

1 UNITED STATES DISTRICT COURT

2 DISTRICT OF MASSACHUSETTS

3
4 STUDENTS FOR FAIR ADMISSIONS, INC.,

5 Plaintiff,

Civil Action
No. 14-14176-ADB

6 v.

October 25, 2018

7 PRESIDENT AND FELLOWS OF HARVARD
8 COLLEGE, et al.,

Pages 1 to 250

9 Defendants.
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11

12 TRANSCRIPT OF BENCH TRIAL - DAY 9
13 BEFORE THE HONORABLE ALLISON D. BURROUGHS
14 UNITED STATES DISTRICT COURT
15 JOHN J. MOAKLEY U.S. COURTHOUSE
16 ONE COURTHOUSE WAY
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P R O C E E D I N G S

(The following proceedings were held in open court before the Honorable Allison D. Burroughs, United States District Judge, United States District Court, District of Massachusetts, at the John J. Moakley United States Courthouse, One Courthouse Way, Boston, Massachusetts, on October 25, 2018.)

THE CLERK: All rise.

THE COURT: Good morning, everyone.

THE CLERK: Court is in session. Please be seated.

THE COURT: I have what Mr. Mortara submitted this morning. Do you want to discuss that at sidebar?

MR. LEE: That would be fine, Your Honor.

THE COURT: Come on up.

[Sidebar redacted.]

MR. MORTARA: Your Honor, the plaintiffs move Plaintiff's Exhibit 633, the class of 2023 reading procedures.

THE COURT: Those are admitted. I assume there's no objection.

MR. LEE: No objection.

THE COURT: Those are admitted.

(Plaintiff Exhibit No. 633 admitted.)

MR. McBRIDE: Your Honor, SFFA calls Professor Peter Arcidiacono to the stand.

1 THE CLERK: Can you please raise your right hand.

2 (PETER ARCIDIACONO duly sworn by the Deputy Clerk.)

3 THE CLERK: Thank you. You may be seated. Can you
4 please state your name and spell your last name for the
5 record.

6 THE WITNESS: Peter Arcidiacono,
7 A-R-C-I-D-I-A-C-O-N-O.

8 EXAMINATION

9 BY MR. McBRIDE:

10 Q. Good morning, Professor.

11 A. Good morning.

12 Q. A couple of housekeeping matters first with respect to
13 some evidence.

14 Was the Harvard admissions database produced to you
15 for your work in this matter?

16 A. Yes, it was.

17 Q. I'll represent to you that those are Plaintiff's
18 Exhibit 438 and Plaintiff's Exhibit 558, which is data on
19 thumb drives, so you don't have it in front of you.

20 But did you review and use the Harvard database for
21 the work that you did in this case?

22 A. I did.

23 THE COURT: 438 and?

24 MR. McBRIDE: 438 and 558, Your Honor.

25 BY MR. McBRIDE:

1 **Q.** If you could look in your binder there to your left,
2 you'll find there are a series of exhibits, Plaintiff's 617
3 through 631. Would you take a moment to review those,
4 please.

5 Have you had a chance to look at those?

6 **A.** I have.

7 **Q.** Plaintiff's Exhibit 617 and 631, did you help prepare
8 those exhibits?

9 **A.** I did.

10 **Q.** Are those exhibits an accurate summary of portions of the
11 content of the Harvard database?

12 **A.** It is.

13 MR. McBRIDE: Your Honor, plaintiffs move in
14 exhibits P438, P558, and the summary exhibits P617 through
15 and including P631.

16 MR. LEE: Your Honor, we have no objection to P617
17 through P631, which are the summary exhibits.

18 We do object to P38 -- 438 and P558, which are the
19 databases on the thumb drive. There is, for instance, on one
20 of them 4 gigabytes of information on 200,000 individual
21 students. It actually requires specialized software to even
22 access it.

23 The summary exhibits, which they have, which we're
24 not objecting to, is the analysis of that, which they'll be
25 offering.

1 But P438, for example, includes 475 Excel
2 spreadsheets, none of which are going to be talked about
3 during the course of his testimony.

4 P558 includes 4 gigabytes of individual information
5 that Your Honor could only access with specialized software.
6 We don't think they should come in.

7 The summary exhibits ought to be able to address
8 it. Both experts are addressing the same data. Their
9 summary exhibits are providing their opinions on the summary
10 data.

11 MR. McBRIDE: Your Honor, there's no question that
12 the central issue in this case about whether or not Harvard's
13 admissions practices reflects discrimination against Asians
14 is being determined on the basis of statistical analysis of
15 those very application files that are in the database. We
16 have no idea what the future holds in terms of where this
17 case will progress. So whether or not we're going to
18 analyze --

19 THE COURT: Really?

20 MR. McBRIDE: We know up to a point. One
21 possibility is we could be back in court in three or four
22 years. Who knows what's going to happen?

23 But the content of that database is going to be
24 important to this case going forward, and we think it is
25 important that that database be in the court record for

1 whatever happens in the future, as opposed to relying on the
2 possibility that the parties will themselves maintain it.

3 Who knows what lawyers will be involved? Who knows
4 if we will be back in this courtroom? But the safest and
5 best option for preserving the information that will be vital
6 for whatever statistical analysis needs to be done in the
7 future, if this case were to come back in some way, is to
8 have those database records in the court.

9 MR. LEE: Your Honor, let me just respond briefly
10 on two fronts. The question of intentional discrimination is
11 not going to be decided just on the face of statistical
12 evidence. Now, that may be all they have. That would be our
13 position. I think that is all they have.

14 On this statistical evidence, particularly the
15 opinions you're about to hear, it's legally insufficient.

16 But setting that aside, even if I were to accept
17 Mr. McBride's articulation of the issue, which is does the
18 statistical evidence demonstrate intentional discrimination,
19 putting before Your Honor literally gigabytes of information
20 that no one is going to have talked about in the courtroom is
21 not helpful.

22 Now, if what he's concerned about is that it be
23 maintained so that at some point down the road someone with
24 access it, I'm sure we can find a way to between the parties
25 and the firms to preserve the information. But I just don't

1 think it should go into evidence.

2 THE COURT: I need to take a look at this about
3 what the state of the law is on whether the data that
4 underlies the expert opinions comes in as a matter of course
5 or it doesn't.

6 I am not intending on looking at it because if
7 there's anything that I should know about it, I'm assuming
8 your two experts between them are going to give me everything
9 I always wanted to know about those statistics and possibly
10 more.

11 So -- and I assume that if I have any questions
12 about the data that requires anyone to access the actual
13 database, that you all will take care of that, too. I'm not
14 intending on accessing it or running my own statistical
15 analysis on it.

16 So let me just take a quick look in the next couple
17 of days about what the law on that is, about whether what
18 underlies the summaries that the experts relied on, whether
19 that comes in or it doesn't.

20 MR. McBRIDE: Your Honor, we also can investigate
21 that as well. If we can find some helpful law information to
22 assist you, we'll provide that as well.

23 THE COURT: If what underlies an expert opinion in
24 his summaries is supposed to come in, it comes in. If it's
25 coming in just for maintenance, I suspect he's right that

1 there's other ways to do it.

2 MR. McBRIDE: I would say it is -- there's no
3 objection from the other side in terms of its relevance.
4 Purely it's what Mr. Lee has articulated in terms of quantity
5 and the fact that you're not going to look at it, but its
6 relevance as evidence is not challenged. Whether or not
7 you're going to dig into the database is not the primary
8 issue. But it is relevant evidence, unobjected to on that
9 basis, and we think it should be part of the record.

10 MR. LEE: Your Honor, two things quickly.

11 The first is if you have a Rule 1006 summary, which
12 are what these unobjected to purport to be, the underlying
13 data doesn't have to come in.

14 The second is this is a special type of underlying
15 data. It's all about 200,000 applicants. It is a host of
16 personal information specific to these individuals. I think
17 that has to factor in as well.

18 MR. McBRIDE: And we are willing to put it under
19 seal. I don't know that the database itself has personally
20 identifying information in it.

21 MR. LEE: It does.

22 MR. MORTARA: We are willing to put it under seal
23 in order to keep all of that protected.

24 THE COURT: Okay. So again, I am sure there is an
25 answer to this. I don't know what it is. Rule 1006, which

1 is how this would come in, doesn't actually address it. I'll
2 take a look at it. If you guys want to brief it, that's
3 fine. Or you can wait until I take a look at it and then
4 decide if you want to brief it after that because I know you
5 have enough to do in the next few days without worrying about
6 that. So I'm not going to admit it for the time being, but
7 I'm also not going to rule on it for the time being.

8 MR. McBRIDE: Thank you, Your Honor.

9 THE COURT: Go ahead, Mr. McBride.

10 BY MR. McBRIDE:

11 Q. Good morning again, Professor.

12 A. Good morning.

13 Q. Could you please introduce yourself to the Court.

14 A. My name is Peter Arcidiacono. I'm a professor of
15 economics at Duke University.

16 Q. Have you been hired to provide testimony in this case?

17 A. I have.

18 Q. What issues are you addressing with your testimony?

19 A. Today I'll be addressing whether there's discrimination
20 against Asian-Americans in Harvard's admissions process as
21 well as the magnitude of racial preferences.

22 Q. Did you reach any conclusions on those questions?

23 A. I did.

24 Q. And what were they, broadly?

25 A. Broadly, there is evidence of discrimination against

1 Asian-Americans in the admissions process both in how they
2 rate applicants and in the admissions decisions themselves
3 and that the magnitude of racial preferences is quite large.
4 Roughly two-thirds of African-American admits are admitted as
5 a result of racial preferences and half of Hispanic
6 applicants.

7 **Q.** We're going to come back to your opinions, but first I
8 want to briefly go through your background. You said you're
9 a professor of economics at Duke University?

10 **A.** That's right.

11 **Q.** And how long have you been at Duke?

12 **A.** I've been at Duke since the fall of 1999.

13 **Q.** And when did you first get tenure? I assume as a full
14 professor you are tenured?

15 **A.** I am tenured. I was promoted to associate professor with
16 tenure in 2006 and then to full professor in 2010.

17 **Q.** Now, before you started at Duke, what were you doing?

18 **A.** I was a graduate student at the University of
19 Wisconsin-Madison where I got my Ph.D. in economics.

20 **Q.** And when was that?

21 **A.** That was in '99.

22 **Q.** Now, at Duke, what is the focus of your research?

23 **A.** Broadly applied, microeconomics. Within that, labor
24 economics; and more narrowly, higher education.

25 **Q.** In higher education, what areas do you focus on?

1 **A.** I do a lot of work on affirmative action in higher
2 education as well as how people make their college decisions,
3 what college to go to, what field to study, things of that
4 nature.

5 **Q.** Now, do you specialize in using any particular methods in
6 your research?

7 **A.** Yes. We use econometric modeling. And what that allows
8 you to do, it's statistics where applying standard methods to
9 understand how different variables affect choices.

10 **Q.** And how much of your research involves using or building
11 econometric models?

12 **A.** Virtually all of it. I just have a couple of papers that
13 are more applied theory.

14 **Q.** This kind of modeling, what is its relevance generally in
15 your field?

16 **A.** It's quite common. This is industry standard stuff.

17 **Q.** We've heard and read testimony from Harvard about how
18 complex and subjective its admissions system is. Have you
19 heard that?

20 **A.** I have.

21 **Q.** Does that make it incapable of being modeled with this
22 econometric modeling?

23 **A.** No, not at all. This is standard. I've modeled
24 admissions processes myself. I've done work modeling the
25 decisions of older individuals to drink or smoke and looked

1 at decisions about firms as to whether to enter particular
2 markets. And in the economics field more generally, you can
3 see the models apply to the decision to get married, to
4 retire, or the decisions of organizations about who to hire
5 or fire.

6 **Q.** Do you also teach?

7 **A.** I do.

8 **Q.** What do you teach?

9 **A.** At the graduate level, I teach two courses. One of those
10 is called dynamic discrete choice. The discrete choice part
11 of that is where individuals are choosing among a small
12 number of alternatives. And the dynamic part of that is that
13 when they're making those decisions, they take into account
14 the fact that they get to update those decisions over time.

15 **Q.** And does that class involve teaching anything about
16 modeling?

17 **A.** Yes. It's virtually all about that.

18 **Q.** Do you teach anything else at the graduate level?

19 **A.** I teach a class called learning in economics, which is
20 basically an extension of that course. And it's all about
21 how individuals update their information about their
22 abilities, about the quality of their relationships, their
23 beliefs about various products.

24 **Q.** Do you teach anything at the undergraduate level?

25 **A.** Yes. Intermediate microeconomics.

1 **Q.** What about publications? Do you have any peer-reviewed
2 publications?

3 **A.** I do.

4 **Q.** About how many?

5 **A.** I think it's 35 peer-reviewed publications.

6 **Q.** And of those how many relate to econometric modeling?

7 **A.** Virtually all of them.

8 **Q.** Do any of those publications relate to issues of
9 affirmative action?

10 **A.** Yes. I think there are about 11 of those.

11 **Q.** And with respect to work in affirmative action, do any of
12 your papers involve econometric modeling in the affirmative
13 action context?

14 **A.** Yes. Quite a bit, about nine of those.

15 **Q.** Have you received any recognition from your work in
16 higher education and econometric modeling for affirmative
17 action?

18 **A.** I have. As a result of doing this work on affirmative
19 action, I was invited to write two survey papers on
20 affirmative action. One of those appeared in the "journal of
21 economic literature," which is sort of the top outlet for
22 survey pieces.

23 **Q.** Do you recall in opening Mr. Lee referring to you as an
24 opponent of affirmative action?

25 **A.** I do.

1 **Q.** Are you an opponent of affirmative action?

2 **A.** I would not describe myself as an opponent of affirmative
3 action. I would say that I'm a critic of some aspects of
4 affirmative action. But my job is to more study how
5 affirmative action policies affect the outcomes of their
6 intended beneficiaries as well as other students.

7 **Q.** Can you give me an example?

8 **A.** Yes. So in 2012, I published a paper where part of that
9 paper was about how students sort into majors. A disturbing
10 fact is that African-Americans at this particular school,
11 while starting out just as interested in STEM fields --
12 science, technology, engineering, and mathematics -- were
13 substantially more likely to switch out. This is a
14 well-recognized issue. And what the paper showed is that it
15 wasn't really race at all that was driving these decisions
16 but differences in the academic backgrounds of the students.

17 **Q.** And how did you -- were you a critic of affirmative
18 action in the context of that paper?

19 **A.** Well, there are two reasons why you would see differences
20 in the background of the characteristics of the students.

21 The first is the legacy of discrimination in this
22 country. So that has led to gross educational inequities.

23 But the second is affirmative action itself, which
24 actually puts less-prepared students at these schools. While
25 in some areas this is not as relevant, there are some majors

1 where you're not building on what you've learned in the past.
2 In STEM fields, you see much more of this progression. You
3 have to have single variable calculus to do multivariable
4 calculus. You have to have a basic foundation in chemistry
5 to go further along. So in those cases, the lack of academic
6 background can work against you in terms of sticking with the
7 major.

8 **Q.** Did that article cause any reaction outside of your
9 field?

10 **A.** It did. This was first written before *Fisher*. And at
11 that time, there was an amicus brief that cited my article.
12 And then "The Chronicle of Higher Education" did a write-up
13 of the article which in turn -- because the school was named,
14 and it was my school, African-American students felt singled
15 out and there was a protest at that time.

16 **Q.** And what did you do as a consequence of that?

17 **A.** Well, it was a very frightening experience. But as a
18 result of that, I spent a lot of time reaching out to try to
19 find common ground with the students and help them to see
20 what the issues were and try to understand their perspectives
21 better.

22 **Q.** Back to your qualifications. Do you have any editorial
23 positions?

24 **A.** I do. I'm a co-editor at the journal "Quantitative
25 Economics," an associate editor at the "Journal of Applied

1 Econometrics."

2 **Q.** I want to turn to your work in this case. How does the
3 work that you've done here for this case compare to what
4 you've previously done for your research?

5 **A.** Well, in one way it's very similar; in one way it's very
6 different. The way it's very similar is that the methods I
7 used are pretty much what I've used in all my other research.

8 What's different about it is the breadth and depth
9 of this data. This data is absolutely fantastic. It's part
10 of the reason I was interested in this.

11 **Q.** What do you mean by the breadth and depth of the data?

12 **A.** We have all of Harvard's admissions decisions. We have
13 their rating of the applicants. We have the geography. You
14 can see how Harvard uses their dockets. That's not something
15 I normally am able to work with.

16 **Q.** And what's been the effect of that on your work in this
17 case it?

18 **A.** As a result, I feel like I'm much more confident in my
19 results here than in my published work.

20 **Q.** Are you being paid for your work on this case?

21 **A.** I am.

22 **Q.** What are you being paid?

23 **A.** So up to trial, I was being paid \$450 an hour. For
24 trial, I have a flat rate of \$5,000. And then on days when
25 I'm just traveling up here, \$1,500.

1 **Q.** And what were you asked to do, again, for your testimony
2 today?

3 **A.** Two things: one, evaluate whether there's discrimination
4 against Asian-American applicants in Harvard's admissions
5 process; and two, evaluate the magnitude of racial
6 preferences.

7 **Q.** And how did you go about answering those questions?

8 **A.** Well, it's a three-step process. The first step is just
9 sort of cleaning the data and deciding what the relevant data
10 to use is.

11 The second step is what I would refer to as more
12 descriptive analysis, what sort of patterns do you see in the
13 data. And those patterns that you see in the data then
14 inform what -- the modeling itself. And the modeling itself
15 is where we try to get whether the patterns in the data are
16 real, you know, is there evidence of discrimination and what
17 are the magnitude of those preferences.

18 **Q.** And so after you do the descriptive statistic, what was
19 the next stage then?

20 **A.** Was the modeling. And this is where we're going to be
21 doing some form of logistic regressions to evaluate these
22 decisions.

23 **Q.** And what is it you get out of that model that allows you
24 to answer the questions you've posed?

25 **A.** You get two things. The first are what are called

1 coefficients. And what that tells you is how these variables
2 relate to the decision. They're literally just numbers. So
3 it might tell you, for example, SAT scores. You think that
4 SAT scores might be relevant for the admissions decision in a
5 positive way, and you expect sort of a positive coefficient
6 on that. So it sort of gives you the weight on the
7 particular factors.

8 The second thing you get out of it is once you've
9 estimated the model, you can evaluate how you -- the
10 probability of admission would change if we, say, turned off
11 a penalty or turned off a preference. And what that is
12 called is sort of the marginal effect of race. So as an
13 example, if we see in the data that Asian-Americans are
14 admitted at a rate of 5 percent, some of that could be a
15 result of a penalty, and you could figure out how much that
16 penalty affects those decisions and maybe see that without
17 the penalty it would be 6 percent.

18 **Q.** We're going to revisit both of those concepts in depth in
19 a bit.

20 But do you understand that Harvard has also hired
21 an economist for this case?

22 **A.** Yes. Professor Card.

23 **Q.** And what were his disagreements with your use of
24 econometric modeling to determine the answer to these
25 questions?

1 **A.** We're in agreement on that, that what we're both doing is
2 sort of a standard approach. Where we disagree is on what
3 set of applicants should be included in the model and what
4 are the relevant controls.

5 **Q.** Now, the first thing you mentioned in your progression
6 was constructing your data set for analysis; is that correct?

7 **A.** That's correct.

8 **Q.** What was the data that was your starting point?

9 **A.** Well, I had the Harvard database. And what the Harvard
10 database is it has all the applicants for the classes of 2014
11 to 2019. That corresponds to what year they would graduate
12 from Harvard. So we're talking about applying in 2010 to
13 2015.

14 **Q.** And how many applicants were in the data set you got?

15 **A.** There were over 200,000.

16 **Q.** And what kind much information was there on the
17 applicants in the data set?

18 **A.** It's a wide range of information. Your demographics like
19 race, gender, whether the admissions office thought you might
20 be disadvantaged. It has parental background measures like
21 parental education. Has all their academic scores such as AP
22 scores for some of the years, test scores, grades. And then
23 it has all of Harvard's ratings and geography.

24 **Q.** When you say the Harvard ratings, what are you referring
25 to?

1 **A.** Well, Harvard has a number of ratings. One is the
2 overall rating. Then you have the profile ratings that we've
3 heard about before. So it's going to be academic,
4 extracurricular, athletic, and personal. Then there are the
5 school support measures, and those refer to two teacher
6 evaluations and a counselor letter. And then Harvard also
7 records how the alumni scores them on the personal rating and
8 the overall rating.

9 **Q.** Did you get data on applicants from any other sources?

10 **A.** I did. College Board data was provided that allows you
11 to link the applicants to the quality of the high schools
12 that they're attending and the neighborhood.

13 **Q.** Beyond the specific applicant data from your data set,
14 did you review any other documents as part of your work?

15 **A.** I reviewed a lot of documents, a broad range of sources,
16 be it interview guidelines, deposition testimony, OIR
17 reports. Harvard also has these things called one-pagers
18 that allow you to see how the class is evolving over the
19 admissions cycle as they admit, make decisions about various
20 applicants. Lots of information.

21 **Q.** Did you review any full application files?

22 **A.** I did. I reviewed 480 full application files, a third of
23 which were chosen by Harvard and two-thirds by SFFA. And
24 then I also reviewed some of the files of the clients.

25 **Q.** Did you review any expert reports?

1 **A.** I did. I reviewed all of Professor Card's expert reports
2 as well as Mr. Kahlenberg's.

3 **Q.** So back to your data set, you have data on, you said,
4 around 200,000 applicants. Did you include all of these
5 applicants in the data you used for your analysis?

6 **A.** No. Even though foreign applicants are part of the
7 admissions process, we have agreement that we're focusing
8 here on domestic applicants because that's where we're seeing
9 whether there's discrimination and whether racial preferences
10 are relevant.

11 **Q.** I'm going to put on the screen Plaintiff's
12 Demonstrative 38, Slide 1.

13 What information is reflected in this demonstrative
14 slide?

15 **A.** This is sort of the data cleaning steps that we've taken.

16 THE COURT: Is his testimony sort of going to be
17 through these demonstratives?

18 MR. McBRIDE: Yes, Your Honor.

19 THE COURT: Do you have a hard copy?

20 MR. McBRIDE: I apologize. Why don't I hand out
21 all these binders, which I should have done. I got caught up
22 in admitting exhibits, and it was my fault.

23 THE COURT: That's fine.

24 Mr. McBride, do you happen to have an extra one of
25 these for my law clerk, just given the nature of the

1 testimony?

2 MR. McBRIDE: Absolutely. The demonstratives are
3 in the very front tab there.

4 BY MR. McBRIDE:

5 Q. The demonstratives, if you'd like to follow along as
6 well, Professor, they'll be on the screen, but you can also
7 see them in the binder in the very front tab. Let me try
8 again.

9 So we have Plaintiff's Demonstrative 38, Slide 1,
10 on the screen. What does this demonstrative display in terms
11 of data?

12 A. It displays the various cuts that we're making to the
13 data as we clean it up.

14 Q. So I'm just going to highlight down for you here and ask,
15 this first set of cuts that you describe here, what is it
16 that those represent?

17 A. This is just data cleaning. So clearly if you've
18 withdrawn your application or submitted an application, it's
19 incomplete, you're going to be rejected. These other things,
20 we see data that's missing. So we don't use that in our
21 analysis.

22 And Professor Card and I agree on all of that. I
23 should also say that at the top we're starting with the
24 non-foreign applicant, so that gets us to 170,000.

25 Q. From your 200,000 originally?

1 **A.** Exactly.

2 **Q.** Now, in the last four here we see cuts for recruited
3 athlete, legacy, dean/director preference, staff or faculty
4 child. Is the ALDC category we've heard about?

5 **A.** It is.

6 **Q.** And why did you remove those for the creation of this
7 data set?

8 **A.** I removed those for what I call my baseline data set.
9 And the primary reason is that you're trying to get
10 apples-to-apples comparison.

11 Each of these athletes, legacy, dean/directors
12 preferences, staff or faculty child, their admission rates
13 are strikingly high. So if we're really interested in
14 comparing what's happening for the 95 percent of applicants
15 who are not in one of those categories, you want to try to
16 have as apples-to-apples comparison as possible.

17 The second reason is that Harvard in the past has
18 said that the reason Asian-American admit rates are lower
19 than whites is because of legacies and athletes. So it makes
20 sense to focus on the group that are not legacies and
21 athletes in order to determine whether discrimination is
22 happening.

23 The last two, dean/director preferences and staff
24 or faculty child, we'll see that those preferences seem to be
25 just as big as legacy preferences.

1 **Q.** Now, if Harvard were right that any discrepancy in the
2 admit rates for Asian-Americans to whites is due to the
3 special preferences given, what would you see in your
4 analysis when you removed those individuals from the data
5 set?

6 **A.** We would see no penalty against Asian-Americans.

7 **Q.** So if you do analysis on a baseline data set without
8 those individuals and those individuals represent the reason
9 for the discrepancy, your analysis shows what?

10 **A.** It shows -- well, if they don't matter, then it won't
11 show -- if that's the reason, then it would show no
12 discrimination. What I'm going to find is that there is
13 discrimination.

14 **Q.** You've mentioned that the significantly higher admission
15 rates is one of the issues that you've had with the ALDC
16 applicants?

17 **A.** That's correct.

18 **Q.** Did you prepare a slide showing what you saw in that
19 respect?

20 **A.** I did.

21 **Q.** I'm going to turn to Plaintiff's Demonstrative 38, second
22 slide. What's the data that you put on this slide?

23 **A.** This is the data from all the domestic applicants once
24 we've made some of these basic cuts. And here what you can
25 see that the admission rates are dramatically different

1 across these groups.

2 **Q.** Let's take a look. Here on the left-hand side you're
3 representing categories athlete, not athlete.

4 In going across, what did you see with respect to
5 the difference in the admission rate for athletes versus
6 non-athletes?

7 **A.** The differences are enormous. Athletes have an admit
8 rate of 86 percent compared to 26 percent of non-athletes.

9 **Q.** And legacies?

10 **A.** Legacies, again very high admit probabilities, obviously
11 not as high as athletics but almost 34 percent compared to
12 less than 6 percent for non-legacies.

13 **Q.** And just moving down for the remaining categories, child
14 of faculty or staff or dean or director's interest list, what
15 was the discrepancy in admission rates for members of that
16 group versus others?

17 **A.** For both those groups, the admit rates are over
18 40 percent compared to something in the 6s for the other
19 groups.

20 **Q.** What was of the significance to you of this difference in
21 admit rates between members of these preferred groups and
22 non-members?

23 **A.** It's clear that they're given an enormous tip, and that
24 makes you suspicious that the way the process works might be
25 very differently for them. And when you're constructing a

1 model, you're trying to get it so that, you know, how things
2 like the academic rating, how those things are going to be
3 treated. You want them to be treated the same across these
4 groups.

5 And so as a good starting point, you should take
6 them out of the model, given that we see that there's
7 something different going on with them.

8 **Q.** Now, with respect to your decision to remove ALDC from
9 the baseline data set, how does this information impact it?

10 **A.** I think it makes it clear that these admission rates are
11 so different that it really makes it hard to do that
12 apples-to-apples comparison.

13 **Q.** If you were to include these individuals in the model,
14 given what you've seen, what do you believe would be the
15 likely effect?

16 **A.** I think, one, we'd see big tips for those groups. But
17 the concern is that they would distort the model, effect
18 those coefficients and we wouldn't get accurate estimates for
19 the 95 percent of applicants who are not in one of those
20 groups.

21 **Q.** Now, there are only about 7,500 of these ALDC individuals
22 out of 150,000. So why would they be expected to have any
23 real effect on the outcome?

24 **A.** While there's only 7,500, they represent 30 percent of
25 admits. So they exercise undue influence in the model. If

1 the process works differently for them where things like
2 academics don't matter as much if you're in one of those
3 categories, that has the effect of distorting the model.

4 **Q.** Is there any other information or evidence from Harvard
5 that you saw that supported this decision?

6 **A.** Yes. Harvard often will report results separately for
7 what they call NLNA, which is non-legacy, non-athletes, and
8 everybody else. Obviously the DC part of the ALDC is not
9 part of that. The legacies and athletes represent the vast
10 majority of this group.

11 THE COURT: Did you look at what percentage of each
12 of these groups are Asian?

13 THE WITNESS: Yes.

14 THE COURT: Is that later?

15 THE WITNESS: I'm not sure if it's later. But I
16 can give you a rough sense. For across all the groups, it's
17 2 percent.

18 THE COURT: Across the whole pool or these four
19 groups?

20 THE WITNESS: For these four groups it's 2 percent
21 versus 5 percent of the applicant pool as a whole. And I can
22 say Asian-Americans are especially underrepresented in
23 athletics.

24 THE COURT: Hold on. I'm sorry.

25 MR. McBRIDE: Please go ahead.

1 THE COURT: Did you look at what percentage of each
2 of these groups are Asian and then what percentage of these
3 groups that got in were Asian?

4 THE WITNESS: Yes. I have it in my report. I'm
5 happy to look up that number really quick. It will just take
6 a second.

7 THE COURT: That will be great, actually.

8 MR. McBRIDE: Your Honor, while we're doing that, I
9 received a note that we never got an official admission of
10 P617 to P631. There was no objection. Those are the
11 summaries.

12 THE COURT: I think I did admit them. But if I
13 didn't, they are admitted.

14 MR. LEE: There's no objection, Your Honor.

15 (Pleading Exhibits Nos. P617 to P631 admitted.)

16 THE COURT: I also realized, while he's looking
17 that up, there's one other issue we discussed at sidebar
18 yesterday that I said I would take care of this morning that
19 I didn't. Is it still an issue at the moment?

20 MR. MORTARA: It's still an issue.

21 MR. LEE: Still an issue.

22 THE COURT: For the audience out there, we had some
23 extraneous noise in the gallery yesterday that made it
24 difficult for the court reporter and difficult for the
25 witnesses and the parties. So if you are watching, you're

1 more than welcome. We're thrilled you're here. But if you
2 could just be quiet and not talk aloud amongst yourselves,
3 that would be appreciated.

4 THE WITNESS: So this is in Table B32 of my opening
5 report.

6 THE COURT: B?

7 THE WITNESS: B32. The reason I'm using my opening
8 report is that's where I provide the descriptive statistics
9 that include the athletes.

10 In my rebuttal report, I felt like the athletes
11 were such a big share that I just tossed them completely
12 because of the admit rates.

13 The samples are just slightly different, but
14 fundamentally the same things are going on. So if we look at
15 athletes, .28 percent of Asian-Americans are athletes,
16 1.12 percent are legacies, .19 percent are faculty or staff
17 child, and .67 percent are deans/directors.

18 THE COURT: That's of the 5 percent or that's how
19 the 2 percent breaks down?

20 THE WITNESS: That's how the 2 percent breaks down.

21 THE COURT: Okay. And then -- can you give me
22 those in whole numbers?

23 THE WITNESS: What?

24 THE COURT: Do you have of the whole numbers in
25 front of you?

1 THE WITNESS: Do I have the number?

2 THE COURT: Like .28 is how many? Do you have
3 that?

4 THE WITNESS: .28 of 41,369.

5 BY MR. McBRIDE:

6 Q. You mean .28 times that number?

7 A. Well actually, .28, that would be 28 percent. So it's
8 going to be .0028 times the 41,369, which I can't do that in
9 my head right now.

10 THE COURT: I assure you that if you can't, I
11 definitely can't.

12 MR. McBRIDE: I've been handed a calculator and it
13 says it's 116 individuals.

14 THE COURT: So there's 116 Asian athletes. How
15 many of those are admitted?

16 THE WITNESS: So they represent 6.63 percent of
17 admits, and there are 2,459 Asian-American admits. So .063
18 times the 2,459.

19 BY MR. McBRIDE:

20 Q. .0263 times.

21 A. Sorry. .0663 times 2,459.

22 Q. The calculator says that's 163.

23 THE COURT: That's not possible. Even I know that.

24 MR. McBRIDE: Then I did it wrong.

25 BY MR. McBRIDE:

1 **Q.** Should it be .00063?

2 **A.** It should be .0663. I'm sorry, I gave you the wrong
3 number. That's why.

4 **Q.** This is not what I imagined I'd do with my law degree.

5 THE COURT: That's probably why you got your law
6 degree.

7 THE WITNESS: You might want to hold that number
8 because that was the legacy number.

9 THE COURT: I would like these numbers. Does it
10 make sense you get them at the break?

11 MR. McBRIDE: We can do that. Can we go through
12 what specific numbers you want and we'll make sure we get
13 those?

14 THE COURT: Yes. I want to know of the athletes --
15 so of the 1,374, how many of them are Asians and how many of
16 them were admitted?

17 MR. McBRIDE: Of the athletes? Okay.

18 THE COURT: Same with the legacy, child or faculty
19 of staff, or dean or directors list.

20 MR. McBRIDE: So for each of the preferred
21 categories, how many of the number of applicants listed here
22 on the second slide were Asian and, of those, how many were
23 admitted?

24 THE COURT: Right. Because hypothetically if you
25 have 2,500 on the dean's list and he says almost half of them

1 are admitted, if all of those are Asians, that's going to
2 make a difference, right? If none of them are Asians, that
3 might make a difference the other way. I want to know how
4 those break out.

5 Did you ever look to see if the percentages were
6 the same?

7 THE WITNESS: Across the racial groups?

8 THE COURT: On the preferred groups. I'm just
9 looking at this. I'm guessing that of these preferred
10 groups, something like -- whatever, like 60 percent of them
11 are getting in?

12 THE WITNESS: Yeah. I'm not sure what the exact
13 percentage is, but that sounds reasonable.

14 THE COURT: I want to know did you ever look at
15 what percentage of the -- so 30 percent of the class is
16 coming off of this page.

17 THE WITNESS: Through the ALDC categories, yes.

18 THE COURT: Did you ever look to see what
19 percentage of that 30 percent is Asian?

20 THE WITNESS: Let's see if I can figure that out.
21 I think I'd have to calculate it. What I can tell you, for
22 example, is what I said -- what I should have told you was
23 the athletes, it was 4 percent of Asian admits were athletes.
24 That corresponds for whites it's over 16 percent.
25 Asian-Americans are going to be much less represented among

1 those groups than white applicants for sure.

2 THE COURT: Okay. You'll get me those numbers?

3 MR. McBRIDE: Yes, Your Honor.

4 THE COURT: We don't have to do it now.

5 BY MR. McBRIDE:

6 Q. Professor, you've also heard testimony about situations
7 where admissions personnel conduct interviews of potential
8 applicants?

9 A. I have.

10 Q. Did you prepare a slide with data on those interviews?

11 A. Yes.

12 Q. I am going to turn to Slide 3 of Plaintiff's
13 Demonstrative 38. Is that information here on this slide?

14 A. Yes, it is.

15 Q. So generally what percentage of applicants get interviews
16 with admissions officers?

17 A. So if you look at those last two rows that are above the
18 admit rate.

19 Q. I've highlighted those here?

20 A. Yes. You can see the total number of applicants, then
21 the total number of applicants interviewed. And in percent
22 the number in parentheses is what share were able to get a
23 staff interview.

24 Q. So just over of the total applicant pool, what percentage
25 of applicants get staff interviews?

1 **A.** 2.2 percent.

2 **Q.** And how does that break down in terms of the percent of
3 applicants who are ALDC group members versus those who are
4 not?

5 **A.** Well, over 20 percent of ALDC applicants get staff
6 interviews as opposed to just 1.3 percent of non-ALDC
7 applicants.

8 **Q.** And the admit rate for individuals who get staff
9 interviews?

10 **A.** It's over 50 percent.

11 **Q.** So what does this show you with respect to the ALDC
12 category?

13 **A.** It again shows that the process is operating differently
14 for these groups, at least on this dimension. And it also
15 suggests that staff interviews are, in part, a function of
16 preferences. So that's not a particularly good variable.

17 **Q.** And what did you conclude from this?

18 **A.** That it's reasonable, particularly when we're trying to
19 do were these apples-to-apples comparisons, to take the ALDC
20 applicants out at least for the baseline.

21 THE COURT: Mr. McBride, another number I would
22 like is what percentage of the 2.2 is Asian.

23 MR. McBRIDE: What percent of the applicants
24 interviewed, the 3,043 --

25 THE COURT: Or actually, why don't you give me what

1 percent of the 1,711 are Asian.

2 MR. McBRIDE: We can simply break it down both of
3 those numbers in terms of what percentage of the interviewed
4 ALDC applicants are Asian and are admitted and then for the
5 non-ALDCs as well.

6 THE COURT: Yes. Thank you.

7 THE WITNESS: I have a table on that, if you'd
8 like.

9 THE COURT: If you can give me in numbers.

10 THE WITNESS: Yeah. I think I've got it in numbers
11 this time. It's funny, economists always think about things
12 in percents.

13 THE COURT: Us lawyers are better with whole
14 numbers.

15 MR. McBRIDE: We're going to work on that today,
16 Your Honor.

17 THE COURT: I know we're under some time
18 constraints today. I don't want to take up -- if you want to
19 get me this at lunch or whatever.

20 MR. McBRIDE: If he can do it at now, Your Honor,
21 that's certainly preferable. And by all means, we would like
22 to make sure you understand these difficult issues.

23 MR. LEE: Can we just ask what page he's looking at
24 so we can look at it, too?

25 MR. McBRIDE: Yes. I'd like to know as well.

1 THE WITNESS: So this is in my rebuttal report,
2 page 66. Unfortunately, it's not reported the way you wanted
3 it. What you can see in that table is that both for ALDC
4 applicants and for the non-ALDC, Asian-Americans have the
5 lowest rate of staff interviews across all the races.

6 MR. McBRIDE: And I can put that table up on the
7 screen for Your Honor if you'd like to see the breakdown of
8 that information.

9 THE COURT: I would like real numbers when you can.

10 MR. McBRIDE: Certainly.

11 BY MR. McBRIDE:

12 **Q.** I want to go back to the first slide on data sets.

13 At the end of this process after you've removed the
14 data cleaning and removed the preference group, the ALDC, how
15 many applicants did you have in your baseline data set?

16 **A.** Almost 143,000.

17 **Q.** Did you create any additional data sets for your
18 analysis?

19 **A.** I did. For my rebuttal report I created and expanded
20 data set. So we're actually going to be modeling those
21 decisions, too. Where I included the LDC parts of the ALDC,
22 I left athletes out. I don't think that they're providing
23 much information to the model just because the admission
24 rates are so different. And really there are some academic
25 ratings where only athletes get in and nobody else.

1 **Q.** So between your baseline data set, 143,000, how many
2 applicants in the expanded data set that included the LDC?

3 **A.** A little over 144,000.

4 **Q.** You said your second step after --

5 **A.** Sorry. I think I made a mistake. That was 149,000.

6 **Q.** 149,000 is where you would be for that data set?

7 **A.** Yeah. Because we removed the athletes in that row.

8 **Q.** Understood. So that number right there?

9 **A.** Yeah.

10 **Q.** The next step you said after you create the data set is
11 you look for patterns in the applicant data?

12 **A.** I did.

13 **Q.** Did you look at the basic qualifications of the
14 applicants?

15 **A.** Yes.

16 **Q.** And prepared a slide with that data?

17 **A.** Yes.

18 **Q.** So I'm going to Slide 4, applicant summary statistics.
19 What data did you look at for the applicants?

20 **A.** Well, here we're looking at the AP scores -- AP scores
21 are only available in the last few years of the data -- as
22 well as data on the academic index, which is a weighted
23 average of high school grades, and the various SAT scores.

24 Then we're looking at how that's broken out by
25 race.

1 Now, one of the things we have here for the
2 academic index and all the variables down there is we put in
3 the Z-score which basically allows you to compare it to the
4 average applicant. So everything here if you see a positive
5 number on the Z-score, that means the group on average is
6 better than the average applicant, a negative number worse on
7 that measure.

8 **Q.** Just as an example, on the academic index you see the .42
9 for Asian-Americans. What does that represent?

10 **A.** That represents that Asian-Americans are .42 standard
11 deviations stronger than the average applicant.

12 **Q.** And when you looked at the objective qualifications along
13 these metrics for the different racial groups, what did you
14 see?

15 **A.** Asian-Americans are clearly the strongest on these
16 measures, followed by whites, then Hispanics, then
17 African-Americans. This holds true really for all the
18 measures except for SAT verbal where Asian-American and
19 whites have the same score.

20 **Q.** Now, did you specifically isolate and compare
21 Asian-American and white applicants on these metrics?

22 **A.** Yes.

23 **Q.** I'm going to go to PD38, Slide 5.

24 What did you find when you looked at just white
25 versus Asian-American applicants on these objective

1 qualifications?

2 **A.** So the way this table is constructed, we take the number
3 for Asian-Americans and subtract off the number for whites.

4 And the way the bars work is that the further to
5 the right the bar is, that indicates Asian-Americans being
6 stronger and how much stronger. If the bar went to the left,
7 that would indicate whites being stronger on that measure.

8 So what you see is that across all these measures
9 Asian-Americans are substantially stronger than whites, again
10 with the exception of the SAT verbal where they're the same.

11 **Q.** Now, one measure here was the academic index. And I
12 believe you indicated that was a weighted average of what?

13 **A.** Of the high school GPA, your SAT 2 scores and your SAT 1
14 scores. There there's some subtly to it, but that's the
15 rough thing.

16 **Q.** What's the scale for measuring the academic index, if you
17 know?

18 **A.** It ranges from 60 to 240, but in practice in the data we
19 don't see anybody with less than 100.

20 **Q.** In this chart, the academic index, was that an average
21 academic index?

22 **A.** That's correct.

23 **Q.** Did you do any analysis of how applicants were
24 distributed across different academic index scores?

25 **A.** I did.

1 **Q.** How did you do that?

2 **A.** What I did is I broke it up by what I'll call academic
3 index deciles. What that involves is sorting everybody based
4 on their academic index and taking the top 10 percent. Those
5 are the people in the top academic index. Then the next 10
6 percent of people are in the next academic index.

7 **Q.** The next academic index decile?

8 **A.** That's correct.

9 **Q.** And did you prepare a slide showing how these deciles
10 correspond to the academic index?

11 **A.** I did.

12 **Q.** I'm going to Plaintiff's Demonstrative 38, Slide 6.

13 How did the different academic index deciles that
14 you identified in the Harvard data correspond to actual index
15 ranges?

16 **A.** So you can see on this chart we've got the minimum
17 academic index for each decile. So, for example, for
18 academic decile 10, the minimum was 236 and the maximum was
19 240. So this gives you the ranges for each of those academic
20 index deciles.

21 **Q.** Just so we can orient the Court on what we see later,
22 when you say an academic index decile number 10 in your
23 charts, that refers to the top academic index?

24 **A.** That's the top academic index. These are going to be all
25 the applicants who scored within that range on the academic

1 index.

2 **Q.** And the converse is that academic index decile number 1
3 actually represents the decile with the lowest performing
4 applicants by academic index?

5 **A.** That's correct.

6 **Q.** Now, once you had your deciles arranged, what did you do
7 with the applicants in terms of applying them within the
8 academic index decile? What did you look at?

9 **A.** Well, we're going to look at the racial distribution
10 across these deciles to see where different groups lie in
11 terms of their academic index.

12 **Q.** I'm going to Plaintiff's Demonstrative 38, Slide
13 Number 7. Is this the breakdown that you just described?

14 **A.** It is.

15 **Q.** Just taking a row here, we'll take the top two rows.
16 Going across here for academic index deciles 10 and 9, what
17 information is represented here?

18 **A.** So this shows the number of applicants -- this is again
19 in the baseline data, but the patterns are similar in the
20 expanded data -- for -- who ran each of these deciles and who
21 are in each of these races. So for example, 4,963 whites
22 were in that top decile and 132 African-Americans. 7,225
23 Asian-Americans were here.

24 **Q.** When you looked at the distribution of applicants within
25 these academic decile indexes, what did you notice about that

1 distribution?

2 **A.** It's striking how strong Asian-Americans are in terms of
3 their academic index. You can see that not only do
4 Asian-Americans outnumber whites in that top decile, even
5 though they are a much smaller share -- well, they're a
6 smaller share of the applicant pool than whites. You can
7 combine the other -- you know, whites, African-Americans, and
8 Hispanics and still be significantly lower than the number of
9 Asian-Americans in that top decile.

10 THE COURT: What's the percentage of whites and
11 Asian-Americans in the applicant pool?

12 THE WITNESS: I'll have to look that up really
13 quick.

14 BY MR. McBRIDE:

15 **Q.** Professor, can you see below in the chart even though you
16 don't provide the actual percentage, you provide the total
17 number of applicants by race at least within your baseline
18 data set?

19 **A.** Yeah. That doesn't quite get it because there are a
20 couple of racial groups that are not reported. So we're
21 going to have those who don't report their race are not going
22 to be in here. Native Americans I believe are not in here.

23 THE COURT: Those are the absolute numbers for
24 whites and Asians, right?

25 THE WITNESS: That's right.

1 THE COURT: That helps me. Thank you. Thank you,
2 Mr. McBride.

3 BY MR. McBRIDE:

4 **Q.** Now, what you did remark, I believe here at the bottom,
5 what is the relationship between the total number of
6 applicants, of white applicants versus Asian-American
7 applicants?

8 **A.** There's substantially more white.

9 THE COURT: So in terms of what percentage of the
10 applicant pool or what percentage of the Asian-American
11 applicant pool that this 7,225 represents, did you do any
12 analysis of how those shares of applicants per decile broke
13 out by race?

14 THE WITNESS: I did.

15 BY MR. McBRIDE:

16 **Q.** Turning to plaintiff demonstrative 38, Slide 8, does that
17 represent that analysis?

18 **A.** It does.

19 **Q.** And what did you see in the data in terms of the
20 percentage of applicant pool by race that occupied each
21 decile?

22 **A.** It's very striking. Just to take one example here, we
23 see the top decile, there's 17.9 percent of Asian-Americans
24 from the top decile.

25 If you look at the top two deciles, now we've got

1 over 34 percent of Asian-American applicants in the top two
2 deciles. That's actually more than the share of whites in
3 the top three deciles, more than the share of Hispanics in
4 the top six deciles, and more than the share of
5 African-Americans in the top seven deciles.

6 **Q.** What does this show you about Asian-Americans' objective
7 academic qualifications in the Harvard applicant pool?

8 **A.** They are extremely strong.

9 **Q.** Now, does Harvard only care about objective academic
10 qualifications?

11 **A.** Certainly not. If they did, the class would be over
12 50 percent Asian-American.

13 **Q.** We heard testimony about how Harvard's admissions office
14 gives the ratings that you described to the different
15 applicants?

16 **A.** Yes.

17 **Q.** Did you do any analysis of the distribution of those
18 ratings across the different racial groups?

19 **A.** I did.

20 **Q.** I'm going to Plaintiff's Demonstrative 38, Slide 9. Is
21 that what's on this slide?

22 **A.** It is.

23 **Q.** There's a lot of information here. If we could orient,
24 please. Just down the left-hand side here, what do you have?

25 **A.** These are all the different Harvard ratings.

1 **Q.** And then if we just focus in on a given set of rows -- of
2 the columns I assume with the labels "White" and
3 "Asian-American," these represent those individual racial
4 groups?

5 **A.** That's correct.

6 **Q.** So just looking within a given box here, in the overall
7 rating you have a series of percentages. What do those
8 numbers represent about Asian-Americans in the overall
9 rating?

10 **A.** They represent the share of Asian-American applicants --
11 again, this is the baseline data -- who received a 1, a 2, or
12 a 3 or worse.

13 **Q.** So with respect to Asian-Americans who received a 1 or a
14 2 in the overall Asian-American applicant pool in the
15 baseline data set, about how many was that then?

16 **A.** 4.8 percent.

17 **Q.** So if you look through these first three ratings, we'll
18 just look at the overall, the academic, and the
19 extracurricular first.

20 If you focus on the highest ratings, 1s and 2s,
21 what did you identify about the distribution of these high
22 ratings as between Asian-American applicants and white
23 applicants?

24 **A.** So on the overall rating, Asian-Americans are slightly
25 stronger than whites. When you look at the academic rating,

1 they are substantially stronger. They are almost 15
2 percentage points higher in terms of the share getting those
3 top academic ratings. Then you also see that they're a bit
4 stronger, too, on the extracurricular rating, having a higher
5 share of applicants in those top two ratings.

6 THE COURT: Are these added together? Like is two
7 1 plus 2, or is 2 just 2?

8 THE WITNESS: 2 is just 2. So we would add them
9 together.

10 BY MR. McBRIDE:

11 Q. If you look at the athletic rating, what did you see
12 there about the distribution as between whites and
13 Asian-Americans?

14 A. Well, here Asian-Americans are scored much worse. I want
15 to point out that the there's no 1 here because 1 would refer
16 to a recruited athlete. They are scored much worse in terms
17 of getting 2s. But there are reasons to believe that this
18 rating is not significant in the admissions process. It
19 matters but just not near as much as the other ones.

20 Q. Did you do any analysis on this issue of the significance
21 of the athletic rating to admission?

22 A. I did.

23 Q. Going to go to Slide 10, PD38. Is that the information
24 in this slide?

25 A. It is.

1 **Q.** And in terms of the columns, I see you have the ratings.
2 I guess we have the first academic, extracurricular,
3 athletic, and personal rating down the left side?

4 **A.** That's correct.

5 **Q.** Now, in terms of those two sets of columns here where it
6 says "Share of Applicants" and "Share of Admitted," is this
7 broken out by race?

8 **A.** No. This is for all the applicants there in the
9 baseline.

10 **Q.** So what is the information in the box here with respect
11 to share of applicants on the academic rating?

12 **A.** So what this shows is that 42 percent of applicants get a
13 1 or a 2 on the academic rating, 40.6 percent get a 3, and
14 17 percent get a 4 or worse.

15 **Q.** Then when we go to the share of admitted, what does the
16 information in this box represent?

17 **A.** This gives you the share of the admitted class. That's a
18 subset of the applicants that are actually admitted. Any
19 time you see a number that's much higher there, that tells
20 you that that characteristic had to be valid in admissions.
21 So here you see the 82 percent of the admitted class has a 1
22 or a 2 on the academic rating.

23 **Q.** And so what is your conclusion about the significance of
24 the academic rating in getting high academic ratings for
25 purposes of being admitted to Harvard?

1 **A.** It's very important. You can see that both because the
2 share who get a 1 or a 2 is very high. But you can also see
3 it in if you just look at getting ratings of 4 or worse.
4 There, 17 percent of the applicant pool gets a 4 or worse,
5 and yet virtually no one's admitted with that sort of rating.

6 **Q.** So what does that tell you? If virtually no one is
7 admitted with a 4 or worse academic rating, what is the
8 significance of that?

9 **A.** That means the academic rating is very important to
10 having a shot at admissions. You've got to score well on
11 that or at least above a particular level to be admitted.

12 **Q.** And the same question about the extracurricular rating.

13 If we look at the distribution of high scores 1s
14 and 2s between the total pool and the admitted pool as well
15 as the share in the receiving a 4 or worse, what pattern did
16 you see there and what was its significance?

17 **A.** Well, you see a similar pattern where getting a 1 or a 2,
18 those guys represent a much higher share of the admitted pool
19 than they do in the applicant pool. And it's again difficult
20 to be admitted if you score poorly on the extracurricular
21 rating. Less than 1 percent of admitted students score that
22 poorly.

23 **Q.** And if we move down to the athletic rating and look at
24 the percentages receiving a 2 -- and I understand we don't
25 have the 1s, as you said, because those are the excluded

1 recruited athletes. But we look at the significance of a 2
2 and the share receiving the 4 or worse, what does that tell
3 you?

4 **A.** I think there are two reasons why what this data tells
5 you that the athletic rating is not as important.

6 The first is not as many people get a 2 on that
7 athletic rating. While you do see the share of admits is
8 higher over there, it's not a large group, and it's not a
9 particularly big increase. The real place for it is
10 basically doing very poorly on extracurriculars or academics
11 is just about a deal breaker, but that's not true for
12 athletics. You can see that 39 percent got a score of 4 or
13 higher on the athletic rating.

14 **Q.** Now, I see 4 or higher. So does this include athletic
15 5s?

16 **A.** Yes. And athletic 5s actually are treated differently.
17 These are a group that -- they're unable to participate for
18 personal obligations. But they're a very small group, and
19 taking them out does not change the findings here.

20 **Q.** If you take them out, do you still see a significant
21 number of applicants receiving a 4 who are admitted?

22 **A.** Oh, yes. It's quite substantial.

23 **Q.** While we're here, we have the personal rating. What did
24 you see with respect to the significance of the personal
25 rating when you looked at the share of applicants receiving

1 high versus low ratings?

2 **A.** Well, again, less than 20 percent of applicants -- less
3 than 20 percent of applicants receive a 1 or a 2 on the
4 personal rating, yet they represent 78 percent of the
5 admitted class. You can't really see too much from the 4 or
6 higher just because so few people get 4's. But if you ever
7 did, you're not getting in, at least in the baseline data.

8 **Q.** And so when you compare that with the academic and the
9 extracurricular rating, what conclusion do you reach about
10 the significance of a high personal rating for admission to
11 Harvard?

12 **A.** Quite important, yes.

13 **Q.** Let's go back to our Slide 9, which was the share of
14 applicants broken out by race. When we go now to the
15 personal score and we look at the distribution of ratings on
16 the personal score as between whites and Asians -- and again
17 white applicants are on the left, Asian applicants are on the
18 right of this blowup -- what did you see there?

19 **A.** Whites are rated higher on the personal rating. And in
20 fact, Asian-Americans not only are lower than whites, they're
21 lower than all the other groups.

22 **Q.** I'll blow that up, if I can, please, just to make sure we
23 see what you're talking about.

24 If you look at personal rating distributions across
25 all of the four racial groups, what did you see?

1 **A.** That Asian-Americans had the smallest share of getting a
2 2 or higher.

3 **Q.** And just to wrap up the data that you have here, at the
4 bottom I see you've got the remaining ratings, the school
5 support and alumni ratings?

6 **A.** That's correct.

7 **Q.** Without having to go through each and every one, what did
8 you see in the distribution of high ratings between whites
9 and Asians in the remaining Harvard ratings?

10 **A.** The shares are fairly similar. They're all within
11 1 percent, with the exception of the alumni overall rating,
12 where there you see that Asian-Americans are scoring higher.

13 **Q.** Just looking at these Harvard ratings and their
14 distributions on average, how would you describe the
15 comparison in terms of that distribution as between whites
16 and Asians overall?

17 **A.** On many ratings, they're fairly similar. But
18 Asian-Americans are stronger on the academic, extracurricular
19 rating, and the alumni overall rating. But on the athletic
20 rating, which as I said is not as important for admissions,
21 they're scored significantly worse, and they're significantly
22 worse on the personal rating.

23 **Q.** Did you do any other analysis of how these rankings were
24 distributed?

25 **A.** I did.

1 **Q.** What did you do?

2 **A.** Well now we're going to see we created those academic
3 index deciles, and we're going to look at how these ratings
4 correspond with those deciles.

5 So what in particular we're looking at is do people
6 who score high on this academic index, do they also -- are
7 they also more likely to get high ratings. So as an example,
8 you could look at that academic rating and see that
9 Asian-Americans are doing very well. Maybe that's -- the
10 cost of that is that they don't do well in personal scores.
11 If that were the case, then you would expect higher values of
12 the academic index to be associated with lower personal
13 scores. So we're going to be looking at that correlation.

14 **Q.** And that's called correlation?

15 **A.** That's the correlation we're going to be looking at. So
16 do personal ratings track with the academic index or do they
17 not?

18 **Q.** Let's start with the academic rating. And we're going to
19 go to Slide 11. What data are you showing here on Slide 11?

20 **A.** This is for the baseline data. And this is showing the
21 percentage of applicants receiving a 1 or a 2 on the academic
22 rating by academic decile.

23 **Q.** So just to make sure we're clear, this is broken out by
24 race?

25 **A.** No. This is for all the applicants.

1 **Q.** So when you look across all applicants in the applicant
2 pool, in the seventh academic decile, what does that
3 69.39 percent represent?

4 **A.** That represents the fact that if you have an academic
5 index that was in that 7th decile, in that range, 69 percent
6 of those applicants received a 2 or better on the academic
7 rating.

8 **Q.** Now, you talked about this exercise being related to
9 determining if there's correlation?

10 **A.** Correct.

11 **Q.** What does this chart tell you with respect to the
12 potential correlation between the academic index decile and
13 receiving a high academic rating?

14 **A.** Well, they're clearly very highly correlated. If you're
15 in the bottom couple deciles, there's virtually no way you're
16 going to have a 1 or 2 on the academic rating. And if you're
17 at the top decile, you're in the high 90s in terms of your
18 probability of getting one of those high ratings.

19 **Q.** So how would you qualitatively describe the level of
20 correlation?

21 **A.** Strongly positively correlated.

22 **Q.** We've heard testimony about how the admissions officers
23 don't use the academic index in their process. Does that
24 change its relevance to your use here?

25 **A.** I was actually surprised to hear that because on all the

1 summary sheets it's in bold what the academic index is.

2 But no, it wouldn't change it because even if they
3 weren't using the academic index, they're using the
4 components of the academic index such as their test scores
5 and grades.

6 **Q.** So is this helpful to you in terms of your analysis and
7 your modeling?

8 **A.** Yes. It just gives you a way of making a comparison
9 between people who have similar grades and test scores. You
10 know, are they are rated the same given similar grades and
11 test scores.

12 **Q.** Now, did you have take this analysis where you identified
13 the percentage of applicants getting a high academic rating
14 by decile, and did you break that out by racial group?

15 **A.** I did.

16 **Q.** I'm going to go to the next slide, which is Slide 12. Is
17 that this analysis here?

18 **A.** It is.

19 **Q.** Now, just to be clear when you look in one of these
20 deciles, what do these numbers now represent? And I'll blow
21 up, for example, just decile 9.

22 **A.** So what these number represent is for white applicants
23 who are in the 9th decile, 93 percent of them receive a 2 or
24 better. For Asian-Americans, it's 95 percent and so on.

25 **Q.** Why did you break it out by race?

1 **A.** Well, what we're trying to do is move towards the
2 apples-to-apples comparison. So now we're looking at people
3 who have similar academic scores, what do their ratings look
4 like. If you saw lots of movement across races, then that
5 would say given the same scores they were getting very
6 different ratings.

7 THE COURT: So this suggests like -- this suggests
8 a very even process across the academic rating. Is that
9 right?

10 THE WITNESS: That's correct.

11 THE COURT: Okay.

12 BY MR. McBRIDE:

13 **Q.** Why are you only showing the top four deciles here?

14 **A.** That's where a lot of the admissions occur, sort of in
15 those top four deciles. And we'll be showing that in a
16 little bit.

17 **Q.** I believe you already answered this question for Your
18 Honor. When you looked at this distribution and correlation,
19 what is it that you see about the distribution of the
20 academic rating?

21 **A.** We don't see that much variation across races. It is
22 true that Asian-Americans sort of are at the top within each
23 of these deciles, but they're not so far above that, for
24 example, in decile 8 they'd have a higher rating than
25 somebody in decile 9. So it suggests that -- and we would

1 expect Asian-Americans to be near the top of each of these
2 deciles because we know that they score better on the
3 academic index. So it basically suggests race is not really
4 influencing this rating, just suggests it because this is
5 just descriptive.

6 **Q.** Now, did you also do this for the extracurricular rating?

7 **A.** I did.

8 **Q.** I'm going to go to Slide 13. What did you see when you
9 looked at the breakdown of 1s and 2s on the extracurricular
10 rating by academic decile?

11 **A.** Well, it's of course not as positively related and the
12 correlation is weaker. But nonetheless you can still see
13 that even though it's not as strong as what we saw with the
14 academic ratings, there's a clear positive relationship.
15 Those on the bottom decile only get a 1 or a 2 on the
16 extracurricular 10 percent of the time. At the top decile,
17 it's 36 percent.

18 **Q.** So in terms of your likelihood of getting a high
19 extracurricular rating, how does that correlate with your
20 academic index performance?

21 **A.** It's positively correlated.

22 **Q.** Meaning if you get a high academic index, what does that
23 do for the likelihood you get a high extracurricular rating?

24 **A.** It significantly increases it.

25 **Q.** Did you also break this out by race?

1 **A.** I did.

2 **Q.** I'm going to go to Slide 14. Is that what's here?

3 **A.** It is.

4 **Q.** When you look at the breakdown by race within each decile
5 for high extracurricular ratings, what did you see?

6 **A.** Well, it's a bit noisier. That's to be somewhat
7 expected, given that it's the extracurricular rating and not
8 the academic rating. The way I see this data,
9 African-Americans are at the highest in decile 10. There's
10 some evidence that Asian-Americans are slightly higher in
11 some of these deciles, but I view this as being noisy but
12 fairly flat within races.

13 **Q.** Then what does this then suggest about the influence of
14 race in the assignment of the extracurricular rating?

15 **A.** It suggests that it's likely not important.

16 **Q.** What about the overall rating? Did you similarly analyze
17 that?

18 **A.** I did.

19 **Q.** Going to Demonstrative Slide 15, when you looked at the
20 distribution of high overall ratings broken down by academic
21 decile across the entire applicant pool, what did you see?

22 **A.** Well, here it's clearly quite positively correlated as
23 well. There are very few people who get those coveted top
24 ratings. So even in the top decile, it's 14.7 percent. But
25 it's also the case that if you're in one of those bottom

1 deciles, you're out of luck.

2 THE COURT: What's this slide showing?

3 THE WITNESS: This is showing the probability of
4 receiving a 1 or a 2 on the overall rating.

5 THE COURT: The overall rating. Okay.

6 THE WITNESS: And you can see at that bottom decile
7 it's zero, and it goes up with each academic decile.

8 BY MR. McBRIDE:

9 Q. So just speaking broadly across the entire applicant
10 pool, as you have a higher academic index, what does the data
11 show you about your likelihood of receiving a high overall
12 rating?

13 A. It substantially increases it. The two are positively
14 correlated.

15 Q. And did you also break this up by race?

16 A. I did.

17 Q. So just to be clear, on this slide what is the data that
18 you're showing?

19 A. The percentage of applicants receiving a 1 or a 2 on the
20 overall rating by race and ethnicity for the top four
21 academic index deciles.

22 Q. And again, is the ordering the same as we've seen before
23 with the white, Asian-American, African-American, Hispanic,
24 going left to right?

25 A. It is.

1 **Q.** I'm just going to blow up one here to make it a little
2 more visible on the screen.

3 When you look at the distribution of overall
4 ratings of 1 or 2 as broken down by race within a given
5 decile, what did you see?

6 **A.** Wide disparities. You can see that African-Americans
7 have a 45 percent chance of receiving a 1 or a 2 in that 9th
8 decile. And that Hispanics, while substantially lower than
9 African-Americans, are still a lot higher than the other two
10 groups at almost 20 percent. And then whites are at
11 11 percent and Asian-Americans bring up the rear at
12 7.6 percent.

13 **Q.** And how does this compare with what you saw in the
14 academic and the extracurricular rating?

15 **A.** It's very different. It's just distorted.

16 **Q.** And if you look across the deciles going from 10 to 9 to
17 8 to 7, did you notice anything?

18 **A.** Well, this pattern is systematic. In all the deciles you
19 see this clear rating, clear ordering with African-Americans
20 seeing the highest probabilities of getting a 1 or 2 in every
21 decile followed by Hispanics, followed by whites, followed by
22 Asian-Americans. And this is so strong that
23 African-Americans in the 7th decile have well over double the
24 chances of getting a 1 or 2 on that overall rating than
25 Asian-Americans in the top decile.

1 **Q.** What does the pattern you see about the distribution of
2 high overall ratings by race within a decile suggest to you?

3 **A.** It suggests that race has clearly played a role in this
4 rating.

5 **Q.** And what about with respect to Asian-American applicants?

6 **A.** That it looks like a penalty here.

7 **Q.** And is there anything about the racial preferences you
8 see in the data patterns that is consistent with what you
9 understand Harvard's stated use of race in admissions to be?

10 **A.** Yes. Harvard's acknowledged that they use race in the
11 overall rating to the benefit of African-Americans and
12 Hispanics.

13 **Q.** And that's reflected how here?

14 **A.** In the fact that African-Americans have such a
15 substantially higher probability of getting a 2 or better in
16 every decile, and similarly for Hispanics.

17 **Q.** And did you do a similar analysis with the personal
18 rating?

19 THE COURT: Can I ask you a question? The
20 differences between whites and Asians on these charts, are
21 those sort of statistically significant?

22 THE WITNESS: They are statistically significant,
23 but I don't report that in my reports. I know that they look
24 small because they're next to these big gaps, but those are
25 real.

1 BY MR. McBRIDE:

2 Q. Did you also look at the personal rating?

3 A. I did.

4 Q. I'm going to Plaintiff's Demonstrative Slide 17 in PD38.

5 Just again to be clear, what's the data that's on
6 this slide?

7 A. The percentage of applicants receiving a 1 or 2 on the
8 personal rating by academic decile.

9 Q. And as you go from low to high academic deciles, what
10 happens to the probability of receiving a high personal
11 rating from Harvard?

12 A. Well, it looks a lot like the extracurricular rating
13 where you still have a shot at the lowest decile, but your
14 probability of getting one of these high ratings increases
15 with each academic decile. This again shows that the
16 personal rating's positively correlated to this academic
17 index.

18 Q. Did you break these out by race as well?

19 A. I did.

20 Q. So I'm going to Slide 18 of Plaintiff's Demonstrative 38.

21 And when you look at the pattern of the personal
22 score assignments of high personal rating assignments across
23 the races, what did you see?

24 A. Well, a pattern that looks an awful like the pattern we
25 saw for the overall rating.

1 **Q.** And how is that?

2 **A.** Well, within each decile, focusing decile 9 here, we've
3 got 40 percent of African-Americans receiving a 2 or higher
4 on the personal rating. That's the highest group by far.
5 Followed by Hispanic applicants, followed by
6 Asian-Americans -- sorry -- followed by whites and then,
7 bringing up the rear, Asian-Americans.

8 **Q.** Did you look at the overall and personal distributions
9 together?

10 **A.** I did.

11 **Q.** I'm going to Slide 19. Is that the overall rating
12 distribution we saw before there at the top?

13 **A.** It is.

14 **Q.** And the personal rating here at the bottom?

15 **A.** It is.

16 **Q.** What are the similarities that you see between the
17 distribution of the ratings across the different racial
18 groups as for the overall and the personal rating?

19 **A.** Well, the shape is identical. You see the same
20 systematic patterns with African-Americans scoring the
21 highest within each decile followed by Hispanics, then
22 whites, then Asian-Americans. And on that personal rating,
23 Asian-Americans at the 10th decile, only 22 percent of them
24 get a 1 or a 2. That's actually lower than the
25 African-American share at the 3rd decile.

1 **Q.** That being decile 7, you mean?

2 **A.** Yes.

3 **Q.** When you compare the overall rating where racial
4 preferences are admitted to be utilized with the distribution
5 you see with the personal rating, what does that suggest to
6 you?

7 **A.** It suggests that race is influencing the personal rating
8 just like it is with the overall rating.

9 **Q.** And what does this suggest to you with respect to what's
10 happening to Asian-Americans in the assignment of the
11 personal and the overall rating?

12 **A.** That they're receiving a penalty in it.

13 **Q.** Now, what about the other ratings like the school support
14 ratings? Did you do something similar with them?

15 **A.** I did.

16 **Q.** And what did you see in those distributions?

17 **A.** There was some evidence of patterns that looked like the
18 patterns we see here, but it was much more muted. You didn't
19 have this thing where African-Americans -- where
20 Asian-Americans were being scored worse than somebody at much
21 lower deciles the way you do -- you do here.

22 **Q.** We'll come back to those ratings as well in a while. But
23 I want to finish up by talking about your analysis of the
24 patterns in the admit rates for Harvard.

25 Did you look at that as well?

1 **A.** I did.

2 **Q.** I'm going to go to Slide 20, Plaintiff's
3 Demonstrative 38.

4 What's the data in Slide 20 of Plaintiff's
5 Demonstrative 38?

6 **A.** This shows you the admit rates by race, ethnicity, and
7 year.

8 **Q.** Are these average rates?

9 **A.** That's correct.

10 **Q.** When you looked at the average admission rates per year
11 across white, Asian-American, African-American, and Hispanic,
12 what did you see?

13 **A.** We see that African-Americans are always the highest and
14 significantly higher than Asian-Americans. And that whites
15 and Asian-Americans track fairly closely with the exception
16 of 2019 where whites are significantly lower.

17 **Q.** Was there any statistically significant difference in the
18 average admit rates for Whites and Asians in these years 2014
19 to 2008?

20 **A.** Yes. In 2019.

21 **Q.** Only in 2019?

22 **A.** Only in 2019.

23 **Q.** Is there any significance to the year 2019?

24 **A.** That's the year after the lawsuit.

25 **Q.** This lawsuit?

1 **A.** Yes.

2 **Q.** What is --

3 THE COURT: This is just the admission rates by
4 ethnicity without taking into account any of the deciles or
5 any of the scores. You have the number of applicants and the
6 number of them that are admitted.

7 THE WITNESS: That's right. We are going to show
8 you. That's going to be the next slide.

9 THE COURT: I know that once I get lost I will
10 never get back on track.

11 MR. McBRIDE: Your Honor, I understand that. The
12 train has narrow rails. So please at any time if you want to
13 ask a question.

14 THE COURT: Yes. I just want to make sure I don't
15 lose the thread.

16 BY MR. McBRIDE:

17 **Q.** What is the fact that these rates as between whites and
18 Asian-Americans are generally flat and not significantly
19 different, except for the first admission cycle after this
20 lawsuit -- what does that tell you?

21 **A.** Absent any other information, it doesn't tell us much
22 because you need to know the qualifications of the
23 applicants. We've already seen that Asian-Americans are
24 substantially stronger on the academic index. So if the
25 academic index translates into higher admissions

1 probabilities, if there was no discrimination, you would
2 expect Asian-Americans to have higher admit rates.

3 **Q.** So what did you do to investigate that further?

4 **A.** We did the decile analysis again.

5 **Q.** I'm going to go to Demonstrative 21.

6 MR. McBRIDE: I see Your Honor chuckling at the
7 additional decile now.

8 THE COURT: That wasn't why I was chuckling.

9 BY MR. McBRIDE:

10 **Q.** What is the data that we have here on Slide 21?

11 **A.** This gives the admit rates by race and ethnicity in the
12 academic index decile.

13 **Q.** And, again, at the top decile, Decile 10, as we go
14 across, these numbers represent what?

15 **A.** The admit rate for that group.

16 **Q.** And what did you see when you looked at the relative
17 admit rates broken down by racial group within each decile?

18 **A.** Wide disparities. You can see that African-Americans in
19 that top decile are admitted at a rate of 56 percent. That's
20 substantially higher than Hispanics at 31 percent, which is
21 substantially higher than whites at 15 percent. And then
22 Asian-Americans bring up the rear at 12.7 percent.

23 **Q.** And as you go down the deciles, how does that pattern
24 change?

25 **A.** Well, it's clear that you have a higher admit probability

1 if you're in one of those higher deciles. No one's admitted
2 in that bottom decile. And as you continue to move up, you
3 see the admit rates rise.

4 **Q.** Let me focus on that for a second. This right-hand
5 column that says, "All Applicants," I assume that's not
6 broken out by race. That's everyone?

7 **A.** That's correct.

8 **Q.** When you look at the admit rates for students in the
9 highest academic decile versus the lowest academic decile and
10 the pattern in between, what does that show you?

11 **A.** It shows you that the academic index is positively
12 correlated with admission. You see the strong rise in the
13 probability of admittance with higher deciles.

14 MR. LEE: Your Honor, could I just ask for
15 clarification on the last question, which I think is on the
16 chart. But this does not include ALDCs, right?

17 BY MR. McBRIDE:

18 **Q.** What's the data set --

19 **A.** This is the baseline data set. It does not include
20 ALDCs.

21 MR. LEE: Right. Does not include ALDCs.

22 BY MR. McBRIDE:

23 **Q.** Does this include ALDCs in this baseline data set?

24 **A.** No.

25 MR. LEE: Thank you.

1 THE WITNESS: But I think that's part of the point
2 is that you're not getting -- the reason the white rate is
3 not higher is -- it cannot be because of ALDC preferences.
4 It has to do with comparing these apples to apples.

5 BY MR. McBRIDE:

6 **Q.** Now, we're talking about the relative distribution in
7 terms of admit rates by race within a given decile.

8 Does the pattern that you identified in terms of
9 highest to lowest admit rates across the racial groups --
10 does that hold as you move into lower deciles?

11 **A.** It holds it at all those deciles, yes.

12 **Q.** And so the pattern you see between the racial groups at
13 all academic deciles is what again?

14 **A.** That within each decile African-Americans are admitted at
15 a much higher rate than everyone else. That Hispanics at a
16 much higher rate than whites and Asian-Americans, and then
17 whites at a higher rate than Asian-Americans, and this holds
18 in every decile.

19 **Q.** And did you chart this data to see what the distribution
20 would look like in the bar graphs?

21 **A.** I did. I just want to raise one more point on this.

22 Asian-Americans in that top decile are admitted at
23 a lower rate than African-Americans in the 4th decile.

24 **Q.** And are you comparing these two numbers here?

25 **A.** I am.

1 **Q.** Going to Plaintiff's Slide 22 in PD38, what data are you
2 showing here?

3 **A.** So now we've just basically taken the data on the
4 previous slide. This is the admit rates by race/ethnicity
5 and academic decile.

6 **Q.** And to be clear, this is the same data that you showed on
7 the previous chart. You've now put it in a graph?

8 **A.** That's correct.

9 **Q.** This is broken down by race, the same way your previous
10 chart was?

11 **A.** That's correct.

12 **Q.** What did you see when you looked at that distribution in
13 this bar chart form?

14 **A.** Large disparities, and it's very consistent with what we
15 saw for the overall rating and the personal rating.

16 **Q.** And if you were to compare the pattern that you saw in
17 terms of visually here with the admit rates by decile, how
18 does that compare to what you saw with the personal and the
19 overall rating?

20 **A.** Same pattern. You see the same systematic things
21 happening within each of these deciles. Where at the top
22 decile -- where in every decile African-Americans are the
23 highest followed by the same ordering.

24 **Q.** Taking a step back, when you look at the analyses you did
25 of all of the different descriptive data of the applicant

1 pool as well as its admission rate, what did you find?

2 **A.** That race is very much -- appears to be influencing the
3 overall rating, the personal rating, and the admit rates.
4 With the other ones, the effects are muted.

5 **Q.** Specifically with respect to Asian-American applicants,
6 what did your analysis of the descriptive data suggest to
7 you?

8 **A.** It suggests the possibility of a penalty in those three
9 key measures, overall, personal, and admit.

10 **Q.** And what did you do to analyze this further?

11 **A.** Well, now, we're to developing a model because this is
12 only looking at one characteristic, the academic index. Now
13 we want to know if we control for everything else, do we
14 still see some of these patterns.

15 **Q.** What kind of model are you talking about?

16 **A.** Talking about a logit model or some version of it.

17 And what a logit model is it's a way of modeling an
18 outcome that is like a yes/no outcome or 0/1. In this case
19 that outcome would be admissions. And we do something along
20 the same vein for modeling the ratings.

21 **Q.** Did you provide a demonstrative to help you describe what
22 a logit model is?

23 **A.** Yes.

24 **Q.** I'm going to go to --

25 THE COURT: You did all these correlations to the

1 academic rating so far, right?

2 THE WITNESS: That's correct.

3 THE COURT: Is that -- that embeds the assumption
4 that the academic rating is the most important?

5 THE WITNESS: I don't think it embeds that
6 assumption. I think what it just shows is that given the
7 same -- the advantage of the academic index is it gave us
8 something that was more continuous.

9 With those ratings we're talking about very limited
10 categories. So we're able to more isolate down something
11 that's similar across them. But certainly there's a bunch of
12 other factors here, and that's why I want to account for
13 those in the model.

14 It would have to be true for something like this
15 that Asian-Americans would have to be substantially worse on
16 those other things to explain the patterns that we've seen so
17 far.

18 BY MR. McBRIDE:

19 **Q.** I'm going to go to Slide 23. Can you describe briefly
20 how does a logit model function?

21 **A.** The way a logit model functions is it takes -- rather
22 than just the academic index in one of the other ratings, it
23 takes all of those different variables from geography to the
24 academic variables to the ratings. It throws them all in,
25 and then effectively assigns probabilities to people being

1 admitted or rejected.

2 **Q.** Do you always use all of the variables and information
3 that you have when you generate a model?

4 **A.** No. You don't use all of the information. And what
5 information you use depends on the question that you're
6 addressing as well.

7 **Q.** I'm going to go to Slide 24 and ask what is your goal
8 specifically when you look at a logit model? What's your
9 goal when you're using the model?

10 **A.** Given the variables that you've deemed are appropriate to
11 include in the model, the goal is to effectively find
12 coefficients that will result in high probability of
13 admission for those who are actually admitted and high
14 probability of rejection for those who are rejected. Now,
15 what those coefficients are, are weights on the various
16 factors.

17 **Q.** Before we go any further, just to make sure we know what
18 you're talking about, on Slide 24 here coming out of the
19 logit model you have this equation. What are the
20 coefficients you're talking about?

21 **A.** Those are the colored letters, the A, B, C, D, and R.

22 **Q.** Are the coefficients in this equation something emerges
23 from your model?

24 **A.** They are.

25 **Q.** And what do those coefficients then represent?

1 **A.** They represent sort of the weight that these different
2 factors receive in the admissions process.

3 **Q.** Taking as an example, since this case is about race, if
4 we look at the R coefficient, how does the R coefficient
5 provide you with information about the affect of race in the
6 logit model?

7 **A.** So because you're controlling for everything else,
8 academics, extracurriculars, SATs, and such, what the
9 R coefficient gives you is, given all the other information
10 in the data, is that person receiving a penalty or a tip as a
11 result of their race.

12 So if we looked at, say, African-American, we know
13 that they're receiving tips in the process. We would expect
14 that the coefficient on African-American would be positive.

15 **Q.** Now, coefficient, is that anything other than just a
16 number?

17 **A.** It's just a number.

18 **Q.** What if a person were severing a penalty because of his
19 or her race in the admissions process? What would that
20 translate to in a coefficient?

21 **A.** I should have actually been more explicit. When I say
22 it's a positive number for African-American, this all has to
23 be relative to some baseline group.

24 **Q.** What's the baseline?

25 **A.** The baseline is going to be white applicants. So when I

1 get that positive coefficient on African-American, that gives
2 you the tip relative to white applicants after holding
3 everything else fixed, all the ratings, geography, all that.

4 So to come back to your question, if we see a
5 negative number on, for example, a negative coefficient on
6 Asian-Americans, that would suggest a penalty relative to
7 white applicants conditional on controlling for all these
8 other factors.

9 **Q.** What about the magnitude of the coefficient? Does that
10 have some significance when you're looking at a -- within
11 given model at a specific variable?

12 **A.** For something like race, yes, where you would say we saw
13 that -- it appeared that African-Americans might be getting a
14 bigger tip than Hispanics. You would expect a larger
15 coefficient for African-Americans than for Hispanics, both
16 positive, but the African-American one would be larger.

17 **Q.** To be clear, how does the positive coefficient -- we'll
18 use that as an example -- what does that translate into with
19 respect to the outcome of probability of admission?

20 **A.** It increases the probability of admission.

21 **Q.** And for the negative coefficient, how does that affect
22 the outcome on probability of admission?

23 **A.** It reduces the probability of admission.

24 **Q.** Now, other than these coefficients that relate to these
25 weights on factors, is there anything else that you can do

1 with the output of the model?

2 **A.** Yes. You can look at how your probabilities of admission
3 would change if you changed one of your characteristics. For
4 example, if we turned off an Asian-American penalty or turned
5 off a particular racial preference.

6 **Q.** What is that called?

7 **A.** This is going to be called the "Marginal Effect."

8 **Q.** Did you have a demonstrative to help explain marginal
9 effect of admission?

10 **A.** I do.

11 **Q.** I'm going to Slide 25, Plaintiff's Demonstrative 38.

12 I guess at a big level how do you determine the
13 marginal effect of race on admission in this context?

14 **A.** So once you have all the coefficients, you are already
15 know their characteristics. You know what each applicant has
16 received on their academic ratings, on their teacher ratings,
17 and you know their race. So with that information you can
18 calculate the probability of admission in the case where race
19 is considered.

20 Now, if we're looking at Asian-Americans, we would
21 calculate this for all Asian-Americans, and that would give
22 us the probability of admission for those Asian-Americans.

23 **Q.** And is that this here at the top, "Probability of
24 Admission With Race"?

25 **A.** That's correct. Then if we're interested in, say,

1 removing a penalty against Asian-Americans, we would turn off
2 those -- take out that race part. And then we can say,
3 "Okay. If they were treated like a white applicant, then
4 here's how these characteristics, the academics and so on,
5 would translate into their probability of admission," which
6 would be the probability of admission without race.

7 **Q.** And then to determine the marginal effect of race?

8 **A.** So the marginal effect of race for a particular
9 applicability would be their probability of admission with
10 race minus their probability of admission without race.

11 You do this for all the Asian-American applicants,
12 in average that gives you your average marginal effect.

13 **Q.** Can any model like this be a perfectly complete
14 representation of the Harvard admissions process?

15 **A.** Certainly not. There's always a role for unobservables.

16 **Q.** What are "unobservables"?

17 **A.** Unobservables are factors that your model does not
18 capture for whatever reason. They can be things like --
19 certain ratings like the music rating where there's not
20 enough people there to include that in a model.

21 And then the assumption that you make is that --
22 when you're calculating these marginal effects, is that those
23 unobservables are uncorrelated after you've controlled for
24 everything else with race.

25 **Q.** Now, does that make a model unreliable --

1 THE COURT: I'm sorry. You assume that they don't
2 correlate or they do?

3 THE WITNESS: They don't correlate in order to
4 interpret -- interpret these effects.

5 THE COURT: Unobservables don't correlate. That's
6 what you assume?

7 THE WITNESS: When you're calculating these
8 marginal effects of race, that's correct.

9 THE COURT: But you assume don't correlate to race.

10 THE WITNESS: Right. That's why we condition on
11 all these other -- other variables.

12 BY MR. McBRIDE:

13 **Q.** To be clear the lack of correlation of unobservables you
14 are talking about is a lack of correlation to race itself?

15 **A.** That's right.

16 **Q.** Not to other things necessarily.

17 **A.** That's correct.

18 **Q.** Does it make your model unreliable that there exists
19 unobservables?

20 **A.** No. That would be the downfall of empirical economics if
21 that were the case because all models have unobservables.

22 **Q.** Now, we know what a logit model is. How do you go about
23 building such a model?

24 **A.** Again, this will depend on the question you're trying to
25 address. So what we're going to do is think about the

1 different variables that we want to put into our model that
2 could possibly explain the disparities in admission rates
3 that we see.

4 But we want to be careful not to include variables
5 that are themselves a function of race because, if there's a
6 penalty against Asian-Americans in, say, the personal rating,
7 that's the mechanism through which they're receiving a
8 penalty. So you wouldn't want to include that variable in
9 your model.

10 **Q.** Now, did you prepare a demonstrative of the variables
11 that you included in some of your models?

12 **A.** I did.

13 **Q.** This is Slide 26 of Plaintiff's Demonstrative 38.

14 What are you representing here on this slide first?

15 **A.** Well, these are all the variables I'm including in two of
16 my models of admissions for the baseline data set, Models 4
17 and Models 5.

18 **Q.** These different categories and listings here, what do
19 these represent?

20 **A.** These represent different variables. What's important to
21 keep in mind is that each variable -- when we say "race"
22 there, that's actually many variables. It's a separate
23 variable for African-Americans, for Hispanics, for
24 Asian-Americans.

25 **Q.** So this category, these categories for things like

1 race/ethnicity, female, disadvantaged, application waiver,
2 they contain additional variables within that category?

3 **A.** For something like female, no. Because you just would
4 have females, and that would be relative to males. That's
5 the omitted group.

6 But, for example, mother's education would contain
7 many categories or a few categories, anyway.

8 THE COURT: Are you doing that by, like, graduate
9 degree, college, high school?

10 THE WITNESS: That's right. I'd have to look up
11 the exact ones.

12 THE COURT: That's the kind of thing?

13 THE WITNESS: Yes.

14 THE COURT: Those are, like, each assigned a
15 number?

16 THE WITNESS: So basically you'll have a variable
17 that would be -- "Did your mom receive a graduate degree,"
18 and that either take on a value of 1 or 0 if you did or did
19 not.

20 BY MR. McBRIDE:

21 **Q.** How many variables total do you have when you account for
22 what you just described to Her Honor?

23 **A.** Well, when the ratings are included, that's over
24 300 variables.

25 **Q.** You just talked about when the ratings are included.

1 Were there models where you did not include Harvard's
2 ratings?

3 **A.** That's correct. And that's what Model 4 does. The
4 reason we do that is, to the extent that race is affecting
5 all the ratings, you wouldn't want them in the model. So
6 we're sort of covering the situation where race affects the
7 ratings and when race doesn't affect the ratings.

8 **Q.** So to be clear, Model 4 is all of the ratings that we
9 have here but not -- all of the variables we have here but
10 not the Harvard ratings?

11 **A.** That's correct.

12 **Q.** And Model 5 contains what?

13 **A.** Model 5 contains all those variables plus the Harvard
14 ratings with the exception of two. I do not include the
15 overall and personal rating, and that's based on both the
16 descriptive analysis that I've already described, but also
17 we're going to proceed with models of those ratings. And
18 it's very clear that race affects those ratings to such an
19 extensive margin that it's important to exclude them.

20 **Q.** I'm going to cull out one other set here. There's a
21 category of variable categories that you label as
22 "Interactions" here. Things like race/ethnicity times
23 disadvantaged is something we've heard in court.

24 What is an "Interaction"?

25 **A.** An interaction allows the effect of a variable to vary

1 across the different groups. So as an example, we might
2 think that the tip you receive for being disadvantaged may
3 vary with your race.

4 **Q.** And when you have that situation where you think
5 something like disadvantaged status affects different races
6 differently, what do you do?

7 **A.** In that case you want to include a variable that captures
8 that interaction. So one of the variables will be Asian and
9 disadvantaged.

10 **Q.** And if you don't include an interaction for a indicator
11 like disadvantaged and it does, in fact, vary across races,
12 what does that do to your model?

13 **A.** Well, it would make it less reliable, and you wouldn't be
14 capturing the subtleties of how racial preferences operate.

15 **Q.** Looking specifically at this interaction of race and
16 disadvantaged, why did you include that interaction in your
17 model?

18 **A.** Two reasons. One in my past work on affirmative action
19 in higher education, I have found that you get a tip for
20 being low-income and a tip for being African-American, but
21 you don't get the low-income tip if you are African-American
22 or at least the tip is diminished.

23 So I already knew ahead of time that that result
24 was likely there.

25 The other part was we saw in the OIR reports that

1 there was evidence that the tip you got for low income --
2 that you got a different tip for being low income depending
3 upon your race.

4 **Q.** Did you hear or read any testimony that supported this
5 decision?

6 **A.** I did.

7 **Q.** What was that?

8 **A.** I heard Dean Fitzsimmons testify about this.

9 **Q.** What did you hear that he testified about?

10 **A.** That he was looking at how the low-income tip varied by
11 race.

12 **Q.** Do you recall reading the testimony of Ms. Bever?

13 **A.** I do.

14 **Q.** Do you recall a discussion with her about how exactly one
15 interprets and uses the coefficients for the interaction
16 terms?

17 **A.** Yes.

18 **Q.** Did you prepare a demonstrative that would help explain
19 how you interpret a chart of coefficients that includes
20 interactions?

21 **A.** I did.

22 MR. McBRIDE: Go to Plaintiff's Demonstrative 27.

23 THE COURT: What are the interactions for female?
24 Why are those in there?

25 THE WITNESS: Well, there's some evidence that, for

1 example, for African-Americans, if you look at the college
2 going rates for African-Americans, there are way more females
3 than males. And so to the extent that people care about
4 gender diversity within race, you would expect to see
5 something like African-American men getting a bigger tip than
6 African-American women.

7 There's a joke about -- there's a t-shirt at MIT
8 that says -- for females that says "The odds are good, but
9 the goods are odd." That sort of thing.

10 THE COURT: I'm not sure whether to be insulted.

11 MR. LEE: I think it's time for a break.

12 THE COURT: Do you want a break?

13 MR. LEE: No.

14 THE COURT: Joan was going to try and forge through
15 to lunch. That sounds like another 25 minutes or so. Is
16 that all right with people?

17 MR. McBRIDE: That's fine with us, Your Honor.

18 BY MR. McBRIDE:

19 **Q.** Looking at this chart that you provided in your
20 demonstrative, I see you have got variables people listed on
21 the left side and coefficients on the right side. Is that
22 right?

23 **A.** That's right.

24 **Q.** In terms of identification purposes, this is not a real
25 representation of a coefficient chart, is it?

1 **A.** No. These have many more variables there.

2 **Q.** What are the variables that you provided for your
3 demonstrative?

4 **A.** Just the Asian-American, the disadvantageded, and then the
5 interaction variable, Asian-American, and disadvantageded.

6 **Q.** Now, as a starting point, with respect to each of these
7 individual variables, is there a baseline group that you're
8 comparing to?

9 **A.** Yes. For race we'd be talking about white students. So
10 the Asian-American coefficient gives you the tip you would
11 receive for being Asian-American for applicants who are not
12 disadvantageded.

13 **Q.** And the reason it's for them not being disadvantageded is
14 because you've included the interaction term?

15 **A.** That's correct.

16 **Q.** So what is the comparison, then, with respect to the
17 disadvantageded coefficient? What is that comparing people?

18 **A.** That coefficient is relative to the baseline category of
19 being not disadvantageded. And so that would tell you what the
20 tip was for a white applicant for being disadvantageded.

21 **Q.** Now, how does the interaction term come into play? What
22 does that allow you to do?

23 **A.** That allows the tip for being disadvantageded to vary by
24 race. So in this case to vary -- to be different for
25 Asian-Americans relative to whites.

1 **Q.** Now, I want to look at the comparisons you've made here
2 at the bottom. What if you wanted to compare a disadvantaged
3 Asian-American applicant with a disadvantaged white
4 applicant? How would you use these coefficients?

5 **A.** So what the disadvantaged Asian-American applicant and
6 disadvantaged white have in common is they're both
7 disadvantaged. They would both get the D tip. So it's not
8 going to be different between the two.

9 If we're looking at how they're treated
10 differently, all else equal, then you have to add the tip or
11 penalty that Asian-Americans face, that's A, plus the
12 differential tip that you get for being Asian-American and
13 disadvantaged. That's X.

14 A plus X gives you the tip or penalty that
15 disadvantaged Asian-Americans have relative to disadvantaged
16 white applicants.

17 **Q.** And what if you wanted to make a comparison of the tip or
18 penalty as between a disadvantaged Asian-American applicant
19 and a not disadvantaged Asian-American applicant?

20 **A.** Well, now what they have in common is that they're
21 Asian-American. So they're not going to be treated
22 differentially based on their race.

23 The disadvantaged tip is then -- the baseline
24 disadvantaged tip D, plus the additional tip or penalty for
25 Asian-American and disadvantaged X. So D plus X would give

1 you the total tip the disadvantaged Asian would receive
2 relative to a nondisadvantaged Asian.

3 **Q.** And then finally if you were looking to compare a
4 disadvantaged Asian-American applicant versus a not
5 disadvantaged white applicant, what would you do to find the
6 coefficient for that?

7 **A.** Now, they're different on both dimensions. They're
8 different on the racial dimension but also different on the
9 disadvantaged dimension. So you have to add all three of the
10 coefficients, A plus D plus X.

11 **Q.** Now, once you've identified all of the relevant
12 variables, are you now ready to build your model?

13 **A.** Yes.

14 MR. McBRIDE: Can we go to Plaintiff's
15 Demonstrative 28.

16 BY MR. McBRIDE:

17 **Q.** Is this a list of the different models that you built?

18 **A.** It is.

19 **Q.** Go ahead.

20 **A.** So we have the final admission decision. That's what
21 we've been talking about this whole time. But I also have
22 models of each of these ratings measures: the overall
23 rating, academic rating, extracurricular, and personal. I
24 didn't do athletic because I didn't feel like I could model
25 that. So I just took it as given, assumed that race wasn't

1 influencing that rating.

2 Then you have the school support measures like
3 teacher and counselor and then the alumni ratings.

4 **Q.** Now, are all the different ratings models the same or
5 similar?

6 **A.** They're very similar to what I already showed you.
7 There's a little bit of subtle differences about how the
8 admissions cycle affects it. But they're basically the same.
9 And also it's the case that obviously if you're doing a model
10 of the academic rating, you can't control for the academic
11 rating. So that would be pulled out.

12 **Q.** Now why did you do models on all of these different
13 Harvard ratings?

14 **A.** I wanted a sense for how race was influencing all of the
15 ratings to see -- the extent to which race effects the
16 ratings themselves after controlling for hundreds of
17 variables.

18 **Q.** Now, if you found that there were significant racial
19 preferences or penalties in any of the Harvard ratings, what
20 should you do with respect to their use in your final
21 admissions decisions model?

22 **A.** Well, if it's especially egregious, then you're going to
23 want to remove those variables from the model.

24 Professor Card and I agree with that. That's why
25 neither one of us includes the overall rating in our

1 admissions model because we both know that it's affected by
2 race.

3 **Q.** And just very briefly, why do you not want to include
4 those in the model if they're severely affected by race?

5 **A.** Well, this is -- because that's one of the paths that
6 discrimination could take place. Say, well, we're not
7 discriminating against Asian-Americans, they're just not
8 likeable. Well, if the reason we're scoring them low on the
9 personal rating is because they're getting a penalty, we've
10 just masked the penalty.

11 **Q.** By including a personal rating in the model?

12 **A.** That's correct.

13 **Q.** Before we talk about the final admissions model, then,
14 why don't we first look at the results of the ratings models.

15 At a high level, what is it that you found when you
16 looked at the ratings models?

17 **A.** Clear effects of race on the overall rating and personal
18 rating. And there were hints of racial effects -- on
19 virtually all ratings you see some hints, hints of this. But
20 they're sufficiently muted that I included them in the model.

21 **Q.** I want to look at the overall rating first. Did you
22 prepare a demonstrative with the results from your overall
23 ratings model?

24 **A.** I did.

25 **Q.** Can we go to Plaintiff's Demonstrative 29. Is this your

1 overall rating model coefficients that came out?

2 **A.** It is.

3 **Q.** I notice you have different categories of racial groups
4 down the left-hand side, but I also see here you have four
5 subgroups listed within each racial category. What do those
6 specific groups represent in terms of who they are?

7 **A.** So again, we have to keep in mind what the comparison is.
8 What we're talking about in the first row is how an
9 African-American male who is not disadvantaged, what sort of
10 tip would they receive relative to a white male who is not
11 disadvantaged.

12 Similarly for female disadvantaged, what sort of
13 tip does a female African-American who's disadvantaged
14 receive relative to a white female who is also disadvantaged.

15 So what the coefficients show is that large tips
16 are present in the overall rating for both African-Americans
17 and Hispanics. And Asian-Americans face a penalty. There's
18 no significant penalty for female disadvantaged students, but
19 the other ones are significant.

20 **Q.** And again, what did the negative coefficients that you
21 see for Asian-American applicants in the overall rating model
22 mean with respect to the probability that they will receive a
23 high overall rating?

24 **A.** It means that they will have a lower probability of
25 receive a high rating.

1 **Q.** What did you then understand to be true with respect to
2 the coefficients about the influence of race on the overall
3 rating?

4 **A.** I think it's clear that race influences the overall
5 rating. And what I find especially interesting is how it
6 influences it. You definitely see that African-Americans
7 receive tips, but it's a slightly smaller tip for female
8 African-Americans and substantially smaller tip for
9 disadvantaged African-Americans. So it's really the not
10 disadvantaged African-Americans who are receiving the big tip
11 relative to similarly situated white applicants.

12 **Q.** Now, how does the pattern that you saw in the charts of
13 the coefficients coming from your model compare with the
14 pattern that you saw in your descriptive analysis of
15 Harvard's data on the overall ratings by academic index
16 decile?

17 **A.** The academic index decile showed that as a whole
18 African-Americans receiving higher ratings followed by
19 Hispanic applicants. And the Asian-Americans were receiving
20 lower ratings. So all these line up even after you control
21 for this large set of variables.

22 **Q.** And how do the results of your model align with your
23 decision not to include the overall rating in the admissions
24 model?

25 **A.** Well, it made sense not to include it because that's one

1 of the way in which racial preferences operate.

2 **Q.** I want to turn to the modeling you did for the personal
3 rating. Did you prepare a demonstrative with your
4 coefficients that came out of your personal rating model?

5 **A.** I did.

6 **Q.** I'm going to Slide 30 of Plaintiff's Demonstrative 38.

7 I see the same groups listed here, so I assume
8 we're talking about the same comparative groups for purposes
9 of what your coefficients mean?

10 **A.** Yes.

11 **Q.** And what did you see with respect to the coefficients for
12 the different racial groups on the personal rating model?

13 **A.** Basically the same qualitative patterns. You see that
14 African-Americans get a large tip on the personal rating.
15 That tip is slightly muted for females and more muted for
16 being disadvantaged. This is again relative to similarly
17 situated white applicants.

18 You see again a positive tip for Hispanic
19 applicants and then for Asian-Americans the same pattern of
20 male -- of a negative tip across the board.

21 **Q.** So for Asian-American applicants, the coefficients that
22 you saw in all the different categories, they were negative?

23 **A.** That's correct.

24 **Q.** And what do the negative coefficients that you saw for
25 Asian-American applicants on the personal rating model mean

1 to you with respect to the likelihood that the
2 Asian-Americans would receive a high personal rating?

3 **A.** The likelihood was lower of receiving a high personal
4 rating if you were Asian-American.

5 **Q.** Looking at the overall pattern of the personal rating
6 model coefficients, what did this show you about the
7 likelihood that the personal rating was significantly
8 influenced by race?

9 **A.** I think it clearly is. We see the exact same pattern
10 that we saw with the overall rating and what we saw with the
11 descriptive analysis of both the overall and personal
12 ratings.

13 **Q.** Now, when we talked earlier about models, you were
14 mentioning an output of something called the average marginal
15 effect. Do you recall that?

16 **A.** That's correct.

17 **Q.** Is that something that you did here with respect to the
18 personal rating model?

19 **A.** I did.

20 **Q.** When you talk about the average marginal effect with
21 respect to the personal rating model, that's the average
22 marginal effect of what?

23 **A.** In this case, we're going to calculate it of receiving a
24 2 or better.

25 **Q.** We're going to go to Slide 31 of Plaintiff's

1 Demonstrative 38, titled "Marginal Effect of Race on
2 Probability of Receiving a 2 Or Higher on Personal Rating."

3 What are you showing here?

4 **A.** So I'm showing is what your actual probability of
5 receiving a 2 is for each racial group. That's in the darker
6 bars. So for example, for Asian-American applicants,
7 17.8 percent receive a 2. And then the lighter blue bars
8 represent what would happen to their probability of receiving
9 a 2 or higher if we turned off that penalty that they face in
10 the personal rating.

11 **Q.** And what was the marginal effect on the probability of
12 receiving a personal rating for Asian-Americans coming out of
13 your model?

14 **A.** You can see it's a 3.8 percentage points drop.

15 **Q.** I'm sorry?

16 **A.** You see a drop of 3.8 percentage points, which, given the
17 base, is a 17.6 percent decrease in the probability of
18 receiving a 2 or higher.

19 **Q.** And just to complete this, with respect to the
20 coefficients you saw for African-Americans and Hispanics, how
21 did that translate into a marginal effect on their likelihood
22 of receiving a 2 or higher on the personal rating?

23 **A.** You can see that you get big boosts in both cases,
24 27 percent increase for African-Americans and a 14 percent
25 increase for Hispanics.

1 **Q.** I want to go back to Slide 10.

2 Do you recall we had a discussion about the
3 significance of the personal rating for admission?

4 **A.** I do.

5 **Q.** And how significant would you consider a 17 percent
6 decrease in getting a high personal rating, given the
7 significance that you found towards admission?

8 **A.** Well, I think 17 percent decrease, it is really a
9 3 percentage point decrease, which -- but that is a big shift
10 for those applicants.

11 **Q.** And how would you expect that to affect their likelihood
12 of admission, given the importance of a personal rating?

13 **A.** That through the personal rating they're receiving a
14 penalty which would lower their probability of admission.

15 **Q.** Back to Slide 31.

16 You've seen and read the testimony from Harvard
17 about what's in the school support in the form of teacher and
18 counselor letters, how that was important for the assignment
19 of the personal rating?

20 **A.** I did.

21 **Q.** Is that something that you saw in your model?

22 **A.** Yes. I control for those school support measures in my
23 model, and they are positively related to the personal
24 rating.

25 **Q.** So what does that mean about good teacher and counselor

1 support with respect to the personal rating?

2 **A.** Good teacher and counselor support translates into higher
3 probabilities of receiving good personal ratings.

4 **Q.** So does that mean that differences in teacher and
5 counselor support as between Asians and whites could explain
6 the difference that you saw in how they are receiving
7 personal ratings?

8 **A.** Certainly not how they're scoring the teacher support
9 measures cannot explain what we see.

10 **Q.** And why is that?

11 **A.** Because we're accounting for those scores in our model.

12 **Q.** Based on all of this, what was your ultimate conclusion
13 about the likelihood the personal rating is influenced by
14 race?

15 **A.** I think it's clearly influenced by race.

16 **Q.** And what does that mean with respect to your belief about
17 whether or not you should include the personal rating in your
18 admissions model?

19 **A.** I believe it should not be included.

20 MR. McBRIDE: Your Honor, we're at a breaking point
21 right here if you wanted to stop earlier or I'm willing push
22 forward.

23 (Discussion off the record.)

24 THE COURT: So like 12:35.

25 MR. McBRIDE: Sounds good.

1 THE COURT: 12:30 in there somewhere.

2 MR. McBRIDE: Thank you.

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1 **** AFTERNOON SESSION ****

2 THE CLERK: Court is in session. Please be seated.

3 MR. McBRIDE: Your Honor, if we could have a quick
4 sidebar to address the administrative matter with respect to
5 Professor Arcidiacono.

6 THE COURT: Yes.

7 [Sidebar redacted.]

8 THE COURT: Go ahead.

9 MR. McBRIDE: Your Honor, in response to your
10 questions, our team pulled together some data for you. We've
11 already handed these out to the witness as well as to
12 opposing counsel. But it has the data from the database on
13 these particular issues.

14 THE COURT: Thank you very much. I appreciate
15 that.

16 BY MR. McBRIDE:

17 **Q.** Professor Arcidiacono, I want to turn to the other
18 ratings models. We've talked about the overall and the
19 personal rating model. You examined and did analysis with
20 other ratings models as well, specifically on school support
21 and the alumni measures?

22 **A.** That's correct.

23 **Q.** What did you find with respect to the teacher, the
24 counselor, and alumni personal rating?

25 **A.** That there was a negative penalty against Asian-Americans

1 and some boost for African-Americans, but that was much
2 smaller than what we were seeing in the overall and personal
3 rating.

4 **Q.** So why is it that you didn't take those out of the model
5 as well?

6 **A.** For those variables I was effectively being conservative,
7 to the extent that there is a penalty. That's going to work
8 to lower the estimate, lower the estimated penalty in the
9 model. And I also have a version of the model where I take
10 out all the ratings as well.

11 **Q.** What do you mean that keeping them in the model, that
12 that would have acted to reduce any admissions penalty?

13 **A.** Well, it's similar to the arguments with the personal
14 score, that if there is a penalty being imposed on
15 Asian-Americans through the teacher ratings, it would falsely
16 include that it was through -- they just had the bad teacher
17 ratings, not because of race itself.

18 **Q.** Did any ratings variables go the other way and show a
19 positive racial coefficient for Asian-American applicants in
20 that ratings model?

21 **A.** Yes. We saw that for the academic, the extracurricular
22 rating, and the alumni overall.

23 **Q.** Now, with respect to those positive coefficients for
24 Asian-Americans, how do you know whether that coefficient
25 reflects a racial preference or is attributable to something

1 else?

2 **A.** Well, we always worry about what's called omitted
3 variables bias, that there's some other unobserved variable
4 that if we had that, that's why we see the coefficient that
5 we have.

6 So you're looking for ways to figure out would it
7 make sense that there might be these unobserved variables
8 there that would do that or not.

9 Again we've controlled for lots of variables here.
10 So we're trying to get in as much in the mood model as we
11 can. But a general principle of economics is that if a group
12 is strong on observable characteristics, they tend to be
13 strong on unobservable characteristics.

14 **Q.** And is the unobservables, is that the omitted variables
15 you talked about?

16 **A.** That's correct.

17 **Q.** What's the significance of this general principle that if
18 you're strong on the observable characteristics in the model
19 you're also strong on the unobservables?

20 **A.** Well, if you're strong on the observables, then, and that
21 you're also strong on the unobservables, then you could see a
22 positive Asian coefficient that would reflect not the fact
23 that they're getting a bump in that rating but more that
24 there are other characteristics that if we included them in
25 the model would explain it.

1 **Q.** So if you see that you're strong on the observable
2 characteristics let's say for Asian-Americans, what is your
3 belief with respect to whether or not the positive
4 coefficient reflects a racial preference as opposed to
5 something in the unobservables?

6 **A.** So the principle being that if we do find that they are
7 actually strong on the observable characteristics associated
8 with the rating, then it makes it more likely that that
9 coefficient is not the result of racial preferences but
10 omitted variables that are leaning to the positive effect we
11 see.

12 **Q.** When we say "observables," we're referring to the
13 variables that are actually in the model?

14 **A.** That's correct.

15 **Q.** I want to take the academic rating, for example, and I
16 want to talk about unobservables, not the variables or
17 observables in the model.

18 What kind of unobservables would there be possibly
19 for the academic rating?

20 **A.** When I showed you what the AP scores looked like across
21 races, I don't actually use the AP scores in my model because
22 they're only available for the last few years. That's
23 unobservable.

24 Things that we can't readily capture or control
25 for, like winning a science competition or taking college

1 courses, those are all the types of things that you might
2 think would go into that. Those all part of the
3 unobservables.

4 **Q.** Because they're not in the model as a variable?

5 **A.** That's correct.

6 **Q.** How would the variables or the observables that are
7 actually in the academic model potentially explain the
8 possible strength on these unobservables?

9 **A.** Well, under that principle that, if anything, they're
10 going to be stronger on the unobservables. It comes about
11 through the fact that if you have characteristics that result
12 in a high academic score, what are those characteristics
13 going to be? Those are going to be that you have high SAT
14 scores, high grades, all those types of things. You can sort
15 of see that those are the types of things that would also be
16 correlated with taking college classes or taking more AP
17 exams.

18 **Q.** Now, just to be clear, we've used some obvious examples
19 here with the unobservables and observables. In your
20 academic ratings model, are you only including as variables
21 obvious academic things like SAT scores or the academic
22 index?

23 **A.** No. I'm controlling for a whole host of variables. All
24 the demographic variables, parental education, all the
25 regional variables, characteristics of the high school and

1 the neighborhood. We're controlling for all of that.

2 **Q.** Does your academic rating model -- does it include
3 variables that are measured that are not strictly academic in
4 their appearance?

5 **A.** That's correct.

6 **Q.** And what does the model do with those in reaching an
7 output from the academic rating model?

8 **A.** What happens is if those variables turn out to be
9 unrelated to the academic rating, they would see no effect in
10 those variables. If they are affected, then that's going to
11 be part of the observables.

12 **Q.** So do these non-academic factors that are part of the
13 variable set that are still in the academic rating model --
14 do they have the opportunity to exert some kind of effect on
15 the likelihood of getting a high academic rating?

16 **A.** That's correct.

17 **Q.** So did you test the strength of the Asian-American data
18 set with respect to the observables that you had in the
19 academic rating model?

20 **A.** I did.

21 **Q.** Did you prepare a demonstrative for that?

22 **A.** Yes.

23 **Q.** I'm going to Slide 32 of Plaintiff's Demonstrative 38,
24 "Comparison of Observables to Race/Ethnicity Coefficient."

25 I want to make sure we understand what's on this

1 slide. Just generally what are the two data points that
2 you're presenting here?

3 **A.** The strength of each racial group on the observables
4 relative to white applicants and the coefficient -- now, the
5 coefficient here, it's always relative to something. So this
6 is a nondisadvantaged Asian male, but the same patterns would
7 be observed with other variables.

8 **Q.** So here you have the coefficient, and is this the
9 positive coefficient for being Asian that you found in your
10 academic ratings model?

11 **A.** It is.

12 **Q.** That was .136?

13 **A.** That's correct.

14 **Q.** In terms of the observable column, I have see the value
15 .259, but how do you get this value of observables that
16 you're reporting in this demonstrative?

17 **A.** So the model generates coefficients. So you think about
18 those things like the test scores. And it's going to have a
19 coefficient on it that's positive. That's going to be all
20 added up together, the coefficient on or around the test
21 score times the test score, the coefficient on the grade
22 times the grades. Add it all up. Add up all those variables
23 in the model, and that tells you -- that effectively gives
24 you an index of how strong they are.

25 And so then what we do is we subtract off the

1 average index for white students, and that sort of tells you
2 how strong each race is relative to their white counterparts.

3 **Q.** And to be clear, the observables that you're adding up,
4 these coefficients, these don't just include things like test
5 scores, do they?

6 **A.** That's correct.

7 **Q.** Do they include other factors, the other extensive
8 factors in your 300 variables that are in the model?

9 **A.** That's right. In fact, they include the ratings besides
10 the personal rating, where with the personal rating we could
11 already see -- of the bias present there.

12 **Q.** So this includes something about the other ratings like
13 the extracurricular rating and the teacher support ratings
14 and things like that?

15 **A.** That's correct.

16 **Q.** And what is the significance then of having an observable
17 of .259 positive blue arrow and a coefficient of .136?

18 **A.** Well, what that tells you is that Asian-American
19 applicants are strong on those variables that lead to higher
20 academic ratings. So if they're strong on the observed
21 variables associated with higher ratings, you would expect
22 them to be at least as strong on the unobserved variables
23 associated with higher ratings.

24 **Q.** And based on that examination, what do you conclude then
25 about this coefficient for being Asian-American in the

1 academic rating model?

2 **A.** That it could reasonably be attributed to the strength of
3 the Asian-American applicants on unobservables.

4 **Q.** And what do you conclude about whether or not the
5 variability for being Asian-American in the academic rating
6 model is attributable to the influence of race?

7 **A.** We don't think it's because of race. We think it's
8 because of these unobservable factors.

9 **Q.** Does that same comparison yield a consistent result when
10 you look at African-American and Hispanic applicants?

11 **A.** That's correct.

12 **Q.** How so?

13 **A.** Well, on the observables associated with higher academic
14 ratings, African-Americans and Hispanics are relatively
15 weaker. And that's reflected in negative coefficients on
16 that rating.

17 **Q.** And so what was your decision about whether or not to
18 keep the academic rating in the model?

19 **A.** In my preferred model, I keep it in. But then I also
20 have my model where I don't use any of the ratings.

21 **Q.** Did you do the same test of other ratings models?

22 **A.** I did.

23 **Q.** So I'm going to Slide 33 of Plaintiff's Exhibit 38. And
24 here I see overall rating and personal rating on the left and
25 academic rating and extracurricular rating on the right. I'm

1 going to zoom in on this to make it a little easier to read
2 and look at extracurricular first.

3 When you looked at the observables for the
4 extracurricular rating as compared to coefficients for
5 Asian-American, African-American, and Hispanic, what did you
6 find?

7 **A.** Basically the same pattern that we saw for the academic
8 rating. Again Asian-Americans are stronger on the observable
9 components of the rating, and we see a positive coefficient
10 there. African-Americans, their characteristics show that
11 they're relatively weaker on the observed characteristics
12 associated with higher extracurricular ratings. We see the
13 same for Hispanics, and we see negative coefficients there.

14 **Q.** So what did you conclude about the extracurricular rating
15 and whether or not you should keep it in your model?

16 **A.** That it's likely due to Asian-Americans being stronger on
17 the unobservable factors, not due to racial preferences.

18 **Q.** So I want to take a look at one of these ratings here on
19 the left. Do you recall that we discussed that the overall
20 rating was acknowledged to be influenced by race?

21 **A.** That's correct.

22 **Q.** Did you do the same analysis with respect to the overall
23 rating, this comparison of observables and unobservables?

24 **A.** I did.

25 **Q.** And what did you find when did you that comparison?

1 **A.** Now the script has flipped. Asian-Americans here are
2 stronger on observables. And this is a consistent theme for
3 every rating. The observables are always going to be
4 positive for Asian-Americans. But then the coefficient here
5 is negative. So despite being stronger on the observables,
6 we see a negative coefficient.

7 When we look at for African-Americans, their
8 characteristics would suggest that they're weaker on the
9 observables associated with the overall rating. Yet their
10 coefficient is very positive. And the same holds true for
11 Hispanics.

12 **Q.** And what does that disagreement in terms of the sign for
13 the observables versus the coefficient say to you about the
14 likelihood that a significant racial influence is in play?

15 **A.** We can be confident that it is due to race.

16 **Q.** And is that consistent with what you know to be the case
17 with the overall rating based on Harvard's acknowledgments?

18 **A.** Yes.

19 **Q.** So I want to then look at the personal rating. When you
20 did the same analysis with the personal rating of observables
21 versus coefficients, what did you find?

22 **A.** The same patterns that we saw with the overall rating.
23 Asian-Americans slightly stronger on the observables. Really
24 pretty much the same as white applicants. It's seeing a
25 large penalty. African-Americans and Hispanics being weaker

1 on the observables associated with the personal rating and
2 seeing a large positive coefficient.

3 **Q.** And what does that tell you about your conclusion
4 originally that there was the likely racial influence
5 associated or racial penalty for Asian-Americans associated
6 with the personal rating?

7 **A.** I think it's clear that race influences the personal
8 rating.

9 **Q.** Now, we talked about some other ratings where you noted
10 there was a small indication of possible racial influence in
11 the data. I think that was specifically some of the school
12 support ratings.

13 What did you find when you looked at those and
14 compared their observables to their unobservables?

15 **A.** Despite the fact that Asian-Americans were stronger on
16 the observables associated with those ratings, they were
17 facing a slight penalty. And similarly for some of those
18 ratings we would see a bump up for African-Americans, despite
19 the fact that their observed characteristics went the other
20 way.

21 So that sort of points towards race influencing
22 those ratings as well. But the patterns were sufficiently
23 muted that I kept them in the model.

24 **Q.** You have, however, another model where you take those
25 out?

1 **A.** That's right.

2 **Q.** Now, you also mentioned that the alumni overall rating
3 showed a small positive coefficient for Asian-Americans; is
4 that correct?

5 **A.** That's correct.

6 **Q.** What did you conclude or what did you find when you
7 looked at the observables on the alumni overall rating and
8 compared them to the coefficient?

9 **A.** Well, there you saw that Asian-Americans were strong in
10 the observables, and they received a bump. That's consistent
11 with them being stronger on the unobservables associated with
12 that.

13 But for African-Americans and Hispanics, we see the
14 same thing where they're getting tips, but the observables
15 are going in the wrong direction. So there's a role for race
16 there, too, for those other two groups, but I did keep them
17 in the model.

18 **Q.** And why is that?

19 **A.** In all these cases where you see an Asian-American
20 penalty and they're stronger on the observables, any time
21 you're doing that, you're going to weaken the effect of race
22 for that group.

23 **Q.** And so were you being conservative when you kept those
24 in?

25 **A.** Yes.

1 **Q.** Now, let's assume, though, that the Court decided you'd
2 taken the wrong approach and you needed to remove all of
3 these ratings that showed even the possibility of racial
4 influence. Does your Model 4 account for that possibility?

5 **A.** It does.

6 **Q.** So I want to look now at the models, the final models
7 that you did specific to the probability of admission now
8 that you've identified what variables you're going to use in
9 the model.

10 And just to be clear again, this is a logistic
11 regression model like you had already discussed?

12 **A.** That's correct.

13 **Q.** And personal and the overall score, they're in your
14 preferred Model 5?

15 **A.** No, they are not.

16 **Q.** Did you prepare a slide with the results for the
17 coefficients from your admissions model?

18 **A.** I did.

19 **Q.** I'm going to Slide 34 of Plaintiff's Demonstrative 38.

20 Does this give the results for the coefficients
21 from your admissions Models 4 and 5?

22 **A.** That's correct.

23 **Q.** These groups here, are these the same groups you talked
24 about previously?

25 **A.** They are.

1 **Q.** What did you find with respect to the coefficients from
2 your admissions Model 4 and 5 for the different racial groups
3 you looked at?

4 **A.** It's very consistent with the theme that we've had
5 throughout. Namely, African-Americans receive a large tip.
6 That tip is substantially smaller for disadvantaged students.

7 Similarly Hispanics receive a large tip, but it's
8 smaller for disadvantaged students.

9 And then we see a penalty for Asian-Americans. And
10 all those penalties are statistically significant except the
11 female disadvantaged one there.

12 **Q.** The female disadvantage in which model?

13 **A.** Model 5.

14 **Q.** And just to be clear -- let me blow this up here. With
15 respect to the coefficient for Asian-American applicants in
16 your Models 4 and 5 for male not disadvantaged, you show a
17 negative coefficient of negative .378 in Model 4 and
18 negative .466 in model 5?

19 **A.** That's correct.

20 **Q.** What do these coefficients mean about the effect of race
21 on the probability of admission for Asian-American applicants
22 in both models?

23 **A.** Well, that despite control for over 300 variables, we
24 still see this significant penalty against Asian-Americans.
25 And this is also surprising given that Asian-Americans, if

1 you look at admissions, are also stronger on the observables
2 associated with admissions.

3 **Q.** We heard testimony about the idea that low-income
4 Asian-American applicants get a tip in the admissions
5 process. Have you heard that?

6 **A.** I have.

7 **Q.** But I see, however, that with respect to the
8 disadvantaged applicants, there is a negative coefficient; is
9 that correct?

10 **A.** Yeah. I think it's the next ones down.

11 **Q.** I'm sorry. Thank you. Did I highlight those correctly
12 here, Professor?

13 **A.** That's correct.

14 **Q.** So this negative coefficient here, is that a tip?

15 **A.** Well, it all hinges on who we're comparing. So for this
16 what we're comparing is a male and a disadvantaged
17 Asian-American to a male disadvantaged white student.
18 They're not getting a tip relative to that student. What
19 they may getting a tip to is a non-disadvantaged white
20 student.

21 **Q.** And what about for the female disadvantaged? Same
22 analysis?

23 **A.** Same analysis, yes.

24 **Q.** Now, can you use these coefficients to determine the
25 marginal effect of race on the chances of admission for the

1 different racial groups?

2 **A.** Yes.

3 **Q.** And did you do that?

4 **A.** I did.

5 **Q.** I'm going to Slide 35. This looks familiar from your
6 personal score slide earlier. Is it the same basic analysis
7 for marginal effect?

8 **A.** It's the same basic structure, yes.

9 **Q.** Looking at the Asian-American population -- and just to
10 be clear, does this incorporate the coefficients for all the
11 different subgroups we looked at on the previous page?

12 **A.** It does.

13 **Q.** And does this include all the variables that you have in
14 your model that lead to those coefficients?

15 **A.** That's right.

16 **Q.** So what did you find was the marginal effect on the
17 probability of admission for Asian-Americans based on that
18 negative coefficient for race?

19 **A.** That admit rates are 1 percentage point lower as a result
20 of the penalty against them. That may seem small, but the
21 base is very small. So that's an over 16 percent decrease in
22 their admissions chances as a result of the Asian-American
23 penalty.

24 **Q.** And what about for African-American and Hispanic
25 applicants? What was the marginal effect of their race on

1 the probability of admission?

2 **A.** Well, it's quite substantial. Absent racial preferences,
3 the admit rate here would be 2.3 percent for
4 African-Americans. And you're seeing it go up by
5 7 percentage points, which is a 324 percent increase.

6 For Hispanics, the numbers are smaller, but
7 nonetheless quite large. We're still talking about more than
8 doubling the admit rate. We're starting off at about
9 3 percent and going to 7 percent, which is a 141 percent
10 increase.

11 **Q.** Now, did you check to see how these changes in the
12 probability of admission would change the actual number of
13 students of different races that were admitted each year
14 based on the model?

15 **A.** I did.

16 **Q.** I'm going to Demonstrative PD38, Slide 36.

17 And just focusing on the Asian-American students,
18 what did you find would be the change in the number of
19 admitted students when you removed from your model the effect
20 of the Asian-American penalty?

21 **A.** The first thing to keep in mind is that if we just
22 removed the Asian-American penalty, there would be more
23 students who were admitted than what we currently have. And
24 Harvard can't do that. They're constrained by the number of
25 beds and such. So the way this works is the model is

1 adjusted so that we admit the same number of students.

2 What that means is we remove the Asian-American
3 penalty. That's going to lead to some more Asian-Americans
4 being admitted, but some less of the other races until we get
5 to the right number. So what this shows is what would happen
6 to the number of Asian-Americans admitted in each year. And
7 you can see that the numbers range from between 27 to 55
8 additional Asian-American admits in each year.

9 **Q.** And I notice the smallest year with respect to the number
10 of additional Asian-American applicants who would be admitted
11 when you turned off this penalty is in 2019; is that correct?

12 **A.** That's correct.

13 **Q.** What's the significance of that year?

14 **A.** That's the year after the SFFA lawsuit.

15 **Q.** Did you do a similar analysis of admissions for your
16 expanded data set where you put back in the legacies, dean's
17 list, and children of faculty and staff?

18 **A.** I did.

19 **Q.** And did you do an analysis with your model to find
20 coefficients for the probability of admissions?

21 **A.** That's correct.

22 **Q.** I'm going to Slide 37 in Plaintiff's Demonstrative 38.

23 First question is what group of applicants are
24 being considered here for purposes of your coefficient
25 analysis?

1 **A.** So this is still non-LDC applicants. But now using the
2 coefficients from this model that included the
3 LDC applicants.

4 **Q.** So these same four categories are the same as we had in
5 the previous models. There are no LDC students included in
6 the categories you have here?

7 **A.** That's correct.

8 **Q.** There are no LDC's. These are all non-LDC's. I think I
9 misspoke.

10 **A.** Sorry. Yes. There are no LDC's in this table.

11 **Q.** What did you find with respect to the coefficients on
12 your admissions model for the different races in the expanded
13 data set both for Model 4 and Model 5?

14 **A.** The basic patterns still hold. There's a small -- they
15 go down just a tiny bit for Asian-Americans, but the same
16 themes emerge.

17 We have large positive bumps for African-Americans
18 that are not as large if you're disadvantaged. Large bumps
19 for Hispanics. Same thing with disadvantaged. And then
20 statistically significant penalties for Asian-American
21 applicants, again with the exception of female disadvantaged
22 in Model 5.

23 **Q.** And in the ALDC subgroup, did you look to see whether
24 there was any evidence in the LDC subset of discrimination
25 against Asian-Americans?

1 **A.** I did not find any discrimination against LDC
2 Asian-Americans. If anything, the coefficient was positive
3 for them.

4 THE COURT: I looked at this while we were sitting
5 here. This is off the sheets that you gave me?

6 MR. McBRIDE: Yes.

7 THE COURT: On the ALDC categories, the Asians do
8 better than the average in every single category, right?

9 THE WITNESS: For admit rates?

10 THE COURT: Yes.

11 BY MR. McBRIDE:

12 **Q.** You have these sheets in front of you, Professor, as
13 well.

14 THE COURT: I managed to figure out the percentages
15 myself.

16 THE WITNESS: You're talking about the admissions,
17 right?

18 THE COURT: Right. I'm looking at the sheet I got
19 at lunch.

20 MR. McBRIDE: Is the title "Asian applicants
21 interviewed by" --

22 THE COURT: No. The other one.

23 MR. McBRIDE: The "Asian-American Applicants and
24 Admits"?

25 THE COURT: Yes.

1 THE WITNESS: Yeah. That's correct.

2 THE COURT: They do better in every single
3 category, right?

4 THE WITNESS: Yes.

5 THE COURT: These categories look to me like
6 there's nothing subjective in them at all, right?

7 THE WITNESS: What do you mean by that?

8 THE COURT: Well, athletes, if they're a recruited
9 athlete, they're a recruited athlete. It's like a binary.

10 THE WITNESS: Right.

11 THE COURT: They're either a legacy or they are
12 not. There's not like a strong legacy and a weak legacy,
13 right there?

14 THE WITNESS: I don't know about that per se. But,
15 yeah, I take the point.

16 THE COURT: And the dean's list is what it is and
17 then the children and of faculty and staff.

18 So the Asians do better in every single one of
19 those categories. So your theory is that there's no penalty
20 against Asians in those categories, but then there's
21 discrimination against the Asian in the general applicant
22 pool.

23 THE WITNESS: Yeah. I think that that could be
24 quite consistent with how racial preferences could operate.

25 Here I'm giving you my own theory on this as

1 opposed to being able to say more than that.

2 But we know that Asians are very underrepresented
3 in those cases. If anything, at that point, if you want to
4 the have a diverse group of legacies at your school, then you
5 wouldn't see a penalty against them.

6 If mainly you're worried about the total number of
7 Asian-Americans, you're not going to penalize the ones where
8 you've got this strong preference for that you see with
9 athletes and legacies. You're going to penalize the other
10 ones. That would be my explanation for why we see the
11 results that we do.

12 THE COURT: Assuming a discriminatory animus,
13 right, you could still penalize the Asians in all these
14 categories, right?

15 THE WITNESS: Oh, you could. Take athletes, for
16 example, I just don't think that for something like that you
17 would ever -- that would ever play a role.

18 THE COURT: But if you were going to take whatever
19 percentage off the dean's list -- the percentage that comes
20 off the dean's list is 42 percent. But the Asians come off
21 the dean's list -- that are admitted off the dean's list at
22 48 percent. So if you wanted to, if there was like a penalty
23 there, you could take lots of people off the dean's list
24 except the Asians, right?

25 THE WITNESS: That could be one way that it

1 manifests itself. What we've seen is that the way the
2 preferences operate is there's lots of variation. We can see
3 that with the fact that African-Americans who are
4 disadvantaged get a smaller tip relative to their similarly
5 situated whites.

6 But I should say that we're coming up to a slide
7 where that's true for this 2 percent of the applicant pool;
8 that is, ALDC for Asian-Americans. We're going to be coming
9 up and showing that the total effect, even if you have them
10 all in, is a significant reduction in the number of
11 Asian-Americans admitted.

12 THE COURT: I'm just trying to think this through
13 because, obviously, I think we've all figured out this
14 morning this is not my strong suit.

15 Have you looked at and would it be relevant to look
16 at, for example, the personal and overall scores on this
17 group and see if there's a negative effect?

18 THE WITNESS: We actually have that in the tables.
19 What I know for sure is that legacies -- you see a bump in
20 the personal rating for legacies. There might be, like, one
21 other case where you see a bump for legacies, but generally
22 you don't see legacies getting a bump.

23 I'd have to look at the coefficients to know what's
24 happening with all the different interactions between like
25 Asian-American and legacy. But I could certainly do that if

1 you'd like.

2 THE COURT: Again, this is not my strong suit, but
3 it looks to me like what you're arguing is that you have an
4 admissions office that's discriminating against Asians in
5 some way, but that they only do it in certain places.

6 THE WITNESS: That's correct.

7 THE COURT: So if you're discriminating against a
8 group, wouldn't you expect them to be discriminated against
9 across the board?

10 THE WITNESS: I don't think so. I'll give you one
11 example that we know from law, actually. If you look at
12 under-represented minorities, there doesn't appear to be much
13 going on with being hired on right out of law school, but
14 there's more going on at the next level.

15 If there was going to be discrimination, it's
16 coming more in at the partner level than at, I guess, it's
17 the associate level.

18 And there's many economics where it starts
19 showing -- showing that that's the case.

20 So if we're think about a university trying to sort
21 of satisfy having a particular racial mix, they're going to
22 do it in the way that best fits their objectives. You're not
23 going to want to upset your Asian-American legacies when
24 there's all this stuff going on about the fact that there's
25 this perception that Harvard discriminates against them.

1 THE COURT: They're not only not being
2 discriminated against, they're actually being favored in
3 these categories.

4 THE WITNESS: They're being favored, but the
5 estimates of this are not statistically significant. I don't
6 know whether the difference in means are statistically
7 significant. I'm just talking about when you're doing the
8 coefficients of the model. So it's a noisier process.

9 THE COURT: Okay.

10 BY MR. McBRIDE:

11 **Q.** With respect to your expanded data set, did you analyze
12 how the coefficients that you saw changed the number of
13 students who were admitted?

14 **A.** I did.

15 **Q.** Then you go to Slide 38.

16 When you looked at the expanded data set and you
17 calculated the difference in the number of Asian-American
18 students who were admitted once you removed the
19 Asian-American penalty, what did you find?

20 **A.** The numbers fall slightly for the reasons we were just
21 discussing, but there are still substantial increases between
22 20 and 55 additional students, and that's the result of very
23 few Asian-Americans in that ALDC group.

24 **Q.** We've talked about the models that you made for your
25 work. Did you also create models for Mr. Richard Kahlenberg?

1 **A.** I did.

2 **Q.** Did they include the ALDC subgroup?

3 **A.** They did.

4 **Q.** Why is that?

5 **A.** We were looking at modeling different things here. He's
6 looking to try to match the full distribution, not looking
7 specifically at the penalties Asian-Americans face. And in
8 particular he's interested in doing things like turning off
9 legacy preferences or in some cases athletic preferences.
10 And in order to do that, you need another model.

11 **Q.** What about the personal rating? Did the models you made
12 for Mr. Kahlenberg include the personal rating?

13 **A.** They did.

14 **Q.** Why is that?

15 **A.** He was trying to look at this from Harvard's perspective,
16 and Harvard's perspective is the personal rating is not
17 biased against Asians. And that race doesn't affect the
18 personal rating. So it makes sense if you're going to model
19 it from Harvard's perspective, to take what they say about
20 that rating seriously.

21 **Q.** I heard some questions about whether these were pooled or
22 yearly models during his testimony. What were they?

23 **A.** They pooled models.

24 **Q.** I heard testimony about how these models reflect the
25 Harvard's admissions process as it actually was. Do you

1 agree with that?

2 **A.** I should offer one clarification. The models that he did
3 for me were pooled models. The models that were taken from
4 Card's were yearly models.

5 **Q.** Understood. My question was so we heard some testimony
6 about how these models reflect the Harvard admissions process
7 as it actually was.

8 Do you agree with that characterization?

9 **A.** In some extent, yes. In some extent, no. So, on the one
10 hand, all these models are designed to approximate the
11 Harvard admission process. But they're not perfect
12 approximations, and we're not including variables that we
13 know are important to the Harvard admissions process.

14 The perfect example of that is the overall rating.
15 The overall rating matters in the Harvard admissions process.
16 It shows right up on there on the summary sheets, but we're
17 not including it because that's one of the channels through
18 which race operates.

19 **Q.** Is that true for both your models and the models you made
20 for Mr. Kahlenberg?

21 **A.** That's correct.

22 **Q.** So I want to go back to Slide 35 in your Plaintiff's
23 demonstrative 38, which is your marginal effect of race on
24 the probability of admission.

25 Did your determination of the marginal effect of

1 race provide any sense or indication to you of how important
2 of a role race plays in determining admissions?

3 **A.** Yes. It's quite substantial for African-Americans and
4 Hispanics.

5 **Q.** And how does this show that?

6 **A.** Well, you've got a 324 percent increase in your
7 admissions probability for African-Americans and 141 percent
8 increase for Hispanics.

9 **Q.** And did you look at how this would be reflected in
10 changes in the numbers of admitted students based on the
11 marginal effect when you turned off all racial preferences?

12 **A.** I did.

13 **Q.** We'll go to --

14 THE COURT: Can I ask you another question
15 about 35?

16 MR. McBRIDE: Sure.

17 THE COURT: Assuming for the moment that you're
18 taking African-Americans and Hispanics that wouldn't get in
19 without some kind of racial preference, right? That's
20 basically what this says, right?

21 THE WITNESS: That's correct.

22 THE COURT: Those numbers have to come from
23 someplace, and you're saying they come, at least in part,
24 from the Asian population, right?

25 THE WITNESS: That's correct. So the way to

1 interpret what we have here is like if we changed one
2 African-American's race, how would that affect their
3 probability. Now, once you are going to get rid of the
4 preference as a whole, now we've got to spread out the fact
5 that, okay, now it's going to be a little bit easier to get
6 into Harvard because we don't -- those other students were
7 not admitted. And so we're going to get to that I think in
8 one slide to show how everything gets spread around.

9 THE COURT: Can you go back to 35 for a minute.

10 So you're saying that the decrease in Asians, is
11 that taking into account that -- I mean, if you're letting in
12 African-Americans and Hispanics that would not get in but for
13 the racial preference, are you saying it's all coming out of
14 the Asian population, or are you saying it's coming out of
15 the Asian population 16 percent more than it's coming out of
16 the white population?

17 THE WITNESS: I'm sorry. I was confusing in this
18 answer.

19 This is effectively doing these things one at a
20 time, not spreading out the admits at all. So for
21 Asian-Americans, getting rid of the effect of race just means
22 turning off their Asian-American penalty. Then when we look
23 at African-Americans, we're turning off the affect of race
24 for African-Americans and seeing how their admissions
25 probably would be affected. You shouldn't interpret that as

1 though the number of beds is held fixed there. This would be
2 just -- we're just changing the probabilities for everybody
3 for African-Americans.

4 The next slide, that's what a marginal effect does.
5 When we actually simulate the removal of all the preferences,
6 that's where we're going to do the adjustments, and that's
7 what we had when removed the Asian penalty. So when we take
8 race out of the admissions process, we're going to be taking
9 away the Asian-American penalty, the bump African-Americans
10 receive and Hispanics receive, and then we'll see who the
11 winners and losers are as a result of that.

12 THE COURT: Okay.

13 BY MR. McBRIDE:

14 **Q.** So it's true then you did an analysis where you turned
15 off all the racial preferences and you basically answered Her
16 Honor's question as to where would you see increases in terms
17 of certain populations for racial groups and where would you
18 see decreases?

19 **A.** That's correct.

20 **Q.** And is that here on slide -- that's not where it is.

21 On Slide 39 here, changes in admissions levels,
22 baseline data set?

23 **A.** Yes. So this is just for the baseline. So it's holding
24 what's going on with those LDC applicants fixed, though we do
25 it with the expanded data set in the slide coming up.

1 And what you can see is substantial drops in the
2 number of African-American admits. The numbers aren't all
3 going to add up to zero because we do have another racial
4 group here, which is the others. But you see substantial
5 drops in the number of African-American admits, the number of
6 Hispanic admits, big rises for whites and Asian-Americans,
7 but the increase is definitely higher for Asian-Americans
8 than it is for whites.

9 **Q.** And roughly on a year-to-year basis, what percentage of
10 African-American applicants would not have been admitted but
11 for the racial preferences?

12 **A.** About two-thirds.

13 **Q.** And with respect to Hispanic applicants?

14 **A.** About half.

15 **Q.** And looking at the chart, does the removal of racial
16 preferences only benefit white applicants?

17 **A.** No. It benefits Asian-American applicants more than
18 white applicants.

19 **Q.** Did you look at the same effect in the expanded data set?

20 **A.** I did.

21 **Q.** Going to Slide 40, changes in admissions levels for the
22 expanded data set, what did you see with respect to the
23 decrease in admitted students for African-American and
24 Hispanic populations versus Asian-American and whites?

25 **A.** It's basically the same patterns. I don't think it's

1 quite two-thirds there but substantial drops in both cases.

2 **Q.** What does this tell you about the significance of race in
3 Harvard's admissions process?

4 **A.** Well, race is a determinative factor. It's changing the
5 admissions of underrepresented minorities in a very
6 substantial way.

7 **Q.** I want to talk to you a little bit about your review of
8 the full application files, if I could. How many of those
9 did you review?

10 **A.** 480 plus some from the clients.

11 **Q.** Why did you review them?

12 **A.** Well, when I'm seeing this -- this is actually the first
13 time where I've written something about an Asian-American
14 penalty. So you want to look at the files and see does this
15 make any sense. You're just trying to provide some context
16 for what the statistical analysis does. I don't think that
17 reading the files necessarily proves something per se but
18 provides an illustration of what the statistical analysis is
19 showing.

20 **Q.** And in your review of those files, did you become
21 familiar with the phrase "standard strong"?

22 **A.** I did.

23 **Q.** What did you understand that phrase to mean on these
24 application files?

25 **A.** I understood it to mean that this is a strong applicant

1 but not quite good enough for Harvard.

2 **Q.** Did you investigate the use of that phrase in those
3 files?

4 **A.** That's correct.

5 **Q.** What did you do?

6 **A.** As part of this litigation, 10 percent of the
7 applications in 2018 were searched for comments, and one of
8 the search terms was "standard strong."

9 **Q.** What did you determine from that? How many files about
10 you find?

11 **A.** 255.

12 **Q.** And did you do any analysis of the credentials and
13 qualifications of those files?

14 **A.** I did.

15 **Q.** I'm going to Slide 41 in Plaintiff's Demonstrative 38.

16 Does this reflect your analysis of the
17 qualifications of those 255 applicants?

18 **A.** It does.

19 I do want to also just point out that this is for
20 all the files, so it's not excluding legacies or athletes.
21 Though I don't think they would -- I don't know what the
22 rates of them receiving that rating are actually.

23 **Q.** What was of the breakdown of the 255 standard strong
24 applications that came out of this subset of applications?

25 **A.** There were mainly whites and Asian-Americans. We can see

1 that there were 126 whites received that label, 114
2 Asian-Americans, 3 African-Americans, and 12 Hispanic
3 applicants.

4 **Q.** And in terms of the share of the applicant pool that was
5 searched that was labeled "standard strong," how did that
6 break down?

7 **A.** You can see that Asian-Americans had the highest share of
8 that with over 15 percent, followed by whites with
9 12 percent, and then 1 percent for African-Americans and
10 3.6 percent for Hispanics.

11 **Q.** Just to be clear, is this representative of the total
12 number of applicants receiving the "standard strong" label in
13 the entire 150,000 applicants in your data set?

14 **A.** No. This is a subset of the applicants just from 2018
15 from the 10 percent search.

16 **Q.** What was Harvard's ultimate admissions decision on these
17 255 applicants?

18 **A.** They were all rejected.

19 **Q.** And down the left side, what objective qualifications did
20 you look at for your analysis?

21 **A.** Well, we have the standard academic ones. We have the
22 academic index, SAT math, and SAT verbal.

23 And what you can see like, for example, in the
24 academic index in SAT math, whites receive the standard
25 strong rating and significantly lower academic indices than

1 Asian-Americans.

2 Same is true for SAT math and it's also the case
3 that Asian-Americans had significantly higher academic
4 indices than African-Americans and Hispanics who received
5 that rating.

6 SAT verbal, again Asian-Americans. It's not
7 significant with respect to whites, it is with respect to the
8 other two. It's always the case that Asian-Americans are the
9 strongest.

10 **Q.** And what do you conclude from these differences in the
11 qualifications for the Asian-American standard strong
12 applicants?

13 **A.** It's all quite consistent with Asian-Americans facing a
14 penalty in admissions. They're being held to a higher
15 standard.

16 **Q.** In your review of the full application files, did you see
17 full files that had students labeled "standard strong"?

18 **A.** I did.

19 MR. McBRIDE: I'd like to turn off the gallery
20 monitors, if I could, please. I'm going to put an
21 application file on the screen. Okay.

22 BY MR. McBRIDE:

23 **Q.** I'm going to put on the screen Plaintiff's Exhibit 116,
24 which is in the binder.

25 Is this one of the files that you reviewed?

1 **A.** It is.

2 **Q.** And you have this in your binder if you need to refer to
3 that.

4 MR. McBRIDE: Your Honor, I'd like to offer
5 Plaintiff's Exhibit 116 into evidence.

6 MR. LEE: No objection.

7 THE COURT: Admitted.

8 (Plaintiff Exhibit No. 116 admitted.)

9 BY MR. McBRIDE:

10 **Q.** On this, this is second page of the file. Where do we
11 find the standard strong notation?

12 **A.** You have to go to the bottom left.

13 **Q.** If I scroll down to the bottom left.

14 **A.** You can see SS, standard strong.

15 **Q.** And if we go to the top and we look at the academic
16 qualifications of this applicant -- I'll zoom in on these
17 here -- what do we see?

18 **A.** You can see that their academic index of 234 would put
19 them in the 9th decile. They have very strong test scores
20 and very strong grades.

21 **Q.** Was there an alumni interview in this file?

22 **A.** There was.

23 **Q.** I'm going to go to page 4 of the file. Are these the
24 alumni interview notes?

25 **A.** They are.

1 **Q.** And without being too descriptive so as not to give any
2 personally identifying information, what did you notice when
3 you looked in the academic and the extracurricular aspects of
4 the alumni interviewer's notes about this applicant?

5 **A.** The alumni interviewer praises her for her strong
6 academic credentials. What's also interesting is that she
7 wants -- let me actually get to the right point here.

8 **Q.** I can zoom in on it, if you let me know where you want to
9 look specifically.

10 **A.** On the academic side, the alumni praises her strengths
11 here.

12 At the end of the day, while the alumni always rank
13 them on academic, extracurricular, personal, and overall, the
14 ones that make it into the database are just the personal and
15 overall.

16 She's clearly very strong on the academics. If we
17 get to the extracurriculars, this is where we really see some
18 distinguishing things. She was a champion figure skater and
19 won many awards for that.

20 **Q.** In fact, if we go to the front page, how did she
21 characterize her figure skating?

22 **A.** She characterized it that she was a professional figure
23 skater.

24 **Q.** And when you look at the extracurricular qualifications,
25 what kinds of accomplishments did she have with respect to

1 her figure skating?

2 **A.** She won regional championships, was a national finalist
3 as well as getting numerous other medals.

4 **Q.** What was the rating that the alumni interviewer gave her
5 with respect to extracurricular activities?

6 **A.** 1-.

7 **Q.** If you turn to the next page of the alumni interview
8 notes and look under the personal qualities, was there
9 anything there that caught your attention?

10 **A.** Yeah, there were quite a number of things. She's
11 experienced a lot of personal adversity. Her father was
12 diagnosed with a severe mental illness, which means that
13 she's had to share the responsibility of taking care of him
14 with her mother. There was a short period when she was in
15 foster care because her parents were hospitalized. In the
16 summer before her -- before she applied, her mother was hit
17 by a drunk driver, leaving her mother seriously injured.

18 **Q.** If you look down at the bottom under the -- before we go
19 from there, Professor, what did the alumni interviewer rank
20 the applicant for personal qualities?

21 **A.** A "1."

22 **Q.** And when you look down at the overall rating, what were
23 the alumni interviewer's comments with respect to this
24 applicant?

25 **A.** The alumni interviewer said this was generally one of the

1 best interview experiences I've had over the past five-plus
2 years.

3 **Q.** And what did the alumni interviewer rate in applicant in
4 terms of the overall rating?

5 **A.** 1-.

6 **Q.** Did any of this information get reflected in the personal
7 essay?

8 **A.** It did.

9 **Q.** In what way?

10 **A.** Well, she spoke about -- in one of her essays she spoke
11 about her figure skating. In another essay she spoke about
12 dealing with her dad's mental illness. And in another essay
13 she talked about her experience in foster care.

14 **Q.** If you turn to the teacher letter on the 26th page, it
15 ends in 125. I just want to ask you about the bottom of
16 this. I'll cull out the last two paragraphs.

17 What did her teacher have to say in recommending
18 this applicant?

19 **A.** I will start with the last sentence of that paragraph.
20 This is sort of characterizing what sort of happened after
21 the drunk driving accident.

22 The person "took on the role of the parent, calling
23 insurance, hospitals, managing transportation, etc., which
24 further matured her and helped her realize she could accept
25 any challenge with Grace and humility."

1 It goes on to say, "There honestly aren't enough
2 words or time for me to speak of how amazing a young woman
3 this person is. She is incredibly mature, intelligent, and
4 motivated. She will be an asset to any university. I have
5 never taught a student as promising as this person, and I
6 looked forward to her contributions to society."

7 **Q.** I want to go back to the summary sheet here on the second
8 page and just focus in on the bottom.

9 What did this reader of the file at Harvard enter
10 as the extracurricular and athletic rating for this figure
11 skater?

12 **A.** 3+ for the extracurricular and a 4 for the athletic.

13 **Q.** And what was entered for personal score?

14 **A.** A "3."

15 **Q.** And what did the reader do with the alumni ratings that
16 we just read?

17 **A.** It was not recorded.

18 **Q.** And what was the admissions decision on this student?

19 **A.** This student was rejected.

20 **Q.** Does this one file from one year prove discrimination?

21 **A.** No, it doesn't. But it does provide context to the
22 file -- context to my results.

23 **Q.** Just to be clear, what was the race or ethnicity of this
24 student?

25 **A.** She was Asian.

1 **Q.** I want to put Plaintiff's Exhibit 112 up on the screen.
2 Was this a file that you reviewed as part of your work?

3 **A.** It was.

4 MR. McBRIDE: Your Honor, I'd like to move
5 Plaintiff's Exhibit 112 into evidence.

6 MR. LEE: No objection, Your Honor.

7 THE COURT: It's admitted.

8 (Plaintiff Exhibit No. 112 admitted.)

9 BY MR. McBRIDE:

10 **Q.** I'll put Plaintiff's Exhibit 117 up on the screen as
11 well. Is Plaintiff's Exhibit 117 one of the application
12 files that you reviewed?

13 MR. McBRIDE: I'd like to move Plaintiff's
14 Exhibit 117 into evidence.

15 MR. LEE: No objection.

16 THE COURT: It's admitted.

17 (Plaintiff Exhibit No. 117 admitted.)

18 MR. McBRIDE: I think we can turn the gallery
19 monitors back on. Thank you.

20 BY MR. McBRIDE:

21 **Q.** We heard in opening some criticism of your model for not
22 doing it as a yearly model in the manner of Dr. Card.

23 Do you recall that?

24 **A.** I do.

25 **Q.** To be clear, instead of a yearly model what did you do?

1 **A.** I ran a pooled model where you're using information from
2 all six admission cycles to inform the coefficients of the
3 model.

4 **Q.** What are the advantages of pooling?

5 **A.** Well, it allows -- by putting some restrictions on how
6 things are operate across years, you have more statistical
7 power for some of these coefficients. And it also allows you
8 to get at some of the subtleties for how race operates. For
9 example, you have enough disadvantaged applicants to do
10 things like interact African-American with disadvantaged.

11 **Q.** Now, do students in one application year actually compete
12 with students from other years?

13 **A.** Of course not.

14 **Q.** So how can you pool across those different years?

15 **A.** Well, the assumption is, is that things like the academic
16 rating are going to be valued in a similar manner from year
17 to year. In fact, I think I heard Dean Fitzsimmons testify
18 about how little the admissions process has changed even
19 since the OCR report.

20 **Q.** And in your field, is it common to pool when you have
21 yearly processes like this?

22 **A.** People do it all the time.

23 **Q.** Can you give me an example?

24 **A.** We do it with something like promotion decisions. You
25 can think about a promotion decision as being one where it's

1 going to depend on the pool of people you're going up against
2 in a particular year.

3 That doesn't mean we don't take into account the
4 fact that in one year things may be more competitive than in
5 another year. That's part of the model.

6 But it's still going to be the case that in these
7 types of things that the same things that you're going to
8 value in a promotion decision, your ability to make a profit
9 for your firm, we would expect to be consistent from year to
10 year.

11 **Q.** And did you do something like that with your model to
12 account for any variations across the careers?

13 **A.** I did. The most important of those is just including the
14 admissions cycle in the model. What that does is it
15 guarantees that in every year the overall admission rates
16 that the model says will be predicted matches the actual
17 admissions rate.

18 I did more than that, too. Namely, there are
19 things that Harvard keeps track of in terms of the
20 composition of the class. And those things appear on
21 Harvard's one-pagers.

22 So for many of those variables we're also
23 interacting those with the admission cycle, and that would
24 sort of take into account that, for example, if there are
25 more humanities majors applying in one year than the other,

1 Harvard may admit more humanities majors when humanities
2 majors were scarce.

3 **Q.** Given what you've done, do you agree that using a pooled
4 model is a reliable way for modeling Harvard's admissions
5 process?

6 **A.** I do.

7 **Q.** I want to turn to another criticism of Dr. Card's of your
8 model. You said you have about 300 or so variables?

9 **A.** Yeah. More than 300, yes.

10 **Q.** And I think we already touched on this, but did you
11 include -- I know you excluded overall and personal scores,
12 rate?

13 **A.** That's correct.

14 **Q.** But beyond that, did you include every other
15 characteristic or variable from the database from your model?

16 **A.** No. You run the risk of overfitting if you're going to
17 control for too many things.

18 But then there are other aspects as well, such as
19 you want to be sure that the data you're working with are
20 reliable.

21 **Q.** And did you account in constructing your model for any
22 data that you believed was not reliable?

23 **A.** Yes. There were a few variables that Professor Card uses
24 that I don't, and it's mainly because I don't think the
25 quality of the data is very good. That being said, I do do

1 robustness analysis where we say, okay, well, what if we put
2 those variables back in? And I still see a significant
3 penalty against Asian-Americans.

4 **Q.** Can you give me an example of one of the variables that
5 Dr. Card said should be included but that you didn't?

6 **A.** Yes. Parental occupation.

7 **Q.** I'm going to put up on the screen Slide 42 of Plaintiff's
8 Demonstrative 38. What's the data on this slide?

9 **A.** It has the number of applicants whose parents had
10 particular occupations. Now, this doesn't cover all the
11 occupations. The other occupations are going to be a bit
12 more stable than these. But these provide examples of the
13 fact that the mother's and father's occupation vary in ways
14 that make me question the quality of the data.

15 **Q.** Can you point us towards what you saw on the data with
16 respect to parental occupation that made you question its
17 reliability?

18 **A.** Well, when you look at things like low-skilled, there's a
19 huge number in 2014 for both mother's occupation and father's
20 occupation. Then in all the other years, the number is very
21 small.

22 You can see it in the context of homemaker. The
23 idea that homemakers would switch in 2018 from 4,600 falling
24 by so much in 2019.

25 Unemployed moves around in a very strange way where

1 there's hardly any unemployed in 2018 and '19 but much bigger
2 in 2015 through '17 and then sort of half of that in 2014.

3 **Q.** What about other and self-employed? Did you see any
4 variations there that caused you to question the reliability
5 of the data?

6 **A.** Yeah. In 2014, no one is listed as self-employed whereas
7 you see larger numbers throughout there. And in other, you
8 see very small in 2014, and then there are these big jumps
9 when you go to 2018 and 2019 over 2017.

10 **Q.** What was your conclusion about whether or not you should
11 keep parental occupation in your model?

12 **A.** Well, my basic standard was is this something I would
13 include if I was going to send this off for publication. And
14 I would not, because I view this data as being not of high
15 quality.

16 But again, we do checks to see whether it affects
17 our findings, and we still find penalties against
18 Asian-Americans.

19 **Q.** Are there any other variables that Professor Card
20 criticized you for not including?

21 **A.** Yes. Intended career.

22 **Q.** If you look on Slide 43 of Plaintiff's Demonstrative 38,
23 is this the data on intended career?

24 **A.** That's correct.

25 **Q.** And what is it in the data for intended career that

1 caused you to question its reliability?

2 **A.** Well, there are a lot -- and again, not all of them are
3 on here, but these are the ones we're looking at because they
4 vary substantially.

5 You can just see big jumps. Just look at the
6 academic. You see high values in 2014 and 2018 and very low
7 values in those other years.

8 If you look at health, there's this massive jump in
9 2018, smaller number in all the other years, but 2014 seems
10 bigger than all the other years.

11 In all of this data, it seems to be moving around
12 in ways that I don't trust what's going on.

13 **Q.** Are there any other variables that you excluded of note?

14 **A.** I think I mentioned before the interview with the
15 admissions officer. That's one, too, where clear preferences
16 are affecting that rating. You might think an interview
17 might matter, but that ought to be the scored interview, not
18 whether you had an interview.

19 **Q.** Did Dr. Card have any criticisms about the statistical
20 strength of your models' findings?

21 **A.** He did.

22 **Q.** What was that criticism?

23 **A.** He was concerned that the pseudo R-squared, which is a
24 measure of fits for these models, he viewed as being
25 relatively low.

1 **Q.** And what do economists in your field consider to be a
2 good pseudo R-squared for a logit model like the ones you
3 did?

4 **A.** The premiere person in this area is Dan McFadden. And
5 what he says is that pseudo R-squared between .2 and .4
6 actually provides an excellent fit to the data. And he
7 really highlights the fact that there's another measure
8 called the R-squared which is used in another context, that
9 you cannot compare those two because you get much lower
10 values when you do the pseudo R-squared.

11 **Q.** And what was the pseudo R-squared for your personal
12 ratings model?

13 **A.** .28.

14 **Q.** Does that fall within the range of excellent fit?

15 **A.** It did.

16 **Q.** Did Dr. Card create his own logit model to model the
17 Harvard admissions process?

18 **A.** He did.

19 **Q.** I know we've covered some of this in terms of these
20 variables, but generally how did his model differ from yours?

21 **A.** The two most important differences were the inclusion of
22 the ALDC applicants and the inclusion of the personal rating.

23 But there's some other key differences, too,
24 particularly interacting -- choosing not to interact
25 disadvantaged status and including some of these variables

1 that I thought were too unreliable.

2 **Q.** Now, in terms of his criticism of you for including the
3 personal rating, did Dr. Card, did he ever provide his own
4 model that shows the personal rating is free of any
5 significant influence from race?

6 **A.** He did not. He did add some variables to my model and
7 showed some decrease in the Asian, the penalty in a
8 Asian-American's face. But the statistical significance of
9 that penalty, it was still significant at like the 1 percent
10 level.

11 **Q.** What about interaction terms for race and disadvantaged
12 that you said he did not include? What was his justification
13 for leaving those out?

14 **A.** Well, the idea was you need some theoretical reason for
15 doing that particular interaction. And really, you could do
16 interactions with everything. Why those? And he says that
17 there's no theoretical reason for including that interaction.

18 **Q.** Did you agree with that criticism?

19 **A.** I did not.

20 **Q.** Why is that?

21 **A.** For two reasons that I mentioned before. One, in my past
22 work on affirmative action in higher education, I had
23 included such an interaction. And what we saw in the OIR
24 reports, while I'm obviously interacting disadvantaged status
25 and there they did low income, we don't have low income in

1 the data.

2 **Q.** Did you test whether or not -- and I believe I heard you
3 say something about robustness. Is that correct?

4 **A.** That's correct.

5 **Q.** So were you testing how your model would react if you
6 actually made changes based on some of the criticisms of
7 Dr. Card?

8 **A.** That's correct.

9 **Q.** Did you prepare demonstratives showing that?

10 **A.** Yes.

11 **Q.** I'm going to Slide 44, marginal effect of race on
12 probability of admission using Card's assumptions, baseline
13 data set.

14 What did you do to your preferred model to
15 incorporate some of Dr. Card's criticisms?

16 **A.** So I added the personal rating back in. I added the
17 parental occupation, intended career variables back in. I
18 removed all the interactions with gender.

19 In Card's opening report, he had a different way of
20 doing the ratings, and I included his way of doing the
21 ratings. Even including all those things, you still see
22 negative penalty against Asian-Americans.

23 THE COURT: You left in the other interactions,
24 though, right?

25 THE WITNESS: I left in the interaction between --

1 the key one is the disadvantaged status with race. That
2 really is an important one. And the reason is a little
3 subtle, but I think provides a good illustration of what's
4 going on.

5 Namely, we know that African-Americans and
6 Hispanics don't get as much of a bump for being
7 disadvantaged. So when they're included, when you don't
8 interact it, it makes disadvantaged status itself seem not
9 very important for Asian applicants and white applicants.

10 Now, why does that matter in the context of an
11 Asian-American penalty?

12 Well, as it turns out, Asian-Americans are
13 significantly more likely to be low income. So given that
14 they're more likely to be disadvantaged, when you lower the
15 tip for being disadvantaged, it makes it look like the
16 penalty is not as big as what it actually is.

17 THE COURT: I'm just thinking wasn't Harvard's data
18 that every ethnic group got the same tip for disadvantage,
19 basically?

20 THE WITNESS: No. On those OIR reports, you'll see
21 that they found a negative coefficient on the
22 African-American times low income. And that was quite large
23 and statistically significant.

24 And in their model I think you actually saw a
25 positive Asian-American coefficient with disadvantaged.

1 Again, that's just the interaction term, not the
2 total penalty. But it shows the disadvantaged -- well, they
3 were doing low income -- that the effect varied by race in a
4 significant way.

5 MR. McBRIDE: Your Honor, that's Plaintiff's
6 Exhibit 28.8. I can put that on the screen for you.

7 THE COURT: Put that up for me, will you?

8 THE WITNESS: What you're looking there, at the
9 bottom you can see right underneath "Asian," you can see
10 "African-American" and "Low Income." And that coefficient is
11 negative and significant. The P value is to the right of
12 that. The fact it's all zeros means this is a significant
13 effect.

14 That does not mean that African-Americans don't get
15 a tip. It's just that the tip they get, if they're low
16 income relative to whites who are low income, is lower.

17 BY MR. McBRIDE:

18 **Q.** And is this a factor associated with the summing of the
19 coefficients for interaction terms that you went through
20 earlier?

21 **A.** Exactly.

22 THE COURT: Thank you.

23 BY MR. McBRIDE:

24 **Q.** So just to conclude this. Even incorporating these
25 criticisms of Dr. Card into your preferred model, what was

1 the marginal effect of being Asian-American on the
2 probability of admission?

3 **A.** Negative .32 percent. So if you do all those
4 corrections, it does reduce the size of the penalty, but
5 remains significant. When you think about a baseline of a
6 5 percent admit rate, it's still a significant change.

7 **Q.** Do you recall another opinion of Dr. Card's was that he
8 believed there was no evidence of discrimination in certain
9 subgroups that he claimed were important?

10 **A.** That's correct.

11 **Q.** What was that criticism?

12 **A.** Well, that criticism was, if you estimated the model only
13 in female applicants or only on applicants from California,
14 that you actually saw a positive effect for Asian-American in
15 those models.

16 **Q.** Do you agree with that criticism?

17 **A.** I do not for a number of reasons. First, ALDC applicants
18 are still in the model. We still have the personal rating,
19 and we have all these other variables that I don't think
20 belong in the model.

21 The other issue with doing that is now you've cut
22 your sample in half and the number of variables that
23 Professor Card has is a lot more than mine because you're
24 estimating yearly model. Roughly six times, give or take.

25 So now you've cut your sample in half, and you've

1 got all these variables in your model, and I think you're
2 really running a risk of overfitting. And for California
3 you're talking about 30 percent of the applicants.

4 **Q.** Let's assume, though, that the Court would agree with
5 Dr. Card's modeling choices. Would that make these findings
6 valid in your eyes?

7 **A.** No. None of them are close to statistically significant.

8 **Q.** So I want to just focus on the two main disagreements
9 here for a moment. The inclusion of ALDC and the inclusion
10 of the personal rating that Dr. Card thinks are necessary.

11 Did you do any analysis of what would happen to the
12 results of Dr. Card's model if you corrected it by removing
13 the ALDC applicants and removing the personal rating?

14 **A.** I did.

15 **Q.** I'm going to Slide 45. Is that this analysis?

16 **A.** That's correct.

17 **Q.** What did you find when you took Dr. Card's model and
18 added back in -- I'm sorry -- recovered the ALDC applicants
19 and removed the personal rating?

20 **A.** If you just removed the ALDC applicants, it's negative
21 but not statistically significant. If you also remove the
22 personal rating, you're getting a fairly big effect of
23 negative .56 percent, and it's statistically significant.

24 Actually in Card's opening report, he shows what
25 the effect of removing the personal rating even with just --

1 keeping the ALDC applicants in there, and there you also see
2 a negative and significant penalty against Asian-Americans.

3 **Q.** And what specifically is the penalty for being
4 Asian-American on the probability of admission when you
5 correct Dr. Card's model for ALDC and personal rating?

6 **A.** Negative .56 percent penalty.

7 **Q.** Taking a step back. Given these results with the
8 correction of Dr. Card's model as well as the results of your
9 own model, what is your ultimate conclusion about the
10 presence of a penalty against Asian-Americans in the
11 admissions process?

12 **A.** I think the evidence is quite compelling. That there is
13 a penalty against Asian-American applicants, and these
14 results are stuff that I would fully expect that could be
15 published.

16 **Q.** Thank you.

17 MR. McBRIDE: No further questions.

18 MR. LEE: Can we take a ten-minute break that will
19 allow us to get set up?

20 THE COURT: Yes. You will recall that I have a
21 quick status conference at 2:30.

22 Ten-minute break now is fine.

23 (Court recessed at 1:55 p.m.)

24 EXAMINATION
25

1 BY MR. LEE:

2 Q. Good afternoon.

3 A. Good afternoon.

4 Q. Before I go to the heart of the cross-examination, I want
5 to see if I can correct one thing with you on one of the
6 exhibits you discussed with Mr. McBride.

7 Do you have the notebook that he was using with you
8 up there still? I believe it's to your right, perhaps.

9 You discussed Plaintiff's Exhibit 116, P116, with
10 Mr. McBride. Do you remember that, a student file?

11 A. P116, yes, a student file, yes.

12 Q. If I turn you to the first page --

13 MR. LEE: And, Your Honor, I think we'll have to
14 turn off the public monitor.

15 THE COURT: Yes.

16 BY MR. LEE:

17 Q. You looked at the summary sheet with Mr. McBride. Do you
18 recall that?

19 A. I do.

20 Q. You discussed with him the different ratings that were
21 provided. Do you recall that?

22 A. I do.

23 Q. And you made the point for Her Honor that the summary
24 sheet doesn't include the results of the interview rating,
25 correct?

1 **A.** That's correct.

2 **Q.** Now, the date on which the ratings were provided out of
3 the summary sheet is actually recorded, isn't it?

4 **A.** It is.

5 **Q.** January 13, correct?

6 **A.** That's correct.

7 **Q.** So if you go to the fourth page, which is the interview
8 that you discussed with Mr. McBride, do you have that before
9 you?

10 **A.** I do.

11 **Q.** That is the interview report, correct?

12 **A.** That's correct.

13 **Q.** The interview occurred on January 25, correct?

14 **A.** That's correct.

15 **Q.** So that when the ratings were filled out, the person
16 providing the ratings didn't have the interview report
17 because it hadn't occurred, correct?

18 **A.** That's correct. But they could have gone back to the
19 file.

20 **Q.** You weren't trying to suggest that there was anything
21 wrong with the fact that the interview ratings were not
22 recorded, correct?

23 **A.** What I think was wrong was that they didn't go back to
24 check what those ratings were. But I don't know if I'd even
25 call it wrong. I completely agree with you that they didn't

1 have the rating, the alumni interview at the time they filled
2 out the ratings.

3 **Q.** Now, sir, you've been retained by SFFA in this case,
4 correct?

5 **A.** That's correct.

6 **Q.** SFFA has also sued the University of North Carolina,
7 correct?

8 **A.** Correct.

9 **Q.** And from that lawsuit SFFA claims that African-American
10 and Hispanic applicants are given preferences over whites,
11 correct?

12 **A.** And Asian-Americans, yes.

13 **Q.** And the person who's been retained to be SFFA's expert in
14 that case is you?

15 **A.** That's correct.

16 **Q.** And in the last four years, you've been an expert in two
17 cases, correct?

18 **A.** I've got this case and then two others, yes.

19 **Q.** And the two cases that involve college admissions
20 processes are this case; that's one, correct?

21 **A.** Correct.

22 **Q.** And University of North Carolina, correct?

23 **A.** Correct.

24 **Q.** And what they have in common is SFFA, correct?

25 **A.** Correct.

1 **Q.** Now, as you tell us in your report, you receive funding
2 from something called the Searle Freedom Trust, correct?

3 **A.** Correct.

4 **Q.** You receive somewhere in the neighborhood of \$50,000 from
5 the Searle Freedom Trust, correct?

6 **A.** That's correct.

7 **Q.** You know that the Searle Freedom Trust is actually a
8 funder of SFFA, don't you?

9 **A.** I have learned that.

10 **Q.** In fact, they're a substantial funder of SFFA, correct?

11 **A.** I don't know.

12 **Q.** The work that the Searle Trust funded for you was some of
13 the affirmative action work you described for us earlier,
14 correct?

15 **A.** Correct.

16 **Q.** Now, to be clear in this case, as you told us, you
17 contend and SFFA contends, that Harvard considers race
18 improperly, correct?

19 **A.** Correct.

20 **Q.** In the North Carolina case, SFFA and you contend that the
21 University of North Carolina considers race improperly,
22 correct?

23 **A.** Correct.

24 **Q.** In both cases you've prepared statistical models,
25 correct?

1 **A.** Correct.

2 **Q.** And in both cases you're going to provide opinions to
3 support your basic conclusion, correct?

4 **A.** Correct.

5 **Q.** Now, you recall doing a series of reports and then having
6 your deposition taken, correct?

7 **A.** Correct.

8 **Q.** At the time of your deposition, you had not met with a
9 single student who was an SFFA member, correct?

10 **A.** That's correct.

11 **Q.** You had not spoken to a single student who was a member
12 of SFFA, correct?

13 **A.** Correct.

14 **Q.** You couldn't even name for me one SFFA member, could you?

15 **A.** I don't remember that.

16 **Q.** Could you name a single member of SFFA at the time of
17 your deposition?

18 **A.** I guess not.

19 **Q.** Right. And you certainly hadn't reviewed any of their
20 application files to Harvard, correct?

21 **A.** No. I had reviewed their files.

22 **Q.** Right. Now, the file that you discussed today was not an
23 application file for an SFFA standing member, was it?

24 **A.** Not the one that I discussed today, no.

25 **Q.** In fact, you have not met with any Asian-American

1 applicant to Harvard at any point during your work on this
2 case, correct?

3 **A.** I have not met any Asian-American applicants to Harvard?

4 **Q.** To Harvard at any time during your work on this case,
5 correct?

6 **A.** I'm not sure about that.

7 **Q.** Can you tell me one way or another?

8 **A.** No, I can't tell you one way or the other.

9 **Q.** You have not spoken to any Asian-American applicant to
10 Harvard at any time during the course of your work in this
11 case, correct?

12 **A.** Correct.

13 **Q.** And, as we sit here today, you can't name for me one
14 current SFFA member who applied to Harvard and was not
15 accepted, correct?

16 **A.** I reviewed the names for -- I mean, reviewed the files.
17 I don't remember the names, no.

18 **Q.** So the answer would be correct, right?

19 **A.** Correct.

20 **Q.** You understand that SFFA's self-described mission is to
21 end use of race in college admissions, correct?

22 **A.** I do.

23 **Q.** Based upon your work in the field, the work you described
24 earlier today to Mr. McBride, do you recall that?

25 **A.** Yes.

1 **Q.** You understand that eliminating the consideration of race
2 in American universities like Harvard would result in the
3 reduction in the representation of African-Americans on
4 campus, correct?

5 **A.** On Harvard's campus, correct.

6 **Q.** And it would result in the reduction in the number of
7 Hispanics on Harvard's campus, correct?

8 **A.** Correct.

9 **Q.** In fact, if we looked at most of your slides today, what
10 we saw was comparisons among African-American applicants,
11 Hispanic applicants, and Asian-American applicants, correct?

12 **A.** Correct.

13 **Q.** And I think you started your direct today by saying in
14 your view the magnitude of preferences for African-American
15 and Hispanic applicants is quite large. Correct?

16 **A.** Correct.

17 MR. LEE: Could I have PD 38, Slide 39 from
18 Mr. Bride's presentation.

19 BY MR. LEE:

20 **Q.** Do you recall this slide?

21 **A.** I do.

22 **Q.** I'm going to ask you a few more questions about it so we
23 really understand what was the result of your analysis. So
24 let's pick 2018. Do you see that?

25 **A.** Yes.

1 **Q.** I'm going to set aside 2019 because you seem to think
2 that the numbers are the result of SFFA bringing a lawsuit.
3 Let's focus on 2018.

4 The result of your analysis would be that the
5 number of African-Americans on the Harvard campus or in the
6 Harvard class would decrease from 195 to 47, correct?

7 **A.** Correct.

8 **Q.** The number of Hispanics would decrease from 217 to 96,
9 correct?

10 **A.** Correct.

11 **Q.** There would be a decrease of 148 African-Americans,
12 correct?

13 **A.** Correct.

14 **Q.** A decrease of 121 Hispanics, correct?

15 **A.** Correct.

16 **Q.** And you use the phrase "winners and losers." Do you
17 remember that?

18 **A.** Yes.

19 **Q.** Let's see who the winners are. The number of
20 Asian-Americans would increase by 158, correct?

21 **A.** Correct.

22 **Q.** And the numbers of whites would increase by 89, correct?

23 **A.** Correct.

24 **Q.** And so when you used the phrase "winners," the winners
25 would be Asian-Americans and whites, correct?

1 **A.** In the context of admissions, yes.

2 **Q.** In the context of your chart, sir, they would be the
3 winners, correct?

4 **A.** Yes. My chart is on admissions. So, yeah.

5 **Q.** And the losers would be African-Americans and Hispanics,
6 correct?

7 **A.** Correct.

8 **Q.** Now, you sat through the testimony of several of the
9 witnesses, correct?

10 **A.** Some of the witnesses. The other ones I read the
11 deposition testimony.

12 **Q.** Fair enough. And you heard some of the Harvard
13 representatives talk about the importance of a diverse
14 campus, correct?

15 **A.** Yes.

16 **Q.** And you heard them talk about the importance of having a
17 number of folks from different backgrounds on campus,
18 correct?

19 **A.** Correct.

20 **Q.** And your chart, which has the number of
21 African-Americans, is this per class?

22 **A.** Yes.

23 **Q.** So in one class there would be a reduction of 148
24 African-Americans, correct?

25 **A.** And this is the baseline.

1 **Q.** Yes. Harvard is a four-year college, correct?

2 **A.** Correct.

3 **Q.** It would be a reduction of 600 African-American students
4 on campus, correct?

5 **A.** Correct.

6 **Q.** And if we look at the Hispanics, it would be a reduction
7 of 480 Hispanics on campus, correct?

8 **A.** Correct.

9 **Q.** And you stand by these numbers, correct?

10 **A.** Yes.

11 **Q.** In fact, as you corrected me or you pointed out to me,
12 this is the baseline; so this is your data set, correct?

13 **A.** That's correct.

14 **Q.** If we go to your Slide 40.

15 MR. LEE: Could I have the next slide.

16 BY MR. LEE:

17 **Q.** Do you see that slide?

18 **A.** I do.

19 **Q.** This is PD 38, 40. This now is the expanded data set,
20 correct?

21 **A.** Correct.

22 **Q.** So, for instance, it includes athletes, correct?

23 **A.** Correct.

24 **Q.** Legacies, correct?

25 **A.** Correct.

1 **Q.** Directors and dean's list, correct?

2 **A.** Correct.

3 **Q.** Faculty children, correct?

4 **A.** I would need to check because it says expanded data set.
5 I think it includes the athletes for the purposes of this,
6 but I would have to check that. But basically it's ALDC,
7 yes.

8 **Q.** Expanded data set includes some of the people who are
9 excluded in the baselines, correct?

10 **A.** That's right. Yes.

11 **Q.** Let's look at 2008 again. I'm going to set 2019 aside.
12 Let's look at who the winners and losers are in your
13 calculation.

14 The winners would be Asian-Americans whose numbers
15 would go up by 153 and whites whose numbers would go up by
16 105, correct?

17 **A.** Correct.

18 **Q.** Per class?

19 **A.** Per class.

20 **Q.** For African-Americans per class there would be a
21 reduction of 153 students, correct?

22 **A.** Correct.

23 **Q.** Or 600 students on campus, correct?

24 **A.** Correct.

25 **Q.** And for Hispanics, there would be a reduction of

1 500 students on campus over a four-year period, correct?

2 **A.** Correct.

3 **Q.** And you stand by these numbers, do you not?

4 **A.** I do.

5 **Q.** Okay. So let's talk about the mismatch theory. You have
6 written a number of articles concerning the mismatch theory,
7 correct?

8 **A.** I've written a number of articles analyzing the costs and
9 benefits for affirmative-action policies, yes.

10 **Q.** You've specifically written articles that mention the
11 mismatch theory, correct?

12 **A.** Correct.

13 **Q.** That describe the mismatch theory, correct?

14 **A.** Correct.

15 **Q.** And explored data to see whether the mismatch theory is
16 legitimate or not, correct?

17 **A.** Correct.

18 **Q.** So let's start by seeing if we can agree upon just what
19 the mismatch theory is.

20 The theory is, in broadest terms, the idea that
21 affirmative action harms minorities by admitting students to
22 schools they are less likely to succeed at, correct?

23 **A.** That's correct.

24 **Q.** Now, in 2012 you published a study on racial differences
25 at Duke, correct?

1 **A.** Correct.

2 **Q.** And you specifically said, as you told Mr. McBride, that
3 you were studying racial differences in choice of majors,
4 correct?

5 **A.** That was one part of the paper, yes.

6 **Q.** And a major in and a concentration in Harvard parlance
7 are the same thing, correct?

8 **A.** Correct.

9 **Q.** The data you analyze was from Duke, correct?

10 **A.** Yes.

11 **Q.** That's where you work, correct?

12 **A.** That's correct.

13 **Q.** You understand that Duke has filed an amicus brief in
14 this case?

15 **A.** I do.

16 **Q.** Supporting Harvard, not SFFA, correct?

17 **A.** That's correct. But they have not said anything about my
18 analysis.

19 **Q.** No. But there was another amicus brief that I'm going to
20 come to that does say something about your analysis, correct?

21 **A.** That's correct.

22 **Q.** All right. We'll come back to that one.

23 But let's stay with the 2012 study, if you could.

24 You concluded that the great point averages of
25 white and African-American students at Duke got closer

1 together between freshman and sophomore year, correct?

2 **A.** Not just a data fact. Not a conclusion. That's the
3 data.

4 **Q.** I'll call it whatever you like. It's a fact.

5 **A.** It's a fact, yes.

6 **Q.** And then you explored the cause for that conversion,
7 correct?

8 **A.** Correct.

9 **Q.** And you concluded that African-American students tended
10 to switch majors, correct?

11 **A.** Correct.

12 **Q.** And you concluded that African-Americans tended to switch
13 away from majors like the natural sciences, engineering, and
14 economics, and toward majors like the humanities and social
15 sciences, correct?

16 **A.** Correct.

17 **Q.** And you concluded that the shift from majors like natural
18 sciences, engineering, and economics towards disciplines like
19 the humanities explain the convergence in the GPAs between
20 African-Americans and whites, correct?

21 **A.** That was part of why.

22 **Q.** That was one of your conclusions, correct?

23 **A.** Yeah. That explained part of why things converged.

24 That's not the only reason. That wasn't the only reason.

25 That's all. I agree that's one of the conclusions.

1 **Q.** Okay. Now, in making that conclusion, you wrote for
2 publication that "natural science, engineering, and economics
3 courses are more difficult, associated with higher study
4 times, and have harsher grading standards."

5 Did you write that?

6 **A.** That sounds right.

7 **Q.** And you said, "All of this translates into students with
8 weaker academic backgrounds," that being minorities," being
9 less likely to choose these majors."

10 That's what you wrote, correct?

11 **A.** Correct.

12 **Q.** When your article was published, as you told Mr. McBride,
13 it created some controversy on the Duke campus, correct?

14 **A.** Actually it created a controversy before it was
15 published. But it created controversy.

16 **Q.** Fair enough. It created controversy before it was
17 published and it created controversy after it was published,
18 correct?

19 **A.** Yes.

20 **Q.** And the controversy was one that resulted from some
21 people viewing it as inflaming racial tensions on the Duke
22 campus, correct?

23 **A.** That's correct.

24 **Q.** And that is the event that you were referring to with
25 Mr. McBride, correct?

1 **A.** Correct.

2 **Q.** Incidentally, you were the chair of the economics -- the
3 graduate economics department's admissions committee at the
4 very time that you wrote that article, correct?

5 **A.** That sounds right.

6 **Q.** All right. I'm going to come back to what happened when
7 you were the chair in a few minutes.

8 You've also written about the effects of
9 California's Proposition 209, correct?

10 **A.** Correct.

11 **Q.** Proposition 209 was a voter initiative, correct?

12 **A.** Correct.

13 **Q.** Among other things, it banned the use of race at public
14 universities and in admissions, correct?

15 **A.** Correct.

16 **Q.** And you studied and wrote about the effect of
17 Proposition 209 on minority enrollment in the University of
18 California system, correct?

19 **A.** Correct.

20 **Q.** And what you found and concluded and published was that
21 minority students after Proposition 209 entering the UC
22 system shifted from what you called more-selective campuses
23 to less-selective campuses, correct?

24 **A.** Correct.

25 **Q.** In fact, what you said was minority students shifted away

1 from schools like UC Berkeley and UCLA, correct?

2 **A.** Correct.

3 **Q.** You called those more selective, correct?

4 **A.** Correct.

5 **Q.** And they, in fact, shifted towards less-selective
6 campuses, correct?

7 **A.** Correct.

8 **Q.** Now, I want to see how you described this. Turn, if you
9 would, in your notebook to Tab 8. Do you have Tab 8 before
10 you?

11 **A.** I do.

12 **Q.** Is this an article that you wrote called "Affirmative
13 Action and University Fit: Evidence From Proposition 209"?

14 **A.** It is.

15 **Q.** Turn, if you would, to page 23. Do you have that before
16 you?

17 **A.** Yes.

18 **Q.** Okay. And I'd like to draw your attention specifically
19 to the sentence that begins "Using data before."

20 Do you see that sentence on page 23?

21 **A.** I do.

22 **Q.** Would you read that sentence for the Court.

23 **A.** "Using data before and after an affirmative action ban,
24 we found evidence that Prop 209 did lead to a more efficient
25 sorting of minority students within the UC system."

1 **Q.** So I want to ask you about this phrase you wrote, "more
2 efficient sorting of minority students".

3 **A.** I think the next sentence is important, too, because
4 there's a big "however" right after it.

5 **Q.** Go ahead.

6 **A.** "However, the effects are relatively small and we can say
7 little about what happened to those that did not attend the
8 UC campus as a result of Prop 209."

9 **Q.** Now, in the first sentence you used the phrase "more
10 efficient sorting of minority students within the UC campus."

11 Do you see that?

12 **A.** That's correct.

13 **Q.** That was your phrase, correct?

14 **A.** Yes.

15 **Q.** And what you meant by "more efficient sorting" is that
16 you thought that some minority students gravitated after
17 Prop 209 to less-selective campuses, correct?

18 **A.** What I meant by that was --

19 **Q.** Is that right?

20 **A.** I was going to tell you what I meant.

21 **Q.** Can you tell me yes or no whether I'm right or not? Then
22 we'll come back to how you'd like to expand.

23 **A.** It's hard for me to tell you yes or no on that question.

24 **Q.** Let me withdraw it and ask you a different question.

25 When you refer to more efficient sorting of

1 minority students within the UC system, you're referring to
2 the idea that some students went to more-selective
3 universities and some went to less-selective universities
4 after Prop 209, correct?

5 **A.** That's correct.

6 **Q.** Now, could I have from Mr. McBride's slide PD38,
7 Slide 22. This is your slide that you discussed with Her
8 Honor today, correct?

9 **A.** Correct.

10 **Q.** On the slide, you compare Whites, Asian-Americans,
11 African-Americans, and Hispanics, correct?

12 **A.** Correct.

13 **Q.** And on many of the subsequent slides you compare only
14 Asian-Americans, African-Americans, and Hispanics, correct?

15 **A.** No. That means it's relative to white applicants.

16 **Q.** Whites are the baseline, correct?

17 **A.** That's correct.

18 **Q.** So I want to ask you about this slide because you told
19 Her Honor that this slide shows what you call the Asian
20 penalty, correct?

21 **A.** This provides -- suggests an Asian penalty.

22 **Q.** Didn't you say that this slide supports your theory that
23 there is an Asian penalty?

24 **A.** Supports, yes.

25 **Q.** Okay. And you said it supports your theory because if

1 you compare the admit rates of Asian-Americans to
2 African-Americans and Hispanics, there's a big difference in
3 absolute terms, correct?

4 **A.** Well, in comparison to whites is what I was referring to
5 there.

6 **Q.** You may have anticipated my next question.

7 With this chart in front of you, would you tell us
8 is there a white penalty in the Harvard admissions process?

9 **A.** Every time we talk about -- I'm using whites as a
10 baseline. Certainly whites are penalized relative to
11 African-Americans and Hispanics. Asians are penalized
12 relative to all groups. Hispanics are penalized relative to
13 African-Americans.

14 **Q.** So just so I'm clear, can you answer my question yes or
15 no? Using your phrasing, your characterization of the data
16 as showing an Asian penalty, is there a white penalty in the
17 Harvard admissions process? Yes or no.

18 **A.** It depends on the comparison group. Penalties are always
19 relative.

20 **Q.** Let's go back just for a minute and look at your slide,
21 PD38, Slide 39.

22 Do you remember this slide? This is the data from
23 your baseline set, sir.

24 **A.** That's correct.

25 **Q.** If we flip to Slide 40, this is the data from your

1 expanded data set. Do you recall that?

2 **A.** That's correct.

3 **Q.** And as you use the term "winners and losers," in both
4 cases the losers were African-Americans and Hispanics,
5 correct?

6 **A.** That's correct.

7 **Q.** And the winners were Asian-Americans and whites, correct?

8 **A.** That's correct.

9 **Q.** So if race is used as it is in the Harvard system, your
10 testimony is that Asian-Americans bear the burden of a
11 penalty, correct?

12 **A.** That's correct.

13 **Q.** Looking at this data, isn't the necessary corollary of
14 that under your analysis that there's a white penalty at
15 Harvard as well?

16 **A.** A white penalty is the same thing as an African-American
17 or Hispanic tip. They mean the same thing.

18 **Q.** Okay. So if an African-American is getting a tip, then a
19 white or an Asian-American is getting a penalty, according to
20 you, correct?

21 **A.** They can always express it that way, correct.

22 **Q.** Well, I'm trying to understand just what you meant by a
23 penalty, sir.

24 In your analysis, both Asian-Americans and whites
25 are operating under the burden of a penalty in the Harvard

1 admissions process, correct?

2 **A.** Again, I would want to relate it back to who we're
3 comparing to. If we're comparing white applicants to
4 Asian-American applicants, we can either call that a white
5 tip or an Asian-American penalty. Would mean the exact same
6 thing to me.

7 **Q.** Okay. I think I understand you. But maybe it's a little
8 simpler to just say, if we use your terms winners and losers,
9 the winners are the Asian-Americans and whites in your
10 analysis and the losers are the African-Americans and the
11 Hispanics, correct?

12 **A.** That's correct.

13 **Q.** And that's consistently the result of your analysis, is
14 it not, sir?

15 **A.** Yes. It's also consistent with Professor Card's analysis
16 when removing preferences.

17 **Q.** You know Professor Card will be here, correct?

18 **A.** Yeah. He's here now.

19 **Q.** Do you know him?

20 **A.** I do.

21 **Q.** Do you know him well?

22 **A.** Yes.

23 **Q.** You respect him?

24 **A.** Very much.

25 **Q.** You understand he won the John Bates Clark Medal?

1 **A.** And deservedly so.

2 **Q.** And that is, many people think, the most important
3 economics prize this side of the Nobel Prize. Correct.

4 **A.** Arguably more important.

5 **Q.** And he was one of the winners, correct?

6 **A.** That's correct.

7 **Q.** I'm not going to sit here and wrestle with you what he
8 said because he's going to come here in a couple of days and
9 tell Her Honor what he says in person.

10 So let me ask you this. I'm going to ask you a few
11 more questions and then Her Honor needs to break at 2:30.

12 You worked in graduation admissions at Duke,
13 correct?

14 **A.** That's correct.

15 **Q.** You were on the graduate admissions committee for the
16 economics department between 2004 and 2006, correct?

17 **A.** I believe that's correct.

18 **Q.** You were the chairman or the director of the committee
19 between 2011 and 2013, correct?

20 **A.** Correct.

21 **Q.** Now, you were the chair of that committee for the
22 graduate school of economics beginning in 2011, correct?

23 **A.** That's correct.

24 **Q.** And you continued through the academic year of 2013,
25 correct?

1 **A.** Correct.

2 **Q.** So the article that you and I discussed that caused some
3 racial tension on the Duke campus was published while you
4 were the chair, correct?

5 **A.** Chair of the admissions committee, yes.

6 **Q.** Now, one of the changes that you made -- withdrawn.

7 You had been on the committee for a period of time,
8 correct?

9 **A.** That's correct.

10 **Q.** You later became the chair, correct?

11 **A.** Correct.

12 **Q.** You thought you could improve the process, correct?

13 **A.** Correct.

14 **Q.** And one of the things that you did to improve the process
15 is you implemented a requirement of interviews, correct?

16 **A.** That's correct.

17 **Q.** Either by Skype or in person, correct?

18 **A.** Correct.

19 **Q.** You thought implementing the requirement of interviews
20 was an important innovation in the Duke interview and
21 application process, correct?

22 **A.** That's correct.

23 **Q.** You thought it was important to assess the personal
24 qualities of the applicant before you made a decision,
25 correct?

1 **A.** That's correct.

2 **Q.** And you wanted to meet them so you could determine what
3 their communication skills were like, correct?

4 **A.** Correct.

5 **Q.** To the extent you could, you could judge their candor and
6 truthfulness, correct?

7 **A.** Correct.

8 **Q.** You could judge their creativity, correct?

9 **A.** Correct.

10 **Q.** You could judge their intellectual curiosity, correct?

11 **A.** Correct. I mean, these are 15-minute interviews, but we
12 can get -- we get signals on those things for sure.

13 **Q.** And you thought it was an important innovation, correct?

14 **A.** I do, yeah.

15 **Q.** And you thought that the information you have got in
16 these 15-minute interviews were important in making decisions
17 as to who you would accept into the graduate school of
18 economics at Duke, correct?

19 **A.** That's correct.

20 **Q.** And the purpose of the interviews was to observe
21 nonquantitative factors, correct?

22 **A.** That's correct.

23 **Q.** Now, during this process, the application process, you
24 asked the applicant for information about their race,
25 correct?

1 **A.** That's correct.

2 **Q.** But when I took your deposition and asked you just how
3 you considered race in the process at Duke, you declined do
4 answer because you thought it would be confidential, correct?

5 **A.** That's correct.

6 MR. LEE: Your Honor, I know you have the status
7 conference at 2:30.

8 THE COURT: I'm wondering if they're all here.
9 Rachel, can you go out and see if they're all here for the
10 2:30?

11 MR. LEE: Should I keep plugging?

12 THE COURT: You may as well keep going.

13 BY MR. LEE:

14 **Q.** Let me ask you this: I want to focus now on the period
15 of 2011 to 2013. Do you have that period in mind?

16 **A.** I do.

17 **Q.** This is the period during which you were the chair,
18 correct?

19 **A.** Not of the department, but the admissions committee.

20 **Q.** Yes. Fair enough. I'm talking about the admissions
21 committee for the graduate school of economics at Duke,
22 correct?

23 **A.** Yes.

24 **Q.** And during that period of time, you were the chair of
25 that committee, correct?

1 **A.** Co-chair, but yes. Yes.

2 **Q.** And that's when you instituted this requirement of
3 interviews, correct?

4 **A.** Yes.

5 **Q.** And after of the interviews were done, people filled out
6 forms or emails describing the result of the interview for
7 your colleagues on the committee, correct?

8 **A.** That's correct.

9 **Q.** Those were substantive descriptions of what the candidate
10 communicated during the interview, correct?

11 **A.** Correct.

12 **Q.** Now, I want to ask you about some statistics --

13 THE COURT: Before you start, we're ready for the
14 2:30. So before you jump in on the statistics, let's break.

15 MR. LEE: Okay.

16 THE COURT: It won't take long, like 10 minutes.

17 (Recess at 2:32 p.m.)

18 THE COURT: When you're ready.

19 MR. LEE: Thank you, Your Honor.

20 BY MR. LEE:

21 **Q.** Welcome back. When we left we were talking about the
22 period 2011 to 2013. Do you recall that?

23 **A.** Correct.

24 **Q.** We were talking about the committee to admit students to
25 the graduate school of economics at Duke, correct?

1 **A.** Correct.

2 **Q.** Now, Duke keeps statistics on the number of students
3 admitted to each class and each department, correct?

4 **A.** Correct.

5 **Q.** The year before you became the chair, the number of
6 African-American admits to the graduate school of economics
7 was about 7.5 percent, correct?

8 **A.** I don't know.

9 **Q.** Let me see if I can refresh your recollection by handing
10 you -- and I can put it on the screen if it's easier. I can
11 give you a portion of the Duke website or put it on the
12 screen.

13 **A.** I don't care. Either way is fine.

14 **Q.** We'll put it on the screen. That way Mr. McBride can see
15 it as well.

16 My question just is this: You know that Duke
17 publishes statistics on the number of admits and the
18 percentage of admits by race to different departments,
19 correct?

20 **A.** I didn't know that, but apparently they do.

21 **Q.** You don't know that? Let me just see if this refreshes
22 your recollection that the year before you became the chair,
23 the number of folks admitted to the Duke graduate department
24 of economics was about 7.5 percent.

25 **A.** Okay.

1 **Q.** Now, then you become the chair, and the next year the
2 number of African-American admits declines, correct?

3 **A.** Yep. From four admitted to one. Yes.

4 **Q.** It declines from 7.5 percent to 2 percent, correct?

5 **A.** Correct.

6 **Q.** Now, the numbers are small, correct?

7 **A.** Correct.

8 **Q.** It's a small but very vibrant department at Duke,
9 correct?

10 **A.** Correct.

11 **Q.** You have very high standards, correct?

12 **A.** Correct.

13 **Q.** But given that it's small numbers, the percentages went
14 from 7.5 percent African-American to 2 percent your first
15 year as chair, correct?

16 **A.** I'm taking your word for it. But yes, correct. I'm
17 taking the website's word.

18 **Q.** The next year it went to about 2.7 percent while you were
19 still the chair, correct?

20 **A.** Correct.

21 **Q.** Now, those statistics don't tell us or you anything about
22 whether you were discriminating against African-Americans,
23 correct?

24 **A.** Correct.

25 **Q.** They're just descriptive statistics, as Mr. McBride said,

1 correct?

2 **A.** Correct.

3 **Q.** The when the number of -- or the percentage of
4 African-American admits dropped from 7.5 percent to
5 2 percent, no one accused you of intentionally discriminating
6 against African-Americans, correct?

7 **A.** Correct.

8 **Q.** No one suggested that you should do an investigation
9 about the reason for those numbers, correct?

10 **A.** Correct.

11 **Q.** You were interviewing each candidate as you saw them,
12 correct?

13 **A.** We didn't interview all candidates, but we interviewed a
14 substantial number, yes.

15 **Q.** Fair enough. Bad question.

16 Let me say it this way: You were evaluating the
17 candidates as they came to you, correct?

18 **A.** Correct.

19 **Q.** You interviewed some subset of them, correct?

20 **A.** Correct.

21 **Q.** The subset led to the people that you offered positions
22 to, correct?

23 **A.** Correct.

24 **Q.** The mere fact that the numbers declined from 7.5 percent
25 to 2 percent doesn't really tell us a thing about the reasons

1 that you made the decisions on the specific people that you
2 have invited to join the department, correct?

3 **A.** That's correct.

4 **Q.** Now, at the outset of your opinions today, you told Her
5 Honor that you had concluded that Harvard awards preferences
6 to African-Americans and Hispanic applicants. Do you recall
7 that?

8 **A.** That sounds right.

9 **Q.** And I think, if I wrote your words down correctly, you
10 said precisely, "The magnitude of preference for
11 African-Americans and Hispanics is quite large," correct?

12 **A.** Correct.

13 **Q.** Is that your way of saying that the references are, in
14 your view, too great?

15 **A.** I'm just saying that they're quite large.

16 **Q.** Now, you told us that Harvard also discriminates against
17 some Asian-American applicants, correct?

18 **A.** Correct.

19 **Q.** You do not claim that Harvard discriminates against
20 Asian-American applicants who are recruited athletes,
21 correct?

22 **A.** Correct.

23 **Q.** You do not claim that Harvard discriminates against
24 Asian-American applicants who are legacies, correct?

25 **A.** Correct.

1 **Q.** You do not claim that Harvard discriminates against
2 Asian-American applicants on the dean's or director's list,
3 correct?

4 **A.** Correct.

5 **Q.** You do not claim that Harvard discriminates against
6 Asian-American applicants who are the children of faculty,
7 correct?

8 **A.** Correct.

9 **Q.** You do not claim that Harvard discriminates against
10 Asian-Americans who are the children of staff, correct?

11 **A.** Correct.

12 **Q.** And, in fact, as Her Honor pointed out after the lunch
13 break, your analysis actually shows that Asian-American
14 legacies are admitted at a higher rate than similarly
15 qualified white legacy applicants, correct?

16 **A.** That's correct.

17 **Q.** And your analysis shows that faculty children who are
18 Asian-American are actually admitted at a higher rate than
19 white faculty children, correct?

20 **A.** Correct.

21 **Q.** And your analysis shows that staff children who are
22 Asian-American are admitted at a higher rate than staff
23 children of white employees, correct?

24 **A.** Correct.

25 **Q.** And your analysis also shows that Asian-Americans who are

1 on the dean's list or the director's list are admitted at a
2 higher rate than similarly qualified white applicants,
3 correct?

4 **A.** Correct.

5 **Q.** So we can agree that for all of these groups we just went
6 through, you don't claim there's any discrimination against
7 Asian-Americans in those groups, correct?

8 **A.** Correct.

9 **Q.** In fact, you couldn't claim it because they're actually
10 doing a little bit better than the whites, correct?

11 **A.** Correct.

12 **Q.** And the list you and I just ran through for athletes,
13 legacies, staff children, faculty children, dean's list,
14 director's list, the results that we just described
15 controlled for all the academic qualities and variables,
16 correct?

17 **A.** The charts that we just saw did not, but in my report, if
18 you add up the coefficients, you would get that effect, yes.

19 **Q.** You did an analysis that controlled for all the academic
20 variables, correct?

21 **A.** Yes. Well, for a set -- we have a set of academic
22 variables that I controlled for, yes.

23 **Q.** And you controlled for all the academic variables that
24 you had in your models, correct?

25 **A.** Yes.

1 **Q.** And having done that, the conclusion you came to is that
2 for each of the groups I just described, Asian-American
3 applicants do better than white applicants, correct?

4 **A.** The effect is not distinguishable from zero, but it is
5 positive.

6 **Q.** Well, it's not distinguishable from zero according to
7 you, but there was an effect, and the effect was one that
8 benefited each of those groups, correct?

9 **A.** Typically when it's not distinguishable from zero, we
10 don't say that. But it was positive, which would mean that
11 they were getting a tip that was insignificant.

12 **Q.** So let me phrase it this way and see if we can get on the
13 same page. You make no claims that Harvard uses race to
14 penalize Asian-Americans in any of those groups, correct?

15 **A.** Correct.

16 **Q.** Let me add one more group that has come up during the
17 course of the evidence. You have make no claim that Harvard
18 discriminates against Asian-Americans who are the children of
19 donors, correct?

20 **A.** Well, to the extent that they're on the dean's or
21 director list, true. I don't know -- I'm not sure about the
22 rest. I don't have a control for children of donors.

23 **Q.** The fact that any applicant is the child or relation of a
24 donor was not something that you considered important in your
25 analysis, correct?

1 **A.** I don't think I had that variable.

2 **Q.** So donor status had nothing to do with the models that
3 you ran, correct?

4 **A.** Except as it operated through the dean/director's
5 preferences.

6 **Q.** Except to the extent that that fact got someone onto the
7 dean/director's list, you took no account for donor status?

8 **A.** Dean's, director's, or legacy.

9 **Q.** Fair enough. If we focus on legacy, dean, director's,
10 one thing we know is that you do not claim there was any
11 discrimination against Asian-Americans in any of those three
12 categories, correct?

13 **A.** That's correct.

14 **Q.** Now, you were here for the openings, correct?

15 **A.** Correct.

16 **Q.** You understand that the claim here is intentional
17 discrimination, correct?

18 **A.** Correct.

19 **Q.** The question of whether any discrimination was
20 intentional or not is not something within your area of
21 expertise as an economist, correct?

22 **A.** That's correct.

23 **Q.** You're not here to talk about whether there was
24 intentional discrimination or not, correct?

25 **A.** Not unless I'm asked my personal opinion, correct.

1 Q. Well, you didn't offer any opinion on that issue in your
2 reports, correct?

3 A. Correct.

4 Q. So I'm pretty sure none of us is going to ask you about
5 it here. So let me ask you about a different topic if we
6 could. Race-neutral alternatives.

7 Do you recall discussing some of the work that you
8 did for Mr. Kahlenberg?

9 A. Yes.

10 Q. And you understand that he is someone who was retained by
11 SFFA as well, correct?

12 A. Correct.

13 Q. And he provided some testimony about race-neutral
14 alternatives, correct?

15 A. Correct.

16 Q. Now, you're not offering any opinion on the merits of
17 race-neutral alternatives -- withdrawn.

18 You're not offering any opinion on the
19 alternatives, the race-neutral alternatives that
20 Mr. Kahlenberg opined on, correct?

21 A. That's correct.

22 Q. You're not offering any opinion on whether Harvard could
23 or could not institute any of those policies, correct?

24 A. That's correct.

25 Q. You're not offering any opinion on whether any of those

1 possibilities, those race-neutral alternatives would create a
2 class that had the same level of diversity and academic
3 strength as the present Harvard class, correct?

4 **A.** Correct.

5 **Q.** Now, you did do some statistical simulations for
6 Mr. Kahlenberg, correct?

7 **A.** Correct.

8 **Q.** And in those simulations you included all domestic
9 applicants, correct?

10 **A.** Subjective to the data cleaning part, correct.

11 **Q.** The data cleaning is the process you described to us very
12 early in your testimony today, correct?

13 **A.** That's correct.

14 **Q.** Now, Mr. Kahlenberg told us when he was here that he
15 asked you to replicate Harvard's admissions process as
16 closely as possible. Did you know that?

17 **A.** I was here for that testimony, and that sounds about
18 right.

19 **Q.** Now, you understood that was your task, to replicate the
20 Harvard's admissions process as closely as possible?

21 **A.** Correct.

22 **Q.** That's what he asked you to do, correct?

23 **A.** Yes.

24 **Q.** Now, let's see what you did. You included the personal
25 rating in the simulations you did for Mr. Kahlenberg,

1 correct?

2 **A.** Correct.

3 **Q.** You included legacies, correct?

4 **A.** Correct.

5 **Q.** You included recruited athletes, correct?

6 **A.** Correct.

7 **Q.** You included faculty children, correct?

8 **A.** Correct.

9 **Q.** You included staff children, correct?

10 **A.** Correct.

11 **Q.** You included on the dean's and director's list, correct?

12 **A.** Correct.

13 **Q.** And then you ran those simulations, and you gave them to
14 Mr. Kahlenberg to make whatever determinations he wanted to
15 make, correct?

16 **A.** Correct.

17 **Q.** Since you were here for his testimony, you recall that I
18 asked him whether the penalty of the race-neutral
19 alternatives that he described fell consistently on
20 African-American students. Do you recall that?

21 **A.** Yes.

22 **Q.** And the answer is it did, didn't it?

23 **A.** That's correct.

24 **Q.** And the penalty was reducing the number of
25 African-Americans on campus by somewhere around 30 to

1 35 percent, correct?

2 **A.** I believe that moved from 14 percent to 10 percent, yes.

3 **Q.** So 14 percent to 10 percent is a reduction of 4 percent
4 against 14 percent. So --

5 **A.** Yes.

6 **Q.** You would consider that to be a significant reduction,
7 correct?

8 **A.** I don't really have an opinion on that.

9 **Q.** Well, if I compare it to what you call the significant
10 reductions of Asian-Americans on campus, a reduction of 14 to
11 10 percent would be significant, would it not?

12 **A.** Well, the penalties on Asians is a penalty, a
13 statistically significant penalty.

14 **Q.** Yeah, according to you. And I guess, since you're coming
15 back to that, let me ask you this question: I want you to
16 focus on statistically significant penalty. Do whites have a
17 statistically significant penalty as compared to
18 African-Americans?

19 **A.** Yes.

20 **Q.** Do whites have a statistically penalty as compared to
21 Hispanics, correct?

22 **A.** Correct.

23 **Q.** So if we apply your analysis, it's whites and Asians that
24 have a statistically significant penalty that benefits
25 African-Americans and Hispanics, correct?

1 **A.** Correct.

2 **Q.** So let's move to a related but slightly different claim.
3 You also understand that SFFA claims that Harvard uses race
4 as more than a plus factor, correct?

5 **A.** Correct.

6 **Q.** You're not a lawyer, correct?

7 **A.** No. I'm not a lawyer.

8 **Q.** And you haven't reviewed the Supreme Court's decisions on
9 affirmative action, or have you?

10 **A.** I have -- not at the level a lawyer would, certainly.

11 **Q.** At the level of an economist who wants to know generally
12 what is said in the opinions, correct?

13 **A.** That's correct.

14 **Q.** So having done that, you do know that Harvard's
15 admissions process has been described as an illuminating
16 example of an appropriate admissions process, correct?

17 **A.** Correct.

18 **Q.** You do note that the Supreme Court has attached an
19 appendix to the *Bakke* opinion describing the Harvard process,
20 correct?

21 **A.** Correct.

22 **Q.** And I want to be sure that having had you describe the
23 Harvard process as discriminatory, I want to be sure that
24 you -- I understand what you understand about the Harvard
25 process.

1 You described the summary sheet for, for instance,
2 PX116, correct?

3 **A.** Correct.

4 **Q.** You understand that that's the beginning of the process,
5 correct?

6 **A.** That's correct.

7 **Q.** And the ratings are provided by a first reader, correct?

8 **A.** Correct.

9 **Q.** And then they can be provided by a second reader,
10 correct?

11 **A.** Some of the time, yes.

12 **Q.** And sometimes a third reader, correct?

13 **A.** That's correct.

14 **Q.** And sometimes the file can be evaluated by a faculty
15 member, correct?

16 **A.** That's correct.

17 **Q.** And then there are a series of steps that happen after
18 that including the subcommittee meetings, correct?

19 **A.** Correct.

20 **Q.** Full committee meetings, correct?

21 **A.** Correct.

22 **Q.** And at the full committee meetings there are 40 people
23 sitting in a room looking at files making decisions, correct?

24 **A.** Correct.

25 **Q.** And according to your analysis, these 40 people sitting

1 in a room decide, "For this Asian-American legacy we're going
2 to give them a little bit of a bump, but for this
3 Asian-American who's not, we're going to discriminate against
4 them." That's your judgment, correct?

5 **A.** I don't have any opinions on what the exact mechanism is.
6 I'm just telling you what the data show.

7 **Q.** Well, let me ask you about one of your other slides, if
8 you could.

9 MR. LEE: Could I bring up PD38, Slide 29.

10 BY MR. LEE:

11 **Q.** Do you have that before you?

12 **A.** I do.

13 **Q.** This is the slide that you discussed with Mr. McBride,
14 correct?

15 **A.** Correct.

16 **Q.** And you briefly discussed the bottom category, which is
17 "Asian-American Female Disadvantage," correct?

18 **A.** Correct.

19 **Q.** Now, this is the category where you pointed out that the
20 coefficient was positive, correct?

21 **A.** That's correct.

22 **Q.** Not negative like the other three categories, correct?

23 **A.** Correct.

24 **Q.** So according to this model and these coefficients,
25 there's no discrimination against disadvantaged female

1 Asian-Americans in the Harvard admissions process, correct?

2 **A.** There's no statistically significant effect for female
3 disadvantaged students in the overall rating model.

4 **Q.** So we can take female disadvantaged and add it to the
5 categories that we've already discussed where you don't claim
6 that there's any discrimination, correct?

7 **A.** No. This is the overall rating. If you go to my
8 admissions model, Model 4, it shows a statistically
9 significant penalty there. So it depends on what the
10 controls are.

11 **Q.** So your opinion is that disadvantaged female
12 Asian-Americans are, in fact, discriminated against, correct?

13 **A.** My opinion is that depending on what assumptions you want
14 to operate under, it can show up as statistically significant
15 penalty or not.

16 **Q.** Let me make sure I have that right. Depending on what
17 assumptions you operate under --

18 **A.** That's correct.

19 **Q.** -- you can get a result that's statistically significant
20 or not, correct?

21 **A.** So --

22 **Q.** Professor, is that what you said?

23 **A.** I said that depending upon the assumptions you make, the
24 female disadvantaged coefficient is either statistically
25 significant or it's not.

1 **Q.** Now, a large number of applicants to Harvard will be
2 rejected without race ever becoming a factor, correct?

3 **A.** That's correct.

4 **Q.** There are also a group of students who are so talented
5 and so qualified they'll be admitted without regard to their
6 race?

7 **A.** There are very few of those; but, yes.

8 **Q.** Then there's a competitive pool of applicants for which
9 race can make a difference, correct?

10 **A.** Correct.

11 **Q.** Now, that competitive pool is defined by a variety of
12 variables and factors, correct?

13 **A.** Correct.

14 **Q.** And there are variables or factors other than race that
15 determine whether a candidate is competitive or not, correct?

16 **A.** Yes. Other variables are important to the admissions
17 process.

18 **Q.** Now, if I wrote this down correctly when you were
19 testifying to Mr. McBride, you said that race is a
20 determinative factor in admissions decisions at Harvard,
21 correct?

22 **A.** Correct.

23 **Q.** You did not say the determinative factor, correct?

24 **A.** No.

25 **Q.** And what you mean by "a determinative factor" is that it

1 has a substantial effect on admissions possibilities of some
2 applicants in the competitive pool, correct?

3 **A.** It more than doubles the number of admits for these
4 underrepresented minority groups.

5 **Q.** For African-Americans, correct?

6 **A.** Correct.

7 **Q.** And for Hispanics, correct?

8 **A.** Correct.

9 **Q.** Now -- and that's what it means to be determinative,
10 correct?

11 **A.** Correct.

12 **Q.** Okay. Now, there are determinative factors other than
13 race that are used in the Harvard admissions process,
14 correct?

15 **A.** Correct.

16 **Q.** Profile ratings can have, as you said, a substantial
17 effect on the admission probabilities of an applicant?

18 **A.** Correct.

19 **Q.** An academic rating of 1 could be determinative, correct?

20 **A.** Correct.

21 **Q.** And an extracurricular rating of 1 could be
22 determinative, correct?

23 **A.** Correct.

24 **Q.** A personal rating of 1 could be determinative, correct?

25 **A.** Correct.

1 **Q.** Correct?

2 **A.** Correct.

3 **Q.** Now, let me move to another claim, and I'm going to come
4 back to the intentional discrimination claim, and that's
5 where we'll spend most of our time.

6 But you understand that there's another claim in
7 the case that's labeled "Racial Balancing," corrects?

8 **A.** Correct.

9 **Q.** You had a portion of your expert report that provided a
10 limited opinion on racial balancing, correct?

11 **A.** Correct.

12 **Q.** It was based upon IPEDS data, correct?

13 **A.** Correct.

14 **Q.** I tried to listen carefully when you were testifying
15 earlier today, but I didn't hear you testify about those
16 opinions to Her Honor at all today, correct?

17 **A.** Not so far. Correct.

18 **Q.** I'm not going to ask you about them because you didn't
19 testify about them on your direct, and so I'm not going to
20 talk to you about them on cross.

21 But the opinion that you did give in your reports
22 was one based upon IPEDS data, correct?

23 **A.** Correct.

24 **Q.** And we can agree you didn't give that opinion today,
25 correct?

1 **A.** Correct.

2 **Q.** Now, I want to talk to you about the academic index, if
3 you could. By my count in your slides from about Slide 4 or
4 5 through the slides where you began to talk about the
5 regression analysis, a predicate for your analysis is that
6 the academic index is something that's used in the admissions
7 process at Harvard, correct?

8 **A.** No.

9 **Q.** It's not?

10 **A.** I think it is used in the admissions process, but to the
11 extent that it's not, all the components of it are.

12 **Q.** Well, you used the academic index in the descriptive
13 statistical analysis that you described this morning,
14 correct?

15 **A.** Yes.

16 **Q.** Now, you were here when Dean Fitzsimmons testified,
17 correct?

18 **A.** Correct.

19 **Q.** You understand that the academic index is something that
20 each Ivy League institution prepares, correct?

21 **A.** Correct.

22 **Q.** It prepares the academic index so that it can exchange
23 that information with other institutions, correct?

24 **A.** Correct.

25 **Q.** And you understand that one of the reasons they've done

1 it historically is to be sure that as Ivy League institutions
2 admit athletes, they're doing it on sort of a fair and
3 square, even-handed basis, correct?

4 **A.** Correct.

5 **Q.** Now, Duke doesn't have the same type of system, correct?

6 **A.** Correct.

7 **Q.** Duke, in fact, just recruits athletes and gives
8 scholarships like other schools in the ACC, correct?

9 **A.** Correct.

10 **Q.** But in the Ivy League, the Ivy League schools have agreed
11 to exchange the academic index information so that for a
12 variety of purposes but including level setting athletes
13 people have common information, correct?

14 **A.** That's my understanding.

15 **Q.** Right. And the academic index is based upon grades and
16 test scores, correct?

17 **A.** Correct.

18 **Q.** It does not reflect teacher recommendations, correct?

19 **A.** Correct.

20 **Q.** It does not reflect guidance counselor recommendations,
21 correct?

22 **A.** Correct.

23 **Q.** It does not reflect academic honors, correct?

24 **A.** Correct.

25 **Q.** Faculty review, correct?

1 **A.** Correct.

2 **Q.** It's a formula based upon grades and test scores?

3 **A.** That's correct.

4 **Q.** And you were here when Dean Fitzsimmons testified that
5 the academic index is not used in the admissions process at
6 Harvard, correct?

7 **A.** I was.

8 **Q.** And what you're telling us is you just don't believe him?

9 **A.** Well, what I believe is that even if it's not used
10 directly, it shows up bold on the summary sheets.

11 **Q.** Because it has to be exchanged with other institutions,
12 right?

13 **A.** I don't know why that means it needs to go on the summary
14 sheets.

15 **Q.** Did you ask anybody why it's on the summary sheets?

16 **A.** No, I did not.

17 **Q.** Did you see any testimony about why it's on the summary
18 sheets?

19 **A.** I don't recall any.

20 **Q.** Have you ever sat through a Harvard admissions meeting?

21 **A.** I have not.

22 **Q.** Have you ever sat through an undergraduate admissions
23 meeting at Duke?

24 **A.** No, I have not.

25 **Q.** Now, other than the fact that the academic rating is on

1 the summary sheet -- and I think you said in bold --

2 **A.** Yes.

3 **Q.** -- what is your basis for believing that it's actually
4 used during the admissions process?

5 **A.** Well, because -- the components period of time academic
6 index, even in the academic index itself are clearly used in
7 the admissions process. I guess I'm basing that on the same
8 thing as why I think the academic index is because we see all
9 this information on the summary sheets.

10 **Q.** The academic index actually tries to calibrate or
11 quantify the grade point average of a particular student
12 depending on where they went to school, correct?

13 **A.** That's already calibrated through the GPA.

14 **Q.** There's a formula in the academic index that actually
15 calibrates GPAs depending upon schools, correct?

16 **A.** GPAs are converted to their 80-point scale, and that GPA
17 is on the summary sheet, too.

18 **Q.** And have you seen a single folder where the academic
19 index is commented upon positively or negatively in the
20 400 files that you reviewed?

21 **A.** I don't recall.

22 **Q.** Now, I'm going to move beyond the racial balancing and
23 the IPEDS. So I'd like now to come to your opinion on
24 discrimination. Okay?

25 **A.** Okay.

1 **Q.** To be clear, it's an opinion on discrimination but not
2 intentional discrimination, correct?

3 **A.** That's correct.

4 **Q.** Now, I want to talk first about the importance of
5 non-academic and qualitative factors in the admissions
6 process, okay?

7 **A.** Okay.

8 **Q.** It's true, is it not, Professor, that in 2013
9 Asian-Americans made up about 5.1 percent of the United
10 States population?

11 **A.** I'll trust you on it.

12 **Q.** If I can refresh your recollection. Would you turn to
13 Tab 17 in Volume 2 of the notebooks before you. And you'll
14 find the NCES data.

15 **A.** Okay.

16 **Q.** Do you have that there?

17 **A.** Yes.

18 **Q.** Does that refresh your recollection that Asian-Americans
19 are approximately 5.1 percent of the United States
20 population?

21 **A.** Sure, yeah.

22 **Q.** And Asian-Americans accounted for about 5.2 percent of
23 college-aged Americans in 2013, correct?

24 And Mr. Lee can get you to the right year and the
25 right number.

1 **A.** Okay.

2 **Q.** So let's keep that in mind. Approximately 5 percent or
3 so, okay? What portion of the applicant pool at Harvard are
4 Asian-Americans?

5 **A.** It's substantially higher than that.

6 **Q.** It's like 17.6 percent, correct?

7 **A.** That must include the -- yeah. Okay.

8 **Q.** Asian-Americans are applying to Harvard at almost more
9 than three times the rate that Asians are represented in the
10 United States population, correct?

11 **A.** Correct.

12 **Q.** They're applying to Harvard at a rate that's more than
13 three times the representation of college-aged
14 Asian-Americans in the United States, correct?

15 **A.** Correct.

16 **Q.** Now, I don't know if you have these numbers committed to
17 memory, but let me see if they are approximately correct.

18 Asian-Americans were 17.6 percent of all applicants
19 to Harvard, all domestic applicants to Harvard for the class
20 of 2016. Does that sound right?

21 **A.** I'd have to look it up. But I'll take your word for it.

22 **Q.** If you want, you can go to Tab 18 in Volume 2, and you'll
23 find P319.

24 Have you seen this before?

25 **A.** Yes.

1 **Q.** And there's some information about the applicants and
2 admits. It's true, is it not, that Asian-Americans are about
3 5 percent of the college-aged population of the country,
4 correct?

5 **A.** Correct.

6 **Q.** They're about 17.6 percent of the applicants to the
7 Harvard class, correct?

8 **A.** Where are you --

9 **Q.** Class of 2016. It's highlighted in the top right.
10 Do you see that? 17.5 percent?

11 **A.** Okay.

12 **Q.** And then Asian-Americans were about 16.9 percent of the
13 admitted class for 2016. That's just a little further down,
14 correct?

15 **A.** Correct.

16 **Q.** Now, as you told Mr. McBride earlier today, if Harvard
17 only used test scores and grade point averages, even more
18 Asian-Americans would be admitted, correct?

19 **A.** That's correct.

20 **Q.** That was Model 1 in the OIR analysis, correct?

21 **A.** That's correct.

22 **Q.** No one has disputed, as far as you know, the fact that if
23 you just went on grades and board scores there would be more
24 Asian-Americans in the class, correct?

25 **A.** That's correct.

1 **Q.** You heard Dean Fitzsimmons agree that that would, in
2 fact, be true, correct?

3 **A.** I don't remember but --

4 **Q.** All right. Now, you know that Harvard considers more
5 than simply grades and test scores, correct?

6 **A.** Correct.

7 **Q.** It includes a broader set of information for academics,
8 correct?

9 **A.** Correct.

10 **Q.** It includes a broader set of information for
11 extracurriculars, correct?

12 **A.** Correct.

13 **Q.** It includes a broader set of factors for athletics,
14 correct?

15 **A.** Correct.

16 **Q.** And it includes a broader set of factors in the personal
17 rating, correct?

18 **A.** I am confused about what's in the personal rating but --

19 **Q.** Well, did you sit here while Dean Fitzsimmons,
20 Director McGrath, and the other Harvard admissions officers
21 went through specific application files --

22 **A.** Yes.

23 **Q.** -- and described the information that educated the
24 personal rating in the application file?

25 **A.** I did.

1 **Q.** When you do your interviews, by Skype or otherwise, for
2 your graduate student applicants, are you able to make
3 evaluations of the personal characteristics and qualities as
4 a result of the interview?

5 **A.** I haven't really thought about it that way.

6 **Q.** That is one purpose of instituting the interviews,
7 correct?

8 **A.** That can be, yes.

9 **Q.** Now, some of the factors that you and I have just gone
10 through can be seen in the data, correct?

11 **A.** Correct.

12 **Q.** Some of the factors cannot be seen in the data, correct?

13 **A.** Correct.

14 **Q.** And as you said in answer to Her Honor's question,
15 factors that are not seen in the data can provide important
16 information on a process, correct?

17 **A.** Correct.

18 **Q.** And specifically for our purposes, it can provide
19 important information for an admissions process, correct?

20 **A.** Correct.

21 **Q.** So I want to come back again just very briefly one more
22 time to what you instituted at Duke as the interview or
23 evaluation or conversation process. Okay?

24 Before you did the interview, you had the
25 applicant's GRE scores, correct?

1 **A.** Correct.

2 **Q.** They are the test scores if you want to be a graduate
3 student in economics at Duke, correct?

4 **A.** Correct.

5 **Q.** You had their college transcripts, correct?

6 **A.** Correct.

7 **Q.** You had letters of recommendation, correct?

8 **A.** Correct.

9 **Q.** You had probably -- or maybe some of their publications,
10 correct?

11 **A.** Correct.

12 **Q.** So you had some quantitative information, correct?

13 **A.** Correct.

14 **Q.** You had some qualitative information, correct?

15 **A.** Correct.

16 **Q.** But you still thought it was important to institute the
17 interviews as the chair to evaluate other additional
18 qualitative considerations, correct?

19 **A.** Correct. I said correct.

20 **Q.** Okay. Fair enough. Now, most of the information that
21 you talked about -- I want to focus on the descriptive
22 statistics portion of your testimony this morning. Do you
23 recall that?

24 **A.** I do.

25 **Q.** And many of the numbers that you were providing were

1 averages for Asian-Americans, averages for African-Americans,
2 averages for Hispanic, correct?

3 **A.** Correct.

4 **Q.** Now, many of the factors that Harvard considers in its
5 admissions process can vary on average across different
6 racial groups, correct?

7 **A.** Correct.

8 **Q.** So let's take an example. One factor that Harvard
9 considers is SAT or ACT scores, correct?

10 **A.** Correct.

11 **Q.** You know based upon your research that SAT scores vary by
12 race on average, correct?

13 **A.** Correct.

14 **Q.** On average, African-American students score lower than
15 other groups on the SATs, correct?

16 **A.** Correct.

17 **Q.** Now, there's some African-American students that score
18 really high, correct?

19 **A.** Correct.

20 **Q.** There's some that score low, correct?

21 **A.** Correct.

22 **Q.** But on average they score a little bit lower, correct?

23 **A.** Correct.

24 **Q.** Now, you're not suggesting that colleges shouldn't
25 consider SAT scores merely because on average there are

1 differences amongst races, are you?

2 **A.** No, I'm not.

3 **Q.** So the mere fact that different factors vary according to
4 race doesn't mean that a college couldn't or shouldn't
5 consider them, correct?

6 **A.** That's correct.

7 **Q.** So if I look at SAT scores, the consideration of SAT
8 scores is a legitimate use of information by a college
9 admissions officer, correct?

10 **A.** Correct.

11 **Q.** And the mere fact that -- withdrawn.

12 The fact that it varies by race is not a reason not
13 to use it, correct?

14 **A.** That's correct.

15 **Q.** And of the -- how many factors did you use in your model?

16 **A.** Over 300.

17 **Q.** Many, many of those 300 actually on average will vary by
18 racial groups, won't they?

19 **A.** Yes.

20 **Q.** The fact that they vary by racial groups does not mean
21 they shouldn't be used in your model, correct?

22 **A.** That's correct.

23 **Q.** It doesn't mean that they're not useful information to
24 the decision-making process, correct?

25 **A.** Correct.

1 **Q.** And these averages tell you nothing about how a decision
2 was made on an individual application, correct?

3 **A.** Sorry?

4 **Q.** These averages across racial groups tell you nothing
5 about how a decision was made on an individual application,
6 correct?

7 **A.** Well, I wouldn't go quite that far to say nothing, but
8 obviously, you know --

9 **Q.** It won't tell you definitively why the decision was made,
10 correct?

11 **A.** I agree.

12 **Q.** Now, I think you told us that when you modeled the
13 Harvard admissions process, you were trying to model the
14 process as it worked in the real world, correct?

15 **A.** Correct.

16 **Q.** And in order to do that, it's important to use the same
17 inputs that Harvard uses to its admissions process as best
18 you could, correct?

19 **A.** As long as they were not influenced by race.

20 **Q.** Right. Well, we're going to come back to that.

21 But as Her Honor -- when Her Honor asked you the
22 question, the question of whether someone is a legacy or not
23 is not influenced by race, is it?

24 **A.** The point is that's an objective characteristic. It's
25 not a rating given by the Harvard admissions office.

1 Similarly SAT scores vary by race. If there's a
2 racial difference there, it's not as a result of Harvard
3 making decisions.

4 **Q.** I think my question was different. I apologize if I
5 didn't state it clearly.

6 There are a number of groups that you and I have
7 set aside from your pool: athletes, legacies, faculty
8 children, staff children, dean's list, director's list,
9 correct?

10 **A.** Correct.

11 **Q.** And they're not part of your model, correct?

12 **A.** They're not part of my baseline model. They are part of
13 my expanded model.

14 **Q.** And the expanded model was something that you put
15 together after Dr. Card provided you his report, correct?

16 **A.** No. That was in my opening report.

17 **Q.** In your baseline model, you'd excluded these groups of
18 folks, correct?

19 **A.** Correct.

20 **Q.** None of those groups are defined by race, are they?

21 **A.** No.

22 **Q.** Okay. Now, you told Mr. McBride that you used a
23 multivariate logit regression analysis. Do I have that
24 right?

25 **A.** Yes.

1 **Q.** That's the same type of model that Professor Card uses,
2 correct?

3 **A.** Correct.

4 **Q.** And you both agree that a multivariate logit regression
5 analysis is an appropriate way to model the Harvard
6 admissions process, correct?

7 **A.** Correct.

8 **Q.** You had access to the same data, correct?

9 **A.** Correct.

10 **Q.** I think, as you told us, one of the things that
11 interested you was that Harvard produced extensive data and
12 information on the case -- in this case, correct?

13 **A.** Correct.

14 **Q.** Files from over 200,000 applications over a period of six
15 years, correct?

16 **A.** Correct.

17 **Q.** So you and Dr. Card used the same basic type of
18 regression tool, the same data, but reached different
19 conclusions, correct?

20 **A.** That's correct.

21 **Q.** So let's look at the different judgments you've made that
22 led to different conclusions, okay?

23 **A.** Okay.

24 **Q.** One of the judgments you made that you discussed with
25 Mr. McBride was to pool data from six years, correct?

1 **A.** Correct.

2 **Q.** Now, to be clear, you both analyzed data from six
3 admissions classes, correct?

4 **A.** Correct.

5 **Q.** The class of 2014 through the class of 2019, correct?

6 **A.** Correct.

7 **Q.** Your preferred model combines data for the six cycles
8 into a single model, correct?

9 **A.** Correct.

10 **Q.** Professor Card analyzed the data year by year, correct?

11 **A.** Correct.

12 **Q.** But he went one step further, didn't he?

13 **A.** In averaging the marginal effects?

14 **Q.** He then averaged the marginal effects of race for each of
15 the years, correct?

16 **A.** He did.

17 **Q.** That gave him a single marginal effect for race across
18 six years, correct?

19 **A.** That's correct.

20 **Q.** Now, I think as you told Mr. McBride, applicants for the
21 class of 2014 don't compete with applicants of the class of
22 2019, correct?

23 **A.** Correct.

24 **Q.** Now, would you agree that it's important to account for
25 the possibility that the effect of certain variables will

1 vary year by year?

2 **A.** It depends on the variables.

3 **Q.** For an admissions process, would it still depend on the
4 variables?

5 **A.** Yes.

6 **Q.** Now, one of the things that Professor Card did to address
7 this issue was to run separate models year by year, correct?

8 **A.** That's correct.

9 **Q.** Now, as you described to Mr. McBride, you tried to
10 account for the issue or to address the issue by using
11 interaction terms, correct?

12 **A.** That's correct.

13 **Q.** Which you described to Her Honor right before the lunch
14 break, correct?

15 **A.** Correct.

16 **Q.** An interaction term allows the effect of one variable to
17 change based upon another variable, correct?

18 **A.** Correct.

19 **Q.** So for example, you interacted the variable for the year
20 the applicant applied with certain other variables, correct?

21 **A.** Correct.

22 **Q.** You allowed the effect of being female, for instance, to
23 vary by the year the applicant applied, correct?

24 **A.** Correct.

25 **Q.** But you didn't do that for all variables, did you?

1 **A.** No, I did not.

2 **Q.** You selected certain variables to interact, correct?

3 **A.** That's correct.

4 **Q.** And you did that on the basis of the one-pagers, correct?

5 **A.** Mostly on that basis, yes.

6 **Q.** And who selected the one-pagers that you used to do your
7 analysis?

8 **A.** I don't know.

9 **Q.** You actually didn't interact all fields on these
10 one-pagers, did you?

11 **A.** No. I did miss the fee waiver, yes.

12 **Q.** Were you the person who selected what fields would be
13 used to interact on the one-pagers?

14 **A.** I was.

15 **Q.** Okay. Now, you combined the six years, I think, but tell
16 me if I've got this wrong, because you believed that it would
17 increase the statistical power of your model, correct?

18 **A.** Yes.

19 **Q.** You described the concept of standard error to Her Honor
20 earlier today, correct?

21 **A.** Correct.

22 **Q.** To those of us who are not in your field, a lower
23 standard error reflect greater statistical power, correct?

24 **A.** Correct.

25 **Q.** Now, based upon the standard error for Asian-American

1 average marginal effect, Professor Card's year-by-year model
2 actually had greater statistical power than your model,
3 correct?

4 **A.** That is correct. But that is driven by -- in part, by
5 the fact that I'm allowing the racial effects to differ along
6 things like disadvantaged status and such, which is something
7 you can't do with the yearly model because you don't have
8 enough power to do that.

9 **Q.** The answer to my question is that his model had greater
10 statistical power than yours, correct?

11 **A.** That the standard error was smaller, correct.

12 **Q.** I want go to this question of ALDCs. You've heard of the
13 concept of data mining, have you not?

14 **A.** I have.

15 **Q.** Data mining is when someone goes looking for the result
16 he or she wants to find, correct?

17 **A.** Correct.

18 **Q.** It's actually a well-recognized concept in the field of
19 economics and statistics, correct?

20 **A.** Correct.

21 **Q.** You also heard me use the phrase in my opening that if
22 you torture the data long enough it will confess to anything.

23 **A.** That's correct.

24 **Q.** That's also a well-recognized ditty in the field of
25 economics and statistics, correct?

1 **A.** That's correct.

2 **Q.** Data mining refers to the slicing and dicing of data in a
3 way that helps up to get to the result that you want to find,
4 correct?

5 **A.** Correct.

6 **Q.** As a tenured member of the faculty at Duke, you would
7 agree with me that data mining is something that you would
8 want to avoid if you possibly can, correct?

9 **A.** Correct.

10 **Q.** It's certainly not something that you would do and then
11 submit the information for peer review, correct?

12 **A.** Correct.

13 **Q.** Now, as you told us, your baseline data set, I'd like to
14 focus there. Okay. Are you with me?

15 **A.** Yeah.

16 **Q.** Baseline data set excluded recruited athletes, correct?

17 **A.** Correct.

18 **Q.** Lineage applicants, correct?

19 **A.** Correct.

20 **Q.** Children of faculty and staff, correct?

21 **A.** Correct.

22 **Q.** Dean's and director's list, correct?

23 **A.** Correct.

24 **Q.** Now, all of the ALDC applicants you excluded are part of
25 the pool of candidates at Harvard, correct?

1 **A.** As are foreign applicants, yes.

2 **Q.** For each of the different categories, there are some
3 applicants that are accepted and there are some that are
4 rejected, correct?

5 **A.** Correct.

6 **Q.** Falling into any one of these categories doesn't
7 guarantee admission, correct?

8 **A.** It does not guarantee admission, correct.

9 **Q.** So the mere fact that you're a legacy or a faculty child
10 is not going to get you in by itself, correct?

11 **A.** Correct.

12 **Q.** In fact, two-thirds of the legacy children are actually
13 rejected, correct?

14 **A.** Correct.

15 **Q.** The decisions on whether one person falls into the
16 two-thirds rejected or the one-third accepted is dependent
17 upon a variety of other factors, correct?

18 **A.** That's correct.

19 **Q.** They are the factors that Dean Fitzsimmons and the other
20 admissions officers have described to the Court, correct?

21 **A.** While that is correct, they may not affect the admissions
22 decisions of those applicants in the same way. And that's
23 why you split them out.

24 **Q.** And I'm going to ask you about your justification for
25 this. When you issued your report, you said that your reason

1 for excluding these folks was that they were, and I'm
2 quoting, "Subject to a special admissions procedure."

3 Do you recall that?

4 **A.** I don't recall the exact wording, but if that's --

5 **Q.** Does that sound right? If it helps you, go to Tab 3 to
6 your rebuttal report at 69. And I think you'll see your
7 reference to special admissions procedures.

8 Do you recall that in your report?

9 **A.** I'm just finding it here. Sorry. I have a hard time
10 reading it on the screen.

11 **Q.** That's okay. Let me know when you're there.

12 **A.** Okay. Yes.

13 **Q.** Now, we asked you what special admissions procedures were
14 at your deposition. Do you recall that?

15 **A.** I do.

16 **Q.** And you told us that for legacies the only special
17 admissions procedure you could identify is that they get a
18 tip, right?

19 **A.** I'm not sure because I know at least in response to some
20 of the other ones I mentioned that the factors in the model
21 affect things differently for those applicants. I'm not sure
22 if I got it every single time you asked me about every group,
23 but it shows up in at least three of the groups.

24 **Q.** I've asked you about legacies right now, correct?

25 **A.** Okay.

1 **Q.** Let's see what you said at your deposition. Turn, if you
2 would, to Tab 1. And if you go to page 92, line 15 to 19.
3 Tell me when you're there. Are you there?

4 **A.** Not yet. I'm sorry.

5 **Q.** I may be able to do a whole series of categories
6 together. Are you at page 92?

7 **A.** I am.

8 **Q.** Let's look first at lines 7 to 14. Now, professor, I
9 want you to have in mind your report where you refer to
10 special admission procedures. Do you have that in mind?

11 **A.** I do.

12 **Q.** "QUESTION: I'm now asking you to focus on one
13 category" --

14 MR. McBRIDE: Your Honor, I object. This isn't
15 really impeachment. Doesn't he have to ask the question and
16 then prove it's a contradictory answer?

17 THE COURT: If we can just go back. I'm on page 69
18 of Tab 3. I'm not sure what we're talking about.

19 BY MR. LEE:

20 **Q.** Let's do this first. If we go to Tab 3, your rebuttal
21 report at page 69. Do you have that before you? I can get
22 us logically back to where I was, I hope.

23 "In my original report, my baseline model excluded
24 recruited athletes, legacies, faculty and staff children,
25 those on the director's/dean's list and applicants for early

1 admission in order to focus on the part of the admissions
2 process where anti-Asian discrimination was concentrated and
3 not on applicants who were subject to special admissions
4 procedures."

5 Do you have that in mind?

6 **A.** I do.

7 **Q.** Now I want to focus you on your phrase "special
8 admissions procedures". Do you see that?

9 **A.** Yes.

10 **Q.** Let's start with faculty children.

11 The only special admissions procedure that you can
12 identify for a faculty child is the tip they get for being a
13 faculty child, correct?

14 **A.** Where are we at?

15 **Q.** Let's take what's on the screen down. You had gone back
16 to your report, correct?

17 **A.** I've got the report, but I'm trying to find --

18 **Q.** Do you see the reference to special --

19 **A.** Yeah. I'm with you there. I just want to know what page
20 am I looking at.

21 **Q.** I'm going to ask you a question without referring to the
22 deposition, to address Mr. McBride's concern. So you're at
23 that page of your report.

24 **A.** Yes.

25 **Q.** We're talking about faculty children.

1 **A.** Okay.

2 **Q.** Do you have that in mind?

3 **A.** Yes.

4 **Q.** That's one of the categories you were excluding, correct?

5 **A.** That's correct.

6 **Q.** And your belief or your view is that the special
7 admissions procedure is that faculty children get a tip,
8 correct?

9 **A.** Correct.

10 **Q.** And nothing else.

11 **A.** No.

12 **Q.** Correct?

13 **A.** The tip operates differently for different groups.

14 **Q.** And just to be clear, the special admissions procedure is
15 that a faculty child gets a tip in the admissions process,
16 and there is nothing else that defines a special admissions
17 procedure for a faculty child, correct?

18 **A.** I say that that tip may operate differently for different
19 groups.

20 **Q.** Well, there are other tips, are there not?

21 **A.** There are.

22 **Q.** And each at this point can operate differently for a
23 different applicant, correct?

24 **A.** Right. As an example, a legacy tip may operate more for
25 people who have low academic ratings than people who have

1 high academic ratings.

2 **Q.** Well, actually, were you here when Dean Fitzsimmons
3 actually was asked the question of how the legacy pool
4 compared academically to the general pool?

5 **A.** That has nothing to do with that question, though. Yes,
6 I was here.

7 **Q.** Were you here?

8 **A.** Yes.

9 **Q.** Did you make that comparison?

10 **A.** I don't remember.

11 **Q.** Now, let's go back to the special admissions process.
12 Again, faculty children, they get a tip, correct?

13 **A.** That's correct.

14 **Q.** And there's nothing else that describes a special
15 admissions process, correct?

16 **A.** That tip may vary by group.

17 **Q.** And that's it?

18 **A.** Well, if it varies by group, that provides a lot of scope
19 for how it operates.

20 **Q.** Other than the tip --

21 **A.** Other than the tip that varies by group.

22 **Q.** Nothing else, correct?

23 **A.** Nothing else.

24 **Q.** Subcommittee process is the same, correct?

25 **A.** That's correct.

1 **Q.** Summary sheet process is the same, correct?

2 **A.** That's correct.

3 **Q.** Full committee process is the same, correct?

4 **A.** That's correct.

5 **Q.** Lop process is the same, correct?

6 **A.** That's correct.

7 **Q.** Some get admitted, some get rejected, correct?

8 **A.** That's correct. Though I think --

9 **Q.** Now, let's talk about the dean's and director's list, if
10 we could.

11 **A.** Okay.

12 **Q.** The special admissions process for the dean's and
13 director's list folks is also that they get a tip, correct?

14 **A.** Correct.

15 **Q.** Nothing else, correct?

16 **A.** My understanding is Dean Fitzsimmons gets these names, so
17 that is something.

18 **Q.** That's it, correct? The dean gets these names. They go
19 through the same process of summary sheet, first review,
20 subcommittee meeting, full review, vote.

21 **A.** That is true. How the tip operates may differ, but
22 that's true.

23 **Q.** And the only thing that's different for them is they get
24 a tip, correct?

25 **A.** A tip that may vary across groups, yes.

1 **Q.** Athletes get a tip, correct?

2 **A.** That's correct.

3 **Q.** And I think as you told us, there are also tips for
4 legacies, correct?

5 **A.** That's correct.

6 **Q.** And for legacies, the special admissions process you're
7 describing is the tip, correct?

8 **A.** The tip that can vary across groups, yes.

9 **Q.** But again, the basic process is the same?

10 **A.** The basic process is the same.

11 **Q.** And the two-thirds of the legacies who go through that
12 process who don't get in are going through the same process,
13 correct?

14 **A.** That's correct.

15 **Q.** And the one-third of the legacies who get in are going
16 through the same process, correct?

17 **A.** That's correct.

18 **Q.** Now, there are a number of other groups that get tips in
19 the Harvard process, correct?

20 **A.** That's correct.

21 **Q.** There are written documents that describe who gets a tip
22 in the Harvard process, correct?

23 **A.** That's correct.

24 **Q.** Turn, if you would, to Tab 20 in Volume 2 of the notebook
25 that's before you. Do you have it before you?

1 **A.** I do.

2 **Q.** Do you find DX5, which I believe is in evidence? Do you
3 have it?

4 **A.** I do.

5 **Q.** You've seen this before?

6 **A.** I have.

7 **Q.** This is the 2013 to 2014 handbook, correct?

8 **A.** That's correct.

9 **Q.** And you reviewed this interviewer handbook in formulating
10 your opinions, correct?

11 **A.** That's correct.

12 **Q.** Now, turn if you would to the page that at the bottom in
13 the center is .0010. Do you have that?

14 **A.** Almost. Yes, I do.

15 **Q.** Tell me when you're there, and I'm going to draw your
16 attention to the sentence right before the paragraph that
17 begins "Outstanding and unusual intellectual ability."

18 **A.** I'm there.

19 **Q.** So do you see the sentence which reads, "These are among
20 the common tips by which applicants presenting distinguished
21 academic and extracurricular records might distinguish
22 themselves for admission." Correct?

23 **A.** That's correct.

24 **Q.** One of the tips the applicants, one of the groups of
25 applicants who get a tip are those with outstanding and

1 unusual intellectual ability, correct?

2 **A.** That's correct. Though that tip is not recorded in the
3 database.

4 **Q.** But they get that tip, according to the interview
5 handbook, correct?

6 **A.** That's correct.

7 **Q.** It's not something that you can reduce to a quantitative
8 number, correct?

9 **A.** Correct.

10 **Q.** But you have no doubt that people who have outstanding
11 and unusual intellectual abilities get a tip in the Harvard
12 admissions process, do you?

13 **A.** That's correct.

14 **Q.** Right. They're not going through a separate admissions
15 process. They're going through the same admissions process
16 even though they get a tip, correct?

17 **A.** That's correct.

18 **Q.** Now, another tip is for unusually appealing personal
19 qualities, correct?

20 **A.** Correct.

21 **Q.** The candidates or the applicant who get this tip go
22 through the same admissions process as the other candidates,
23 correct?

24 **A.** That's correct.

25 **Q.** Another tip is leadership, is it not?

1 **A.** That's correct.

2 **Q.** And the applicants who get that tip are going through the
3 same process, correct?

4 **A.** That's correct.

5 **Q.** Another tip is unusually creative ability, correct?

6 **A.** Correct.

7 **Q.** Those applicants who have unusual creative abilities go
8 through the same application process, correct?

9 **A.** Correct.

10 **Q.** Now, there can also be tips, if we go to the next page,
11 for geographic, ethnic, and economic factors. Correct?

12 **A.** Correct.

13 **Q.** Those applicants who get a tip for geographic location or
14 geographic factors still go through the same admissions
15 process, correct?

16 **A.** Correct.

17 **Q.** And the same is true for those who get a tip for economic
18 factors, correct?

19 **A.** Well, the geographic factors -- this is a minor point,
20 but the dockets are divided up by geography so they are --
21 but it is the same process of going through the committees
22 and all that.

23 **Q.** It is the same process, correct?

24 **A.** That's correct.

25 **Q.** Right. And at the end of the day, for every applicant

1 who gets admitted to Harvard, they go through the same basic
2 process but they may go through with different tips, correct?

3 **A.** Different tips, that's correct.

4 **Q.** And one of the tips that is described is an ethnic tip,
5 correct?

6 **A.** That's correct.

7 **Q.** But again, the student who gets the ethnic or the
8 socioeconomic tip still goes through the same admissions
9 process, correct?

10 **A.** That's correct.

11 **Q.** Now, you did not exclude from your model applicants who
12 received a tip for unusual intellectual ability, did you?

13 **A.** No, I did not.

14 **Q.** Or applicants who got an academic rating of 1, correct?

15 **A.** I did not. That would make no difference.

16 **Q.** Or applicants who had outstanding leadership ability,
17 correct?

18 **A.** That's correct.

19 **Q.** Or applicants who had unusually creative abilities,
20 correct?

21 **A.** That's correct.

22 **Q.** You also didn't exclude disadvantaged candidates from
23 your model, correct?

24 **A.** From my preferred model, that's true. I do have one in
25 my robustness checks of Professor Card's Model 1, where we

1 estimated with only disadvantaged students.

2 **Q.** So I'm going to do my best to focus on your preferred
3 model. I'll come back later to some of these other models.
4 When I refer to your baseline model or your preferred model,
5 that's what I'm trying to focus you on, okay?

6 **A.** Okay.

7 **Q.** You eliminated from your preferred or baseline model some
8 of the groups that received tips but not all of them,
9 correct?

10 **A.** That's correct.

11 **Q.** Now, let me ask you to assume that you have a candidate
12 who got a tip for unusually creative ability. Can you do
13 that?

14 **A.** I can.

15 **Q.** Now, you told us that Harvard has a fixed number of beds,
16 correct?

17 **A.** Correct.

18 **Q.** It can only house so many students, correct?

19 **A.** Correct.

20 **Q.** And you understand that it's important for the admitted
21 class and the enrolling class to match pretty carefully the
22 beds that are available for the students, correct?

23 **A.** Correct.

24 **Q.** So let me ask you to assume that someone gets a tip for
25 unusually creative abilities, okay?

1 **A.** Okay.

2 **Q.** That student gets in, okay?

3 **A.** Okay.

4 **Q.** Harvard is not discriminating against another student who
5 happens not to have creative abilities, are they?

6 **A.** I mean, you have a preference for ones with high creative
7 abilities.

8 **Q.** So you are discriminating?

9 **A.** I don't know if you would use that particular word for
10 that.

11 **Q.** I'm just trying to figure out precisely what you mean
12 when you talk about discrimination.

13 Let's take a different example. If someone gets a
14 tip for geography because they are from, for instance,
15 Wyoming and they get into the class, does that mean that
16 Harvard has discriminated against someone from Massachusetts
17 or Alabama?

18 **A.** Well, it does mean that there's a relative penalty for
19 those applicants.

20 **Q.** Okay. So when you use the word "penalty," let's talk
21 about this a little bit. There is what you describe as a
22 relative penalty, right?

23 **A.** That's right.

24 **Q.** Because if one applicant gets in, another applicant
25 doesn't get in, right?

1 **A.** No, that's not how I would put it.

2 When a characteristic results in a higher
3 probability, the person who doesn't have that characteristic
4 is either not getting the tip or it's a relative penalty.

5 **Q.** But I guess to use your terms, if the student with the
6 unusual creative ability gets in, there's a relative penalty
7 for the student who doesn't have that ability who doesn't get
8 in, correct?

9 **A.** If that's the only thing that's different about them,
10 okay.

11 **Q.** Now, when you issued your opinion in this case, you
12 didn't cite the number of ALDC candidates in the pool as a
13 reason for excluding them, correct?

14 **A.** I don't know.

15 **Q.** You do agree with me that ALDC applicants comprise about
16 30 percent of the admitted class?

17 **A.** I do agree.

18 **Q.** And you did not do any analysis, regression analysis,
19 descriptive statistics, to compare the academic
20 qualifications of the legacy pool with the rest of the
21 applicant pool, correct?

22 **A.** I feel that is embedded in my descriptive statistics. My
23 descriptive statistics show things broken out with the
24 baseline data and the expanded data. And so you can back it
25 out.

1 **Q.** Okay. So if I compared your baseline data to your
2 expanded data, I might be able to figure it out?

3 **A.** That's correct.

4 **Q.** Let's be clear. By removing ALDC applicants from your
5 preferred model, the result was a more negative effect on
6 Asian-American ethnicity, correct?

7 **A.** That's correct.

8 **Q.** Now, as we said, you and Dr. Card made a series of
9 different judgments, correct?

10 **A.** Correct.

11 **Q.** And after you made your judgments or modeling decisions,
12 Dr. Card calculated the effect of each of the decisions that
13 you made, correct?

14 **A.** That's correct.

15 **Q.** And he prepared a chart, which you've seen I think
16 several times, that is entitled "Modeling Decisions Overstate
17 the Effect of Asian-American Ethnicity on Admissions,"
18 correct?

19 **A.** I don't know what the title is, but that's right. I know
20 what table you're referring to.

21 **Q.** Okay. It's at Tab 19, which is the Card rebuttal report
22 at page 55, Exhibit 13. And I'm going to bring it up on the
23 screen. But I think you'll recall that you and I discussed
24 this on a number of occasions at your deposition.

25 **A.** Yes.

1 THE COURT: Do you know what page this is on?

2 MR. LEE: Yes, Your Honor. It's at page 55 of
3 Tab 19 in Volume 2.

4 THE COURT: Got it.

5 BY MR. LEE:

6 Q. So to be sure we're on the same page, what Dr. Card did
7 is he took your preferred model, excluding ALDC applicants as
8 Item 1, correct?

9 A. That's correct.

10 Q. He took your average marginal effect of Asian-American
11 ethnicity, correct?

12 A. That's correct.

13 Q. And then what he did is in 2, 3, 4, 5, 6, 7, 8, and 9 he
14 computed the effect of the judgments you had made on the
15 average marginal error, correct?

16 A. Cumulatively, yes.

17 Q. Now, you saw this table during the discovery process,
18 correct?

19 A. Yes.

20 Q. You did not -- you don't believe there's anything --
21 there is no computational problem with the numbers
22 represented on the table, correct?

23 A. That's correct.

24 Q. So we can understand the table, the effect of excluding
25 ALDC applicants can be determined by comparing the average

1 marginal effect of Item 1 with the average marginal effect of
2 Item 2, correct?

3 **A.** That's correct.

4 **Q.** So the average marginal effect of Asian-American
5 ethnicity in your model is negative .102, correct?

6 **A.** Correct.

7 **Q.** And the asterisk indicates that that is statistically
8 significant, correct?

9 **A.** At the 5 percent level, yes.

10 **Q.** Now, if you just add ALDC applicants back into the mix,
11 the average marginal effect of Asian-American ethnicity is
12 reduced to .81?

13 **A.** Yes. And that's for two reasons: one, because there's
14 some that experience a penalty; and two, it changes the other
15 coefficients of the model.

16 **Q.** And according to Dr. Card's chart, the difference is
17 approximately 25 percent. It goes from 1.02 to .81, correct?

18 **A.** That's correct.

19 **Q.** And you don't quarrel with the math?

20 **A.** I don't quarrel with the math.

21 **Q.** You've also identified an alternative to excluding ALDC
22 applicants from your model, correct?

23 **A.** That's correct.

24 **Q.** You have said that instead of removing those applicants
25 you can allow for the possibility that the effect of race is

1 different for the ALDC applicants, correct?

2 **A.** That's correct.

3 **Q.** And the way you go about -- the way you do that is to
4 include, again, interaction terms for the ALDC categories and
5 race, correct?

6 **A.** That's correct. But I would argue that you need to do
7 more interactions than just that.

8 **Q.** And the interaction terms and processes are what we
9 discussed before, correct?

10 **A.** That's correct.

11 **Q.** Now, Dr. Card, in fact, did exactly that, did he not?

12 **A.** He never calculates the average marginal effect for the
13 non-ALDC group.

14 **Q.** But he, in fact, did as part of his analysis the
15 interactions that we just discussed, correct?

16 **A.** He interacted those ALDC applicants with race but not
17 with anything else. And the reported results are for all
18 Asian-American applicants, not the non-ALDCs.

19 **Q.** My question was did he interact race with the ALDC
20 applicants.

21 **A.** I don't think that was your question; but, yes.

22 **Q.** Right. Did you?

23 **A.** Yes.

24 **Q.** Did you run a model that is similar to Dr. Card's?

25 **A.** I did.

1 **Q.** Right. And Dr. Card's model showed no statistically
2 negative effect for Asian-American ethnicity, correct?

3 **A.** When you put in everything else, the other decisions he's
4 made, correct.

5 **Q.** Okay. Now, let me take you to a different but related
6 topic. In your initial report, as you told us, you excluded
7 ALDCs, correct?

8 **A.** Correct.

9 **Q.** But you also excluded early-action applicants, did you
10 not?

11 **A.** I did.

12 **Q.** And you did that because, in your view, early-action
13 students had higher chances for admissions, correct?

14 **A.** That's correct. Trying to get the apples-to-apples
15 comparison as much as possible.

16 **Q.** Just as ALDC students had a higher chance of admissions,
17 correct?

18 **A.** That's correct.

19 **Q.** Early-action candidates at Harvard were admitted at a
20 rate between 5.8 and 7 times higher than regular decision
21 applicants, correct?

22 **A.** I'd have to look that up, but that sounds reasonable.

23 **Q.** This is important. So if you'd go to Tab 2 in your
24 report at 22.

25 Do you have it before you?

1 **A.** Yes.

2 **Q.** Are you at page 22?

3 **A.** That's correct.

4 **Q.** Do you see the section entitled "Early Action"?

5 **A.** Yes. I also say that: "This is partially explained by
6 the fact that early applicants are more likely to exhibit
7 characteristics associated with higher admit rates such as
8 legacy or athlete status."

9 **Q.** Professor, I know you've been up there for a while today.
10 My question just was do you see the section entitled "Early
11 Action"?

12 **A.** I do.

13 **Q.** And do you see the second sentence -- third sentence,
14 which reads: "Early-action admit rates are between 5.8 and
15 7 times regular decision admit rates in the same year."

16 Correct?

17 **A.** Correct.

18 **Q.** And that was one of the reasons that you excluded them
19 from your baseline model, correct?

20 **A.** That's correct.

21 **Q.** Now, you later actually added early applicants back into
22 your model, correct?

23 **A.** That's correct.

24 **Q.** And you added them in after you concluded that
25 Asian-Americans actually were being penalized, to use your

1 word, during early action, correct?

2 **A.** At the tips that were given for all things, including
3 that one, were similar.

4 **Q.** Professor, my question was a little different. Let me
5 try it again, and let me break it down.

6 When you first did your baseline model, early
7 action was out, correct?

8 **A.** That's correct.

9 **Q.** It was out for the same reason -- of one of the reasons
10 that ALDCs were out; they had a higher admission rate,
11 correct?

12 **A.** That's right.

13 **Q.** That admission rate didn't change, did it? It was still
14 5.8 to 7 times higher than the normal rate, correct?

15 **A.** Correct. Part of the reason --

16 **Q.** Then you got to your rebuttal report, correct?

17 **A.** Correct.

18 **Q.** Then you decided to put early action back into the model,
19 correct?

20 **A.** Correct.

21 **Q.** And you put it back in after you determined that early
22 action had a negative effect -- there was a negative effect
23 associated with early action and Asian-Americans, correct?

24 **A.** That is part of it.

25 **Q.** So you found out that you had another number you could

1 put into the mix that indicated or might indicate
2 discrimination, and so you put it back into the mix.

3 **A.** I put it back into the mix because the way the
4 early-action process rewards all characteristics, including
5 race, was similar between the early-action applicants and the
6 non-early-action applicants.

7 The way -- for ALDC applicants, the way race
8 affects things is different, but that is, in part, because it
9 also operates -- effects all the other coefficients as well.

10 **Q.** I think the answer to my question is you determined there
11 was a negative effect of being Asian-American for
12 early-action candidates, correct?

13 **A.** Correct.

14 **Q.** And a negative effect means it's not helping, correct?

15 **A.** That's correct.

16 **Q.** It means it's hurting, correct?

17 **A.** That's correct.

18 **Q.** And once you discovered that, you put it back into the
19 model, correct?

20 **A.** That makes it appear as though that's the sole reason
21 it's back in the model, and that's just not true.

22 **Q.** It's one of the reasons you put it back in?

23 **A.** Yes. Because the processes operate similarly.

24 **Q.** Fair enough. There are categories which we discussed
25 earlier today for which you found a positive effect for being

1 Asian-American, correct?

2 **A.** That's correct.

3 **Q.** But for any category for which you found a positive
4 effect of being Asian-American, you excluded it from your
5 model, correct?

6 **A.** I don't know.

7 **Q.** Let's move to a different concept. In your field you're
8 familiar with a concept of "omitted variable bias"?

9 **A.** I am.

10 MR. LEE: Your Honor, I should ask how late you
11 want to go. I won't finish with him today.

12 THE COURT: I can go for as long as you want.
13 Maybe you should ask him.

14 You've been on the stand all day. And I know --

15 THE WITNESS: How much more you got? That's the
16 big question.

17 THE COURT: He's not going to finish today. Do you
18 want to keep going? Do you want to start fresh tomorrow?
19 You've had the hardest job in the room today.

20 THE WITNESS: Ending soon would be nice.

21 THE COURT: He's honest.

22 THE WITNESS: Unless you can finish with me. I'll
23 be more than happy.

24 THE COURT: He's not going to finish today.

25 MR. LEE: There are many commitments I can make to

1 you, but that's not one of them.

2 THE COURT: He's not going to finish today. Are
3 you at a good stopping spot?

4 MR. LEE: I'm at a good stopping point, and I can
5 use the evening to try to pare things down and make crisp
6 tomorrow morning.

7 THE COURT: Let me tell you where we are for the
8 next couple days.

9 I would like, if possible, to quit at 3:30
10 tomorrow. Monday I have a meeting I have to go to from 12:30
11 to 1:30. So we'll just take a slightly longer lunch break.

12 Other than that we're going to try and move what's
13 on the schedule until later in the day. So we should be able
14 to go pretty full days.

15 So we'll be back at 9:30 tomorrow. Thanks,
16 everyone.

17 (Court recessed at 3:57 p.m.)
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25

CERTIFICATION

I certify that the foregoing is a correct transcript of the record of proceedings in the above-entitled matter to the best of my skill and ability.

/s/ Joan M. Daly

October 25, 2018

Joan M. Daly, RMR, CRR
Official Court Reporter

Date _____

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