Revisiting the effect of affirmative action on minority student outcomes

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Abstract

The use of affirmative action has been at the forefront of the debate regarding the fairness of the college admissions process for years. Utilizing data from the National Longitudinal Survey of Freshman (NLSF), M. Fischer and Massey (2007) test the effects of race-based admission policies. Providing a specific focus on cumulative GPA, they conclude that the effect of affirmative action is minimal. Testing the robustness of this claim, I replicate their results. Their regression specification suffers from issues of high correlation between their SAT and individual affirmative action variable. When adjusting for these problems, affirmative action actually has a negative effect on cumulative GPA. There is a 0.10 reduction in GPA for every 100-point increase in the difference between an individual's SAT score and the institutional average.

1. Introduction

Taming the River builds on *The Source of the River* (Douglas S. Massey and Fischer (2003)), which is an earlier study that examined student academic performance during the first term of college. With a particular focus on minorities, Mary Fischer and Mooney (2009) analyze data from the National Longitudinal Survey of Freshman. They explore the effects of factors such as financial aid, affirmative action, and student background on student academic and social outcomes. The organization of the article is integral in understanding the argument posed. The first five chapters of the work focus on the social, academic, and financial choices that students make within their first two years of college. The authors highlight the differences in experience for minority students – in comparison to whites and Asians. For example, while financial aid packages are relatively successful in mitigating the financial pressures that students face, the frequency of problems associated with these packages plague minorities at much higher rates than whites and Asians. The latter half of the book discusses the pressures that African-American and Hispanics face by virtue of their status as minorities. In

particular, chapter 6 analyzes the effect of growing up in minority-dominant neighborhoods. The authors explain how the lack of poor educational resources is negatively correlated with college GPA. The authors follow this analysis in chapter 7, explaining the "stereotype threat" hypothesis. This phenomenon operates to undermine the academic performance of blacks and Latinos. In chapter 8, the authors directly address the use of affirmative action in college admissions policies and examine its effect on academic outcomes. They suggest that the use of race-conscious criteria in college admissions may be creating a social stigma for minority students. This stigma gives them performance anxiety and has a negative effect on GPA. At the individual-level, affirmative action affects academic achievement through reducing work effort. However, when holding all else equal, they find no evidence to suggest that individuals who benefit from affirmative action are less prepared for college. Instead, this relationship is moderately positive. In the aggregate, their measures of affirmative action have a counterbalancing effect on GPA. Chapter 9 extends the arguments of the previous chapters and measures the effect of the academic and social variables on GPA, the accumulation of credits, overall student satisfaction, and school leaving. This conversation extends to policy changes that could help increase student's academic and social outcomes in college.

Mary Fischer and Mooney (2009) classify the critiques against affirmative action into two distinct categories: the mismatch and stereotype threat hypotheses. The mismatch hypothesis states that affirmative action creates a mismatch between the skills of the target minority groups and the abilities necessary to succeed academically (Alon (2005)[1]). The stereotype threat hypothesis states that affirmative action stigmatizes all minority members as academically inferior. This creates psychological pressure and undermines academic performance (Claude M. Steele (1998)[2]). The authors illustrate the effects of affirmative action on minority students in college through creating two indicators of affirmative action – individual

[1]Alon (2005) measure college graduation and enrollment rates; they find that there is not enough evidence to support the mismatch hypothesis in the 1980s and early 1990s.

[2]Claude M. Steele (1998) randomly assign black and white students to different treatments. The first three treatments illustrated that presenting a difficult exam as a diagnostic of ability can undermine test performance in black students. The second two tests discovered that simply asking black students to record their race could potentially undermine test performance. Overall, they find evidence to support the stereotype threat hypothesis.

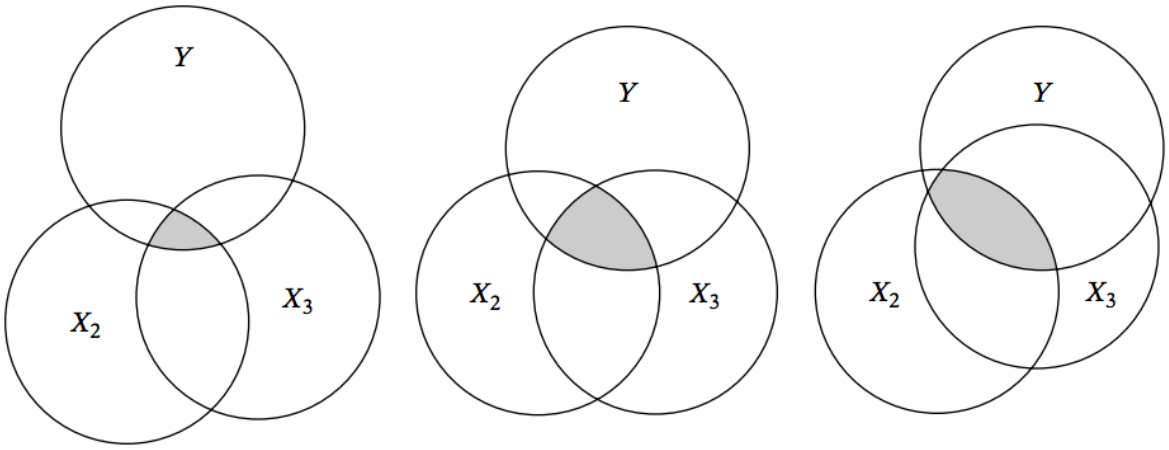
and institutional. In order to test the strength of the authors' regression analyses, I first replicate their results using data from the NLSF (see Table 1 for the summary). In order to create the indicator of individual affirmative action, I compute the absolute value of the difference between an individual minority student's SAT score and the institutional average. Minorities that have scores higher than the institutional average were coded as 0. Thus, according to the authors' original work, the greater the value of the index, the more benefit an individual received from affirmative action. For the indicator of institutional affirmative action, I measure the absolute value of the difference between the black and Latino average SAT score and the institutional average. According to the authors, the larger the magnitude of this index the more an institution used affirmative action in its admission policies.

This empirical analysis measures the effect of high correlation among independent variables. This is defined as multicollinearity – when "two or more of the predictors in a regression model are moderately or highly correlated."[3] According to Gujarati (2004), in cases of high multicollinearity, where predictor variables are highly correlated, coefficient estimates of the multiple regression analysis can be sensitive to small changes in the data and difficult to precisely estimate. For example, consider the following basic regression model:

$$Y = \beta_0 + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3) + \epsilon,$$

where Y represents some outcome of interest. Issues of multicollinearity arise when at least two of the three vectors X_1, X_2, or X_3 have high correlations among both each other and Y. If this is an issue in the model, then the coefficients of the X variables will have "large standard errors (in relation to the coefficients themselves), which means the coefficients cannot be estimated with great precision or accuracy." Consider the following graphic.[4]

[3]Gujarati, Damodar. 2004. "Basic Econometrics." McGraw-HiII/lrwin. 343.
[4]Ibid.



(c) Moderate collinearity (d) High collinearity (e) Very high collinearity

In order to explore multicollinearity, I test the correlations between the independent variables. I discover a strong -0.80 correlation between SAT score and their indicator of individual affirmative action. After adjusting for the issues of collinearity by removing SAT from the regression, the coefficient on the indicator of affirmative action for both categories became statistically significant at -0.001. This means that there is a 0.10 reduction in GPA for every 100-point increase in the difference between individual and institutional SAT score. This refutes the authors' results and illustrates the fragility of their regressions.

2. Data and Methods

The National Longitudinal Survey of Freshman is a comprehensive survey of data that follows first-year students at selective universities as they move through their collegiate experience. This was a large-scale, six-year follow-up survey that took place from 1999 – 2005, including 28 colleges in the United States and over 3,924 students. This includes 14 private schools, nine liberal arts colleges, four public schools, and one historically black college. The racial demographics of students that completed the baseline survey, wave one, consisted of 998 whites, 959 Asians, 916 Latinos, and 1,051 blacks. These numbers were relatively consistent annually with ~80% retention in year six. The first year involved one-on-one, in-person interviews detailing information on the students' background characteristics and aspirations

entering college. Each follow-up survey was then conducted via telephone in the spring of each academic year to "gather information from the same students about their social, psychological, and academic experiences on campus."[5] These sets of data are representative of many other elite universities around the nation. Many researchers have used the NLSF data to measure a wide range of student outcomes. For example, Mooney (2010) used the data to measure the effect of religion on student academic performance and extracurricular activities. She found that attending religious services regularly is positively associated with academic achievement. Griffith (2010) determined what factors cause women and minorities to have low retention rates in STEM field majors. She found that differences in high school preparation and educational experiences can explain most of the differences in retention rates. Park and Kim (2013) used the data to examine how the peer relationships in college organizations (Greek, ethnic, and religious) affect interracial friendships. They found that interacting with peers from Greek organizations is negatively related to interracial friendships.

Before delving into the findings of Mary Fischer and Mooney (2009), I first had to replicate their results. I decided to focus on Table 1 in "The effect of affirmative in higher education," and the regression Table 8.4[6] in *Taming the River*. The regression can be described by the following equation:

$$GPA = \beta_0 + \beta_1(Individual) + \beta_2(Institutional) + \beta_3(X_3) + \beta_4(X_4) + \epsilon,$$

where GPA is the cumulative GPA after the first semester of sophomore year. Individual and Institutional are the two indicators of affirmative action. X_3 is a vector that represents subjective effort, hours studied, and performance burden, and X_4 is a vector representing a list of control variables. This replication proved to be increasingly difficult due to the fact that 35% of students in the data did not report their SAT scores. The authors only briefly mention that they test models with and without the imputed SAT scores and found similar results. They give no data or references to support this claim. Upon reaching out to them

[5] D. Massey (2014)

[6] Fischer, Mary, and Douglass Massey et al. 2009. "Taming the River: Negotiating the Academic, Financial, and Social Currents in Selective Colleges and Universities" 36. Princeton University Press: 198

for further information, they were unable to provide their method of imputation. Fischer followed up to my request with the following statement: "Unfortunately those archived files are not readily accessible. We may have also included high school GPA in the equation." As a result, I dropped 1,372 rows of student data with missing SAT scores out of 3,924. Despite the fact, I was able to replicate the data and reproduce a regression that closely matched the authors' results – allowing for a few, small discrepancies. Specifically, in my regression analysis, the coefficient on my "hours studied" variable is not statistically significant. My table replication and regression analysis can be summed up in Tables 1 and 2.

3. Findings on Cumulative GPA

A. Multicollinearity

Mary Fischer and Mooney (2009) measure the effects of the mismatch and stereotype threat hypotheses with the indicators of individual and institutional affirmative action. In doing so, the authors rely on a key implicit assumption that these two indicators are not highly correlated with the other independent variables. The indicator of individual affirmative action was measured as the absolute value of the difference between an individual's SAT score and the institutional average. As a result, individuals with a higher absolute value difference enjoy more benefits from affirmative action policies. Very similarly, the indicator of institutional affirmative action was measured as the absolute value of the difference between the minority group's SAT score and the institutional average. Therefore, schools that have higher absolute value scores weigh other criteria, such as race and ethnicity, more heavily in their admissions practices. This heavy reliance on student SAT scores in their indicators of affirmative action has the potential to create serious issues of multicollinearity. The authors claim that "affirmative action does not appear to set individual students up for failure by creating a mismatch between cognitive skills and academic demands at competitive colleges and universities."[7] Yet they only provide one version of the regression analysis as evidence. By replicating their data and showing a different version of their regression, I

[7]Mary Fischer and Mooney (2009)

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

	Replicated		Published		Absolute Value of the Differences	
Variables	Hispanic	Black	Hispanic	Black	Hispanic Diff.	Black Diff.
Outcomes						
Fall GPA freshman	3.076	2.975	3.072	2.954	0.004	0.021
Fall GPA sophomore	3.139	2.991	3.139	2.972	0.000	0.019
Cumulative three semesters GPA	3.106	2.985	3.102	2.971	0.004	0.014
Satisfaction with college (soph)	10.892	10.872	11.454	10.912	0.562	0.040
Left original college (junior)	0.099	0.112	0.109	0.115	0.010	0.003
Affirmative action variables						
Individual affirmative action	82.148	118.343	76.000	131.000	6.148	12.657
Institutional affirmative action	58.606	102.905	56.000	122.000	2.606	19.095
Demographic characteristics						
Male	0.419	0.350	0.419	0.356	0.000	0.006
Two parent family	0.665	0.516	0.678	0.526	0.013	0.010
Foreign born parent	0.691	0.284	0.691	0.285	0.000	0.001
Parental resources						
Number of parental degrees	1.659	1.691	1.450	1.455	0.209	0.236
Ever on welfare	0.139	0.185	0.140	0.193	0.001	0.008
Income >75K	0.419	0.366	0.419	0.368	0.000	0.002
Academic preparation						
SAT Score	1290.112	1219.872	1277.000	1202.000	13.112	17.872
Private Schooling	0.205	0.149	0.205	0.155	0.000	0.006
Number of AP courses	3.205	2.594	2.906	2.423	0.299	0.171
HS GPA	3.705	3.565	3.700	3.562	0.005	0.003
Self-rated school quality	3.073	3.072	3.256	3.226	0.183	0.154
Social/psychological preparation						
Social distance from whites	10.870	15.071	10.870	14.873	0.000	0.198
Susceptibility to peer influence	12.552	11.607	11.753	12.407	0.799	0.800
Self-efficacy	18.988	19.092	18.987	19.079	0.001	0.013
Self-esteem	33.271	34.760	32.272	33.718	0.001	0.420

[a] This table replicates the results from page 537 of The effects of affirmative action in higher education. This data comes from the National Longitudinal Survey of Freshman (NLSF).The indicator of individual affirmative action is measured as the absolute value of the difference between individual SAT scores and the institutional leve. The greater the value of the index, the more affirmative action a minority student received. The indicator of institutional affirmative action is measured as the absolute value of the difference between the average minority SAT score and the institutional score. The greater the value of this index, the more an institution used affirmative action in its admissions policies. I was able to accurately replicate most of the variables. However, due to the uncertainty in the imputation of the SAT scores, several of my calculations are slightly deviant from the authors' results.

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

	Dependent variable:	
	Blacks and Hispanics	All Students
	(1)	(2)
White		0.009 (0.037)
Asian		−0.006 (0.036)
Black		−0.016 (0.038)
Hispanic		
Individual affirmative action	−0.0004 (0.0003)	−0.0002 (0.0002)
Institutional affirmative action	−0.001*** (0.0004)	−0.001*** (0.0004)
Subjective Effort	0.055*** (0.009)	0.058*** (0.005)
Hours Studied	−0.002 (0.002)	−0.0002 (0.001)
Male	−0.076** (0.031)	−0.062*** (0.018)
Foreign born parent	−0.003 (0.031)	0.021 (0.024)
Two parent family	0.026 (0.035)	0.030 (0.023)
Siblings Under 18	−0.010 (0.015)	−0.018* (0.009)
Parental Education	0.025** (0.011)	0.026*** (0.007)
Home Value	−0.00000 (0.00000)	−0.00000 (0.00000)
Ever on welfare	0.045 (0.054)	0.030 (0.034)
Income >75K	0.064* (0.035)	0.022 (0.021)
SAT Score	0.001*** (0.0002)	0.001*** (0.0001)
Number of AP courses	0.009 (0.008)	0.005 (0.005)
HS GPA	0.318*** (0.056)	0.361*** (0.035)
Self-rated preparation	0.032*** (0.006)	0.036*** (0.003)
School Quality	−0.051 (0.036)	−0.054** (0.022)
Social distance from whites	0.001 (0.003)	0.0002 (0.002)
Susceptibility to peer influence	−0.008** (0.003)	−0.009*** (0.002)
Self-efficacy	−0.018*** (0.007)	−0.011*** (0.004)
Self-esteem	0.007* (0.004)	0.005** (0.002)
Constant	0.867*** (0.335)	0.705*** (0.194)
Observations	626	1,639
R^2	0.377	0.389
Adjusted R^2	0.356	0.380
Residual Std. Error	0.370 (df = 604)	0.351 (df = 1614)
F Statistic	17.433*** (df = 21; 604)	42.874*** (df = 24; 1614)

Note: *p<0.1; **p<0.05; ***p<0.01

This data comes from the National Longitudinal Survey of Freshman (NLSF).The indicator of individual affirmative action is measured as the absolute value of the difference between individual SAT scores and the institutional level - the greater the value of the index, the more affirmative action a minority student received. The indicator of institutional affirmative action is measured as the absolute value of the difference between the average minority SAT score and the institutional score. The greater the value of this index, the more an institution used affirmative action in its admissions policies. This variable is only measured for black and Hispanic students. Observations with missing SAT scores were removed from consideration.

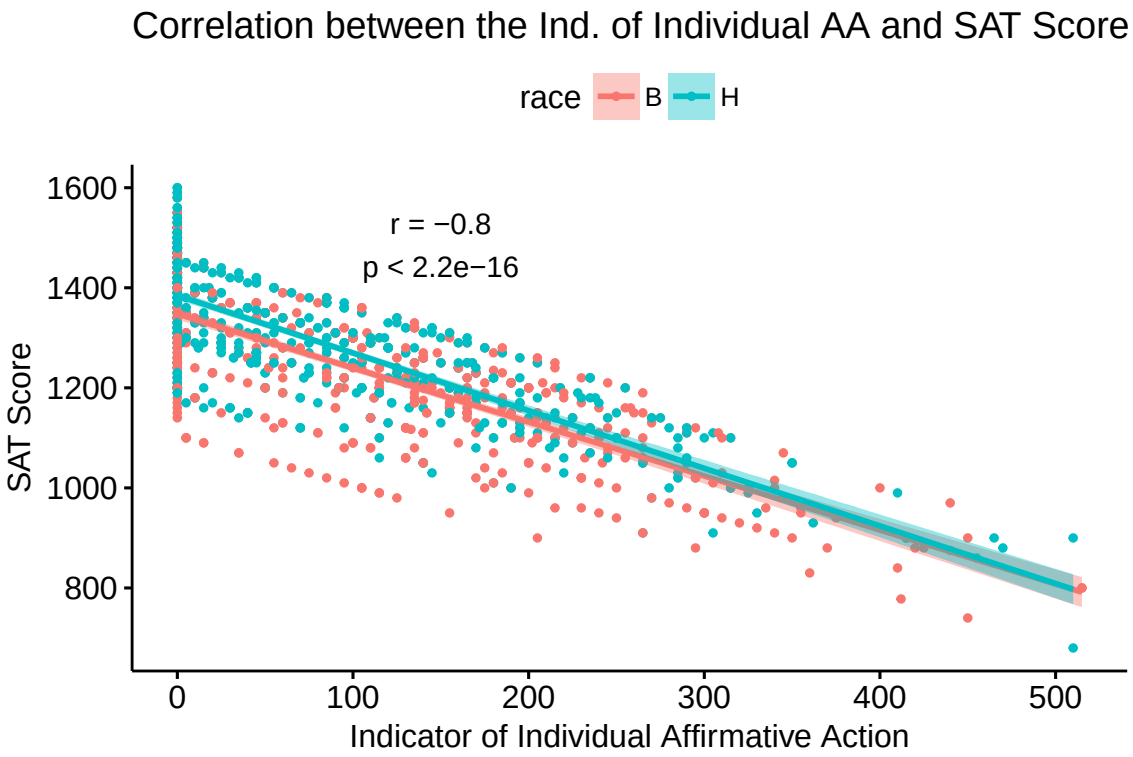


Figure 1: This data comes from the National Longitudinal Survey of Freshman (NLSF). Here I measured the correlation between SAT scores and the indicator of individual affirmative action. This data set was limited to only black and Hispanic students. Overall, there is a strong negative correlation coefficient of -0.80. Due to the fact that the authors included these two variables in the same regression, they introduce problems of multicollinearity that could potentially affect their coefficients.

prove that their results are not robust. Specifically, since SAT score is highly correlated with both cumulative GPA and their indicator of individual affirmative action, multicollinearity weakens the specification of their regression. I tested this through two separate methods: plotting the two variables against each other and removing SAT from the regression. When I plotted the indicator of individual affirmative action (only including data on black and Hispanics) against SAT, I found a correlation coefficient of r = -0.8. This can be described in the Figure 1. This is a glaring indicator that multicollinearity is highly present in their regression.

However, in order to determine whether this plays a significant role in affecting the results, I decided to remove SAT score from the regression. The resulting regression is shown in Table 3.

Table 3: Effect of affirmative action on academic outcomes for black and Hispanic students

	Dependent variable:	
	Blacks and Hispanics	All Students
	(1)	(2)
White		0.037 (0.037)
Asian		0.023 (0.036)
Black		−0.047 (0.038)
Hispanic		
Individual affirmative action	−0.001*** (0.0002)	−0.001*** (0.0001)
Institutional affirmative action	−0.001*** (0.0004)	−0.001** (0.0004)
Subjective Effort	0.055*** (0.009)	0.057*** (0.005)
Hours Studied	−0.002 (0.002)	−0.0003 (0.001)
Male	−0.059* (0.031)	−0.044** (0.018)
Foreign born parent	−0.001 (0.031)	0.019 (0.024)
Two parent family	0.035 (0.036)	0.038* (0.023)
Siblings Under 18	−0.010 (0.015)	−0.017* (0.009)
Parental Education	0.029** (0.012)	0.030*** (0.007)
Home Value	−0.00000 (0.00000)	−0.00000 (0.00000)
Ever on welfare	0.064 (0.054)	0.041 (0.035)
Income >75K	0.061* (0.036)	0.025 (0.021)
Number of AP courses	0.020** (0.008)	0.013*** (0.005)
HS GPA	0.379*** (0.054)	0.420*** (0.034)
Self-rated preparation	0.033*** (0.006)	0.037*** (0.003)
School Quality	−0.053 (0.036)	−0.055** (0.022)
Social distance from whites	0.00004 (0.003)	0.001 (0.002)
Susceptibility to peer influence	−0.008** (0.003)	−0.010*** (0.002)
Self-efficacy	−0.018*** (0.007)	−0.011*** (0.004)
Self-esteem	0.006* (0.004)	0.004** (0.002)
Constant	1.623*** (0.262)	1.377*** (0.159)
Observations	626	1,639
R^2	0.364	0.376
Adjusted R^2	0.343	0.367
Residual Std. Error	0.374 (df = 605)	0.355 (df = 1615)
F Statistic	17.328*** (df = 20; 605)	42.295*** (df = 23; 1615)

Note: *p<0.1; **p<0.05; ***p<0.01

This data comes from the National Longitudinal Survey of Freshman (NLSF).The indicator of individual affirmative action is measured as the absolute value of the difference between individual SAT scores and the institutional level - the greater the value of the index, the more affirmative action a minority student received. The indicator of institutional affirmative action is measured as the absolute value of the difference between the average minority SAT score and the institutional score. The greater the value of this index, the more an institution used affirmative action in its admissions policies. This variable is only measured for black and Hispanic students. When SAT is removed from the regression, the coefficient on individual affirmative action turns significant. This indicates fragility within their regression specification.

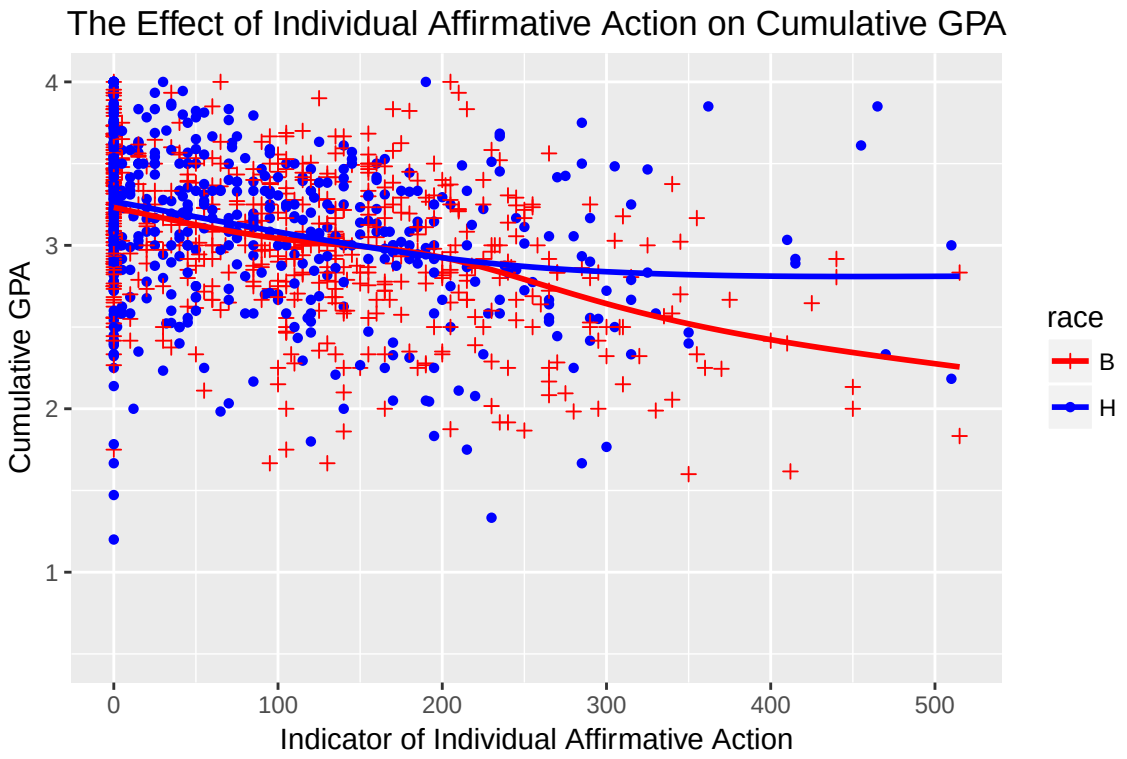
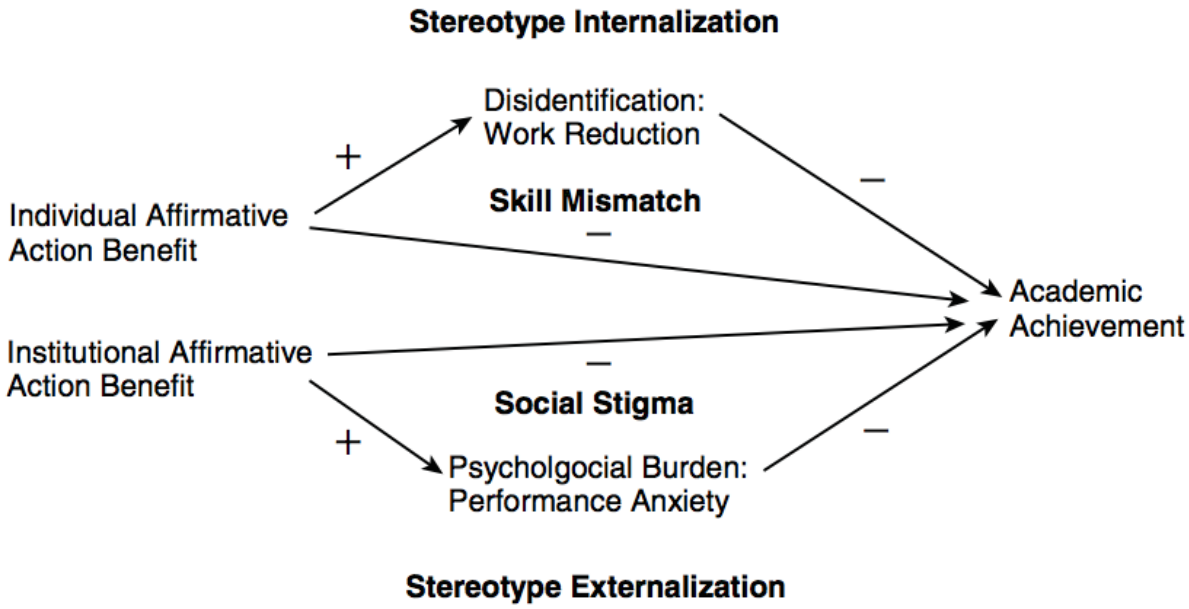


Figure 2: This is a simple plot to show the relationship between cumulative GPA and the indicator of individual affirmative action after removing SAT from the model. Contrary to the authors' results, the indicator of affirmative action actually is negatively correlated with cumulative GPA. This implies that the larger the difference between an individual's SAT score and the institutional average, the worse they will perform on average.

Removing SAT from the model caused the indicator of individual affirmative action to become statistically significant. This offers substantial support for the mismatch hypothesis and completely undermines the reported results of Mary Fischer and Mooney (2009). Thus, according the authors' measure of affirmative action, the more students benefit from these race-based admissions policies, the worse they tend to perform academically. This phenomenon can be described through looking at a simple plot of cumulative GPA vs the indicator of individual affirmative action in Figure 2.

In the modified regression, the coefficient on the indicator of institutional affirmative action remains unchanged – suggesting that proves to be a reliable estimate. This provides strong evidence for the validity of their results regarding the stereotype threat hypothesis. The greater the institutional usage of affirmative action in admissions policies, the lower the academic performance of the targeted groups. The authors extend this hypothesis to determine

the specific reasons why this correlation exists. This can be conceptualized below:[8]



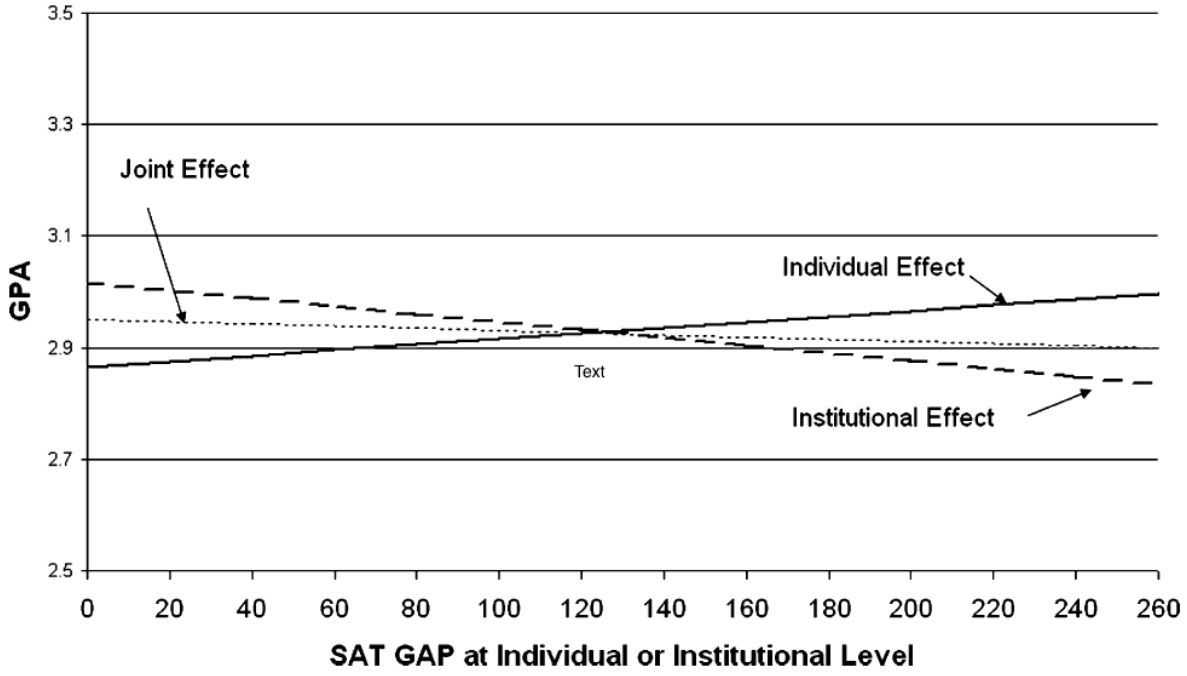
The stereotype threat hypothesis states that affirmative action stigmatizes all minority members as academically inferior, creating psychological pressure and undermining performance. As seen in the figure, the authors argue that at the institutional level, students are affected psychologically – increasing their performance anxiety and negatively affecting their academic achievement.

B. The Overall Effect of Affirmative Action on Minority Academic Achievement

M. Fischer and Massey (2007) find that the individual effect of affirmative action for a typical black student is moderate but slightly positive. They illustrate an increase in GPA from 2.86 to 3.0 as the student's value of the indicator goes from 0 to 260. At the institutional level, affirmative action is correlated with a decrease in grades, displaying a decrease in cumulative GPA as the indicator of institutional affirmative action goes from 0 to 260. Looking at the cumulative effect of both indicators, the effect on GPA was minimal. This led the authors to suggest that affirmative action does not have an effect on minority academic achievement.

[8]Mary Fischer and Mooney (2009)

This is described in the graph below:[9]



In order to see the real effect of these two indicators of affirmative action on GPA, I replicated this graph after adjusting for the issues of multicollinearity. This can be seen in Figure 3. These data provide support for both the mismatch and the stereotype threat hypothesis and suggests that affirmative action actually has detrimental effects on the academic achievement of the minority groups that it targets. Overall, after removing only one correlated variable from their regression, their coefficient on the indicator of affirmative action gained significance. This proves that both the authors' regression analysis and conclusions are not robust.

[9]Mary Fischer and Mooney (2009)

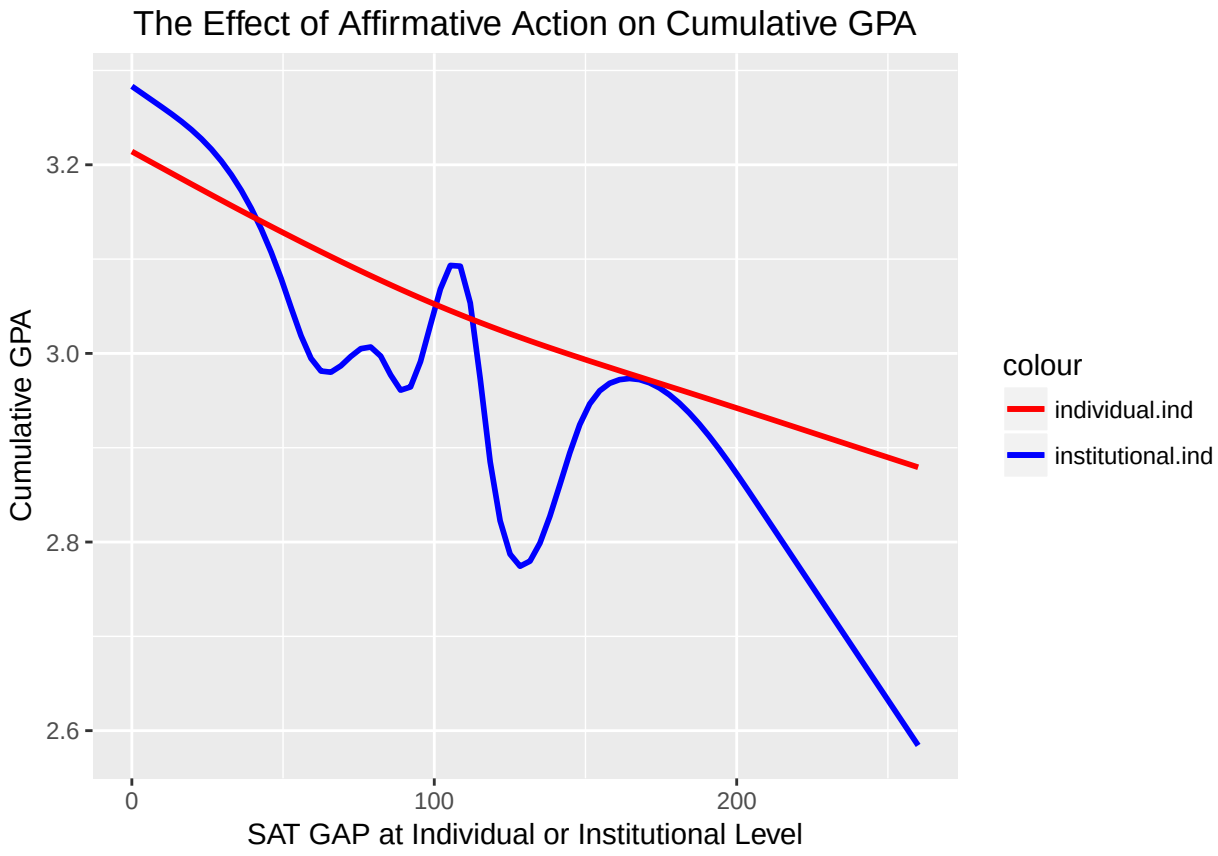


Figure 3: This data comes from the NLSF. This shows the overall effect of the indicator of individual and institutional affirmative action on cumulative GPA. After adjusting for the issues of multicollinearity, the overall effect is negative. This is in direct opposition with the authors' findings in their paper suggesting that overall there are no affects of affirmative action on SAT.

4. Conclusion

In *Taming the River*, Mary Fischer and Mooney (2009) use data from the National Longitudinal Survey of Freshman to test the effects of affirmative action on the social and academic experience of students in elite universities. They conclude that there is no evidence for the mismatch hypothesis, which states that students who receive more benefits from affirmative action perform worse academically than others. Additionally, they find limited support for the stereotype threat hypothesis; minority students face social stigma from attending schools that use affirmative action in admission policies. These psychological pressures undermine the students' academic achievement through giving them performance anxiety. The authors find these results by creating two indicators of affirmative action at the individual and insti-

tutional level. They use the indicator of individual affirmative action to measure the extent to which a minority individual benefitted from race-based admissions policies and to explain the mismatch hypothesis. They use the indicator of institutional affirmative action to measure the extent to which an institution used affirmative action in its admission policies and to explain the stereotype threat hypothesis. Then, the authors regress cumulative GPA on these two indicators of affirmative action variables to explore the results.

Although the NLSF data was missing 34% of the SAT scores, I was largely able to replicate the authors regression (shown in Table 1). This allowed me to test the fragility of their results through identifying issues of multicollinearity. Testing the relationship between the indicator of individual affirmative action and SAT score. I found a correlation coefficient of -0.80. Then, removing SAT from the regression, the coefficient on the indicator of individual affirmative action gained statistical significance and had a negative correlation with GPA – in contradiction to their original results. This is illustrated in Table 2. This provides evidence to support the mismatch hypothesis and illustrates that issues of multicollinearity create high fragility in their regression specification.

Given that affirmative action seems to harm the GPA of the minority students that they are targeted to help, one may question the validity of enforcing race-based admissions policies. Why should we continue to implement affirmative action? What are the real benefits of these policies? What happens if we get rid of it? M. Fischer and Massey (2007) detail the three main arguments that critics of affirmative action make: (1) affirmative action leads to reverse discrimination admitting less qualified students of color (Herrnstein and Murray (1994)[10]); (2) affirmative action sets up its beneficiaries for failure due to a lack of the necessary skills needed to be successful; (3) affirmative action stigmatizes minorities regardless of their individual achievements and this undermines their academic achievement (Steele (1990), S. Thernstrom and Thernstrom (1999)). I analyze the second two topics by rejecting the idea that we should accept on college GPA as a proxy for minority success and achievement. Instead, we should focus on a wider range of more significant metrics that directly affect one's life outcome – such as post-graduate income or graduation rates.

[10]Herrnstein and Murray (1994) argue that blacks are intellectually inferior.

Before going into the details of affirmative action and college GPA, we need to broaden our perspective and determine the fundamental role of elite institutions. According to the Harvard College mission statement, "the mission of Harvard College is to educate the citizens and citizen-leaders for our society."[11] They accomplish this "through a diverse living environment, where students are living with people who... come from different walks of life and have evolving identities."[12] Higher education institutions need affirmative action if they hope to provide their students with diverse living environments. With these policies in place, the diversity of a given institution is markedly greater (Michael T. Nettles and M. (1998)[13]). In 1996, California voters prohibited public institutions of higher education to preference race, ethnicity, or sex in the admissions process.[14] As a result, in the following fall semester at UCLA, the percentage of minorities decreased from 24.4% to 17.5%. Furthermore, in 2006, only 100 out of 4,800 of the entering freshmen class were African-American (Lynch (2014)). Similarly, at UC Berkley, Card and Krueger (2005) find that "the fraction of black and Hispanic applicants who were offered admission fell from approximately one-half to one-quarter."[15] These drastic decreases are attributed to the opportunities that students have available to them before applying to college. Income inequality among race has worsened over the past three decades and as a result, minority students are exposed to less opportunities than their peers (Hertz (2004)[16]). Even though affirmative action policies have negative implications for academic achievement, M. Fischer and Massey (2007) discuss a wide range of student outcomes from which minorities at elite institutions benefit. For example, affirmative action lowers the probability of dropping out early by 60%. Bowen and Bok (1998) find that black students at elite institutions are more likely to graduate than those at less selective schools. Pascarella and Terenzini (2005) find positive correlations between graduating from an elite university and post-graduate income. Stevens (2009) takes an interesting

[11] (*Mission, Vision, and History* 2018)

[12] Ibid.

[13] Michael T. Nettles and M. (1998)

[14] This was the California Civil Rights Initiative, also known as Proposition 209, that prohibited the use of affirmative action in California public institution admission policies.

[15] Card and Krueger (2005)

[16] Hertz (2004) discusses the depth of the intergenerational inequality in the United States and how race is a large determinant in the amount of opportunity one has for better schooling, inheritance of wealth, etc. He finds large differences in the intergenerational mobility patterns between Europeans and African-Americans.

perspective on the topic arguing from the perspective of an elite institution.[17] Despite the complex effects on GPA, affirmative action policies clearly stand to benefit both minority and non-minority students at elite universities around the nation. Moving into the future, we need to shape the admissions policies of our higher education institutions to reflect the mission to create diverse learning environments for our future leaders.

[17]Steven makes three arguments in favor of affirmative action from the perspective of an elite institution. (1) race-based preferences are morally imperative. (2) The national prestige of an institution depends on their extent of diversity. (3) If a campus can portray itself as racially diverse, it will be easier to recruit non-minority students. RStudio Team (2015) Hlavac (2018) (*California Affirmative Action, Proposition 209 (1996)*, n.d.)

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