Assessing a New Approach to Class-Based Affirmative Action

Matthew N. Gaertner
University of Colorado at Boulder

Today's Presentation

- Why?
  - Review policy climate and ballot initiatives that motivate this research
- How?
  - Introduce class-based affirmative action at the University of Colorado – Boulder
- To what end?
  - Present findings from analyses designed to forecast the impact of implementing class-based affirmative action

Background

- 2008 Election: Amendment 46
  - "Colorado Civil Rights Initiative" sought to eliminate race-based affirmative action at public universities in Colorado
- Posed serious threats to undergraduate admissions at CU, which seeks to admit:
  - 1) Students that possess backgrounds, perspectives, and life experiences that provide a unique and important contribution
  - 2) Students that have overcome significant adversity
- In anticipation of the vote, CU developed statistical approaches to support class-based affirmative action

Class-Based Affirmative Action

- "Top X%" Plans
  - Guaranteed admission to state university for applicants whose class rank is sufficiently high
- UCLA Law School (Sander, 1997).
  - Synthesized applicant-level factors on a single quantitative scale
- My approach attempts to quantify:
  - 1) The socioeconomic obstacles an applicant has faced
  - 2) The extent to which that applicant has overcome those obstacles (Kahlenberg, 1997)

Measuring Disadvantage and Overachievement

- The Disadvantage Index
  - Purpose: Quantify the obstacles an applicant has faced
    - The reduction, owing to socioeconomic circumstance, in an applicant's likelihood of attending a 4-year college

- The Overachievement Index
  - Purpose: Quantify the extent to which an applicant has overcome obstacles
    - The extent to which an applicant's academic credentials exceed what is expected, conditional on socioeconomic factors.

The Disadvantage Index

- Step 1

$$P(E_i = 1) = \frac{\exp(\boldsymbol{\beta}\mathbf{X}_i + \boldsymbol{\xi}\mathbf{Z}_i)}{1 + \exp(\boldsymbol{\beta}\mathbf{X}_i + \boldsymbol{\xi}\mathbf{Z}_i)}$$

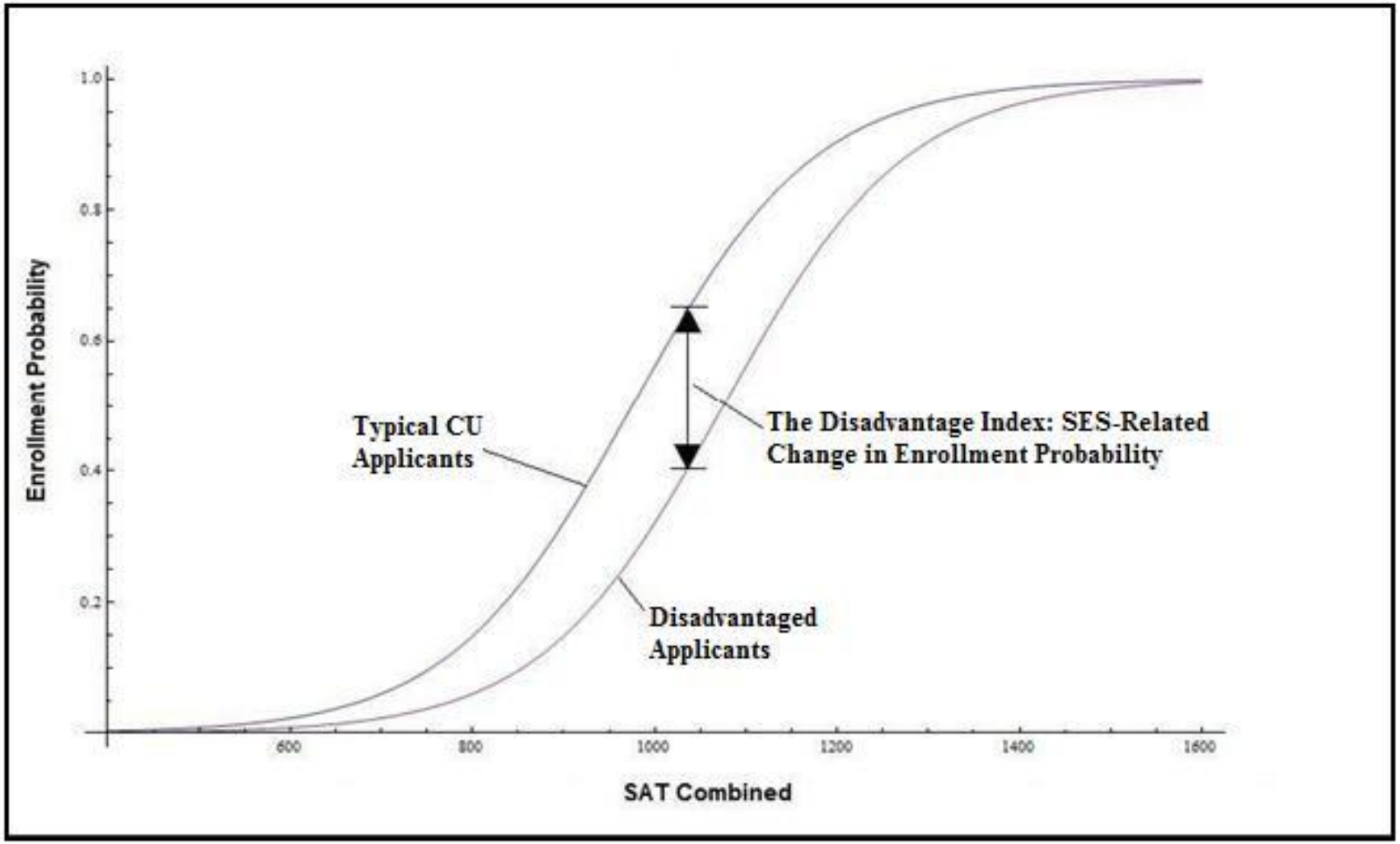
  - E_i indicates college enrollment (dichotomous)
  - $\mathbf{X}_i$ is a vector of achievement variables
  - $\mathbf{Z}_i$ is a vector of socioeconomic variables

- Step 2

$$DI_i = \hat{P}(E_i = 1 | \hat{\boldsymbol{\beta}}\mathbf{X}_i, \hat{\boldsymbol{\xi}}\mathbf{Z}_i) - \hat{P}(E_i = 1 | \hat{\boldsymbol{\beta}}\mathbf{X}_i, \hat{\boldsymbol{\xi}}\mathbf{Z}^*)$$

  - In $\mathbf{Z}^*$, socioeconomic variables are fixed at the values of a "typical" CU applicant.

The Disadvantage Index



The Overachievement Index

- Step 1

$$Y_i = \boldsymbol{\theta}\mathbf{K}_i + \varepsilon_i$$

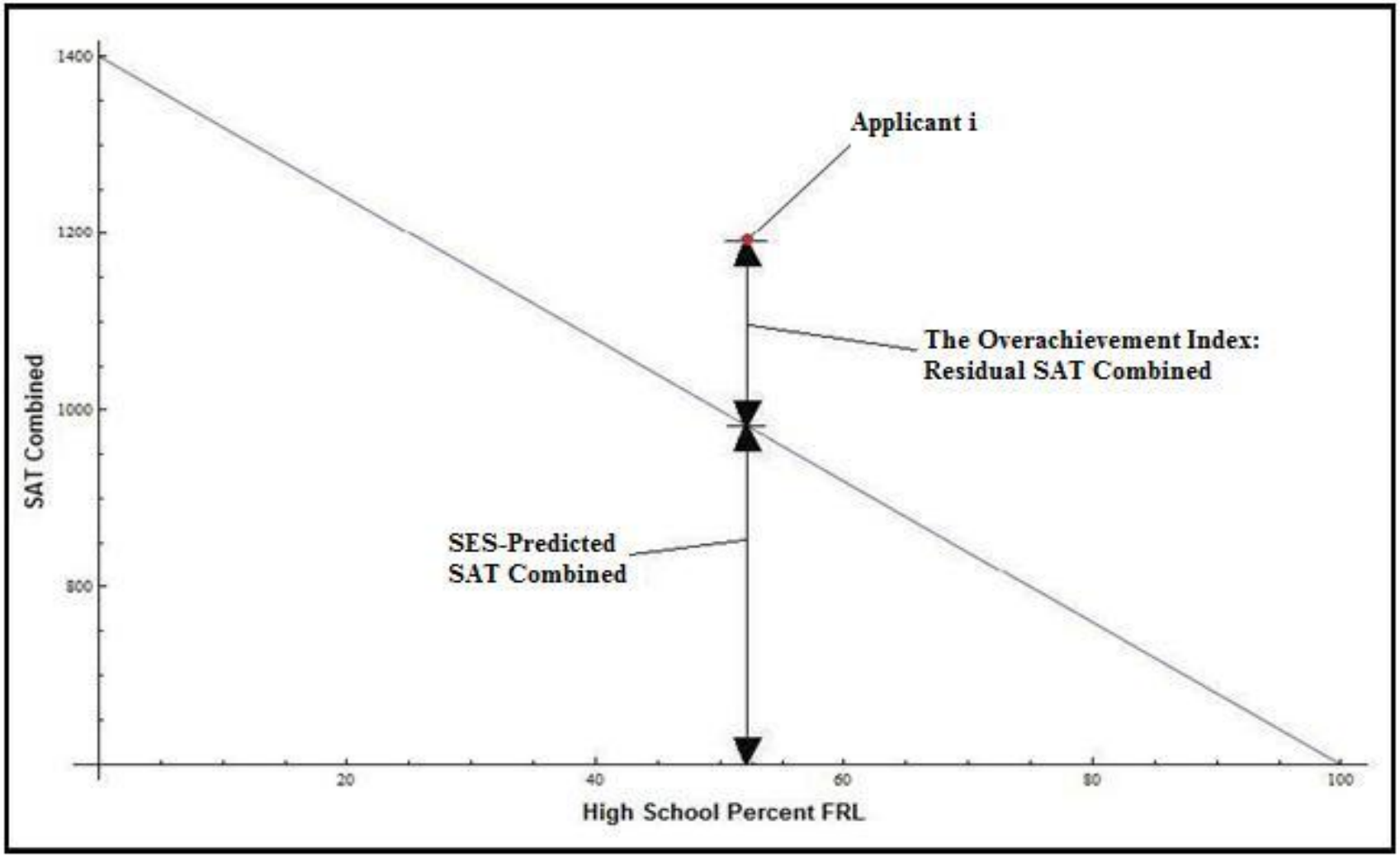
  - Y_i represents an academic credential (HSGPA, ACT, SAT)
  - $\mathbf{K}_i$ is a vector of socioeconomic variables

- Step 2

$$OI_i = e_i = Y_i - \hat{\boldsymbol{\theta}}\mathbf{K}_i$$

  - e_i is the residual from the regression model above

The Overachievement Index



Academic and Socioeconomic Variables: ELS

Academic

- Cumulative HSGPA
- SAT and ACT scores

Applicant-Level

- Family income
- Parents' education level
- Single parent
- Native English speaker

School-Level

- Percentage of students receiving FRL
- Rural location
- Student-to-teacher ratio
- Size of the 12th grade class

Establishing Cut-Points

- Disadvantage and Overachievement scales are unfamiliar to admissions officers
- Initially, cut-points were set at one and two standard deviations from the CU applicant pool means
  - Moderate / severe disadvantage
  - High / extraordinary overachievement
- Revised cut-points rely on a standard-setting procedure, where senior admissions officers were subject matter experts

Implementation of Indices

- Undergraduate application review relies on primary and secondary factors
- Primary factors guide admissions decisions
  - Rigor of curriculum, cumulative GPA, quality of secondary school, etc.
- Secondary factors are less influential
  - Legacy status, race/ethnicity, performing arts, etc.

Implementation of Indices

	No Overachievement	High Overachievement	Extraordinary Overachievement
No Disadvantage	No admissions boost	*Secondary* factor boost	**Primary** factor boost
Moderate Disadvantage	*Secondary* factor boost	**Primary** factor boost	**Primary** factor boost
Severe Disadvantage	**Primary** factor boost	**Primary** factor boost	**Primary** factor boost

Research Question 1

- To what extent does the implementation of CU's class-based affirmative action policy change the likelihood of acceptance for low-SES and minority students?

2009 Experiment

- A small sample (n=478) was randomly selected from the Fall 2009 applicant pool
- Each sampled application was reviewed twice
  - Control Condition: Race-based affirmative action
    - Official decision
  - Treatment Condition: Class-based affirmative action
    - Unofficial second review
  - No admissions officer reviewed the same application twice

Findings: 2009 Experiment

Applicant Type	N	Acceptance Rate		
		Class-based	Race-based	Difference
Low SES	121	81%	72%	9%**
Severely Low SES	35	83%	63%	20%*
URM	48	64%	56%	8%

**p < 0.05; **p < 0.01, via test of correlated proportions (McNemar, 1947)*

2010 Experiment

- A large sample (n=2,000) was randomly selected from the Fall 2010 applicant pool
- Sampled applications were randomly assigned
  - Control Condition: Race-based affirmative action
  - Treatment Condition: Class-plus-race affirmative action
- Analytic focus on acceptance rates for poor and underrepresented minority applicants

Findings: 2010 Experiment

Applicant Type	Class-Plus-Race		Race-Based		Difference
	N	Acceptance Rate	N	Acceptance Rate	
Low SES	212	58%	195	49%	9%*
Severely Low SES	54	57%	55	44%	13%
URM	118	62%	118	45%	17%**
Low SES *and* URM	47	59%	43	27%	32%**

**p < 0.05; **p < 0.01, via Fisher's exact test (Fisher, 1934)*

Research Question 2

- What is the likelihood of college success for students admitted under CU's class-based policy?

Focusing on Class-Based Admits

- Nineteen applicants from the 2009 experiment were:
  - (1) admitted under class-based condition, and
  - (2) refused under race-based condition
- Marginal academic credentials and low SES suggest the possibility of "academic mismatch" (Sander, 2004)
- Class-based admits were matched to historical CU students ("impostors")
  - I examine college outcomes for historical impostors

College Outcomes for Class-Based Admits

Group	N	% Graduating in 4 Years	% Graduating in 6 Years	Undergraduate GPA
Impostors	2,704	28.3%	52.9%	2.50
Baseline	18,422	39.8%	66.0%	2.83

- Across measures, college outcomes are lower for historical impostors
- More than half of the impostors ultimately graduated

College Outcomes for Class-Based Admits

Group	N	% Graduating in 4 Years	% Graduating in 6 Years	Undergraduate GPA
Impostors ("Overachievers")	601	44.8%	70.0%	2.94
Baseline	18,422	39.8%	66.0%	2.83

- Overachievers tend to outperform the baseline
- Outcomes for disadvantaged students are low, relative to the baseline

Discussion

- Impact of using class-based affirmative action
  - As a substitute for race-based affirmative action, it can maintain minority acceptance rates *under certain conditions*
  - Used in concert with race-based affirmative action, it can significantly improve minority acceptance rates *under certain conditions*

- College prospects for class-based admits
  - Overall results suggest success is possible for class-based admits, but far from guaranteed

Limitations

- Analysis of college outcomes relied on:
  - Historical data
  - Small sample of class-based admits
- Unclear how these findings generalize to elite, highly selective institutions
  - Highly selective universities tend to place significant weight on minority status
  - Class-based admits at elite schools may perform better than these results suggest

Final Thoughts

- Large, moderately selective public universities are underrepresented in affirmative action scholarship

- More than half of the undergraduates in the United States attend large public universities (Snyder & Dillow, 2010)