Preferences in Virginia Higher Education

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Table of Contents

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Executive Summary

The study compares college admissions data from five Virginia universities: the University of Virginia (UVA), the College of William & Mary (WM), Virginia Tech (VT), James Madison University (JMU), and George Mason University (GMU).

College Admission Rates by Race

At UVA and WM, black applicants were admitted at higher rates than whites and Asian Americans. WM also admitted Hispanics at a higher rate than Asian American and white applicants.

- 35% of black applicants were admitted to UVA, as were 32% of Hispanics, 32% of Asian Americans, and 30% of whites.
- At WM, 41% of blacks were admitted, as were 50% of Hispanics, 37% of Asian Americans, and 35% of whites.

The opposite was the case for the other schools, which admitted Asian Americans and whites at a higher rate than blacks and Hispanics.

- VT admitted 68% of Asian Americans and 74% of whites, compared to 61% of Hispanics and 50% of blacks.
- JMU admitted 79% of whites, 72% of Asian Americans, 60% of Hispanics, and 53% of blacks.
- GMU admitted 87% of whites and Asian Americans, 75% of Hispanics and 68% of blacks.

Test Score Gaps but Not Much of a GPA Gap

Test scores were generally lower for black and Hispanic admittees compared to whites and Asian Americans.

- At UVA, the black-white SAT gap in median scores was 180 points. The WM black-white gap was similarly large—a 190-point difference.
- At VT, JMU, and GMU, the black-white SAT differences were substantial but not as large as those at UVA and WM. The median SAT difference was 100 points at VT, 90 points at JMU, and 100 points at GMU.
- White admittee scores were also higher than those for Hispanic admittees, but there was less of a difference among the five schools. The Hispanic-white test score difference was 90 points at WM, 70 points at UVA and JMU, 60 points at GMU, and 30 points at VT.
- For ACTs, the black-white difference in median scores was five points at UVA, WM, and JMU, and four points at VT and GMU.
- There was little difference in the ACT medians of Hispanics and whites. The Hispanic-white gap was one point at UVA and VT and two points at WM and GMU. The largest was a three-point difference between Hispanics and whites at JMU.
- Asian American SAT scores were generally higher than those for whites at all schools, and more so at the more competitive schools. Asian American admittees on average scored 60 points more than whites at UVA, and 50 more points at WM. There was a 40-

point difference favoring Asian Americans at VT, 20 points favoring Asian Americans at JMU, and 30 points favoring Asian Americans at GMU.

- Median Asian American and white ACT scores were identical at UVA and WM, while the Asian American median was higher at VT (two points), JMU, and GMU (one point).
- GPAs overlapped much more among the four groups, and differences in median GPAs were all less than two-tenths of a point. At UVA and WM, the black-white difference in median GPA was 0.15 of a point. At VT, JMU, and GMU, the difference in medians was about a tenth of a point.

How Many Rejected Despite Better Academic Credentials?

- UVA rejected 2,295 despite higher grades and test scores compared to black admittee medians. 1,675 were whites, and most of these white rejectees were from out of state (1,342).
- Most WM rejectees with better academic credentials were white (943), and most in this group were from out of state.
- VT, JMU, and GMU had significantly fewer rejectees with better credentials than their black admittee medians.
    - VT rejected 126 in-state and 48 out-of-state applicants. 92 were in-state whites, 25 were in-state Asian Americans, and 9 were in-state Hispanics.
    - JMU rejected 72 applicants with better grades and test scores than the black admittee medians (40 in-state and 32 out-of-state). The rejectees were all whites and Asian Americans.
    - Only 15 GMU applicants with better grades and test scores were rejected by GMU. 12 were from Virginia.

Odds Ratios, Controlling for Multiple Factors Including SAT Scores and GPAs

- Logistic regression analysis showed large preferences, i.e., large odds ratios,[1] granted black over white applicants at UVA and WM (6.75 to 1 at UVA and 19.77 to 1 at WM). WM also gave Hispanics a large degree of preference over whites (an odds ratio of 6.73 to 1 at WM). UVA gave some preference to Hispanics (i.e., a moderate Hispanic-white odds ratio of 2.07 to 1).
- VT gave a small degree of preference to black over white applicants at VT (1.23 to 1), while GMU gave a small preference to whites over blacks (0.75 to 1) and whites over Hispanics (0.60 to 1).
- White applicants received preference over Asian Americans at all schools.
- UVA and WM strongly favored in-state over out-of-state applicants (5.59 to 1 at UVA and 4.60 to 1 at WM).
- The opposite was the case at the other schools, where they gave the largest preference to out-of-state applicants, and significantly more so than race, gender, and. legacy.
- Of schools that collected such data, legacies received substantial preference at WM (4.30 to 1) but less so at the others. GMU does not consider legacy.

[1] Large odds ratios were those greater than 3.0, indicating a large degree of preference; moderate odds ratios were defined as between 1.5 and 3.0; small odds ratios were defined as 1.5 or less.

Probability of Admissions

		UVA	WM	VT	JMU	GMU
In-State	Black	74%	80%	72%	82%	99%
	Hspn	46%	58%	67%	82%	99%
	AsnAm	25%	10%	50%	77%	99%
	White	30%	17%	68%	82%	99%
Out-of-State	Black	34%	47%	95%	92%	100%
	Hspn	13%	23%	94%	91%	100%
	AsnAm	6%	2%	88%	89%	100%
	White	7%	4%	94%	92%	100%

As shown in the table above, admission probabilities were calculated for male non-legacy applicants with the SAT scores and GPAs equal to the medians for black admittees.

- UVA and WM favored in-state blacks and in-state Hispanics (to a lesser extent) compared to in-state whites and Asian Americans. The relative weight placed on race compared to residency at UVA and WM is seen in the greater admissions probability of out-of-state blacks compared to in-state Asian Americans and whites with these same credentials.
- At VT and JMU, greater weight was placed on preference for out-of-state applicants. In-state Asian Americans at VT and JMU were the least likely to be admitted compared to all other groups with these academic credentials.
- At GMU, almost all applicants with the median academic credentials of black admittees were likely to get in.

Introduction: Considering Race in Admissions to Virginia Schools

In *Grutter v. Bollinger*, the Supreme Court in 2003 said that race may be used as a factor in college and university admissions, so long as it is narrowly tailored to achieve a compelling government interest. The Court ruled what such an interest may lawfully be—a racially diverse student body and the educational benefits diversity is said to yield. Explicit racial quotas remained unconstitutional, as did the use of race as a form of compensatory justice to make up for a history of slavery and discrimination against blacks.[2]

Since *Grutter*, the Court has reiterated the principle that race may be used to create a diverse student body, for the sake of its ostensible benefits that flowed from it. In *Fisher v. Texas II*, the Court further said that race in admissions may be employed but only as "a factor of a factor of a factor," a seemingly minimalist formulation as to how much of a factor race should be.

There are many questions arising when considering race in admissions, especially given the changing racial and ethnic demographics in the United States. How are colleges treating the increasing number of Hispanic and Asian American applicants together with whites and blacks? How much does race matter in admissions compared to other factors such as gender, residency, legacy status, and academic credentials? Is race/ethnicity only "one of many factors" used in admission decisions? Do racial differences in admissions reflect the impact of other factors such as being an in-state resident?

To address the questions, it helps to start with empirical evidence. It is difficult to examine any of the defenses of using race because many of America's colleges and universities have made data difficult, or in some cases impossible, for outsiders to obtain. To put it bluntly, despite claiming to be devoted to the growth and dissemination of knowledge, many of America's institutions of higher education have resisted scrutiny of admissions data that would lead to increased public knowledge of whether or how racial and ethnic preferences operate.[3]

In this report, the Center for Equal Opportunity obtained recent college applicant data from five public universities in Virginia—the University of Virginia, the College of William &

[2] In *Grutter*, Barbara Grutter sued the University of Michigan's law school for discrimination on the basis of her race. In a 5-4 opinion delivered by Justice Sandra Day O'Connor, the Court held that the law school narrowly tailored its use of race in admissions and its admissions process was therefore constitutional. In 2006, Michigan voters passed Proposal 2, outlawing racial and ethnic preferences in state institutions, including higher education. Proposal 2 covered the University of Michigan.

[3] For states with Freedom of Information Acts (FOIAs), the Center for Equal Opportunity (CEO) has made requests for state university and college admissions data. Over the years, CEO has obtained data from public universities in Michigan, Ohio, Oklahoma, Washington, Wisconsin, Virginia, Colorado, and California, several state medical and law schools, and the U.S. military academy.

Mary, Virginia Tech, James Madison University, and George Mason University. All of the schools were forthcoming and cooperative in providing the data.

UVA and WM are highly competitive universities; the other three are less so. My initial analysis found that UVA and WM admitted black applicants at higher rates than whites and Asian Americans. WM also admitted Hispanic applicants at a higher rate than Asian Amerian and white applicants. Black and Hispanic test scores of those admitted to UVA and WM were significantly lower than those of white and Asian American admittees (although there was a greater overlap in grades).

This report will show that when statistically controlling for grades and test scores, along with gender, legacy status, and residency, the largest preferences were granted to blacks over whites at UVA and WM, while Hispanic chances of admissions were somewhat smaller at these schools. VT granted only a small degree of preference to black applicants, and GMU gave a small preference to whites over blacks and Hispanics, all other factors being equal.

This report will also show that when controlling for the other variables, all schools gave preference to whites over Asian Americans, and that large preferences were granted to in-state over out-of-state applicants at UVA and WM (although not as large as the preferences awarded to blacks). The opposite was the case at VT, JMU, and GMU, where the largest preferences were to out-of-state applicants, more so than race, gender and legacy. (GMU does not collect legacy data, and JMU is now a test-optional school.)

Who Applies? Who's Admitted?

Through Virginia's Freedom of Information Act, CEO obtained data regarding prospective college students' application status (i.e., admission, rejection, and enrollment), racial or ethnic group membership, verbal and math SAT scores, composite ACT scores, high school grade point averages (GPA), gender, residency (in-state or out-of-state), and legacy status.[4] Some institutions excluded information from individuals for whom demographic data might identify the applicant.[5]

Using these large data files, I produced statistical comparisons between rejectees and admittees (admittees were those who enrolled plus those admitted who chose not to attend). I then estimated the probabilities of admission for various racial and ethnic groups, while controlling for academic qualifications and other factors.

[4] In 1999, CEO issued a report on Virginia public universities based on 1996 data, before the Supreme Court issued its major decisions on college admissions. In these 20 years, the nature of the applicant pool and their qualifications have changed significantly. There has been a nationwide rise in the number of applicants (especially among Asian Americans), substantially more women and fewer men at many schools, wide-spread enrollment in Advance Placement classes in high school, an increase in students taking the ACTs, and major changes in the content of the SATs.

[5] For example, an enrollee who is male, Native Hawaiian, and from Virginia.

The figure below displays the overall college admission rates for the five schools. They were calculated from all applicants, including American Indian, Native Alaskan, Native Hawaiian, Other Polynesian, multi and bi-racial, "unknown," and non-US cases. Subsequent analyses focused on blacks, Hispanics, Asian Americans, and whites.[6]

Table 1. Overall Admission Rates

	Admission Rate
UVA	30%
WM	36%
VT	70%
JMU	75%
GMU	81%

UVA and WM were significantly more competitive than the other three schools. UVA had an overall admission rate of 30%. WM's admission rate was 36%. In contrast, VT's admission rate was 70%, JMU's was 75%, and GMU's was 81%.

Except for the overall admission rates, I subsequently excluded from analysis those cases for which race/ethnicity was listed as "American Indian," "Native Alaskan," "Native Hawaiian," "Other Polynesian Islander," "other," "missing," "bi-racial or multi-racial," "unknown," or where the applicant was identified as a non-US applicant. Analysis, except for overall rates, focused on whites, blacks, Hispanics, and Asian Americans.

Table 2 below breaks down the admission rates by the four main racial/ethnic groups for each school. Differences in admission rates are indicative of racial/ethnic preferences.

Table 2. Admission Rate by Race/Ethnicity

	UVA	WM	VT	JMU	GMU
Black	35%	41%	50%	53%	68%
Hspn	32%	50%	61%	60%	75%
AsnAm	32%	37%	68%	72%	87%
White	30%	35%	74%	79%	87%

The more competitive schools admitted black applicants at higher rates than whites and Asian Americans. 35% of black applicants were admitted to UVA, as were 32% of Hispanics, 32% of Asian Americans, and 30% of whites. WM admitted 41% of blacks and 50% of Hispanics, but proportionately fewer Asian Americans (37%) and whites (35%).

[6] UVA calculations were for potential Fall 2016 matriculants. For all others, calculations were for potential Fall 2017 matriculants. The number of applicants were as follows: UVA, 32,377; WM, 14,921; VT, 27,423; JMU, 21,074; and GMU, 18,895.

The opposite was the case for the other schools, where Asian Americans and whites were admitted at higher rates than blacks and Hispanics. VT admitted 68% of Asian American and 74% of white applicants, compared to 61% of Hispanics and 50% of blacks. JMU admitted 79% of whites, 72% of Asian Americans, 60% of Hispanics, and 53% of blacks. Finally, 87% of whites and Asian Americans were admitted to GMU, compared to 75% of Hispanics and 68% of blacks.

Given the higher admission rates for blacks and Hispanics compared to whites and Asian Americans at UVA and WM, were there test score and GPA gaps among admittees at UVA and WM? Were the academic qualifications of blacks and Hispanics lower than those of whites and Asian Americans? Was the gap smaller at the other schools? The next section examines differences in academic credentials of those admitted.

Academic Qualifications of Admittees

I compared total SAT scores, composite ACT scores, and GPAs at the 25th, 50th, and 75th percentiles of those admitted by the five schools. The SAT scores are a combination of the verbal (i.e., critical reading) and math sections of the test. The ACT is comprised of four sections, English, math, reading, and science reasoning. ACT test takers receive a score for each section and a composite score that is the average of the sections. Scores range from 1 to 36.[7]

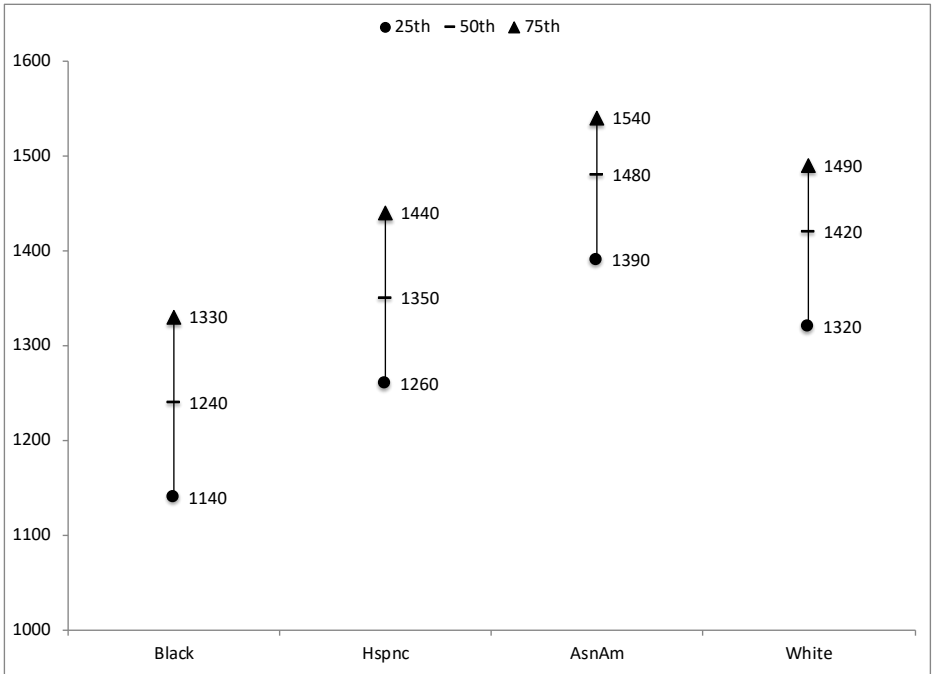
I report group percentiles instead of group means because group percentiles are far less influenced by extreme values of a few cases. At the 25th percentile, 25 percent of admittees had that particular test score or lower. At the 50th percentile, i.e., the median, 50 percent of admittees had higher scores, and 50 percent had lower. At the 75th percentile, 75 percent were admitted with lower scores, 25 percent were admitted with higher.

[7] Many test prep sites have descriptions and comparisons of the ACT and the SAT. The College Board also provides a table of rough equivalence. For 2018 SAT and ACT scores, see College Board and ACT, "Guide to the 2018 ACT/SAT Concordance," https://collegereadiness.collegeboard.org/pdf/guide-2018-act-sat-concordance.pdf.

UVA

UVA Total SAT

Figure 1. UVA Admittee SAT Scores



Given these test scores, UVA appears to have granted preferences to blacks and Hispanics over whites and Asian Americans. The black admittee median test score (1240) was more than 100 points lower than the Hispanic median (1350), 240 points lower than the Asian American median (1480) and 200 points lower than the white median (1420).

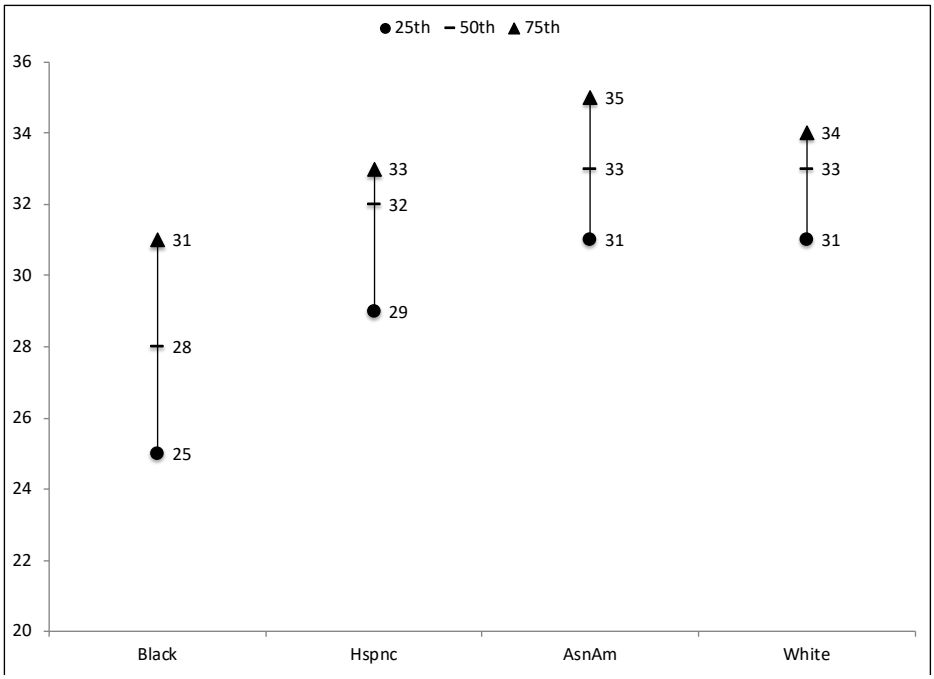
The distribution of scores is stark. The black admittee SAT at the 75th percentile (1330) was lower than the Asian American admittee score at the 25th percentile (1390), meaning that 75 percent of blacks admitted by UVA had lower scores than 75 percent of Asian Americans. The black admittee score at the 75th percentile was only 10 points higher than the white admittee score at the 25th (1320).

Gaps were smaller when comparing scores of Hispanics with scores of Asian American and white admittees. Half the Hispanics admitted had significantly lower test scores than most Asian American and white admittees. The median Hispanic score (1350) was 130 points lower than the Asian American median and 70 points lower than the white median.

Finally, the data suggest preferences granted to whites over Asian Americans. Asian American admittees had a median test score of 1480—60 points higher than the white median.

UVA ACTs

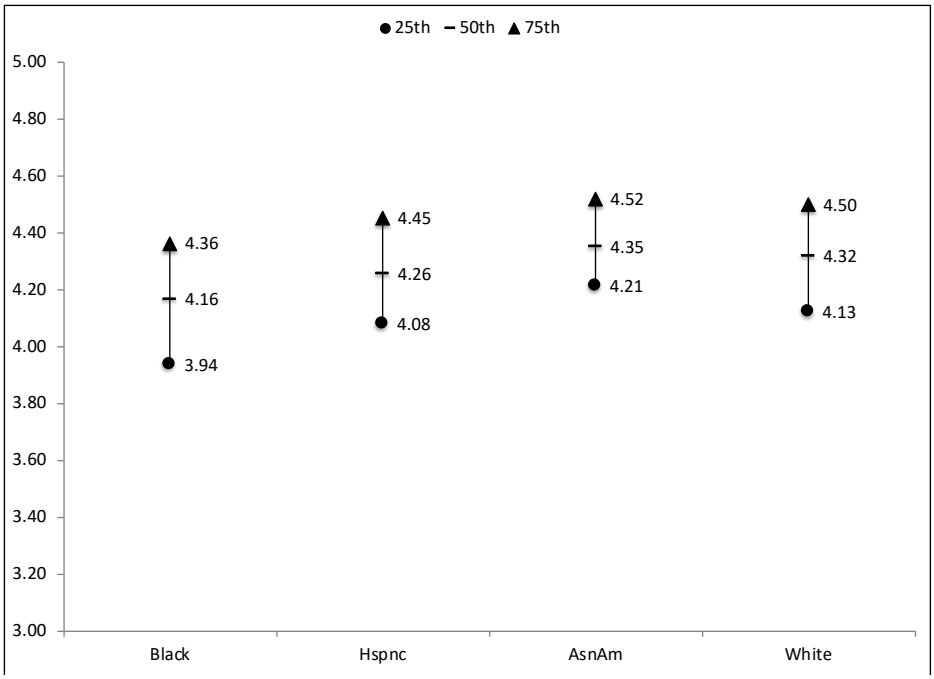
Figure 2. UVA Admittee ACT Scores



UVA also admitted blacks with significantly lower composite ACT scores compared to Hispanics, Asian Americans, and whites. The ACT score for black admittees at the 75th percentile (31) was lower than the median score for Hispanic, Asian American, and white admittees (32, 33, and 33, respectively), and the black admittee median (28) was lower than the Hispanic, Asian American, and white admittee scores at the 25th percentile (29, 31, and 31).

UVA High School GPAs

Figure 3. UVA Admittee HS GPAs

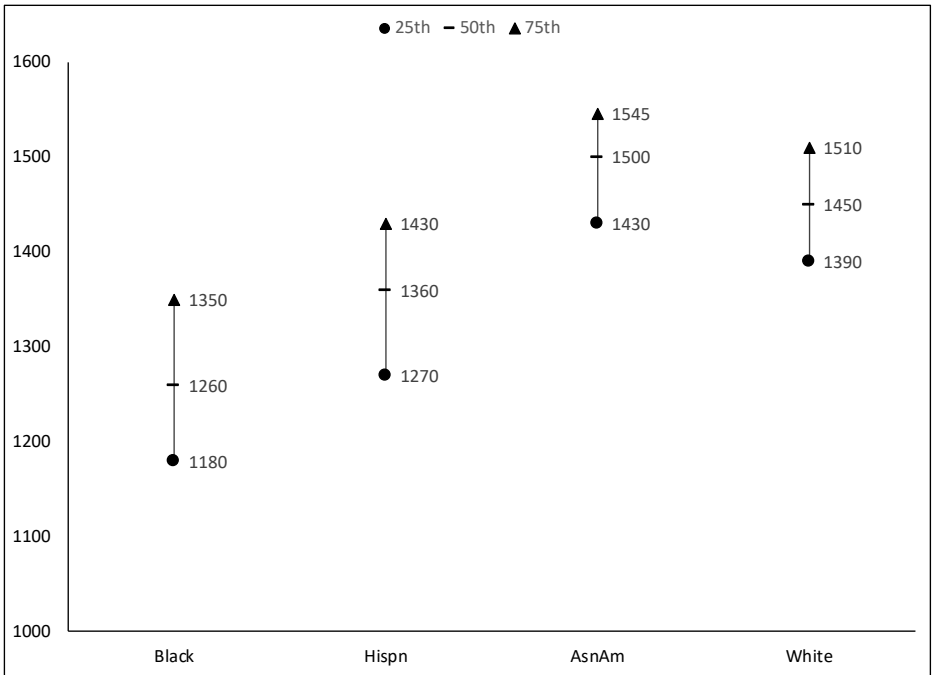


Differences in GPAs of UVA admittees were small, meaning less than two-tenths of a point. The median GPA of black admittees was a 4.16—a tenth of a point lower than the Hispanic median and less than two-tenths of a point lower than the Asian American and white medians (4.35 and 4.32, respectively). The same small differences were found at the 75th percentile, where black admittee scores were 4.36, Hispanic scores were 4.45, and Asian American and white scores were 4.52 and 4.50.

WM

WM Total SAT

Figure 4. WM Admittee SAT Scores

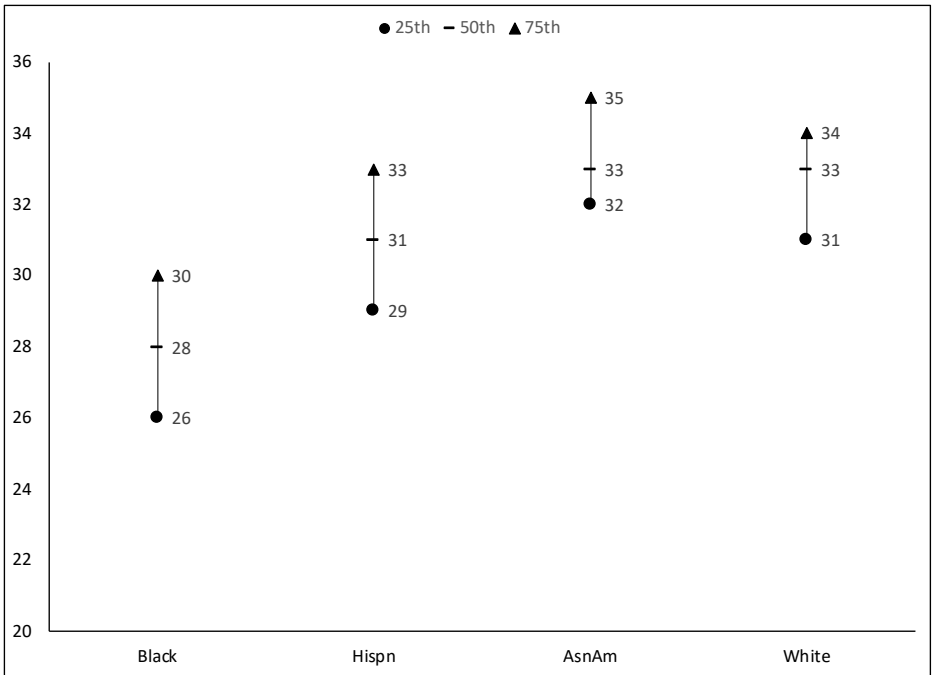


WM granted significant preference to blacks and Hispanics, as evidenced by the differences in admittees' SAT scores. 75 percent of blacks admitted to WM had lower test scores compared to 75 percent of Asian Americans and whites. Black admittee scores at the 75th percentile (1350) were lower than Asian American and white admittee score at the 25th percentile (1430 and 1390).

For Hispanic admittees, the score at the 75th percentile (1430) was the same as the Asian American score at the 25th percentile (1430) and 20 points lower than the white median (1450), meaning that 75 percent of Hispanic admittees had lower SAT scores than 75 percent of Asian American and more than half the white admittees.

WM ACTs

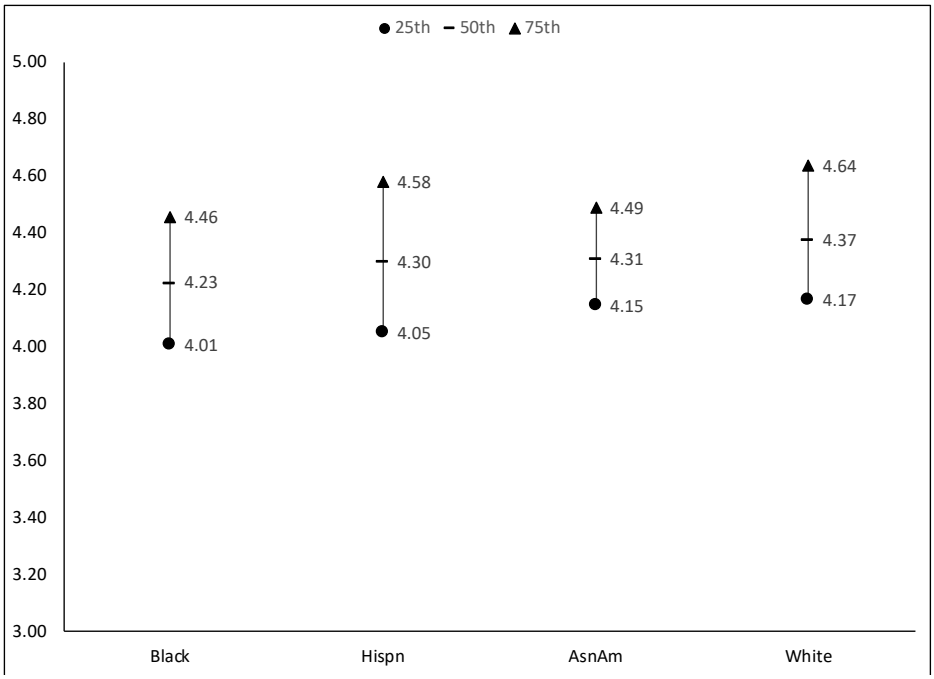
Figure 5. WM Admittee ACT Scores



WM ACT scores for black admittees were also substantially lower than those for Hispanics, Asian Americans, and whites. The median ACT score for black admittees (28) was one points lower than the Hispanic score at the 25th percentile (29), six points lower than the Asian American score at the 25th percentile (32), and five points lower than the white score at the 25th percentile. This means that half of the black admittees had lower ACT scores than 75 percent of Hispanics, Asian Americans, and whites.

WM High School GPAs

Figure 6. WM Admittee GPAs

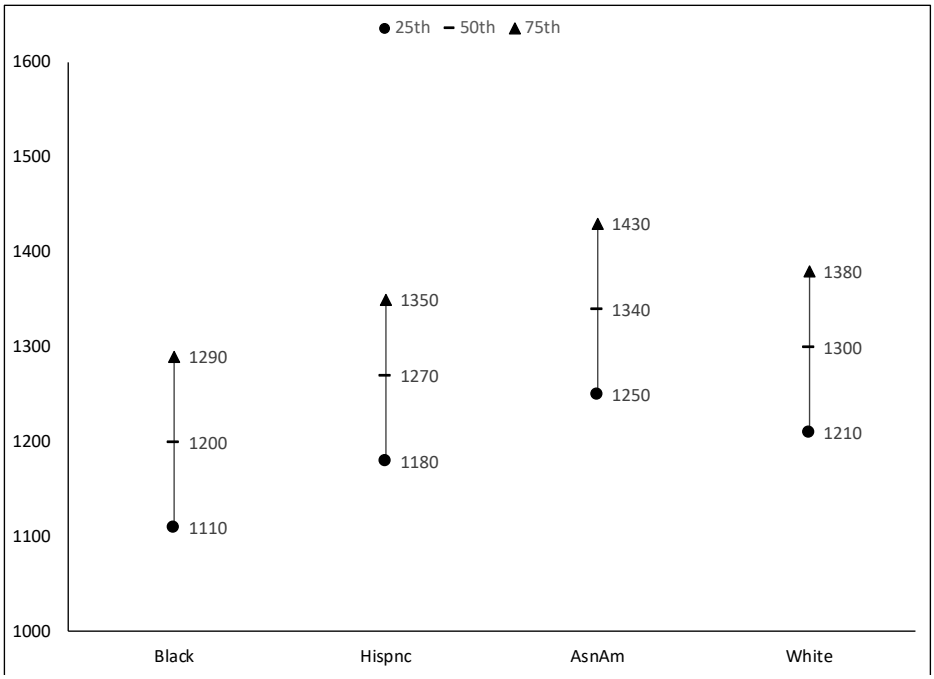


GPAs for whites were the highest of the four groups at the 25th, 50th, and 75th percentiles. And the differences in GPAs were small, meaning two-tenths of a point or less. The median GPA for black admittees was a 4.23, less than a tenth of a point lower than the Hispanic median (4.30) and the Asian American median (4.31), and 0.14 of a point lower than the white median (4.37). Differences at the 75th percentile were also less than two-tenths of a point, and the Hispanic GPA at this level was higher than the Asian American GPA (4.46 for blacks, 4.58 for Hispanics, 4.49 for Asian Americans, and 4.64 for whites).

VT

VT Total SAT

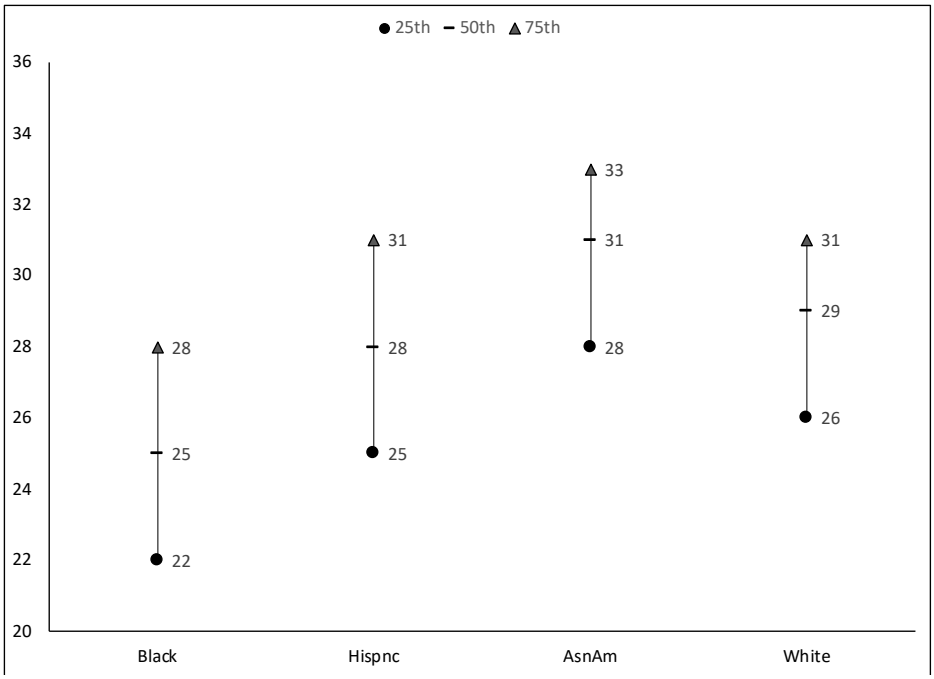
Figure 7. VT Admittee SAT Scores



Black admittee SAT scores at VT were lower compared to the other groups, but the gaps were smaller than those found at UVA and WM. The median SAT score for black admittees was a 1200—70 points lower than the Hispanic median, 140 points lower than the Asian American median, and 100 points lower than the white median. The black admittee score at the 75th percentile (1290) was 20 points higher than the Hispanic median but was lower than the Asian American and white medians.

VT ACTs

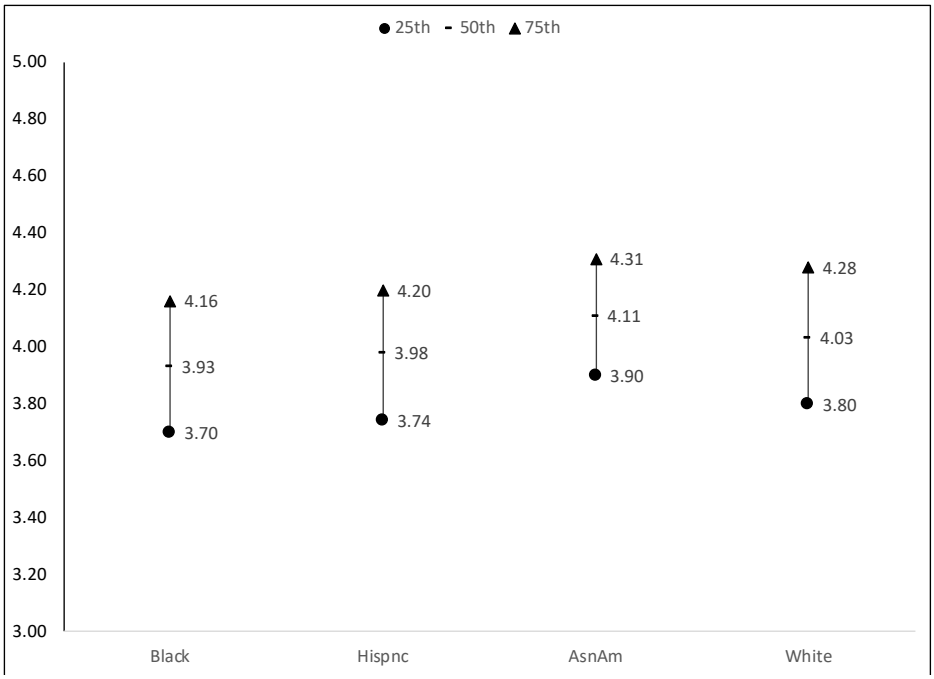
Figure 8. VT Admittee ACT Scores



ACT scores for black admittees were also lower than those for the other groups. The ACT score at the 75th percentile for black admittees (28) was the same as the Hispanic median (28), three points lower than the Asian American median (31), and one point lower than the white median (29).

VT High School GPAs

Figure 9. VT Admittee GPAs

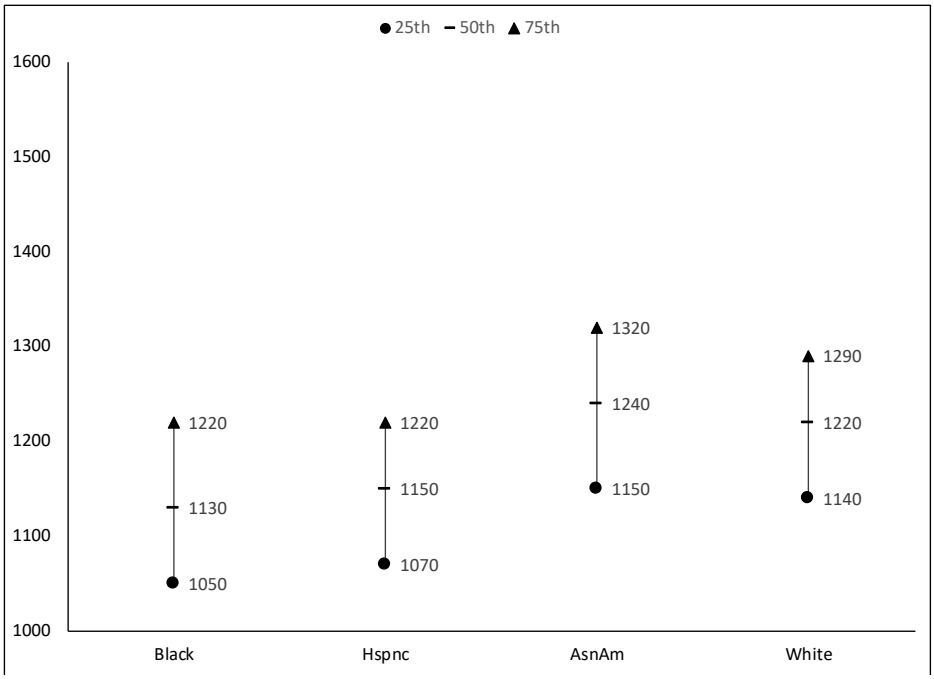


Similar to GPAs at UVA and WM, the differences in GPAs among groups at VT were small. The black admittee median GPA was 3.93, less than a tenth of a point lower than the Hispanic GPA (3.98), the Asian American GPA (4.11), and the GPA for white admittees (4.03). At the 75th percentile, the black admittee GPA was 4.16, and the Hispanic, Asian American, and white GPAs were slightly higher.

JMU[8]

JMU Total SAT

Figure 10. JMU Admittees SAT Scores



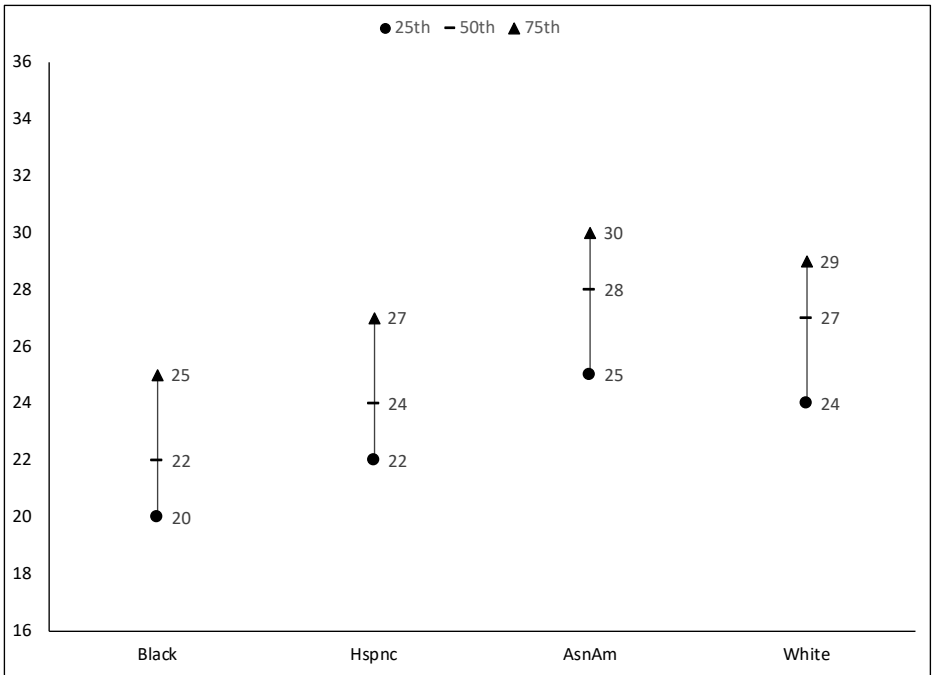
The median SAT score for JMU black admittees (1130) was 20 points lower than the Hispanic median, although black and Hispanic scores at the 75th percentile were the same. Scores for black admittees were significantly lower than those for Asian Americans and whites. The median score for black admittees was 110 points lower than the Asian American median (1240) and 90 points lower than the white median (1220).

Scores for Hispanic admittees were also lower than Asian American and white scores. The Hispanic score at the 75th percentile (1220) was lower than the Asian American median and the same as the white median.

[8] JMU is now test-optional.

JMU ACTs

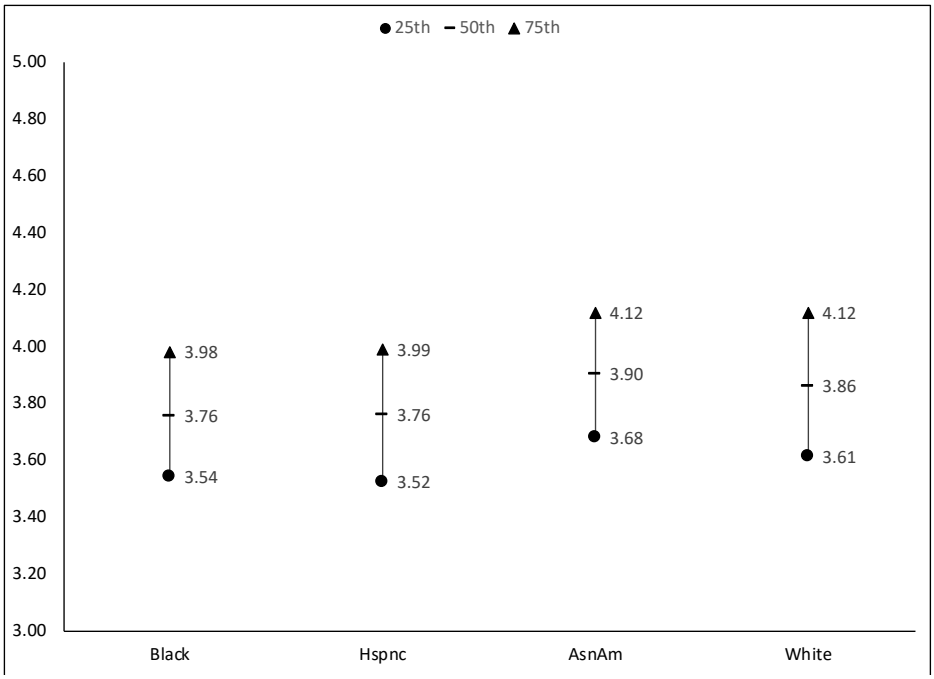
Figure 11. JMU Admittee ACT Scores



Black and Hispanic admittees also had lower ACT scores compared to Asian Americans and whites. The median score for black admittees (22) was two points lower than the Hispanic median and even lower than the Asian American and white medians (28 and 27, respectively). The black ACT score at the 75th percentile (25) was one point higher than the Hispanic and white medians and the same as the Asian American score at the 25th percentile.

JMU High School GPAs

Figure 12. JMU Admittee GPAs

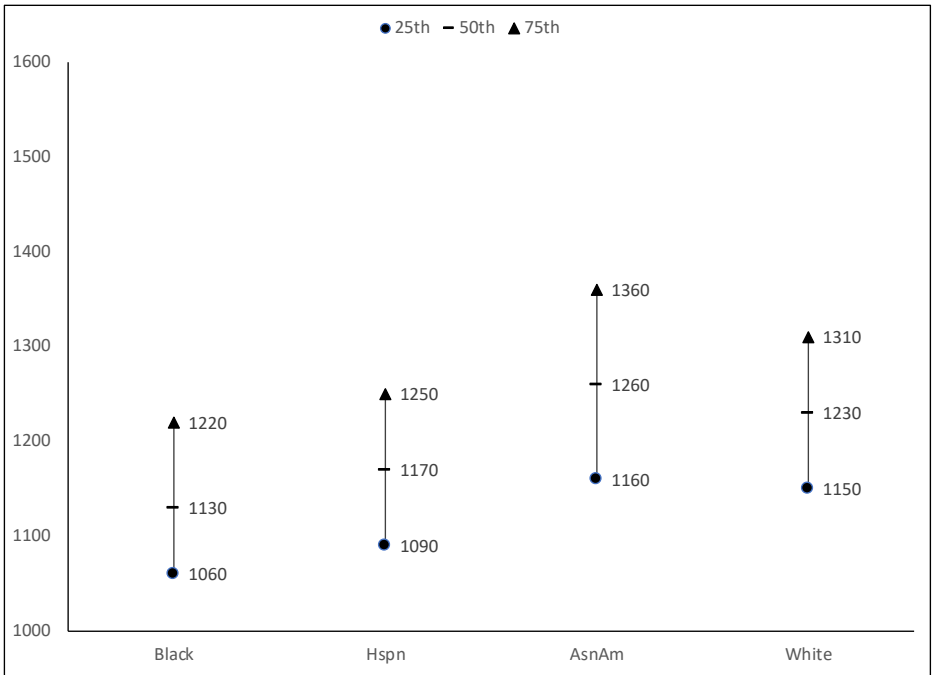


Like admittee GPAs at other schools, there was much overlap among the four groups, and the differences were small. The median GPAs of black and Hispanic admittees were the same (3.76), while the median GPA for Asian Americans was slightly higher, as was the median GPA for whites. At the 75th percentile, black and Hispanic GPAs (3.98) were just slightly lower than the Asian American and white GPAs at the same percentile (4.12).

GMU

Total SAT

Figure 13. GMU Admittee SAT Scores

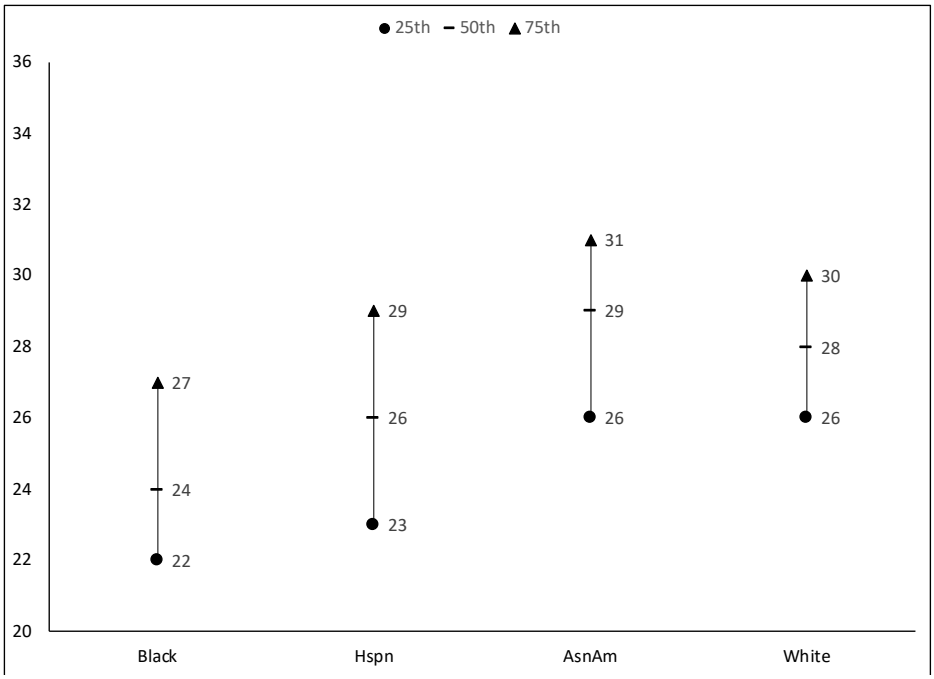


As with GPAs at other schools, black admittee SAT scores at GMU were lower than those for other groups. The median SAT score for black admittees (1130) was 40 points lower than the median for Hispanics, 130 points lower than the median for Asian Americans, and 100 points lower than the white median. At the 75th percentile, black admittee scores (1220) were 40 points lower than the Asian American median, and 30 points lower than the median for whites.

Hispanic test scores were also significantly lower compared to those for Asian Americans and whites. The Hispanic median (1170) was 90 points lower than the Asian American median (1260) and 60 points lower than the white median (1230).

GMU ACTs

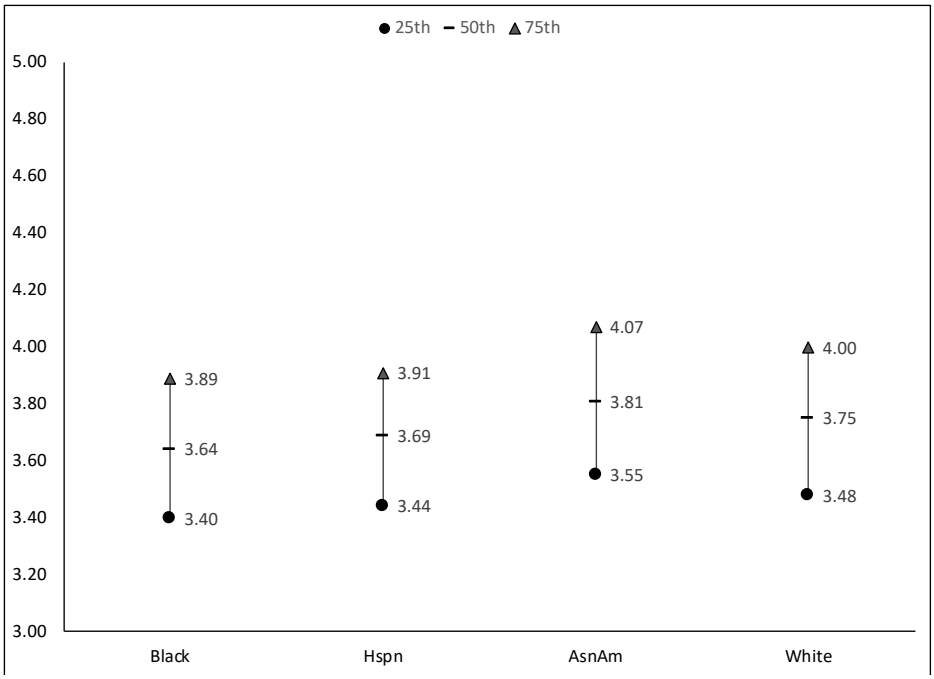
Figure 14. GMU Admittee ACT Scores



Differences in ACT scores were similar to those found at other schools. The median ACT score for black admittees (24) was two points lower than the Hispanic median (26), five points lower than the Asian American median (29), and four points lower than the white median (28). The black admittee score at the 75th percentile was two points lower than the Asian American median and one point lower than the white median, meaning that 75 percent of black admittees had lower ACT scores than half the Asian American and white admittees.

GMU High School GPAs

Figure 15. GMU Admittee GPAs



As with GPAs at the other schools, differences at GMU were small. The median GPAs of blacks and Hispanics were roughly the same (3.64 and 3.69, respectively). The median GPAs for Asian Americans and whites were less than two-tenths of a point higher (3.18 and 3,75). At the 75th percentile, black and Hispanic GPAs were less than two-tenths of a point below those for Asian American and white admittees.

Summary of Findings

Test scores were generally lower for black and Hispanic admittees compared to whites and Asian Americans. The largest differences were at the most competitive schools. At UVA, the black-white difference in median SAT scores was 180 points; at WM, it was 190. The black-white difference in median ACT scores was five points at UVA and WM.

Asian American SAT scores were generally higher than those for whites, and more so at the more competitive schools. Asian American and white median ACT scores were roughly the same at the five schools.

GPAs overlapped much more among the four groups, and differences in median GPAs were all minor. In many cases, differences were a tenth of a point or less.

Given admission rates and these differences in academic credentials, how many applicants were, in theory, rejected by each university despite having better test scores and

grades compared to the medians for black admittees? The numbers in the next section address the question.

Rejectees and Admittees

I examined the rejectees with SAT scores and GPAs higher than the medians for black admittees. At UVA and WM, most such rejectees were out-of-state applicants. But VT, JMU, and GMU rejected more Virginia residents despite having grades and test scores above the black admittee median.

UVA

2,295 were rejected by UVA despite higher grades and test scores compared to the UVA black admittee medians. 1,675 were white, and 333 of them were Virginia residents. 1,342 were not from Virginia. 109 in-state and 320 out-of-state Asian Americans, 22 in-state and 136 out-of-state Hispanics, and 7 in-state and 26 out-of-state black applicants were also rejected by UVA with these credentials.

Table 3. UVA Rejectees with SAT Scores and GPAs above the Black Admittee Medians

	In-State	Out-of-State	Total
Black	7	26	33
Hspnc	22	136	158
AsnAm	109	320	429
White	333	1,342	1,675
Total	471	1,824	2,295

WM

With these credentials, most of those rejected by WM were white (943). 239 of this group were from Virginia. 151 Asian Americans were also rejected (52 from Virginia), as were 46 Hispanics (3 in-state) and 4 blacks (all from outside Virginia).

Table 4. WM Rejectees with SAT Scores and GPAs above the Black Admittee Medians

	In-State	Out of State	Total
Black	0	4	4
Hspnc	3	43	46
AsnAm	52	99	151
White	239	704	943
Total	294	850	1144

VT

VT rejected mostly Virginia residents with higher test scores and grades (126). 92 were in-state whites, roughly triple the number of rejected out-of-state whites (31). 25 were in-state Asian Americans, and 9 were in-state Hispanics. Five out-of-state blacks were rejected, while all in-state blacks with better credentials than the black median were admitted.

Table 5. VT Rejectees with SAT Scores and GPAs above the Black Admittee Medians

	In-State	Out of State	Total
Black	0	5	5
Hspnc	9	6	15
AsnAm	25	6	31
White	92	31	123
Total	126	48	174

JMU

72 applicants with higher grades and test scores were rejected by JMU. 40 were from Virginia (37 whites and 3 Asian Americans). All black and Hispanic applicants with credentials above the black admittee medians were admitted.

Table 6. JMU Rejectees with SAT Scores and GPAs above the Black Admittee Medians

	In-State	Out of State	Total
Black	0	0	0
Hspnc	0	0	0
AsnAm	3	6	9
White	37	26	63
Total	40	32	72

GMU

Only 15 applicants with academic credentials above the black admittee medians were rejected by GMU. 12 were from Virginia—7 whites and 5 Asian Americans.

Table 7. GMU Rejectees with SAT Scores and GPAs above the Black Admittee Medians

	In-State	Out of State	Total
Black	0	0	0
Hspnc	0	1	1
AsnAm	5	1	6
White	7	1	8
Total	12	3	15

In the next section, I lay out a statistical model predicting the likelihood of admissions for those of difference groups. The statistical analysis allows other factors (test scores, GPAs, residency, gender, and legacy status) to be incorporated so the odds of one group being admitted over the other can be better compared.

Logistic Regression Analysis and Odds of Admission

The findings thus far provide evidence of racial and ethnic preferences at the competitive schools. But a more powerful means of assessing the degree of racial and ethnic preference in admissions is to develop statistical models that predict the probability of admission for members of the four groups, while statistically holding constant their qualifications. This is done for each school by computing logistic regression equations that predict admission decisions by race and ethnicity and that include test scores, GPA, gender, residency and legacy (where applicable) as control variables.

Logistic regression is used as a statistical technique because the outcome variable (admissions status) are binary in form (reject versus admit). Often, a relationship between the independent and dependent variable is expressed via regression analyses and correlation coefficients. A negative correlation coefficient of -1.0 signifies a perfect negative relationship between the independent (predictor) variable and the dependent (outcome) variable, whereby an increase in the value of the independent variable yields a decrease in the value of the dependent variable. A positive correlation coefficient of 1.0 signifies a perfect positive relationship between the two variables; as the independent variable increases, so does the dependent variable.

Strictly speaking, however, we cannot use correlations to analyze admissions data because correlations and standard regression analysis require a dependent variable that is nonbinary in form. Logistic regression equations and their corresponding odds ratios gets around this binary problem for admission status.

The odds ratio is somewhat like a correlation coefficient, but instead of varying from -1.0 to 1.0, it varies between zero and infinity. An odds ratio of 1.0 means that the odds of admissions for the two groups are equal and is equivalent to a correlation of zero. An odds ratio greater than 1.0 means that the odds of members of Group A being admitted are greater than those for members of Group B, in precisely the amount calculated. An odds ratio of less than 1.0 means the members of Group A are less likely to be admitted than those in Group B.

Odds ratios are commonly found in academic studies where the relative odds of an event is reported for one group and compared to another.[9] From logistic regression equations, I derived

[9] For a more complete discussion of odds ratios, see David E. Lilienfeld and Paul D. Stolley, *Foundations of Epidemiology*, 3rd edition (New York: Oxford University Press, 1994): 226-28, 316-17. Regarding logistic regression, see Alan Agresti, *Introduction to Categorical Data Analysis* (New York: John Wiley and Sons, 1996). Logistic regression analysis also enables testing for statistical significance. When results are statistically significant, the level of significance conventionally is reported in the form of "$p \leq .05$." This value means that, with these data,

the odds ratio of admission for blacks, Hispanics, and Asian Americans relative to that of whites, while simultaneously controlling for the effects of other variables (i.e., grades, test scores, gender, residency, and, where available, legacy). The size of the odds ratio reflects the strength of the association between racial or ethnic preference and admission status. An odds ratio equal to or greater than 3.0 is commonly thought to reflect a strong relationship. An odds ratio of about 2.0 reflects a moderate association, while a relative odds ratio of 1.5 or less indicates a weak relationship.[10] Finally, a *very* strong relationship might be taken to be the rough equivalent of the relative odds of smokers as opposed to nonsmokers dying from lung cancer, which in one study was 14 to 1.[11]

Table 8 presents admissions odds ratios comparing blacks, Hispanics, and Asian Americans to whites. I also included the odds ratios of white to Asian American applicants, which is the inverse of the Asian American-white odds ratio, and the odds ratios that compare in-state to out-of-state applicants, female to male applicants, and legacies to non-legacies.[12] Calculations controlled for SAT scores and GPAs.

Table 8. Odds Ratios of Admissions

	UVA	WM	VT
Black to White	6.75 to 1***	19.77 to 1***	1.23 to 1*
Hispanic to White	2.07 to 1***	6.73 to 1***	0.96 to 1
Asian Am to White	0.80 to 1***	0.52 to 1***	0.47 to 1***
White to Asian Am	1.20 to 1***	2.00 to 1***	2.13 to 1***
In-State to Out-of-State	5.59 to 1***	4.60 to 1***	0.14 to 1***
Out-of-State to In-State	0.17 to 1***	0.21 to 1***	7.14 to 1***
Female to Male	1.29 to 1***	0.79 to 1***	1.33 to 1***
Legacy to Non-Legacy	2.13 to 1***	4.30 to 1***	1.62 to 1***
	JMU	GMU	
Black to White	0.98 to 1	0.75 to 1*	
Hispanic to White	0.97 to 1	0.60 to 1***	
Asian Am to White	0.70 to 1***	0.75 to 1*	
White to Asian Am	1.43 to 1***	1.33* to 1	
In-State to Out-of-State	0.42 to 1***	0.08 to 1***	
Out-of-State to In-State	2.38 to 1***	12.50 to 1***	
Female to Male	1.35 to 1***	1.06 to 1	
Legacy to Non-Legacy	1.49 to 1**	--	

*≤0.05, **≤0.01. ***≤ 0.001; if no asterisk, odds ratio is not statistically significant.

there is an equal to or less than 5 percent likelihood that the differences found between one group and another (e.g., blacks versus whites) is due to chance.

[10] See Lilienfeld and Stolley, *Foundations of Epidemiology*, 200-02.

[11] Taken from a 20-year longitudinal study of British male physicians by R. Doll and R. Peto, as quoted in Agresti, *Introduction to Categorical Data Analysis*, 47.

[12] Except for GMU, which does not collect legacy data.

Overall Findings

At UVA and especially at WM, blacks were given substantial admissions preference over whites, with odds ratios of 6.75 to 1 and 19.77 to 1, respectively (controlling for SAT scores, GPAs, gender, residency, and legacy). To a lesser extent, Hispanics also received preference over whites at these two schools, where the Hispanic-white odds ratio at UVA was 2.07 to 1 and 6.73 to 1 at WM.

White applicants received preference over Asian Americans at all five schools.

UVA and WM also highly favored in-state over out-of-state applicants (5.59 to 1 and 4.60 to 1, respectively). The opposite was the case at the other schools. The other three schools gave the largest preference to out-of-state applicants, more so than race, gender, and legacy.

Of the four schools that collected legacy data, only WM gave substantial preference to legacies (4.30 to 1). UVA gave legacies a moderate degree of preference (2.13 to 1).

UVA

The largest odds ratio at UVA was one favoring black over white applicants (6.75 to 1). But almost as large was the preference awarded in-state applicants (5.59 to 1). Moderate preferences were awarded legacy applicants (2.13 to 1) and Hispanics over whites (2.07 to 1). A small preference was awarded females over males (1.29 to 1), while the Asian American-white odds ratio was 0.80 to 1. Its inverse, the odds ratio of whites over Asian Americans (1.20 to 1), indicated a preference for white over Asian American applicants, controlling for all other variables.

WM

WM had the largest black-white odds ratio of all schools (19.77 to 1) but also had the largest odds ratio that favored Hispanics over whites (6.71 to 1). There was a large preference awarded to in-state applicants (4.60 to 1) and legacies (4.30 to 1).

Both the Asian American-white and female-male odds ratios were less than 1.00, suggesting that WM favored white over Asian American and male over female applicants. Its inverse was a white-Asian American odds ratio of 2.00 to 1 and a male over female odds ratio of 1.27 to 1.

VT

VT gave its largest preference to out-of-state applicants. The in-state/out-of-state odds ratio was 0.14 to 1; its inverse, favoring out-of-state applicants, was 7.14 to 1. VT gave significantly smaller preferences to legacy applicants (1.62 to 1), to women (1.33 to 1), and blacks over whites (1.23 to 1). No preference was awarded Hispanic applicants, controlling for

the other factors, while the Asian American-white odds ratio showed a preference for whites (0.47 to 1, or its inverse of 2.13 to 1 for whites over Asian Americans).

JMU

JMU also gave its largest preference to out-of-state applicants. The in-state/out-of-state odds ratio was 0.42 to 1; its inverse, showing a modest out-of-state preference, was 2.38 to 1. Comparing racial/ethnic groups to whites, JMU gave preference to whites over Asian Americans but to no group over whites. JMU also gave a small preference to legacies (1.49 to 1).

GMU

GMU does not collect legacy information. It gave the largest preference to out-of-state over in-state applicants. The in-state/out-of-state odds ratio was 0.08 to 1; the inverse, favoring out-of-state applicants was 12.5 to 1, by far the largest odds ratio for GMU.

The odds ratios for blacks to whites and Asian Americans to whites at GMU were both 0.75 to 1. The inverse (favoring whites over blacks and whites over Asian American) was 1.33 to 1 (a small preference granted to white applicants). The Hispanic-white odds ratio was 0.60 to 1. Its inverse, showing a slightly larger white over Hispanic preference, was 1.67 to 1. GMU awarded no gender preference. The female-male odds ratio was 1.06 to 1.

Probability of Admissions

Beyond calculating odds ratios, logistic regression equations enable the estimation of probabilities of admissions given certain test scores and grades. In the analysis below, I used the SAT scores and GPAs equal to the medians for black admittees at each school.[13] In the table below, I also chose to separate in-state and out-of-state probabilities of admissions because UVA and WM gave some weight to being a Virginia resident, while the other schools did the opposite.

UVA

Table 9. UVA Probability of Admissions with Median Test Scores and GPAs of Black Admittees

	In-State	Out-of-State
Black	74%	34%
Hspn	46%	13%
AsnAm	25%	6%
White	30%	7%

With the same test scores and grades as the black admittee median (1240 and 4.16, respectively), the likelihood of an in-state black applicant being admitted at UVA was 74%. With

[13] The probabilities were based on the logistic regression equations in the appendix. Calculating probabilities were also based on the applicant being male and a non-legacy.

these same credentials, an in-state Hispanic applicant had a 46% chance of admission. And the chances of in-state Asian Americans and whites were even lower—25% and 30%, respectively.

The admissions chances for an out-of-state black with these academic credentials was 34%. It was significantly greater than the probabilities for out-of-state Hispanics (13%), Asian Americans (6%), and whites (7%). But it was also greater than the probability of admissions for in-state Asian Americans (25%) and whites (30%) with these credentials. The larger probability for out-of-state blacks demonstrates UVA placing greater weight on an applicant's race than on residency.

WM

Table 10. Probability of Admissions to WM with Median Test Scores and GPAs of Black Admittees

	In-State	Out-of-State
Black	80%	47%
Hspn	58%	23%
AsnAm	10%	2%
White	17%	4%

With the same test scores and GPAs as black admittee medians (1260 and 4.23), the probability of admissions varied significantly by race (and residency to a lesser extent). An in-state black applicant with these credentials had an 80% probability of admissions to WM. The probability dropped to 58% for in-state Hispanics, 10% for in-state Asian Americans, and 17% for in-state whites.

At WM, the weight placed on race can be seen when comparing out-of-state black applicants with in-state Asian Americans and whites. Black out-of-state applicants had a 47% chance of admissions with these academic credentials, while out-of-state Hispanics had a 23% chance. These probabilities were greater than those of in-state Asian Americans and whites with the same scores and grades, showing the greater weight WM placed on race as opposed to in-state residency.

VT

Table 11. Probability of Admissions at VT

	In-State	Out-of-State
Black	72%	95%
Hspn	67%	94%
AsnAm	50%	88%
White	68%	94%

At VT, the probabilities of admissions based on black admittee medians (1200 and 3.93) were much greater for out-of-state applicants. But here too, in-state black applicants were more likely to be admitted compared to in-state applicants from other ethnic groups. A black in-state applicant with these qualifications had a 72% chance of admissions, while a similarly credentialed in-state Hispanic had a 67% chance, an in-state Asian American had a 50% chance, and an in-state white had a 68% chance.

JMU

Table 12. Probability of Admissions at JMU

	In-State	Out-of-State
Black	82%	92%
Hspn	82%	91%
AsnAm	77%	89%
White	82%	92%

Like the situation at VT, the probabilities of admissions were higher for out-of-state applicants with the same test scores are grades as the black admittee medians at JMU (1130 and 3.76, respectively). Roughly nine out of ten out-of-state blacks, Hispanics, Asian Americans, and whites were likely admitted with these credentials. Probabilities of admissions with such grades and test scores were lower for in-state applicants—82% for in-state blacks, Hispanics, and whites, and 77% for in-state Asian Americans.

GMU

Table 13. Probability of Admissions at GMU

	In-State	Out-of-State
Black	99%	100%
Hspn	99%	100%
AsnAm	99%	100%
White	99%	100%

Practically all applicants with the test scores and grades of the average black admittee (1130 and 3.64) would have gotten in.

Conclusion

There is considerable evidence that race is still used as a large factor in admissions at UVA and WM but not at the other schools.

UVA and WM admitted black applicants at higher rates than whites and Asian Americans, which suggests the use of racial/ethnic preferences. WM also admitted Hispanics at a

higher rate than Asian Americans and whites. The opposite was the case at VT, JMU, and GMU, where Asian Americans and whites were admitted at a higher rate.

There were substantial test score gaps but not a GPA gap. Test scores were generally lower for blacks and Hispanic admittees compared to whites and Asian Americans, and the largest gaps were at the more competitive schools (UVA and WM). GPAs overlapped much more among the groups, and differences in median GPAs were roughly two-tenths of a point or less. Here too, differences were greater at UVA and WM.

Finally, logistic regression analysis found large odds ratios favoring blacks over whites and smaller odds ratios favoring Hispanics over whites at UVA and WM, controlling for academic credentials, gender, residency, and legacy status. Odds ratios also showed all schools giving preference to whites over Asian Americans, controlling for other factors. Based on odds ratios, UVA and WM also favored in-state over out-of-state applicants, but these odds ratios were not as large as preferences granted blacks over whites.

Appendix

UVA

A=EXP((1.909*Black) + (0.728* Hspnc)+(-0.218*AsnAm) + (0.258*Female) + (1.722*In-State) + (0.756*Legacy) + (2.284*GPA) + (0.007*TotSAT) – 20.774)
Prob of admit = A/(1+A)

WM

A=EXP((2.984*Black) + (1.907*Hspnc) + (-0.651*AsnAm) + (-0.233*Female) + (1.524*In-State) + (1.449*Legacy) + (0.015*TotSAT) + (0.003*GPA) – 22.032)
Prob of admit = A/(1+A)

VT

A=EXP((0.205*Black) + (-0.045*Hispanic) + (-0.753*AsnAm) + (0.288*Female) + (-2*In-State) + (0.48*Legacy) + (0.003*TotSAT) + (5.439*GPA) – 22.234)
Prob of admit = A/(1+A)

JMU

A=EXP((-0.017*Black) + (-0.036*Hisp) + (-0.358*AsnAm) + (0.296*Male) + (-0.864*In-State) + (0.397*Legacy) + (0.005*TotSAT1) + (5.469* GPA) – 23.805)
Prob of admit = A/(1+A)

GMU

A=EXP((0.011*TotSAT) + (8.638*GPA) + (-0.283*Black) + (-0.513*Hspnc) + (-0.283*AsnAm) + (0.061*Male) + (-2.526*In-State) – 36.862)
Prob of admit = A/(1+A)

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