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The effects of affirmative action in higher education

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Abstract

We use the National Longitudinal Survey of Freshmen (NLSF) to analyze the effects of affirmative action on college outcomes for among the 1999 cohort of freshmen in 28 selective colleges and universities. We develop indices of affirmative action at the individual and institutional levels to test the validity of two charges leveled by critics of affirmative action: that it undermines minority performance by placing academically unprepared students into competitive schools without the required skills and abilities (the mismatch hypothesis) and that it stigmatizes all minorities as academically challenged and intellectually weak to produce added psychological pressure that undermines academic performance (the stereotype threat hypothesis). We find no evidence for the mismatch hypothesis. If anything, individual students with SAT scores below the institutional average do better than other students, other things equal. We do, however, find evidence consistent with the hypothesis of stereotype threat, although the effect is not particularly strong compared with other determinants of academic success.

Keywords: Affirmative action; Minorities; Higher education

1. Introduction

The debate over the use of affirmative action in college admissions has once again returned to the spotlight with high profile lawsuits and subsequent Supreme Court rulings. Although the court upheld the right of educational institutions to use race as a factor in admissions, the practice of giving a fixed 'bonus' to racial minority candidates was overruled. As universities struggle to create admissions systems that achieve a balance between

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group diversity and individual fairness, it is important to understand how affirmative action has been working thus far.

At this point, the basic demographic facts are familiar: black representation in college has increased since the implementation of affirmative action policies, as have the number of blacks with college degrees (Nettles et al., 1998(2000)). Hispanics have also benefited from affirmative action and represent a slightly higher proportion of college enrollees and graduates than do blacks. However, black and Hispanic students continue to be quite underrepresented among college students relative to their shares in the population, a fact that is often used to justify the continued use of affirmative action in admissions.

Critics of affirmative action have made three principal arguments: (1) affirmative action constitutes reverse discrimination that lowers the odds of admission for 'better' qualified white students; (2) affirmative action creates a mismatch between the skills of the student and the abilities required for success at selective universities, thereby setting up beneficiaries for failure; (3) affirmative action stigmatizes all members the target group as unqualified, which results in demoralization and substandard performance regardless of individual qualifications.

Although vocal critics of affirmative action have made the foregoing arguments (Herrnstein and Murray, 1994; Sowell, 2004; Thernstrom and Thernstrom, 1999a,b), few empirical studies have sought to evaluate their claims. In this paper, we focus on the latter two of the three anti-affirmative action arguments delineated above. We do so by measuring the degree to which institutions seem to be employing affirmative action in minority admissions and the degree to which individual students are likely to benefit from such policies. Using these two indicators, we assess the effect of affirmative action policies on grades, college satisfaction, and educational persistence among black and Hispanic students in selective schools.

At the institutional level, we measure the degree of a college or university's commitment to affirmative action as the difference between the average black or Hispanic SAT score and the average for the institution as a whole, arguing that the larger this gap the more the institution is probably trading off other criteria (such as race or ethnicity) against test scores to determine admission. At the individual level, we measure the extent of a minority student's likely benefit from affirmative action by taking the difference between his or her SAT score and the institution's overall average, again arguing that students with test scores below the institutional average are likely to have been admitted using other criteria, not limited to but including race and ethnicity. Controlling for a student's personal characteristics and family background, we then regress these indicators of institutional and individual affirmative action on GPA, self-expressed satisfaction with college, and the probability of leaving the institution.

2. Separating evidence from hype

As noted above, one criticism of affirmative action is that it requires "reverse discrimination" against whites (see Glazer, 1975). Many white applicants believe they have been denied admission to a college or graduate program while minority applicants with lower test scores are "unfairly" admitted. This was the basic complaint of students who filed the lawsuits against the University of Michigan that were decided by the US Supreme Court in June of 2003 (*Grutter v. Bollinger* and *Gratz v. Bollinger*). Given the data at our disposal, we are not in a position to evaluate what might be called *the reverse discrimination hypothesis.*

We simply note that the Supreme Court upheld the use of race as one factor in admissions decisions in *Grutter v. Bollinger*, but in *Gratz v. Bollinger* but ruled against using a rigid point system that granted minority students a fixed, arbitrary benefit in admissions decisions.

A more subtle and apparently sympathetic criticism of affirmation action focuses not on damage done to majority group members who are potentially harmed by the admission of minority students, but on the minorities themselves, claiming that lowering admissions standards sets them up for failure by placing them academic settings where they are underprepared for the rigors of the load they will face. This view is sometimes referred to as *the mismatch hypothesis* because it posits a mismatch between the skills of the student and the skills required for success at selective colleges and universities (Sowell, 2004; Thernstrom and Thernstrom, 1999a,b).

Although this hypothesis makes intuitive sense, a fair amount of evidence suggests that it does not hold up (Alon and Tienda, 2005; Bowen and Bok, 1998; Holzer and Neumark, 2000; Kane, 1998). Bowen and Bok (1998), for instance, find that blacks who attend selective institutions are *more likely* to graduate than their counterparts in less selective institutions. Likewise, Alon and Tienda (2005) found that minority students thrive at selective institutions, whatever their background.

Evidence from research in secondary and elementary education casts further doubts on the mismatch hypothesis. Studies of younger children show that, holding prior achievement constant, students in more advanced tracks and/or better schools generally make more educational progress (Hallinan, 1996; Hallinan, 2003; Oakes et al., 1992). Several reasons are cited for this finding—that instruction to high-ability students is generally better; that learning environments are more positive in selective settings; and that students in selective schools offer better academic role models. Parallel arguments could be made for minority students attending selective institutions, even if they may not appear to "deserve" to be there on the basis of test scores or other indicators.

The third argument against affirmative action policies is that, at a collective level, they place undue psychological pressure on the very groups they seek to help (Thernstrom and Thernstrom, 1999a,b). We label this proposition the *stereotype threat hypothesis*[1] because it claims that affirmative action fuels the belief, deeply ingrained in American culture, that minority students—especially blacks—are intellectually inferior (Steele, 1990; Thernstrom and Thernstrom, 1999a,b). This exacerbation of racial stigma affects not only how white students view minority students on campus, but also how minority group members view themselves (Massey and Fischer, 2005). Even proponents of affirmative action admit that heightening racial stigma is a possible negative consequence of affirmative action, through they typically conclude that the benefit of affirmative action policies outweigh the costs (Bowen and Bok, 1998).

Stereotype threat is not created by affirmative action, of course. This phenomenon reflects a much deeper and broader psychological dynamic common in racially stratified societies, where unconscious fears of living up to negative stereotypes about one's group undermine performance (Steele, 1997; Steele and Aronson, 1998). Because black students,

[1] S. Steele and the Thernstroms' speak of racial stigma, not stereotype threat (which is a concept coined and developed by C. Steele). However, we have termed this racial stigma the stereotype threat hypothesis because we believe this is a more accurate depiction of the mechanism by which blacks may be negatively affected by affirmative action.

in particular, have been stereotyped as intellectually inferior in American culture, (Herrnstein and Murray, 1994), they are especially vulnerable to stereotype threat. If white students believe that many blacks around them would not be there were it not for a lowering of academic standards, and more importantly, if black students *perceive whites* to believe whites to believe this, then affirmative action indeed may undermine minority performance by heightening stereotype threat. How much performance is subverted thus becomes an empirical question.

The debate on affirmative action has unfolded in the context of a broader controversy about the value and appropriateness of standardized test scores in college admissions (Gose and Selingo, 2001; Lemann, 1999). The SAT is less than perfect as a predictor of college performance and has been shown to be particularly poor in forecasting minority performance (Bowen and Bok, 1998; Fleming, 2000; Fleming, 2002; Fleming and Garcia, 1998). Nonetheless, despite vocal criticisms (see Gould, 1981; Taylor, 1980) the SAT remains a staple part of the college admissions process in most institutions. As such, these scores serve as the basis for our measurement of the degree to which affirmative action has played a role in the admission of minority students.

3. Data and measurement

Our data come from the National Longitudinal Survey of Freshmen (NLSF), a probability sample of students who entered 28 selective US colleges and universities as freshmen in the Fall of 1999. Some 35 schools were asked to participate in the study, including all of the institutions studied by Bowen and Bok (1998) plus the University of California at Berkeley and all but seven (Duke, Hamilton, Morehouse, Spelman, Vanderbilt, Wellesley, and Xavier) agreed and were able to participate, yielding an institutional response rate of 80%. This sample is ideal for our analysis precisely because it is comprised only of students from the most selective institutions, and prior research suggests that race only appears to be a factor in admissions decisions among the top 20% of four-year institutions (Kane, 1998).

Among institutions that agreed to participate, NLSF investigators approached 4573 randomly selected students and completed 3924 face-to-face interviews, for an overall response rate of 86% (Massey et al., 2003). The baseline sample included 998 whites, 959 Asians, 916 Latinos, and 1051 African Americans. The survey gathered extensive information about respondents prior to their entering college and measured in some detail their initial attitudes, motivations, and perceptions. A detailed description of the sampling methodology and questionnaire, along with a list of the 28 institutions and their characteristics, is contained in Massey et al. (2003).

The baseline survey was followed by a series of shorter telephone surveys designed to determine how respondents had fared since the first interview. Follow-up surveys were administered each spring from 2000 through 2003. Here, we draw upon data compiled in the follow-up surveys of 2000 through 2002 when most respondents were finishing their freshmen, sophomore, and junior years. The respective response rates for these waves were 96%, 90%, and 84%. Whereas most of the independent variables used in our analyses were defined from the baseline survey, the dependent variables, academic achievement, college satisfaction, and attrition, were assessed in subsequent surveys in the spring of 2000, 2001, and 2002. So as not to undermine respondent cooperation, we did not ask students to provide SAT scores in the baseline survey; these were gathered in the 2000 wave.

3.1. Measuring affirmative action

As already mentioned, we created two measures to assess the effects of affirmative action on the performance of minority students. The first considers affirmative action at the individual level as the difference between a minority student's SAT score and the institutional average. For students with SAT scores that equaled or exceeded the institutional average, we coded this variable as 0 and for students with scores below the institutional average we took the absolute value of the difference. The greater the value of this index, the greater the likelihood that the student in question benefited from affirmative action in admissions.

This operationalization of affirmative action assumes that minority SAT scores below the institutional average occur because admissions officers traded off test scores against other criteria associated with a desire to recruit more minority students—the essence of affirmative action. If the mismatch hypothesis is correct, then the larger the magnitude of the index, the higher the likelihood of dropping out, the lower the grades, and the less satisfied students will be with college, other things equal. We found that 84% of black students had test scores that were less than the institutional average, compared with around 66% of Hispanics. Among the former, the size of the discrepancy ranged from 0 points to 515 points and averaged 131 points across all students, and among the latter the range went from 0 points to 510 points and averaged 76 points.

Our second index measures affirmative action at the institutional level by taking the difference between the average SAT score earned by blacks or Hispanics and all students at a particular institution. We hypothesize that the larger this gap, the more an institution used criteria other than test scores to determine minority admissions. Among the 28 schools in our sample, *none* displayed mean black and Hispanic SAT scores that were above the institutional average, suggesting that all institutions practiced some form of affirmative action. The average difference between black and total SAT scores across institutions ranged from 43 to 194 and averaged 122 points. For Hispanics, the average difference was 61 points with a range that went from 56 to 139.

3.2. Outcome measures

We sought to consider the effect of affirmative action on three outcome measures, the first two of which are performance based: GPA and the likelihood of school leaving. We calculate GPA in the fall of the freshman year, the fall of the sophomore year, and cumulative GPA through the fall of the sophomore year. We examine the first and third semesters separately to ascertain whether there is a process of academic adjustment whereby grades get better as students learn what is expected of them. We examine cumulative GPA because it is a more stable and reliable indictor, given that it averages reporting errors over time. GPA is calculated from retrospective self-reports of courses taken and grades earned. A validation exercise performed by Massey et al. (2003) compared self-reported grades to those from official transcripts and found that student self-reports were accurate and reliable.

The second performance-based indicator is whether or not the student left school by the end of the junior year (the spring of 2002). Leaving the institution in which a student matriculated as a freshman does not necessarily mean that that person dropped out of higher education entirely, but it nonetheless indicates something problematic about the student's presence at the institution (either social, financial, or academic). We defined

school leaving as a dichotomous variable that was coded 1 if the student was not enrolled in the same institution during the spring of their junior year and 0 otherwise. Some 12% of blacks and 11% of Hispanics had left their original school by junior year, compared to about 10% of white students and just 8% of Asians.

Our third outcome variables assesses subjective perceptions of college success by constructing a three-item scale of college satisfaction based on questions asked in the spring of the sophomore year. Students were asked to answer three questions using Likert-type rating scales: "How satisfied are you with your intellectual development since enrolling?" "How satisfied are you with your social life since enrolling?" And "considering everything, how would your rate your experience so far?" When added together, the items yielded a scale ranging from 0 to 21 with a Chronbach's α of .704. The average satisfaction score for blacks (10.9) was significantly lower than that of whites (11.8) but the average for Hispanics (11.5) and Asians (11.3) was nearly the same. Thus, blacks are less satisfied with college, on average, than other racial and ethnic groups.

3.3. Control variables

Because family background has been shown to affect academic performance, we include several control variables in our model, focusing on key determinants identified by Massey et al. (2003). Mean values of independent control variables used in the analysis are shown for blacks and Hispanics in Table 1. First, we measure whether the student grew up in an intact (two-parent) family using a dummy variable coded 1 for intact, 0 if the student experienced any other type of family before age 18. Net of other factors, prior research has shown that children from two-parent families have better academic outcomes than those who spent time in a single parent or step-parent household (McLanahan and Sandefur, 1996). We also include a dummy variable to indicate whether the student has a foreign born parent because second generation Americans might adjust to college differently than students from non-immigrant households.

We also include measures of parental income and welfare status. Parental income is measured as a dichotomous variable coded 1 if the student reports that parental income during the year prior to college was greater than or equal to $75,000, and 0 otherwise. Although most whites came from households making greater than $75,000 a year, only about 37% of blacks and 42% of Hispanics did so. As an additional measure of economic disadvantage, we include an indicator of whether the student's family was ever on welfare. Nineteen percent of black students and 14% of Hispanic students reported that their family had been on welfare sometime while they were growing up.

Parental education is also an important predictor of college completion, which we measure with a count of the number of degrees in the household. Each degree counts as one point; so each parent has a maximum of two points (four between two parents). An undergraduate degree (BA, BBA, AB) counts for one point, while an advanced degree (PhD, JD, MD) yields an additional point. Black and Hispanic students come from household with comparable levels of parental education. The average for both groups is 1.5, meaning the normative household has one parent who has graduated from college and around half have two parents who have attended college. Virtually all white students have two college-educated parents, and most have at least one parent with an advanced degree.

We measure prior academic achievement and academic preparation for college with five indicators. First, we include self-reported SAT scores in the model. This question was

Table 1
Group-specific means for variables used in analysis of affirmative action

	Hispanic	Black
Outcomes		
Fall GPA freshman	3.072	2.954
Fall GPA sophomore	3.139	2.972
Cumulative three semesters GPA	3.102	2.971
Satisfaction with college (soph)	11.454	10.912
Left original college (junior)	0.109	0.115
Affirmative action variables		
Individual affirmative action	76	131
Institutional affirmative action	56	122
Demographic characteristics		
Male	0.419	0.356
Two parent family	0.678	0.526
Foreign born parent	0.691	0.285
Parental resources		
Number of parental degrees	1.450	1.455
Ever on welfare	0.140	0.193
Income >75K	0.419	0.368
Academic preparation		
SAT score	1277	1202
Private schooling	0.205	0.155
Number of AP courses	2.906	2.423
HS GPA	3.700	3.562
Self-rated school quality	3.256	3.226
Social/psychological preparation		
Social distance from whites	10.870	14.873
Susceptibility to peer influence	11.753	12.407
Self-efficacy	18.987	19.079
Self-esteem	32.272	33.718
N	916	991

Source: National Longitudinal Survey of Freshmen.

asked in the third wave of data collection, so there are some cases that are missing this information due to non-participation in that wave. There were also students who were in wave 3, but chose to not answer the question. Because the individual SAT score is crucial for our measure of individual affirmative action, we imputed the values for those missing this information using information from wave 1 on parental characteristics, high school characteristics, and other indicators of academic preparation for college[2]. We ran our models both with and without the imputed SAT scores and found that they were very similar except that there was greater statistical power in the models with the imputed SAT scores, owing to greater degrees of freedom. We are in the process of obtaining admissions records for the students in the sample to gain actual SAT scores for all students.

Another potentially important factor in predicting performance is whether the student attended private schools prior to coming to college. Attending private schools may be one method that parents in less desirable neighborhoods can offset the negative impact of their immediate environment. If the student reported attending private school at age 6, age 13,

[2] These values were imputed for 25% of black and Hispanic students.

and age 18, we coded the private school indicator as 1. The variable was coded 0 if the student attended public schools exclusively or for some of their schooling. About 21% of Hispanic students and 16% of black students attended exclusively attended private schools prior to college, compared with 17% of whites.

We also include an indicator of advanced placement course taking, which suggests greater preparation for the rigors of college coursework. Students were asked to list any advanced placement (AP) courses that they took in high school. Based on this report, we created a count of the number of AP courses taken. Asians took the most AP courses in high school, averaging nearly four AP courses per student. Whites were below Asians in AP course taking, with an average of 3.25 courses. By contrast, Hispanics took 2.91 AP courses on average and blacks had the lower average number of AP courses in high school at 2.42. Students also reported grades earned in the major academic subjects during high school. From this roster of course grades, we created an approximation high school grade point average. Asians and whites reported slightly higher grades than blacks and Hispanics. Finally, students were asked to rate the overall quality of their high school, from poor (1) to excellent (4). Whites rated the quality of their school fairly highly, with an average rating of 3.4, compared to 3.26 for Hispanics and 3.23 for blacks.

Finally, following Massey et al. (2003) we controlled for a student's social and psychological preparation for college by measuring social distance from whites and susceptibility to peer influence, along with standard indices of self-efficacy and self-esteem. Social distance from whites was measured using 0–10 closeness ratings with respect to five different targets: young white men, young white women, rich whites, middle class whites, and whites in general. The resulting scale had a range of 0–30 and a reliability of .898 (see Appendix A). Whereas blacks evinced an average social distance rating of 14.9 with respect to whites, the Hispanic distance rating was only 10.9. We measured the degree to which respondents were susceptible to peer influence by coding their degree of agreement with various statements pertaining to their high school years, such as "I thought and acted like others;" "I valued the same thing as others," "I worried about what others thought of me," and "I did things so that others would like me." Each of seven such items was coded 0–4 such that a higher score indicated less sensitivity to peer influence and more individual autonomy. The resulting index, which had a possible range of 0–28 and a Chronbach's α of .592.

The NLSF assessed psychological preparation using standard measures of self-esteem and self-efficacy developed by Rosenberg and Simmons (1971). To measure self-esteem, the questionnaire asked respondents the degree to which they agreed or disagreed with ten statements about self-worth, such as "I am a person of worth equal to others," "I have a number of good qualities," and "I am inclined to feel I am a failure." Each item was coded 0–4 such that a higher value indicated a higher self-appraisal. Summing across all items yielded a scale with a potential range of 0–40 and a reliability of .855. The scale of self-efficacy was created from questions asking about agreement or disagreement with statements such as "I don't have control over the direction of my life" and "every time I try to get ahead something stops me." Six such items were coded 0–4 to yield a scale of self-efficacy that ranged from 0 to 24 and had an α of 0.69.

4. Affirmative action and grade performance

Given that affirmative action in admissions is only relevant for black and Hispanic students, we limit our analyses to these groups. In all models, we use robust standard errors to

Table 2
Effect of affirmative action on academic outcomes for black and Hispanic students

	Fall GPA freshman		Fall GPA sophomore		Cumulative GPA	
	B	SE	B	SE	B	SE
Affirmative action indicators						
Individual affirmative action	0.0005^{+}	0.0003	0.0003	0.0003	0.0005*	0.0002
Institutional affirmative action	−0.0001	0.0004	−0.0015*	0.0007	−0.0007	0.0005
Demographic characteristics						
Black	−0.0060	0.0485	0.0247	0.0561	0.0126	0.0381
Male	−0.0569*	0.0233	−0.1324***	0.0288	−0.0977***	0.0220
Two parent family	0.0493	0.0322	0.0337	0.0337	0.0325	0.0277
Foreign born parent	−0.0103	‘0.0222	−0.0074	0.0286	−0.0092	0.0217
Parental resources						
Number of parental degrees	0.0297**	0.0095	0.0222*	0.0095	0.0244**	0.0076
Ever on welfare	0.0153	0.0347	0.0056	0.0335	−0.0035	0.0272
Income >75K	0.0347	0.0254	−0.0064	0.0350	0.0223	0.0211
Academic preparation for college						
SAT score	0.0012***	0.0002	0.0010***	0.0002	0.0011***	0.0002
Private schooling	0.0618^{+}	0.0343	0.0674*	0.0297	0.0720*	0.0281
Number of AP courses	0.0013	0.0109	0.0159*	0.0069	0.0062	0.0084
HS GPA	0.2844***	0.0519	0.2606***	0.0376	0.2928***	0.0411
Self-rated school quality	0.0552*	0.0198	0.0008	0.0167	0.0449**	0.0151
Social/psychological preparation						
Social distance from whites	−0.0005	0.0028	0.0008	0.0022	−0.0009	0.0024
Susceptibility to peer influence	0.0047	0.0033	0.0033	0.0040	0.0029	0.0028
Self-efficacy	−0.0023	0.0042	−0.0052	0.0044	−0.0057	0.0035
Self-esteem	0.0038	0.0031	0.0059^{+}	0.0031	0.0057*	0.0026
Constant	0.0850	0.3275	0.7143*	0.2788	0.2730	0.2860
R^2	0.1682		0.1641		0.2222	
N	1707		1518		1762	

Source: National Longitudinal Survey of Freshmen.
* $p < .05$.
** $p < .01$.
*** $p < 001$.
$^{+}$ $p < 10$.

control for the possible effects of unobserved heterogeneity among students attending the same college. Table 2 shows a regression model estimating the effects of our two affirmative action measures on the grades earned by black and Hispanic students during the fall of the freshman year, the fall of the sophomore year, and the cumulative GPA over the first three terms of college coursework.

The left-hand columns consider the effect of affirmative action on grades earned during the student's first term of college work. These data provide little support for either the mismatch or stereotype threat hypotheses. At the individual level, our indicator of the degree of a student's likely benefit from affirmative action had a marginally significant effect, but the direction of the effect was *positive*, precisely opposite the direction predicted by the mismatch hypothesis. Moreover, at the institutional level, although our measure of a school's use of affirmative action was negative, as predicted by the stereotype threat hypothesis, the effect was not statistically significant.

As others have also found, therefore, our estimates suggest that if affirmative action has any effects at the individual level, they are positive. In general, however, the evidence for any effect is rather weak. As one might expect, the principal determinants of early grade performance in college are parental education and academic preparation. The more college and advanced degrees a student's parents' jointly hold, the higher the high school GPA, the higher and the school quality, the greater the grade point earned during the first term of college coursework. In addition, males earn lower grades than females and those who attended private schools earned marginally higher grades.

The middle columns of Table 2 show the effects of affirmative action on grades in the fall of the sophomore year. At the individual level, the marginally positive effect discovered in the first term of college coursework disappears. At the institutional level, however, the negative effect turns significant, suggesting that greater institutional use of affirmative action may indeed exacerbate stereotype threat to undermine grade performance. The effect, however, is rather small, equivalent to a .02 reduction in GPA for each 10 point difference between the institution's average SAT and the group's average score. Given that this effect is not present in the first year, this result may indicate that white suspicions about minority qualifications—and minority students' realization of those suspicious—arise gradually over time to create a progressively more negative climate for minority academic performance. As before, however, performance is much more strongly determined by parental education and academic preparation.

The final columns of Table 2 show the effects of affirmative action on cumulative GPA through the fall of the sophomore year. This average of three semesters is a more robust outcome, as evidence by the higher *R*-squared. However, since we only found an effect of institutional affirmative action in the fall of the sophomore year, it is not surprising that this effect fails to attain significance in the model for cumulative GPA (it is likely averaged out). But there is a positive effect of individual affirmative action on cumulative GPA, similar in magnitude to that found in the model predicting first semester GPA. However, as in previous models, grade performance is much more powerfully determined by parental education and level of academic preparation.

Taken together, results from the three equations estimated in Table 2 provide no support whatsoever for the academic mismatch hypothesis and only limited support for the hypothesis of stereotype threat. Minority students who score lower on standardized tests than other students at a school do not seem to suffer any additional problems stemming from their admission on other (presumably race-specific) criteria. If anything, these students do better than others. At the institutional level, however, we find some evidence of the gradual emergence of a climate of suspicion regarding minority intellectual ability as a result of an institution's greater use of affirmative action in admissions criteria. The effect however, is rather small, especially in comparison with the influence of academic preparation and parental education.

5. Affirmative action and school leaving

Table 3 shows results of a logit model examining the effects of affirmative action on the odds of leaving school, a clear indicator of some sort of problem with the school. As before, we find no evidence in these data for the mismatch hypothesis. Consistent with our earlier results for grade performance, we find that minority students who were admitted on the basis of other criteria, despite their poor performance on the SAT, actually do better

Table 3
Effect of affirmative action on leaving school for black and Hispanic students

	Left college	
	B	SE
Affirmative action indicators		
Individual affirmative action	−0.0089***	0.0018
Institutional affirmative action	0.0056+	0.0032
Demographic characteristics		
Black	−0.6182*	0.2952
Male	0.5259***	0.1441
Two parent family	−0.2116	0.1674
Foreign born parent	−0.2914	0.1850
Parental resources		
Number of parental degrees	−0.1520*	0.0696
Ever on welfare	0.1110	0.2397
Income >75K	0.0279	0.2211
Academic preparation for college		
SAT score	−0.0075***	0.0016
Private schooling	0.1692	0.1955
Number of AP courses	0.0385	0.0657
HS GPA	−0.6426**	0.2471
Self-rated school quality	0.0458	0.1151
Social/psychological preparation		
Social distance from whites	0.0119	0.0147
Susceptibility to peer influence	0.0454*	0.0187
Self-efficacy	−0.0764**	0.0249
Self-esteem	−0.0301*	0.0140
Constant	11.7532***	2.0496
Pseudo R^2	0.092	
N	1450	

Source: National Longitudinal Survey of Freshmen.
* $p < 05$.
** $p < 01$.
*** $p < 001$.
+ $p < 10$.

than other students. Indeed, the degree of an individual's likely benefit from affirmative action is *negatively* related to the likelihood of leaving school, and the effect is highly significant. For each 10 points increase in the gap between the individual's SAT score and the institutional average, there was an 8.5% *decrease* in the likelihood of leaving college[3].

As before, however, we find modest evidence in favor of the hypothesis of stereotype threat. As indicated by the positive coefficient for institutional affirmative action, the likelihood of leaving school is greater the more a school uses other criteria to offset poor performance on the SAT by minority students, the greater the odds that a minority student left college by the spring of his or her junior year. As before, however, the effect of affirmative

[3] At the recommendation of an anonymous reviewer, we ran alternate models with control variables for student athlete status to test whether this finding was driven by these athletes. Our findings remain the same and athletic status was not significantly related to leaving, so we do not include this variable in the models presented here.

action is substantively small and marginally significant ($p < .10$), especially in comparison with the influence of control the variables.

As with grade performance, the likelihood of school leaving was determined more strongly by academic preparation (SAT scores and high school GPA) and parental education (though the latter effect was less strong than before). Males were much more likely to leave school than females, other things equal, and blacks were less likely to drop out than Hispanics. Unlike prior analyses of grade performance, however, indicators of social and psychological preparation seem to play a larger role in educational persistence. School leaving was negatively related to higher levels of self-esteem and self-efficacy and was positively affected by a greater susceptibility to peer influence. In other words, those most likely to leave school were students with low levels of self-esteem and self-efficacy and those who were more sensitive to the views of surrounding peers.

6. Affirmative action and college satisfaction

Results to this point have consistently failed to support the mismatch hypothesis of minority underachievement offered by critics of affirmative action, but they do provide some support for the hypothesis of stereotype threat. Whereas individual minority members likely to have benefited personally from affirmative action generally earn higher grades and are less likely to leave school than other minority students, those minority students attending institutions displaying a more intensive use of affirmative action criteria are more likely to leave school and earn lower grades.

The negative effect of institutional affirmative action on grades also appears to be emergent, developing gradually over the course of time as minority students become more familiar with campus culture. While no effect on GPA is evident among first-term minority freshmen, by the sophomore year institutional affirmative action has come to have a significant, albeit relatively modest, effect in lowering grades. This pattern suggests that the greater use of affirmative action by colleges and universities may indeed contribute to a negative racial climate on campus, wherein white students, knowing about the SAT performance gap between whites and minority students, express through verbal and nonverbal cues their doubts about minority intellectual abilities, a jaundiced view that minority students gradually come to appreciate as they spend more time on campus. Support for this interpretation comes from the fact that a well-developed sense of self-esteem and self-efficacy, along with greater independence from peer influence, appear to go a long way toward insulating minority students from these effects, strongly reducing the odds of school leaving.

Further support for the view that a greater institutional commitment to affirmative action contributes to a negative environment for minority students on campus comes from our analysis of college satisfaction. Table 4 presents the results of a regression model predicting our indicator of college satisfaction from the two indicators of affirmative action plus independent control variables. In this model, individual affirmative action has no discernable effect on college satisfaction. Minority students with SAT scores below the institutional average—and thus likely to have benefited from affirmative action—are no more likely to express dissatisfaction with their college experience than anyone else.

In contrast, the effect of adherence to affirmative action criteria at the institutional level is significantly negative: the greater the institution's apparent commitment to affirmative

Table 4
Effect of affirmative action on college satisfaction for black and Hispanic students

	College satisfaction	
	B	SE
Affirmative action indicators		
Individual affirmative action	0.0006	0.0013
Institutional affirmative action	−0.0050*	0.0020
Demographic characteristics		
Black	−0.0703	0.2343
Male	0.0114	0.0948
Two parent family	−0.0426	0.1041
Foreign born parent	−0.0439	0.0958
Parental resources		
Number of parental degrees	0.0842*	0.0353
Ever on welfare	−0.0390	0.1364
Income >75K	−0.0006	0.0917
Academic preparation for college		
SAT score	0.0014	0.0012
Private schooling	−0.1330	0.1391
Number of AP courses	−0.0687	0.0405
HS GPA	0.4728*	0.1721
Self-rated school quality	0.1745*	0.0776
Social/psychological preparation		
Social distance from whites	−0.0469***	0.0077
Susceptibility to peer influence	0.0339**	0.0118
Self-efficacy	0.0854***	0.0170
Self-esteem	0.0426**	0.0146
Constant	4.8594**	1.3282
R^2	0.1121	
N	1601	

Source: National Longitudinal Survey of Freshmen.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

action the less satisfied minority students are with college. Satisfaction is also positively predicted by higher levels of parental education and better academic preparation as measured by high school grade point and self-reported school quality. However, neither institutional affirmative action nor academic preparation nor parental education is particularly strong in determining the degree of minority satisfaction with college. Far more important are the various indicators of social and psychological preparation we have assembled. Greater satisfaction with college is strongly and significantly boosted by higher levels of self-esteem and self-efficacy along with greater sensitivity to peer influence, but satisfaction is negatively related to perceptions of social distance from whites. Not surprisingly, at these predominantly white institutions minority students who felt more socially distant to whites expressed lower levels of college satisfaction at these predominantly white institutions. Each one point increase in social distance translated into a .05 reduction in college satisfaction, suggesting that racial tensions do affect the social and academic adjustment of minority students.

7. Conclusion and discussion

Critics of affirmative action have leveled three charges against race-sensitive admissions policies. The first is that affirmative action necessarily involves reverse discrimination against whites, and that two wrongs do not make a right. Data available from the NLSF do not allow us to address this proposition. However, the US Supreme Court has recently decided that whatever the effect of reverse discrimination might be, it is small enough that it does not outweigh the societal benefits of taking race or ethnic origin into account as *one factor* in college admissions decisions.

The other two criticisms lodged against affirmative action are that it undermines minority performance by placing blacks and Hispanics into competitive academic environments without the requisite training, thereby setting them up for failure; and that the use of affirmative action to admit minority students with low SAT scores unfairly stigmatizes all minority members as unprepared and intellectually suspect, thereby increasing the psychological pressure to undermine performance.

We labeled the latter two propositions "the academic mismatch hypothesis" and the "stereotype threat hypothesis." To test them we used data from the National Longitudinal Survey of Freshmen to create measures of the degree to which minority students have benefited from affirmative action in admissions and the degree to which particular institutions employ affirmative action criteria in admitting minority students. At the individual level, affirmative action was operationalized as the degree to which a particular student's SAT score fell below the overall average for the college or university. At the institutional level, degree of commitment to affirmative action was measured by the size of the differential between average black or Hispanic SAT scores and the overall institutional average.

We used these two indicators to predict college grade point average, the odds of leaving school, and overall satisfaction with college, controlling for a variety of background characteristics. Our estimates provided no evidence whatsoever for the mismatch hypothesis. In no case did we find that having an SAT score below the institutional average undermined the performance or well being of individual minority students. If anything minority students who benefited from affirmative action earned higher grades and left school at lower rates than others, and they expressed neither greater nor less satisfaction with college life in general.

We did, however, find some support for the stereotype threat hypothesis, which argues that institutional use of affirmative action stigmatizes black and Hispanic students to compromise performance and well being. Our indicator of institutional affirmative action suggested that the greater an institution used affirmative action criteria in admissions, the lower the grades, the greater the odds of school leaving, and the less the satisfaction with college life expressed by individual minority students, holding constant socioeconomic background, academic preparation, and aptitude. Nonetheless, this institutional effect was modest, and in each case other variables in the model appeared to be more important in determining specific outcomes. Indicators of parental education and academic preparation, for example, were most important in determining grade point average, whereas demographic characteristics, academic ability, and level of social and psychological preparation were important in affecting the likelihood of school leaving. Finally, social and psychological preparation proved to be the crucial factors determining overall satisfaction with college.

We have argued elsewhere that stereotype threat does indeed operate to undermine minority achievement in selective schools (Massey et al., 2003). Indeed, we developed

strong evidence using NLSF data that there is a "threat in the air" linked to stereotypes about minority intellectual inferiority and that it operates to undermine academic performance (Massey and Fischer, 2005). The question here is whether affirmative action adds significantly to the psychological burden over and above what is produced through the normal background pressure caused by stereotype threat. This question is difficult to answer, since all of the schools in our sample employed affirmative action to some degree.

Whatever the answer to the foregoing question, our analyses also suggest that affirmative action has countervailing effects at the individual and institutional levels. While institutional use of affirmative action appears to create an negative campus climate for minority achievement, among individual beneficiaries it seems to produce higher grades and lower school-leaving probabilities. The question then becomes: which effect is stronger?

To assess the relative power of the two effects, we generated predicted grade point averages using the regression estimated for cumulative GPA in Table 2 and the logit model estimated to predict school leaving in Table 3. We considered the case of typical black student and held all control variables constant at the observed mean for black respondents. We then generated predicted GPAs and school-leaving probabilities by varying individual and institutional indices of affirmative action over the rough range observed in our data. The results of the exercise predicting GPA are shown in Fig. 1.

As can be seen, the individual effect of affirmative action on GPA is positive and over the range depicted causes expected GPA to vary from 2.86 to 3.0 as the difference between a black student's SAT and the institutional average goes from 0 to 260 points, a modest effect by any standard. At the institutional level, however, affirmative action acts to depress grades. As the size of the gap between black students in general and the school average varies over the same range, GPA is predicted to decline from 3.01 to 2.83, a slightly larger but still quite modest effect. When the two effects are considered simultaneously, the effects largely balance out to yield a flat profile over the range shown, with the predicted GPA going from 2.95 to 2.85, a small degree of change that is close to constant.

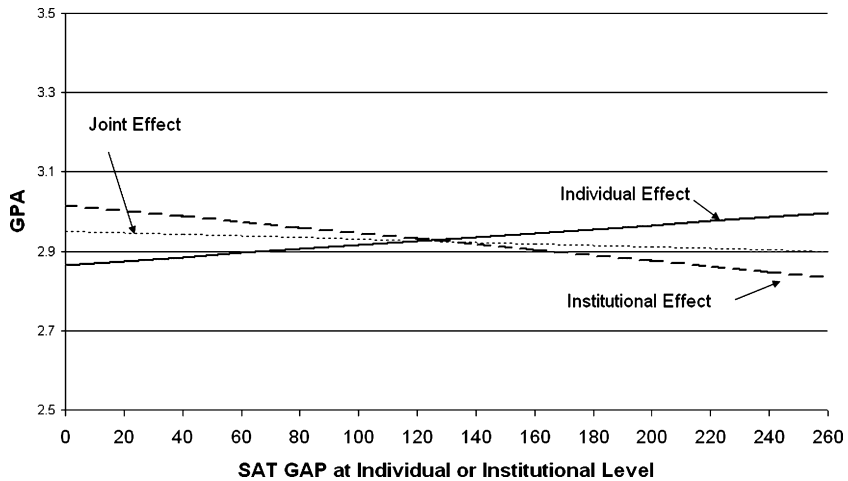

Fig. 1. Effect of individual and institutional affirmative action on cumulative GPA.

Thus, the net effect of affirmative action on grade achievement is essentially a wash, with a modest positive effect at the individual level being effectively counterbalanced by an equally modest negative effect at the institutional level. Focusing on GPA alone, therefore, does not offer a compelling argument either for or against the continued pursuit of affirmative action. When we consider the parallel effects of individual and institutional affirmative action on the likelihood of school leaving, however, the story changes.

Fig. 2 shows how the probability of school-leaving changes as our indices of individual and institutional affirmative action vary of the same range used before. Once again the individual effect yields a benefit for minority students by reducing the probability of school leaving form .18 to .02 as the size of the SAT gap goes from 0 to 260. At the same time, however, the institutional effect works in the opposite direction, shifting the probability departure from .03 to .13. In this case, however, the two effects do not balance out: the size of the individual effect outweighs that at the institutional level, yielding a clear decline in school-leaving probabilities as affirmative action increases. Over range of SAT differentials considered, the predicted probability of school-leaving drops from .10 to .04.

We thus conclude that, despite having both positive and negative implications for minority students, affirmative action policies operate, on balance, to enhance the academic achievement of minority students. Whereas the positive and negative effects of individual and institutional affirmative action balance out to 0 in determining minority grade achievement, they yield a clear benefit by lowering—by 60%—the probabilities of school leaving. Given the mix of effects observed in our sample, in sum, affirmative action will yield more minority college graduates at roughly the same level of grade achievement they would have achieved were not affirmative action implemented. It should also be noted that these minority students will be graduating from top institutions, which prior research has shown to be positively related to higher earnings (Pascarella and Terenzini, 2005).

Given that the benefits of affirmative action operate through individuals whereas the negative aspects are collective suggests room to tip the balance even further in the positive direction with well thought-out interventions. The effect of stereotype threat has

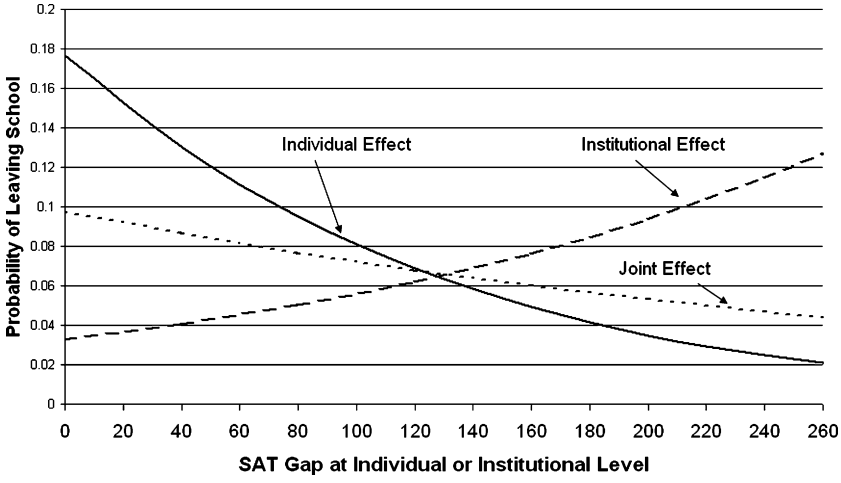

Fig. 2. Effect of individual and institutional affirmative action on the probability of leaving school.

proven to be quite malleable (Perry et al., 2003; Steele and Aronson, 1998) and has even been made to disappear through "wise" interventions structured deliberately to defuse the power of negative stereotypes (Steele et al., 2004). Stereotype threat can also be reduced by increasing the presence of minority faculty in the classroom (Massey and Fischer, 2005). Our ultimate conclusion, therefore, is that despite a complex mix of offsetting effects, affirmative action as currently practiced carries a clear benefit for minority students and that the potential to achieve even greater benefits in the future is considerable.

Appendix A

Scales used in affirmative action analyses

Satisfaction with college		
Satisfaction with intellectual development	0–4	
Satisfaction with social life	0–4	
Overall satisfaction with college so far	0–6	
Scale range	0–21	$\alpha = .704$
Social distance to whites		
Perceived closeness to young white men	0–10	
Perceived closeness to young white women	0–10	
Perceived closeness to group in general	0–10	
Scale range	0–30	$\alpha = 0.898$
Susceptibility to peer influence		
Thought and acted like others	0–4	
Hung out with others	0–4	
Felt comfortable with others	0–4	
Value same things as others	0–4	
Worried about what others thought	0–4	
Worried about being called Nerd or Brainiac	0–4	
Did things so that others would like me	0–4	
Scale range	0–28	$\alpha = 0.592$
Self-esteem		
I'm a person of worth, equal to others	0–4	
I have a number of good qualities	0–4	
All in all, I'm inclined to feel I'm a failure	4–0	
Able to do things as well as most people	0–4	
Feel that I do not have much to be proud of	4–0	
I take a positive attitude towards myself	0–4	
On the whole, I am satisfied with myself	0–4	
I wish I could respect myself more	4–0	
I feel useless at times	4–0	
At times, I think I'm no good at all	4–0	
Scale range	0–40	$\alpha = 0.855$
Self-efficacy		
I don't have control over the direction of my life	4–0	
In life, good luck is more important than hard work	4–0	
Every time I try to get ahead something stops me	4–0	
I am almost certain i can make plans work	0–4	
I feel left out of things going on around me	4–0	
If I work hard, I can do well	0–4	
Scale range	0–24	$\alpha = 0.691$

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