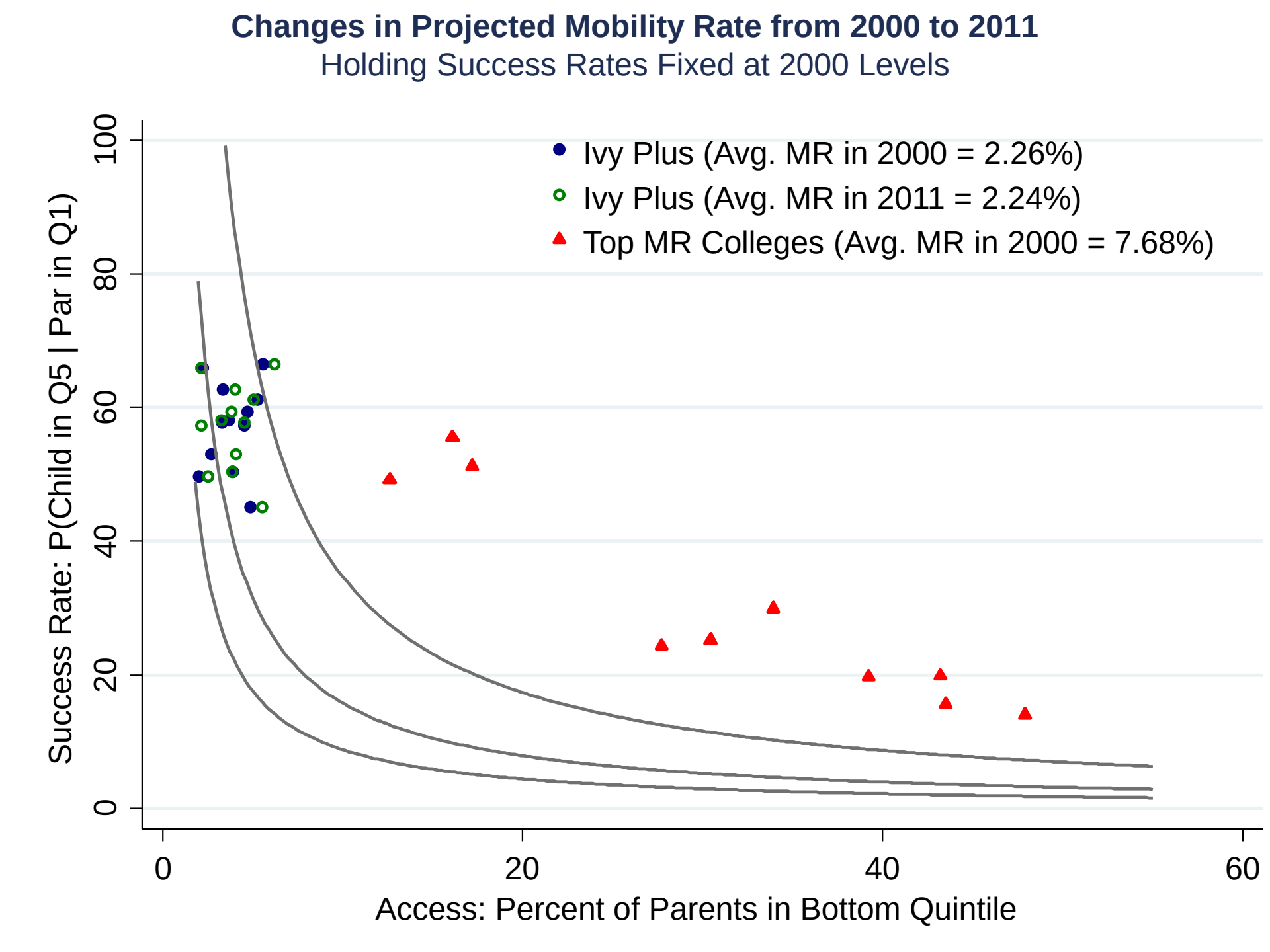
Changes in Success Rates and Mobility

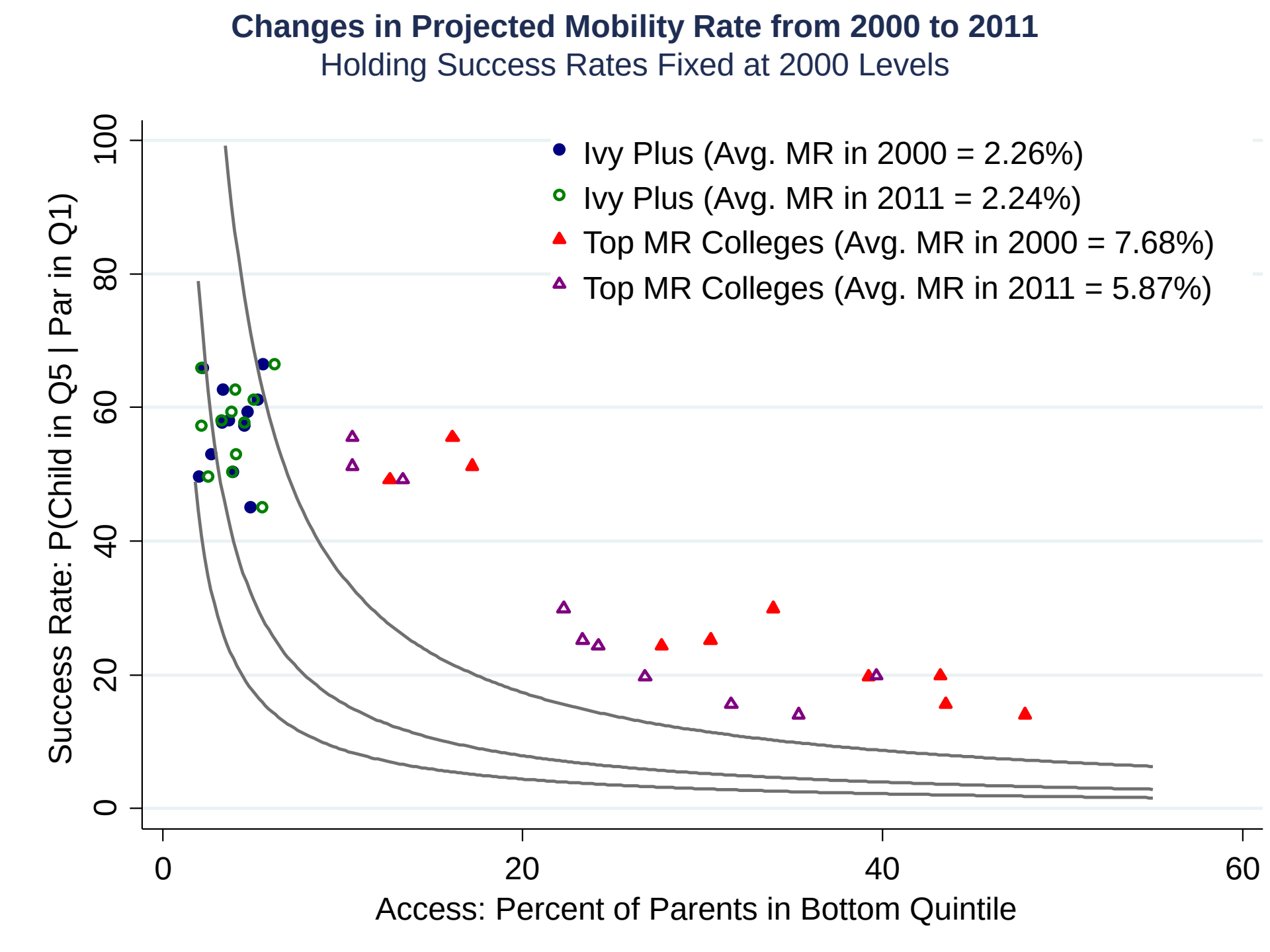
- Success rate is essentially unrelated to changes in access → reduction in access translate 1-1 to reduced mobility rates

- Conclude by examining how trends over 2000s affected mobility rates at various subsets of colleges


Changes in Projected Mobility Rate from 2000 to 2011
Holding Success Rates Fixed at 2000 Levels
Ivy Plus (Avg. MR in 2000 = 2.26%)
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60

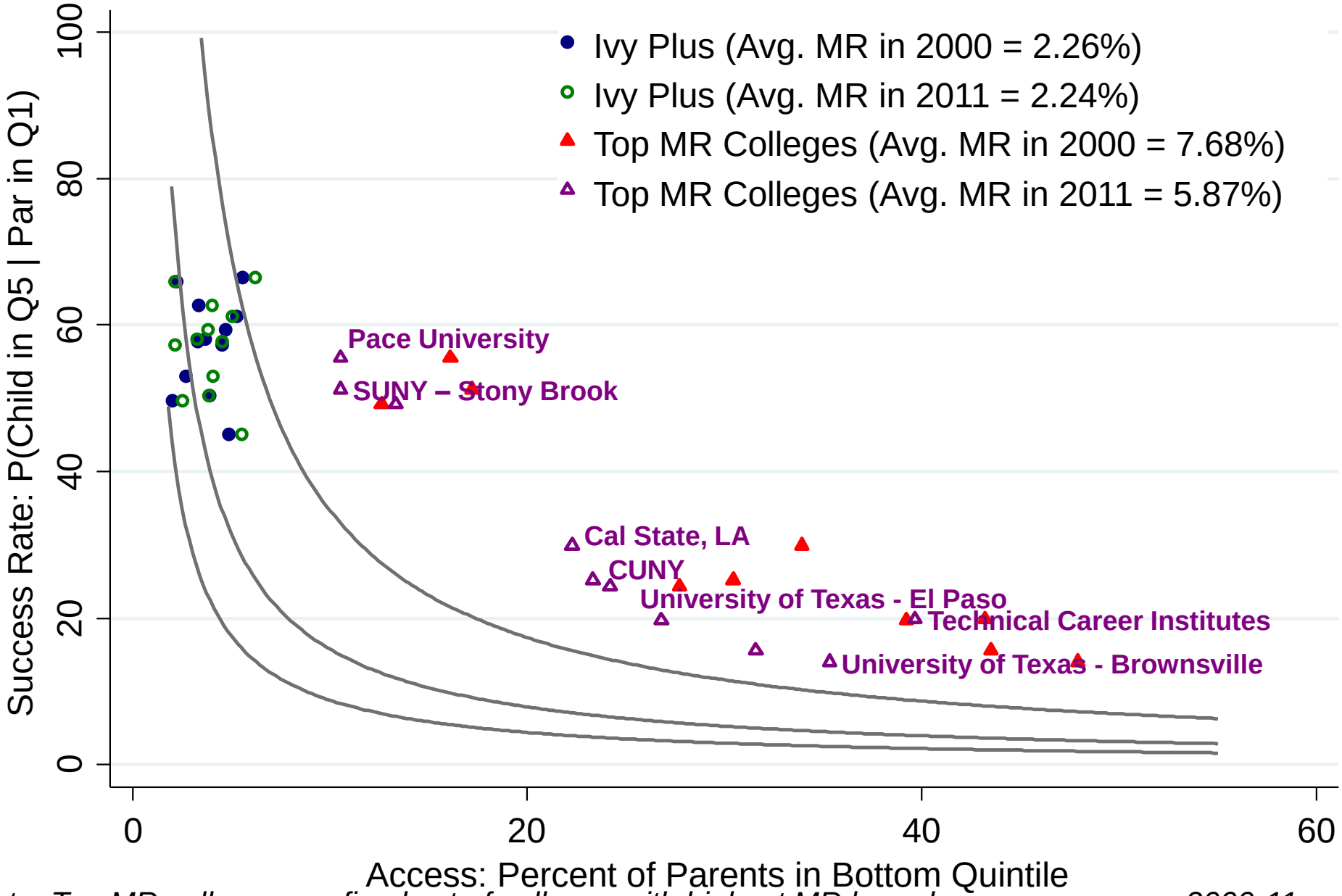

Changes in Projected Mobility Rate from 2000 to 2011
Holding Success Rates Fixed at 2000 Levels
Ivy Plus (Avg. MR in 2000 = 2.26%)
Ivy Plus (Avg. MR in 2011 = 2.24%)
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60


Changes in Projected Mobility Rate from 2000 to 2011
Holding Success Rates Fixed at 2000 Levels
Ivy Plus (Avg. MR in 2000 = 2.26%)
Ivy Plus (Avg. MR in 2011 = 2.24%)
Top MR Colleges (Avg. MR in 2000 = 7.68%)
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60


Changes in Projected Mobility Rate from 2000 to 2011
Holding Success Rates Fixed at 2000 Levels
Ivy Plus (Avg. MR in 2000 = 2.26%)
Ivy Plus (Avg. MR in 2011 = 2.24%)
Top MR Colleges (Avg. MR in 2000 = 7.68%)
Top MR Colleges (Avg. MR in 2011 = 5.87%)
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
0
20
40
60
Access: Percent of Parents in Bottom Quintile

Changes in Projected Mobility Rate from 2000 to 2011

Holding Success Rates Fixed at 2000 Levels



Note: Top MR colleges are fixed set of colleges with highest MR based on mean access, 2000-11

Lessons on Trends

- **Fact #4**: Trends in access are unfavorable in terms of mobility rates
  - Access has *fallen* at mid-tier public colleges with highest mobility rates
  - Access has risen relatively little at elite private colleges despite their efforts to increase financial aid and outreach
    - These efforts may have been offset by countervailing macroeconomic trends such as rising inequality

Discussion: Broad Lessons for Policy

1. Low-income students admitted to selective colleges do not appear over-placed, based on their earnings outcomes

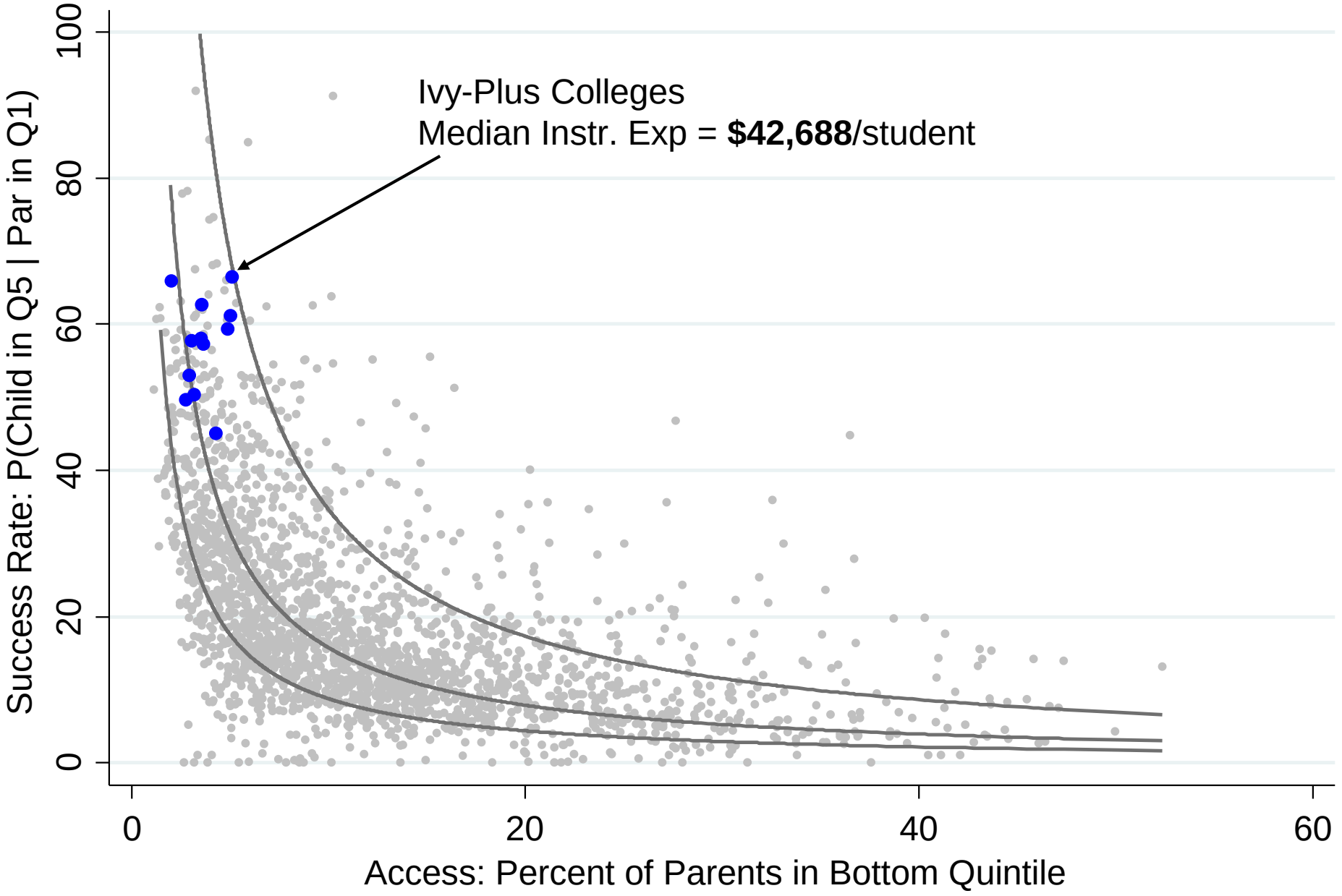
   - Provides support for policies that seek to bring more such students to selective colleges

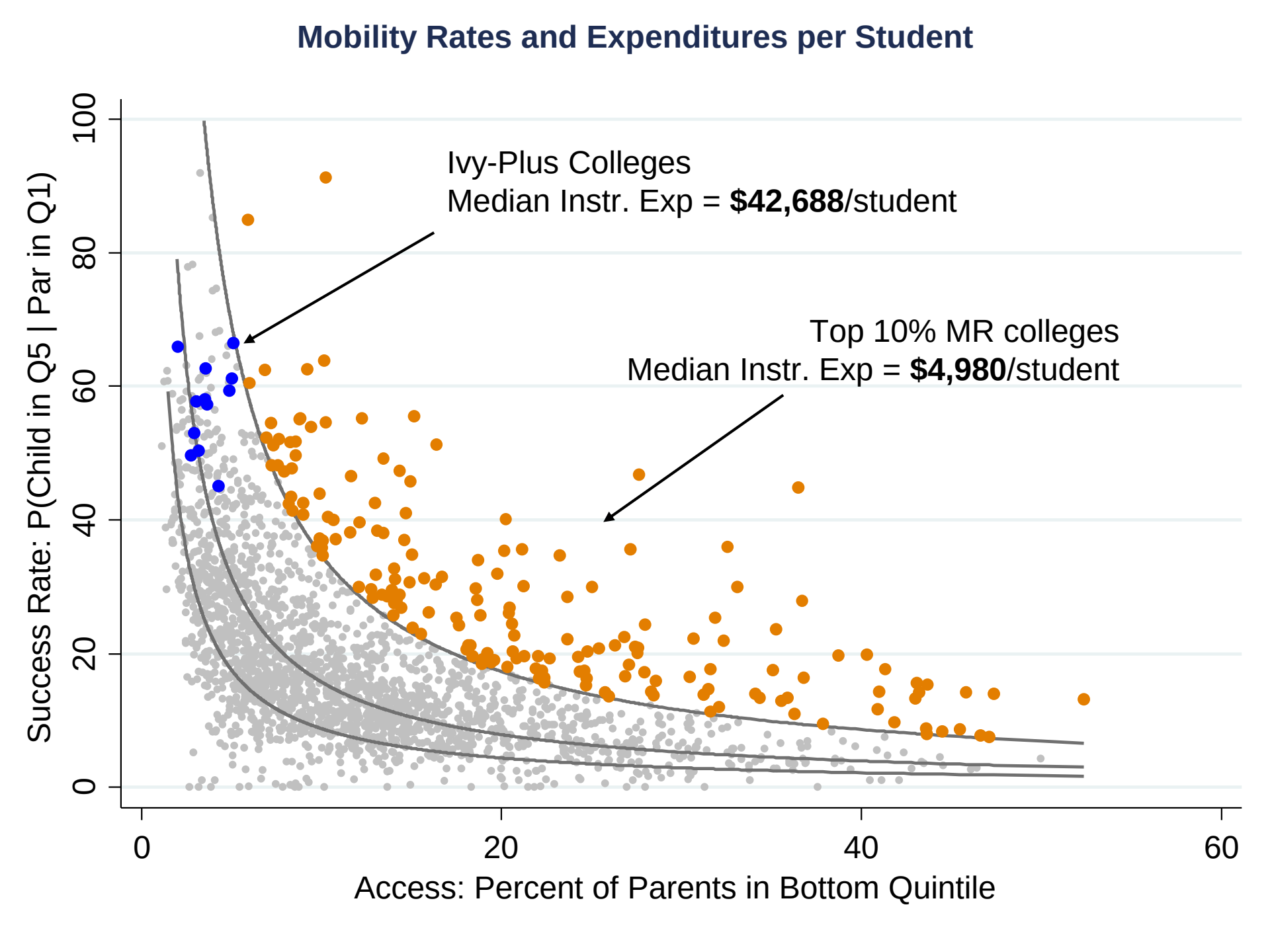
2. Efforts to expand low-income access often focus on elite colleges

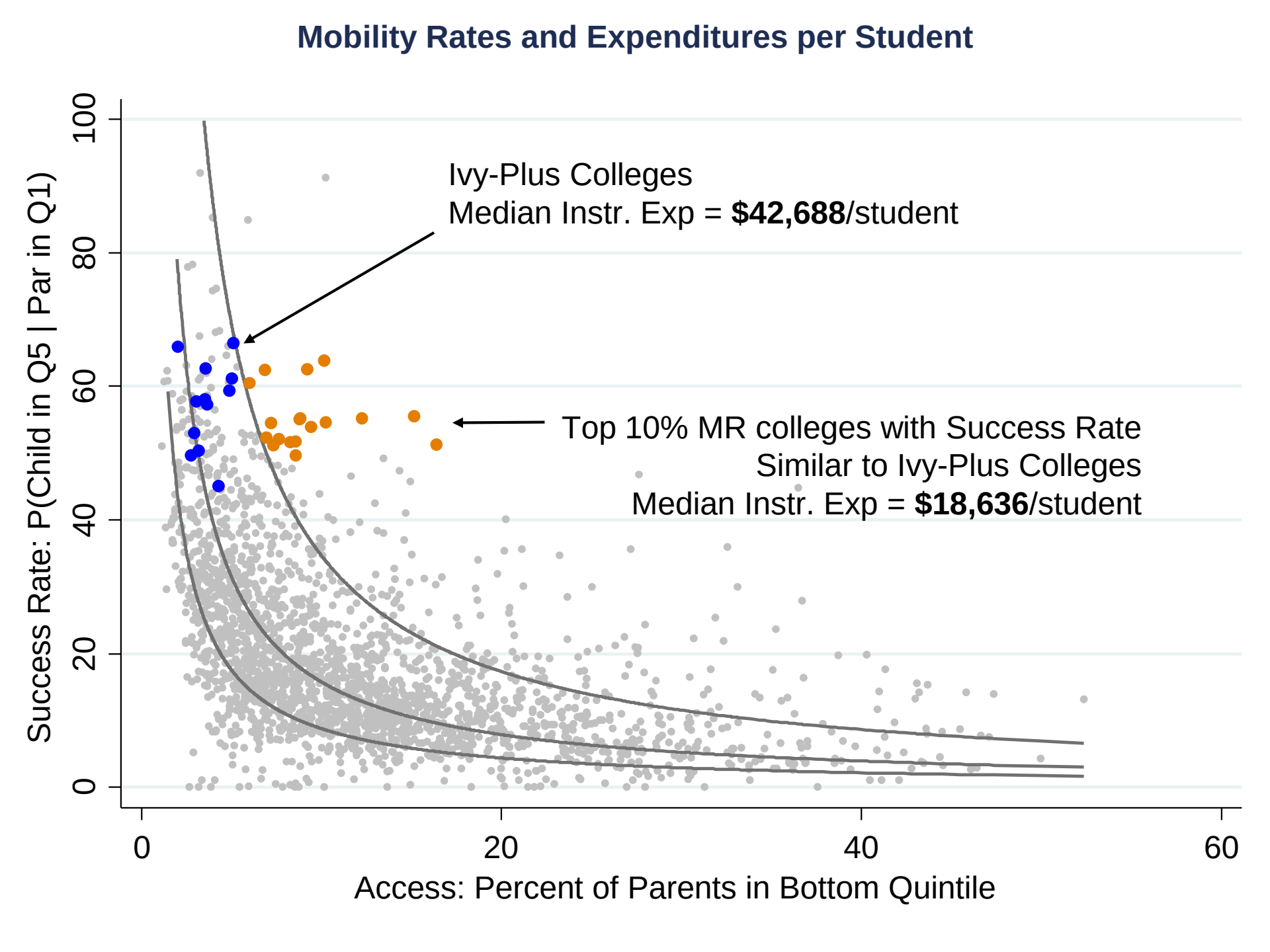
   - But the high-mobility-rate colleges identified here may provide a more scalable model for upward mobility

   - Instructional costs at high-mobility-rate colleges are far lower…

Mobility Rates and Expenditures per Student




Mobility Rates and Expenditures per Student
Ivy-Plus Colleges
Median Instr. Exp = **$42,688**/student
Top 10% MR colleges
Median Instr. Exp = **$4,980**/student
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60


Mobility Rates and Expenditures per Student
Ivy-Plus Colleges
Median Instr. Exp = **$42,688**/student
Top 10% MR colleges with Success Rate
Similar to Ivy-Plus Colleges
Median Instr. Exp = **$18,636**/student
Success Rate: P(Child in Q5 | Par in Q1)
0
20
40
60
80
100
Access: Percent of Parents in Bottom Quintile
0
20
40
60

Discussion: Broad Lessons for Policy

3. Recent unfavorable trends in access call for a re-evaluation of policies at the national, state, and college level

   - Ex: changes in admissions criteria, expansions of transfers from the community college system, interventions at earlier ages
   - New publicly available college-level statistics constructed here can facilitate analysis of such interventions
   - Would be especially valuable to further study high-mobility-rate colleges as potential “engines of upward mobility”