EXHIBIT 287

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

STUDENTS FOR FAIR ADMISSIONS, INC., Plaintiff, v. PRESIDENT AND FELLOWS OF HARVARD COLLEGE (HARVARD CORPORATION), Defendant.	Civil Action No. 1:14-cv-14176-ADB

DECLARATION OF PETER ARCIDIACONO

I, Peter Arcidiacono, pursuant to 28 U.S.C. § 1746, declare the following:

1. I make this declaration at the request of counsel for Plaintiff Students for Fair Admissions, Inc. ("SFFA"), and if called upon to testify as to the contents of this declaration would testify competently thereto.

2. I have reviewed the declaration submitted by Harvard's Expert, David Card, in connection with Harvard's brief in opposition to SFFA's motion for summary judgment. In that declaration, Professor Card provides additional statistical analysis regarding the effect of race on admissions at Stuyvesant High School.

3. Professor Card claims in his declaration that I "cherry-picked the one school on which [I] chose to focus, again manipulating the statistical evidence to serve SFFA's ends." He then shows that at two other schools the admit rate for Asian-American applicants is higher than that of white applicants. Harvard Exhibit 151 (Card July 27, 2018 Decl.) at ¶ 2.

4. Professor Card is incorrect. Stuyvesant is quite representative of schools that submit a large number of applications to Harvard. In Table 1 below, I show admit rates for white and Asian-American domestic applicants from high schools where at least 400 domestic students applied (over the six-year period for which Harvard produced admissions data).

Table 1: Average Admit Rates at Stuyvesant are Consistent With Other Large Schools

Name	White Admit Rate	Asian-American Admit Rate	White - Asian-American	Percentage Increase
[redacted]	29.27%	24.69%	4.58%	18.54%
[redacted]	19.06%	10.22%	8.85%	86.63%
[redacted]	9.31%	12.27%	-2.96%	-24.09%
[redacted]	11.54%	6.68%	4.86%	72.68%
[redacted]	7.26%	3.91%	3.34%	85.41%
Total	15.54%	10.64%	4.90%	46.10%

5. As Table 1 shows, the average admit rate for white students at these schools was 4.9 percentage points higher than their Asian-American counterparts. This number is slightly higher than the difference at Stuyvesant. At Stuyvesant, domestic white students were 73% more likely to be admitted than their Asian-American counterparts. At two of the schools [redacted], this number is even higher; at two [redacted], it is lower.

6. As shown above, it is actually *Professor Card who is cherry picking* in his choice of [redacted]; [redacted] is the only one of the five where Asian-American applicants have a higher admit rate than white applicants.

7. Professor Card also reports results for [redacted] (which has fewer applicants), noting that its admit rate is higher for domestic Asian-American applicants

than white applicants. Notably, however, in the years prior to SFFA's filing of this lawsuit, admit rates for white applicants are higher than those of Asian-American applicants.

8. Professor Card claims in his declaration that "the average differences between White and Asian-American applicants from Stuyvesant during the years in question, rather than the race of those applicants, can explain why White applicants were admitted at a higher rate than Asian-American applicants." *See* Harvard Exhibit 151 (Card July 26, 2018 Decl.) at ¶ 3. To support this claim, Professor Card estimates a new logit model that he references in his declaration. He begins with my preferred expanded model, *see* Harvard Exhibit 151 (Card July 26, 2018 Decl.) at ¶ 4, and then adds athletes to the estimation dataset and adds additional controls for ALDC status interacted with race.

9. Professor Card did not report the average marginal effects associated with this model; nor are they included in the workpaper associated with his declaration. But using the code Professor Card used to generate this new logit model, I was able to determine the resulting average marginal effect of race for Asian-American applicants—a marginal effect that was both negative and significant (-0.8). This means that Professor Card's new model, like my model, identifies a penalty against Asian-American applicants.

10. Professor Card uses this new model to predict the probability that Asian-American and white applicants from Stuyvesant are admitted under the scenario where the Asian-American penalty is turned off. He shows that turning off the Asian-American penalty actually predicts admission rates for Asian-American applicants that are lower than the actual admit rates for Stuyvesant applicants. He uses this point to claim that "it is not the race of Asian-American applicants from Stuyvesant that accounts for the rate at which they were admitted." *Id*. at ¶ 6.

11. There are multiple problems with this analysis. First, by including athletes (and indeed by including applicants in the other special categories—legacies, Dean's/Director's Lists, and the children of faculty or staff), Professor Card's model distorts the importance of the factors that predict admission for non-ALDC applicants. To use an example from my earlier declaration, applicants receiving a 5 on their academic rating are guaranteed to be rejected—unless they are recruited athletes. Including athletes in the overall model thus makes it appear that the academic rating is less important to the pool as a whole. Because athletes (and the other ALDC applicants) are ultimately not judged in the same way as the vast majority of applicants, it is appropriate to exclude them from an admissions model. *See* Arcidiacono Rebuttal 19, 28, 36 n.19.

12. Including interactions between ALDC status and race in the model mitigates some, but not all, of the problems caused by including these applicants. But because he does not interact ALDC status with Harvard's ratings, Professor Card's inclusion of ALDC applicants still diminishes the importance of characteristics such as the academic and extracurricular ratings (where Asian-American applicants are the strongest). Table 2 shows how the coefficients on the academic and extracurricular ratings change when one adds LDC applicants and athletes respectively.[1]

[1] The first two columns come from Tables B.7.1R and B.7.2R of my rebuttal report. The third column comes from the model estimated in Professor Card's declaration.

Table 2: Inclusion of ALDC Applicants Distorts Effect of Other Admissions Criteria

	Preferred Model				
	Baseline Coefficient	Expanded Coefficient	Expanded plus Athletes	Pct. Increase Over Expanded	Pct. Increase Over Expanded Plus
Academic Rating=4	-3.990	-2.426	-1.184	64.5%	237.1%
Academic Rating=2	1.425	1.206	1.209	18.2%	17.8%
Academic Rating=1	4.094	3.806	3.787	7.6%	8.1%
Extracurricular Rating=4	-1.301	-0.952	-0.171	36.7%	662.1%
Extracurricular Rating=2	1.990	1.689	1.646	17.8%	20.9%
Extracurricular Rating=1	4.232	3.795	3.726	11.5%	13.6%

Note: Coefficients for each of the ratings are relative to receiving a 3 on that rating

13. As Table 2 shows, adding ALDC applicants results in the magnitude of the coefficient on these ratings to fall sharply; the baseline coefficients are substantially larger in magnitude. Since Asian-American applicants are stronger on these ratings, diminishing their importance by including ALDC applicants makes it appear as though non-ALDC Asian-American applicants are not being penalized as much as they actually are.

14. Second, Professor Card incorrectly accounts for how the Asian-American penalty affects the admission of Asian-American students at Stuyvesant. Given that the average marginal effect is negative for Asian American, removing the penalty must result in a higher admit rate, not a lower one. Professor Card's Stuyvesant analysis is thus fundamentally flawed—his model is not designed to predict the exact admission rates for each individual high school/race combination. In other words, Professor Card's analysis suffers from a small numbers problem, and the flawed results he reports are a product of that small numbers problem. As a result, comparing Professor Card's predicted Asian-American admit rate for Stuyvesant applicants without the penalty to the observed

admission rate does not correctly account for the role the Asian-American penalty played in the admissions decisions of Stuyvesant applicants.

15. The reason this method is incorrect is that admissions decisions reveal not only how strong the applicants are on observed dimensions but on unobserved dimensions as well. In order to calculate how the admissions decisions would change for these Stuyvesant applicants—especially given the small cell sizes—one needs to take into account the information contained in the *actual* admissions decision. Given the negative marginal effect on Asian-American, removing this penalty can only result in the admission rate increasing: those who were admitted necessarily would still have been admitted had the penalty been removed, and some of those previously rejected would now be admitted.[2]

16. There is, however, a way to account for the fact that those who were admitted have on average stronger unobserved characteristics than those who are rejected. Using Bayes' rule, it is possible to calculate the probability a rejected applicant would be admitted once a penalty is removed by relating the predicted probability of being admitted without the penalty to predicted probability of being admitted with the penalty.[3] This

[2] Asian-American applicants who are legacies are not penalized so they could see their admission rates fall. They are, however, such a small fraction of Asian-American applications that the drop in their admit rates has minimal impact on the overall change in the Asian-American admit rate.

[3] Denote y=0 (1) if an applicant was rejected (admitted) when a penalty or preference was in place. Denote y'=0 (1) as whether an applicant would be rejected (admitted) when the penalty or preference was removed. In the context of a penalty, the probability a rejected applicant would still be rejected after the penalty is removed can be written, using Bayes rule, as $Pr(y'=0|y=0)=Pr(y=0|y'=0)Pr(y'=0)/Pr(y=0)$. The first term on the right hand side is, by definition, 1 (if an applicant was rejected without a penalty, the applicant will also be rejected when a penalty is in place). The other two terms are the model-predicted probabilities without and with the penalty. Similar arguments apply in the context of removing a preference where now those who with admitted will have some probability of being rejected when the preference is removed. Simply replace y'=0 with y'=1 and y=0 with y=1.

formula can be used to show, for example, the fraction of Stuyvesant Asian-American applicants who were rejected when the penalty was in the place who would have been admitted in the absence of the Asian-American penalty. The results of this approach are displayed in Table 3. For completeness, I also display the results of this exercise for the full sample. As Table 3 shows, removing the Asian-American penalty increases the Asian-American admit rate in the Stuyvesant applicant pool by a little over 7% and across the full sample by over 11%. Further, the gap between white and Asian-American admit rates shrinks when the Asian-American penalty is removed by almost 13% and 39%, respectively.

Table 3: The effect of preferences on previously admitted and rejected applicants

Stuyvesant

	Admit Rate for Previous Admits				Admit Rate for Previous Rejects
	White	African American	Hispanic	Asian American	Asian American
Base	100.00%	100.00%	100.00%	100.00%	0.00%
No Asian-American Penalty	100.00%	100.00%	100.00%	99.67%	0.61%
No race prefs	100.00%	34.70%	28.61%	99.67%	0.61%
No ALDC prefs	71.70%	100.00%	100.00%	94.45%	0.00%
No race and ALDC prefs	71.70%	34.70%	28.61%	94.96%	0.61%

	Total admit rate			
	White	African American	Hispanic	Asian American
Base	11.36%	35.00%	10.34%	7.07%
No Asian-American Penalty	11.36%	35.00%	10.34%	7.62%
No race prefs	11.36%	12.15%	2.96%	7.62%
No ALDC prefs	8.15%	35.00%	10.34%	6.68%
No race and ALDC prefs	8.15%	12.15%	2.96%	7.28%

Full Sample

	Admit Rate for Previous Admits				Admit Rate for Previous Rejects
	White	African American	Hispanic	Asian American	Asian American
Base	100.00%	100.00%	100.00%	100.00%	0.00%
No Asian-American Penalty	100.00%	100.00%	100.00%	99.18%	0.90%
No race prefs	100.00%	29.95%	46.05%	99.18%	0.90%
No ALDC prefs	67.78%	91.64%	93.52%	89.52%	0.00%
No race and ALDC prefs	67.78%	20.80%	37.87%	90.23%	0.90%

	Total admit rate			
	White	African American	Hispanic	Asian American
Base	8.01%	8.89%	7.18%	5.98%
No Asian-American Penalty	8.01%	8.89%	7.18%	6.77%
No race prefs	8.01%	2.66%	3.32%	6.77%
No ALDC prefs	5.43%	8.15%	6.71%	5.35%
No race and ALDC prefs	5.43%	1.85%	2.72%	6.24%

17. In preparation for the deposition of Professor Card, counsel for SFFA asked me to provide statistics showing admissions rates by ALDC and academic rating for domestic white and Asian-American applicants. Drawing directly from the data produced by Harvard in this case, I created what became Exhibit 8 at Professor Card's deposition. That exhibit is attached to this declaration.

I declare under penalty of perjury, under the laws of the United States, that the foregoing is true and correct to the best of my knowledge.

Executed on this day of August 30, 2018.

/s/ Peter Arcidiacono
Peter Arcidiacono

Admissions Rates by ALDC and Academic Rating for Domestic white and Asian American applicants

Academic Rating		non-ALDC	Legacy, Dean's director, Children of faculty or staff	Athletes	Total
5 and below	Admit Rate	0.00%	0.00%	50.00%	0.05%
	Number of Admits	0	0	1	1
	Number of Applicants	2182	25	2	2209
4	Admit Rate	0.01%	4.30%	70.63%	1.40%
	Number of Admits	1	11	113	125
	Number of Applicants	8514	256	160	8930
3	Admit Rate	1.05%	15.25%	80.26%	2.94%
	Number of Admits	443	331	549	1323
	Number of Applicants	42196	2170	684	45050
2	Admit Rate	7.87%	42.98%	91.10%	10.14%
	Number of Admits	4145	1267	256	5668
	Number of Applicants	52691	2948	281	55920
1	Admit Rate	63.17%	94.00%	100.00%	65.74%
	Number of Admits	355	47	1	403
	Number of Applicants	562	50	1	613
Total	Admit Rate	4.66%	30.39%	81.56%	6.67%
	Number of Admits	4944	1656	920	7520
	Number of Applicants	106145	5449	1128	112722