

Analysis for Michigan Schuette Brief

Aaron Danielson

June 24, 2013

Contents

1	Summary	1
2	Tables and Plots	2
2.1	Admission Rates at Michigan in 2006 and 2008	2
2.2	Admission Rates by Socioeconomic Factors	3
2.3	SES Comparisons	4
2.4	SES Measures of Black Admits in 2006 and 2008	5
3	Logistic Regression	7
3.1	1999	7
3.2	2006	7
3.3	2008	9

1 Summary

The following analysis compares trends in admissions at the University of Michigan using data from 2006 and 2008. We focus on the role of race and socioeconomic status in the admissions process.

Between 2006 and 2008 admission to the University of Michigan became decidedly more competitive. Table one demonstrates that the mean admission rate dropped from 52% to 46%. This decrease in the chance of admission did not affect all racial groups equally. Note that White applicants saw their admission rates drop by 3% while Hispanic applicants endured an 18% drop. One of the most striking results in table once is the bias against Asian applicants. In 2006 every other racial group's admission rate exceeded the Asian cohort by at least 7% while this figure changes to 14% in 2008. Clearly, systemic changes to Michigan's admissions policy hurt Asian applicants the most.

Tables 2 through 5 display admission rates by socioeconomic status and race. Note that for Black students from family's earning between \$25,000 and \$49,000, the admission rate hardly changes across periods. For White students, this number actually increases by about 1%. All other racial groups experience huge drops in admission rates.

In 2008 Black applicants whose parents have less than a Bachelor's degree actually fare somewhat better in 2008 than in 2006. The same outcome does not hold for other minority applicants; Hispanic and Asian applicants suffer large drops in admission rates at all parent education levels.

The graphic in 2.3 shows the estimated density plot of Asian versus White family incomes. White applicants are much more likely to come from households earning more than \$100,000 per year than Asian applicants. The corresponding plot for 2008 (not shown) mirrors 2006. Despite the fact that Asian applicants are worse off socioeconomically, Michigan admissions appears to favor White over Asian students (see logistic regression.)

Tables 7 through 10 present the distribution of Black admitted applicants by family income and parent education. We see that Black admits in 2008 are wealthier than the students admitted in 2006. There are also fewer Black admitted students from very poor households.

The series of logistic regressions in sections 3.2 and 3.3 compute the relative weight given to applicant characteristics while controlling for all others. In each regression, the omitted racial group is White. That the coefficient on the term indicating that the applicant is black is substantively large and statistically significant in all regressions for 2006 and 2008 suggests the use of racial preferences in admission decisions. The coefficient for Black applicants shrinks by roughly a factor of 4

between 2006 and 2008; for Hispanic applicants, the coefficient decreases by roughly a factor of 10. The coefficients for Asian applicants are also substantively and statistically significant. Being Asian lowers one's probability of admission net all other measured factors. Racial preferences disadvantaged Asian applicants more in 2008 than 2006.

Hence racial preferences influence admissions decisions at the University of Michigan. They grant less benefit to Black and, especially, Hispanic applicants in 2008. Asian students, however, face an even larger bias in 2008 than they did in 2006.

2 Tables and Plots

2.1 Admission Rates at Michigan in 2006 and 2008

	Asian	Black	Hispanic	Native American	White	Missing	Total
2006 Rate	0.38	0.58	0.69	0.58	0.45	0.68	0.52
2006 Total	1241.00	510.00	453.00	53.00	5019.00	4858.00	12134.00
2008 Rate	0.28	0.49	0.51	0.46	0.42	0.57	0.46
2008 Total	959.00	442.00	364.00	25.00	5369.00	5303.00	12462.00

Table 1: Admission Rates to the University of Michigan in 2006 and 2008

2.2 Admission Rates by Socioeconomic Factors

	Missing	Don't Know	Less than \$25,000	\$25,000 - \$49,000	\$50,000 - \$74,999	\$75,000 - \$99,999	More than \$100,000
Asian	0.392	0.339	0.379	0.398	0.345	0.395	0.389
Black	0.557	0.518	0.556	0.556	0.651	0.632	0.623
Hispanic	0.669	0.618	0.745	0.631	0.667	0.698	0.759
Native Amr	0.556	0.200	0.500	0.833	0.500	0.455	0.762
White	0.450	0.407	0.486	0.428	0.444	0.448	0.457

Table 2: Michigan Admission Rates by Race and Family Income in 2006

	NA	Unknown	Less than HS	HS Grad	Some College	Associate	Bachelor's	Master's	Doc	Professional	Post.Doc
Asian	0.880	0.140	0.000	0.460	0.208	0.200	0.251	0.353	0.424	0.314	0.296
Black	0.875	0.000	0.000	0.515	0.495	0.500	0.562	0.562	0.603	0.714	0.000
Hispanic	0.914	0.000	0.000	0.571	0.688	0.704	0.697	0.669	0.765	0.732	0.000
Native Amr	0.971	0.000	0.000	0.000	0.000	0.000	0.645	0.000	0.000	0.000	0.000
White	0.900	0.157	0.000	0.438	0.314	0.369	0.377	0.436	0.428	0.453	0.336

Table 3: Michigan Admission Rates by Race and Parent Education in 2006

	Missing	Don't Know	Less than \$25,000	\$25,000 - \$49,000	\$50,000 - \$74,999	\$75,000 - \$99,999	More than \$100,000
Asian	0.285	0.204	0.335	0.251	0.247	0.293	0.311
Black	0.506	0.405	0.467	0.555	0.523	0.457	0.454
Hispanic	0.567	0.449	0.603	0.515	0.440	0.513	0.488
Native Amr	0.667	0.000	0.000	0.500	0.400	0.400	0.444
White	0.421	0.391	0.427	0.441	0.413	0.406	0.435

Table 4: Michigan Admission Rates by Race and Family Income in 2008

	NA	Unknown	Less than HS	HS Grad	Some College	Associate	Bachelor's	Master's	Doc	Professional	Post.Doc
Asian	0.839	0.000	0.000	0.247	0.119	0.000	0.199	0.239	0.305	0.264	0.000
Black	0.851	0.000	0.000	0.512	0.514	0.528	0.470	0.404	0.519	0.466	0.000
Hispanic	0.838	0.000	0.000	0.535	0.542	0.577	0.456	0.495	0.556	0.492	0.000
Native Amr	0.962	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
White	0.947	0.168	0.000	0.436	0.328	0.386	0.366	0.386	0.388	0.408	0.311

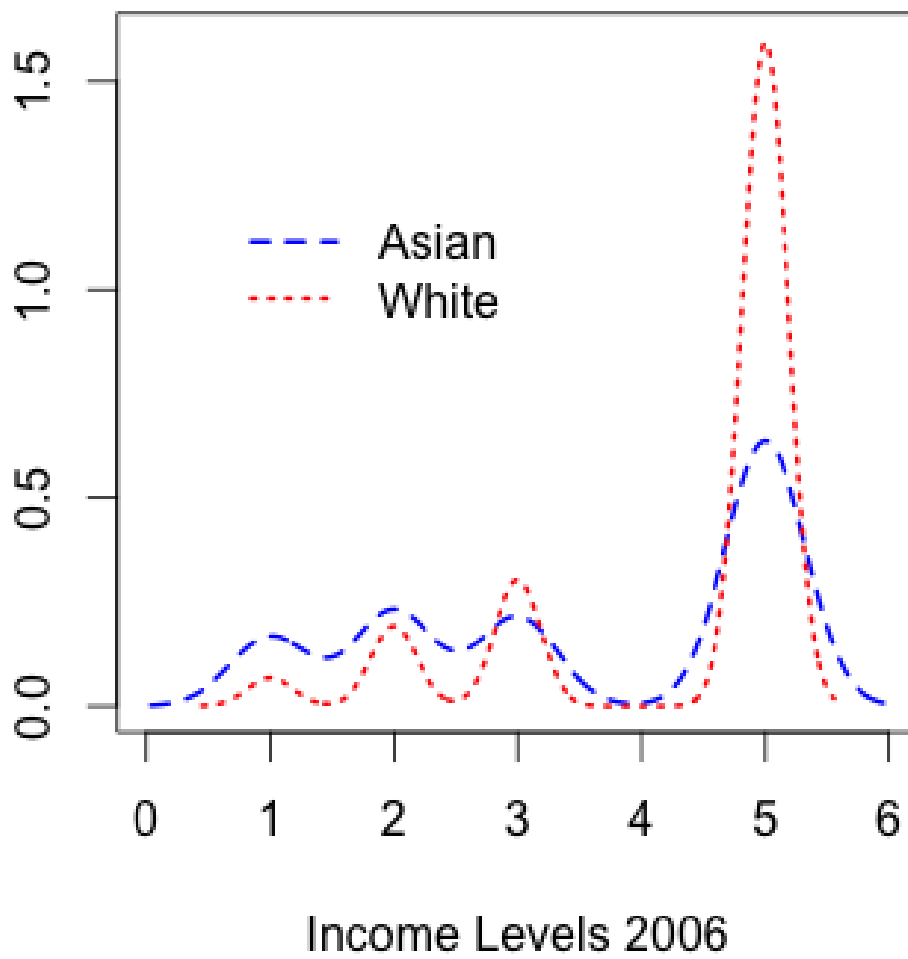
Table 5: Michigan Admission Rates by Race and Parent Education in 2008

2.3 SES Comparisons

	Asian	Black	Hispanic	Native Amr	White
Income 06	3.571	2.683	3.385	3.259	4.328
Parent Educ 06	5.846	4.921	5.084	4.903	5.793
Income 08	3.659	2.831	3.648	3.575	4.377
Parent Educ 08	5.801	4.889	5.299	5.324	5.744

Table 6: Average SES measures at Michigan

Family Income Densities



2.4 SES Measures of Black Admits in 2006 and 2008

Income Level	Number
Missing	131
Don't Know	29
Less than \$25,000	75
\$25,000 - \$49,000	80
\$50,000 - \$74,999	71
\$75,000 - \$99,000	43
More than \$100,000	81

Table 7: Family Income Distribution for Admitted Black Students 2006

Education Level	Number
Missing	84
High School Diploma	50
Some College	46
Associate's Degree	24
Bachelor's Degree or Nursing Diploma	126
Master's Degree	100
Doctorate	35
Professional Doctorate	45

Table 8: Parent Education Distribution for Admitted Black Students in 2006

Income Level	Number
Missing	89
Don't Know	17
Less than \$25,000	13
\$25,000 - \$49,000	27
\$50,000 - \$74,999	30
\$75,000 - \$99,000	28
More than \$100,000	98

Table 9: Family Income Distribution for Admitted Black Students in 2008

Education Level	Number
Missing	63
Don't Know or Not Indicated	4
Elementary School Only or Less than High School	2
High School Diploma	13
Some College	17
Associate's Degree	10
Bachelor's Degree or Nursing Diploma	86
Master's Degree	89
Doctorate	35
Post Doctorate	3
Professional Doctorate	42

Table 10: Parent Education Distribution for Admitted Black Students

3 Logistic Regression

3.1 1999

Table 11: Logistic Regression on Admission Decision, University of Michigan 1999, Arts and Sciences

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
MEANsat	1.007	0.003	0.024	1.001	1.012
GPAHS	1.662	1.192	0.479	0.377	6.372
Black99	5.055	5.589	0.143	0.865	99.035
Michres	0.110	0.069	0.000	0.025	0.329
Palum	1.758	0.818	0.225	0.753	4.816
Male	0.021	0.021	0.000	0.001	0.098

$Dxy = 0.754, N = 2700$

Table 12: Logistic Regression on Admission Decision, University of Michigan 1999, Arts and Sciences Larger Data Set

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
SATVerb	1.017	0.001	0.000	1.014	1.019
SATMath	1.007	0.001	0.000	1.004	1.009
GPAHS	121.098	30.189	0.000	75.272	200.161
Female	0.452	0.081	0.000	0.316	0.640
UnknownGender	8.404	10.811	0.098	0.970	128.273
Asian99	0.005	0.001	0.000	0.003	0.007
Black99	3.242	0.841	0.000	1.964	5.434
Hispanic99	0.992	0.295	0.979	0.559	1.793
Namr99	0.672	1.618	0.869	0.018	30.573
Palum	2.208	0.642	0.006	1.269	3.973

$Dxy = 0.969, N = 5822$

3.2 2006

Table 13: Logistic Regression on Admission Decision, University of Michigan 2006

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.003	0.000	0.000	1.003	1.004
gpahs	84.881	10.856	0.000	66.256	109.394
Black06	41.927	7.328	0.000	29.860	59.250
Hspan06	30.723	5.846	0.000	21.260	44.839
Namr06	8.156	5.316	0.001	2.209	28.589
Asian06	0.584	0.053	0.000	0.487	0.698
mres06	0.650	0.050	0.000	0.559	0.757
alum06	2.281	0.200	0.000	1.922	2.710
peduc06	0.936	0.021	0.004	0.895	0.979
finc06	1.026	0.031	0.399	0.967	1.088
singleparent06	0.822	0.082	0.050	0.676	0.999

$Dxy = 0.746, N = 7070$

Table 14: Logistic Regression on Admission Decision, University of Michigan 2006, No single parent variable

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.004	0.000	0.000	1.003	1.004
gpahs	66.807	7.811	0.000	53.256	84.224
Black06	35.405	5.832	0.000	25.710	49.041
Hspan06	24.629	4.520	0.000	17.266	35.460
Namr06	6.721	4.102	0.002	2.015	22.063
Asian06	0.576	0.050	0.000	0.486	0.682
mres06	0.915	0.064	0.203	0.798	1.049
alum06	2.304	0.188	0.000	1.965	2.704
peduc06	0.952	0.021	0.024	0.913	0.994
finc06	1.014	0.027	0.583	0.964	1.068

$Dxy = 0.736$, $N = 7594$

Table 15: Logistic Regression on Admission Decision, University of Michigan 2006, No family income, no single parent

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.004	0.000	0.000	1.003	1.004
gpahs	87.321	7.860	0.000	73.304	104.322
Black06	43.716	5.528	0.000	34.176	56.106
Hspan06	25.580	3.540	0.000	19.552	33.639
Namr06	5.352	2.266	0.000	2.309	12.168
Asian06	0.633	0.038	0.000	0.562	0.712
mres06	0.854	0.046	0.003	0.768	0.948
alum06	2.585	0.164	0.000	2.283	2.930
peduc06	0.951	0.015	0.001	0.923	0.981

$Dxy = 0.749$, $N = 14037$

Table 16: Logistic Regression on Admission Decision, University of Michigan 2006, No parent education, no single parent

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.004	0.000	0.000	1.003	1.004
gpahs	57.258	6.217	0.000	46.381	70.990
Black06	34.624	5.384	0.000	25.596	47.090
Hspan06	27.792	4.875	0.000	19.793	39.377
Namr06	19.463	9.007	0.000	7.987	49.081
Asian06	0.659	0.053	0.000	0.564	0.771
mres06	1.246	0.080	0.001	1.100	1.413
alum06	2.308	0.176	0.000	1.989	2.682
finc06	0.997	0.022	0.895	0.954	1.042

$Dxy = 0.735$, $N = 8360$

Table 17: Logistic Regression on Admission Decision, University of Michigan 2008

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.002	0.000	0.000	1.002	1.003
gpahs	37.658	4.047	0.000	30.569	46.584
Black08	10.238	1.358	0.000	7.904	13.297
Hspan08	3.366	0.467	0.000	2.566	4.419
Namr08	0.000	0.001	0.942		0.096
Asian08	0.484	0.039	0.000	0.414	0.565
mres08	0.853	0.058	0.019	0.747	0.974
alum08	2.626	0.204	0.000	2.257	3.058
peduc08	0.910	0.018	0.000	0.874	0.946
finc08	0.977	0.026	0.377	0.926	1.029
singleparent08	0.888	0.078	0.176	0.748	1.054

$Dxy = 0.645$, $N = 8766$

Table 18: Logistic Regression on Admission Decision, University of Michigan 2008, no single parent variable

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.003	0.000	0.000	1.002	1.003
gpahs	35.639	3.639	0.000	29.228	43.616
Black08	9.167	1.181	0.000	7.129	11.816
Hspan08	3.370	0.452	0.000	2.592	4.387
Namr08	0.000	0.001	0.941		0.080
Asian08	0.469	0.036	0.000	0.402	0.545
mres08	1.308	0.081	0.000	1.158	1.477
alum08	2.838	0.206	0.000	2.463	3.274
peduc08	0.927	0.018	0.000	0.892	0.964
finc08	1.004	0.024	0.859	0.958	1.053

$Dxy = 0.654$, $N = 9313$

Table 19: Logistic Regression on Admission Decision, University of Michigan 2006, No family income, no single parent

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.003	0.000	0.000	1.002	1.003
gpahs	34.486	2.709	0.000	29.598	40.270
Black08	9.245	0.935	0.000	7.587	11.280
Hspan08	4.220	0.446	0.000	3.433	5.194
Namr08	0.000	0.001	0.929	0.000	0.006
Asian08	0.485	0.028	0.000	0.433	0.542
mres08	1.259	0.061	0.000	1.145	1.385
alum08	2.895	0.166	0.000	2.588	3.239
peduc08	0.931	0.013	0.000	0.906	0.958

$Dxy = 0.65$, $N = 15686$

Table 20: Logistic Regression on Admission Decision, University of Michigan 2006, No parent education, no single parent

Covariate	OR Coefficient	Standard Error	P-value	2.5%	97.5%
HighestSATACT	1.002	0.000	0.000	1.002	1.003
gpahs	36.071	3.451	0.000	29.951	43.582
Black08	8.562	1.055	0.000	6.733	10.915
Hspan08	3.903	0.494	0.000	3.049	5.007
Namr08	2.278	0.949	0.048	1.002	5.178
Asian08	0.577	0.040	0.000	0.503	0.661
mres08	1.825	0.102	0.000	1.635	2.037
alum08	2.929	0.199	0.000	2.566	3.348
finc08	0.961	0.019	0.048	0.924	1.000

$Dxy = 0.662$, $N = 10354$