The Impact of Allowing the Consideration of Race in Admissions Policies on the Representation of Students of Color at Texas Professional and Graduate Schools

Qualifying Paper

Submitted by

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Abstract

Graduate and professional education is a key pathway to important areas of influence in our nation and the training ground for specialized knowledge critical to individual, national, and global success. Students of color, however, remain severely underrepresented at graduate and professional schools. In 2003, the U.S. Supreme Court upheld the constitutionality of considering race as a factor in admissions practices as a tool for institutions to increase ethnic and racial student body diversity. In this study, I examine the impact of the decision on the enrollment of students of color in graduate and professional schools in Texas. I use institutional-level data from the *National Center for Education Statistics' Integrated Postsecondary Education Data System* (IPEDS), the U.S. Census, and the Bureau of Labor statistics, and employ a difference-in-differences analytic strategy intended to identify the causal effect of this policy change. I find that *Grutter* increased the overall enrollment of students of color on average across prototypical *public* graduate and professional institutions in the state by approximately one percentage point. This represents about 30 more students of color on average across all public graduate and professional institutions in Texas in 2006.

The Impact of Allowing the Consideration of Race in Admissions Policies on the Representation of Students of Color at Texas Professional and Graduate Schools

Introduction

Graduate and professional schools play a critical role in training the leaders, scholars, and professionals who shape our lives, economies, and governance. In today's increasingly diverse society, the legitimacy and strength of our democratic form of government depends on equitable access to these institutions for individuals from all races and ethnicities. Yet, despite recent increases in enrollment (CGS, 2008), students of color remain severely underrepresented in graduate and professional studies. While 15 percent of the U.S. population is Latino, this group constituted only 6 and 5 percent of the entire graduate and professional student populations, respectively, in 2006 (U.S. Census Bureau, 2008) (Planty *et al.*, 2008). Additionally, of all the doctoral and first-professional degrees conferred in 2005, only 3 and 5 percent were granted to Latinos (respectively) and 6 and 7 percent to African Americans, who make up 14 percent of the total population (U.S. Census Bureau, 2008) (Planty *et al.*, 2008). These disparities are even more troubling when we consider that racial and ethnic minorities are projected to make up 54 percent of the population by midcentury (U.S. Census Bureau, 2008). These demographic changes are also taking place against a backdrop of global competition and increased demand for specialized knowledge, which make the current underrepresentation of students of color in graduate and professional schools a serious threat to the future health of our economy and a growing contributor to socioeconomic inequities.

To address these concerns and to fulfill their educational missions, leaders of higher education institutions have long considered race as a factor in admissions practices (see Bowen & Bok, 1998). Such race-based affirmative action efforts, however, have also been the target of challenges and controversy. Sustained efforts by the higher education community to defend these practices culminated in 2003, when the U.S. Supreme Court in *Grutter v. Bollinger* upheld the right of higher education institutions to consider race as a factor in their admissions decisions. In its rationale, the Court emphasized the need for colleges and universities to consider race "in a society, like our own, in which race unfortunately still matters," not only to obtain the educational benefits of student body diversity but also "to cultivate a set of leaders with legitimacy in the eyes of the citizenry." The Court thus illuminated the important role that colleges and universities play as the training ground for the future leaders of our nation and ultimately endorsed race-conscious admissions practices as one tool institutions could implement to further their educational mission.

Grutter's endorsement of race-conscious admissions practices in higher education came at a time when public support for race-based affirmative action had been mixed. When the Court issued its

decision, bans on race-based policies in education were in place in four states: Texas, California, Washington, and Florida. Because the affirmative action ban in Texas had been the result of a 1996 Fifth Circuit court decision (*Hopwood v. State of Texas*), *Grutter* overruled the ban in the state and allowed public and private higher education institutions to again consider race in admissions.[1]

In this study, I utilize the *Grutter* decision as a "natural experiment"[2] in Texas to analyze whether, during the first three years of implementation (the most recent years for which data is publicly available), the decision helped increase the enrollment of students of color in graduate and professional schools in the state. Using enrollment as my outcome, I seek to capture the overall impact on applications, admissions, and decisions to enroll.[3] Although *Hopwood* and *Grutter* affected public and private institutions, the practices of public institutions in the state have traditionally been under closer scrutiny than those of private institutions.[4] Thus, I also examine whether *Grutter's* impact was different for private or public institutions. I implement a difference-in-differences estimation strategy to isolate the causal impact of the decision. The difference-in-differences strategy treats the decision as an "exogenous"[5] policy change and uses a "before" and "after" technique to estimate its effect, adjusting for changes in enrollment that could have taken place irrespective of the affirmative action policy change through comparisons to similar institutions in states not affected by the change. I use institutional-level data from the *National Center for Education Statistics' Integrated Postsecondary Education Data System* (IPEDS) and Barron's *Profiles of American Colleges*, and state-level data from the U.S. Census Bureau and Bureau of Labor Statistics.

This study contributes to the literature on affirmative action by documenting the impact of a court decision that endorses the consideration of race on the enrollment of students at the graduate and professional level with a methodology that supports causal inferences. A study published ten years ago documented the effect of a prior U.S. Supreme Court decision (*Regents of the University of California v. Bakke* (1978)) that endorsed the constitutionality of race-conscious admissions practices on student of color enrollment in law and medical schools (Welch & Gruhl, 1998). However, the authors were not able

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[1] *Grutter* did not change the bans in California, Washington, Florida because the case is a federal court decision that applies nationally and supersedes court decisions such as *Hopwood*, but does not supersede ballot measures or executive orders, such as those passed in California, Washington, Florida.

[2] A natural experiment is an analogous situation to a randomized experiment that arises, not from the actions of the researcher, but from a variety of circumstances, including changes in policy.

[3] The limitations of my data, which do not disaggregate admissions by race and ethnicity for graduate and first-professional students, prevent me from considering G*rutter*'s impact on admissions separately from enrollment.

[4] As I note later, this closer scrutiny may be due to the fact that public institutions are more accountable to the legislature and state government than private institutions (Grodsky & Kalogrides, 2008) and because constitutional challenges require state action, which can be an action or policy by an institution that receives state government funding.

[5] In quantitative research methodology, an exogenous policy is a requirement for a natural experiment and refers to a change that is not imposed by the participants in the study but arises from outside the system under investigation.

to support causal inferences because their methodology did not adjust for outside factors that may have contributed to enrollment changes. Since then, social scientists have not devoted much attention to studying the impact of policies that *allow* the consideration of race in the higher education context. Instead, empirical research has focused primarily on examining the effects that *eliminating* race-based practices has had on student of color representation (Chapa & Lazaro, 1998; Finnell, 1998; Karabel, 1998; Cross & Slater, 2002; Guerrero, 2002; Tienda *et al.*, 2003; Kaufmann, 2007; Colburn, Young, & Yellen, 2008) and the college application behavior of students (Card & Krueger, 2004; Long, 2004a; Dickson, 2006;). Few of these studies have been able to support causal inferences (see, e.g., Card & Krueger, 2004). A separate line of research has also focused on documenting the effects of affirmative action on those intended to benefit from such practices, with one line of research documenting the benefits (Bowen & Bok, 1998; Gurin, 1999; Gurin 2002; Orfield & Kurlaender, 2001; Chang *et al.* 2003; Boisjoly *et al.* 2006; but see Thernstrom & Thernstrom, 1997) and a more recent line of research documenting possible negative outcomes (Sander 2004; but see Alon & Tienda, 2005; Ayers & Brooks, 2005; Chambers *et al.* 2005; Ho, 2005; Barnes 2007; Rothstein & Yoon, 2008). The goal of this study is to provide a better understanding of whether the endorsement of affirmative action policies in *Grutter* has helped increase student of color enrollment in graduate and professional schools and to help inform public policy efforts that seek to increase access for students of color in higher education.

My findings indicate that *Grutter* helped increase the representation of students of color in *public* graduate and professional schools in the state by approximately one percentage point. This impact, while modest, represents about 30 more students of color on average across prototypical public institutions in Texas in 2006. The results for private institutions are negative, though not statistically significant. The difference in impact across institutional sector may be due to the varying levels of public scrutiny and accountability over public and private institutions. That is, because public institutions are under greater scrutiny than privates ones, it is possible that during *Hopwood* institutions in the private sector enjoyed some flexibility in considering race in admissions and thus their admissions practices may not have changed after *Grutter*. For these reasons, the flexibility *Grutter* introduced for institutions to again consider race may have had a greater impact in the public sector. *Grutter*'s small positive impact in student of color enrollment in graduate and professional schools in Texas, moreover, is not surprising because institutions operate within the context where they are legally permitted to consider race although they do not necessary have to, and, perhaps most importantly, institutions operate in a climate where affirmative action policies continue to be controversial and subject to legal challenges. The small impact may also be due to institutional policies that perhaps mitigated the potential decline in enrollment during *Hopwood*.

In the sections below, I first describe the legal background and the research literature to which this study contributes. I then describe the U.S. Supreme Court's decision in *Grutter*, with a focus on how it affected institutions of higher education in Texas. Next, I describe my research design and findings. I conclude by outlining policy implications and further areas of research.

Background and Context

Legal Background

Affirmative action in the educational context is a hotly disputed issue on legal and normative grounds. Proponents endorse its use on the grounds that such practices are legally permissible and necessary to remedy past and current racial and ethnic discrimination and to obtain the educational benefits of a racially and ethnically diverse student body. Opponents view the practice as one that violates Fourteenth Amendment equal protection constitutional principles and perpetuates racial discrimination. In this paper, I do not seek to resolve or address the normative debate surrounding race-based affirmative action. I focus instead on the legal arguments and rely on the boundaries that the U.S. Supreme Court's decisions have set forth regarding the constitutionality of such practices and on the reasons that institutions of higher education have advanced in defense of affirmative action practices.

Regents of the University of California v. Bakke

The legal debate surrounding race-based affirmative action has had a long history at institutions of higher education.[6] Before the U.S. Supreme Court invalidated the separate-but-equal doctrine in *Brown v. Board of Education* (1954), various cases reached the Supreme Court challenging segregation practices in graduate and professional schools.[7] Following the Court's decision in *Brown*, courts ordered the consideration of race in admissions at institutions of higher education to remedy the effects of past *de jure* segregation (segregation based on government policy requiring separation by race). In the absence of *de jure* segregation, institutions of higher education also embraced efforts to address past discriminatory practices and existing racial and ethnic inequities by adopting race-conscious admissions practices. Challenges to the constitutionality of race-conscious practices in the latter context (in the absence of *de*

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[6] See Bowen & Bok (1998) for a brief history of affirmative action and Skrentny (1996) and Kellough (2006) for more detailed accounts.

[7] These cases include *Missouri ex rel. Gaines v. Canada*, 305 U.S. 337 (1938) (holding that Missouri had to allow black students to attend the state university or provide them with a separate law school), *Sweatt v. Painter*, 339 U.S. 629 (1950) (finding that the black law school at the University of Texas was not substantially equal to the white law school) and *McLaurin v. Oklahoma State Regents*, 339 U.S. 637 (1950) (holding that designating a separate section in a classroom, library, and cafeteria for a black graduate student at a white graduate school at the University of Oklahoma deprived the student of the exchange of views with fellow students essential to education).

jure segregation) culminated in the 1978 *Regents of the University of California v. Bakke* decision, in which a sharply divided U.S. Supreme Court upheld the consideration of race that reflected the current social and legal landscape where segregation was no longer imposed by government.

The Court's controlling opinion in *Bakke* was based on Justice Powell's rationale, which allowed institutions of higher education to consider race in their admissions practices if the purpose of the practices was to further their educational missions by ensuring a diverse student body. The *Bakke* decision thus invalidated the argument that race-conscious policies could be constitutionally implemented to remedy the effects of past discrimination. The U.S. Supreme Court, however, agreed with the argument made by the University of California--Davis Medical School that racial and ethnic diversity contributed to the type of critical thinking central to the mission and quality of higher education, such as a "robust exchange of ideas", a principle that is grounded on First Amendment constitutional principles (*Bakke*, 438 U.S. at 313). Justice Powell endorsed this asserted interest in the informal learning that occurs from racial and ethnic diversity at the undergraduate and graduate level, wherein students are able to "directly or indirectly . . . learn from their differences and to stimulate one another to reexamine even their most deeply held assumptions about themselves and their world" (*Bakke*, 438 U.S. at 313).

Following *Bakke*, higher education institutions implemented race-conscious policies within the Court's new legal boundaries, which required flexible and individualized policies that used race as one of a number of factors (see Welch & Gruhl, 1998). A study of the impact of the *Bakke* decision over the following decade (1978-1987) documented a minimal effect on student of color enrollment in medical and law schools (Welch & Gruhl, 1998). Using aggregate institutional enrollment data, Welch and Gruhl (1998) found less than half a percent increase in enrollment for black medical students, close to 1 percent for Latino medical students, and about 3 percent for both black and Latino law students between 1978 and 1987.[8] However, because their methodology does not adjust for changes in enrollment that would have taken place outside of *Bakke*, the authors are not able to attribute these enrollment changes to *Bakke*.[9] Based on their analysis of individual responses from a survey of 164 law schools and 118 medical schools, the authors also speculate that the decision appeared to enforce existing patterns of minority recruiting, with institutions that had a greater proportion of minorities before the decision in 1977 also having greater proportions a decade later.

Hopwood v. State of Texas

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[8] Welch and Gruhl (1998) note that these findings are consistent with studies of the effects of judicial decisions, where researchers have found the impact to be less than might be expected (see, e.g., Rosenberg, 2008).

[9] While the authors control for various variables that may influence enrollment, their time series methodology does not adjust for secular trends in enrollment through the use of a comparison group, as I do in this study.

Two decades after *Bakke*, in 1996, public and private institutions of higher education in Texas were prohibited from considering race in admissions policies following a Fifth Circuit court of appeals ruling in the now well-documented case of *Hopwood v. University of Texas Law School*.[10] The decision was unusual in that it departed from *Bakke*—otherwise binding U.S. Supreme Court precedent—by rejecting the Court's holding that race could be considered to further a compelling interest of student body diversity. The Fifth Circuit rested its holding, in part, on the argument that *Bakke* had been a divided opinion, with Justice Powell as the only justice recognizing student body diversity as a compelling interest, and the belief that more recent Supreme Court decisions rendered *Bakke* obsolete.[11]

After *Hopwood* banned affirmative action in Texas, the state implemented the 1997 Top Ten Percent Law (TTP), which granted high school seniors in the top 10 percent of their class automatic admission to state universities. The plan was intended to increase representation of students of color while avoiding the controversial race-conscious measures associated with affirmative action. After *Hopwood*, other states, including Washington, California, Florida, and most recently Michigan, also began to eliminate affirmative action through the passage of ballot measures or issuance of executive orders (as was the case in Florida) prohibiting public institutions from considering race (See *Table 1* for timeline of court decisions and state initiatives).[12] California and Florida also implemented percent plans similar to TTP.[13]

Affirmative Action Studies

After the bans on affirmative action in Texas, California, Washington, and Florida, studies began to document a decline in admissions and enrollment of students of color at the more selective undergraduate institutions in each state. In Texas, Tienda *et al.* (2003) documented a decline in the percentage of African American and Latino student enrollment at the state's two most selective institutions, UT Austin and Texas A&M, with undergraduate student enrollment dropping by about 1 percent of the total enrollment for African Americans at Texas A&M and UT Austin, and over 2 percent

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[10] The Fifth Circuit in *Hopwood* found the use of race-conscious admissions practices by the University of Texas at Austin's Law School violated the Fourteenth Amendment of the U.S. Constitution as well as Title VI of the Civil Rights Act of 1964, which rendered the decision applicable to any private institution that received federal funding.

[11] At this time, a more conservative U.S. Supreme Court than the one that had decided *Bakke* had started to back away from the endorsement of affirmative action in cases decided in the employment context. *See Adarand Constructors Inc. v. Pena* (1995).

[12] These state-wide bans include Proposition 209 in California, which took effect in 1996, Initiative-200 in Washington, which passed in 1998, the 1999 "Florida One" Initiative, and Proposal 2 in Michigan, which voters approved in 2006.

[13] The University of California system adopted the Eligibility Local Context, which guaranteed a place at a university for the top 4% of students from each high school in the state; and Florida implemented the Talented Twenty Program, which offered automatic admission to the top 20% of high school graduates.

(from 15.8% to 13.7%) for Latinos at UT Austin (see also Chapa & Lazaro, 1998; Finnell, 1998). Other studies documented sharp declines in California and Florida (see Karabel, 1998; Cross & Slater, 2002; Kaufmann, 2007; Colburn, Young & Yeller, 2008). These studies confirmed the results of prior simulation studies that predicted a decline in enrollment among students of color in the absence of affirmative action policies (see Bowen & Bok, 1998; Espenshade & Chung, 2005; Kane, 1998; Long, 2004b).[14] Research also showed that the Top Ten Percent Plan implemented after the *Hopwood* decision has been unable to help universities rebound from the declining enrollment of students of color after 1996, at a time when the minority population size in the state was increasing (Tienda *et al*., 2003; see also Horn & Flores, 2003). At the graduate level, empirical studies also documented declines in student of color enrollment in law and medical schools (Chapa & Lazaro, 1998; Karabel, 1998; Guerrero, 2002). As with empirical studies at the undergraduate level, these studies confirmed the results of prior simulation studies that had estimated declines in student of color enrollment in the absence of affirmative action.[15]

Though empirical studies at the undergraduate and graduate level document declines in minority enrollment, their methodologies do not adjust for other factors that may have affected enrollment and therefore do not support causal inferences. Other studies with methodologies that support causal inferences have investigated the indirect effect of affirmation action bans on the college application behavior of students. For instance, Dickson (2006) found a decline in the number of minority students who take college entrance exams in Texas, while Long (2004a) estimated a large decrease in the number of SAT score reports minorities sent to selective colleges in California and Texas. Card and Krueger (2004), however, found highly qualified African American or Latino students were not dissuaded from submitting their SAT scores to elite public institutions in either state.

By the time the issue of affirmative action in higher education reached the Supreme Court in *Grutter*, researchers had also focused attention on documenting the educational benefits of a diverse student body (see, e.g., Bowen & Bok, 1998; Gurin, 1999; Gurin, 2002; Orfield & Kurlaender, 2001; Chang *et al*., 2003; Boisjoly *et al*. 2006). Research studies operated against the backdrop of the legal framework set forth in *Bakke*, which required institutions to demonstrate a compelling interest in student body diversity and to show that the consideration of race was necessary to further this interest. These studies find that racial and ethnic student body diversity promotes critical thinking and learning among

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[14] Bowen & Bok (1998), for example, estimated that at selective colleges and universities, the percentage of African Americans in incoming classes would decline from 7.1 percent to 3.6 percent; and Espenshade & Chung (2005) estimated that at highly selective private research universities, the proportion of admitted African American and Latino students would decline from 9 percent to 3.3 percent and 7.9 percent to 3.8 percent, respectively.

[15] In a study of graduate management education programs, Dungan *et al.* (1996) found that failing to consider race in admissions would reduce the probability of acceptance for African Americans from 70 percent to 52 percent and for Latinos from 78 percent to 60 percent. In an examination of law schools, Wightman (1997) projected that, at the twenty-five to thirty most selective law schools, the enrollment of African American students would decline from 6.5 percent to less than 1 percent (see also Cross & Slater, 1997).

white students (see, e.g., Gurin, 1999), tends to make individuals more empathic and comfortable with individuals of other races (Boisjoly *et al*., 2006), and provides long-term societal benefits such as high levels of civic participation and higher earnings for minorities who attend selective institutions (Bowen & Bok, 1998). A more recent line of research has focused on documenting the possible negative impact on the educational outcomes for students (Sander 2004; but see Alon & Tienda, 2005; Ayers & Brooks, 2005; Chambers *et al*. 2005; Ho, 2005; Barnes 2007; Rothstein & Yoon, 2008). Otherwise termed the "mismatch hypothesis", this latter line of research addresses a controversial issue of whether minority students are hurt by affirmative action because they may graduate at lower rates at selective institutions (where presumably they are admitted under affirmative action policies) than they would at less selective institutions.

Grutter v. Bollinger

In June 2003, relying, in part, on research documenting the benefits of student body diversity and the need of race-conscious policies to obtain it, the U.S. Supreme Court in *Grutter v. Bollinger* once again upheld the constitutionality of considering race in admissions.[16] Thus, in Texas, *Grutter* overruled *Hopwood*, allowing public and private institutions of higher education to again consider race in their admissions decisions.[17] The decision is binding for any higher education institution that receives federal funding, which includes both public and private institutions. This time, moreover, the Court extended the justification for affirmative action beyond securing the benefits of a diverse student body to the importance of considering broader implications for society and our democracy, such as the need "to cultivate a set of leaders with legitimacy in the eyes of the citizenry." The Court emphasized the role of universities and professional schools in particular, such as law schools, in providing "the training ground for a large number of our Nation's leaders." The Court stressed the need for these institutions to be inclusive of individuals of all races and ethnicities so that members of our society can have "confidence in the openness and integrity of the educational institutions that provide this training."

Current Climate for Affirmative Action Policies

Given the long history of controversy surrounding affirmative action, it is not surprising that legal challenges to the consideration of race in admissions have continued since *Grutter*. The challenges, moreover, continue to place the practices of public institutions under closer public scrutiny than those of

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[16] The Court also issued a separate decision in *Gratz v. Bollinger* (2003), in which the Court struck down the University of Michigan's undergraduate policy on the grounds that the policy's point system was not flexible enough to comply with the individualized consideration outlined in *Grutter*.

[17] The Court's decision was issued in June 2003, a time when institutions of higher education would have already made admissions decisions for fall 2003. Thus, the soonest I anticipate the decision to have an impact would be for fall 2004 enrollment.

private institutions. For example, in April 2008, opponents of affirmative action filed a lawsuit in federal court challenging the University of Texas at Austin's race-conscious admissions policies on the grounds that alternative policies such as the Top Ten Percent Plan provide race-neutral alternatives to increase the representation of students of color (Mangan, 2008). The lawsuit's arguments are framed within the parameters set forth in *Grutter*, which asks the question of whether race-neutral means would be as effective in achieving the intended goal of student body diversity. The lawsuit followed prior letters of complaint filed by an organization that opposes affirmative action (Project on Fair Representation) with the U.S. Education Department's Office of Civil Rights accusing Texas universities of unconstitutionally using race-conscious policies (Schmidt, 2007). Ongoing debates about affirmative action also continue in other states such as Nebraska, where voters most recently approved a statewide affirmative action ban, and in Colorado, where voters rejected a statewide ban (Wiedeman, 2008). Similar ballot initiatives have also been introduced in Arizona, Missouri and Oklahoma, but due to a lack of sufficient signatures, these initiatives were not allowed to be placed on their official state ballots (Jacschik, 2008).

Research Questions

In this study, I answer the following research questions:

(1) *Did the permission to consider race in admissions decisions in* Grutter *increase the enrollment of students of color at graduate and professional schools in Texas during the first three years the decision was in effect (2004-2006)*?

(2) *Given the varying level of scrutiny over institutional practices by sector, did the impact, if any, differ for public and private institutions?*

This is an intent-to-treat design in which I focus on the effects of a policy that establishes the constitutionality of considering race in admissions; thus, institutions can legally consider race though they are not required to and may not necessarily do so. I assume that a change in affirmative action case law created a more permissive environment in which administrators could consider race as a plus factor not only in admissions policies but in targeted outreach and recruitment practices that can increase the number of underrepresented students of color who apply and subsequently enroll after being admitted.[18] I also anticipate that *Grutter's* effect, however, may be delayed or minimal because the consideration of race is not mandatory and institutions of higher education must proceed cautiously in view of public opposition to affirmative action and the complex legal framework outlined in the decision. I also anticipate that the impact will vary by institutional sector because public institutions are under closer

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[18] It is possible that the decision could also affect the pipeline of students of color at the undergraduate level, thereby increasing the number of students of color who would be eligible to apply and be admitted to graduate and professional schools. This study, however, does not capture this impact because students who may have been admitted to college after *Grutter* will not have graduated by 2004 or 2005.

scrutiny than private institutions due in part to their greater accountability to the legislature and state government (see, e.g., Grodsky & Kalogrides, 2008).

Research Design

Dataset

I use data from the *National Center for Education Statistics' Integrated Postsecondary Education Data System* (IPEDS).[19] This dataset provides institutional-level information that includes the enrollment of graduate and professional students at each institution by race, ethnicity, gender, and enrollment status dating back to the year 1980.[20] The dataset also provides institutional characteristics, such as whether the institution is public or private, its Carnegie classification, and average tuition for full-time graduate and first-professional students. Because the dataset provides enrollment information at the institutional level, my unit of analysis is the institution (as opposed to individual students or fields of study or disciplines within an institution[21]). I also use data from Barron's *Profiles of American Colleges* to incorporate undergraduate selectivity indicators, which I use as a proxy for graduate school selectivity. I also consider information from the *U.S. Census Bureau* and *Bureau of Labor Statistics* on state demographics and labor market conditions to control for state-level time-varying factors that may have influenced enrollment during the time periods under investigation.

Sample

From the group of schools that participate in IPEDS, I limit my sample to private and public institutions that offer doctoral, masters, and professional degrees in the state of Texas (*n*=59) and those in my comparison group from the states of California (*n*=72), Florida (*n*=28), and Washington (*n*=15). I include institutions from these additional states to capture any secular changes in higher education that may have affected institutions in Texas irrespective of *Grutter*. The ideal comparison group would include graduate and professional schools of the same selectivity in states that experienced the same labor market conditions or higher education circumstances as those in Texas but without the impact of *Grutter*. I consider institutions in California, Florida, and Washington because the socioeconomic and

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[19] IPEDS is a single, comprehensive web-based data collection system that encompasses institutions whose primary purpose is to provide postsecondary education. Participation is mandatory for Title IV institutions (those that participate in federal student financial aid programs such as Pell Grants or Stafford Loans) and voluntary for institutions that do not partake in such programs. Institutions include traditional colleges and universities, 2-year colleges, and for-profit degree- and non-degree-granting institutions, among others. For more information, see http://nces.ed.gov/ipeds/

[20] IPEDS defines a "graduate student" as "a student who holds a bachelor's or first-professional degree, or equivalent, and is taking courses at the post-baccalaureate level for credit." The definition therefore includes both Masters' and Doctoral students.

[21] The limitations of my data do not allow me to disaggregate enrollment by fields of study or disciplines to consider differences in admissions policies and student of color enrollment among fields of study or disciplines.

demographic characteristics in these states are comparable to those in Texas (*i.e.*, they are among the states with the highest Latino population in the United States and have similar economic conditions) (see *Table 2* for selected state characteristics) and because *Grutter* did not affect the consideration of race in admissions at institutions of higher education in these states in the same way that it affected institutions in Texas. My analysis accounts for the greater demographic differences in Washington by controlling for these characteristics. In addition, as *Table 3* demonstrates, the composition of graduate schools by type and selectivity in these states—and presumably institutional mission and pressures—are comparable to the composition of such institutions in Texas. As *Figure 1* illustrates, the post-*Grutter* trend in enrollment in Texas is fairly similar to the post-*Grutter* trend in the comparison group, though the pre-*Grutter* trend is more comparable across public institutions than at private ones.

Overall in the sample, institutions include those that are classified as Doctoral/Research Extensive and Intensive, Master's Colleges and Universities I & II, and schools of law and medicine (classified as professional schools in the sample), and schools of engineering and technology, and business and management (categorized as specialized schools in the sample) under the 2000 Carnegie Classification Code.[22] As *Table 3* shows, public institutions are slightly overrepresented in Texas (64%) compared to the public institutions in California (41%), Florida (36%), and Washington (33%). Institutional type by Carnegie Classification across states is fairly comparable (with the majority of institutions classified as Masters' Comprehensive), except for professional and specialized schools, which are underrepresented overall in the sample and disproportionately represented across states, limiting my ability to generalize my findings to professional and specialized schools. In terms of selectivity, institutions across states are fairly comparable, with slightly more institutions of moderate selectivity than those of high or low selectivity.

Measures

My outcome measure is a continuous variable (*minenrl*) that indicates the percent of historically underrepresented graduate and first-professional students of color at a given institution for a given year. Within "underrepresented students of color," I include African Americans, Latinos, and Native Americans/Alaska Natives, and exclude Asian Americans because the percentage of Asian Americans at selective colleges and within certain graduate fields of study, such as science and engineering, is larger than their percentage of the population at large (NSF, 2008). IPEDS provides the total number of enrolled graduate and first-professional students separately for each institution, with some institutions having

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[22] I exclude special purpose institutions such as schools of art, music, and design because they are highly specialized and are not representative of the graduate and professional schools of interest in this analysis.

graduate and first-professional students, and some only graduate or first-professional students. For my analysis, I combined both types of students.[23]

In addition, because the distribution of the outcome measure, *minenrl*, is a percentage and therefore theoretically bounded by the values of 0 and 100, I transform it using a *logit* transformation: ln (*minenrl*/100-*minenrl*). This is a helpful transformation for positive measurements with skewed distributions that are also bounded at both ends of the distribution, such as percentages or proportions (Ramsey & Schafer, 2002).[24] Because of this transformation, the parameter estimates for the variable of interest in my analyses (POST*TX, as described below) can be antilogged and interpreted as fitted odds-ratios--that is, the odds that underrepresented students of color enrolled in graduate and professional schools in Texas after *Gutter* versus the odds that similar students enrolled before *Grutter*.

My main question predictor variables (coding described below) are POST, TX and public. I also include covariates for (1) institutional characteristics: 2000 Carnegie Classification (research, masters, professional, or specialized), selectivity (high, moderate or low selectivity) and average tuition;[25] and (2) state-level characteristics: socioeconomic indicators (unemployment rate for 25-34 year olds and per capita income, in inflation adjusted dollars for each year), educational attainment (percent of the population 25 years and over with a bachelor's degree), and racial and ethnic demographics (percent Latino population and percent Black population). I include the year of enrollment (year) to capture any annual trends in enrollment. State-fixed effects also account for time-invariant differences, observed and unobserved, among states.

Analytic Strategy

In implementing a "difference-in-differences" estimation strategy, I subtract a pair of mean differences—the "first" and "second" differences—from each other to obtain an estimate of the causal effect of *Grutter* in Texas. For the "first difference," I compare enrollments before and after *Grutter*

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[23] This approach has the benefit of increasing the number of students of color for institutions that have both graduate and first-professional students. The drawback, however, is that for my findings, I am unable to completely differentiate the impact of the decision by type of student (*i.e.*, graduate vs. first-professional). I obtained the percent of students of color at each institution in a particular year by dividing the combined number of each racial/ethnic category (Latino, African American, and Native American/Alaska Native) enrolled at an institution in a particular year by the total number of graduate and first professional students enrolled at that institution for that given year. This method gives equal weight to all institutions irrespective of enrollment size.

[24] Because the outcome variable also has values that are exactly zero and the *logit* transformation involves taking the natural logarithm of these values, I followed the advice of Tukey (1977) and "started" the transformation by adding one percentage point to the untransformed values of the outcome before the *logit* transformation. Algebraically, then, my actual transformation of the outcome was: ln[(*minenrl*+1)/100-(*minenrl*+1)]. While this modification leads to a slight difference in the parameter estimates obtained, it does not change the process of interpretation.

[25] Average tuition is defined as the average in-state tuition for full time graduate and first-professional students and thus is intended to capture differences across institutions within a state.

(2000-2003 vs. 2004-2006).[26] This difference will tell me if there was a change in enrollment that could be associated with the timing of the decision. However, because enrollment numbers vary year to year for many reasons (due to changes in demographics or labor market conditions, for example), this estimated "first difference" may also reflect the impact of these changes. Thus, I also use a "second difference" to capture these external influences; I specify my regression models to effectively remove the impact of this "second difference" from the "first difference." I estimate this second difference by using institutions in the comparison groups described above. Because institutions in these groups were in states that did not have the same policy change that *Grutter* introduced in Texas, I can attribute any changes in the enrollment of students of color over the same period to general underlying trends rather than the impact of *Grutter*. Then, when I subtract the second difference from the first difference, I am left with the plausible estimated effect that allowing the consideration of race had on the enrollment of students of color in graduate and professional schools in Texas. Because my analysis relies on observations that are correlated over time and within states, I adjust the standard errors accordingly.[27]

Research Question 1: Impact of Grutter *on the Representation of Students of Color*

The outlined approach above is equivalent to fitting the following linear regression model to answer my first research question—*whether the permission to consider race in* Grutter *increased student of color enrollment in graduate and professional schools in Texas*:

(1) $Y_{tjs} = \beta_0 + \beta_1(POST_j * TX_{tj}) + \beta_2 POST_j + \beta_3 TX_{tj} + \beta_4 X_{tj} + \beta_5 Z_{tj} + \beta_6 year + \delta_s + \varepsilon_{tj} + u_j$

where outcome *Y* represents the outcome of interest (*minenrl*, the *logit* transformation of percent of graduate and professional student of color enrollment) at time *t* for institution *j* in state *s*; *POST* is a dichotomous variable coded 1 if enrollment is after *Grutter* (2004-2006) and 0 if before (2000-2003); *TX* is a dummy variable coded 1 if the institution is in Texas and 0 otherwise; *X* and *Z* are vectors of institutional and state characteristics, respectively; *year* represents year of enrollment; δ_s represents separate dummy variables for each state to account for state fixed effects; ε and *u* represent level 1 and level 2 residuals, respectively. β_1 represents the coefficient of interest because it provides the difference between the "first difference" and the "second difference", a figure that captures the impact of *allowing* the consideration of race in higher education admissions decisions in Texas. The exponentiated form of this coefficient provides the odds of underrepresented students of color who enrolled in graduate and

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[26] For the pre-*Grutter* period, I am not able to consider enrollment in 1999 because IPEDS does not provide enrollment data for this year.

[27] I fit the linear regression model described below using random effects to account for the nesting of observations within institutions over time. State fixed effects control for observed and unobserved time-invariant characteristics among states and address the lack of independence of observations within state.

professional schools in Texas after *Gutter* versus the odds of those who enrolled in graduate and professional school before *Grutter.*

Research Question 2: Does Impact of Grutter *Vary for Public or Private Institutions?*

To answer my second research question-- *whether* Grutter's *impact differs for public and private institutions*—I fit the linear regression model specified above separately for public and private institutions and with the full sample testing for statistically significant interactions by sector.

Results

I find that *Grutter*'s impact varied by institutional sector, with a small statistically significant increase in student of color enrollment at *public* institutions in Texas in the first three years after the Court decision allowed higher education institutions to consider race as a factor in their admissions practices.[28] Overall, the fitted odds of underrepresented students of color enrolling in public graduate and professional schools after *Grutter* are about 1.07 times the fitted odds of underrepresented students of color enrolling in public graduate school before *Grutter* ($\hat{\beta}$ =0.07, p=0.000). Figure 2 illustrates this effect, where the solid lines connect the fitted probabilities of students of color enrollment in public graduate and professional schools in Texas and the dashed lines connect the fitted probabilities for the comparison states. The impact, while modest, indicates that the probability of a student of color enrolling at a prototypical public institution in Texas in the year 2006 was approximately one percentage point higher after *Grutter* (about 30%) than before *Grutter* (about 29%). This represents, for example, about 30 more students of color in average across public graduate and professional schools in Texas in 2006. The results for private institutions are negative, though not statistically significant ($\hat{\beta}$ =-0.04, p=0.405).

To obtain these estimates, I fitted a taxonomy of models displayed in Table 4, proceeding from a baseline model and concluding with the most parsimonious model that best predicted student of color enrollment in Texas by institutional sector. Baseline model 1, which includes the predictors of interest and state fixed effects,[29] indicates that the coefficient for the variable of interest (POST*TX) is statistically significant and positive for public institutions (p=0.000). To determine whether this statistically significant effect remains when controlling for other factors that may also influence

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[28] To obtain these findings, I fit the taxonomy of models with the entire sample, including the respective interactions, and separately for each sub-sample of public and private institutions. I obtained the same results under both approaches and present the results from the fitted models for each sub-sample because they permit simpler interpretation of the parameter estimates and their associated p-values.

[29] I include state fixed effects in the baseline model because, as previously noted, they control for observed and unobserved time-invariant characteristics among states and address the lack of independence of observations within state.

enrollment, I introduce institutional-level covariates, an annual trend in enrollment (year), and state-level characteristics in subsequent models.

Model 2 indicates that, as expected, different institutional mandates are statistically significant predictors of enrollment, with institutions of varying missions, such as research and masters institutions, perhaps having different admissions processes than professional or specialized institutions. Also as expected, institutional selectivity helps predict enrollment, with students of color having lower odds of enrolling at public institutions of high and moderate selectivity than at public institutions of low selectivity (and professional/specialized schools, which are also part of the reference category).[30] Model 3 introduces an annual trend in enrollment, which, as anticipated, is positively associated with student of color enrollment ($\hat{\beta}$=0.02, p=0.000) and controls for small increases of student of color enrollment over time related to overall enrollment trends.

Models 4 and 5 introduce state-level covariates. As anticipated, the educational level in a state, measured by the percent of the population twenty-five years and over who hold a Bachelor's degree—the age group that would be enrolled in graduate and professional school—helps predict enrollment ($\hat{\beta}$=-0.06, p=0.006). Interestingly, however, the coefficient is negative, meaning that the odds of students of color enrolling in public graduate and professional schools in a state with a higher percentage of college graduates are lower than the odds of peer students enrolling in states with lower percentages of college graduates. Any variation in the outcome that the remaining state-level covariates (per capita income, unemployment rate for 25-34 year olds, and percent of the Black or Latino population) would help explain appears to be captured by the annual trend in enrollment (see model 4 and model 5).[31] Model 6 includes the most parsimonious model for public institutions. Most importantly, throughout all models, the estimated parameter of interest for POST*TX, which captures the impact of *Grutter* in Texas, remains statistically significant and positive.

The results in Table 5 demonstrate that this estimate is robust to different compositions of the comparison group. Table 5 presents results for parameter estimates for fitted models using all three states in the main comparison group (California, Florida and Washington) and when only two of the three states are included. As the table shows, in the sub-sample of public institutions, the parameter estimates for the

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[30] In model 2, average tuition for full time graduate and first professional students approaches statistical significance at the .10 level, although as model 3 demonstrates, it is no longer statistically significant (and changes direction from positive to negative) once I control for a year trend. This is a reasonable result because an annual trend in enrollment may help capture differences in enrollment that may also be due to differences in tuition as tuition may gradually increase over time.

[31] As Model 4 demonstrates, year trend loses statistical significance when I control for unemployment rate and per capita income. In addition, when I do not control for an annual trend in enrollment, unemployment rate for 25-34 year olds, per capita income, and percent of the Black population are statistically significant predictors of enrollment. For a more parsimonious final model, I include a year trend over these other state-level characteristics.

variable of interest (POST*TX) remains statistically significant and positive, though its magnitude changes slightly, with the fitted odds ratio remaining at 1.07 in models 2 and 3, and dropping to 1.06 in model 4, when California is removed from the sample. The parameter estimates for private institutions remain *not* statistically significant, though their magnitude also change slightly.

To test whether *Grutter's* impact varied over the first three years of implementation, I fit the final model with a dummy variable for each of the first three years following *Grutter* (2004, 2005, 2006).[32] As Table 6 demonstrates, *Grutter's* effect is statistically significant for each of the first two years of implementation (p=0.001 and p=.0.014, respectively) and in the third year at the .10 level (p=0.06) for public institutions. This finding is contrary to my expectation that *Grutter* might have had a delayed effect, with institutions possibly responding cautiously to the decision's complex legal framework and slowly implementing policy changes within a controversial political context. Instead, I find that the effect begins as early as the first year of implementation. Because the parameter estimates for each of the three years are not statistically significantly different from each other,[33] it does not appear that the effect increased or declined over the first three years after *Grutter*.

Discussion and Implications

The results in this analysis provide evidence that allowing the consideration of race in higher education admissions in Texas helped increase the representation of students of color in prototypical public graduate schools in the state by approximately one percentage point. Though the increase is modest as it represents about 30 more students of color on average across public graduate and professional schools in Texas in 2006, it is nevertheless important because even just a few students can contribute to a critical mass at any one given institution; in addition, the small increase may be an important signal that considerations of race—even when constitutionally constrained and limited—can be one among many solutions for increasing student of color representation in higher education. Given the critical role graduate and professional schools play in training the leaders, scholars, and professionals who shape our lives, economies, and governance, a policy that can help increase student of color enrollment, even if modest, is meaningful though arguably not sufficient considering the demographic shifts in the country, where racial and ethnic minorities are projected to make up 54 percent of the population by midcentury (U.S. Census Bureau, 2008).

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[32] Instead of including the variable POST, which pulls student of color enrollment in Texas for each of the three years after *Grutter* into one overall mean, this method provides the mean outcome for each of the three years after *Grutter*.

[33] I tested the following null hypotheses: H_0: Year1*TX=Year2*TX; H_0: Year2*TX = Year3*TX; and H_0: Year1*TX= Year3*TX, and failed to reject in all three cases (p=0.45, p=0.69, and p=0.27, respectively).

That *Grutter's* impact on enrollment in Texas is small, however, is not altogether surprising. One would expect that an absolute policy—such as a prohibitive policy—would have a greater impact on student of color enrollment than a permissive policy, under which institutions are legally permitted to, but not required to consider race. In this latter context, institutions need to make policies and weigh considerations within a complex legal landscape, which requires flexible and individualized practices that meet legal constraints. In addition, institutions need to defend and justify their practices before the public given the controversial nature of affirmative action policies, which are hotly disputed not only in the legal arena but on normative grounds where competing ideologies regarding equality and justice result in enduring moral disagreements. As a result, institutions face ongoing challenges to affirmative action practices, as evidenced by the 2008 lawsuit filed against the University of Texas at Austin for their consideration of race over other race-neutral alternatives after *Grutter* (Mangan, 2008) and by the various statewide ballot initiatives that have been introduced and passed over the last decade (Wiedeman, 2008). Thus, these findings indicate that a permissive policy such as *Grutter* may not be enough, or effective on its own, for larger increases in student of color enrollment in graduate and professional schools.

Another possibility is that during the time when the *Hopwood* decision was in place in Texas, graduate and professional schools might have adopted alternative measures to mitigate the potential decline in student of color enrollment at their institutions. At the undergraduate level, for example, the University of Texas at Austin and Texas A&M University adopted specific scholarship and retention programs to attract a diverse student body (Horn & Flores, 2003). UT Austin, for example, instituted the Longhorn Opportunity Scholarship, which targeted low-income high school students at the top 10 percent of their graduating class. These undergraduate programs were implemented in combination with the Top Ten Percent Plan, which granted high school seniors in the top 10 percent of their class automatic admission to state universities. A qualitative study of the graduate and professional schools in the Texas sample might help reveal the extent to which these institutions implemented similar measures, which might also help explain the small positive impact found at public institutions.

Because this is an intent-to-treat design—that is, institutions can legally consider race, although they are not required to and may not necessarily have done so—it is difficult to identify with certainty the ways in which *Grutter* might have had an impact in the public sector. In light of the politicized nature of affirmative action, it is reasonable to assume that the public climate under which institutions operate influenced and restrained institutional responses. Thus, the varying levels of public scrutiny and accountability over public and private institutions can help explain the difference in impact across institutional sectors. Because public institutions have traditionally been more accountable to the legislature and the state government (Grodsky & Kalogrides, 2008) and most lawsuits challenging affirmative action practices have involved public institutions, the practices of public institutions in the

state have traditionally been under closer scrutiny than those of private institutions. Given the stricter scrutiny in the public sector, it is possible that private institutions had more leeway in considering race in admissions or adopted various alternatives to mitigate potential student of color enrollment declines during *Hopwood* than public institutions. Thus, *Grutter* might have introduced flexibility in the public sector while merely affirming the ongoing practices of private institutions.[34]

Given the nature of quantitative analysis from which we can draw conclusions based on averages across groups, this analysis cannot reveal the exact ways in which Texas institutions might have implemented practices endorsed by the U.S. Supreme Court in *Grutter* to increase the diversity of their student bodies. Some qualitative evidence suggests that Texas public institutions responded differently. After *Grutter*, for instance, the University of Texas at Austin announced that it would reinstate the use of race in undergraduate admissions decisions, whereas Texas A&M University opted not to reinstate the consideration of race in admissions but to launch recruitment and financial aid programs targeted toward underrepresented students (Springer, 2004). Qualitative studies of the various institutions in the sample may identify additional ways in which institutions responded; a closer study of institutions that may have experienced the biggest jump in student of color enrollment may also help identify the most effective policies for increasing the representation of students of color and better inform future policies.

Policies designed to increase racial and ethnic student body diversity might involve a combination of outreach, recruitment, and retention programs. Graduate and professional schools, for example, might partner with two- or four-year institutions that serve high percentages of underrepresented students of color (such as community colleges, Hispanic Serving Institutions or historically black colleges), offer targeted scholarships that consider race as a factor, and provide mentoring opportunities for students of color who may not otherwise consider pursuing a graduate or professional degree. In a context where race-conscious practices are legally permissible, institutions have the flexibility to consider a combination of these strategies framed and presented in a way that can satisfy constitutional scrutiny in a contentious and politically charged affirmative action climate.

While I attempt to draw a causal connection between the *Grutter* decision and the estimated increase in student of color enrollment in public graduate and professional schools in Texas, it is important to consider that the results may be due to factors other than the permission to consider race *per se* in admissions decisions or outreach and recruitment programs. An alternative explanation in Texas involves the Top Ten Percent Plan, which granted high school seniors in the top 10 percent of their class automatic admission to college starting in 1999. This policy could have changed the pipeline of college

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[34] Another possibility is that following *Grutter*, more students chose to apply or enroll in public institution over private institutions, which might explain the negative, though not statistically significant, parameter estimate associated with the coefficient of interest for the private sample ($\hat{\beta}$ = -0.04, p=.405).

graduates and increased the number of students of color eligible to apply and enroll in graduate and professional school as early as 2003. Research shows, however, that, when considering the changing demographics in the state, the plan did not make up for a decline in undergraduate enrollment of students of color following *Hopwood* (Tienda *et al.*, 2003; see also Horn & Flores, 2003). For this reason, this rival explanation for the impact I find in this analysis is unlikely. Other sources of bias could include different immigration trends or policies at the local level among Texas and the states in my comparison group during the years of interest in this study, although the state-level covariates and state-fixed effects in my analysis control for these differences.

An important limitation of my study is the small sample of professional and specialized schools, which limits my ability to generalize my findings to these types of schools. Another limitation relates to what I am able to capture with my outcome measure. While enrollment captures an overall impact on students' decisions to apply, administrators' decisions to admit and students' subsequent decisions to enroll, it is possible that *Grutter* affected these areas differently and an analysis that is able to differentiate the impact on admissions from enrollment may be more informative for public policy efforts. Moreover, because enrollment numbers combine doctoral, Master's and first-professional students,[35] I am unable to draw any inferences about whether *Grutter* helped increase the enrollment of one type of student over another. In addition, enrollment numbers are aggregated at the institutional-level and not by field of study or discipline within a graduate institution. This prevents me from analyzing whether any particular fields of study or disciplines were more affected than others. These are important areas of further study because students of color are greatly underrepresented in doctoral and first-professional studies (relative to Master's programs) (Planty *et al.*, 2008) and the disparities in representation are even starker within particular fields of study or disciplines, such as the sciences and engineering, where 2006 enrollment figures reveal that Latinos and African Americans each constitute only 4 percent of the students (NSF, 2008) (compared to their enrollment in the humanities where the percentages are higher (CGS, 2008)). Admissions practices, moreover, can differ across graduate fields of study or disciplines, where the consideration of race and ethnicity as a factor in an admissions decision may be more or less important given varying emphases on standardized testing and program selectivity (see Attiyeh & Attiyeh, 1997).[36]

Despite these limitations, these research findings can help inform the public debate about affirmative action. The small impact the *Grutter* decision had on public graduate and professional schools may reflect the nature of the decision, which only permits the consideration of race within legal

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[35] The definition of "graduate" students in IPEDS includes both Master's and doctoral students. Moreover, as I explained earlier, I combined the enrollment numbers for graduate students with those of first-professional students.
[36] My outcome measure also combines Latino, African American, and Native American students and it is possible that effective outreach, recruitment and retention strategies may need to be targeted differently for each group.

boundaries, and the contentious and politically charged climate in which affirmative action policies are implemented. Or it may reflect institutional efforts during *Hopwood* that mitigated the potential decline in student of color enrollment in graduate and professional schools across the state while the prohibition to consider race was in place. Institutional leaders who have long defended affirmative action practices have the support of a U.S. Supreme Court decision that endorses the careful consideration of race in admissions. However, they must continue to defend their practices before the broader public if they are to fulfill their educational missions and make equal access a reality. These are important goals considering the critical role graduate and professional schools play in ensuring the economic health and welfare of our society as well as the legitimacy and strength of our democratic form of government. These concerns require active and sustained outreach and recruitment efforts by institutional leaders who seek to increase access for underrepresented students of color in graduate and professional programs. These concerns also require more studies, quantitative and qualitative, that document the effectiveness of admissions policies designed to target the underrepresentation of students of color in higher education, especially in our current social and political climate where affirmative action policies remain controversial.

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Table 1. State-wide policies and court decisions relevant to this study, with effective policy dates.

State	Policy Type	Description	Affirmative Action Ban	Institutional Sector Affected	Policy Change Date
Texas	Court decision	*Hopwood v. State of Texas*, a Fifth Circuit Court decision that bans consideration of race as a plus factor in admissions decisions in Texas	Yes	Public and Private	1997 to 2003
California	State initiative	Proposition 209 bans use of race/ethnicity in employment, education and contracting decisions	Yes	Public	1998
Washington	State initiative	Initiative 200 bans use of race/ethnicity in employment, education and contracting decisions	Yes	Public	1999
Florida	Executive Order	One Florida Initiative bans use of race in public institutions	Yes	Public	2000
All states (except public institutions in CA, WA, and FL)	Court decision	*Grutter v. Bollinger*, U.S. Supreme Court decision that permits use of race as a factor in admissions decisions and abrogates *Hopwood* but does not supersede state initiatives and executive orders.	No	Public and Private	2003

Sources: *Hopwood*, 78 F.3d 932 (5th Cir.); Cal. Const. art. I, §31; Wash. Rev. Code §49.60.400 (2003); Fla. Governor's Exec. Order No. 99-201 (1999); *Grutter,* 539 U.S. 306 (2003).

Table 2. Selected state demographic, educational, and economic characteristics for 2006.

	State			
	Texas	**California**	**Florida**	**Washington**
	(*n*=59)	**(*n*=72)**	**(*n*=28)**	**(*n*=15)**
Demographics[1]				
Total population	23,507,783	36,457,549	18,089,889	6,395,798
Percent White	69.79	59.82	76.1	80.49
Percent Hispanic	35.67	35.86	20.1	9.07
Percent Black	11.56	6.2	15.4	3.41
Percent Native American	0.47	0.73	0.3	1.45
Educational Attainment[1]				
Percent 25 yrs and over with				
Bachelor's Degree	24.7	29.0	25.3	30.5
Economic Indicators[2,3]				
Per capita income[2]	22,501	26,974	25,297	27,346
Disposable income[3]	31,012	33,373	31,635	33,334
Total unemployment rate[2]	4.8	4.8	3.2	5
Unemployment rate for 25-34				
year olds[3]	4.1	4.6	2.8	4.8

Sources: U.S. Census Bureau 2006 American Community Survey[1], Bureau of Labor Statistics Geographic Profile of Employment and Unemployment[2], and Bureau of Economic Analysis[3].

Table 3. Selected institutional characteristics of sample, in total number and percentage of sample, by state.

Institutional Characteristics	State			
	Texas (*n*=59)	California (*n*=72)	Florida (*n*=28)	Washington (*n*=15)
Public[1]	38	30	10	5
	64%	41%	36%	33%
Research/Doctoral Institution[1]	16	21	10	2
	27%	29%	36%	13%
Master's Comprehensive[1]	34	41	15	13
	57%	57%	54%	87%
Professional School[1]	8	8	1	0
	14%	11%	4%	0%
Specialized School[1]	1	2	2	0
	2%	3%	8%	0%
High Selectivity[2]	11	21	9	5
	19%	29%	32%	33%
Moderate Selectivity[2]	21	25	14	6
	36%	35%	50%	40%
Low Selectivity[2]	18	17	4	4
	31%	24%	14%	27%
Not Ranked	9	10	3	0
	15%	13%	4%	0%

Sources: Integrated Postsecondary Education Data System (IPEDS)[1] and Barron's *Profiles of American Colleges* (2008)[2].

Notes: Institutional type categories are based on 2000 Carnegie Classifications. Professional Schools include those classified as "medical schools or medical centers" or "schools of law" and Specialized Schools include those classified as "engineering and technology" and "business and management." Institutions of high selectivity, moderate selectivity, and low selectivity include undergraduate institutions classified as highly or very competitive, competitive, and less and noncompetitive under Barron's 2008 rankings, respectively, and imputed matching IPEDS criteria. Institutions that are not ranked include professional and specialized schools.

Figure 1. Figure displaying raw mean values for underrepresented students of color enrollment in graduate and professional schools in Texas (*n*=59) and comparison states: California (*n*=72), Florida (*n*=28), and Washington (*n*=15), by institutional sector.
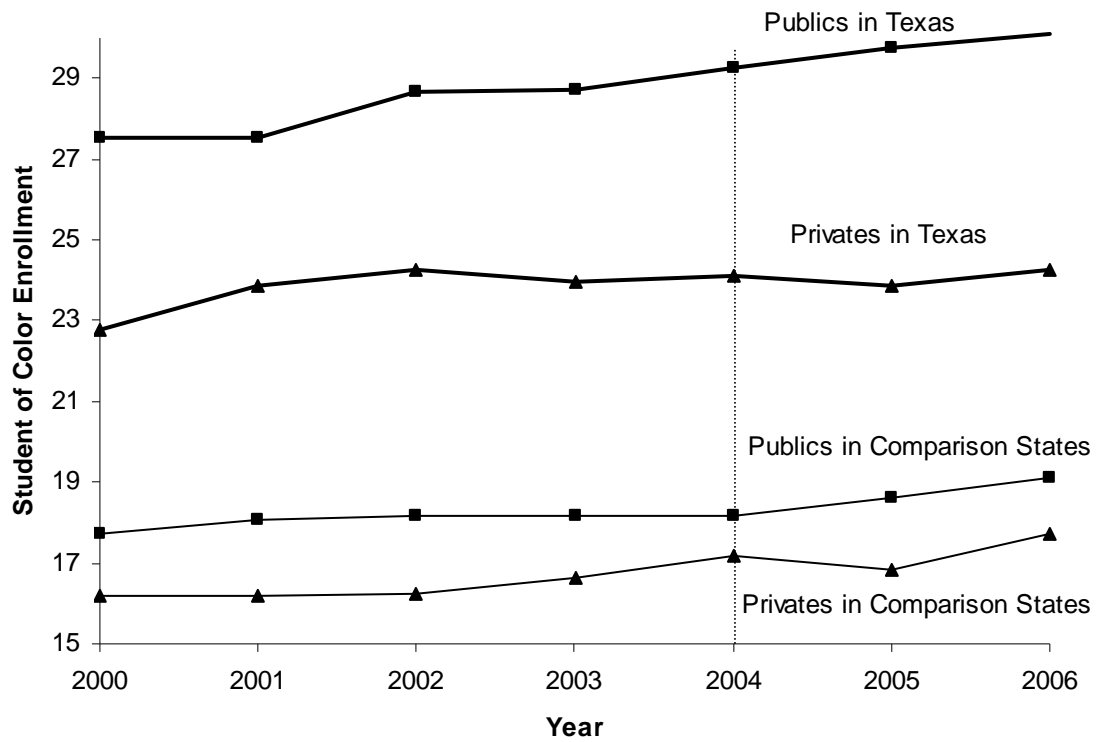
Table 4. Full taxonomy of fitted models summarizing effect of *Grutter* on student of color enrollment in graduate and professional school in Texas with *logit* transformation of the outcome and model fit separately for each sub-sample of public (*n*=83) and private institutions (*n*=91).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			Public						Private			
POST*TX	0.0656***	0.0562***	0.0674***	0.0835***	0.0666***	**0.0674*** **	-0.0421	-0.0424	-0.0429	-0.0979	-0.0496	**-0.0421**
	(0.0185)	(0.0193)	(0.0190)	(0.0253)	(0.0191)	**(0.0179)**	(0.0507)	(0.0507)	(0.0507)	(0.0628)	(0.0514)	**(0.0507)**
POST	0.0445***	0.0376***	-0.0356*	-0.0192	-0.0358	**-0.0246**	0.0616**	0.0648**	0.0290	0.0756	0.0404	**0.0616****
	(0.0125)	(0.0131)	(0.0199)	(0.0277)	(0.0234)	**(0.0202)**	(0.0243)	(0.0299)	(0.0443)	(0.0564)	(0.0491)	**(0.0243)**
TX	1.469***	1.126**	1.057**	0.934**	0.898	**0.945****	1.042***	1.205***	1.196***	0.860**	0.490	**1.166*****
	(0.452)	(0.437)	(0.437)	(0.447)	(0.722)	**(0.437)**	(0.270)	(0.267)	(0.267)	(0.341)	(1.297)	**(0.261)**
CA	0.898*	0.791*	0.678	0.593	0.669	**0.646**	0.585**	0.738***	0.740***	0.687***	0.324	**0.717*****
	(0.459)	(0.424)	(0.425)	(0.426)	(0.637)	**(0.419)**	(0.247)	(0.246)	(0.246)	(0.254)	(1.121)	**(0.245)**
FL	1.348***	1.521***	1.487***	1.307***	1.134*	**1.342*****	0.862***	0.951***	0.949***	0.683**	0.150	**0.897*****
	(0.521)	(0.475)	(0.475)	(0.483)	(0.674)	**(0.478)**	(0.277)	(0.279)	(0.279)	(0.342)	(1.034)	**(0.271)**
Institutional characteristics												
research		0.941**	0.905**	0.901**	0.896**	**0.911****		0.578**	0.576**	0.576**	0.576**	**0.489***
		(0.417)	(0.417)	(0.417)	(0.417)	**(0.415)**		(0.287)	(0.287)	(0.287)	(0.287)	**(0.266)**
masters		1.111***	1.067***	1.062***	1.055***	**1.074*****		0.642***	0.622**	0.624**	0.623**	**0.536*****
		(0.381)	(0.381)	(0.381)	(0.381)	**(0.378)**		(0.246)	(0.246)	(0.246)	(0.246)	**(0.202)**
highly selective		-1.218***	-1.208***	-1.207***	-1.205***	**-1.210*****		-0.578***	-0.570***	-0.571***	-0.570***	**-0.483*****
		(0.351)	(0.351)	(0.351)	(0.351)	**(0.350)**		(0.218)	(0.218)	(0.218)	(0.218)	**(0.183)**
moderately selective		-0.659***	-0.653***	-0.653***	-0.652***	**-0.654*****		-0.173	-0.176	-0.176	-0.176	
		(0.250)	(0.250)	(0.250)	(0.250)	**(0.249)**		(0.206)	(0.206)	(0.206)	(0.206)	
average tuition		0.0162*	-0.00309	-0.00536	-0.00841			-0.00114	-0.00431	-0.00408	-0.00427	
		(0.00983)	(0.0104)	(0.0106)	(0.0113)			(0.00614)	(0.00679)	(0.00682)	(0.00680)	
Year trend			0.0233***	0.0167	0.0254**	**0.0266*****			0.0128	0.0531*	0.00361	
			(0.00481)	(0.0121)	(0.0123)	**(0.00473)**			(0.0117)	(0.0285)	(0.0272)	
State characteristics												
% pop. 25 and over with Bachelor's deg.				-0.0599***		**-0.0385****				-0.0320		
				(0.0218)		**(0.0168)**				(0.0490)		
unemployment rate for 25-34 yr olds				0.00990						-0.00441		
				(0.00664)						(0.0174)		
per capita income				0.0193						-0.0660		
				(0.0209)						(0.0452)		
% pop. Hispanic					-0.00456						0.00917	
					(0.0161)						(0.0392)	
% pop. Black					0.0333						0.0600	
					(0.0325)						(0.0694)	
Constant	-2.517***	-2.769***	-49.17***	-35.42	-53.54**	**-55.08*****	-2.301***	-2.705***	-28.20	-106.6*	-10.14	**-2.692*****
	(0.425)	(0.541)	(9.607)	(23.78)	(24.49)	**(9.372)**	(0.222)	(0.310)	(23.35)	(55.95)	(53.99)	**(0.289)**
Observations	581	581	581	581	581	**581**	637	637	637	637	637	**637**
No. of institutions	83	83	83	83	83	**83**	91	91	91	91	91	**91**
Overall R-squared	16%	35%	35%	35%	35%	35%	14%	25%	26%	26%	26%	25%

*** p<0.01, ** p<0.05, * p<0.1. Standard errors (in parenthesis) are adjusted to account for the clustering of observations within institutions over time, using random effects, and clustering of observations within state, using state fixed effects, which control for observed and unobserved time-invariant differences among states, with Washington state as the reference category.

Notes. Institutional type categories (research and masters) are based on 2000 Carnegie Classifications. Reference categories for Carnegie classification are professional (institutions classified as "medical schools or medical centers" or "schools of law") and specialized schools (those classified as "engineering and technology" and "business and management"). Reference categories for selectivity are those

of low selectivity and those that are not ranked (professional and specialized schools). Institutions of high selectivity, moderate selectivity, and low selectivity include undergraduate institutions classified as highly or very competitive, competitive, and less and noncompetitive under Barron's 2008 rankings, respectively, and imputed matching IPEDS criteria.

Table 5. Regression results summarizing effect of *Grutter* on student of color enrollment in graduate and professional school in Texas for final model with varying compositions of the comparison group, using logit transformation of the outcome and models fit separately by institutional sector.

	Models							
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	Public				**Private**			
	All States	**Without WA**	**Without FL**	**Without CA**	**All States**	**Without WA**	**Without FL**	**Without CA**
POST*TX	**0.0674***	0.0711***	0.0650***	0.0624**	**-0.0421**	-0.0460	-0.0544	-0.0111
	(0.0179)	(0.0185)	(0.0195)	(0.0266)	**(0.0507)**	(0.0539)	(0.0518)	(0.0453)
POST	**-0.0246**	-0.0233	-0.0105	-0.0620*	**0.0616****	0.0655**	0.0738***	0.0305
	(0.0202)	(0.0213)	(0.0225)	(0.0324)	**(0.0243)**	(0.0274)	(0.0278)	(0.0296)
TX	**0.945****	-0.408	0.918**	0.951*	**1.166****	0.275	1.197***	1.161***
	(0.437)	(0.358)	(0.419)	(0.537)	**(0.261)**	(0.225)	(0.248)	(0.281)
CA	**0.646**	-0.703**	0.634		**0.717****	-0.178	0.761***	
	(0.419)	(0.338)	(0.400)		**(0.245)**	(0.194)	(0.235)	
FL	**1.342****			1.459**	**0.897****			0.854***
	(0.478)			(0.570)	**(0.271)**			(0.298)
Institutional characteristics								
research	**0.911****	0.913**	0.905**	1.041*	**0.489***	0.502*	0.0963	0.823*
	(0.415)	(0.431)	(0.402)	(0.548)	**(0.266)**	(0.279)	(0.286)	(0.427)
masters	**1.074****	1.073***	1.076***	1.072**	**0.536****	0.540***	0.415*	0.695**
	(0.378)	(0.389)	(0.362)	(0.493)	**(0.202)**	(0.207)	(0.215)	(0.323)
highly selective	**-1.210****	-1.229***	-1.232***	-1.436***	**-0.483****	-0.500**	-0.380**	-0.715***
	(0.350)	(0.376)	(0.353)	(0.540)	**(0.183)**	(0.205)	(0.188)	(0.263)
moderately selective	**-0.654****	-0.649**	-0.645***	-0.794**				
	(0.249)	(0.256)	(0.240)	(0.370)				
Year trend	**0.0266****	0.0251***	0.0246***	0.0325***				
	(0.00473)	(0.00491)	(0.00502)	(0.00601)				
State characteristics								
% pop. 25 and over with Bachelor's deg.	**-0.0385***	-0.0381**	-0.0456**	-0.00629				
	(0.0168)	(0.0180)	(0.0179)	(0.0231)				
Constant	**-55.08****	-50.78***	-50.95***	-67.51***	**-2.692****	-1.799***	-2.607***	-2.768***
	(9.372)	(9.749)	(9.967)	(11.98)	**(0.289)**	(0.230)	(0.290)	(0.390)
Observations	**581**	546	511	371	**637**	567	511	343
Number of institutions	**83**	78	73	53	**91**	81	73	49
Overall R-squared	**35%**	29%	39%	31%	**25%**	17%	28%	36%

*** p<0.01, ** p<0.05, * p<0.1. Standard errors (in parenthesis) are adjusted to account for the clustering of observations within institutions over time, using random effects, and clustering of observations within state, using state fixed effects, which also control for observed and unobserved time-invariant differences among states.

Notes. Institutional type categories (research and masters) are based on 2000 Carnegie Classifications. Reference categories for Carnegie classification are professional (institutions classified as "medical schools or medical centers" or "schools of law") and specialized schools (those classified as "engineering and technology" and "business and management"). Reference categories for selectivity are those of low selectivity and those that are not ranked (professional and specialized schools). Institutions of high selectivity, moderate selectivity, and low selectivity include undergraduate institutions classified as highly or very competitive, competitive, and less and noncompetitive under Barron's 2008 rankings, respectively, and imputed matching IPEDS criteria.

Table 6. Regression results summarizing effect of
Grutter for each of the three years of implementation
(Year 1=2004, Year 2=2005, Year 3=2006) by
institutional sector.

	Models	
	(1)	**(2)**
	Post-*Grutter* Timing	
	Public	**Private**
Year1*TX	**0.0905***	-0.0475
	(0.0278)	(0.0742)
Year2*TX	**0.0644****	-0.0319
	(0.0263)	(0.0742)
Year3*TX	**0.0508***	-0.0470
	(0.0267)	(0.0742)
Year1	-0.0284	0.0683*
	(0.0227)	(0.0357)
Year2	-0.0294	0.0238
	(0.0263)	(0.0357)
Year3	-0.0395	0.0926***
	(0.0346)	(0.0357)
TX	0.865*	1.166***
	(0.445)	(0.261)
CA	0.614	0.717***
	(0.420)	(0.245)
FL	1.246**	0.897***
	(0.488)	(0.271)
Constant	-67.95***	-2.692***
	(17.61)	(0.289)
Observations	581	637
Number of institutions	83	91
Overall R-squared	35%	25%

*** p<0.01, ** p<0.05, * p<0.1. Standard errors (in
parenthesis) are adjusted to account for the clustering of
observations within institutions over time, using
random effects, and clustering of observations within
state, using state fixed effects, which also control for
observed and unobserved time-invariant differences
among states. Both models include covariates from final
models for publics (research, masters, highly selective,
moderately selective, year trend, and percent population
25 and over with Bachelor's degree) and for privates
(research, masters, highly selective).

Figure 2. Illustration of final fitted model 6 from Table 4 for public institutions. Fitted probabilities of student of color enrollment in prototypical public graduate and professional schools in Texas (*n*=38) and in comparison states California (*n*=30) and Florida (*n*=10), with Washington (*n*=5) as reference category, before (2000-2003) and after *Grutter* (2004-2006).