

Estimating the Effects of College Selectivity on Graduation Rates

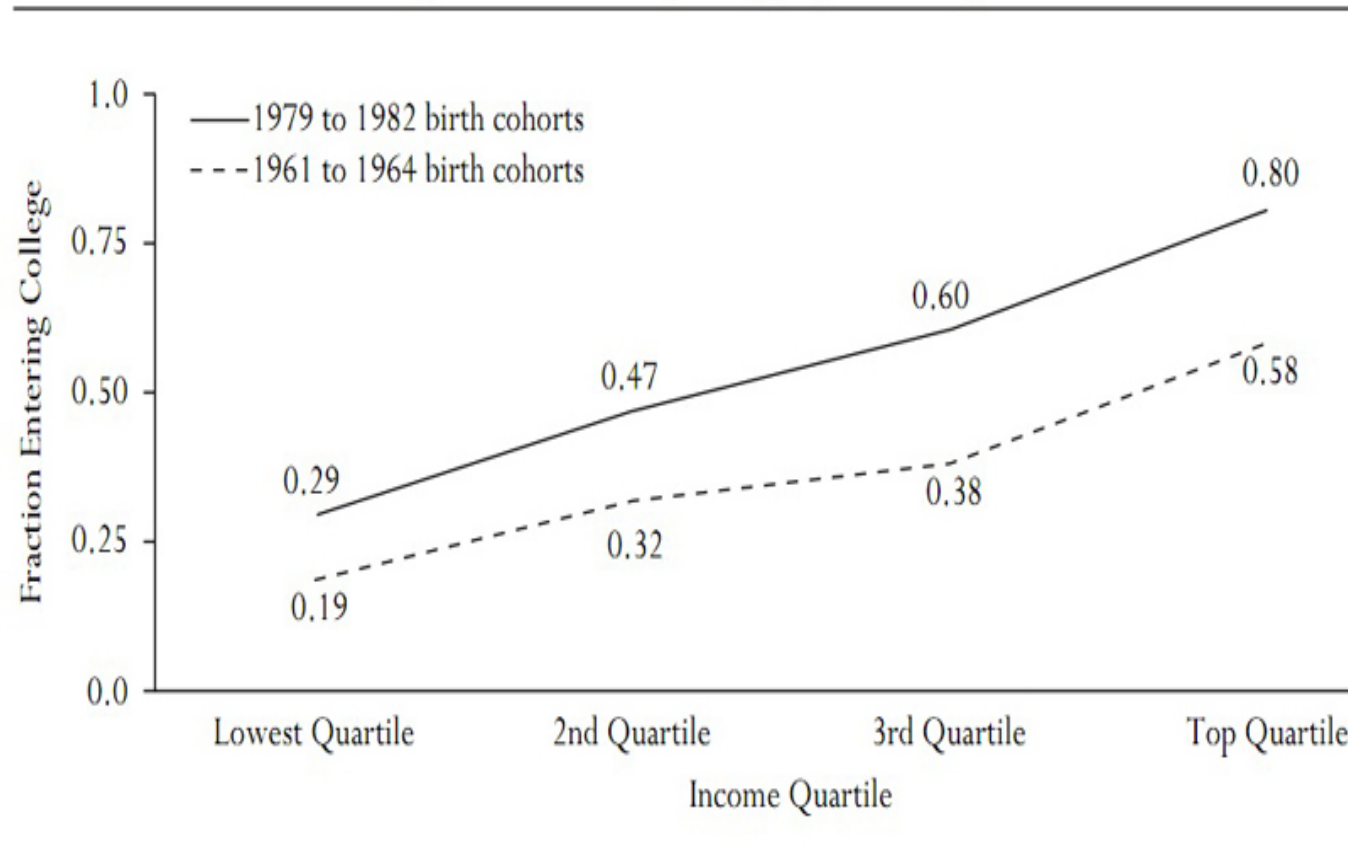
Shomon Shamsuddin
MIT Department of Urban Studies and Planning
shomon@mit.edu

AIR Annual Forum
May 22, 2013

*This material is based upon work supported by the Association for Institutional Research, the National Center for Education Statistics, the National Science Foundation, and the National Postsecondary Education Cooperative under Association for Institutional Research Grant Number DG12-70. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the Association for Institutional Research, the National Center for Education Statistics, the National Science Foundation, or the National Postsecondary Education Cooperative.

Income Inequality in Higher Education

FIGURE 6.2 *Fraction of Students Entering College, by Income Quartile and Birth Year*

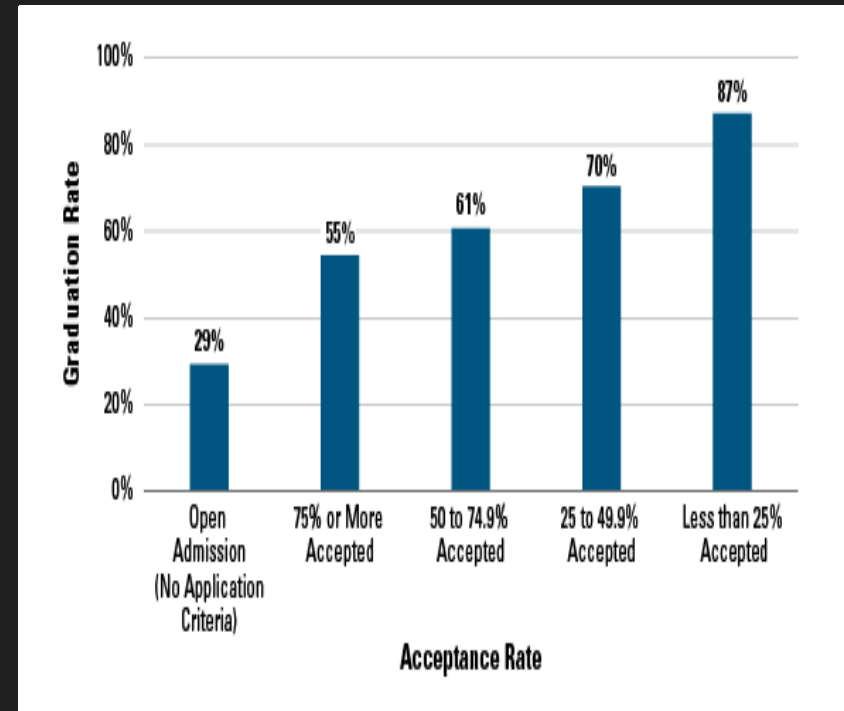


Overview

1. Statement of the Problem
2. Research Question
3. Data and Methodology
4. Findings
5. Discussion

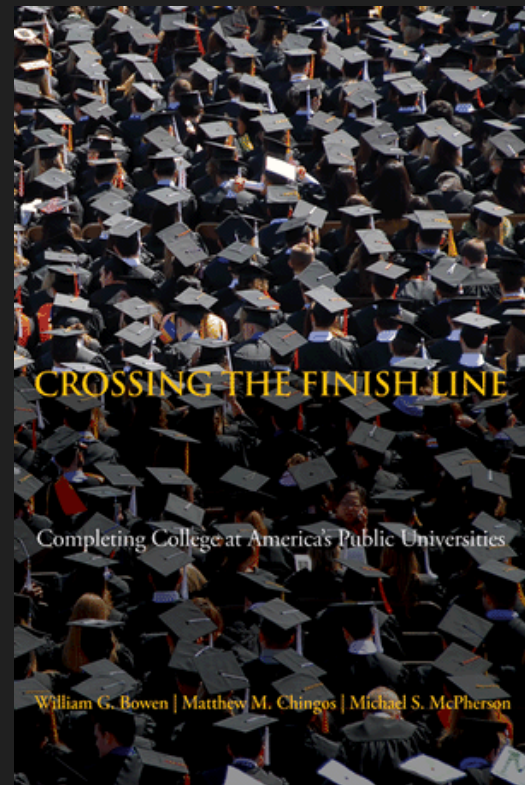
Undermatching

- Qualified students attend less selective colleges
- 60% of CPS students (Roderick et al. 2008)
- 40% of NC students (Bowen et al. 2009)
- Low graduation rates



Undermatching

- Individual or institutional effect?
- OLS controlling for HS GPA and SAT scores
(Bowen et al. 2009)
- Regression discontinuity based on MA merit aid
(Cohodes and Goodman 2012)



Does attending more selective colleges increase the probability of earning a degree?

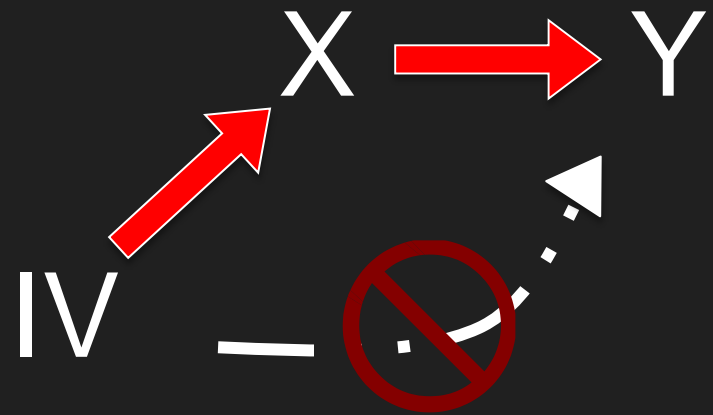


Data

- NLSY 97 (restricted)
- IPEDS

Strategy

- Instrumental Variables Estimation (IVE)



Instrumental Variable: Distance

- Reasons
 - Increased awareness
 - Lower financial costs
 - Lower psychological costs
 - Social ties
- Previous work using distance
(Card 1993; Rouse 1995; Do 2004; Turley 2009)

Measures

- Outcome: degree completion
- Predictor: selective college attendance
- Instrument: distance to selective college
- Controls: HS GPA, ASVAB, race, gender, mother's education

Models

$$\text{ATTEND}_i = \alpha_0 + \alpha_1 \text{DIST}_i + \alpha_2 \text{GPA}_i + \alpha_3 \text{ASVAB}_i + \alpha_4 \mathbf{X}_i + \varepsilon_i$$

$$\text{BA}_i = \beta_0 + \beta_1 \widehat{\text{ATTEND}}_i + \beta_2 \text{GPA}_i + \beta_3 \text{ASVAB}_i + \beta_4 \mathbf{X}_i + v_i$$

Selective Public Colleges

- Strong positive effect on BA completion
- Statistically significant ($p < 0.01$)
- F -stat > 28

	Earn bachelor's degree	
	Unweighted	Weighted
Attend sel. pub.	0.903** (0.283)	0.947*** (0.284)
High school GPA	0.140*** (0.020)	0.137*** (0.021)
ASVAB	0.002*** (0.001)	0.002*** (0.001)
Mother's Education	0.021*** (0.004)	0.021*** (0.005)
Urban	-0.003 (0.021)	-0.009 (0.021)
Male	-0.071*** (0.019)	-0.076*** (0.020)
White	-0.012 (0.020)	-0.012 (0.021)
Constant	-0.498*** (0.112)	-0.486*** (0.120)
F -statistic	33.09	28.91
N	3296	3296

Clustered standard errors in parentheses
 * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Threats to Validity?

	Log Distance	Organized	Dependable	Agreeable	Cooperative	Flexible	Conscientious	Thorough	Trustful
Log distance	1.00								
Organized	0.02	1.00							
Dependable	0.03	0.25	1.00						
Agreeable	0.02	0.10	0.12	1.00					
Cooperative	0.00	0.21	0.21	0.39	1.00				
Flexible	-0.02	0.16	0.09	0.27	0.44	1.00			
Conscientious	-0.02	-0.03	0.10	0.14	0.09	-0.02	1.00		
Thorough	0.02	0.24	0.26	0.29	0.20	0.09	0.22	1.00	
Trustful	0.01	0.10	0.21	0.25	0.20	0.08	0.15	0.26	1.00

Summary

- Attending selective public college has positive effect on degree completion
- Qualified students should apply to and enroll in selective colleges

Contributions

- Identify causal impact of college selectivity
- Provide evidence on public institutions

Future Work

- PSM to test robustness of results
- Use RD based on college admission cut-off scores
- Identify what aspects of selectivity affect degree completion chances

