Colleges and Upward Mobility: Evidence from Big Data

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OPPORTUNITY INSIGHTS

The American Dream?

Chance that a child born to parents in the bottom fifth of the income distribution reaches the top fifth:



How Can We Restore the American Dream?





The Geography of Upward Mobility in the United States

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



Upward Mobility vs. Job Growth in the 30 Largest Metro Areas



What are the Characteristics of High-Mobility Neighborhoods?



Higher Education and Upward Mobility

Higher education is widely thought to provide a mobility

But inequality in access to colleges between low- and high-income families could limit or even reverse this effect



We construct publicly available **mobility report cards** for every college in America to analyze how colleges shape mobility

Parent Incomes and Student Outcomes



Use attendance and income data on all college students from 1999-2013 from Treasury and Dept. of Education

- **Parents:** Measure household incomes when students are teenagers
- **Students:** Measure earnings in the mid-30s for <u>enrolled</u> students

Rank students and parents relative to others in the same cohort

Mobility Report Cards: Community Colleges in CUNY System



Parent Income Quintile

Mobility Rates

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

Mobility rate equals access times success rate:

Mobili	ity Ra	te =	Access	X	Success Rate
5.	. 7%	=	33.0%	X	17.6%

At CUNY CCs





Mobility Rates: Success Rate vs. Access by Community College



Access: Percent of Parents in Bottom Quintile

Mobility Rates: Success Rate vs. Access by Community College



Access: Percent of Parents in Bottom Quintile

Mobility Rates: Success Rate vs. Access by Community College



Access: Percent of Parents in Bottom Quintile

Mobility Rates: Success Rate vs. Access in Houston Metro



Access: Percent of Parents in Bottom Quintile

Changes Over Time



- How have access and mobility rates changed in recent years?
 - Substantial expansions in financial aid and outreach at elite private colleges
 - Have these changes led to increases in access?

Trends in Low-Income Access 2000-2011



Trends in Low-Income Access: Community Colleges 2000-2011



Key Questions for Policy



• Why are some colleges "engines of upward mobility"?

• How can we expand upward mobility across higher education in America?

Collegiate Leaders in Increasing MoBility



Partnership between researchers and colleges to link "big data" and enhance mobility in higher education.

CLIMB currently includes 300 colleges and 4.2 million students



Promoting Success

Many colleges offer **special programs** to help low-income students succeed

- Additional tutoring, summer prep, different admissions cutoffs
- Are these programs effective?
- Very similar to the ASAP program in CUNY community colleges

Today we ask:

What are the long-term outcomes of students in the SEEK program at CUNY?

SEEK Program Structure



SEEK Program Structure

1	Students	 250k students 11 CUNY campuses
2	Program Eligibility	 Admission to 4 year CUNY based on Academic Index (AI) – GPA, SAT, coursework Eligible only if below AI <u>and</u> income cutoffs (~\$45k for a family of 4)
3		

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3	Academic Supports	 6 week summer program prior to entry Individual/small group tutoring Access to "opportunity counselors" 		

Parent Incomes and Children's SAT Scores



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Children's Earnings Outcomes SEEK vs. Other CUNY Students



Children's Earnings Outcomes



Children's Earnings Outcomes



Promoting Success at CUNY: Next Steps



Equality of Opportunity and Economic Growth



- But improving opportunities for upward mobility can also increase economic growth
- To illustrate, focus on innovation
 - Study the lives of 750,000 patent holders in the U.S.

Patent Rates vs. Parent Income



Patent Rates vs. Parent Income



Patent Rates vs. Parent Income



Patent Rates vs. 3rd Grade Math Test Scores



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Gender-Specific Innovation Effects

Change in Number of Inventors per 1000 Children



Lost Einsteins



If women, minorities, and children from low-income families invent at the same rate as high-income white men, the innovation rate in America would quadruple

Increasing Mobility in Higher Education

Challenge

Increasing mobility requires institution-specific action

- How to prescribe treatments when diagnoses differ across settings?
- No "one size fits all" solution

Solution

- Use big data to diagnose barriers in each school
- Partner with schools to design customized solutions
- Social science analog of precision medicine



Increasing Access and Promoting Success Using Big Data

300 Colleges

4.2 Million Students

climbinitiative.org

