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Considering Class: College Access and Diversity

Matthew N. Gaertner* & Melissa Hart**

I. INTRODUCTION

Even in the immediate wake of the Supreme Court's June 2013 decision in *Fisher v. University of Texas*,¹ the future of race-conscious affirmative action remains uncertain. The *Fisher* decision did not deliver the much-feared death blow to affirmative action in college admissions. Indeed, the majority reaffirmed the principle that diversity in higher education is a compelling state interest. At the same time, however, the Court emphatically cautioned that race-conscious affirmative action could only be used if no race-neutral approach could achieve the diversity essential to educational goals.² And many commentators have predicted that the decision will lead to an increase in litigation over college admissions policies.³ Anticipating this possibility, colleges and universities will continue to explore what admissions policies will best yield a diverse mix of students. This article suggests an admissions strategy that accounts for socioeconomic disadvantage, and presents the results of a study from the University of Colorado that demonstrates that class-based affirmative action efforts are not only valuable for

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¹ *Fisher v. Univ. of Tex.*, — S. Ct. — (2013).

² *Id.* The diversity rationale was first endorsed in *Grutter v. Bollinger*, 539 U.S. 306 (2003).

³ See, e.g., Richard Sander, *Commentary on Fisher: A Classic Kennedy Compromise*, SCOTUSBLOG (Jun. 24, 2013, 4:18 PM), <http://www.scotusblog.com/2013/06/commentary-on-fisher-a-classic-kennedy-compromise>; Roger Clegg, *Commentary on Fisher: Better Off Than we Were a Year Ago*, SCOTUSBLOG (Jun. 24, 2013, 5:39 PM), <http://www.scotusblog.com/2013/06/commentary-on-fisher-better-off-than-we-were-a-year-ago>. As well, on March 25, 2013, the Court granted certiorari in a new case that could present the Court with another opportunity to evaluate the relationship between race-conscious affirmative action and the Equal Protection Clause. See Petition for Writ of Certiorari at i, *Schuette v. Coal. to Defend Affirmative Action*, No. 12-682 (U.S. Nov. 28, 2012).

increasing socioeconomic diversity but may also help schools maintain racial diversity.

Race-conscious affirmative action is perhaps the most contentious issue in education policy, and challenges to race-conscious admissions policies, both in courts and at the ballot box, have been regular events over the past three decades.⁴ When these challenges seem poised to succeed, colleges and universities realize they may need to alter their admissions policies.⁵ When the threat recedes—as it did with the Supreme Court’s decision in *Grutter*—schools tend to relax into their settled approaches. *Fisher* offers another reprieve, but the decision’s tone was so hostile to race-conscious affirmative action that the reprieve may be a short one.

Policy changes implemented under this kind of political pressure are hard-pressed to incorporate the kind of careful analysis that a well-crafted admissions standard needs. Moreover, the question of what kind of admissions approach should replace plans that include race as one factor (if such a replacement is needed) is controversial. Some seeking to answer that question are interested primarily in selecting an admissions policy that will best serve the aim of maintaining or increasing racial diversity on campuses.⁶ Starting in the late 1990s, some scholars and education experts began calling for a focus on socioeconomic diversity, not as a substitute for racial diversity but as a value in its own right, arguing that it would more accurately identify those applicants who had overcome hardships in their path to higher education.⁷ And a third, relatively small, group has argued that neither class nor race should play any role at all in evaluating candidates for admission.⁸

⁴ In addition to the affirmative action challenges that have reached the Supreme Court, many suits have reached the courts of appeals. See, e.g., *Hopwood v. Texas*, 78 F.3d 932 (5th Cir. 1996); *Podberesky v. Kirwan*, 38 F.3d 147 (4th Cir. 1994). Numerous states have passed ballot initiatives to eliminate affirmative action. See CAL. CONST. art. I, § 31 (passed as Proposition 209); MICH. CONST. art. I, § 26 (passed as Proposal 2 in 2000 election); NEB. CONST. art. I, § 30 (passed as Initiative 424); WASH. REV. CODE § 49.60.400 (1998) (passed as Initiative 200). In addition, Florida Governor Jeb Bush eliminated affirmative action in college admissions via Executive Order 99-821 (the One Florida Initiative), preempting a vote on a nearly identical ballot measure in Florida in the 2000 election. See also Michele S. Moses, John T. Yun & Patricia Marin, *Affirmative Action’s Fate: Are 20 More Years Enough?*, EDUC. POL’Y ANALYSIS ARCHIVES, Sept. 10, 2009, available at <http://epaa.asu.edu/ojs/article/view/22/20.election>).

⁵ See, e.g., Richard Pérez-Peña, *To Enroll More Minority Students, Colleges Work Around the Courts*, N.Y. TIMES (Apr. 1, 2012), <http://www.nytimes.com/2012/04/02/us/college-affirmative-action-policies-change-with-laws.html?pagewanted=all>.

⁶ See *id.*

⁷ See, e.g., RICHARD D. KAHLENBERG, *THE REMEDY: CLASS, RACE, AND AFFIRMATIVE ACTION* 83–120 (1997); Richard H. Sander, *Experimenting With Class-Based Affirmative Action*, 47 J. LEGAL EDUC. 472, 474–76 (1997).

⁸ See, e.g., Tung Yin, *A Carbohic Smoke Ball for the Nineties: Class-Based Affirmative Action*, 31 LOY. L.A. L. REV. 213, 215 (1997); Abigail Thernstrom, *A Class Backwards Idea; Why Affirmative Action for the Needy Won’t Work*, WASH. POST, June 11, 1995, at C1; Christopher Caldwell, *The Meritocracy Dodge*, WKLY. STANDARD (July 14, 1997), <http://www.weeklystandard.com/Content/Protected/Articles/000/000/008/538juivv.asp>.

In 2008, the State of Colorado faced the possibility of the elimination of affirmative action by means of “Amendment 46,” a ballot initiative that presented voters with the prospect of a state constitutional amendment prohibiting any consideration of race in education, employment, and public contracting.⁹ The consensus around Colorado was that the ballot initiative was bound to pass.¹⁰ It was a copycat initiative that had first been introduced in California in 1996 and had since passed in every state in which it was put on the ballot.¹¹ But on November 4, 2008, the citizens of Colorado voted “no” on Amendment 46.¹²

In anticipation of the vote, Colorado’s flagship public institution—the University of Colorado at Boulder (CU or the University)—started to look for alternative admissions approaches that would meet the University’s interest in admitting a broadly diverse class while complying with a ban on race-conscious admissions, should that ban become law. To this end, the University explored new statistical approaches to identify and give an admissions “boost” to students disadvantaged by socioeconomic status.¹³ Using a nationally representative data set,¹⁴ CU developed operational definitions of socioeconomic disadvantage that could be applied in admissions decisions. The University conducted randomized experiments to estimate the effects of implementing this class-based approach on both the racial and socioeconomic diversity of accepted classes.¹⁵ This article explains the development, implementation, and evaluation of this method of identifying disadvantaged and overachieving applicants in undergraduate admissions.¹⁶

The findings from CU’s early experimentation with class-based affirmative action are significant on several fronts. First, in marked contrast to pre-

⁹ See Melissa Hart, *The State-by-State Assault on Equal Opportunity*, 3 *ADVANCE* 159, 159–71 (2009).

¹⁰ *Id.* at 171.

¹¹ See *id.*

¹² See MICHELE MOSES ET AL., INVESTIGATING THE DEFEAT OF COLORADO’S AMENDMENT 46: AN ANALYSIS OF THE TRENDS AND PRINCIPAL FACTORS INFLUENCING VOTER BEHAVIORS 3 (2010), available at <http://www.civilrights.org/publications/colorado-46/2010-11-12-defeat-of-amendment46-report-final.pdf>.

¹³ In the context of college admissions, a “boost” is defined as an increased likelihood of admission associated with some applicant characteristic such as legacy status, race, or geography. In the research literature, an admissions boost is sometimes quantified as the increase in the odds of admission and elsewhere quantified in terms of SAT points. See, e.g., RICHARD D. KAHLBERG & HALLEY POTTER, A BETTER AFFIRMATIVE ACTION: STATE UNIVERSITIES THAT CREATED ALTERNATIVES TO RACIAL PREFERENCES 5, 20 (2012), available at <http://tcf.org/assets/downloads/tcf-abaa.pdf>.

¹⁴ *Education Longitudinal Study of 2002: Base Year to Second Follow-up Public-Use Data*, NAT’L CENTER FOR EDUC. STAT. (Mar. 17, 2010), <http://nces.ed.gov/pubsearch/pubinfo.asp?pubid=2010338> [hereinafter *Education Longitudinal Study of 2002*].

¹⁵ Historical data was also examined to estimate the likelihood of college success for beneficiaries of class-based affirmative action. This aspect of the study is part of a forthcoming paper.

¹⁶ Disadvantage, in this context, is present when socioeconomic factors align to diminish an applicant’s life chances. Overachievement is observed when an applicant’s academic performance in high school exceeds the performance of students with similar socioeconomic backgrounds.

vious simulations and empirical studies, CU's admissions boost based on class had significant positive impact on both socioeconomic and racial diversity of admitted students. Second, while most research on affirmative action has been done at highly selective institutions, the implications of the CU study are more likely relevant for other moderately selective public institutions—the type of school that serves more than half of the college-going population.¹⁷ Third, this study is the first empirical analysis of *admissions decisions*, as opposed to class composition, under any type of class-based affirmative action program. This distinction is an important one because enrollment decisions made by students are influenced by a wide range of factors beyond the admissions policy implemented by the school.¹⁸ This study presents a viable admissions approach that could be adopted by schools around the country as either an alternative to or an enhancement of current policy.

We begin in Part II with a brief history of class-based affirmative action, exploring the questions of definition and motivation that have hampered efforts to develop robust class-based admissions plans. Part III sets out the CU study, explaining the objectives, statistical methods, and data that were central to the plan's development and the results of the policy as applied to entering students. In Part IV, we consider some of the implications of this study for the future development of class-based affirmative action policies at other institutions.

Even if the Supreme Court upholds *Grutter*, colleges and universities should consider supplementing their current admissions policies with this approach. Because socioeconomic status is not a “suspect classification” under the Fourteenth Amendment’s Equal Protection Clause,¹⁹ class-based policies are not subject to the same legal uncertainties that face race-con-

¹⁷ See generally THOMAS D. SNYDER & SALLY A. DILLON, NAT'L CTR. FOR EDUC. STATISTICS, DIGEST OF EDUCATION STATISTICS 2009 282 (2010).

¹⁸ There are some factors that will go into matriculation decisions that a school can influence but that are unrelated to admissions policies. Financial aid and recruitment efforts are two of the most obvious. There are other factors that a school cannot influence, such as the financial aid and other policies of competing institutions. This article is focused specifically on how a school's approach to admissions decisions might impact the class or racial composition of the admitted students. By looking specifically at admissions, rather than enrollment, we avoid the “noise” of these confounding factors.

¹⁹ The Equal Protection Clause provides that no State shall “deny to any person within its jurisdiction the equal protection of the laws.” U.S. CONST. amend. XIV, § 1. The Supreme Court has developed a framework for evaluating government classifications that subjects them to different levels of review depending on the nature of the classification. Classifications based on race are subject to the most stringent review and can only be justified when they are “narrowly tailored to further compelling governmental interests.” *Grutter v. Bollinger*, 539 U.S. 306, 326 (2003). Classifications based on economic status, by contrast, are subject to deferential review, and will be upheld so long as the classification “bears a rational relation to some legitimate end.” *Romer v. Evans*, 517 U.S. 620, 631 (1996); see also *San Antonio Indep. Sch. Dist. v. Rodriguez*, 411 U.S. 1, 28–29 (1973) (rejecting argument that wealth-based classifications should be subject to more stringent review).

scious admissions policies.²⁰ Moreover, they target a group of applicants who have faced significant disadvantage and whose inclusion in the university community is an essential part of authentic diversity and equal opportunity. Regardless of this year's outcome for race-conscious affirmative action, we can expect continuing legal challenges.²¹ Schools would be wise to do their work now so that future admissions policies are not adopted in the scramble of legal uncertainty.²²

II. A BRIEF HISTORY OF CLASS-BASED AFFIRMATIVE ACTION

Higher-education admissions policies are controversial. While there is general agreement that the collection of factors we consider in admitting students to college or graduate school ought to be a reflection of our values,²³ there is significant disagreement about what those values are or should be. What would it say about a school's values if it were to admit students based exclusively on SAT scores? Based on high-school class rank? Race or ethnic background? Athletic ability? Musical talent? Legacy status? Economic background? Each of these choices reflects a set of assumptions and values, and each time a choice is made to include or exclude any of these elements in the admissions process, it reflects a value judgment by the school.

²⁰ Some commentators have queried whether race-neutral policies adopted with an eye to achieving racial diversity would be legally suspect. *See, e.g.,* Kim Forde-Mazrui, *The Constitutional Implications of Race-Neutral Affirmative Action*, 88 GEO. L.J. 2331, 2333 (2000); Deborah C. Malamud, *Assessing Class-Based Affirmative Action*, 47 J. LEGAL EDUC. 452, 458 (1997) ("The race-neutral camp is likely to scrutinize class-based affirmative action programs to make sure that the variables and measurement techniques were not designed to achieve racial effects. Indeed, the Fifth Circuit has signaled that it will treat the design of race-neutral affirmative action programs as an issue of constitutional significance, and that any effort to smuggle race in through the back door will be met with heightened scrutiny."). But the Supreme Court has concluded that race-neutral programs would be an appropriate approach for the government to take to address racial inequality. *See, e.g.,* Adarand Constructors, Inc. v. Peña, 515 U.S. 200, 212–13 (1995); *City of Richmond v. J.A. Croson Co.*, 488 U.S. 469, 509–10 (1989). Thus, the likelihood of successful litigation seems low. *See* Neil Goldsmith, *Class-Based Affirmative Action: Creating a New Model of Diversity in Higher Education*, 34 WASH. U. J.L. & POL'Y 313, 315–16 (2010). Of course, if a college or university adopted a class-based plan with the stated intent of ensuring that a sufficient number of minority students were admitted under the plan, that kind of explicit statement of intent might well lead to litigation.

²¹ *See* sources cited *supra* note 3.

²² *See, e.g.,* Eboni S. Nelson, *What Price Grutter? We May Have Won the Battle, but Are We Losing the War?*, 32 J.C. & U.L. 1, 19 (2005) ("In light of the Court's forewarning of the eventual termination of race-based affirmative action, colleges and universities should take advantage of this transition period that affords them the opportunity to employ both race-based and race-neutral measures simultaneously.").

²³ *See, e.g.,* WILLIAM BOWEN & DEREK BOK, *THE SHAPE OF THE RIVER: LONG-TERM CONSEQUENCES OF CONSIDERING RACE IN COLLEGE AND UNIVERSITY ADMISSIONS* 15 (1998); MICHELE S. MOSTES, *EMBRACING RACE: WHY WE NEED RACE-CONSCIOUS EDUCATION POLICY* 6 (2002).

Few, if any, schools admit students exclusively based on their standardized test scores or high-school GPAs. Instead, admissions officers seek to balance the competing values embodied in the range of factors that might inform an admissions decision. The reality of this complicated balance has been lost in much of the public debate about race-conscious affirmative action. Opponents of race-conscious affirmative action have been extremely successful in portraying admissions decisions as presenting choices between “merit” and “diversity.”²⁴ While this idea of a simple binary choice does not reflect the realities of the admissions process, it does define the way courts, commentators and politicians now talk about the process.²⁵ For the education experts who actually make admissions policy choices, though, the reality of the complexities of the process cannot be ignored. When race-conscious affirmative action has been most threatened, schools have not generally considered it reasonable to ignore diversity entirely and consider only “merit” in admissions.²⁶ Instead, uncertainty about race-conscious admissions policies has more frequently led to calls for class-conscious affirmative action as an alternative.

There are several possible explanations for the persistent interest in maintaining some form of affirmative action in higher-education admissions policies. For most schools, an ideal college campus is one that includes “groups and individuals who historically have faced institutional barriers, where the quality of education is enhanced and enriched by a diverse campus community, and where the entire campus benefits from participation in a multicultural community.”²⁷ The educational mission of colleges and universities includes a commitment to prepare their graduates to lead in diverse workplaces in a complex society. To effectively achieve this goal, schools must ensure that they serve a population whose diversity bears some connection to the diversity of the society the students will graduate into.

Moreover, it has long been one of the principles underlying our system of education that, as then-Massachusetts Secretary of Education Horace Mann said in 1848, “Education then, beyond all other devices of human origin, is a great equalizer of the conditions of men—the balance wheel of

²⁴ See, e.g., WARD CONNERLY, CREATING EQUAL: MY FIGHT AGAINST RACE PREFERENCES 145 (2000); Wendy Kopp, *Diversity and Merit in College Admissions: A False Dichotomy*, HUFFINGTON POST (Oct. 10, 2012, 10:34 AM), http://www.huffingtonpost.com/wendy-kopp/college-admissions-fisher-v-university-of-texas_b_1953144.html.

²⁵ See, e.g., Eric Hoover, *Merit vs. Diversity*, CHRON. HIGHER EDUC. (Jan. 17, 2013, 11:32 PM), <http://chronicle.com/blogs/headcount/merit-vs-diversity/33439>.

²⁶ The question of what constitutes “merit” is itself a complex one. To identify merit solely by test scores and grades is to ignore a broad range of qualities and skills that are equally important to assessing an applicant’s quality.

²⁷ See, e.g., *Office of Diversity, Equity and Community Engagement: Vision and Mission*, UNIV. COLO. BOULDER, <http://www.colorado.edu/odece/about/index.html> (last visited May 18, 2013).

the social machinery.”²⁸ In the face of historical and persistent inequality, educational opportunity is among the best tools for increasing equal opportunity more broadly.

With those values in mind, scholars and administrators began exploring class-based affirmative action as a possible admissions approach about two decades ago.²⁹ For some, class-based affirmative action is attractive primarily as an alternative mechanism for maintaining racial diversity. For others, class-based affirmative action is attractive on its own terms. As Deborah Malamud has observed, supporters of class-based affirmative action are divided into two camps: “race-neutral” supporters, who favor class-based considerations solely as a remedy for economic hardship, and “race-conscious” supporters, who believe class-based considerations can augment or maintain racial diversity.³⁰ For both of these camps, there are underlying value assumptions that (1) access to higher education is a benefit that should be available to those who have overcome significant hardship and (2) school admissions policies should be developed to enhance equal opportunity and access.

A. *What Is Class-Based Affirmative Action?*

Class-based affirmative action comes under a variety of names. It is alternately referred to as “economic” or “socioeconomic” affirmative action, and in some cases loosely characterized as admissions preferences for the poor.³¹ Class-based policies are designed to place a “thumb on the scale” for applicants who have faced obstacles to upward mobility.³² Because demographic factors can present substantial obstacles to upward mobility, supporters of class-conscious affirmative action support this boost as a means to level the playing field. Socioeconomic status exerts a powerful

²⁸ David Rohde, Kristina Cooke & Himanshu Ojha, *The Decline of the ‘Great Equalizer,’* ATLANTIC (Dec. 19, 2012, 9:15 AM), <http://www.theatlantic.com/business/archive/2012/12/the-decline-of-the-great-equalizer/266455/> (quoting Horace Mann).

²⁹ See, e.g., KAHLBERG, *supra* note 7, at 83–120; Richard D. Kahlenberg, *Class, Not Race*, NEW REPUBLIC, Apr. 3, 1995, at 21; Richard D. Kahlenberg, *Equal Opportunity Critics*, NEW REPUBLIC, July 17, 1995/July 24, 1995, at 20; see also Steven A. Holmes, *The Nation; Mulling the Idea of Affirmative Action for Poor Whites*, N.Y. TIMES (Aug. 18, 1991), <http://www.nytimes.com/1991/08/18/weekinreview/the-nation-mulling-the-idea-of-affirmative-action-for-poor-whites.html?pagewanted=all&src=pm> (discussing the emerging idea of affirmative action based on socioeconomic status as opposed to race).

³⁰ Malamud, *supra* note 20, at 452–53; see also Richard H. Fallon, Jr., *Affirmative Action Based on Economic Disadvantage*, 43 UCLA L. REV. 1913, 1914–15 (1996) (describing the two distinct justifications for economically based affirmative action).

³¹ See, e.g., BOWEN & BOK, *supra* note 23, at 46; THOMAS J. ESPENSHADE & ALEXANDRIA W. RADFORD, *NO LONGER SEPARATE, NOT YET EQUAL: RACE AND CLASS IN ELITE COLLEGE ADMISSION AND CAMPUS LIFE* 348–55 (2009).

³² WILLIAM G. BOWEN, MARTIN A. KURZWEIL & EUGENE M. TOBIN, *EQUITY AND EXCELLENCE IN AMERICAN HIGHER EDUCATION* 178–83 (2005); see also KAHLBERG, *supra* note 7, at 101.

influence on one's likelihood of attending a four-year college.³³ This is especially true when students live in neighborhoods and attend schools where disadvantage is concentrated.³⁴ Moreover, socioeconomic status significantly impacts the academic measures (e.g., high-school GPAs and standardized-test scores) that admissions officers use to gauge applicants' college readiness.³⁵

While these obstacles to upward mobility are widely acknowledged, there is no clear consensus about "the definition and operationalization of economic inequality" for purposes of a class-based affirmative action policy.³⁶ The challenges inherent in designing such a policy stem, in large part, from disagreement about how to define "disadvantaged socioeconomic status" and then how to identify students who fit that definition without excessive intrusion and potential for fraud.³⁷ Two principal approaches—top X percent plans and individualized socioeconomic-status evaluation—have emerged as the most feasible among class-based policies.

1. *Top X Percent Plans*

Top X percent plans essentially guarantee college admission to students with a sufficiently high class rank in their graduating high-school class. This guarantee means that students from a broad range of neighborhoods, towns, and counties in a state will be admitted to college. Given socioeconomic and racial diversity among different parts of a city or state, top X percent plans have the potential to diversify an entering class of students.

Texas implemented the first top X percent plan in 1997, announcing that any student graduating from the top ten percent of a Texas high school was guaranteed admission into a state college or university, including the state's flagship institutions.³⁸ California followed suit with a commitment to

³³ See Therese Baker & William Vélez, *Access to and Opportunity in Postsecondary Education in the United States: A Review*, 69 SOC. EDUC. (SPECIAL ISSUE) 82, 83, 95 (1996); James C. Hearn, *The Relative Roles of Academic, Ascribed, and Socioeconomic Characteristics in College Destinations*, 57 SOC. EDUC. 22, 27–28 (1984); Edward L. McDill & James Coleman, *Family and Peer Influences in College Plans of High School Students*, 38 SOC. EDUC. 112, 112 (1965); Gary Orfield, *Public Policy and College Opportunity*, 98 AM. J. EDUC. 317, 336 (1990); Laura W. Perna, *Differences in the Decision to Attend College among African Americans, Hispanics, and Whites*, 71 J. HIGHER EDUC. (SPECIAL ISSUE) 117, 125 (2000).

³⁴ See John T. Yun & José F. Moreno, *College Access, K–12 Concentrated Disadvantage, and the Next 25 Years of Education Research*, 35 EDUC. RESEARCHER 12, 18 (2006).

³⁵ See Stephen V. Cameron & James J. Heckman, *The Dynamics of Educational Attainment for Black, Hispanic, and White Males*, 109 J. POL. ECON. 455, 492 (2001); Sylvia Hurtado, Karen K. Inkelas, Charlotte Briggs & Byung-Shik Rhee, *Differences in College Access and Choice Among Racial/Ethnic Groups: Identifying Continuing Barriers*, 38 RES. HIGHER EDUC. 43, 65 (1997); Phillip Kaufman & Xianglei Chen, *Projected Postsecondary Outcomes of 1992 High School Graduates* 8–10 (Nat'l Ctr. for Educ. Statistics, Working Paper No. 1999-15, 1999).

³⁶ See Deborah C. Malamud, *Class-Based Affirmative Action: Lessons and Caveats*, 74 TEX. L. REV. 1847, 1850 (1996).

³⁷ See, e.g., Sander, *supra* note 7, at 476–81.

³⁸ See Mark C. Long, *Race and College Admissions: An Alternative to Affirmative Action?*, 86 REV. ECON. & STAT. 1020, 1020–21 (2004).

guarantee admission to one of the state colleges or universities for students in the top four percent of their in-state high-school class who completed certain coursework.³⁹ And Florida guarantees admission to the top twenty percent of Florida high-school graduates, provided they complete a college preparatory curriculum.⁴⁰

Although relatively simple to implement, these plans have been met with some skepticism. As the population of students in Texas, California, and Florida has increased, serious concerns have arisen about the feasibility of guaranteeing admission to any predetermined percentage of graduating high-school students. In Texas, for example, the Legislature recently capped the total percentage of any University of Texas at Austin class that was made up of Top Ten Percent admits because the policy was effectively eliminating any flexibility and discretion in admissions decisions.⁴¹ Moreover, the effectiveness of a top X percent plan at increasing either socioeconomic or racial diversity depends on high-school communities being racially and economically segregated.⁴² While this reflects a sad reality of the current distribution of housing, it is morally problematic to rest an admissions policy on the continuation of segregated living. Finally, critics of top X percent plans have raised concerns about the potential “creaming” effect: even at extremely poor high schools, the most affluent students will likely rise to the top of the class.⁴³

2. *Individualized Evaluation of Socioeconomic Status*

Supporters of the class-based philosophy argue that the limitations of top X percent plans specifically should not reflect poorly on the prospects of class-based affirmative action in general.⁴⁴ These advocates stress the need to account for the varying obstacles *individual* applicants have faced—a consideration absent from top X percent plans. An individualized evaluation of socioeconomic status takes account of measurable factors related to socioeconomic hardship that are critical for flagging disadvantaged applicants.⁴⁵

Numerous colleges and universities now include socioeconomic status as some part of a holistic admissions process.⁴⁶ For example, the University

³⁹ *Id.* at 1020.

⁴⁰ *Id.*

⁴¹ See *Update on Texas Top 10% Plan for Your Students*, INTERCULTURAL DEV. RES. ASS'N, <http://www.idra.org/images/stories/Update%20on%20Texas%20Top%2010.pdf> (last visited May 18, 2013).

⁴² See Marta Tienda & Sunny Niu, *Flagships, Feeders, and the Texas Top 10% Plan: A Test of the “Brain Drain” Hypothesis*, 77 J. HIGHER EDUC. 712, 732 (2006).

⁴³ Anthony P. Carnevale & Stephen J. Rose, *Socioeconomic Status, Race/Ethnicity, and Selective College Admissions*, in AMERICA'S UNTAPPED RESOURCE: LOW-INCOME STUDENTS IN HIGHER EDUCATION 101, 150–51 (Richard D. Kahlenberg ed., 2004); see also Malamud, *supra* note 20, at 458.

⁴⁴ KAHLENBERG & POTTER, *supra* note 13, at 18–25.

⁴⁵ See Anthony P. Carnevale & Jeff Strohl, *How Increasing College Access Is Increasing Inequality, and What to Do About It*, in REWARDING STRIVERS: HELPING LOW-INCOME STUDENTS SUCCEED IN COLLEGE 71, 167–83 (Richard D. Kahlenberg ed., 2010).

⁴⁶ See, e.g., KAHLENBERG, *supra* note 7, at 123–24.

of Texas “Personal Achievement Index,” one part of the holistic review process, includes the following relevant factors: the applicant’s socioeconomic background, whether the applicant is from a single-parent home, the socioeconomic status of the applicant’s high school, the language primarily spoken in the applicant’s home, any special family responsibilities the applicant may have had, and the average SAT/ACT scores at the student’s high school compared to the student’s own score.⁴⁷ Each of these factors is designed to give some weight to disadvantaged socioeconomic status. Other schools have similar holistic review policies.⁴⁸

The consideration of class is, in fact, nothing new for admissions professionals. Admissions officers have long recognized and tried to account for the damaging effects of low socioeconomic status on likelihood of admission to a four-year college or institution.⁴⁹ As Bob Laird, former Dean of Admissions at the University of California, Berkeley, has explained, however, such considerations vary from institution to institution and are not often implemented systematically.⁵⁰ That uneven implementation seems to have resulted in a small net effect for class-based considerations. Recent analyses suggest that on average, universities still grant little to no preference to low-income college applicants.⁵¹

B. Does Class-Based Affirmative Action Work?

Whether class-based affirmative action is effective or not depends on what impact institutions or researchers intend the policy to have. One obvious benefit of an effective class-based affirmative action policy would be to increase the socioeconomic diversity of an admitted class. Most research on class-based programs, however, has not investigated this impact as a primary focus.⁵² Class-based approaches often take hold in the wake of a ban on race-conscious affirmative action. Because such class-based programs immediately follow—and implicitly replace—race-based programs, class-

⁴⁷ Brief for Respondents at 12–15, *Fisher v. Univ. of Tex.*, No. 11-345 (U.S. Aug. 6, 2012).

⁴⁸ See, e.g., Richard D. Kahlenberg, *Class-Based Affirmative Action*, 84 CALIF. L. REV. 1037, 1067 (1996) (cataloging schools with policies that give special consideration to students from disadvantaged backgrounds). In 1997, the UCLA School of Law experimented with a more sophisticated system of class-based preferences in admissions. Unlike the inclusion as one or several factors in a holistic review that has generally been the mechanism for considering class in college admissions, the UCLA approach gave a specific boost for class and sought to operationalize a definition of disadvantaged socioeconomic status that would capture the complexity of the concept. See Sander, *supra* note 7, at 482–87.

⁴⁹ See BOB LAIRD, *THE CASE FOR AFFIRMATIVE ACTION IN UNIVERSITY ADMISSIONS* 142–56 (2005).

⁵⁰ See *id.*

⁵¹ See WILLIAM G. BOWEN, M.A. KURZWEIL, & E.M. TOBIN, *EQUITY AND EXCELLENCE IN AMERICAN HIGHER EDUCATION* 161–93 (2005); ESPENSHADE & RADFORD, *supra* note 31, at 99; Carnevale & Rose, *supra* note 43, at 127–35.

⁵² Sander’s analysis of the UCLA School of Law class-based admissions system is an exception. See Sander, *supra* note 7. The UCLA experiment did find an increase in socioeconomic diversity.

based affirmative action is usually evaluated in terms of its success in maintaining levels of racial diversity.⁵³

For achieving diversity, class-sensitive admissions policies seem well suited to replace race-based affirmative action given the well-documented correlation among race, social class, and opportunity.⁵⁴ But up to now, the research on class-based policies has shown these policies to be poor substitutes for race-conscious admissions in maintaining racial diversity. The failure of top X percent plans to maintain levels of minority representation has been widely documented.⁵⁵ Individualized socioeconomic status evaluations have had similarly limited success.⁵⁶

The failures of these class-based approaches to achieve desired levels of racial diversity seem to vindicate the nearly unanimous conclusions of prominent affirmative action researchers that “[t]he correlation between income and race is not nearly high enough that one can simply serve as a proxy for the other.”⁵⁷ In *The Shape of the River*, William Bowen and Derek Bok used simulations to demonstrate that class-based policies would not be effective replacements for race-conscious affirmative action.⁵⁸ Bowen and Bok explain that race-based considerations at most selective universities offer a large admissions boost.⁵⁹ Even if universities were to grant low-income stu-

⁵³ See, e.g., Peter Hinrichs, *The Effects of Affirmative Action Bans on College Enrollment, Educational Attainment, and the Demographic Composition of Universities*, 94 REV. ECON. & STAT. 712 (2012); Mark C. Long & Marta Tienda, *Winners and Losers: Changes in Texas University Admissions Post-Hopwood*, 30 EDUC. EVALUATION & POL’Y ANALYSIS 255, 255 (2008).

⁵⁴ See ELIJAH ANDERSON, STREETWISE: RACE, CLASS, AND CHANGE IN AN URBAN COMMUNITY 7–55 (1990); CHRISTINE E. SLEETER, MAKING CHOICES FOR MULTICULTURAL EDUCATION: FIVE APPROACHES TO RACE, CLASS, AND GENDER 5–12 (2003); Jeanne Brooks-Gunn & Greg J. Duncan, *The Effects of Poverty on Children*, FUTURE CHILD., Summer/Fall 1997, at 55, 61–62.

⁵⁵ See, e.g., CATHERINE L. HORN & STELLA M. FLORES, THE CIVIL RIGHTS PROJECT, PERCENT PLANS IN COLLEGE ADMISSIONS: A COMPARATIVE ANALYSIS OF THREE STATES’ EXPERIENCES (2003), available at <http://civilrightsproject.ucla.edu/research/college-access/admissions/percent-plans-in-college-admissions-a-comparative-analysis-of-three-states2019-experiences/horn-percent-plans-2003.pdf>; Mark C. Long, *Affirmative Action and its Alternatives in Public Universities: What Do We Know?*, 67 PUB. ADMIN. REV. 315, 321–23 (2007); Long, *supra* note 38, at 1030–33; Long & Tienda, *supra* note 53; Lauren Saenz, Education Policy by Ballot Box: Examining the Impact of Anti-Affirmative Action Initiatives. (Jan. 3, 2011) (unpublished Ph.D. dissertation, University of Colorado at Boulder) (on file with author).

⁵⁶ See, e.g., Sander, *supra* note 7, at 473; Deborah C. Malamud, *A Response to Professor Sander*, 47 J. LEGAL. EDUC. 504, 504–09 (1997) (discussing the racial impact of UCLA’s class-based plan, and in particular its negative impact on black applicants).

⁵⁷ See NAT’L ACAD. OF EDUC., RACE-CONSCIOUS POLICIES FOR ASSIGNING STUDENTS TO SCHOOLS: SOCIAL SCIENCE RESEARCH AND THE SUPREME COURT CASES 42 (Robert L. Linn & Kevin G. Welner eds., 2007), available at <http://nepc.colorado.edu/files/Brief-NAE.pdf>; see also Thomas J. Kane, *Misconceptions in the Debate Over Affirmative Action in College Admissions*, in CHILLING ADMISSIONS: THE AFFIRMATIVE ACTION CRISIS AND THE SEARCH FOR ALTERNATIVES 17, 24–25 (Gary Orfield & Edward Miller eds., 1999) (“Class cannot be substituted for race in affirmative action admissions without substantial effects on campus diversity. The problem is in the numbers.”).

⁵⁸ BOWEN & BOK, *supra* note 23, at 15–52.

⁵⁹ *Id.* at 26–31; see also Long, *supra* note 38, at 1025–27.

dents “minority-size” boosts, racial diversity would plummet because minority status and poverty are not sufficiently correlated. These simulations have been reproduced in subsequent research, and their results are consistently confirmed.⁶⁰

As we discuss further below, the results of the CU study are contrary to these conclusions. The class-based approach developed at CU led to slightly increased admission rates for underrepresented-minority applicants. At least as important, the policy led to increased admission rates for students from disadvantaged backgrounds, serving the independent reasons for giving an admissions boost to students who have overcome the adversity attendant to economic disadvantage. Future research on class-based policies at colleges and universities should focus more attention on the effectiveness of these policies at increasing opportunity for these students. The study presented here takes an important first step in this direction.

III. THE UNIVERSITY OF COLORADO CLASS-BASED AFFIRMATIVE ACTION POLICY

As in many other states, it was the possible elimination of race-conscious affirmative action that first prompted Colorado’s flagship university to explore implementing a class-based policy. The introduction of Amendment 46 posed serious challenges to CU’s mission. It is the policy of the University to recruit and admit students possessing perspectives and life experiences that will provide a unique contribution to the campus environment. Moreover, CU seeks applicants who have overcome significant adversity, and is dedicated to building racial and socioeconomic diversity among its students.⁶¹ Because the ballot initiative had been successful in other states, and Amendment 46 was polling favorably in early 2008, the Office of Admissions feared it would lose a critical tool with the passage of this initiative.

Before 2008, socioeconomic status (SES) had been a factor that could be considered in the CU admissions process, but the University had never developed a systematic approach to considering class and giving students an admissions boost based on that consideration. University administrators were aware of the arguments for class-based affirmative action as a substitute for race-based policies, and had observed the mixed success achieved by other states that implemented class-based considerations once race-based policies were banned. The University hoped to improve upon class-based

⁶⁰ See BOWEN, KURZWEIL & TOBIN, *supra* note 51, at 178–93; ESPENSHADE & RADFORD, *supra* note 31; Thomas J. Espenshade & Chang Y. Chung, *The Opportunity Cost of Admission Preferences at Elite Universities*, 86 SOC. SCI. Q. 293, 296–303 (2005); Richard H. Sander, *A Systemic Analysis of Affirmative Action in American Law Schools*, 57 STAN. L. REV. 367, 468–478 (2004).

⁶¹ See *Office of Diversity*, *supra* note 27.

approaches developed in other states and in the scholarly literature.⁶² More specifically, the University sought to develop a class-based system that could (1) increase socioeconomic diversity on campus and (2) reasonably maintain minority representation, while complying with an anticipated ban on the consideration of race in college admissions.

A. *Selection of Data and Development of Indices*

The University of Colorado's class-based metrics differ from those implemented in other contexts—including top X percent plans or race-neutral admissions systems with individualized socioeconomic indicators. In this section, we elaborate on the conceptual foundation for CU's class-based system. Richard Kahlenberg's description of the goals embodied in class-based affirmative action was critical to the early-stage development of CU's approach.⁶³ Essentially, it is Kahlenberg's position that for many high-school students, socioeconomic obstacles prevent access to college and all the benefits (occupational prestige, increased wages) that subsequently accrue from attending college.⁶⁴ So, first, any class-based system seeking to compensate for those obstacles must recognize and attempt to account for socioeconomic barriers to college access. Second, Kahlenberg argues that many high-school students' academic credentials (e.g., SAT scores) are depressed by variables outside their control (e.g., family income).⁶⁵ Some such students perform much better than one would predict based on their backgrounds. The concept is not entirely novel; other researchers have labeled such students "strivers."⁶⁶

With these starting principles, CU sought to quantify the obstacles to life chances each applicant faced, and the extent to which that applicant had overcome those obstacles. Put another way, the University developed measures to capture two applicant traits—disadvantage and overachievement. "Obstacles to life chances" are construed as disadvantage, and that trait is quantified as the reduction, owing to socioeconomic circumstance, in an applicant's likelihood of attending a four-year college. This is the "Disadvantage Index." "Overcoming obstacles" is construed as overachievement, and that trait is quantified as the extent to which an applicant's academic credentials (SAT scores, ACT scores, and high-school GPA) exceed what is expected, conditional on socioeconomic factors. These are the "Overachievement Indices." The sections that follow elaborate on the statistical methods that underlie each Index.

⁶² See, e.g., KAHLBERG, *supra* note 7; Carnevale & Rose, *supra* note 43; Sander, *supra* note 7, at 476–81.

⁶³ See KAHLBERG, *supra* note 7, at 83–120.

⁶⁴ See *id.* at 86–101.

⁶⁵ See *id.*

⁶⁶ See Carnevale & Strohl, *supra* note 45, at 93.

1. *The Disadvantage Index*

The Disadvantage Index is derived from two prediction equations. Specifically, one number is calculated for each applicant: the marginal increase or decrease in the probability of four-year-college enrollment, owing to socioeconomic circumstance. The Disadvantage Index is based upon a logistic regression model, where the dependent variable is a binary indicator of enrollment in a four-year college in October following a student's graduation from high school. The binary logistic regression model is presented in the following equation:

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

In the model above, individuals are indexed by i ($i = 1, \dots, N$). The variable E_i takes a value of "1" if applicant i enrolls in a four-year college, and 0 otherwise. Let \mathbf{X}_i be a vector of academic credentials and \mathbf{Z}_i be a vector of socioeconomic measures for applicant i . Let β and ξ represent the two vectors of parameters associated with \mathbf{X}_i and \mathbf{Z}_i , respectively. The associations between academic credentials (\mathbf{X}_i) or socioeconomic measures (\mathbf{Z}_i) and college enrollment are quantified via parameters in β and ξ . So, for example, when a parameter estimate associated with a particular academic credential (say, SAT scores) is positive, increases in that academic credential translate to increases in the probability of college enrollment.

Independent variables used in this logistic model fall into three separate categories. Student-level socioeconomic variables (included in the vector \mathbf{Z}_i) are (1) whether the applicant's native language is English, (2) parents' highest education level, (3) family income level, and (4) the number of dependents in the family. High-school-level socioeconomic variables (also included in the vector \mathbf{Z}_i) are (5) whether the applicant attended a rural high school, (6) the school-wide percentage of students eligible for free or reduced-price lunch (%FRL), (7) the school-wide student-to-teacher ratio, and (8) the size of the 12th-grade class. Student-level academic credentials (included in the vector \mathbf{X}_i) are (9) high-school cumulative weighted GPA (HSGPA) and (10) the higher of two standardized-admissions-test scores (ACT composite or SAT combined). These Disadvantage Index predictors are presented in Table 1.

TABLE 1. *Socioeconomic and Academic Predictors for the Disadvantage Index*

Student-Level SES Predictors	High-School-Level SES Predictors	Student-Level Academic Predictors
Native Language English	Rural High School	High School GPA
Parents' Education	%FRL	ACT Composite
Family Income	Student-to-Teacher Ratio	SAT Combined
Dependents	12th-Grade Enrollment	

Of course, a low probability of enrolling in college does not necessarily signal disadvantage; a student's academic credentials may simply indicate he or she is not ready for college-level work. Thus, a further step is necessary for calculating the Disadvantage Index: two different probabilities are computed for any given applicant. The first is $\hat{P}(E_i = 1 | \hat{\beta}\mathbf{X}_i, \hat{\xi}\mathbf{Z}_i)$, which represents the probability that applicant i will enroll in college given his or her specific academic credentials (\mathbf{X}_i) and socioeconomic measures (\mathbf{Z}_i). The second is $\hat{P}(E_i = 1 | \hat{\beta}\mathbf{X}_i, \hat{\xi}\mathbf{Z}^*)$, which is identical to the first probability with one important change: the values for the socioeconomic variables are fixed at those of a "typical" applicant. This distinction is represented by the substitution of \mathbf{Z}^* for \mathbf{Z}_i . For continuous socioeconomic measures, the values for a "typical" applicant are defined as the mean from the full distribution of applicants. For categorical or ordinal predictors, values for the typical applicant are defined as the mode. Those typical values are presented in Table 2.

TABLE 2. *Socioeconomic Characteristics of the Typical CU Applicant*

Socioeconomic Variable	Value
Native Language English	Yes
Parents' Highest Level of Education	4-Year College
Family Income	\$100,000 - \$199,000
Dependents	2
Rural High School	No
%FRL	15
Student-to-Teacher Ratio	18
12th-Grade Enrollment	400

The Disadvantage Index (DI) represents the difference between the two probabilities defined above. Essentially, the DI value tells us how an applicant's socioeconomic background has impacted his or her chances of going to college. Larger negative values are interpreted as more disadvantage.⁶⁷

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

At this point it is useful to apply the Disadvantage Index equation above to an example applicant to illustrate how low socioeconomic status results in negative values for this index. To that end, let us consider James. His parents make between \$15,000 and \$35,000 per year. James is a native English speaker, and there are three dependents in James's family. Both his parents finished high school and attended some college, but neither graduated. Seventy percent of the students at James's high school are FRL eligible. James attends a rural high school, with one hundred students in the 12th-grade class and a school-wide student-to-teacher ratio of fifteen. His HSGPA is 2.7, and he scored 20 on the ACT. Computing a Disadvantage Index value for James requires regression coefficients (i.e., parameter estimates for β and ξ) for the logistic model underlying this index. Those estimates are presented in Table 3. Later in this section, we will discuss how these parameters were estimated.

The parameter estimates⁶⁸ in Table 3 enable calculation of James's Disadvantage Index. That calculation is performed via the sequence of equations below. First, James's probability of enrolling in a four-year college is calculated. The numbers in parentheses represent James's specific socioeconomic and academic values. Those numbers are multiplied by the corresponding parameter estimates given in Table 3.

$$\frac{\exp(-2.07 - 0.07(1) - 0.06(3) + 0.39 - 0.15(1) - 0.003(70) - 0.03(15) + 0.0001(100) + 0.86(2.7) + 0.6(-0.21))}{1 + \exp(-2.07 - 0.07(1) - 0.06(3) + 0.39 - 0.15(1) - 0.003(70) - 0.03(15) + 0.0001(100) + 0.86(2.7) + 0.6(-0.21))} = 0.391$$

Next, CU calculates James's probability of enrolling in a four-year college, with his socioeconomic characteristics fixed at values for a typical CU applicant. In the equation below, only the last two terms (associated with academic credentials) on the right-hand sides of the numerator and denominator refer specifically to James.

$$\frac{\exp(-2.07 - 0.07(1) + 0.11(2) + 0.71 - 0.15(0) - 0.003(15) - 0.03(18) + 0.0001(400) + 0.86(2.7) + 0.6(-0.21))}{1 + \exp(-2.07 - 0.07(1) + 0.11(2) + 0.71 - 0.15(0) - 0.003(15) - 0.03(18) + 0.0001(400) + 0.86(2.7) + 0.6(-0.21))} = 0.636$$

⁶⁷ For further clarification, a visual representation of this index is provided in Appendix A.

⁶⁸ The parameter estimates in Table 3 suggest that of all socioeconomic predictors, parents' education exhibits the strongest association with college enrollment. The coefficients in Table 3 are not readily interpretable; the exponential function must be applied to reveal how changes in the predictor variables are associated with changes in the odds of college enrollment. So, all else equal, students whose parents engaged in some postgraduate study are 2.4 times ($e^{0.88}$) more likely to enroll in college than students whose parents did not earn a high-school diploma.

TABLE 3. *Parameter Estimates for CU's Model of College Enrollment*

<i>Independent (Predictor) Variables</i>	<i>Log Odds Estimate</i>	<i>S.E.</i>
Intercept	-2.07	0.020
Native Language English	-0.07	0.008
Dependents * Income @ \$0 - \$14,999	-0.12	0.001
Dependents * Income @ \$15,000 - \$34,999	-0.06	0.001
Dependents * Income @ \$35,000 - \$49,999	-0.03	0.003
Dependents * Income @ \$50,000 - \$74,999	0.02	0.003
Dependents * Income @ \$75,000 - \$99,999	0.07	0.002
Dependents * Income @ \$100,000 - \$199,999	0.11	0.002
Dependents * Income @ \$199,000+	0.18	0.001
Parents' Highest Level of Education		
No/Some High School	0	
High School Graduate	0.13	0.006
Some College	0.39	0.004
2-year College Graduate	0.52	0.005
4-year College Graduate	0.71	0.002
Postgraduate Study	0.88	0.001
Rural High School	-0.15	0.006
High School Percent F/R Lunch	-0.003	<0.001
Student-to-Teacher Ratio	-0.03	0.001
Size of 12th-Grade Class	0.0001	<0.001
High School Weighted GPA	0.86	0.004
Highest Test Score, Standardized	0.60	0.003
<i>Model Summary Statistics</i>		
Nagelkerke R ²	0.31	
-2 Log Likelihood	1130118.6	

Finally, James's Disadvantage Index value represents the difference between the two probabilities computed above:

$$DI_{\text{James}} = 0.391 - 0.636 = -0.245 = -24.5\%$$

So, relative to the SES of a typical CU applicant, James's low SES has reduced his estimated probability of enrolling in college by 24.5 percentage points. Later in this section, we discuss CU's approach to determining which values for this index represent substantial disadvantage.

2. *The Overachievement Indices*

The three Overachievement Indices are derived from three prediction equations.⁶⁹ Two to three values are calculated for each applicant, as a func-

⁶⁹ Development of the Overachievement Indices followed the work of Roger Studley at the University of California, Berkeley. Roger E. Studley, *Inequality, Student Achievement*,

tion of that applicant’s (1) high-school cumulative weighted GPA, (2) ACT composite score, and (3) SAT combined score.⁷⁰ The Overachievement Indices’ prediction equations are based on three separate multiple-regression models, where the dependent variables in each case are (1) HSGPA, (2) ACT composite score, and (3) SAT combined score.⁷¹ The general form is as follows:

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

In the model above, individuals are indexed by i ($i = 1, \dots, N$). Y_i is the value for the academic credential under examination (HSGPA, ACT, or SAT). Let \mathbf{K}_i be a vector of socioeconomic measures. Let $\boldsymbol{\theta}$ be a vector of parameters associated with \mathbf{K} . The unobserved error term is represented by ε_i . Independent variables (i.e., the vector \mathbf{K}_i) used in the Overachievement Index are nearly identical to the socioeconomic variables employed in the Disadvantage Index. Student-level variables include (1) the applicant’s native language, (2) single-parent status, (3) parents’ education level, (4) family-income level, and (5) the number of dependents in the family. High-school-level socioeconomic variables include (6) whether the applicant attended a rural high school, (7) %FRL, (8) student-to-teacher ratio, and (9) the size of the 12th-grade class. The associations between socioeconomic measures (\mathbf{K}_i) and academic credentials (Y_i) are quantified via parameters in $\boldsymbol{\theta}$. So, when a parameter estimate associated with a particular socioeconomic measure (say, family income) is positive, increases in that socioeconomic measure translate to increases in the academic credential. The Overachievement Indices’ predictors are presented in Table 4 below.

TABLE 4. *Socioeconomic Predictors for the Overachievement Indices*

Student-Level SES Predictors	High-School-Level SES Predictors
Native Language English	Rural High School
Single Parent	%FRL
Parents' Education	Student-to-Teacher Ratio
Family Income	12th-Grade Enrollment
Dependents	

and College Admissions: A Remedy for Underrepresentation, CENTER FOR STUD. HIGHER EDUC. RES. & OCCASSIONAL PAPER SERIES, Feb. 2003, No. CSHE.1.03, available at <http://repositories.cdlib.org/cshe/CSHE1-03>.

⁷⁰ Because applicants to CU are required to take *either* the ACT or the SAT, most applicants (roughly 73%) have an Overachievement Index for only one of those two admissions tests.

⁷¹ For the Overachievement Indices, SAT scores represent the sum of scores on the math and verbal sections of the SAT.

For any given academic credential Y , the Overachievement Index (OI) value for applicant i is based on e_i , the residual from the multiple regression above.⁷²

$$OI_i = e_i = Y_i - \hat{\theta}K_i$$

The OI values tell us how an applicant's high-school academic credentials compare to those of students with similar socioeconomic backgrounds. Rather than reporting a student's raw HSGPA or test scores, this approach estimates the student's achievement beyond what is predicted by his or her socioeconomic circumstance. The difference between what was predicted for a given applicant and what he or she actually achieved functions as a measure of achievement beyond circumstance. Positive values are interpreted as overachievement.

Again, it may be helpful to apply one Overachievement Index equation (the SAT measure) to an example applicant. This time, let us consider Sandra. Sandra's mother makes between \$35,000 and \$60,000 annually. Sandra is a native English speaker, and she is an only child living with a single parent. Her mother attended some college, but did not graduate. Sandra attends an urban high school where forty percent of the students are eligible for free or reduced-price lunch. There are five hundred students in her 12th-grade class, and the school-wide student-to-teacher ratio is fifteen. Sandra has earned a 3.1 GPA in high school and scored 1170 on the SAT. As with the previous example, computing an Overachievement Index (SAT) value requires the parameter estimates for θ . Those are provided in Table 5.

The parameter estimates⁷³ in Table 5 enable calculation of Sandra's Overachievement Index (SAT), and that calculation is presented via the sequence of equations below. First, her predicted SAT score—conditional on socioeconomic measures—is computed. The numbers in parentheses represent Sandra's socioeconomic values; those numbers are multiplied by the corresponding parameter estimates shown in Table 5.

$$\begin{aligned} 923.25 - 16.96(1) - 38.53(1) - 6.54(1) + 34.82 + 56.01 - 7.77(0) - 2.53(40) - 0.04(500) + 3.8(15) \\ = 888 \end{aligned}$$

Next, the Overachievement Index (SAT) is computed by subtracting Sandra's SES-predicted SAT combined score from her observed score.

$$OI_{\text{Sandra}} = 1170 - 888 = 282$$

So, Sandra has scored 282 points above the average SAT combined score of students with similar socioeconomic backgrounds. Later in this sec-

⁷² For further clarification, a visual representation of the Overachievement Indices is provided in Appendix B.

⁷³ A one-unit increase in any predictor variable (e.g., single-parent status) is associated with a change in the outcome variable (e.g., SAT combined score) equal to the parameter estimate. So, single-parent status, all else equal, translates to a thirty-nine-point decrease in predicted SAT score. In each case, increases in parents' education and income are associated with increases in academic credentials, while increases in %FRL are associated with decreases in academic credentials.

TABLE 5. *Parameter Estimates for CU's Models of HSGPA, ACT scores, and SAT scores*

<i>Independent (Predictor) Variables</i>	<i>HSGPA</i>		<i>ACT Composite</i>		<i>SAT Combined</i>	
	<i>OLS</i>		<i>OLS</i>		<i>OLS</i>	
	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>	<i>Estimate</i>	<i>S.E.</i>
Intercept	2.60	0.005	16.81	0.044	923.25	1.680
Native Language English	-0.05	0.002	0.94	0.021	-16.96	0.809
Single Parent	-0.19	0.002	-0.96	0.015	-38.53	0.643
Dependents	-0.03	0.001	-0.15	0.004	-6.54	0.200
Income @ \$0 - \$14,999	0.00		0.00		0.00	
Income @ \$15,000 - \$34,999	0.03	0.002	0.28	0.010	16.02	0.320
Income @ \$35,000 - \$49,999	0.07	0.001	0.54	0.009	34.82	0.540
Income @ \$50,000 - \$74,999	0.09	0.001	0.87	0.003	58.11	0.160
Income @ \$75,000 - \$99,999	0.13	<0.001	1.19	0.001	72.40	0.620
Income @ \$100,000 - \$199,999	0.17	<0.001	1.45	0.006	88.30	0.560
Income @ \$199,000+	0.19	0.002	1.74	0.007	105.61	1.400
Parents' Highest Level of Education						
No/Some High School	0.00		0.00		0.00	
High School Graduate	0.09	0.002	0.71	0.010	29.60	0.650
Some College	0.16	0.001	1.45	0.003	56.01	0.740
2-year College Graduate	0.26	0.003	2.01	0.012	88.14	1.610
4-year College Graduate	0.33	<0.001	2.93	0.001	117.43	0.800
Postgraduate Study	0.46	0.003	3.52	0.002	146.34	0.980
Rural High School	0.13	0.002	0.61	0.014	-7.77	0.639
High School Percent F/R Lunch	-0.004	<0.001	-0.05	<0.001	-2.53	0.017
Size of 12th-Grade Class	-0.0002	<0.001	0.0001	<0.001	-0.04	0.001
Student-to-Teacher Ratio	0.03	<0.001	0.12	0.002	3.80	0.065
<i>Model Summary Statistics</i>						
R ²	0.12		0.19		0.19	
Standard Error of the Estimate	0.69		4.31		180	

tion we discuss an approach to determining which values represent substantial overachievement.

3. *Data Sources*

The parameters in the Indices' regression models (i.e., β , ξ , and θ) were estimated using extant data. For these estimates, the University of Colorado's class-based system relies on the Education Longitudinal Study (ELS) database.⁷⁴ The ELS data contain information on a nationally representative cohort of students followed through high school and postsecondary endeavors from 2002 to 2006. The ELS database is the most complete resource available for quantifying the relationships between socioeconomic status, high-school academic credentials, and four-year college enrollment. Historically, CU has not collected detailed socioeconomic data from its applicants; nor has it investigated whether applicants who did not come to CU eventually enrolled in another four-year institution. Because ELS collected socioeconomic and academic data from respondents in high school, and tracked

⁷⁴ See *Education Longitudinal Study of 2002*, *supra* note 14.

students' progress beyond high school, this database was uniquely suited for constructing the Disadvantage and Overachievement Indices. Moreover, ELS allowed CU to avoid a weakness of other class-based approaches—the reliance on simulated enrollment outcomes rather than empirical enrollment data.

4. *Choosing Socioeconomic Variables*

In theory, the list of variables used as predictors in the Indices' regression models could be expanded. One could conceive of additional variables not included in these models that nonetheless explain variation in college enrollment or high-school academic credentials. The University of Colorado's class-based measures are subject to data constraints, which merit explanation here. Two preliminary criteria had to be met in order for an independent variable to be included in the Indices' regression models. First, data on that variable needed to be available for the CU applicant pool, either through the student application for admission or an otherwise reliable source (e.g., high-school-level data were pulled from the NCES Common Core of Data). Second, the variable needed to be present in the ELS data. These criteria immediately eliminated some potentially useful explanatory variables from the development of the Indices. For example, exploratory analyses in ELS indicated that the percentage of students in an applicant's high school who enrolled in a postsecondary institution may impact that applicant's likelihood of attending college. This predictor could not be included in the Disadvantage Index because, while it is present in ELS, it is not readily available for CU applicants. In addition, it is reasonable to suspect status as a foster child might affect a student's likelihood of attending college. Unfortunately, while this information is collected from CU applicants, it is not available in ELS.

B. Implementation of the Indices in Admissions Decisions

Once the parameters for the regression models were estimated and the Indices' prediction equations were formed, CU established numerical thresholds along each Index's scale to establish successive categories of disadvantage or overachievement. Categories were necessary because the Indices represented unfamiliar scales for admissions personnel. Defining categories helped admissions staff determine the values that represent substantial disadvantage or overachievement. Under the Disadvantage Index, those categories are "no disadvantage," "moderate disadvantage," and "severe disadvantage." Overachievement categories are "no overachievement," "high overachievement," and "extraordinary overachievement." We present the thresholds that define these categories in Table 6.

TABLE 6. *Disadvantage and Overachievement Thresholds for the Indices*

Measure	Threshold	Measure	Threshold
Disadvantage Index		Overachievement Index (SAT)	
Moderate Disadvantage	-6.3%	High Overachievement	151
Severe Disadvantage	-19.0%	Extraordinary Overachievement	273
Overachievement Index (HSGPA)		Overachievement Index (ACT)	
High Overachievement	0.57	High Overachievement	3.9
Extraordinary Overachievement	1.06	Extraordinary Overachievement	7.5

With these thresholds in mind, let us return to the example applicants, Sandra and James. Both are flagged by the Indices. Specifically, Sandra’s Overachievement Index (SAT) value of 282 places her in the “extraordinary overachievement” category. James’s reduced chances of college enrollment (a Disadvantage Index value of –24.5 percentage points) places him in the “severe disadvantage” category.

Utilization of the Indices by admissions personnel relies on these categories. Applicants like Sandra and James—those who experience moderate or severe disadvantage or exhibit high or extraordinary overachievement—are granted additional consideration (i.e., given a boost) during application review. No applicant identified under either Index may be refused admission outright; any application exhibiting disadvantage or overachievement must, at the very least, be referred to a committee of admissions officers for holistic review (i.e., a comprehensive second look). Additionally, identification under either Index can serve as a *primary* or *secondary* factor for admission without further review. Primary and secondary factors comprise all measures and indicators admissions officers use to evaluate undergraduate applications. Secondary factors in the admissions process are generally less influential. Underrepresented minority (URM)⁷⁵ status and legacy status are examples of secondary factors. Primary factors, however, are quite influential. They include, among other things, standardized-test scores and high-school course-taking patterns. As such, identification under the Disadvantage and Overachievement Indices can wield powerful influence over an applicant’s prospects for admission. Table 7 below details the implementation of the Indices in admissions decisions. In Table 7, “high overachievement” and “extraordinary overachievement” refer to any of the Overachievement Index values (i.e., GPA or test scores). An applicant need only overachieve on one of these measures to earn additional consideration.

⁷⁵ At the University of Colorado, as at many other schools, URM refers to blacks, Latinos, and Native Americans.

TABLE 7. *Additional Consideration Granted to Disadvantaged and Overachieving Applicants*

	No Overachievement	High Overachievement	Extraordinary Overachievement
No Disadvantage	No additional consideration	<i>Secondary</i> factor boost	<i>Primary</i> factor boost
Moderate Disadvantage	<i>Secondary</i> factor boost	<i>Primary</i> factor boost	<i>Primary</i> factor boost
Severe Disadvantage	<i>Primary</i> factor boost	<i>Primary</i> factor boost	<i>Primary</i> factor boost

Table 7 illustrates how applicants like Sandra and James are handled under CU's class-based approach. Recall that Sandra has a high-school GPA of 3.1 and a combined score of 1170 on the SAT. With respect to raw academic credentials, Sandra's application is not extraordinarily strong. She is on the cusp of admission to CU. However, according to the thresholds elaborated in Table 6, Sandra has demonstrated extraordinary overachievement. We will not detail the arithmetic that produces other Index values for Sandra, but it is important to note that her Disadvantage Index value does not cross any thresholds. Therefore, Sandra is located in the right-hand column, first row of Table 7. She has earned a primary factor boost, which will considerably increase her chances of acceptance.

At this point, a reasonable question may be posed: Why use two indices? More specifically, if the Overachievement Indices effectively adjust high school academic credentials for the socioeconomic variables that influence them, what more is required of class-based affirmative action? Why measure disadvantage? The need for the Disadvantage Index may be best illustrated by way of our other example applicant—James. First, James's academic credentials (HSGPA of 2.7 and a composite score of 20 on the ACT) are roughly where one would expect them to be given James's background, so he is not identified by the Overachievement Indices. Still, he is flagged as having experienced "severe disadvantage," so James receives a primary factor boost. He would be located in the left-hand column, bottom row of Table 7.

James is not flagged by the Overachievement Indices, but he possesses relevant qualifications that CU would like to recognize in its undergraduate admissions process. That is, while his raw academic credentials may not understate his potential, when James enters CU he will be able to draw on life experiences that most of his undergraduate peers will not. Thus, James

should bring views and perspectives to the University that would be absent were he refused admission. Significantly, the Overachievement Indices are not designed to identify the traits James exhibits. It is the Disadvantage Index that reveals relevant qualifications in this case.

The Index definitions presented above, coupled with the implementation procedures detailed in Table 7, form the conceptual grounding for CU's system of class-based affirmative action. In the section that follows, we introduce two experiments. These tasks were designed to investigate the effects of putting this system to use. The analyses presented here address the extent to which implementing CU's class-based affirmative action policy changes the likelihood of acceptance for low-SES and minority students.⁷⁶

C. Studying the Impact of the New System

In this section, we detail two experiments designed to gauge the impact of implementing class-based affirmative action at CU. The first experiment was conducted in 2009, and the second took place in 2010. Below, we discuss each experiment in turn. Our analyses focused on four outcomes: (1) overall acceptance rates, (2) socioeconomic diversity, (3) racial diversity, and (4) academic quality. As such, each discussion of results is parsed according to these four outcomes.

1. 2009 Experiment: Class-Based Versus Race-Based Admissions

In November 2008—after the initial development of this class-based system—the ballot initiative that would have banned race-conscious affirmative action in Colorado was defeated. The voters' rejection of this measure presented CU with an opportunity to further “beta test” the Disadvantage and Overachievement Indices. To gauge the effect of implementing a class-based approach to *replace* race-based admissions, this study used a small-scale repeated-measures experimental design that included 480 applications randomly selected from the full 2009 applicant pool. Of the 480 applications sampled, 478 had sufficient information to be included in this experiment. Table 8 presents demographic characteristics for this sample, including both SES⁷⁷ and URM⁷⁸ representation.

⁷⁶ A second question, “What is the likelihood of college success for students admitted under CU's class-based policy?,” was also part of the initial study. The study results on that question will be the subject of a subsequent paper.

⁷⁷ For ease of presentation, a low-SES applicant is defined as having *either* low parental income (less than \$60,000) or low parental education (neither parent received a college degree). Severely low-SES applicants exhibit *both* low parental income and low parental education.

⁷⁸ Hypothesis testing was carried out using McNemar's test of correlated proportions. See Quinn McNemar, *Note on the Sampling Error of the Difference Between Correlated Proportions or Percentages*, 12 *PSYCHOMETRIKA* 153, 153–57 (1947).

TABLE 8. *Demographic Characteristics, 2009 Experimental Sample*

Applicant Type	N	Percentage of Total Sample
All Applicants	478	100%
Low SES	121	25%
Severely Low SES	35	7%
URM	48	10%

Each of the selected applications had already been reviewed under the race-based policy. An additional review of each sampled application was conducted using CU's class-based approach,⁷⁹ with all race identifiers removed. Ten admissions officers participated in this experiment. Each reviewed roughly fifty applications, and no reviewer evaluated the same application twice. In this experimental framework, each application functions as its own counterfactual; we observe both the outcome of the "treatment" (i.e., class-based affirmative action) and what would otherwise have occurred had the treatment not been administered (i.e., the "control" condition: race-based affirmative action).⁸⁰ It is critical to note that the differences between the treatment and control conditions are twofold. First, the treatment condition involves a class-based application review, while the control condition uses a race-based review. Second, given sufficient disadvantage or overachievement, a class-based identification may constitute a *primary* factor, while minority status (i.e., a race-based identification) is always a *secondary* factor. Thus, class-based identifications are privileged, relative to race-based identifications.

⁷⁹ More specifically, Disadvantage and Overachievement Indices were calculated for each applicant in the sample, and each applicant was categorized according to the thresholds presented in Table 6. Based on these categorizations, applicants received either no boost, a secondary factor boost, or a primary factor boost, as elaborated in Table 7.

⁸⁰ It is important to acknowledge that the 2009 experiment utilized random sampling but not random assignment. Random sampling provides generalizability, but random assignment would have addressed some threats to internal validity. Specifically, the conditions of this experiment may not realistically reflect the environment in which admissions officers make decisions. The treatment condition (review via the Disadvantage and Overachievement Indices, without consideration of race) constituted an unofficial admissions decision. Under these circumstances, it is possible that admissions officers gave more weight to identification under the Indices than they would have had these class-based decisions been "for keeps." As such, acceptance rates for low-SES and URM applicants under the class-based condition may be biased upwards.

RESULTS

Overall Acceptance Rates. In this experiment, overall acceptance rates were only slightly higher under the class-based approach than under race-conscious affirmative action. Under the class-based approach, 76% of applicants were accepted, while under the race-based approach, 74% were accepted.

Socioeconomic Diversity. Our results suggest low-SES applicants are more likely to be admitted under class-based than under race-based affirmative action. Acceptance rates for low-SES and severely low-SES applicants are summarized in Table 9.

TABLE 9. *Acceptance Rates by Admissions Condition and SES Subgroup, 2009 Experiment*

Applicant Type	Acceptance Rate		
	Class-Based	Race-Based	Difference
Low SES	81%	72%	9%**
Severely Low SES	83%	63%	20%*

* $p < 0.05$; ** $p < 0.01$

It is not surprising that acceptance rates improve for low-SES students under the class-based system. This approach was designed specifically to identify those applicants for additional consideration. Further, this result aligns with findings from simulation and empirical studies that informed this work.⁸¹

Racial Diversity. Results for URM applicants were somewhat surprising. Black, Latino, and Native American applicants were more likely to be admitted under the class-based approach than under the race-based policy. Acceptance rates from the 2009 experiment are presented in Table 10.

TABLE 10. *Acceptance Rates by Admissions Condition for URM Applicants, 2009 Experiment*

Applicant Type	Acceptance Rate		
	Class-Based	Race-Based	Difference
URM	65%	56%	9%

⁸¹ See BOWEN & BOK, *supra* note 23, at 46–52; BOWEN, KURZWEIL & TOBIN, *supra* note 51, at 183–86; Carnevale & Rose, *supra* note 43, at 153–54; Sander, *supra* note 7, at 492–97.

The pattern shown in Table 10 would seem to contradict prior research, which generally suggests that class-based affirmative action will increase socioeconomic diversity and decrease racial diversity, when compared to a race-based policy.⁸² In fact, our findings highlight the importance of the size of the admissions boost in class-based affirmative action. The class-based approach at CU is comparatively privileged in this context. Under the Disadvantage and Overachievement Indices, identification can grant *primary* factor consideration. Under race-conscious affirmative action at CU, URM status is always a *secondary* factor.

It is this privileging of class-based identifications over race-based identifications that allows CU's class-based approach to yield higher URM acceptance rates. Holding constant high-school GPA and standardized-test scores, URMs are 1.4 times more likely than non-URMs to be admitted under CU's race-based policy. By contrast, under the Disadvantage and Overachievement Indices (again holding constant high-school GPA and standardized-test scores) applicants identified for primary factor consideration are 5.7 times more likely to be admitted. Just over half of URMs (51%) receive this class-based primary factor consideration, so the interpretation seems relatively straightforward: although the Disadvantage and Overachievement Indices are somewhat inefficient identifiers of URM applicants, URMs that this approach does identify are usually granted a bigger boost than they would receive under race-conscious affirmative action.

Academic Quality. Another focus of our analysis was the academic credentials of students admitted under each condition. Admissions officers are attentive to overall acceptance rates and the academic credentials of freshman students because these statistics affect the university's reputation. While CU aims to enroll a socioeconomically and racially diverse incoming class, it is unwilling to sacrifice selectivity standards to do so. Perhaps more importantly, CU would like to avoid admitting low-SES students who have little chance at success in college. In Table 11, we provide a summary of academic credentials for accepted and refused students under the class-based and race-based experimental conditions. Standard deviations are presented parenthetically.

⁸² See BOWEN & BOK, *supra* note 23, at 46–52; BOWEN, KURZWEIL & TOBIN, *supra* note 51, at 183–86; Carnevale & Rose, *supra* note 43, at 153–54; Sander, *supra* note 7, at 492–97.

TABLE 11. *Academic Credentials by Admissions Condition, 2009 Experiment*

Measure	Accepted Applicants		Refused Applicants	
	Class-based	Race-based	Class-based	Race-based
N	365	352	113	126
Mean High School GPA	3.56 (0.39)	3.58 (0.38)	2.73 (0.31)	2.8 (0.34)
Mean ACT Composite	26 (3.7)	27 (3.6)	23 (4)	23 (4.2)
Mean SAT Combined	1197 (147)	1207 (136)	1048 (134)	1028 (142)

High-school GPAs and ACT scores are nearly identical among accepted students across conditions, while SAT scores were slightly higher among students accepted under the race-based policy. In other words, replacing race-based affirmative action with a class-based approach will not substantially affect aggregate measures of academic qualifications. This should not be too surprising because class-based affirmative action impacts a relatively small proportion of CU's full applicant pool. Its implementation can be expected to only slightly affect the academic credentials of incoming classes. Table 12 presents a more nuanced view. Here, applicants are differentiated according to the four possible results from this experiment: (1) admitted under the class-based system but not under the race-based system, (2) admitted under the race-based system but not under the class-based system, (3) admitted under both, and (4) refused under both. Standard deviations are included parenthetically.

As we might expect, applicants accepted under the Disadvantage and Overachievement Indices who were *not* accepted under race-based affirmative action (lower-left quadrant of Table 12) exhibit marginal academic credentials. These students had, on average, substantially lower HSGPAs and test scores than students admitted under both experimental conditions (upper-left quadrant). Admissions officers emphasized that the students admitted under the class-based approach but refused under the race-based system still met minimum standards for admission. Their high-school grades and test scores would not *preclude* success at CU. Still, their substantially lower academic credentials constitute a noteworthy research finding, which raises questions about their ability to handle college-level work. Given that any responsible higher-education admissions policy must consider the likelihood of success as an important variable, these concerns are serious.⁸³ Additional

⁸³ In the debate over race-conscious affirmative action, student success has played a variable role. Most controversially, questions about student success have been used to challenge affirmative action policies on the theory that affirmative action leads to "academic mismatch." See, e.g., Sander, *supra* note 7. Sander and other proponents of the "mismatch" theory assert that under race-based affirmative action, minorities attend colleges for which they are academically

TABLE 12. *Comparison of Academic Credentials by Category of Admissions Decision, 2009 Experiment*

Measure	Admissions Decision	
	Class-based: Accept	Class-based: Refuse
	Race-based: Accept	Race-based: Accept
N	334	18
Mean High School GPA	3.6 (0.37)	2.89 (0.26)
Mean ACT Composite	27 (3.5)	24 (4)
Mean SAT Combined	1209 (137)	1132 (89)
	Class-based: Accept	Class-based: Refuse
	Race-based: Refuse	Race-based: Refuse
N	31	95
Mean High School GPA	3.09 (0.29)	2.71 (0.31)
Mean ACT Composite	23 (4.7)	22 (4)
Mean SAT Combined	992 (167)	1037 (135)

empirical analyses suggest some applicants admitted under CU’s class-based approach may fare quite well in college. Specifically, applicants identified by the Overachievement Indices may outperform typical undergraduates at CU. Although beyond the scope of this article, these results will be the focus of a subsequent paper.

ically underprepared, and compete with academically superior peers. This scenario begets lower grades, lower graduation rates, and lower distal outcomes. Those who disagree point to significantly higher graduation rates at more selective universities *See, e.g.,* BOWEN & BOK, *supra* note 23; ESPENSHADE & RADFORD, *supra* note 31; *see also* BOWEN, CHINGOS & MCPHERSON, *CROSSING THE FINISH LINE: COMPLETING COLLEGE AT AMERICA’S PUBLIC UNIVERSITIES* 209 (2011). In short, these higher graduation rates completely cancel out decreases in college grades associated with minority status, and in fact, point to a net gain associated with minority students enrolling at the most selective schools to which they are admitted. *See, e.g.,* Richard H. Sander, *Class in American Legal Education*, 88 *DENV. U. L. REV.* 631, 666 (2011). While the mismatch theory has been subject to significant and credible challenge, the larger issue of how affirmative action (based on class, race, or any other identifier) relates to student success cannot be ignored.

2. *2010 Experiment: Race-Based Versus Class-Plus-Race Affirmative Action*

For the Fall 2011 admissions cycle, CU moved to a hybrid “class-plus-race” affirmative action framework. Race continued to be used, as it had been in the past, as a potential secondary factor boost, and the new class-based system was implemented as detailed in Table 7. To forecast the impact of this change, a randomized controlled experiment was conducted in 2010. As a starting point, 2000 “borderline” applications were randomly sampled from the Fall 2010 pool. This group was composed of applications the Office of Admissions determined were neither clear refusals nor clear admits. Prior research on college admissions suggests that identification by a class-based affirmative action system will likely carry the most weight for applicants fitting this profile.⁸⁴

Half the sample was randomly assigned to application review using both race and the Indices (i.e., a class-plus-race approach), and the other half to review using race-based affirmative action only. Under both conditions, admissions decisions were official. Table 13 presents demographic characteristics of both the class-plus-race and the race-based group.⁸⁵

TABLE 13. *Demographic Characteristics, 2010 Experimental Sample*

Applicant Type	Class-Plus-Race		Race-Based	
	N	Percentage of Total Sample	N	Percentage of Total Sample
All Applicants	901	100%	912	100%
Low SES	212	24%	195	21%
Severely Low SES	54	6%	55	6%
URM	118	13%	118	13%

The few available simulation studies that compare race-based affirmative action to a class-plus-race approach indicate that a class-plus-race approach should substantially improve campus socioeconomic diversity and slightly improve (by one or two percentage points) racial diversity.⁸⁶ At this point, however, no studies have yet been conducted that empirically investigate the impact of implementing a class-plus-race system in undergraduate admissions.

⁸⁴ See, e.g., WARREN W. WILLINGHAM & HUNTER M. BRELAND, *PERSONAL QUALITIES AND COLLEGE ADMISSION* 89–94 (1982).

⁸⁵ Of the 2000 applications sampled, 1813 contained sufficient information to be included in the experiment. Sample attrition was equivalent across experimental conditions.

⁸⁶ See, e.g., BOWEN, KURZWEIL & TOBIN, *supra* note 51, at 178–80; ESPENSHADE & RADFORD, *supra* note 31, at 349–50.

RESULTS

Overall Acceptance Rates. Overall acceptance rates were identical across experimental conditions, at 62%. This aggregate drop in acceptance rates compared to the 2009 experiment was expected because the sample under consideration includes only borderline applicants. Acceptance rates are equivalent because wealthier applicants were more likely to be accepted under the race-based condition, and low-income applicants were more likely to be accepted under the class-plus-race condition. This phenomenon balanced acceptance rates across conditions.

Socioeconomic Diversity. The results of the second experiment are largely similar to the results of the first. Under class-plus-race admissions, low-SES applicants have an increased likelihood of acceptance, compared to race-based admissions. These results are summarized in Table 14.⁸⁷

TABLE 14. *Acceptance Rates by Admissions Condition for Low-SES Applicants, 2010 Experiment*

Applicant Type	Acceptance Rate		
	Class-Plus-Race	Race-Based	Difference
Low SES	58%	49%	9%*
Severely Low SES	57%	44%	13%

* $p < 0.05$

The increased acceptance rates for low-SES applicants under class-plus-race affirmative action align with prior research. As noted previously, the Disadvantage and Overachievement Indices were designed specifically to identify and grant additional consideration to low-SES applicants; their acceptance rates should improve when compared to admissions absent class-based considerations.

Racial Diversity. Acceptance rates for URMs improved under the class-plus-race approach. Table 15 presents acceptance rates for these applicants.

⁸⁷ Hypothesis testing was carried out using Fisher's exact test. See R.A. Fisher, *On the Interpretation of χ^2 From Contingency Tables, and the Calculation of P*, 85 J. ROYAL STAT. Soc'y 87, 87–94 (1922).

TABLE 15. *Acceptance Rates by Admissions Condition for Minority Applicants, 2010 Experiment*

Applicant Type	Acceptance Rate		
	Class-Plus-Race	Race-Based	Difference
URM	62%	45%	17%**
Low SES and URM	59%	27%	32%**

* $p < 0.05$; ** $p < 0.01$

On its own, an increase in acceptance rates for URMs under class-plus-race affirmative action is not surprising. Still, the magnitude of the differences in acceptance rates for URMs between conditions (seventeen percentage points) is much larger than would be anticipated based on previous simulation studies.⁸⁸ One recent study, for example, predicted increases in acceptance rates around 1.2 percentage points for minorities under class-plus-race affirmative action.⁸⁹ The large difference in URM acceptance rates is at least partially attributable to a large boost associated with a *dual identification* (i.e., being a low-SES and URM applicant) under the class-plus-race approach.⁹⁰

⁸⁸ It is important to reiterate that despite the considerable URM acceptance rate boosts under class-plus-race affirmative action, overall acceptance rates were balanced across conditions because wealthier applicants were less likely to be accepted under the class-plus-race approach.

⁸⁹ See ESPENSHADE & RADFORD, *supra* note 31, at 349–50.

⁹⁰ The dual-identification effect outstrips the boost granted to URMs under race-based affirmative action. This sizeable increase in the odds of admission for URMs under a class-plus-race approach may be due to uneven application of the Indices. Specifically, larger class-based boosts are being conferred upon URMs than non-URMs. Under the class-plus-race approach, URMs identified in any way by the Indices are 4.9 times as likely to be admitted as URMs not identified. In contrast, non-URMs identified by the Indices are 1.9 times as likely to be admitted as non-URMs not identified by the Indices. A primary factor identification for URMs is particularly impactful: underrepresented minorities who earn primary factor consideration are 9.2 times as likely to be admitted. In contrast, non-URMs who earn primary factor consideration are 3.5 times as likely to be admitted. The larger class-based effects for URMs lead to improved acceptance rates for this group under class-plus-race admissions. In this case, it seems as though the whole (class-based and race-based considerations for low-SES minorities) is greater than the sum of its parts. This analysis suggests multiple identifications under an affirmative action framework are not merely additive. Prior research on this topic has not dealt specifically with class-based and race-based considerations, but rather with considerations for athletes, legacies, and minorities. One study, for example, concluded that the presence of multiple identifications (e.g., a minority legacy applicant) are roughly additive in their effects on the likelihood of admission. See JAMES L. SHULMAN & WILLIAM G. BOWEN, *THE GAME OF LIFE: COLLEGE SPORTS AND EDUCATIONAL VALUES* 50–55 (2001). Another group of researchers found that multiple identifications for minorities (e.g., a minority athlete) are actually less than additive. See Thomas J. Espenshade, Chang Y. Chung & Joan L. Walling, *Admission Preferences for Minority Students, Athletes, and Legacies at Elite Universities*, 85 SOC. SCI. Q. 1422, 1437–41 (2004).

Academic Quality. For the 2010 experiment, a comparison of academic credentials for accepted students yields results nearly identical to those seen in the 2009 experiment. As such, those results are not discussed in great detail here. High-school GPAs of students accepted under class-plus-race affirmative action are slightly lower (by two-hundredths of a grade point) than the GPAs of students accepted under race-based affirmative action. Likewise, SAT scores are lower for the class-plus-race group (by five points), although ACT scores are virtually identical. None of these differences is statistically significant.⁹¹

IV. IMPLICATIONS OF THE CU STUDY FOR THE FUTURE OF CLASS-BASED AFFIRMATIVE ACTION

These experiments offer important insight for other institutions considering whether to adopt class-based affirmative action policies. Perhaps most importantly, these results challenge the prevailing assumption that class-conscious admissions will not be helpful in maintaining racial diversity on campus. Additionally, this study is the first empirical analysis of affirmative action's impact on admissions decisions at a moderately selective university.

CU represents a certain class of institution—large, moderately selective public universities—that has up to this point been underrepresented in affirmative action scholarship. This knowledge gap is significant because large public schools account for more than half of the total undergraduate enrollment in the United States.⁹² Moreover, research suggests that unlike highly selective schools, these moderately selective institutions field applications from disadvantaged students for whom the stakes are quite high: many low-income and minority applicants may not have the opportunity to attend a four-year college if they are refused admission to a school like CU.⁹³

The prior research on the prospects of class-based affirmative action—most notably William Bowen and Derek Bok's work in *The Shape of the River*—focuses on race-conscious and class-conscious strategies at elite, highly selective colleges.⁹⁴ At many selective private and public schools, the admissions boost for minority status is quite large.⁹⁵ The University of Colorado at Boulder is a different sort of institution. Two features in particular distinguish CU from the institutions most often included in prior research on

⁹¹ It may be tempting to compare the results from the 2009 experiment to those of the 2010 experiment. Such comparisons may not be valid. First, the 2010 experiment uses a modified treatment—class-plus-race affirmative action rather than class-based affirmative action—as a replacement for the race-based control condition. Second, the 2010 experiment examines a different population—borderline applicants—than the 2009 experiment, which drew from the full applicant pool. With so many adjustments from one experiment to the next, it is safest to view these experiments' results as complementary but not directly comparable.

⁹² See SNYDER & DILLOW, *supra* note 17, at 270.

⁹³ See Hurtado et al., *supra* note 35, at 64–66.

⁹⁴ See BOWEN & BOK, *supra* note 23.

⁹⁵ See, e.g., ESPENSHADE & RADFORD, *supra* note 31, at 112; Long, *supra* note 55, at 318; Long, *supra* note 38, at 1025–27.

affirmative action. First, while still the flagship public university in Colorado, CU's overall acceptance rate is much higher than those reported at highly selective colleges. The acceptance rate at CU in 2011 was about 84%, while at Harvard, 6% of applicants were accepted; Yale accepted about 7% of applicants; and the University of California, Berkeley accepted about 22%.⁹⁶ CU is more similar to its peer public universities, such as the University of Kansas (92.75% acceptance), University of Arizona (71%), University of Iowa (76%), and University of Oregon (73%).⁹⁷

Second, and perhaps more importantly, the admissions boost associated with minority status at CU is relatively small. CU is more like other moderately selective institutions in this regard.⁹⁸ While schools are reluctant to release information about how minority status affects admissions chances, researchers have found that the size of the boost for minority status is much smaller at less selective schools.⁹⁹ Where the race-related boost is relatively small, a significant class-related boost can make a considerable difference.

Indeed, this study suggests that the effectiveness of class-based affirmative action with respect to maintaining racial diversity hinges upon the sizes of the boosts class-based systems confer. Poverty and minority status are not perfectly correlated, so if class is intended to replace race in college admissions, the boost attached to an identification of disadvantage or overachievement must substantially outdo the boost attached to minority status. Universities with admissions frameworks similar to CU's—those that place relatively little weight on minority status and are willing to place substantial weight on class-based measures—should be able to replicate these findings. At highly selective schools, however, it may not always be feasible to enact class-based considerations that are appreciably larger than the sizeable race-based considerations already in place.

One of the challenges of evaluating the effectiveness of any type of affirmative action program is that schools are generally extremely reluctant to publish any data on how affirmative action affects the admissions process. Much of this reluctance is a consequence of the legally and politically charged debates over the use of race-conscious policies.¹⁰⁰ The empirical

⁹⁶ See Jacques Steinberg, *Admissions Figures at Elon, Harvey Mudd, Brandeis and Nearly 100 Other Colleges*, N.Y. TIMES (Apr. 4, 2011, 3:22 PM), <http://thechoice.blogs.nytimes.com/2011/04/04/admissions-figures-04-04/>.

⁹⁷ *Id.*; see also *National University Rankings*, U.S. NEWS & WORLD REP., <http://colleges.usnews.rankingsandreviews.com/best-colleges/rankings/national-universities/data> (last visited May 18, 2013).

⁹⁸ It may be that race-based admissions preferences at CU and schools like it diminished in the wake of the *Gratz* decision and multiple successful state-level ballot initiatives. That is, public colleges may exercise caution when implementing race-based affirmative action to avoid political controversy or litigation. Certainly the smaller size of the boost is not explained by current levels of campus diversity.

⁹⁹ See Long, *supra* note 38, at 1023–28; see also Thomas J. Kane, *Racial and Ethnic Preferences in College Admissions*, in *THE BLACK WHITE TEST SCORE GAP* 431 (Christopher Jencks & Meredith Phillips eds., 1998).

¹⁰⁰ See, e.g., Sander, *supra* note 60, at 385.

vacuum that has surrounded much of the debate about affirmative action has significantly diminished the quality of that debate. One benefit of class-based affirmative action is that schools may be more willing to identify the impact of different policy choices.

V. CONCLUSION

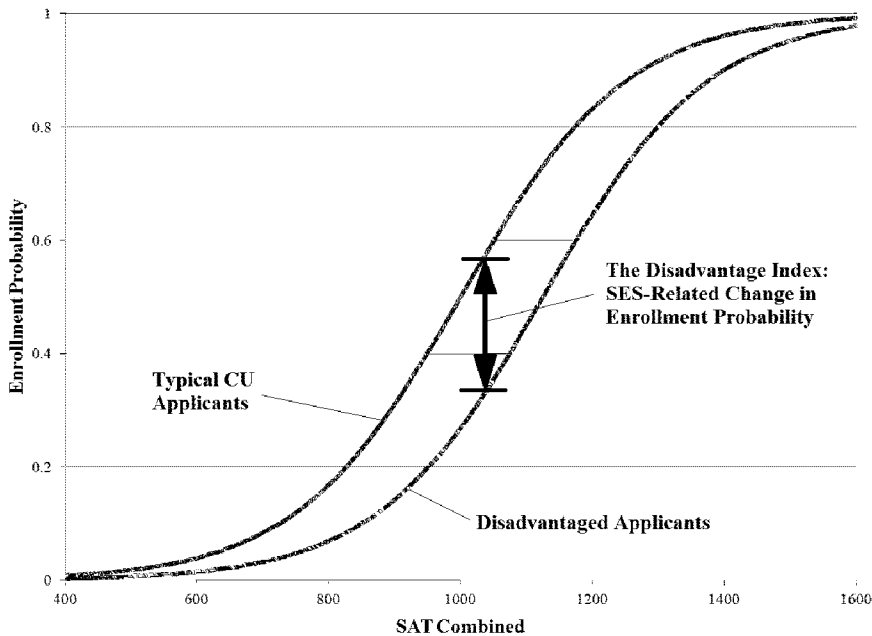
Class-based affirmative action is complex. A class-based approach—by definition and often by law—must be designed to measure one thing (class) while its architects often hope to conveniently proxy another (race). Moreover, the system to which a class-based approach is compared is usually quite simple. Race-conscious affirmative action relies on an observable binary indicator—minority/non-minority—to confer additional consideration in admissions. Class-based approaches offer no such simplicity. Even if thresholds of disadvantage and overachievement are established, as is the case with the study presented here, considerable care must be taken in defining and justifying those thresholds.

Moreover, even if, as we demonstrate here, class-conscious policies may successfully maintain racial diversity in some school contexts, there are good reasons not to think of one as a substitute for the other. Broadly, the values that underlie both race-conscious and class-conscious affirmative action are the same: a conviction that diversity enhances the educational environment, an understanding that merit is something more than scores on standardized tests and high-school grades, and a concern that students who have faced disadvantages are often underestimated and therefore passed over for opportunities that will help them overcome those disadvantages. But the challenges associated with low socioeconomic status are different from those associated with minority status. Of course, if the Supreme Court does one day close the door to race-conscious admissions policies, class-based affirmative action may have to serve as a substitute. There are, however, good reasons to maintain race-conscious admissions policies and separate good reasons to consider class in the admissions calculus. Ideally, both will continue to be options.

The future of race-conscious admissions decisions notwithstanding, giving additional admissions consideration to students who have overcome the challenges attendant to socioeconomic disadvantage is a worthwhile endeavor. Whether class-based programs end up replacing race-conscious admissions plans or supplementing them, this study demonstrates the potential for class-based affirmative action.

APPENDIX A. *Visual Representation of the Disadvantage Index*

For the purposes of illustration, the probability of enrollment in a four-year college is plotted as a function of SAT combined score for two groups of applicants—those with typical socioeconomic characteristics and those with socioeconomic characteristics indicating disadvantage. It is important to point out that the ogive representing typical CU applicants remains fixed because the socioeconomic characteristics of the typical applicant are fixed. The ogive representing a disadvantaged applicant, however, may vary as a function of the socioeconomic measures specific to that applicant.



APPENDIX B. *Visual Representation of the Overachievement Index (SAT)*

For the purposes of illustration, SAT combined score is plotted as a function of one socioeconomic measure: the school-wide percentage of students receiving free or reduced-price lunch.

