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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND
NORTHERN DIVISION

STUDENTS FOR FAIR ADMISSIONS, *Plaintiff*, v. **THE UNITED STATES NAVAL ACADEMY, *et al.*,** *Defendants*	)	Case No. 1:23-cv-02699-RDB

EXPERT WITNESS REBUTTAL REPORT

OF

STUART GURREA, PH.D.

July 31, 2024

DX200-001

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I. ASSIGNMENT

1. My name is Stuart Gurrea, and I am an economist. The United States Naval Academy ("USNA" or the "Academy") is an undergraduate institution under the control and supervision of the Department of the Navy that prepares students to become "leaders and mentors of Sailors and Marines who have volunteered to serve the nation in times of war and peace."[1] The USNA's admissions policies are governed by federal statute and military regulations.[2] Students for Fair Admissions ("Plaintiff" or "SFFA"), a voluntary membership organization, has sued the Academy, claiming that it discriminates against applicants to USNA based on race.[3] On July 15, 2024, Dr. Peter S. Arcidiacono and Mr. Richard D. Kahlenberg submitted expert reports in support of Plaintiff's allegations.[4]

2. The U.S. Department of Justice ("Counsel"), counsel for Defendants, asked me to respond to Dr. Arcidiacono's assessment of the impact of race and ethnicity on the Academy's admissions decisions and to Mr. Kahlenberg's use of Dr. Arcidiacono's purported "simulations" without the Academy's consideration of race and ethnicity. To this end, I address in this report six main questions: Does Dr. Arcidiacono provide reliable statistical evidence

   (1) That the Academy employs "racial preferences" in its decisions about admissions to USNA and the Naval Academy Preparatory School ("NAPS")?

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[1] USNA, "Admissions Guidance for Class of 2028," June 28, 2023, USNA-00000152 at -153. The Academy "prepares students to become leaders and officers in the Navy and the Marine Corps." (Declaration of Stephen Bruce Latta, December 1, 2023 ("Latta Declaration"), ¶¶ 7 and 11.)

[2] 10 USC §§ 8453–58. Declaration of Stephen Bruce Latta, December 1, 2023, ¶ 12.

[3] Verified Complaint, *Students for Fair Admissions v. The United States Naval Academy, The United States Department of Defense, Lloyd Austin, Carlos Del Toro, Bruce Latta, and Rear Admiral Fred Kacher,* October 5, 2023 ("Complaint"), ¶ 6.

[4] Dr. Peter S. Arcidiacono, July 15, 2024, "Expert Report of Peter S. Arcidiacono", *Students for Fair Admissions, Inc., v., The United States Naval Academy, et al.*, No. 23 Civ. 2699 (RDB) ("Arcidiacono Report"); Richard D. Kahlenberg, July 15, 2024, "Expert Report of Richard D. Kahlenberg", *Students for Fair Admissions v. United States Naval Academy*, no. 1:23-cv-02699, United States District Court for the District of Maryland, Northern Division ("Kahlenberg Report").

(2) Of the magnitude of the Academy's consideration of race and ethnicity in its admissions decisions to USNA and NAPS?

(3) That race and ethnicity are predominant factors in the Academy's admissions decisions?

(4) Regarding the impact of race and ethnicity in the stages of the Academy's admissions process?

(5) That considering race and ethnicity in the Academy's admissions process negatively impacts or displaces any group of applicants?

(6) Regarding the impact of socioeconomic status on the Academy's admissions decisions?

3. Counsel is compensating my employer, Secretariat, for my work in this matter (approximately 460 hours) at an hourly rate of $750. This rate applies to my work preparing this report and to any testimony Counsel asks me to provide at deposition or trial. Secretariat's compensation is independent of all opinions I render in this case and of the outcome of this matter.

II. QUALIFICATIONS

4. I am a Managing Director at Secretariat, a consultancy that provides, among other things, applied economic analysis. I have attached as Exhibit 1 to this report my curriculum vitae, which lists my academic background, publications, presentations and prior professional experience, including a list of cases in which I have offered expert testimony at deposition or trial.

5. I graduated from the University of Seville, Spain, with a bachelor's degree in economics, and from Northwestern University with a master's and doctorate degrees in economics. My training as an applied microeconomist focuses on the study of consumer and firm decisions, and the use of data to understand individual choices. My fields of specialization include industrial organization and the study of decision making and strategic behavior, and the evaluation of the impact of public policies on behavior and outcomes. My fields of specialization also include econometrics, which

consists of the application of mathematical and statistical models to the analysis of economic data. A significant part of my training as an economist consists of the development of mathematical models of decision making, the implementation of these models to analyze data, and the interpretation of the results of these analyses to understand outcomes and offer policy recommendations.

6. I joined Economists Incorporated ("EI") in September 2001. EI was acquired and renamed Secretariat Economists in July 2021, and Secretariat since July 2024. During my 23-year tenure, I have applied my experience and expertise in applied microeconomics to address a wide range of economic questions based on data analysis. I have conducted these economic analyses for businesses, individuals, non-profit organizations, governments, and industry associations.

7. In the course of my professional career, most of my work as an economist has involved the construction of datasets and their analysis. Upon the definition of a question at issue, I have identified relevant sources of information, defined methods for collecting and organizing information into datasets, and implemented steps to clean and process raw data for accuracy and consistency. I then analyzed these data to inform strategic and policy decision making, or to assist courts in legal disputes involving allegations of racial discrimination, policy design and impact evaluation, selection decisions, and consumer choices, among other. To this end, I have relied on accepted principles of statistics, econometrics, and microeconomics, and the use of a variety of quantitative methods, such as surveys, regression analysis, forecasting, and simulations.

8. In the context of litigation, I have conducted economic analyses in an advisory role for both plaintiffs and defendants, and I have testified about economic issues by declaration, at deposition, in arbitration proceedings, and in state and Federal courts. I have been qualified as an expert by multiple federal courts and no court has ever excluded my testimony. A list of cases in which I have testified as an expert either by deposition or trial in the last four years is attached as Exhibit 2.

III. SUMMARY OF OPINIONS

9. Dr. Arcidiacono's model of admissions decisions for the Academy is misspecified (*i.e.*, it makes incorrect assumptions) because it is inconsistent with critical aspects of the admissions process. Dr. Arcidiacono relies on an econometric model for causal inference that assumes admissions decisions for each individual applicant are independent of each other, as if made in isolation. The Academy's decisions, however, are interdependent at least because the Academy makes them on a rolling basis throughout the admissions cycle for a fixed class size, and because they are guided by class composition with the goal to have a class from a variety of backgrounds and congressional districts. Additionally, the fact that Dr. Arcidiacono implicitly assumes independence means that he modeled an admissions process that is inconsistent with Plaintiff's core claim that "[b]ecause race is a 'positive' for minority applicants who receive preferences, it is necessarily a 'negative' for all others."[5] This modeling error renders Dr. Arcidiacono's estimates unreliable and inconsistent with Plaintiff's theory of harm.

10. Dr. Arcidiacono's estimates of the magnitude of the impact of the Academy's consideration of race and ethnicity in its admissions decisions are biased, unreliable, and likely overstated. Dr. Arcidiacono cannot quantify what portion of his estimates of the importance of race arises from the consideration of race and ethnicity that Plaintiff challenges in this action versus what part arises from non-racial factors correlated with race and ethnicity that are unobservable in Dr. Arcidiacono's data (and are unquantifiable in general). These sources of omitted variable bias also renders his results unreliable and likely overstated.

11. Dr. Arcidiacono's conclusion that, because of omitted variable bias, his estimates of the magnitude of racial and ethnic preferences are understated is erroneous and unsupported. My review of the documentary evidence in this case indicates that the Academy positively values variety in backgrounds, life experience, and world views. Publicly available socioeconomic data and academic literature show that racial and ethnic minorities in the United States have substantially different (often

[5] *See* Complaint, ¶ 102.

disadvantaged) backgrounds compared to majority groups in terms of housing, education, healthcare, and financial resources, among other differences. These distinct experiences are likely to explain, at least in part, why minority groups have higher selection rates in admissions schemes that seek a variety of backgrounds of the admitted class. For this additional reason, differences in admission rates by race and ethnicity likely overstate any impact of the consideration of race in admissions that Plaintiff challenges in this action.

12. Dr. Arcidiacono arbitrarily blends race and ethnicity and assigns multiracial applicants to other categories. Dr. Arcidiacono's estimates of the impact of the Academy's consideration of race and ethnicity on admissions decisions are not robust to replacing Dr. Arcidiacono's arbitrary categorization of race and ethnicity with a categorization that does not blend race and ethnicity and treats multiracial applicants of different races uniformly. His conclusions about the size of the impact are at least in part an artifact of this *ad hoc* and arbitrary modeling choice.

13. Dr. Arcidiacono's assignment includes assessing to what extent race or ethnicity are predominant factors in different stages of the USNA's admissions process. The non-race and non-ethnicity factors in Dr. Arcidiacono's preferred model are sufficient to correctly classify applications (*i.e.*, match actual admission outcomes) as accepted or rejected nearly as well as Dr. Arcidiacono's full model. This indicates that race and ethnicity are not predominant factors but rather have a very limited role in explaining admissions decisions.

14. Dr. Arcidiacono draws from his econometric model conclusions about the impact of socioeconomic status on admissions decisions. The socioeconomic data he relies on are unreliable and insufficient to support his conclusions.

15. Dr. Arcidiacono's assessment of the influence of race and ethnicity at different stages of the admissions process is unreliable and uninformative. First, it is predicated on an incorrect understanding of the admissions process. Second, it conflates the Academy's decisions with third parties' decisions that are outside of the Academy's control. And third, the models he uses in these analyses suffer from the same

problems as his main admissions model: omitted variable bias, misspecification, and the use of flawed data.

16. Dr. Arcidiacono's estimates of the magnitude of the Academy's consideration of race and ethnicity on minorities are uninformative about the effect of this consideration on White applicants. A higher success rate among minority groups is consistent with the Academy's goal to select a class with variety in backgrounds. Maximizing variety across non-racial dimensions such as life experience or career goals requires a success rate among smaller groups (as minority groups are by definition) that is higher than for larger groups (as majority groups are by definition). Because nearly three quarters of applicants are White, the impact of the Academy's consideration of race and ethnicity on White applicants – even if it could be statistically measured despite omitted variable bias – is small.

17. Dr. Arcidiacono's predictions of class racial composition in a counterfactual world without the Academy's consideration of race and ethnicity are misleading, uninformative, and unreliable. First, any estimated differences in selection rates by race and ethnicity reflect the contribution of factors other than the consideration of race and ethnicity. Second, the contribution of those other factors is estimated when the Academy is considering race and ethnicity and would be different for all applicants in the absence of racial consideration, not just for minority candidates, as in Dr. Arcidiacono's implementation. And third, the pool of applicants belongs to the actual world, and there is no basis to assume it would not change. Therefore, Dr. Arcidiacono's predictions do not provide a reliable basis to simulate admissions and class composition when race is not considered. Since Mr. Kahlenberg relies on Dr. Arcidiacono's parameter estimates and simulations, the conclusions Mr. Kahlenberg derives from these analyses are unreliable as well.

18. Dr. Arcidiacono finds that the impact of race and ethnicity varies over time in response to, among other factors, increased focus on race. He does not provide any analysis to support his claim that these changes are driven by an increased focus on race. More generally, Dr. Arcidiacono's empirical findings do not support the claim that admissions decisions are designed to achieve racial balancing. Enrollment data

for classes of 2023-2027 do not show any evidence of racial balancing in admissions decisions. To the contrary, admissions and enrollment data show substantial fluctuations in the share of racial and ethnic groups within each class.

19. To form the opinions summarized above, I considered the documents, materials, and data I list in Exhibit 3. I reserve the right to supplement or revise my opinions and the analyses presented in this report based on additional information regarding Plaintiff's impact and liability theories, the Court's determinations, depositions and additional discovery materials, and further research.

IV. BACKGROUND: DR. ARCIDIACONO'S REPORT

20. The primary focus of Dr. Arcidiacono's report is to assess the role that race, and ethnicity play in Academy's admissions decisions to the USNA and NAPS.[6] According to Dr. Arcidiacono, "admit rates for white, Black, and Hispanic applicants are *similar* […]."[7] (Emphasis added.) Dr. Arcidiacono's inquiry is largely aimed at determining whether these similarities and other admission outcomes can be explained by factors other than the Academy's consideration of race and/or ethnicity, such as applicants' gender, high school academic performance, or physical aptitude.

21. To conduct this inquiry, Dr. Arcidiacono specifies a series of econometric models of admissions decisions where the outcome of interest is a binary outcome (*e.g.*, admission to USNA or rejection) and the explanatory factors may or may not be observable to anyone looking at the data. Dr. Arcidiacono estimates the contribution of the observable factors using data from the admissions cycles for the USNA's classes of 2023 through 2027.[8]

[6] Arcidiacono Report, p. 1.

[7] Arcidiacono Report, p. 2.

[8] Arcidiacono Report, pp. 1 and 21-22.

22. Dr. Arcidiacono acknowledges that "USNA's admissions process is different from those of typical universities in the United States."[9] In particular, the application process involves satisfying a series of requirements that are not dependent on the Academy's evaluation of applicants. Given the existence of these requirements, Dr. Arcidiacono focuses mainly on "applicants who have a complete/non-withdrawn applications *[sic]*, who receive a nomination, and who are medically and physically qualified."[10]

23. *A priori,* given the differences across races that Dr. Arcidiacono observes in certain applicant qualifications that are considered during the admission process, Dr. Arcidiacono predicts that, if these qualifications matter, then racial preferences must be large. In particular, he finds that White candidates are stronger in certain qualifications observable in the data than Black and Hispanic candidates, that if Black and Hispanic applicants have similar admission rates, this must be attributable to the Academy's consideration of race and ethnicity.[11]

24. Dr. Arcidiacono concludes from his econometric analyses that the Academy considers race and ethnicity, and that it favors Black applicants in particular.[12] Dr. Arcidiacono also concludes that the size of the consideration of race in the admission to the USNA is larger than any advantage the Academy awards to legacy or socioeconomically disadvantaged candidates.[13] Using the estimates from his model, Dr. Arcidiacono also predicts that without the Academy's consideration of race and ethnicity, and without any preference for candidates who have attended NAPS, almost half of the Black admits to USNA would not be admitted.[14] Without the consideration of race in the Academy's admissions decision to NAPS, Dr.

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[9] Arcidiacono Report, p. 2.

[10] Arcidiacono Report, p. 2.

[11] Arcidiacono Report, pp. 2 and 3.

[12] Arcidiacono Report, p. 3

[13] Arcidiacono Report, pp. 3 and 4.

[14] Arcidiacono Report, p. 4.

Arcidiacono predicts that the admission rate for Black applicants would drop by more than two thirds.[15]

25. Whereas Dr. Arcidiacono attempts to estimate the impact of race and ethnicity on admissions decisions, he acknowledges that these estimates are likely biased. That is, his estimates of the impact of race are not solely attributable to race but also to other unobservable variables correlated with race:

> To the extent that there are unobserved characteristics that are i) informative to the admissions decision and ii) are correlated with race/ethnicity, then the estimate of *the relationship between race/ethnicity and admissions will in part be due to this correlation*.[16] (Emphasis added.)

A priori, this issue is central to Dr. Arcidiacono's opinions because this problem implies that his estimates may *overstate* the magnitude of the Academy's consideration of race and ethnicity. Along these lines, Dr. Arcidiacono acknowledges that:

> [T]here is nonetheless the issue, which is faced by all discrimination studies using observational data, of whether accounting for unobserved characteristics *would lower the estimated magnitude of racial preferences*.[17] (Emphasis added.)

26. As a result, a necessary condition for Dr. Arcidiacono to reach reliably *any* of his main opinions is to determine accurately the direction and size of this bias. Without this assessment, Dr. Arcidiacono cannot reliably assess the extent of the Academy's consideration of race and/or ethnicity, measure its importance relative to other factors, or attempt to simulate counterfactual scenarios based on his estimates.

27. Dr. Arcidiacono attempts to infer the direction of the bias of his estimates by *assuming* that if an ethnic or racial group is relatively strong on observable characteristics, it is also relatively strong in unobservable characteristics:

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[15] Arcidiacono Report, p. 80.

[16] Arcidiacono Report, p. B2.

[17] Arcidiacono Report, p. 21.

> The assumption operating in the background is that if one group is stronger on the observed measures, it is reasonable to believe that the same group is also stronger on the unobserved measures.[18]

He also *assumes* that the contribution of unobserved characteristics impacting academic *performance* metrics for students at the Academy (for which he did not assess comprehensive data and admits the data he used is "not as rich") is informative about the contribution of unobserved characteristics to the *admissions* decisions.[19] Based on these *assumptions*, Dr. Arcidiacono concludes that his estimates of the impact of race and ethnicity on admissions decisions is understated.[20]

V. DATA SOURCES AND DATA SELECTION

28. To conduct my analyses, I had access to Dr. Arcidiacono's workpapers, which include the five admissions cycles – for the class of 2023 through the class of 2027 – he relied on and the computer code he applied to these data to implement his analyses.

29. In addition, using the raw data provided by USNA, I constructed a database containing a subset of the fields available for completed applications reviewed by USNA's Admissions Board from domestic civilians not already in a Naval preparatory program. Appendix 1 to this report details the sources and construction of my database.

30. My database's population of applications differs in a few ways from Dr. Arcidiacono's database. The most important difference is that we choose different conditions for identifying whether an application was sufficiently complete for the Academy's consideration. Based on my understanding that the Board reviews applications as they become complete, I have used the Board's review of an application as a sign the application is complete. Dr. Arcidiacono relied on the

[18] Arcidiacono Report, p. 22.

[19] Arcidiacono Report, pp. 23 and 88.

[20] Arcidiacono Report, p. 102.

Academy's record of its final decision on the application.[21] Also, I have excluded applicants from the Navy itself, which I explain in section VI.F below.

31. As a preliminary step, I apply a series of filters to the applications from the raw data. Exhibit 4 shows the successive removal of applications from the raw data for each class 2023–2027, and in aggregate for all five years. First, I remove from the population of applications with a valid candidate number those that were not evaluated by the Admissions Board. These are candidates who initiated the online application process, were assigned a candidate number, but did not complete the necessary steps to be evaluated by the Admissions Board. About two-thirds of the initial applications do not have a "Board result," *i.e.*, the Board's recommendation after reviewing the application.

32. Second, I remove from the pool of applicants with a Board decision those applications that are from foreign countries, from within the fleet, and from the Naval preparatory programs (the Naval Academy Preparatory School (NAPS), the Naval Academy Foundation schools), and civilian preparatory schools. These applicants are not similarly situated to the large majority of applicants, not only because they are different from the vast majority of applicants in terms of the defining group membership characteristic, but also because they are evaluated differently and, effectively, would require a separate model to explain admissions decisions for these candidates.[22] Foreign applicants, fleet applicants, and preparatory school applicants account for 1.0, 3.5, and 5.3 percent, respectively, of all valid applications with a Board result. After these three groups of applicants are removed

[21] *See* Arcidiacono Report, pp. 23–24 and Table C.1. Dr. Arcidiacono's workpapers, "Code/Cleaning/build_single_dataset.do" line 1144.

[22] "So there is a separate Admissions Board process for those coming from prep school. And so, the applications that get carried forward is not what – those applications are not what's getting reviewed by the Admissions Board. It's their performance at their prep school that is what's getting reviewed. […] When the prep – when the NAPS Admissions Board meets to evaluate the students at prep, they are reviewing their performance at NAPS; so their NAPS transcripts, the physical fitness test that they took there. So the lack of whole person would not have affected their evaluation at the NAPS Board." Also, when considering preparatory school candidates, the Board does not necessarily need to consider high school records. 30(b)(6) deposition of Stephanie Bressler, Marisa Biondi and Melody Hwang, May 28, 2024 ("USNA Fact Depo."), pp. 63-64 and 69.

(approximately 10 percent of applications with valid Board results), the remaining data contain 22,400 individual applications reviewed by the Board.[23]

VI. THE ACADEMY'S ADMISSIONS PROCESS

33. A reliable model of admissions decisions must be rooted in a realistic depiction of the admissions process to the Academy. As I discuss in subsequent sections, fundamental flaws in Dr. Arcidiacono's modeling are due to his failure to account for characteristics of the admissions process that are singular and defining to the Academy. Next, I describe this process and highlight some important characteristics of the process that Dr. Arcidiacono's modeling and assumptions fail to account for.

A. The USNA Admissions Process

34. The application process to USNA begins as early as January of the year before a candidate would enter USNA and "consists of six nonsequential steps: (1) submit a preliminary application; (2) submit college entrance examinations; (3) complete a medical examination; (4) complete a Candidate Fitness Assessment; (5) interview with a Blue and Gold Officer; and (6) apply for a nomination."[24] (Citations omitted.) As I explain below, a candidate is "fully qualified" if he or she is qualified by the Admissions Board (the "Board"), passed the medical examination, passed the Candidate Fitness Assessment (CFA), and received a nomination.[25] The Academy may appoint only those candidates who are both "fully qualified" and have had either a Blue and Gold Officer (BGO) interview or are recruited athletes in basketball or men's football.[26]

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[23] All my quantitative analyses examine applications not applicants, though I may slightly abuse terminology by referring to "applications" and "applicants" interchangeably as only 3.9 percent (878 of 22,400) of the applications are from candidates who have a previous application in my database.

[24] *See, e.g.*, Latta Declaration, ¶¶ 18 and 19. *See also* Blue and Gold Officers or BGOs are "volunteers comprised of USNA graduates, parents of midshipmen or graduates, and civilians." (Latta Declaration, ¶ 27.)

[25] USNA, "Nominations and Appointments Brief," December 2023, USNA-00001162, p. 3.

[26] The Naval Academy Information Program, "Blue and Gold Officer Handbook", June 29, 2023, USNA-00001384 at -1444; USNA-00001162, pp. 2-3; USNA-00023910 at -972

35. These are the candidates I call *eligible* for an offer of admission to the Academy except that I do not require eligible candidates to be Board qualified because the Board is part of the Academy. (As I discuss below, the other conditions of eligibility are out of the hands of the Academy.) The civilian candidates in Dr. Arcidiacono's "main sample" population are all eligible except for some applicants in his population who did not fulfill the BGO interview or basketball/football recruitment.[27]

36. The Dean of Admissions has the delegated authority for making admissions decisions and, to that end, oversees the Board. The Board comprises certain members of USNA faculty and staff and is responsible for evaluating applications for admissions to USNA and making recommendations.[28]

37. During the application process, once the initial necessary documents have been submitted, an initial computer-generated score – the "Whole Person Multiple" or "WPM" – is calculated for every candidate.[29] The Board further contributes to the calculation of the WPM as part of their review of application materials through "Recommendations from Admissions Board" or "RABs," which are additional points that can either be added or subtracted from the initial formulaic WPM to obtain a candidate's final WPM, which is used as a guiding tool "for assisting in determining the overall qualification of each candidate."[30] Scores are determined based on a broad range of objective and subjective factors, and final WPM scores generally range from 40,000 to 80,000, with scores above 70,000 considered desirable for early appointment and scores at approximately 58,000 and below considered not competitive.[31] Following a holistic evaluation of each candidate, a majority vote from the Board is required to deem a candidate "qualified" ("Board qualified") for

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[27] *See, e.g.*, Arcidiacono Report, p. 32.

[28] Latta Declaration, ¶¶ 14 and 15.

[29] Latta Declaration, ¶ 55.

[30] Latta Declaration, ¶ 50. Board members may seek adjustments to a candidate's WPM of up to plus or minus 9,000 points, or greater with the Dean of Admission's concurrence. Board-initiated adjustments require a majority vote from the Board. According to USNA, neither race nor ethnicity factor into adjustments to the WPM. (Latta Declaration, ¶ 55.)

[31] Latta Declaration, ¶¶ 51–53.

admission to USNA.[32] RABs may continue accumulating after this point, either automatically from the online application system or manually from admissions staff, as candidates complete parts of the admissions process not required for Board qualification, such as submission of college entrance examinations or the Candidate Fitness Assessment (CFA).[33]

38. If the Admissions Board determines that a candidate is not qualified, it may recommend that a candidate attend one of a few available preparatory programs ("prep school") for a year.[34] The candidate must "possess unusual or exceptional talents who would most benefit from an extra year of academic, physical and moral development."[35] These recommendations are based on a "particularly careful review by the USNA Admissions Board."[36]

39. A necessary condition for a candidate to be appointed to USNA is to be nominated.[37] A candidate may receive a statutory-nominating-authority nomination or a service-connected nomination (or "non-congressional nomination"). Statutory nominating authorities include members of Congress, the Vice President, delegates to Congress from U.S. territories and the District of Columbia, and the Governor and the Resident Commissioner of Puerto Rico.[38] Service-connected nominations include certain categories such as children of soldiers or sailors severely harmed in

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[32] Latta Declaration, ¶ 55. "[A] qualified candidate is defined as a candidate that the Admissions Board determines is eligible to compete for an appointment." ("Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146.)

[33] Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024. *See also*, USNA Fact Depo., p. 175:7–13: "Because, at that point [beginning of February], records that have gone to the Board that may not have been a QA [qualified alternate] whole person multiple at the time they went to the Board, they may have retaken their CFA, and so it might have automatically recalculated their whole person, and so now they […] qualify as a QA."

[34] USNA, "Board training," August 2023, p. 26, USNA-00000108.

[35] USNA, "Dean of Admissions Supplemental Guidance for Class of 2028," USNA-00000146 at USNA-00000151.

[36] USNA, "Dean of Admissions Supplemental Guidance for Class of 2028," USNA-00000146 at USNA-00000151.

[37] 10 USC § 8454(a) and Latta Declaration, ¶ 29. For a candidate to be eligible to compete for an appointment, the candidate also must obtain a Board qualification, meet the medical standards for commission, and pass a physical fitness test. (USNA, "Nominations and Appointments Brief," December 2023, USNA-00001162, p. 3.)

[38] Latta Declaration, ¶ 30.

combat or on active duty, children of Congressional Medal of Honor recipients, enlisted sailors nominated by the Secretary of the Navy, nominations from Reserve Officer Training Corp (ROTC) programs, and nominations from the Superintendent of the Academy.[39]

40. Statutory nominating authorities are allocated a limit of midshipmen that can be "charged" to their authority.[40] At the end of an academic year, when a statutory nominating authority has fewer students charged to them still attending the Academy than their limit, then the authority is said to have vacancies. For each vacancy, the nominating authority may submit up to ten nominations, together called a "congressional slate" or "slate," with full discretion over the identity of the nominees.[41] Nominators may oblige the Academy to appoint an eligible nominee in the slate according to a priority order – though the nominator's only contribution to a nominee's eligibility is the nomination itself. Statutory nominating authorities may rank zero, one, or more of the nominees within each slate. The top ranked nominee (or only ranked nominee if the others are unranked) is called the "principal", the second the "first numbered alternate," the third the "second numbered alternate," and so on. Any nominees in a slate that are not ranked are "competitive" (though technically USNA calls them "competitive alternates" if the slate has any ranked nominees).[42] The nominator is said to use the "competitive" method if the slate has no principal, the "principal numbered-alternate" method if the slate has a principal and ranked alternates, and the "principal competitive-alternate" method if the slate has a principal but no numbered alternates otherwise.[43] USNA then ranks all eligible competitive nominees (*i.e.*, all remaining nominator-unranked eligible nominees)

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[39] *See* 10 USC § 8454(a)–(d).

[40] Except for certain statutory nominating authorities who are not members of Congress, the nominating congressional authorities can each have up to five USNA members "charged" to them. 10 USC § 8454(a). *See also* USNA Fact Depo., 196:20-22: "[MS. HWANG]: […] so each congressional nominator can have up to five charges in the brigade, lesser amounts for the territories."

[41] Latta Declaration, ¶¶ 31 and 33.

[42] Latta Declaration, ¶¶ 34–36.

[43] Latta Declaration, ¶¶ 34–36. The application data I have examined includes slates that have both numbered and competitive alternates, though no specific terminology is associated with such a scenario.

based on their WPM score.[44] In some instances, if the highest WPM scores are very similar, the candidate with a lower WPM may be chosen based on factors other than the WPM score in a side-by-side review of the applications as a whole.[45]

41. Offers of appointment are made to fill available congressional vacancies following the appropriate prioritization: the nominator's ranking followed by WPM score. Indeed, the Academy is obligated to offer appointment to the highest ranked eligible principal or numbered alternate in a slate.[46] If the principal or highest ranked candidate on the list is not eligible or declines the offer, an offer is extended to the next highest ranked nominee.[47] If no nominator-ranked nominees are eligible or accept the offer, then the Academy may extend an offer to the competitive nominee with the highest WPM score – potentially subject to tie breaking when nominees have close WPM scores.[48] In the circumstances where a nominator provides nominations for more than one vacancy, USNA prioritizes filling the nominator's first vacancy, and then prioritizes filling vacancies for underrepresented congressional districts.[49]

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[44] Latta Declaration, ¶¶ 34–36 and 58.

[45] Since race or ethnicity are not determinative factors, the admission decision "cannot occur because of a candidate's race or ethnicity." (Latta Declaration, ¶ 58.)

[46] It is important to highlight that candidates often have multiple congressional nominations, and thus will simultaneously be in more than one slate. Hence, it is still possible that this ranking of candidates within a slate may be affected by whether some candidates have already been selected in another slate. It is easy to see through this very simple example how the independence assumption of admissions decisions (which is vital for the validity of Dr. Arcidiacono's causal inference) does not hold as not only the likelihood of selection at this stage in the admissions process depends not only on a candidate's standing within a given slate and any other slate they might be in, but on how many other slates the other candidates in that slate are in, how they are relatively ranked, and in which order may the slates be "cleared" (*i.e.*, slate winners selected). Dr. Arcidiacono's independence assumption becomes increasingly unlikely as one considers the totality of the admissions process.

[47] Latta Declaration, ¶ 35 (In the case of the principal numbered-alternate method, "USNA must offer an appointment to the fully qualified candidate who is identified as the principal on the [Congressional] Member's list (or the highest ranked alternate that is deemed fully qualified if the principal is unqualified or declines an offer of appointment), even if that candidate has a lower WPM than other candidates from the Member's district.")

[48] Closer scrutiny across candidates is anticipated if candidates' WPMs are within 4,000 points of each other (*see* USNA-00006557 at USNA-00006558 5.b: "[…] you are permitted to conduct a closer scrutiny of candidates on the same Congressional slate whose WPM is within 4,000 points to ensure that the most qualified candidate is selected.")

[49] *See, e.g.*, USNA-00002642.

42. After congressional vacancies are filled, the eligible candidates who were included in congressional slates but not selected as a slate winner are "qualified alternates."[50] The 150 qualified alternates who accept appointments and have the highest WPMs among qualified alternates may receive an appointment also designated and charged as a *qualified-alternate appointment*.[51] Notice that a *qualified alternate* and a *qualified-alternate appointee* are distinct concepts: qualified-alternate appointees are midshipmen who were qualified alternates when they were candidates and whom the Academy charged as a qualified-alternate appointment.

43. Service-connected vacancies may receive an unlimited number of nominations but the number of vacancies are limited as follows: children of deceased or disabled veterans or members of the armed forces in a missing status, 65 charges; presidential nominations of certain members of the armed forces, 100 charges; nominations by the secretary of the Navy of regular and reserve enlisted members of the Navy Marine Corps, 85 charges each, and honor students from certain schools, 20 charges.[52] To select candidates from among the nominees, USNA follows the same competitive process as it does for candidates with congressional nominations.[53] The number of charges for Presidential nominations for children of medal of honor recipients is unlimited.[54]

44. The Academy has an annual capacity of 4,400 midshipmen, which, because of attrition, works out to about 1,180 open seats for first-years and 1,385 appointment

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[50] 10 USC § 8454(a).

[51] Latta Declaration, ¶ 62, and 10 USC § 8454(b)(5). The decision of which midshipmen to charge as qualified alternates because they were qualified alternates with WPMs in the top 150 among qualified alternates occurs after Induction Day. (Melody Hwang, USNA Admissions, telephone call with Secretariat on May 13, 2024.) Induction Day is the day on which midshipmen matriculate to the Academy. That is, the ranking of WPMs for those midshipmen occurs among only those who matriculate. *See also* USNA Fact Depo., p. 112:11–15: "Charging does not happen until after induction day, because the students have to show up, take the oath, and actually be inducted into the brigade in order for me to charge them."

[52] Latta Declaration, ¶ 62; USNA, "Nominations and Appointments Brief," December 2023, USNA-00001162, p. 10; 10 USC. Ch. 853, § 8454(a)–(b), https://uscode.house.gov/view.xhtml?path=/prelim@title10/subtitleC/part3/chapter853&edition=prelim.

[53] Latta Declaration, ¶ 59.

[54] 10 USC § 8454(c).

offers per year.[55] If open seats remain after all appointments otherwise authorized by law are made, additional appointment offers charged as "additional appointees" may be extended to remaining eligible nominees.[56]

45. Without explanation, Dr. Arcidiacono describes winning congressional slates or receiving a qualified-alternate appointment as "more competitive."[57] None of the charging categories – slate winners, qualified-alternate appointments, and additional appointments – are inherently "more competitive." Non-congressional slates include those from ROTC programs. It is unclear why distinguishing oneself in a ROTC program is less "competitive" than gaining the favor of a politician for a nomination. Because at least three-fourths of those charged as additional appointees must come from the pool of qualified alternates (who definitionally have a congressional or other political nomination),[58] achieving an additional appointment without a congressional nomination would be more rather than less difficult. Competitiveness for qualified-alternate appointments arises only from WPM – conditional on candidates having a congressional nomination and being otherwise eligible, which, as I discuss throughout this report, is not everything the Academy is looking for. Both congressional and non-congressional slates vary in the relative strengths of their nominees in all the dimensions the Academy is looking for. Dr. Arcidiacono's claim that "Congressional slates are supposed to be decided primarily based on WPM"[59] demonstrates yet another misunderstanding of the admissions' process, as the Academy is obligated to give preference to qualified principals and numbered alternates. Most importantly, qualified alternate and additional appointment statuses are only ever determined *ex-post* the admissions decision: the

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[55] Latta Declaration, ¶ 11, and 10 USC § 8454(a). The Academy is required to fill most seats with only one percent variation in brigade strength year to year as long as it remains below 4,400. (10 USC § 8454(a) and (g): "For purposes of the limitation in subsection (a) establishing the aggregate authorized strength of the Brigade of Midshipmen [at 4,400], the Secretary of the Navy may for any year permit a variance in that limitation by not more than one percent.")

[56] As with the Academy's decision of which midshipmen to charge as qualified alternates, the additional-appointment charging decisions occur after Induction Day. *See* footnote 51.

[57] Arcidiacono Report, p. 34.

[58] Latta Declaration ¶ 62b and 10 USC §§ 8454(a) and 8456(b).

[59] Arcidiacono Report, fn. 52 on p. 37.

Academy identifies the candidates it wants and then finds a way to charge them.[60] This is a major source of the flexibility in the process that Dr. Arcidiacono admits in his description of the admissions process,[61] but later disregards when designing his regression analysis by treating the process as stratified, and incorrectly assuming that the Academy is *de facto* deciding where to charge candidates while offers are being made.

46. In addition to nominations, other necessary conditions for full qualification include the medical examination, CFA, and BGO interview (except for certain recruited athletes).[62] The CFA "evaluate[s] coordination, strength, speed, agility, and endurance" according to "thresholds" the Academy sets.[63] BGOs may be military or civilian, and they assess candidates on their understanding of the Academy and Navy as well as their motivation for applying and "physical fitness, responsibility, organizational skills, leadership potential, and oral communication skills."[64]

47. Both the nomination (with one exception) and the medical examination determination are made by third parties. The only nominations that the Academy can directly issue are the few made by the Academy's superintendent, which he uses sparingly, mostly for certain highly recruited athletes in major Division I sports.[65] Medical examinations are performed by the Department of Defense Medical Examination Review Board (DOD MERB).[66]

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[60] *See, e.g.*, USNA Fact Depo., 97:15-22: "MS. HWANG: One example would be the […] candidate also has a very strong record and we wanted to make an offer to that candidate, and so because we can use that [other] candidate as a qualified alternate, then we can bring in two candidates from Maryland 1, both who have very good records and without overfilling Maryland 1's vacancies." *See also* footnotes 51 and 56.

[61] Dr. Arcidiacono Report, pp. 16–18.

[62] Latta Declaration ¶¶ 24-27. In the 22,400 applications I have examined from the data provided to me through discovery, only 468 applications did not include a college entrance exam score. Until candidates applied in 2020 for class year 2025, college entrance examinations such as the Scholastic Assessment Test (SAT) or American College Test (ACT) had been required; I understand that because of Covid-19 related restrictions on testing availability, the Academy made such tests optional when candidates have limited access to testing.

[63] Latta Declaration, ¶¶ 26 and 49.

[64] Latta Declaration, ¶ 27.

[65] Latta Declaration, ¶¶ 47–48.

[66] Latta Declaration, ¶ 25.

B. USNA Is a Military Institution with Goals beyond Academics

48. The Academy is a military institution whose mandate emphasizes not just academics but also leadership, patriotism, athletics, and fighting readiness. Dr. Arcidiacono's report in general and empirical analysis specifically, in contrast, erroneously focus on the academic performance of both candidates[67] and midshipmen.[68]

49. The stated goal of the Academy's admissions process is to admit applicants with the potential for "serving as leaders and mentors of Sailors and Marines who have volunteered to serve the nation in times of war and peace."[69] To meet the needs of the Navy and the Marine Corps, the Academy believes it is necessary to consider candidates who are representative of American society.[70] For example, the Academy believes that "[t]he composition of the Class of 2028 should be a cross section of America with the greatest possible variety of backgrounds."[71]

50. To achieve its goal, USNA conducts a selection process that evaluates candidates individually based on a wide range of information that extends beyond strictly academic qualifications. For example, the Academy searches for candidates who have "high interest in serving their country," "high potential for leadership," and "excellent moral character."[72] To this end, the Academy must pay "particular attention to issues related to human dignity and worth."[73] Also, unlike most academic institutions, USNA sets minimum physical fitness requirements for admission and candidates need to be medically qualified.[74] As part of this

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[67] *See, e.g.*, Arcidiacono Report, §§ 3.3.4 (discussion of applicant characteristics) and 4.2 (econometric model specifications).

[68] *See, e.g.*, Arcidiacono Report, § 5 (analysis of *ex-post* performance).

[69] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, p. 1, USNA-00000153.

[70] "Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146 at -148.

[71] "Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146 at -148.

[72] "Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146.

[73] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, p. 3, USNA-00000155.

[74] The USNA application process includes the completion of the Candidate Fitness Assessment (*see, e.g.*, Latta Declaration, ¶ 18.) There are no exceptions for failures on the CFA and a candidate who failed the CFA cannot be admitted in either USNA or a preparatory program. (USNA Fact Depo., p. 191.)

comprehensive or holistic evaluation, the Academy's policies indicate that it may consider in certain situations race and ethnicity together with other nondeterminative factors to provide context for a candidate's application file.[75]

51. The Academy's task is complex as it goes beyond the mere selection of the most academically capable applicants. Academic ability alone is already multifaceted and hard to observe though there are some standardized metrics available in candidates' application files that have been shown to be good predictors of academic success.[76] Certain attributes such as moral character are harder to evaluate as there is no standardized test or metric to quantify them. As a result, the Academy's evaluation of individual applications reflects the consideration of readily observable variables and other less apparent attributes that require judgment.

C. The Whole Person Multiple (WPM) Score Measures More Than Academics but Not Everything USNA Seeks

52. The WPM attempts to condense many of an applicant's attributes into a score, "that is designed to assist in predicting first year success at the Naval Academy as well as comparing candidates when being considered for offers of appointment from official nominating sources."[77] It ranged from about 38,000 to 95,000 (higher scores are better) for all candidates I examined. The WPM is calculated as the sum of a normalized "Raw Multiple" and Recommendations of the Admissions Board ("RABs") of up to 9,000 points.[78] The Academy explains that "[n]either race nor

[75] Latta Declaration, ¶ 70.

[76] High school GPA has been shown reliably to predict completion of college in four years. (Allensworth, Elaine M. Allensworth and Kallie Clark, "High School GPAs and ACT Scores as Predictors of College Completion: Examining Assumptions About Consistency Across High Schools," *Educational Researcher*, vol. 49(3), 2000, pp. 198-211.) WPM uses a standardized high school class rank when available rather than high school GPA directly.

[77] *See* Dean of Admissions Supplemental Guidance for the Class of 2028, USNA-00000146 at USNA-00000147.

[78] *See* USNA-00000505. The Dean of Admissions may approve RABs above 9,000. (USNA-00000147.) *See also* USNA Fact Depo., 145:9 – 146:4.

ethnicity are factors considered in calculating the WPM" and "[r]ace, ethnicity or gender should not be the basis for points in favor of an applicant."[79]

53. The Raw Multiple is generated by an algorithm that automatically applies a set of calculation rules to six inputs. The algorithm does not involve any case-by-case judgment. The first and second inputs to the algorithm are the student's highest official standardized testing verbal and math scores.[80] The third input is the student's rank in class score which is calculated based on a student's high school rank and class size (or GPA if not ranked).[81] The fourth input is a numeric score calculated based on school official recommendations forms ("Recommendation of School Official" or "RSO").[82] The RSO scoring charts are numeric and not based on USNA's subjective evaluations of any narrative.[83] The fifth and sixth inputs are numeric scores of athletic and non-athletic extracurricular activities calculated based on responses to an extracurricular activities ("ECA") form.[84] Individual activities are listed and pre-assigned points.

54. The Academy's "holistic evaluation" of a candidate is not limited to the numeric score provided by the WPM or even its constituents but extends to the individualized consideration of every aspect of a candidate's entire file. While the WPM serves as a guide, it cannot capture all the information contained in a

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[79] Latta Declaration, ¶ 53 and Superintendent's Guidance USNA-00000740. The calculation of the WPM does not include awarding points based on race or ethnicity. More specifically, guidance on the calculation of RABs does not include race as a factor. (See USNA "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070.)

[80] USNA, "Overview of Admissions Whole Person Multiple," March 26, 2010, USNA-00000506. "USNA currently has a 'test flexible' policy." (Latta Declaration, ¶ 24.) Also, see "Admissions Whole Person Multiple (WPM) Study of Potential Impact of No Test Scores Due to COVID-19," USNA-00000505. No SAT's, however, "[m]ay require more detailed review of school transcript, Recommendations of School officials, school profile, curriculum, and other testing info." (USNA-00000748 at -50.) "College Entrance Examinations are not weighted in the Whole Person Multiple (WPM), but are still used as an assessment tool." (USNA "USNA College Entrance Examination Analysis January 2023," p. 2, USNA-00001362.)

[81] USNA, "Overview of Admissions Whole Person Multiple," March 26, 2010, USNA-00000506.

[82] USNA, "Overview of Admissions Whole Person Multiple," March 26, 2010, USNA-00000506.

[83] USNA, "Overview of Admissions Whole Person Multiple," March 26, 2010, USNA-00000506 and USNA-00000512-15.

[84] USNA, "Overview of Admissions Whole Person Multiple," March 26, 2010, USNA-00000506 and USNA-00000516-24.

candidate's application. Moreover, whereas the WPM determines the relative importance of each factor according to a predetermined numeric scale, a holistic evaluation does not. For example, a candidate may have overcome extraordinary physical adversity and may be considered, as I explain in the next section, for a manual adjustment of +2,000 WPM points for hardship. For very different reasons, first generation Americans whose first primary language is not English may be awarded the same +2,000 for hardship.[85] A candidate's holistic evaluation, on the other hand, may account for these forms of hardship differently.

D. Not All RABs Are Subjective

55. The second component of the WPM, which adjusts the Raw Multiple upwards or downwards, are Recommendations of the Admissions Board ("RABs"). Dr. Arcidiacono describes RABs as "more subjective."[86] This is not true for all RABs – over half of all RAB positive and negative points in 2023–2027 were generated algorithmically when triggered by application inputs,[87] and the Academy's written policies limit the subjectivity of the remaining points. While those policies allow that Admissions Board members "must use their good judgement when evaluating candidate records,"[88] the guidelines exhort Board members to "strive for consistent application of RABs throughout the whole class."[89] (Emphasis omitted.) The policy document goes on to explain in detail specific, objective considerations for many of the most heavily used reason categories.[90]

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[85] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-0000070 at –73.

[86] Arcidiacono Report, p. 14.

[87] *See*, *e.g.*, USNA Fact Depo., 137:22-138:2;140:6-13: "MS. BRESSLER: […] The automatic RABs happen as the application is being submitted and different parts of the application come in. […] MR. MCCARTHY: So those auto RABs that are considered automatic, that happen right away, what is the process or actually inputting the RAB so that it changes the score for that applicant? MS. BIONDI: We have a code written that is triggered by the input -- the data from the student."

[88] *See* "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070.

[89] *See* "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070.

[90] *See* "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -76.

56. The Academy's Board training documentation groups RABs into twelve categories based on the reason for their being granted,[91] recorded in a "Reason" field along with the points the RAB adds to or deducts from an application's WPM.[92] Some of these adjustments are implemented automatically in the online application platform and others manually by either the Board or admissions staff. The USNA also records whether each RAB was automatic, came from the Admissions Board, or was manual from the admissions staff.[93] Table 1 below shows the twelve categories as well as two additional categories, which I label "College" and "Other" to capture residual values of the "Reason" field in the raw data. Automatic RABs account for approximately half of all net RAB points in my database. Admissions staff have made small manual RABs in all categories except for the rarely used Teacher Recommendations category, but fewer than 10 percent of all RABs points, either positive or negative (*i.e.,* after taking absolute values), come from such manual adjustments (*see* Exhibit 6).

[91] "RAB Quick Reference Guide", USNA-00000078 at -78-80.

[92] *See*, *e.g.*, USNA Fact Depo., 143:13-17, "MR. MCCARTHY: For manual RABs, I believe it's the case that the reason for the RAB is recorded just in the same manner that it is for an automatic RAB, correct? MS. HWANG: Yes."

[93] "USNA-00000499 Data Dictionary - Salesforce Class of 2025-present", USNA-00000499, tab "RAB Adjustments.": "Identifies the source of the RAB. RABs can be assigned by the Admissions Board, auto generated based on certain criteria in the applicant[']s application, or manually assigned by Admissions." *See also*, *e.g.*, USNA Fact Depo., 142:11-20: "MR. MCCARTHY: Now, for RABs that are not automatic, how are those input into the candidate's file […]? MS. HWANG: Typical – when the record goes to the Admissions Board, there is a recorder, essentially, taking down all the results. That recorder is typically one of our examiners in our office. The examiner will input all the manual RABs."

Table 1. Net RAB Points 2023–2027, by Reason and Source Categories

Reason Category	Auto	Board	Manual	Total
BGO Interview	1,714,500	-19,400	2,000	**1,697,100**
CFA	3,251,000		8,500	**3,259,500**
Character Issues		59,500	-37,500	**22,000**
College*		403,850	3,430,800	**3,834,650**
ECAs/Year-Round Sports		2,534,600	83,600	**2,618,200**
High School Courses		5,731,100	302,500	**6,033,600**
High School Quality	16,263,500	350,000	32,250	**16,645,750**
Legacy	653,000	1,534,100	96,500	**2,283,600**
Life Experience/Hardship	500	8,204,700	471,500	**8,676,700**
Other*		330,920	21,670	**352,590**
Personal Statement		-144,000	-1,000	**-145,000**
Summer Seminar	2,086,000	28,000	111,000	**2,225,000**
Super STEM		868,600	43,500	**912,100**
Teacher Recommendations		5,000		**5,000**
Total	**23,968,500**	**19,886,970**	**4,565,320**	**48,420,790**

RAB points assigned to completed, Board-reviewed applications from domestic civilians not already in a Naval preparatory program. In some reason categories such as "CFA" whose sum of absolute values of points is 13,982,500, negative points cancel out positive points to diminish the apparent importance of the category. See Exhibit 6.

* Additional categories not found in USNA's RABs policy documentation based on the "Reason" field of the RABs table in my database.[94]

Source: Exhibit 5 and Appendix 1.

57. The positive-only adjustment for *High School Quality* has an automatic and a manual component. The automatic component, which is the largest single source of all RABs points, both positive and negative, is based on the percentage of students from a high school that attend a four-year college.[95] An additional 1,000 points may be awarded manually for attendance at a competitive entry or magnet school. Academy policy is that "a Competitive Entry School is normally a public school in which admitted students must 'compete' through an objective process (normally a test) for admission. A specialized program within a school… are not considered Magnet Schools."[96]

[94] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070.

[95] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070.

[96] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070.

58. *High School Courses* and *Super STEM* are adjustments that reward decisions to enroll in certain academically challenging programs or courses.[97] The review is based on quantitative assessments, such as the number of AP/Honors courses, but also on subjective evaluations such as determining whether a student's workload is "particularly challenging" and "relevant to the curriculum taught at USNA."[98] The High School Courses RABs account for 26.46 percent of Board-initiated RAB points, both positive and negative. Guidance regarding a Super STEM designation identifies a non-exhaustive list of factors to be considered such as involvement in a math club.

59. *Teacher Recommendations* RABs are adjustments based on an assessment of the reliability of a teacher's recommendations.[99] This assessment requires judgement to identify a discrepancy between a numeric score and the supporting narrative in the teacher's recommendation. This RAB category is rarely used per Exhibit 6.

60. *Life Experience/Hardship* rewards applicants who have overcome significant adversity or hardship (*e.g.*, low family income), or have had unusual life experiences (*e.g.*, living or studying abroad).[100] Within a range, the size of the adjustment depends on judgment about the severity of the hardship and its expected impact on the candidate's potential.[101] Other forms of hardship or life experience that do not require judgment also qualify for adjustments, such as having attended three high schools, being first generation American, being first to attend college in their family, or speaking English as a second language. Life Experience/Hardship RABs account for the largest source (37.88 percent) of Board-initiated RAB points, both positive and negative.

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[97] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at USNA-00000071.

[98] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at USNA-00000071.

[99] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at USNA-00000072.

[100] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at USNA-00000072–73.

[101] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at USNA-00000073.

61. *Legacy* is a numeric adjustment for candidates who grew up in a military family.[102] The Academy awards points if any of the candidate's parents or siblings went to the Academy.[103]

62. *Candidate Fitness Assessment* (CFA) RAB awards or subtracts points for certain high or low performances on the CFA.[104] Automatic CFA RABs are the second largest source of all RABs points both positive and negative.

63. *ECAs/Year-Round Sports* are adjustments that involve judgment to identify activities beyond those accounted for in the raw multiple. Documented extracurricular achievements not accounted for in the raw multiple or candidates involved in time-consuming year-round sports may be awarded additional points.[105] ECAs/Year-Round Sports RABs account for 11.70 percent of Board-initiated RAB points, both positive and negative.

64. *Summer Seminar* rewards or penalizes participants in the Naval Academy's Summer Seminar ("NASS"). Participants are rated from one to five, and top-rated (four and five rating) candidates are awarded automatically positive RAB-point adjustments.[106] Not all adjustments are automatic; a three rating may result in a manual adjustment based on an assessment of the evaluator's comments. Similarly, candidates with low ratings (one and two) may be penalized with negative adjustments if there is sufficient supporting information.[107]

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[102] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at USNA-00000073.

[103] *See*, *e.g.*, USNA Fact Depo., 139:13-140:2, "MR. MCCARTHY: And now, Ms. Bressler, you said that Legacy is an auto RAB. Does the amount of that RAB depend on the nature of the Legacy as between parents and children? MS. BRESSLER: No. They get one Legacy auto RAB. It's the same value whether it's a parent or sibling. MR. MCCARTHY: And is it the same value whether it's one parent or two parents? MS. BRESSLER: It's the same value, one value."

[104] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -73–74.

[105] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -74.

[106] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -74.

[107] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -74.

65. *BGO Interview* RAB provides for point awards and penalties based on a subjective evaluation of interview performance as documented in interviewer comments.[108]

66. *Character Issues* may result from investigations by a Character Review Committee in response to adverse character issues.[109] These may result in recommendations of whether to qualify, and in adjustments to the WPM. In some instances, a positive adjustment may be recommended if a candidate "demonstrates unusually strong moral character." All these determinations are based on information documented in an applicant's file.

67. The *Personal Statement* RAB provides for penalties or rewards based on a subjective assessment of an applicant's personal statement.[110]

68. The residual *College* RAB category captures such entries in the "Reason" field of the raw data as "College: GPA", "College: Reapplicant", "College: Course Load", and "College: Major." These four RABs account for 95 percent of College RABs points, both positive and negative). College RAB points are mostly manual, and conversely, 79.33 percent of manual RABs points, both positive and negative, come from College RABs. (See Exhibit 7.) The Academy applies College RABs if and only if an applicant has some college experience.[111]

69. Finally, the residual *Other* category covers just the "Reason" field value "Other". Eighty-nine percent of these RABs were 500 points granted by the Board. (See Exhibit 8.)

E. NAPS Admission Goals and Standards

70. Modeling USNA's admissions to NAPS is predicated on understanding the goals of the admissions process and the factors that inform the admissions decisions. Dr. Arcidiacono's representation of the purpose of USNA's one-year preparatory

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[108] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -75.

[109] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -75.

[110] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -75–76.

[111] Interview with Melody Hwang, USNA Admissions, on May 13, 2024.

programs in general, and that of NAPS in particular, is inaccurate. This inaccuracy leads Dr. Arcidiacono not only to make wrong inferences regarding the Academy's selection process to NAPS, but also to mischaracterize the admission's process of candidates who have undergone the one-year program and are applying to the Academy.

1. Applicants selected into NAPS

71. NAPS was created to prepare midshipmen for success at USNA by fostering desirable qualities sought at the Academy.[112] As a preparatory program, it is meant to be remedial, aimed at addressing specific gaps that may exist in a particular candidate's qualifications.

72. There is no separate application for prep-school programs, and all candidates applying to the Academy could potentially be identified by the Board as someone who could benefit from a one-year program before being apt to join the Academy.[113] The Board looks for candidates in whom it sees "[h]igh [l]eadership [p]otential," that historically have had a "[g]ood academic history, but [have been] away from academics for a year or more (Fleet candidates)," candidates who have had "[g]ood grades, but [are] missing some courses (no Chem or Physics)," candidates about whom the Board might have "[c]oncerns [regarding] Math [p]rogression," and candidates who the Board believes need "Academic, Physical Fitness Growth."[114]

73. Low WPM does not mean a candidate is not qualified for NAPS. Even if we were to set aside the idea that one could somehow collapse the entire set of desirable characteristics that the Academy is looking for into a single index and have that be a perfect measure of what the Academy is looking for in admissions, that would be an index developed to serve the goals of admissions into USNA. The selection criteria

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[112] *See* USNA-00015965 at USNA-00015971: "Mission: 'To enhance Midshipman Candidates' moral, mental, and physical foundations to prepare them for success at the United States Naval Academy.'"

[113] *See* USNA-00015983 at USNA-00015984. *See also* USNA-00016053.

[114] *See* USNA-00015983 at USNA-00015985.

for NAPS are different since the goal is to identify potential and a gap that can be addressed through their one-year programs.

2. USNA Applications originating from NAPS

74. Once the candidates who have been admitted at NAPS finish their one-year program, it is expected that they will reapply to the Academy. The application and selection process for applicants who apply from NAPS, however, is not the same as that of applicants who have never applied or who have never undergone a preparatory program. These applicants' selection into the Academy is mostly based on their performance in these preparatory programs.[115]

75. Whereas Dr. Arcidiacono acknowledges that the selection and admission process for candidates from NAPS follows a distinct path, he implies that the Academy somehow is not screening as closely for "quality" when evaluating these candidates, mentioning several times in his report that WPM is not taken under consideration in the Academy's decision for these candidates,[116] or that WPM is even missing for several of these applications.[117] The non-consideration of WPM for NAPS applicants does not imply a lack of diligence from the Academy with respect to these candidates' aptitude to perform as midshipmen and their expected careers at the Navy, because the Academy has had a whole year to observe these candidates' performance.

76. Dr. Arcidiacono is incorrect to imply in his report that high acceptance rates from NAPS into the Academy imply that, once applicants are selected by the Board to their one-year program, they are *de-facto* receiving an automatic admission into the

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[115] *See* USNA-00015965 at USNA-00015978. *See also*, USNA Fact Depo., 63:16-64:13 "MS. HWANG: […] So there is a separate Admissions Board process for those coming from prep school. And so, the applications that get carried forward is not what – those applications are not what's getting reviewed by the Admissions Board. It's their performance at their prep school that is what's getting reviewed. So even though their applications exists for that prep year, essentially, it's all the same information from the previous year because it was just copy and paste, basically. So there's no new information in there. When the prep – when the NAPS Admissions Board meets to evaluate the students at prep, they are reviewing their performance at NAPS; so their NAPS transcripts, the physical fitness test that they took there. So the lack of whole person would not have affected their evaluation at the NAPS Board."

[116] *See, e.g.*, Arcidiacono Report, p. 18.

[117] *See, e.g.*, Arcidiacono Report, pp. 17 and 18.

Academy.[118] The relatively high success rate of applicants from NAPS applicants into the Academy is consistent with the one-year program doing exactly what is designed to do: prepare applicants from NAPS for joining the Academy. These midshipmen have received an offer to the program because the Board had already identified high leadership potential in them,[119] they have already made a commitment to the military since civilians had to enlist in the Naval Reserves,[120] they have received physical military training, and completed coursework very similar to the freshman year coursework at the Academy itself:

> Given the mission of NAPS is to prepare midshipmen candidates morally, mentally and physically for admission to the U.S. Naval Academy (USNA), the goal of the NAPS, Admissions Board is to assess the qualifications of each candidate and to provide recommendations to the Superintendent of the Naval Academy as to which candidates should be offered appointments to the USNA.[121]

77. But just like there are several desirable characteristics to the Academy that are difficult to be quantified in any other candidate applying to USNA, the same is true for candidates applying from NAPS. What makes NAPS applicants unique is the opportunity that the Academy has to gather information about these applicants over the course of a year as opposed to relying solely on a standard application file. An example of this is USNA's desire to recruit motivated individuals, where the students' behaviors throughout the academic year can be used as indicia by the Board to assess their motivation and desire to succeed.[122] In Dr. Arcidiacono's models, however, there is no quantifiable variable to measure motivation.[123]

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[118] Arcidiacono Report, pp. 55 and 56.

[119] *See* USNA-00015965 at USNA-00015971.

[120] *See* USNA-00015965 at USNA-00015971.

[121] *See* USNA-00016027.

[122] *See, e.g.*, NAVAL ACADEMY PREPARATORY SCHOOL (NAPS) ADMISSIONS GUIDANCE FOR ACADEMIC YEAR 2024 (USNA-00016027): "Motivation is often the most difficult attribute to assess. However, consistent effort in seeking assistance in courses/preparation for college entrance exams (for designated midshipmen candidates), efforts to complete projects/homework, and recommendations of NAPS officials can provide indicators of motivation for due consideration by the NAPS Admissions Board."

[123] For an in-depth discussion on the impacts of omitted variable bias on Dr. Arcidiacono's causal inference, *see* section VIII.A.

F. The Academy Assesses Fleet Applicants Differently from Civilians

78. A particular group of applicants who should also not be included in the bulk of Dr. Arcidiacono's regression analysis when evaluating USNA admission's decision-making process are those who already have military experience. For simplicity I will refer to applicants from both of "Fleet" and "Nuclear Power School" applicant types as simply *fleet* in this section and remainder of the report, as most procedures and principles apply to both of these groups.

79. Distinct outreach programs are targeted to fleet members,[124] to apply fleet members have to receive an endorsement (i.e., *permission*) from their commanding officer, and fleet members' recommendations must come from the military, not from their high school.[125] Once their applications have been received, they are evaluated differently, and often those applicants are selected to receive a NAPS offer, as the Academy recognizes that in the process of serving their country, these midshipmen may have been away from academics for a year or more and could benefit from additional support from a preparatory program.[126] In fact, since they are military, they are also distinct in this regard – while civilian applicants may receive an offer to NAPS and then enlist in the Naval Reserves, fleet applicants in fact receive orders to NAPS as the next place they will be stationed and serving their country.[127]

G. Race and Ethnicity in the Application Process

80. The Academy describes the overall admissions process as rigorous, holistic, and meritocratic.[128] As part of the preliminary application, applicants must indicate "whether the student is a member of a minority group or comes from a disadvantaged background (an applicant can only answer 'yes' or 'no' to both

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[124] While each region of the country has a distinct outreach staff, Fleet and NAPS has a distinct coordinator that focuses on their specifics needs (*See* USNA-00000696 at USNA-00000723 and USNA-00000730).

[125] Call with Melody Hwang, March 11, 2024.

[126] *See* USNA-00015965 at USNA-00015967.

[127] *See* USNA-00015965 at USNA-00015972.

[128] Latta Declaration, ¶¶ 12 and 76.

questions)."[129] The Academy explains that "at no point during the admissions process should race, ethnicity, or gender be the basis for 'points' in favor of or against an applicant; such factors may only be considered as one of many nondeterminative factors in the applicant's file."[130]

81. The Academy allows for limited consideration of race and ethnicity in each of three stages of the admissions process. First, race and ethnicity may play a nondeterminative role in extending Superintendent nominations. However, according to Stephen Bruce Latta, the Academy's Dean of Admissions since 2006,[131] "neither race nor ethnicity has played a factor in Superintendent nominations since at least 2009."[132] Rather, Superintendent nominations are used most often for highly qualified applicants who are so-called "blue-chip athletes,"[133] the Academy's varsity sports coaches' top recruits.[134]

82. Second, the Academy may identify exceptional candidates and decide to extend a "Letter of Assurance" ("LOA"). Qualified candidates may be offered an LOA before completing their application and be "assured that they will receive an offer of appointment to the USNA once they successfully complete the remaining application requirements […]."[135] LOAs help the Academy compete for top students by assuring them that the extra effort to complete the Academy's onerous application is worthwhile.[136] LOAs create a status of *conditional* acceptance – applicants who receive LOAs must still fulfill all the same necessary conditions of

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[129] Latta Declaration, ¶ 23.

[130] Latta Declaration, ¶ 78.

[131] Latta Declaration, ¶¶ 1 and 3.

[132] Latta Declaration, ¶ 76.

[133] Latta Declaration, ¶ 76.

[134] USNA Fact Depo., pp. 74:2–77:19.

[135] Latta Declaration, ¶¶ 63 and 64.

[136] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, p. 3, USNA-00000152 at -155 ("These [promising] candidates may be considered for an early action in the form of a Letter of Assurance (LOA) in order for the Naval Academy to stay competitive in attracting the most highly-qualified candidates."). *See also* Latta Declaration, ¶ 65 (noting that LOAs are an "incentive… for qualified candidates to complete the rigorous and time-consuming application").

the application process as every other applicant.[137] While LOAs are typically extended to candidates with WPMs above 70,000, the decision is based on a holistic review of candidate files, which includes the consideration of non-determinative factors such as race and ethnicity.[138]

83. And third, the Academy may consider race and ethnicity when making certain appointment decisions. First, congressional slate appointments following a competitive process may account for race if the two candidates with the highest WPMs have scores that are close (usually within 4,000 points). In these instances, race and ethnicity may be considered as a non-determinative factor along with other factors.[139] A possible (but not necessary) outcome of a tiebreaking decision is the appointment of a minority candidate with the second highest WPM.[140]

84. Aside from congressional slate appointments, race and ethnicity may be considered in the selection of additional appointees. Unlike qualified alternates, additional appointees "are not required to be selected by WPM."[141] These appointees are selected following a "holistic assessment" as part of which race and ethnicity may be considered.[142]

H. Race and Ethnicity May Be Considered as Part of Holistic Decisions

85. The potential consideration of race and ethnicity in the discrete portions of the admissions process described above arises in the context of holistic evaluations of candidate files. The Academy describes its use of race and ethnicity in the three situations described above as a nondeterminative factor to "contextualize" a

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[137] Latta Declaration, ¶ 64.

[138] Since race or ethnicity are not determinative factors, deciding to extend a LOA to a candidate cannot occur "*because of* their race." (Latta Declaration, ¶ 68.) Factors accounted for in the holistic evaluation include background that would contribute to the Naval Academy brigade of midshipmen. (USNA Fact Depo., pp. 119:4--120:5.)

[139] Latta Declaration, ¶ 78 and Superintendent's Guidance USNA-00000696 at -740.

[140] Latta Declaration, ¶ 77.

[141] Latta Declaration, ¶ 62.

[142] Latta Declaration, ¶ 62.

"candidate's experience and speak to traits that would support admission to USNA as part of a holistic, individual assessment of that candidate."[143]

86. The consideration of many factors to inform the Academy's admissions decisions, including race and ethnicity, is consistent with an admissions process aimed at identifying "talented and qualified individuals of diverse backgrounds."[144] For example, to achieve its goals, the Academy's admissions guidance for the Class of 2028 states that "[t]he composition of the Class of 2028 should be a cross section of America with the greatest possible variety of backgrounds […]."[145] To this end, the Academy identifies a broad range of factors that may be considered as part of a holistic evaluation of a candidate's file, including overcoming adversity (*e.g.*, applicants from low-income families), demonstrated leadership abilities, academic attributes (*e.g.*, unique STEM accomplishments), or domicile in an underrepresented congressional district.[146]

87. The outcome of a holistic evaluation is determined not only by information in a candidate's file that is *observable* to the Admissions Board but also by individual Admissions Board members' judgment. In fact, the Academy encourages Admissions Board members "to draw from their own experiences […]."[147]

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[143] Latta Declaration, ¶ 73. E.g., candidate 360155 describes being biracial as a challenge but also as a source of moral strength. ("HIGHLY CONFIDENTIAL 2023 - General Information Part 1b.csv.")

[144] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, USNA-00000152 at -153.

[145] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, USNA-00000152 at -153.

[146] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, USNA-00000152 at 153-154.

[147] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, USNA-00000152 at 154.

VII. DR. ARCIDIACONO'S MODEL RESTS ON ERRONEOUS ASSUMPTIONS

88. To attempt to measure the role of race in the selection of applicants for admission to the Academy, Dr. Arcidiacono uses a logit model.[148] Dr. Arcidiacono, however, does not assess whether the requirements of his logit model are met when used to analyze the Academy's admissions decisions. The necessary conditions for his logit model to yield reliable estimates are not satisfied here because the Academy's admissions decisions are not independent, but rather are informed by the applicant pool and the constrained class size.

89. Dr. Arcidiacono's justification for using a logit model is that "[a] standard way of estimating a model with a binary outcome is to use a logit model."[149]

90. The authoritative source on logit models that Dr. Arcidiacono cites is by Professor Kenneth Train. Professor Train explains that a logit model of choices over time assumes each choice is independent from other choices:

> The assumption of independence also enters when a logit model is applied to sequences of choices over time. *The logit model assumes that each choice is independent of the others.* In many cases, one would expect that unobserved factors that affect the choice in one period would persist, at least somewhat, into the next period, inducing dependence among the choices over time.[150] (Emphasis added.)

As a result, Professor Train warns about the use of the logit model in cases where the unobserved factors are correlated over time:

> If unobserved factors are independent over time in repeated choice situations, then logit can capture the dynamics of repeated choice, including state dependence. However, *logit cannot handle situations where unobserved factors are correlated over time.*[151] (Emphasis added.)

As to the reasonableness of assuming independent unobserved factors when choices are made over time, Dr. Train explains that:

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[148] Arcidiacono Report, p. 21.

[149] Arcidiacono Report, p. 21.

[150] Kenneth E. Train, Discrete Choice Methods with Simulation, The Cambridge University Press, 2009, p. 18.

[151] Kenneth E. Train, Discrete Choice Methods with Simulation, The Cambridge University Press, 2009, p. 42.

> Of course, *the assumption of independent errors over time is severe*. Usually, one would expect there to be some factors that are not observed by the researcher that affect each of the decision makers' choices. In particular, if there are dynamics in the observed factors, then the researcher might expect there to be dynamics in the unobserved factors as well.[152] (Emphasis added.)

91. Dr. Arcidiacono describes the process of admission to the Academy as involving interdependent admissions decisions over time. According to Dr. Arcidiacono, "if the applicants to USNA are of higher quality in a particular year, the admissions threshold will be higher in that year."[153] That is, a candidate's probability of selection depends on the strength of other candidates because at the Academy there is a fixed class size. (USNA makes "approximately 1,385" offers per year.)[154]

92. Nevertheless, Dr. Arcidiacono models admissions as if admissions decisions are independent of each other, and estimates the contribution of race and ethnicity to admissions decisions by implementing an estimation procedure that assumes independent observations (here admissions decisions.)[155] If admissions decisions are not independent, then his estimates are predicated on incorrect assumptions and are unreliable.

93. There are at least two distinct reasons why the Academy's decisions do not conform to a model that assumes independent choices over time. The first reason is a procedural one: Admissions decisions to USNA and NAPS are made on a rolling basis during an admissions cycle, from September through the end of March.[156] (See

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[152] Kenneth E. Train, Discrete Choice Methods with Simulation, The Cambridge University Press, 2009, p. 52. "In many cases, one would expect that unobserved factors that affect the choice in one period would persist, at least somewhat, into the next period, inducing dependence among the choices over time." (Kenneth E. Train, Discrete Choice Methods with Simulation, The Cambridge University Press, 2009, p. 18.)

[153] Arcidiacono Report, p. B2.

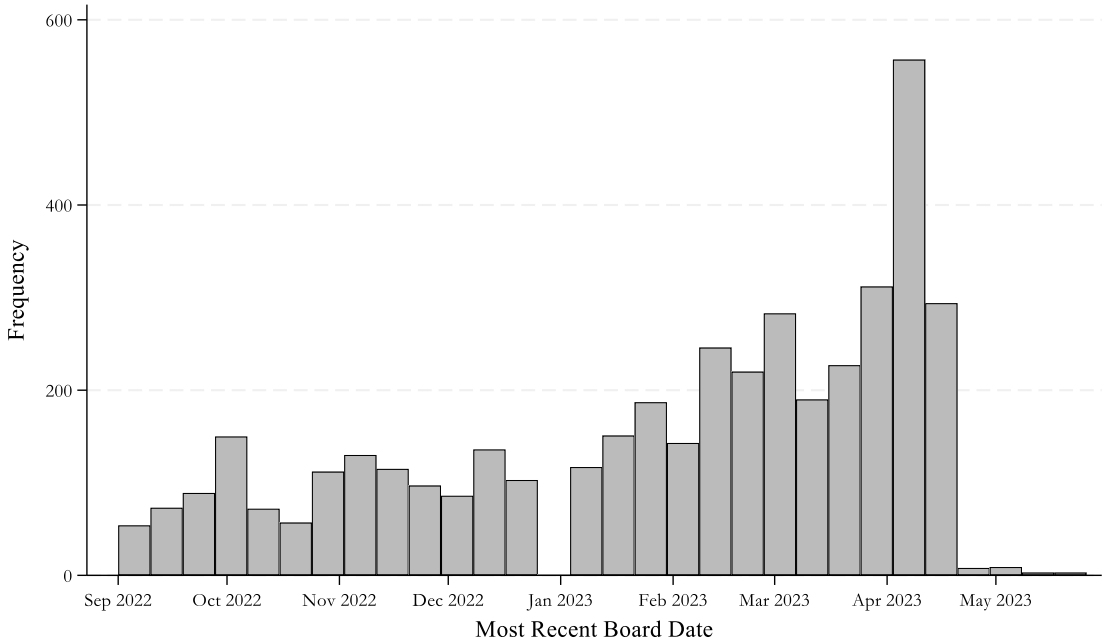
[154] Latta Declaration, ¶ 11.

[155] Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, Cambridge: MIT Press, 2002, pp. 460.

[156] USNA, "USNA Academy Admissions," Executive Summary, August 2023, USNA-00000144; USNA "Nominations and Appointments Brief December 2023," p. 28. During an admissions cycle, the Admissions Board meets on Thursdays to review applications. Based on that review, the admissions staff send out conditional offers as soon as Friday and unconditional offers as soon as the following Monday. Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024. *See also*, USNA Fact Depo., p. 168:19–

Figure 1 below.) Because class size is fixed, the likelihood of being admitted is dependent on prior admissions decisions. For example, if a class has been filled, subsequent decisions will be impacted by the unavailability of appointments for additional applicants.

Figure 1. Number of Applications the Admissions Board Reviewed over the Admissions Cycle for the Class of 2027



Population is completed, board-reviewed applications from domestic, civilian applicants not in a Naval preparatory program.

Source: See Appendix 1.

94. Second, the Academy's goals imply admissions decisions that are not independent over time. The Academy's admissions goals are defined in terms of class composition and variety. For example, for the Academy's admissions decisions to the USNA and NAPS, belonging to an under-represented district is a positive

169:18: "[Mr. McCarthy]: What would determine which slate they get charged against? [Ms. Hwang]: […] we would just review the slates in the order they come in. But when we are then going back to look at the slates, sometimes we have multiple slates, like, side-by-side to compare where each candidate would fit best. And so if a candidate does show up on more than one slate, sometimes we do have those slates open at the same time…. [Mr. McCarthy]: […] And does the timing of the submission of the slates make a difference, too? [Ms. Hwang]: Yes." *See also*, USNA Fact Depo., p. 175:7–13: "Because, at that point [beginning of February], records that have gone to the Board that may not have been a QA [qualified alternate] whole person multiple at the time they went to the Board, they may have retaken their CFA, and so it might have automatically recalculated their whole person, and so now they […] qualify as a QA."

attribute and it is an unobserved factor in Dr. Arcidiacono's model.[157] This status, however, depends on the selection decision for prior candidates. Therefore, a prior candidate's district is a selection factor that will persist over time. Effectively, the probability of selection of a candidate from one district depends on prior admissions decisions of other candidates, *i.e.*, they are not independent.

95. More generally, the Academy defines goals for the admissions process in terms of the composition of the class as a whole rather than only individual applicant requirements. For example, USNA states in its Class of 2028 guidance that:

> The composition of the Class of 2028 should be a cross section of America with the *greatest possible variety of backgrounds*. This provides an educational experience enhanced by interaction amongst students with different perspectives and life experiences, and in turn raises the level of academic and social discourse, sharpens critical thinking and analytical skills, and prepares students to lead in diverse environments. Among the host of factors, the Board shall therefore consider acceptance of candidates from across the nation who bring varied experiences […].[158]

96. Professor Train specifically identifies the situations where variety is a goal as scenarios in which decisions are dependent over time. When variety is a goal, the utility of a choice is smaller if the same choice was made in a prior period.[159] Here, variety in backgrounds is not defined on an individual basis but relative to other candidates. As a result, the likelihood of selection of an applicant will depend on the prior selection of candidates with similar backgrounds. For these reasons, Dr. Arcidiacono's use of a logit model with independent decisions in an attempt to model USNA's interdependent admissions decisions is inconsistent with widely-understood economic principles – including the literature upon which he relies – and leads to unreliable results.

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[157] USNA, "USNA Application and Admissions Board," Admissions Board Training, August 2023, pp. 22 and 28; "Our objective is to admit candidates from every Congressional district across the U.S. who are most likely to complete the U.S. Naval Academy (USNA) program and serve as career officers in the U.S. Navy and Marine Corps." USNA, "U.S. Naval Academy Admissions, Executive Summary," August 2023, p. 1, USNA-00000139.

[158] USNA "Dean of Admissions Supplemental Guidance for the Class of 2028," p. 3, USNA-00000148.

[159] Kenneth E. Train, Discrete Choice Methods with Simulation, The Cambridge University Press, 2009, p. 52.

VIII. DR. ARCIDIACONO'S ESTIMATES OF THE MAGNITUDE OF THE CONSIDERATION OF RACE ARE LIKELY BIASED

97. According to Dr. Arcidiacono, his estimates of the magnitude of the Academy's consideration of race on admissions decisions are likely biased because his econometric models of admissions do not account for all the relevant information accounted for by the Academy.[160] As a result of these omissions, he acknowledges that his estimates of the magnitude of the impact of race on admissions to the Academy and NAPS are not only attributable to the Academy's consideration of race, but also to other factors not accounted for in his model.

98. Dr. Arcidiacono also predicts that, because of this acknowledged bias, his estimate of the magnitude of the impact of race is understated.[161] This conclusion is unsupported and speculative. In fact, the unique and broad goals of the Academy's admissions process suggest that Dr. Arcidiacono ignores factors that, if accounted for, likely would reduce his estimate of the impact of the Academy's consideration of race.

A. Dr. Arcidiacono Acknowledges That His Estimates of the Magnitude of the Academy's Consideration of Race on Admissions Decisions Is Likely Biased

99. Dr. Arcidiacono acknowledges that some factors that affect admissions decisions are difficult to quantify or are not in the data, and that an issue faced by all discrimination studies using observational data is whether accounting for unobserved characteristics "would lower the estimated magnitude of racial preferences."[162] That is, the concern is that the estimated magnitude of racial preferences is attributable to unobserved characteristics, and that additional controls would shrink or eliminate the estimated magnitude of the Academy's consideration of race and ethnicity.

100. Many of a candidate's attributes that the Academy ultimately cares about in its admissions decisions are reflected in a candidate's personal statement,

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[160] Arcidiacono Report, p. 101.

[161] Arcidiacono Report, p. 101.

[162] Arcidiacono Report, p. 21.

recommendation letters, and interview evaluations but are not amenable to a statistical analysis because they cannot reliably be translated into quantifiable variables.[163] As Dr. Arcidiacono acknowledges, the failure to account for information relevant to the selection decision may bias the estimated effect of the variables of interest included in the model ("omitted variable bias").[164] Specifically, an omitted relevant variable may have a distinct distribution across races (or ethnic groups) such that the omitted variable is correlated with race (or ethnicity, or group membership more generally). In this case, the estimated contribution of race to the admissions decision may be overstated or understated because part of the measured effect is attributable to the unobservable or omitted variable.[165] In effect, the estimated coefficient on race may actually be capturing both the contribution of race, if any, and of the omitted variable.

101. This bias resulting from not accounting for relevant factors ("omitted variable bias") is not only a result of our inability to observe in the data all the information that determined the observed admission outcomes. Omitted variable bias here can also be explained by Dr. Arcidiacono's errors in the specification of his model, in particular, the omission of observable variables such as USNA's prioritization of

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[163] "The starting point for choosing a regression specification is thinking through the possible sources of omitted variable bias. It is important to rely on your expert knowledge of the empirical problem and to focus on obtaining an unbiased estimate or the causal effect of interest." (James H Stock and Mark W. Watson, Introduction to Econometrics, 2nd Edition, Adison Wesley, 2006, p. 47).

[164] "Now suppose that, rather than including an irrelevant variable, we omit a variable that actually belongs in the true (or population) model. This is often called the problem of excluding a relevant variable or underspecifying the model." (Jeffrey M. Wooldridge, Introductory Econometrics, A Modern Approach, Fifth Edition, 2013, South-Western, Cengage Learning, p. 88.) "Omitted Variable Bias: The bias that arises in the OLS [ordinary least squares] estimators when a relevant variable is omitted from the regression." (Jeffrey M. Wooldridge, Introductory Econometrics, A Modern Approach, Fifth Edition, 2013, South-Western, Cengage Learning, p. 853.) For the implications on logit models, see Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, Cambridge: MIT Press, 2002, pp. 470-2, and Carina Mood, "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It," *European Sociological Review*, vol. 26 (1), 2010, pp. 67-82. In the context of Harvard admissions, "[t]he concern with this methodology is that race can proxy for differences in unobserved factors not fully captured by applicant characteristics and Harvard ratings." (Peter Arcidiacono, Josh Kinsler, and Tyler Ransom, "Asian American Discrimination in Harvard Admissions," *European Economic Review,* vol. 144, 2022, p. 2.)

[165] "Failure to include a major explanatory variable that is correlated with the variable of interest in a regression model may cause an included variable to be credited with an effect that actually is caused by the excluded variable. In general, omitted variables that are correlated with the dependent variable reduce the probative value of the regression analysis." (Citations omitted.) Allen, M., Hall, R., and Lazear, V., National Research Council, Reference Manual on Scientific Evidence: Third Edition, 2011, Washington, DC: The National Academies Press, pp. 313-316.

underrepresented districts or certain RABs Dr. Arcidiacono failed to account for in his model.[166]

102. College admissions is not uniquely prone to omitted variable bias. For example, the same concern arises in the context of the identification of racial bias in the lending industry as reported in one study of the problem: "if minorities tend to have higher loan-to-value ratios than whites, and this variable is not included in the estimation of the probability of being denied a loan, then the effect of higher loan-to-value ratios will be incorrectly ascribed to race; the coefficient on race in this estimation will be overstated."[167] That is, if a variable positively correlated with race has a positive effect on the outcome (probability of denial of a loan in that case), the omission of this variable will result in an overstated coefficient on race.[168]

103. In this case, Dr. Arcidiacono acknowledges that it is likely that there are omitted variables that bias his estimate of the effect of race on the Academy's admissions decisions. I agree with this conclusion. Dr. Arcidiacono also opines that his estimates are likely understated as a result of this bias.[169] As discussed below, Dr. Arcidiacono fails to support this speculative conclusion, and there are reasons to believe this acknowledged bias actually points in the opposite direction.

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[166] "The starting point for choosing a regression specification is thinking through the possible sources of omitted variable bias. It is important to rely on your expert knowledge of the empirical problem and to focus on obtaining an unbiased estimate or the causal effect of interest." (James H Stock and Mark W. Watson, Introduction to Econometrics, 2nd Edition, Adison Wesley, 2006, p. 47). "Now suppose that, rather than including an irrelevant variable, we omit a variable that actually belongs in the true (or population) model. This is often called the problem of excluding a relevant variable or underspecifying the model." (Jeffrey M. Wooldridge, Introductory Econometrics, A Modern Approach, Fifth Edition, 2013, South-Western, Cengage Learning, p. 88.)

[167] Geofrey M. B. Tootell, *New England Economic Review,* September/October 1993, p. 45.

[168] Conversely, if the omitted variable has a positive effect on the dependent variable, but the group of interest has lower values of this variable, the omission of the variable will result in an understated coefficient on race. For example, a study of preference for athletes in college admissions found that the omission of an academic performance variable (GPAs), which were lower for athletes, could bias downward the estimated preference for athletes. (Thomas J. Espenshade, Chang Y. Chung, and Joan L. Walling, "Admission preferences for minority students, athletes, and legacies at elite universities," *Social Science Quarterly*, vol. 85(5), 2004, p. 1433.)

[169] Arcidiacono Report, p. 102.

B. Dr. Arcidiacono's Predicted Direction of the Bias Is Speculative and Unreliable

104. Dr. Arcidiacono concludes that his coefficient estimates of the magnitude of the alleged racial preferences are likely understated because the "selection on observables likely runs in the same direction as selection on unobservables." This conclusion is speculative and unreliable.

105. Dr. Arcidiacono assumes that candidates who are stronger on observable characteristics are also stronger on unobserved characteristics affecting admission, and that the alleged racial preferences are therefore stronger than he estimates.[170] To support this opinion, Dr. Arcidiacono cites to highly cited econometric papers. These studies, however, do not support Dr. Arcidiacono's conclusion.

106. Dr. Arcidiacono cites a seminal article published by Professors Altonji, Elder, and Taber. In their concluding remarks, the authors caution against the misuse (as Dr. Arcidiacono does here) of their results:

> In closing, we caution against the potential for misuse of the idea of using observables to draw inferences about selection bias. The assumptions required for condition 1 and condition 4 imply that it is dangerous to infer too much about selection on the unobservables from selection on the observables if the observables are small in number and explanatory power, or *if they are unlikely to be representative of the full range of factors that determine an outcome*.[171] (Citations omitted and emphasis added.)

107. Despite this warning, Dr. Arcidiacono infers strength on unobservables from purported strength on observables without first assessing whether the necessary conditions for the validity of this inference are met.[172] In separate analyses of Harvard admissions, Dr. Arcidiacono claimed the reasonableness of this assumption because "Harvard recruits African Americans and Hispanics more aggressively than whites and Asian Americans" and that African American and Hispanic candidates

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[170] Arcidiacono Report, p. 102.

[171] Joseph Altonji, Todd Elder, and Christopher Taber, "Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools," *Journal of Political Economy,* vol. 132(7), 2005, p. 182.

[172] The article by Brian Krauth that Dr. Arcidiacono cites proposes to bound estimates also by making certain assumptions. (Brian Krauth "Bounding a Linear Causal Effect Using Relative Correlation Restrictions, *Journal of Econometric Methods,* vol. 5(1), 2016, pp. 117-141.)

are likely to be weaker candidates overall, in both observable and unobservable attributes.[173] Dr. Arcidiacono did not attempt to justify his assumption in this case by appealing to similar reasoning. Moreover, such a purported justification is unreasonable here given the objectives of the Academy to seek variety in backgrounds and life experiences in addition to academic qualifications. As a result, Dr. Arcidiacono's conclusions regarding the relative strength of unobserved factors across races are speculative and unreliable.

108. Contrary to Dr. Arcidiacono's implicit assumption, the observables in Dr. Arcidiacono's analysis are "unlikely to be representative of the full range of factors that determine an outcome."[174] One set of omitted variables are those that are available to Dr. Arcidiacono but he intentionally omitted from his admissions analyses. First, Dr. Arcidiacono failed to consider the impact of a candidate belonging to an underrepresented district, which is an observable relevant factor for admission.[175] Second, Dr. Arcidiacono excluded most RABs from his preferred econometric model of USNA admissions.[176] These excluded RABs are *not* within the range of factors included in his analyses. For example, Dr. Arcidiacono excluded the RABs for hardship and life experiences, which is not included in the list of variables he controlled for in his models. The table below lists factors Dr. Arcidiacono included in his preferred admissions models and the RABs he deliberately excluded.[177]

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[173] Peter Arcidiacono and Josh Kinsler, "What the Students for Fair Admissions Cases Reveal about Racial Preferences," *Journal of Policial Economy Microeconomics,* vol. 1(4), 2023 pp. 651–652.

[174] Joseph Altonji, Todd Elder and Christopher Taber and, "Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools," *Journal of Political Economy,* vol. 132(7), 2005, p. 182.

[175] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, p. 2, USNA-00000154.

[176] Arcidiacono Report, p. 64, in reference to Table 4.1 containing regression output for his USNA-admissions models: "I use the estimates of column (6) as my preferred model for three reasons."

[177] Arcidiacono Report, p. 64.

Table 2. Observable Variables in Dr. Arcidiacono's Preferred Model 6 of USNA Admissions[178]

Variables Included	RABs Excluded
Race, female, class-year indicators; Household and community demographics (first generation college, HH income < $80k, percent of HS going to a 4-year college, percent of HS free and reduced price lunch, private high school, IRS salary of zip code); Raw WPM components, CFA; (Class year > 2025) × each of SAT math, SAT verbal, class rank, athletic and nonathletic extracurricular; nomination type indicators and characteristics of the slates where the applicant received a nomination; legacy variables; indicator for any HS-courses RABs; BGO interview score	RABs for summer seminar, super STEM, teacher recommendations, life experience/hardship, extra-curriculars and year-round sports, character issues, and personal statement

Table 3. Observable Variables in Dr. Arcidiacono's Preferred Model of NAPS Admissions[179]

Variables Included	RABs Excluded
Race, female, class-year indicators, has nomination, Navy nomination, valor nomination, Nuclear Power School, household and community demographics (first generation college, HH Income < $80k, percent of HS going to a 4-year college, percent of HS free and reduced price lunch, private high school, IRS salary of zip code, missing indicators for each of the last five variables); WPM components (no RABs), SAT math squared, CFA; legacy variables; indicator for any HS-courses RABs; BGO interview score; interactions of race with class-year 2025	RABs for summer seminar, super STEM, teacher recommendations, life experience/hardship, extra-curricular and year-round sports, character issues, and personal statement

109. Dr. Arcidiacono justifies the exclusion of these RABs because of concerns about RAB points "being influenced by preferences for any group."[180] While the RABs Dr. Arcidiacono omitted may involve manual entry and judgment, he has not demonstrated that all (or, in fact, any) of the RABs he omitted are biased by a "racial preference." I return to this point in section XI.B below, which critiques Dr. Arcidiacono's regression analysis of RABs. Moreover, his assumption that the quantification of these RABs is biased does not imply that these attributes are

[178] Arcidiacono Report, p. 62.

[179] Arcidiacono Report, p. 76.

[180] Arcidiacono Report, p. 64.

irrelevant to the admissions decisions. In fact, their definition and computation are indicative of their relevance and that their omission may likely bias the estimates of Dr. Arcidiacono's admission models' coefficients. As a result, Dr. Arcidiacono's conclusions regarding the relative strength of unobserved factors across races cannot be drawn from observed relative differences across races.

110. Even if Dr. Arcidiacono had included every RAB, this does not imply that the included variables fully capture the range of relevant information. The numeric scores assigned to the inputs to the WPM are derived from richer information contained in individual applicant files that are relevant to the Academy's admissions goals, including variety of backgrounds and life experiences, that is not observable in RABs scores and, more generally, is not within the range of information contained in the variables included in Dr. Arcidiacono's models.

111. For example, an Admissions Board member may recommend a RAB based on hardship a candidate experienced. If the Admissions Board approves a RAB of +1,000 points, it is possible to use this adjustment to account for hardship to help explain an admissions decision. Holistic admissions decisions, however, are informed not only by the numeric score of the RAB but by the context provided in the candidate's application file as to the nature of said hardship, which is hard to quantify. A single number captures both the struggles of a first-generation immigrant and those of the impoverished from disinvested communities. Also, every factor considered from within a candidate's file may not be evident, and Admissions Board members may not value the same aspects of an application. As noted above, the factors the Academy lists for Admissions Board members to consider in the context of a holistic evaluation of a candidate's file is non-exhaustive.[181]

112. There are many sources of information available at the time a candidate's file is reviewed, including open-text fields included in each candidate's personal statement, teacher recommendations, and BGO interviewer notes. Applicants' personal

[181] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, USNA-00000152, at -154.

statements may highlight such attributes as moral integrity, hardship, or interest in pursuing a military career that are not as clearly translated into codifiable variables. The essays also may reveal the author's writing skill. And as much as reviewers may try to assess moral integrity and writing skill independently from each other via the essay, well-written essays may succeed at convincing reviewers more than poorly written ones. No variable in the application files quantitatively isolates these dimensions of the personal essay.

113. Within a particular category, such as challenging life experiences, the nature of an individual's experience can vary widely, and this variation also can be difficult to quantify or rank. For example, for candidate 341444 a challenging life experience was starting to practice gymnastics in his or her teens; 310783 speaks about the challenges of growing up in foster care; candidate 360084 describes the challenges of facing racism; candidate 360155 describes being biracial as a challenge but also as a source of moral strength; candidate 330368 describes overcoming Tourette's Syndrome; for candidate 321100, in turn, "the hardest experience" in the candidate's life "was being rejected for a nomination to the academy."[182] Exhibit 13 tabulates sources of adversity, as indicated by an illustrative set of search terms I used, that candidates reported in their applications. Each of these varied life experiences are significant but cannot be measurable in any meaningful way, as much of the relevant information would be lost, and it is not possible to determine how a reviewer would weigh each one.[183] In particular, RABs by themselves do not shed light into the underlying hardship endured by a candidate. For example, candidate 310347 was awarded "Life Experience/Hardship" RABs for being first generation American and the first generation to attend college in her family. This candidate's personal

[182] "HIGHLY CONFIDENTIAL 2023 - General Information Part 1b.csv."

[183] In their publication, Jean M. Bartunek & Myeong-Gu Seo, "Qualitative research can add new meanings to quantitative research," *Journal of Organizational Behavior,* vol. 23(2), 2002, p. 240, the authors comment on how despite the tendency of researchers to design studies and surveys that attempt to "fit" people's answers into variables that are compatible with quantitative research – either numeric or categorical – may be a disservice in terms of ultimately understanding the richness of the factors that may be contributing to the issue in question: "We are not suggesting that qualitative research is, by definition, better than quantitative research. But, we are suggesting that qualitative research is very helpful, and sometimes necessary, for exploring local meanings of phenomena and the interactions that create these meanings. Such exploration offers the possibility of stimulating the development of new understandings about the variety and depth with which organizational members experience important organizational phenomena."

statement reveals further that this candidate suffered hardship by being raised by a single mother in poverty and living in a domestic abuse shelter.

114. A candidate's file includes several recommendations including from English and Math teachers (and possibly commanding officers for fleet applicants). Each recommendation not only provides a basis for ranking (*e.g.*, top 10 percent, above average, *etc.*) a variety of skills such as persistence in problem solving, but also has a comments section where a substantive narrative is added.

115. The BGO interviewer also submits notes. This section includes a categorical assessment in the form of a ranking (*e.g.*, "top 25 percent" and "above average") for attributes such as communication skills, organization skills, leadership potential, interest and motivation, but also includes extensive comments on each qualification.

116. An appointment decision may also be in part explained by relevant information outside of an individual candidate's file. For example, information such as the number of students in the Academy from a congressional district among students in the Academy may inform admissions decisions but is not contained in a candidate's file.[184]

117. Whereas Dr. Arcidiacono does not assess whether the conditions for his assumptions are met, he attempts to justify his conclusion by testing the effect of the sequential addition of observable variables to his model on the race coefficient to predict the effect of the omitted variables:

> Each time I add a set of controls – moving a factor that was treated as unobserved to now being observed – the coefficients on each of the race coefficients increase. One would therefore expect that adding more controls would, if anything, even further increase these coefficients.[185]

This heuristic is circular, because Dr. Arcidiacono attempts to implement an empirical approach to support an assumption that, in turn, is necessary to implement

[184] *See, e.g.*, USNA Fact Depo., 97:15-22: "MS. HWANG: One example would be the […] candidate also has a very strong record and we wanted to make an offer to that candidate, and so because we can use that [other] candidate as a qualified alternate, then we can bring in two candidates from Maryland 1, both who have very good records and without overfilling Maryland 1's vacancies."

[185] Arcidiacono Report, p. 103.

this approach. The second most cited article Dr. Arcidiacono cites to support his methodology is authored by Dr. Oster and explains that:

> A common approach to evaluating robustness to omitted variable bias is to observe coefficient movements after inclusion of controls. *This is informative only if selection on observables is informative about selection on unobservables.*[186] (Emphasis added.)

That is, it is only informative to test the impact of omitted variables by sequentially adding observable variables, as Dr. Arcidiacono does, *if* the selection outcomes based on observable variables tells us something about the selection outcomes based on the unobservable variables. Dr. Arcidiacono, however, did not demonstrate this condition is satisfied in this case.

C. Dr. Arcidiacono Ignores Factors That, If Accounted for, Likely Would Reduce the Magnitude of His Measurement of the Impact of the Academy's Consideration of Race

118. Given the admissions goals of the Academy, and the list of variables accounted for by Dr. Arcidiacono, it is likely that the factors not accounted for in Dr. Arcidiacono's analysis of admissions relate to a variety of backgrounds and life experiences rather than to academic performance. Since minorities in the U.S. often have unique life experiences or attributes, and variety of background is valuable to the Academy, it is likely that these unobserved attributes are correlated with race and valued positively by the Academy.[187] Therefore, the effect that Dr. Arcidiacono assigns solely to the consideration of race is likely attributable, at least in part, to factors that would reduce his measurement of the impact of the consideration of race by the Academy.

119. For example, in the context of admission to the Academy, consider the hardship suffered by those who experienced racism. Overcoming hardship is viewed

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[186] Emily Oster, "Unobservable Selection and Coefficient Stability: Theory and Evidence," *Journal of Business & Economic Statistics*, vol. 37(2), p. 187.

[187] For commonly used indices of variety, diversity increases if the shares of distinct groups in the population are closer. See for example the Simpson diversity index, which is equal to the sum of squared shares of each group. E. H. Simpson, April 30, 1949, "Measurement of Diversity", *Nature*, vol. 163, p. 688, DOI: 10.1038/163688a0. *See also*, Jacqueline E. McLaughlin, Gerald W. McLaughlin, Josetta S. McLaughlin, Carla Y. White, "Using Simpson's diversity index to examine multidimensional models of diversity in health professions education," *International Journal of Medical Education*, vol. 7, 2016, DOI: 10.5116/ijme.565e.1112, pp. 1-5.

positively by the Academy and experiencing racism is correlated with race. According to the FBI's crime statistics for 2021, the largest number of race-related hate crimes were motivated by anti-Black or anti-African American sentiment (3,277 incidents). Anti-White sentiment, in contrast, accounted for 1,107 incidents.[188] These statistics suggest that there is correlation between this type of hardship experience and race. If a personal statement reveals that a candidate experienced racism, this information may be viewed as an indication of a candidate's strength of character and contributes positively to a candidate's selection. This information, however, is not readily quantifiable, is not codified in the data, and is not accounted for in Dr. Arcidiacono's statistical model. By including race in the analysis but omitting a separate variable for this type of hardship that is correlated with race, the coefficient on race would not reflect just an alleged racial preference but also the contribution of an omitted variable to the admissions decision. More fundamentally, this reflects that Dr. Arcidiacono's assumption that unobservable variables would trend in the same direction as observable variables is misplaced.

120. More generally, statistics for the U.S. population show significant socioeconomic differences across races. Among other differences, the U.S. Bureau of Labor Statistics reported that over the 2014-2016 period household income varied "widely" by race and ethnicity, with Black and African American households showing the lowest average pretax income;[189] the percentage of Hispanic households with a member with a Bachelor's degree was a third of the percentage for Asian households;[190] 11.6 percent of Black and African American households consisted of at least one child and a female parent (*i.e.,* a single mother), almost four times the percentage for White households (3.0 percent) and more than five times the percentage for Asian households (2.0 percent);[191] and, home ownership was much

[188] Federal Bureau of Investigation, "Supplemental Hate Crime Statistics, 2021," March 2023, p. 9. Available at https://cde.ucr.cjis.gov/LATEST/webapp/#/pages/explorer/crime/hate-crime accessed June 28, 2024.

[189] U.S. Bureau of Labor Statistics, "Race, Economics, And Social Status," *Spotlight on Statistics,* May 2018, p. 2.

[190] U.S. Bureau of Labor Statistics, "Race, Economics, And Social Status," *Spotlight on Statistics,* May 2018, p. 3.

[191] U.S. Bureau of Labor Statistics, "Race, Economics, And Social Status," *Spotlight on Statistics,* May 2018, p. 9 and interactive tables at https://www.bls.gov/spotlight/2018/race-economics-and-social-status/home.htm.

more frequent among White households than Black and African American households.[192]

121. Consistent with these findings, the 2022 Survey of Consumer Finances (SCF) conducted by the Federal Reserve Board – the most recent survey of this kind – found "continued large and persistent differences in wealth across race and ethnicity […]" with "[t]he typical White family had about six times as much wealth as the typical Black family, and five times as much as the typical Hispanic family."[193] As to intergenerational transfers of wealth, the Federal Reserve concludes from the 2022 SCF results that "White families are substantially more likely to receive inheritances, gifts and other family support than Black and Hispanic families."[194] As the BLS found in the 2014–2016 period, the 2022 SCF data also shows that home ownership was much more frequent among White households than Black and African American households.[195] The Federal Reserve also found in the 2022 SCF results that White families have broader access and participate more in employer-sponsored retirement plans than Black or Hispanic families.[196] In the 2019 SCF survey, similar racial differences were found for emergency savings, with White families having more emergency savings than Black or Hispanic families.[197]

122. The racial divide extends beyond the variables identified above and impacts many other aspects of a candidate's background, including education, healthcare, or access

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[192] U.S. Bureau of Labor Statistics, "Race, Economics, And Social Status," *Spotlight on Statistics,* May 2018, p. 6.

[193] "The Survey of Consumer Finances (SCF) is normally a triennial cross-sectional survey of U.S. families. The survey data include information on families' balance sheets, pensions, income, and demographic characteristics. Information is also included from related surveys of pension providers and the earlier such surveys conducted by the Federal Reserve Board. No other study for the country collects comparable information. Data from the SCF are widely used, from analysis at the Federal Reserve and other branches of government to scholarly work at the major economic research centers." (Board of Governors of The Federal Reserve System, "Survey of Consumer Finances: About," https://www.federalreserve.gov/econres/aboutscf.htm); Aditya Aladangady, Andrew C. Chang, and Jacob Krimmel, "Greater Wealth, Greater Uncertainty: Changes in Racial Inequality in the Survey of Consumer Finances," *Feds Notes*, Board of Governors of The Federal Reserve System, October 18, 2023, https://www.federalreserve.gov/econres/notes/feds-notes/greater-wealth-greater-uncertainty-changes-in-racial-inequality-in-the-survey-of-consumer-finances-20231018.html, ("Aladangady *et al.* 2023").

[194] Aladangady *et al.* 2023.

[195] Aladangady *et al.* 2023.

[196] Aladangady *et al.* 2023.

[197] Aladangady *et al.* 2023.

to credit. For example, the National Academies of Sciences, Engineering, and Medicine reports differences across races in infant mortality, chronic disease, and premature death, among other health indicators.[198] The U.S. Department of Education finds among other differences across races, that safety at school for students in grades 9 through 12 is better for White students.[199] The National Association of Realtors reports that, on average, Black and Hispanic borrowers were more frequently denied mortgages and have higher mortgage rates than White borrowers.[200]

123. As described above, the Academy's goal is to identify "talented and qualified individuals of diverse backgrounds."[201] Achieving this goal implies evaluating candidates across a range of personal attributes that is likely to be broad given the goals of the Academy. Relevant information regarding academic, physical, or moral strengths described in personal essays, recommendation letters, and interview evaluations, however, cannot be quantified and incorporated into a statistical analysis of actual admissions decisions. Moreover, given the racial divide across many candidate attributes, it is likely that an indicator variable for race will confound the Academy's consideration of race with the effect of unobserved variables correlated with race.

124. In sum, it is likely that the factors not accounted for in Dr. Arcidiacono's analysis of admissions relate to applicants' variety of backgrounds and life experiences, rather than to academic performance. Given the Academy's goals, these unobserved factors are likely to contribute positively to selection. Because minorities'

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[198] National Academies of Sciences, Engineering, and Medicine, "The State of Health Disparities in the United States," in Communities in Action: Pathways to Health Equity, Baciu A, Negussie Y, Geller A, *et al.*, editors, 2017 (https://www.ncbi.nlm.nih.gov/books/NBK425844/).

[199] Cristobal de Brey, Lauren Musu, and Joel McFarland, "Status and Trends in Education of Racial and Ethnic Groups 2018," National Center for Education Statistics, 2019 (https://nces.ed.gov/pubs2019/2019038.pdf), p. 98.

[200] National Association of Realtors, "Snapshot of Race and Home Buying in America." (https://www.nar.realtor/research-and-statistics/research-reports/snapshot-of-race-and-home-buying-in-america.)

[201] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, p. 1, USNA-00000153.

experiences are unique, it is likely that these unobserved factors are correlated with race and account for part of the estimated impact of race, making Dr. Arcidiacono's estimates likely overstated.

D. Other Empirical Results Dr. Arcidiacono Proffers to Conclude that Estimates of the Consideration of Race Are Understated Are Invalid

125. Dr. Arcidiacono purports to find the consideration of race in BGO interview scores, in medical waivers, in Early Notify designations, and in the calculation of RABs.[202] He presents these conclusions in support of his conclusion that there are additional reasons to believe his estimated racial preferences are underestimated. Dr. Arcidiacono, however, does not explain how these findings support his conclusion. In fact, it is not possible to conclude from these findings that the magnitude of his estimated racial preferences is understated.

126. First, Dr. Arcidiacono analyzes the role of race on the BGO interview scores and dismisses the importance of the consideration of race. In his own words, "any bias is likely to be small."[203]

127. Second, Dr. Arcidiacono finds differences in medical waiver rates across races.[204] Aside from this descriptive analysis, Dr. Arcidiacono does not and cannot conclude from his analysis that these differences are attributable to the consideration of race because he has not conducted an analysis of the factors that explain medical waivers.

128. Third, Dr. Arcidiacono finds that race is considered in Early Notify designations, evidently as a proxy for the consideration of race for Letters of Assurance.[205] As a threshold matter, an Early Notify recommendation does not guarantee receipt of a Letter of Assurance, as Dr. Arcidiacono acknowledges; indeed, many students who are designated Early Notify do not receive a Letter of Assurance and subsequent

[202] Arcidiacono Report, pp. 96-105.

[203] Arcidiacono Report, p. 101.

[204] Arcidiacono Report, pp. 98-99.

[205] Arcidiacono Report, p. 96–98.

offer of appointment.[206] Therefore, it is not possible to conclude from Dr. Arcidiacono's analysis whether or to what extent race is considered in Early Notify decisions and that, as a result, measuring the magnitude of the consideration of race solely based on coefficients on race in the appointment analysis understates the effect of the consideration of race. More fundamentally, even if Dr. Arcidiacono had been able to assess the contribution of race to Early Notify decisions, he has not explained how this implies that his estimates of the magnitude of the consideration of race in admissions decisions is understated. An Early Notify decision, is effectively an admission evaluation that may (or may not) become a decision for a subset of highly qualified candidates. The analysis suffers from the same omitted variable bias problem as Dr. Arcidiacono's analysis of appointment decisions and does not offer any additional cumulative evidence of the magnitude of the consideration of race.

129. And fourth, Dr. Arcidiacono finds that race is considered in the award of total RABs, an analysis that section XI.A below addresses.[207] Dr. Arcidiacono does not explain how these purported considerations imply that his estimated magnitude of racial preferences in admissions decisions is understated. In fact, Dr. Arcidiacono excluded from his analysis of admissions decisions RABs that involve judgment in their determination. According to Dr. Arcidiacono, his preferred model of admission decision "avoids concerns about the RAB points being influenced by preferences for any group."[208]

E. Dr. Arcidiacono's Analyses of Academic Performance Are Uninformative about Omitted Variable Bias

130. Dr. Arcidiacono analyzes certain academic performance metrics for *students* in the Academy by race to support his conclusion that Black *candidates* for admission are weaker in unobservable characteristics and that, as a result, his estimates of the

[206] USNA Fact Depo., p. 118:7–15: "MR. MCCARTHY: And then you review those lists as they come periodically and evaluate whether any of those early notifies you would recommend for a letter of assurance, correct? MS. HWANG: Yes."

[207] Arcidiacono Report, p. 101.

[208] Arcidiacono Report, p. 64.

consideration of race by the Academy in admissions decisions are understated.[209] Dr. Arcidiacono's analysis is methodologically flawed and his results do not support his conclusion.

131. As explained above, Dr. Arcidiacono does not demonstrate that any of the restrictive conditions for drawing inferences about the impact of unobservables from the measured impact of observables are met. Dr. Arcidiacono fails again to do so when analyzing academic performance. In addition, he makes additional unsupported assumptions to infer the impact of unobservables on *admissions* decisions from the measured impact of observables on *academic performance*. The schematic below summarizes these cumulative flaws:

Table 4. Flawed Assumptions in Dr. Arcidiacono's Analyses

Assumption	Problem
If Black candidates weaker in observables ⟹ then weaker in unobservables	Did not show restrictive conditions are met
If Black candidates weaker in observables impacting *academic performance* ⟹ then weaker in unobservables impacting *admission*	No basis to assume relevant unobservables are the same for *admission* and *academic performance* at USNA

1. Dr. Arcidiacono's Analyses of Academic Performance Are Methodologically Flawed

132. Dr. Arcidiacono motivates his analysis of performance as follows:

> if it were found that that Black students perform worse at USNA after conditioning on observed characteristics, then that would suggest, if anything, that I was underestimating racial preferences because accounting for those unobserved characteristics would lead to our estimates of racial preferences to be even bigger.[210]

133. In the absence of the consideration of race in academic performance metrics, if an effect of race is found, it must be because unobserved factors correlated with race impact the performance metric. In the hypothetical scenario described above, where

[209] Arcidiacono Report, pp. 5, 6 and 23.

[210] Arcidiacono Report, p. 23.

the estimated impact of race is negative, Black students must be weaker on the certain unobserved factors that are correlated with race and contribute to *academic performance* at USNA or NAPS.

134. Dr. Arcidiacono, however, extends this result and claims that if Black *students'* unobserved characteristics that are relevant to *academic performance* metrics are weak relative to White students, then Black *applicants'* unobserved characteristics relevant to *admissions* decisions are also relatively weak.[211] Dr. Arcidiacono does not provide any basis to assume that the unobserved relevant factors for admission and academic performance at USNA are the same. Effectively, Dr. Arcidiacono assumes without any basis that admission decisions and academic performance are determined by the same factors and valued equally.

135. Contrary to Dr. Arcidiacono's assumption, the stated goals of the Academy do not support this conclusion. The stated goal of the Academy's admissions process is to admit applicants with the potential for "serving as leaders and mentors of Sailors and Marines who have volunteered to serve the nation in times of war and peace."[212] To meet the needs of the Navy, the Academy believes it is necessary to consider candidates who are representative of American society.[213] For example, the Academy believes that "[t]he composition of the Class of 2028 should be a cross section of America with the greatest possible variety of backgrounds."[214] As discussed above, and reflected in the Academy's admissions guidance, the factors relevant to that variety of backgrounds is wide-ranging and far more comprehensive than academic performance.[215] In contrast, Dr. Arcidiacono's academic performance metrics consist of course grades and appearing on merit lists, which are much narrower and very different goals.[216]

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[211] Arcidiacono Report, p. 23.

[212] S.S. Buck, Memorandum Subj: Admissions Guidance for the Class of 2028, June 28, 2023, USNA-00000152 at -0153.

[213] "Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146 at -0146.

[214] "Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146 at -0148.

[215] "Dean of Admissions Supplemental Guidance for the Class of 2028," USNA-00000146–149.

[216] Arcidiacono Report p. 23.

2. Dr. Arcidiacono's Analyses Do Not Support His Conclusion

136. Dr. Arcidiacono estimates the contribution of race to inclusion in the Commandant's List, which is determined based on grades. Importantly, Dr. Arcidiacono finds that controlling or accounting for more factors, substantially *lowers* the Black and Hispanic coefficients. Dr. Arcidiacono acknowledges that these controls (and the components of the WPM in particular) are good predictors of the probability of appearing on the Commandant's list.[217] The results of Dr. Arcidiacono's analysis of grades in calculus, science, and English are similar: As more controls are added, the effects of Black are reduced significantly (to less than half). Moreover, the coefficients on Asian and Hispanic are never statistically significant to explain grades.[218] In addition, even in the most complete specification of the model, most of the variation in grades is not explained by Dr. Arcidiacono's model.[219] Dr. Arcidiacono concludes from this evidence:

> After accounting for the factors that affect USNA admissions, white students either receive the same grades or better than the other racial groups. This points towards white students, if anything, being stronger on the unobservables that affect admission to USNA.[220]

137. Dr. Arcidiacono's conclusion is speculative. Dr. Arcidiacono's analysis of performance as measured by winning the Commandant's List and grades by subject reveals that certain observable variables that are correlated with race have a positive contribution to the selection to the Commandant's List and to grades: they have a positive coefficient while reducing the negative coefficient on race. Beyond this finding, Dr. Arcidiacono has not provided any basis to believe that (a) controlling for omitted variables would not eliminate completely the effect of race and, as importantly, (b) that the impact of unobservables on *academic performance* is informative about the impact of unobservables on *admissions* decisions.

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[217] Arcidiacono Report p. 93.

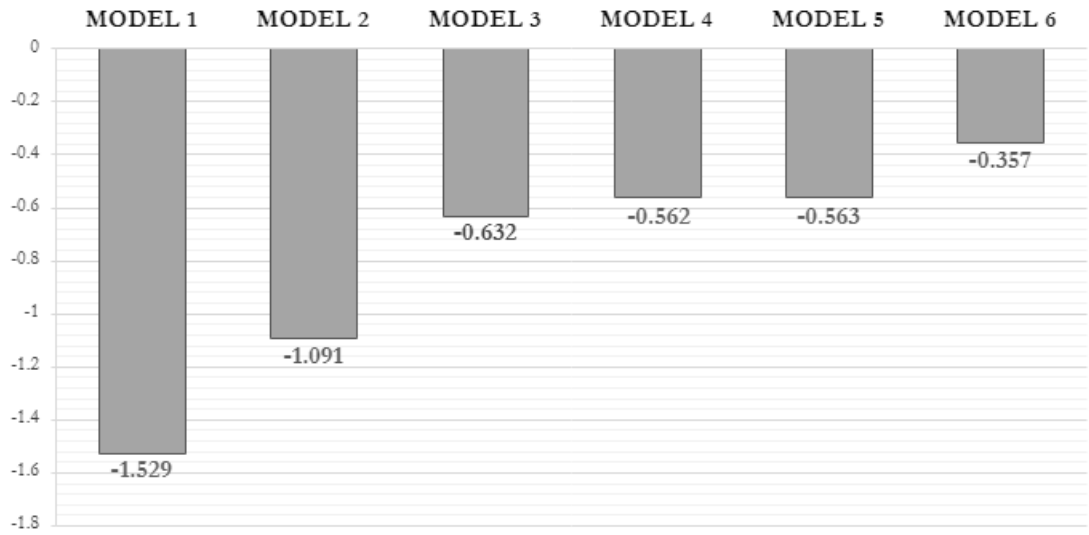
[218] Arcidiacono Report p. 94.

[219] Arcidiacono Report p. 94. *See also*, James H Stock and Mark W. Watson, Introduction to Econometrics, 2nd Edition, Adison Wesley, 2006, p. 314.p. 128.

[220] Arcidiacono Report p. 95.

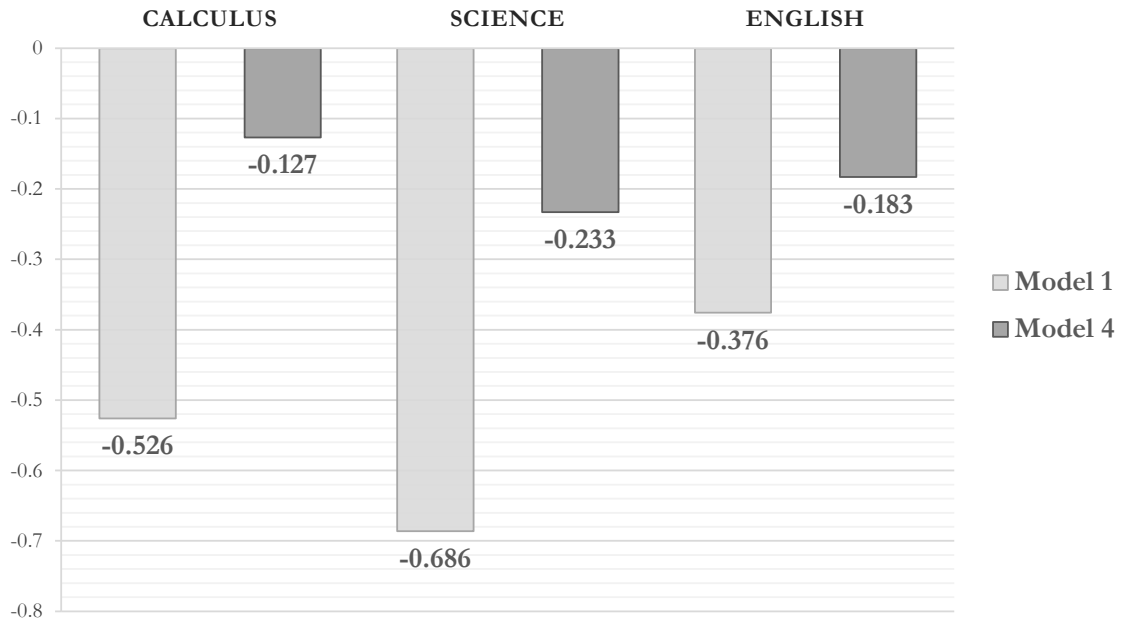
138. It is also worth noting that, whereas Dr. Arcidiacono concluded that the direction of the changes in the race coefficient in response to the addition of controls was informative about the impact of the unobservables, here he did not apply this logic. Here, the addition of controls steadily and significantly reduces the magnitude of the race coefficient estimate. According to his logic, this would imply here that Black students are stronger on unobservables. This is illustrated in Figure 2 below, which illustrates how most of the effect of race on Winning Commandant's List is erased as controls are added from Model 1 through Model 6. The pattern is analogous in Figure 3 below for his grades models as controls are added from Model 1 through 4 for each academic subject (calculus, science, and English).

Figure 2. Arcidiacono Black Coefficient Estimates in Logit of Winning the Commandant's List



Data source: Arcidiacono Report, Table 5.2.

Figure 3. Arcidiacono Black Coefficient Estimates in Regression of Scores by Academic Subject



Data source: Arcidiacono Report, Table 5.3.

IX. DR. ARCIDIACONO'S ESTIMATES OF THE MAGNITUDE OF THE CONSIDERATION OF RACE ARE NOT ROBUST

139. Even ignoring the fatal flaws in Dr. Arcidiacono's regression methodology, his estimates are not robust to reasonable changes to the specification of his model. I demonstrate this by re-estimating his preferred USNA-admissions model 6 but replacing his unjustified race categorization with a data-driven definition. This model yields a substantially smaller estimate of the difference between Black (according to his definition) and White admission rates after controlling for some candidate characteristics.[221]

140. Dr. Arcidiacono's calculates admission rates by racial and ethnic group, finding that:

> Conditional on not being designated as a Blue Chip athlete or applying from a preparatory program, admission rates *are very similar for white, Black,*

[221] Arcidiacono Report, Table 4.3A on p. 68.

> *and Hispanic applicants*, with Asian American applicants having admission rates that are at least 17 percentage points higher.[222] (Emphasis added.)

Using my database but both his and my definitions of race and ethnicity, I too find very similar admissions rates for White, Black, and Hispanic applicants. The results of Dr. Arcidiacono's econometric model, however, are not robust to a model that maintains the difference between race and ethnicity.

A. The Appropriate Subpopulation

141. The subpopulations I consider for this analysis are based off Dr. Arcidiacono's "main sample," defined as: completed, non-withdrawn, applications from domestic candidates with a nomination and who have passed the CFA and qualified medically.[223] The second subpopulation also excludes blue-chip athletes (which Dr. Arcidiacono abbreviates as BCAs). The third further excludes applications from applicants currently attending prep schools.

142. Dr. Arcidiacono exclusion of both blue-chip athletes and applicants from prep schools is reasonable. He describes these as "two groups that effectively have their admissions to USNA guaranteed conditional on meeting certain minimal qualifications."[224] The Academy offers appointments to blue-chip athletes because they are a varsity coach's top recruit and they reflect highly desirable qualities for future officers.[225] Also, as I explained in section VI.E above, the Academy assesses candidates from prep schools on a different basis from other candidates, rendering them not similarly situated and thus not conducive to analysis along with the rest of the applicants. The Academy offers appointments to candidates from prep-schools, especially NAPS, because the prep schools had the opportunity directly to observe and prepare them. Had the prep-schooler been an unsuitable candidate for the

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[222] Arcidiacono Report, p. 32.

[223] Arcidiacono Report, Table 3.7 on p. 33.

[224] Arcidiacono Report, p. 2.

[225] USNA Fact Depo., pp. 76:16–20: "And so that athletics representative will brief all of the blue chip athlete records, but the individual coaches do get to tell that board member who their top recruit is, who then is becoming the blue chip athlete for that team.".

Academy, both the prep school and the prep-schooler had a year to figure that out together.

143. Likewise, as I explained in section VI.F above, fleet applicants are also not similarly situated to most other applicants because their applications are assessed on different criteria. Therefore, in the top-line comparison I present below, I have excluded their applications.

B. Dr. Arcidiacono's Categorization of Race and Ethnicity Is Arbitrary

144. Dr. Arcidiacono's categorization of applications by applicants' racial and ethnic self-identifications is *ad hoc* and unjustified. The only explanation he gives is that his categorization is his "preferred way."[226] In this subsection, I describe why Dr. Arcidiacono's approach is problematic and offer an alternative to his racial and ethnic categorization that can be analyzed and corresponds more closely to the information available to the Academy when it reviews applications to USNA.

145. The Academy collects applicant data on self-identified race and ethnicity. The races available for identification in the admissions data are "American Indian or Alaska Native," "Asian," "Black or African American," "Native Hawaiian or Other Pacific Islander," and "White."[227] Racial identities are not mutually exclusive, and a candidate may identify one or multiple races or choose not to identify.[228] For 2.6 percent of applications in the completed, Board-reviewed applications from

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[226] Arcidiacono Report, p. G1.

[227] Mark Vandervort (acting EOA program manager), "NAVY-WIDE DEMOGRAPHIC DATA FOR THIRD QUARTER FY 2010 (01 Apr 10 THROUGH 30 Jun 10)," memorandum from the office of the Director, Navy Equal Opportunity Office, August 18, 2010, USNA-00002376 at -2377. *See also, e.g.*, "USNA-00000499 Data Dictionary - Salesforce Class of 2025-present", USNA-00000499, tabs "Contact" and "BART."

These categories match those the Navy started using in January 2003, per USNA-00002376 at -2377. The Office of Management and Budget minimum data collection categories through 2023 are: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. (OMB (Office of Management and Budget) "Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting." 1977, https://obamawhitehouse.archives.gov/omb/fedreg_notice_15/.) Applications do not include photographs of applicants, and the values of the race variables reflect only what the applicant selected, not any inferences that USNA admissions personnel make based on other parts of the application. Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024.

[228] Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024.

domestic civilians not already in a Naval preparatory program population in my database, the applicant either selected "Decline to Respond" or simply did not respond. Table 6 shows that a small number of candidates select only Native Hawaiian or Other Pacific Islander, or American Indian or Alaska Native.

146. The admissions data in earlier years also includes richer data regarding applicants' cultural background with several potential entries, although as mentioned previously, the focus of this report will be on Hispanic or Latino ethnic background.[229] For class years 2025–2027, USNA labeled as Hispanic or Latino applicants who self-identify as such, whereas for class years 2023-2024, USNA labeled as Hispanic or Latino applicants who had selected "Other Hispanic descent," "Puerto Rican," "Mexican," "Cuban," and "Latin American with Hispanic descent."[230] I adopt this categorization and define two mutually exclusive ethnic subpopulations: Hispanic or Latino ("Hispanic") and non-Hispanic or Latino ("non-Hispanic"), also marking an applicant non-Hispanic if ethnic data are missing. Altogether, the race and ethnicity self-identities available across all years in the data amount to 64 possible combinations, from no selections to selecting all six identity options.[231]

147. Dr. Arcidiacono flattens these 64 race and ethnicity possibilities into six mutually exclusive categories by adopting a waterfall assignment rule that blends race and ethnicity and assigns multiracial applicants as described in Table 3 below:

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[229] The definition of ethnicity is complex, and there has not been a single definition that has permeated the literature or global understanding of social identity and how it relates to several socioeconomic issues (*see* Bhopal, Raj. "Glossary of terms relating to ethnicity and race: for reflection and debate." *Journal of Epidemiology & Community Health* 58.6 (2004): 441-445.). One potential definition of ethnicity is a characterization of people based on having a shared culture (*e.g.*, language, food, music, dress, values, and beliefs) related to common ancestry and shared history (*see* APA Dictionary of Psychology, *ethnicity*, Updated on 11/15/2023, AMERICAN PSYCHOLOGICAL ASSOCIATION, available at https://dictionary.apa.org/ethnicity, Last accessed June 29, 2024).

[230] Mark Vandervort (acting EOA program manager), "NAVY-WIDE DEMOGRAPHIC DATA FOR THIRD QUARTER FY 2010 (01 Apr 10 THROUGH 30 Jun 10)", memorandum from the office of the Director, Navy Equal Opportunity Office, August 18, 2010, USNA-00002376 at -2378, note 1.

[231] I ignore the distinction between an applicant's selection of "Decline to Respond" and the applicant's not selecting any option.

Table 5. Dr. Arcidiacono's Categorization of Race and Ethnicity

Race Label	If Applicant Selected…	And Applicant Is Not Also…
Black	Black or African American	
Hispanic	Hispanic or Latino	Black
Native American/ Hawaiian	American Indian or Alaska Native or Native Hawaiian or Other Pacific Islander	Black or Hispanic
Asian	Asian[232]	Black, Hispanic, or Native American/Hawaiian
White	White	Black, Hispanic, or Native American/Hawaiian, or Asian
Missing	Decline to Respond (or *nothing*)	Black, Hispanic, or Native American/Hawaiian, Asian, or White

Source: Arcidiacono Report, p. G1, and Dr. Arcidiacono's workpapers.

1. Dr. Arcidiacono Blends Race and Ethnicity without Any Basis

148. As shown above, Dr. Arcidiacono's categorization of race and ethnicity results in six mutually exclusive categories. If the goal is to assess the Academy's consideration of race and/or ethnicity, however, then this approach does not allow the two categories of information (race and ethnicity) to affect outcomes independently.

149. Rather than blending race and ethnicity, I categorize Hispanic ethnicity separately from race, and represent both the racial and ethnic self-identities of Hispanic applicants. About 82 percent of applications from Hispanic applicants selected one race, and 88 percent of them selected White alone. (See Exhibit 10.) As many as 92.5 percent of applications from Hispanic applicants selected at least one race. Only applicants selecting American Indian or Alaska Native selected another of the five racial identities nearly as frequently at 79.6 percent. This suggests that the lion's share of Hispanic applicants represent themselves to the Academy as having a racial identity distinct from their Hispanic identity.

150. I do not separate any of the other self-identities into their own variable for three reasons. First, 64 combinations are too complicated to analyze, and some degree of simplification, at the cost of discarding some information, is necessary. Second, as

[232] The necessity of selecting Asian is unclear from Arcidiacono Report, p. G1, but is verified upon review of Dr. Arcidiacono's workpapers.

Table 6 below shows, only 8.9 percent of applications were from multiracial applicants, so in most cases, treating the racial categories as mutually exclusive loses no information. Finally, considering Table 6 below, both American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander groups have relatively few applications: 865, or 4 percent of the 22,400 completed applications in my database. Rather than breaking these groups up, I group these into a single "Other" racial category to avoid slicing the data too finely. Members of this group, like Hispanic applicants, tend to select another race much more frequently (over 70 percent) than average (8.9 percent). But creating a separate variable to capture both the Other racial category separately from Asian, Black, or White racial categories would slice the data too finely. In this sense, I also agree with Dr. Arcidiacono's creation of his Native American/Hawaiian category.

Table 6. USNA Applications by Racial and Ethnic Self Identification, 2023–2027

Race on Application	Count picking at least this race	Count picking just this race	Multiracial* share	Count picking Hispanic or Latino & just this	Share of non-Multiracial Hispanic or Latino who are just this
American Indian or Alaska Native	481	98	79.6%	53	2.1%
Asian	2,973	1,751	41.1%	71	2.8%
Black or African American	1,641	1,135	30.8%	133	5.3%
Native Hawaiian or Pacific Islander	384	108	71.9%	21	0.8%
White	18,529	16,740	9.7%	2011	80.5%
No Race Selected	584	584	0.0%	210	8.4%
Total	**22,400**	**20,416**	**8.9%**	**2,499**	**100.0%**

Among completed, Board-reviewed applications from domestic civilians not already in a Naval preparatory program. The last two columns represent the 89.28% of applications from Hispanic candidates who selected at most one race (see Exhibit 10).

* By *multiracial* I mean applications whose applicants selected two or more of the five racial categories (excluding Decline to Respond).

Source: Exhibit 9 and Appendix 1.

2. Dr. Arcidiacono Arbitrarily Assigns Multiracial Applicants to Single Races

151. Dr. Arcidiacono's assignment of multiracial individuals to certain racial groups is arbitrary and unjustified, treating multiracial candidates differently depending on which races they identify as. Table 5 above describes Dr. Arcidiacono's waterfall categorization: a single or multiple-race candidate who included Black in her selections is categorized as Black; every applicant who is Hispanic but not Black is categorized as Hispanic, regardless of their race; and so on, until only non-multiracial White is White. Dr. Arcidiacono explains neither why a waterfall is appropriate nor how he chose his ordering.[233]

152. Grouping multiracial and non-multiracial applicants discards less information for American Indian, Alaska Native, Native Hawaiian, or Pacific Islander applicants because so many of them are multiracial, but doing so discards more information for Black applicants because only three in ten of them are multiracial per Table 6 above. Therefore, my categorization in Table 7 below maintains a separate "Other or Multiracial" category of applicants since the majority of non-Other racial group members are not multiracial. For the sake of tractability and because there are so few Other race applicants, I group them together with multiracial applicants.

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[233] Dr. Arcidiacono's categorization scheme in this case matches Harvard's "'one-pagers' and other internal reports" during Harvard's admissions process, which is the scheme he followed in his work on behalf of SFFA against Harvard. Peter S. Arcidiacono, "Expert Report of Peter S. Arcidiacono" Document 415-8, 2017, *Students for Fair Admissions, Inc. v. President and Fellows of Harvard College* et al., Civil Action No. 14-14176-ADB (D. Mass), URL: https://docs.justia.com/cases/federal/district-courts/massachusetts/madce/1:2014cv14176/165519/415/1.html accessed 7/24/2024, plaintiff expert witness opening report, p. 23 and Table A.6. Dr. Arcidiacono then followed that scheme in his published articles based on his work in the *Harvard* case. *See, e.g.,* Peter Arcidiacono, Josh Kinsler, and Tyler Ransom, "Asian American Discrimination in Harvard Admissions," *European Economic Review,* vol. 144, 2022, fn. 13 on p. 3 ("We classify multiracial students in the same way Harvard does…. Multiracial students who have any amount of African ancestry are coded as African American, those with any amount of Hispanic ethnicity are coded as Hispanic (but African-American Hispanics would be coded as African American), then those with any amount of Asian ethnicity are coded as Asian American (so that half-Asian half-white would be coded as Asian), and finally whites are those whose ethnicity is only white.") I understand that the Academy does not follow this categorization for purposes of admissions decisions, and the Admissions Board assesses applications without any hierarchical categorization of race or ethnicity intermediating its view of applicants' self-identification selections. (Conversation with Melody Hwang, July 29, 2024.)

Table 7. Data-Driven Racial and Ethnic Categorization

Race	If Applicant Selected…	And Applicant Is Not Also…
Asian	Asian	Multiracial
Black or African American	Black or African American	Multiracial
None	Decline to Respond (or *nothing*)	
Other or Multiracial	≥ 2 races, American Indian or Alaska Native, or Native Hawaiian or Other Pacific Islander	
White	White	Multiracial

See Appendix 1 for explicit definitions.

C. Recategorization of Race and Ethnicity Does Not Materially Alter Dr. Arcidiacono's Admission-Rate Conclusion

153. Dr. Arcidiacono reports admission rates for Black, Hispanic, and White applicants of 37, 36, and 36 percent, respectively.[234] Table 8 below provides admission rates by race as well. Because Dr. Arcidiacono and I determined in different ways from the data whether an application was complete, we have different samples of the data even aside from our substantive disagreements about the appropriate population for analysis. For comparability, I have computed admission rates using his race categorization in my database (thus also excluding fleet applicants) in Exhibit 12, in which admission rates for Black, Hispanic, and White applicants are 41, 37, and 37 percent, respectively. Using the same data, Table 8 shows admit rates for Black and White applicants of 36 and 37 percent, respectively, erasing the small but only apparent advantage Black applicants Dr. Arcidiacono found. Exhibit 11 contains the corresponding table for ethnicity, showing admission rates for Hispanic and non-Hispanic applicants within 0.21 percentage points of each other.

[234] Arcidiacono Report, p. 33, Table 3.7C.

Table 8. USNA Admission Rates by Race, 2023–2027

Race	Applicant Count	Applicant Share	Admit Count	Admit Share	Admit Rate
Asian	979	8.38%	555	12.03%	56.69%
Black or African American	434	3.72%	155	3.36%	35.71%
None	298	2.55%	93	2.02%	31.21%
Other or Multiracial	1,193	10.21%	546	11.84%	45.77%
White	8,775	75.13%	3,264	70.76%	37.20%
Total	**11,679**	**100.00%**	**4,613**	**100.00%**	**39.50%**

Completed applications who qualified in the medical examination and CFA, have a nomination, either have had a BGO interview or are recruited athletes in basketball or men's football, are not blue-chip athletes, and are missing no WPM components.

Source: Exhibit 11 and Appendix 1.

D. Recategorization of Race and Ethnicity Materially Alters Dr. Arcidiacono's Regression Conclusion

154. To assess the impact of a data-driven categorization of race and ethnicity, I estimated what I will call model 6' based off Dr. Arcidiacono's preferred USNA-admissions model 6.[235] For this purpose, I use his database to maximize comparability with Dr. Arcidiacono's report, estimating the model on the same 12,300 applications on which Dr. Arcidiacono estimated USNA-admissions model 6.[236] Model 6' swaps out Dr. Arcidiacono's arbitrary race variable for the alternative race and ethnicity categorical variables I described in the foregoing subsections (see Table 7 above) and shows that Dr. Arcidiacono's estimates are not robust and, in particular, that the coefficient on Black drops significantly. I summarize the models' results in Table 9, Table 10, and Table 11 below.

[235] Arcidiacono Report, Figure 4.1, describes Dr. Arcidiacono's USNA-admissions model specifications, and Table 4.1 gives the abbreviated regression estimates.

[236] Arcidiacono Report, Table D.82.

Table 9. Average Marginal Effects of Race and Ethnicity on USNA Admission Rates in Dr. Arcidiacono's Model 6

Dr. Arcidiacono's Race/Ethnicity	Average Marginal Effect
Black	24.3%Pts
Hispanic	11.1%Pts
Asian	17.6%Pts
Native American/Hawaiian	12.6%Pts
Declined/Missing	0.4%Pts

Average marginal effects are percentage point differences in admission rate, after controlling for the model's explanatory variables, between each group and non-Hispanic, non-multiracial White applicants (because that is the race category of Dr. Arcidiacono's missing from the table). These values match those in Arcidiacono Report, Table 4.3A (except the latter omitted his "Declined/Missing" category's AME).

Source: Dr. Arcidiacono's workpapers and Exhibit 14.

Table 10. Average Marginal Effects of Race and Ethnicity on USNA Admission Rates in a Reasonable Alternative Model 6'

Alternate Race/Ethnicity	Average Marginal Effect
Black or African American	18.5%Pts
Hispanic or Latino	9.8%Pts
Asian	17.3%Pts
Other or Multiracial	15.2%Pts
None	0.8%Pts

Average marginal effects are percentage point differences in admission rate, after controlling for the model's explanatory variables, between each racial group and non-multiracial White applicants, or between the Hispanic or Latino group and non-Hispanic applicants.

Source: Dr. Arcidiacono's workpapers and Exhibit 14.

155. Table 9 and Table 10 above list average marginal effects ("AMEs") for each racial and ethnic group in models 6 and 6', respectively. Table 9 lists racial and ethnic groups according to Dr. Arcidiacono's categorization. Table 10 lists racial and ethnic groups according to the alternative categorization from Table 7 above. AME is the percentage-point difference in admission rates compared to a base group after controlling for observed explanatory factors. When looking at Dr. Arcidiacono's racial or ethnic groups (Table 9), the base group is non-multiracial, White, non-Hispanic applications. The alternative categories (Table 10), compare racial groups to non-multiracial White applications and Hispanic applications to non-Hispanic applications.

156. The AME of 18.5 percentage points in Table 10's alternate model 6' for Black applicants compared to White applicants is 24 percent lower than the AME of 24.3 percentage points in Table 9's model 6 for Dr. Arcidiacono's definition of Black compared to non-Hispanic White applicants.[237] These alternative models highlight that Dr. Arcidiacono's regression results are not robust and likely overstated.

157. Dr. Arcidiacono's USNA-admissions model 6 and the alternate model 6' are extremely close in terms of how well they fit the data. Table 11 below augments Dr. Arcidiacono's results with "sensitivity" and "specificity" to measure the models' "goodness of fit" – quantitatively how well the model predicts the observed outcomes.[238] Both sensitivity and specificity are components of another common measure of fit, the "fraction correctly predicted."[239] The technique treats logit regression as a method for differentiating which observable factors lead to offers versus rejections. The estimated model classifies all the applications in the dataset. The procedure computes a "predicted probability" indicating the confidence that the model has that each application would result in an offer. The percent-correctly-predicted procedure then counts each predicted probability as a predicted offer if the predicted probability exceeds a threshold, typically a half.[240] Assuming the Academy could not give out more offers than it did because of the constraint on its class sizes and expected attrition rates,[241] I classify as "predicted offers" only those applications

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[237] The 24.3 percentage point number may also be found in Arcidiacono Report, Table 4.3A. Indeed, Exhibit 14 shows that the confidence interval on the Black AME in model 6' is wholly below the 95 percent confidence interval for Black in model 6. If one believes (incorrectly) that the models do not suffer from omitted variable bias and misspecification bias, then the confidence intervals say where the true AME lies with 95 percent confidence despite the impact that noise in the data might have on the estimate of the AME (again, if one believes in Dr. Arcidiacono's modeling methodology in the first place).

[238] *See*, *e.g.*, "The latter measure, when turned into a percentage, is a widely used goodness-of-fit measure for binary dependent variables: the percent correctly predicted." (Jeffrey M. Wooldridge, Introductory Econometrics, A Modern Approach, Fifth Edition, 2013, South-Western, Cengage Learning, p. 251.)

[239] James H Stock and Mark W. Watson, Introduction to Econometrics, 2nd Edition, Adison Wesley, 2006, p. 314; "One measure of goodness of fit that is usually reported is the percent correctly predicted." Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, Cambridge: MIT Press, 2002, p. 465.

[240] Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, 2nd ed., Cambridge: MIT Press, 2010, pp. 573–574.

[241] Latta Declaration, ¶ 11 ("Although the numbers vary each year, USNA offers approximately 1,385 appointments per year to fill approximately 1,180 first- year seats due to attrition. Under 10 U.S.C. § 8454, the authorized strength of the total Brigade of Midshipmen at USNA is capped at 4,400 on the day before the last day of the academic year.")

with the top predicted probabilities within each class year until the number of predicted offers matches the number of actual offers.[242] Percent correctly predicted calculates the percentage of applications where the model's classification matches the actual outcome, both offers and rejections. Sensitivity is the percentage of actual offers the model correctly classifies as offers. Specificity is the percentage of actual rejections the model correctly classifies as rejections.[243]

Table 11. Goodness of Fit with Dr. Arcidiacono's and an Alternate Categorization of Race and Ethnicity

	Dr. Arcidiacono's Preferred Model 6	Model 6' (Alt. Race/Ethnicity)	Difference
Sensitivity	81.29%	80.89%	−0.40%Pts
Specificity	88.15%	87.88%	−0.28%Pts

Sensitivity and specificity are calculated to match the observed number of appointment offers separately within each class year.

Source: Dr. Arcidiacono's workpapers and Exhibit 14.

158. Dr. Arcidiacono's USNA-admissions model 6 and the alternate model 6' are extremely close in both sensitivity and specificity, each losing 0.4 percentage points or less. Given that the sample contained 4,726 admits and 7,574 rejects,[244] and that sensitivity and specificity measure the correct classification of admits and rejects respectively, this difference yields only about 41 extra misclassifications – over and above model 6's existing misclassifications – out of 12,300 applications.[245] Therefore, I conclude that my modification (model 6') of model 6 materially changed

[242] Dr. Arcidiacono's capacity-constrained methodology is for "predicting" the number of offers in each racial group after modifying the regression estimates. Arcidiacono Report, pp. 82 and B4–B5. In contrast, my purpose is classifying individual applications to assess the goodness of fit of the model to the data. My methodology is a year-by-year version of the threshold search algorithm suggested in Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, 2nd ed., Cambridge: MIT Press, 2010, p. 574 ("A third possibility is to choose the threshold such that the fraction of [classified successes] in the same is the same (or very close) to [the sample average].").

[243] StataCorp. 2023. Stata 18 Base Reference Manual. College Station, TX: Stata Press, [R] estat classification, available at https://www.stata.com/manuals/restatclassification.pdf accessed June 29, 2024. *See also*, National Academy of Sciences, Reference Manual on Scientific Evidence, 3rd edition, pp. 296, 298 for conceptual definition and p. 710 for formulae.

[244] Arcidiacono Report, Table 3.7 and Dr. Arcidiacono's workpapers. Note that Dr. Arcidiacono's Table 3.7 shows four more applications than the 12,300 in the regression sample because of missing CFA score data. Arcidiacono Report, Table 4.1. When I re-computed his USNA-admissions model 6 using his workpapers, I found the numbers above. *See* Exhibit 14.

[245] I calculated this as the ceiling of the sum-product of the number of admits and rejects times the reductions in sensitivity and specificity, respectively.

the strength of Dr. Arcidiacono's main conclusion about the magnitude of the racial effect he detected by employing a model with a more data-driven classification of race and with materially the same fit to the data.

159. It is important to note that assessment of the goodness of fit of the model does not imply that there is no omitted variable bias or more generally that the explanatory variables included in the model have an actual causal relationship with the dependent variable (in our case one of the steps of the admissions decision).[246] Even with perfect fit, the correlation of an relevant but omitted variable with a model variable of interest would result in the misattribution of all or part of a causal effect to the variable included in the model. Neither model is correct (nor useful for causal inference or counterfactual prediction) because of omitted variable bias, misspecification, and bad data.

X. DR. ARCIDIACONO MISINTERPRETS HIS REGRESSION RESULTS

160. As described above, Dr. Arcidiacono's model is not reliable for analyzing admissions decisions to the Academy. Setting aside those flaws, Dr. Arcidiacono draws conclusions from the numerical results of his regressions. These conclusions are misleading or unreliable.

A. The Total Effect of Racial and Ethnic Discrepancies in Admissions Rates on Majority Candidates Is Small

161. Dr. Arcidiacono claims "racial preferences resulted in a 24 percentage point increase in the Black admission rate."[247] Black applicants, and minorities in general, account for a relatively small number of applicants and admitted candidates. As a result, any observed consideration of race and ethnicity in favor of minorities – even if possible to attribute exclusively to USNA's consideration of race during the admissions process, as distinct from the contribution of omitted observable and unobservable

[246] "A high R^2 or $\bar{R}^2$ [adjusted R^2] does not mean there is no omitted variable bias. […] Omitted variable bias can occur in regressions with a low R^2, a moderate R^2, or a high R^2. Conversely, a low R^2 does not imply that there necessarily is omitted variable bias." (James H Stock and Mark W. Watson, Introduction to Econometrics, 2nd Edition, Adison Wesley, 2006, p. 238.)

[247] Arcidiacono Report, p. 67.

variables – will have a relatively small impact on the admissions rate for the number of majority White admitted applicants.

162. There are many White, non-Hispanic applicants but few minority applicants and even fewer Black, or Asian, or multiracial, or Hispanic applicants. A small increase in the *number* of admissions among a subgroup of minority applicants will look like a large increase in admission *rate*. This can be seen most clearly with an extreme hypothetical. Suppose the Academy gave a boost to one qualified but relatively weak blue-haired applicant and admitted four out of all nine other blue-haired applicants, matching the overall admission rate from Table 8 above. If Dr. Arcidiacono sliced the data to include a blue-haired group, his regressions would find an overall admission rate of 50 percent for blue-haired applicants, higher than all groups but Asian applicants in Table 8. Assuming blue-haired people are no different from anyone else, Dr. Arcidiacono's regressions would find at least a ten-percentage point AME for blue hair, possibly greater depending on how weak of an applicant the one who was helped was. That ten-percentage point AME arises from a single instance of the Academy's favorable (and, of course, fictional) consideration of blue hairedness. Likewise, the relative smallness of the minority subgroups Dr. Arcidiacono analyzes drives his conclusions.

B. Dr. Arcidiacono's Conclusion That Race Is a More Important Factor than Socioeconomics Relies on Faulty Income Data

163. Socioeconomic status is certainly a dimension that the Academy considers to guide the admissions process.[248] To account for socioeconomic status, Dr. Arcidiacono included a flag for whether the applicant self-reported as belonging to a household where the collective income is more or less than $80,000. He also included IRS zip-code level income data. Including these measures of income is problematic and does not reliably control for applicant socioeconomic status, nor does it fully reflect how the Academy assesses socioeconomic status.

[248] "Dean of Admissions Supplemental Guidance for the Class of 2028," p. 3, USNA-00000148.

164. At the root of income questions is researchers' interest in capturing the ability of an individual (or household) to afford goods and services (*i.e.*, purchasing power). To measure purchasing power appropriately, however, it is important to recognize that currency operates in context. For example, $80,000 in downtown Washington, DC means a very different ability to access goods and services than the same $80,000 in Northeast Kansas. Similarly, currency changes its ability to acquire goods and services over time, even at the same location. Across the years of observation, even though Dr. Arcidiacono has kept his flag of whether an applicant's household has had income above or below $80,000, the nation-wide inflation has been on average 13.5 percent over the same time period, effectively moving the bar of which threshold of socioeconomic status Dr. Arcidiacono has been allegedly controlling for. [249]

165. In addition, it is a well-documented phenomenon that when asked about income, people tend to report with noticeable inaccuracy.[250] The measure tends to be particularly bad if asking an individual not just about their own income, but about a household income, as well as if the survey or questionnaire (in this particular case the application) only has one question about income[251] that cannot generally be cross-checked with individual or household assets. This is likely especially prevalent for applicants at this age. This may generate some inconsistencies in applicants' files.

166. Dr. Arcidiacono tries to find alternative controls to supplement the faulty application income variable by matching application geographic data with Internal Revenue Service Statistics of Income (IRS SOI) zip-code level data on income.[252] This approach also is problematic because it is not individual level data. The data are averages from a particular location. They are not informative about an individual

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[249] The Consumer Price Index has had a cumulative change of 13.5% from 2018-01-01 to 2022-01-01 (*see* United States Bureau of Labor Statistics, *Consumer Price Index,* accessed via FRED, (last accessed Jul. 26, 2024), https://fred.stlouisfed.org/series/CPIAUCSL#0)

[250] *See, e.g.*, Moore, Jeffrey C., Linda L. Stinson, and Edward J. Welniak, "Income measurement error in surveys: A review." *Journal of Official Statistics-Stockholm*, vol. 16.4 (2000), pp 331-362.

[251] *See, e.g.*, Micklewright, John, and Sylke V. Schnepf. "How reliable are income data collected with a single question?" *Journal of the Royal Statistical Society Series A: Statistics in Society*, vol. 173(2) (2010), pp. 409-429.

[252] *See* Arcidiacono Report, p. F2

applicant's income because it is not possible to know if the applicant has been living in this area for long, how their income compares to the average, or how impactful that location's socioeconomic status has been on this individual's attainment.

167. Given the poor measure of income, Dr. Arcidiacono does not have any reliable control for socioeconomic status. As a result of the absence of a proper income variable, Dr. Arcidiacono's regression analyses suffer from omitted variable bias, and the race estimated marginal effects are likely biased.

C. Race and Ethnicity Are Not Predominant Factors in Admissions

168. Dr. Arcidiacono said that SFFA retained him to answer five questions, including "[i]s race and/or ethnicity a predominant factor in different stages of the USNA's admissions process?"[253] His answer to the question is unclear as is what exactly he means by *predominant*.[254] The question echoes SFFA's equally ambiguous assertion that the "Academy's racial preferences are determinative for hundreds of applicants each year."[255] In the absence of Dr. Arcidiacono's explicit answer or definition of *predominant* or *determinative*, I offer a definition and an answer based on Dr. Arcidiacono's preferred model of USNA admissions.

169. Both *predominant* and *determinative* suggest a *degree* of causation: the degree to which USNA's alleged consideration of race caused some admissions offers. The statistically appropriate questions here are what are the probabilities that USNA's consideration of race is a necessary or sufficient cause of the admission offers. Causation is *necessary* in the case that a minority midshipman would not have received an offer but for his race. Causation is *sufficient* in the case that a rejected White candidate would have received an offer but for his race.[256]

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[253] *See* Arcidiacono Report, p. 1.

[254] The only other use of *predominant* or *predominate* in the report is that "NAPS is predominantly filled by minority applications to USNA". Arcidiacono Report, p. 6.

[255] Complaint, ¶ 37.

[256] Judea Pearl, 2009, *Causality: Models, Reasoning, and Inference*, 2nd ed., Cambridge University Press, pp. 283–284.

170. To assess causal necessity, I take Dr. Arcidiacono's preferred USNA-admissions model 6 and re-estimated it excluding any race/ethnicity variable (call it model 6") and measured how well the models fit the data using sensitivity and specificity. Table 12 below compares classifications from the two models. Both measures of fit fall by less than three percentage points upon removal of race and ethnicity from the model. Given that the sample contained 4,726 admits and 7,574 rejects,[257] and that sensitivity and specificity measure the correct classification of admits and rejects respectively, this difference yields only about 276 extra misclassifications – over and above model 6's existing misclassifications – out of 12,300 applications.[258] That is over all five years of data. This indicates that factors other than race and ethnicity provide nearly all the predictive power of the model and are generally causally sufficient, with race and ethnicity being causally necessary at most rarely.

Table 12. Goodness of Fit with and without Race or Ethnicity Covariates

	Dr. Arcidiacono's Preferred Model 6	Model 6" (No Race/Ethnicity)	Difference
Sensitivity	81.29%	78.48%	−2.81%Pts
Specificity	88.15%	86.27%	−1.88%Pts

Sensitivity and specificity are calculated to match the observed number of appointment offers separately within each class year.

Source: Dr. Arcidiacono's workpapers and Exhibit 14.

171. It is important to remember that differences in the selection predictions that the two models make to yield the slightly differing sensitivity and specificity values implies nothing about the specific applications they classified differently and the reliability of the models more generally. Neither model is correct (nor useful for causal inference or counterfactual prediction) because of omitted variable bias, misspecification, and bad data.

[257] See footnote 244 on page 66.

[258] See footnote 245 on page 66.

D. Dr. Arcidiacono's Analysis of Admission Composition but for the Academy's Consideration of Race and Ethnicity Is Misleading and Incorrect

172. Dr. Arcidiacono purports "[t]o see how removing racial preferences would change the racial composition of the admitted class."[259] For example, Dr. Arcidiacono concludes that "[r]emoving both racial preferences and prep program preferences decreases the number of Black admits by 303, dropping their share of admits from 10.5% to 6%."[260] This analysis is misleading and incorrect because it is presented as a counterfactual scenario, when in fact it *does not* simulate a world without the Academy's consideration of race and ethnicity. Dr. Arcidiacono's counterfactual framing of the analysis is wrong, and its numerical results are simply an arithmetical exercise that recomputes the average discrepancy in admission rates across racial groups, after holding some covariates constant, in terms of counts rather than the logit regression coefficient's log-odds or the average marginal effect's rates. As a result, it provides no realistic or reliable information about "how removing racial preferences would change the racial composition of the admitted class."[261]

173. Dr. Arcidiacono uses the estimates of his models of admissions to measure the estimated effects on the racial breakdown of each selected group relative to a scenario in which he sets to zero the coefficients on his race variable.[262] Dr. Arcidiacono's preferred model is a logit regression and, as such, it compares discrepancies in appointment rates by race among candidates with similar observable metrics in terms of coefficients that are the logarithm of odds ratios ("logit") between admission and rejection.[263] He converts these logit values to average marginal effects (AME).[264] AME simply arithmetically converts the (admittedly

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[259] Arcidiacono Report, p. 82.

[260] Arcidiacono Report, p. 85.

[261] Arcidiacono Report, p. 82.

[262] Arcidiacono Report, p. B4–B5. Dr. Arcidiacono makes no attempt to justify or explain how "racial preferences are removed" until his mathematical appendix B, requiring the reader to infer until then that the calculation has something to do with his coefficient estimates.

[263] Carina Mood, "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It," *European Sociological Review*, vol. 26 (1), 2010, pp. 67–68.

[264] Arcidiacono Report, pp. 67 and B3.

somewhat obscure) logit values into differences in appointment rates. He claims that AMEs compare admissions probabilities before and after "taking away the racial preference."[265] Whether AME represents a counterfactual depends on whether the model itself is capable of representing a counterfactual admissions process, and it is not. While Dr. Arcidiacono claims that his conversion of these coefficients to counts of Black applicants depicts a counterfactual without the consideration of race, it merely denominates the same coefficients from the actual world in count terms. That is, the coefficients only measure the relative discrepancy in outcomes for *existing* applicants by race when race is accounted for in the admissions decisions.

174. By relying on the model's coefficient estimates for a purported counterfactual, Dr. Arcidiacono assumes that the pool of candidates evaluated and the evaluation of all their remaining observable attributes do not change (*i.e.*, the estimated coefficients measuring the contribution of all other attributes to selection do not change). As defined, this counterfactual scenario does not represent a world without the Academy's alleged consideration of race or ethnicity. There is no reasonable basis to assume that the pool of candidates and the evaluation of the remaining attributes would be the same if race and ethnicity were not accounted for. The estimated coefficients on his defined race variable reflect the contribution of each factor when the Academy *is* accounting for race and ethnicity. Dr. Arcidiacono pretends as though he is performing an analysis of "treatment effects," where the treatment is the Academy's consideration of race in admissions decisions. The conditions allowing such an analysis are not met and he did not assess whether they are met:

> The modern literature on treatment effects begins with a counterfactual, where each individual (or other agent) has an outcome with and without treatment (where "treatment" interpreted very broadly). […] Let y_1 denote the outcome with treatment and y_0 the outcome without treatment. Because an individual cannot be in both states, we cannot observe both y_0 and y_1; in effect, the problem we face is one of missing data.[266]

[265] Arcidiacono Report, p. 67.

[266] Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, 2nd ed., Cambridge: MIT Press, 2010, pp. 904–905.

Treatment effect analysis resolves the "missing data" problem by observing some individuals with the treatment – in this case, the Academy's admissions decision with the consideration of race – and some individuals without the treatment– in this case, the Academy's admissions decision in the counterfactual world where it is prohibited from considering race. Because the Academy considered all applications in Dr. Arcidiacono's database under existing policies, he has no data on individuals without treatment.

175. Put differently, it is unrealistic to assume that the weights given to applicant attributes other than race and ethnicity would not change, *i.e.*, it is unrealistic to assume that the Academy would still choose based on the other observable characteristics about the candidates by giving the same relative importance to each of them as they have during the period covered by the data, and not allowing decision makers to value some of those characteristics more or less in the absence of the context provided by candidates' racial and ethnic identities.

176. If there was an era when the Academy did not consider race, obtaining older data from that period would not improve the modeling of the proper counterfactual. Even if the Academy returned to precisely the same admissions policies it had during that period, the applicant pool has changed since then, demographically and socioeconomically. Also, any estimates from that era would suffer from omitted variable bias just the same as Dr. Arcidiacono's models for class years 2023–2027, and the outdated model's bias would reflect baseline population conditions that are not necessarily present.

177. Dr. Arcidiacono has acknowledged outside of this litigation that his methodology here is in fact not informative about admission composition without the Academy's consideration of race and ethnicity. In reference to the application of this exact methodology to college admissions, Dr. Arcidiacono stated that:

> This exercise is an alternative approach to measuring the impact of racial preferences and is not meant to estimate the impact of an affirmative action ban. In particular, when we remove racial preferences, we do not

> allow schools to adjust their preferences for all other applicant attributes.[267]

Dr. Arcidiacono explained further that this approach:

> holds fixed applications to the two schools [here, USNA] as well as their nonrace rankings of the applicants. Should affirmative action be banned, we may expect reactions along multiple margins. At the application margin, both students and universities [here, USNA] would change their behavior by changing either their application portfolios (students) or their recruiting strategies (universities [here USNA]).[268]

178. Mr. Kahlenberg relies on Dr. Arcidiacono's purported simulation of counterfactual scenarios without the Academy's alleged consideration of race.[269] Mr. Kahlenberg reports that Dr. Arcidiacono constructed the simulations by starting with Dr. Arcidiacono's model 5 and modifying the coefficients of the model after adjusting for the class-size constraint.[270] Model 5 is a logit model, just like his USNA-admissions model 6, which I discussed sections IX.D and X.C above, except without controlling for legacy, high school courses, and the BGO interview rating.[271] Any "simulation" inherits the flaws in its underlying model. Dr. Arcidiacono's model 5 is fundamentally flawed for the reasons explained above, including that his coefficient estimates are derived from a misspecified model that is subject to bias, that his model's coefficient estimates cannot be used to characterize a world without the Academy's consideration of race and ethnicity, and that he relies on socioeconomic data that is unreliable and misused.

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[267] Peter Arcidiacono, Josh Kinsler, and Tyler Ransom, "What the Students for Fair Admissions Cases Reveal about Racial Preference," *Journal of Political Economy Microeconomics,* vol. 1 no. 4 (Nov. 2023), p. 653.

[268] Peter Arcidiacono, Josh Kinsler, and Tyler Ransom, "What the Students for Fair Admissions Cases Reveal about Racial Preference," *Journal of Political Economy Microeconomics,* vol. 1 no. 4 (Nov. 2023), p. 656.

[269] Kahlenberg Report, p. 74.

[270] "This simulation uses Arcidiacono's preferred pre- and post-period Models 5 and sets all race coefficients and interactions to zero, then adjusts the resulting predicted admissions probabilities so that the total number of admits is constant." Kahlenberg Report, Appendix D, Table 1. Of the 350 tables in that appendix, 25 tables' notes include that language, and 325 including language similar to "This simulation repeats the exercise described in Table 1 and adds the following…." Kahlenberg Report, Appendix D.

[271] Arcidiacono Report, Figure 4.1 on p. 62.

XI. DR. ARCIDIACONO'S ANALYSES OF RACIAL BIAS IN COMPONENTS OF THE ADMISSIONS PROCESS ARE FLAWED

A. Dr. Arcidiacono Conflates Appointment and Charging Decisions in His Analysis of Qualified-Alternate Appointments

179. Dr. Arcidiacono's conclusion that "[r]ace clearly has an impact on who wins QA [qualified-alternate appointment]…" is predicated on incorrect assumptions and unreliable analyses.[272] He conducted two analyses to support this conclusion: the first is a regression model,[273] which suffers from the same flaws of omitted variable bias and misspecification as his logit model of admissions and is predicated on an erroneous understanding of the charging process. The second is a review of summary statistics of WPMs,[274] which, based on his misreading of the documents he cites, compares qualified-alternate appointees to an incorrectly chosen population of applicants "eligible" to be qualified alternates.

180. As a threshold matter, Dr. Arcidiacono has not shown that qualified-alternate appointments are anything other than the *ex-post* charges that the Academy treats them as. As section VI.A above explains, qualified alternates are those fully qualified candidates who did not win nomination slates from the Vice President, congressmen, congressional delegates from the District of Columbia, Virgin Islands, and Guam, or certain Puerto Rican officials.[275] The Academy charges a midshipman as a qualified-alternate appointee if he was among the top 150 by WPM score among midshipmen present on Induction Day who received a congressional nomination but did not win a slate.[276]

181. If charging decisions are merely *ex-post* accounting long after appointment offers turn into matriculation and military oaths, Dr. Arcidiacono has failed to show that the charging decision is material to applicants' chances of admission. This is not to suggest that the nomination rules and slate competitions do not affect candidates'

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[272] Arcidiacono Report, p. 74.

[273] Arcidiacono Report, pp. 69–72.

[274] Arcidiacono Report, pp. 72–74.

[275] 10 USC §§ 8454(a)(2)–(8) and 8456(b).

[276] *See* footnote 51 on p. 16.

chances of an offer. But, conditional on an applicant's receiving and accepting an appointment offer, final charging disposition is immaterial to the likelihood of admission.

182. Dr. Arcidiacono's nested logit model finds different rates of becoming a qualified-alternate appointee by race relative to differences in rates of winning a congressional slate by race after controlling for certain observable candidate characteristics.[277] Given the admissions process, this finding must have a source other than the Academy's purported consideration of race in qualified-alternate appointment charging decisions.

183. For example, who is a qualified-alternate appointee depends on who accepts offers and nominations, which is out of the control of the Academy. Nevertheless, Dr. Arcidiacono's analysis of qualified-alternate appointments is predicated on accepted offers.[278] That is, his analysis does not assess the Academy's decisions to extend an offer.[279] If one racial group has a different rate of outside offers for education or employment than other groups have, that may affect members of that group's propensity to decline a USNA offer. Unobserved differences in rates of declining offers would further bias Dr. Arcidiacono's results.

184. Dr. Arcidiacono's nested logit model further suffers from the same flaws as in his primary logit model of USNA admissions.[280] They both rely on the same observable explanatory variables,[281] so they both suffer from omitted variable bias and flawed data. Also, they both treat individuals in isolation for a model precisely meant to

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[277] Arcidiacono Report, pp. 70–71.

[278] Arcidiacono Report, p. 70: "Hence by estimating a nested logit model, I recover racial preferences of qualified alternates and additional appointees relative to the racial preferences for admission as congressional slate winners, and then recover the racial preferences in admissions for congressional slate winners in a second step." Arcidiacono Report, p. 72: "I focus on applicants who… did not decline USNA's admissions offer."

[279] Arcidiacono Report, p. 19: "If an applicant declines an offer, USNA's admissions data do not indicate whether that applicant was initially slated as a slate winner for a congressional slate or was admitted through some other channel."

[280] For details on Dr. Arcidiacono's nested logit model, *see* Arcidiacono Report, Appendix B.2.1. *See also* Jeffrey M. Wooldridge, Econometric Analysis of Cross Section and Panel Data, 2nd ed., Cambridge: MIT Press, 2010, pp. 646–651.

[281] Arcidiacono Report, p. 70.

assess the degree to which Academy admissions is zero sum, so they both suffer from misspecification. Indeed, the nested logit model assumes the Academy derives some benefit from its choices of how to charge each applicant in isolation across winning a congressional slate, a qualified-alternate appointment, or an additional appointment,[282] with low WPM candidates "eligible" for an additional appointment and high WPM candidates "eligible" for a qualified-alternate appointment. This structure acts as though who has a top 150 WPM score after Induction Day does not depend on candidates other than each one under consideration in isolation. This exacerbates the failure of the independence assumption that section VII above explains in the context of logit.

185. Dr. Arcidiacono's second analysis looks at the racial composition of candidates who were charged as qualified-alternate appointees above a purported "initial WPM cutoff" and a lower purported "actual cutoff" "for selection" as a qualified alternate. Dr. Arcidiacono finds that minorities are more heavily represented among qualified-alternate appointees with WPMs below the purported initial WPMs cutoff.[283]

186. In support of his analysis, Dr. Arcidiacono relies on a sequence of Excel workbooks from USNA Admissions for class years 2023–2027.[284] The last-modified dates in the workbooks range over the course of each year's application cycle, from February to June. They list applications currently in the Academy's database,[285] along with information about each candidate's qualifications and WPM. Each document numbers certain applications. Dr. Arcidiacono takes the WPM corresponding to the

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[282] Arcidiacono Report, p. 70. *See also* Arcidiacono Report, p. B7: "In particular, consider latent indexes for the four admissions channels: congressional (CC), qualified alternate (QA), additional appointee (AA), and service-connected (SC), with the latent index for applicant i for channel j given by: π_{ij}… where each of these latent indexes is relative to rejection (R). An applicant is admitted if the max of the π_{ij}'s is greater than zero; an applicant is admitted through channel j is π_{ij} is greater than zero and greater than the indexes for all the other channels."

[283] Arcidiacono Report, pp. 72–74, *especially* p. 72: "…WPM threshold for selection as a Qualified Alternate…".

[284] Arcidiacono Report, fn. 70 on p. 72. He cites Melody Hwang, March 10, 2022, "QA List," containing class year 2026, "USNA-00021118.xlsx"; Melody Hwang, February 13, 2023, "QA List", containing class year 2027, "USNA-00030495.xlsx"; Melody Hwang, June 14, 2021, "Sheet1," containing class year 2025, "USNA-00030498"; Melody Hwang, February 3, 2020, "Qualified Alternates," for class year 2024, "USNA-00030524.xlsx"; and Melody Lee, May 13, 2019, "Qualified Alternates," for class year 2023, "USNA-00030530.xlsx". Here I have listed each workbook along with the last-modified metadata and tab name.

[285] *See*, e.g., Melody Hwang, February 3, 2020, "Query Summary," "USNA-00030524.xlsx".

row with number 150 as the "Highest QA Cutoff" (having picked these particular workbooks out of the discovery production for yielding the highest such cutoff).[286]

187. The last person to modify each of these workbooks, Melody Hwang, testified that the Academy is "just generally capturing all those QAs by their whole person multiple."[287] Ms. Hwang starts producing the reports "regularly to ensure we [USNA] have, in fact, captured everybody that is supposed to be a QA"[288] only in the middle of the application cycle in February. According to Ms. Hwang, the reason for this is:

> Because, at that point, records that have gone to the Board that may not have been a QA whole person multiple at the time they went to the Board, they may have retaken their CFA, and so it might have automatically recalculated their whole person, and so now they […] qualify as a QA.[289]

What Dr. Arcidiacono purports are "provisional cutoff" WPM scores to determine who the Academy is supposed to offer a qualified-alternate appointment is just the lowest WPM score of the top 150 WPMs among qualified alternates and does not correspond to charging decisions, *i.e.*, which of the qualified alternates becomes a qualified-alternate appointee.

188. The actual lowest WPM among qualified-alternate appointees in a year can be lower or higher than the lowest WPM among qualified alternates in the middle of the application cycle – his so-called "Highest QA Cutoff." That is because the set of qualified alternates for whom the Academy has made an appointment decision and who have not yet declined offers changes throughout the application cycle up until Induction Day.

189. From this analysis, Dr. Arcidiacono concludes that "[r]ace clearly has an impact on who wins QA below the initial cutoff."[290] His attribution of these differences to

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[286] Arcidiacono Report, p. 72 and Table 4.5.

[287] USNA Fact Depo., p. 174:17–21.

[288] USNA Fact Depo., p. 175:4–6.

[289] USNA Fact Depo, p. 175:7–13.

[290] Arcidiacono Report, p. 74.

race, however, does not imply a "racial preference" by the Academy. His analysis here is limited to applicants who "did not decline USNA's admissions offer."[291] As explained above, the decision to accept an offer – and, as a result, the pool of candidates who can be charged as qualified-alternate appointments – is beyond the Academy's control. It is possible that this outcome is a result of different rates of acceptance of appointment offers across races. In this case, the observed differences in racial composition of applicants charged as qualified alternates with scores below an Dr. Arcidiacono's so-called "initial WPM cutoff" would not be attributable to the Academy's decisions but to applicants' decisions.

B. RABs Regressions

190. Dr. Arcidiacono hypothesizes that the "observed applicant characteristics themselves may be the result of racial penalties and preferences,"[292] and that "factors such as RAB points and BGO interview scores may be influenced by race."[293] To test his hypotheses, he designs a series of models to investigate whether there are "racial preferences" in the distribution of RAB points. These models suffer from many of the same flaws in Dr. Arcidiacono's USNA Admissions analyses.

191. Dr. Arcidiacono conducts a series of regression analysis on the sum of RAB points awarded for each candidate in a given application cycle (dependent variable) on a variety of potential explanatory variables of applicant characteristics,[294] most of which were also included in his USNA Admissions' models. He conducts this analysis on "applicants who (i) have a complete non-withdrawn application, (ii) received a nomination, and (iii) were medically and physically qualified."[295] Also he excludes blue-chip athletes and applicants coming from pre-school programs for most of his models.[296]

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[291] *See* Arcidiacono Report p. 72.

[292] *See* Arcidiacono Report p. 22.

[293] *See* Arcidiacono Report p. 22.

[294] *See* Arcidiacono's Report Table D.126.

[295] *See* Arcidiacono Report p. 101.

[296] *See* Arcidiacono Report p. 101.

192. By choosing the sum of all RABs granted to a candidate as his dependent variable, Dr. Arcidiacono fails to recognize that several RABs are automatically awarded based on application input and therefore are not subject to any subjective consideration of race. Also, as in Dr. Arcidiacono's admissions regressions, these analyses are susceptible to omitted variable bias. RAB points determined by unobserved factors correlated with race will result in misattribution of the observed effect to the consideration of race. Notably, Dr. Arcidiacono omits determinants of automatic RABs.

193. Dr. Arcidiacono's goal is to find out what explains RAB point assignments and the Academy records the reason in a field called "Reason" in its database.[297] To reliably assess whether race plays a role in the Academy's decision, it is necessary to assess each RAB category separately and account for at least the determinants listed in the Academy's written RABs policies.[298] For instance, Exhibit 6 shows that a 6.02 percent of both positive and negative RAB points awarded automatically come from the Summer Seminar reason category. The Academy's policy is that the points are a direct function of the Naval Academy Summer Seminar evaluation (including numerical rating and written commentary) of the attendee.[299] Dr. Arcidiacono does not control for even the numerical rating to factor out the contribution of Summer Seminar performance to the Summer Seminar portion for the RAB points.[300] He should have included it as a regressor for a model of Summer Seminar RAB points only. He does include the CFA score as a regressor, but the CFA score explains only CFA RABs and should not be a regressor for the Summer Seminar RABs.

194. The Life Experience/Hardship RAB category is the largest source of Board-initiated RAB points, both positive and negative. Dr. Arcidiacono also fails to include in his model some obvious controls available for explaining those RABs,[301] such as

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[297] See Appendix 1, section III.B.4.

[298] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070. *See also* "RAB Quick Reference Guide", USNA-00000078-80.

[299] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -74.

[300] Arcidiacono Report, Table D.126.

[301] Arcidiacono Report, Table D.82.

whether the applicant claimed an "adversity experience".[302] As importantly, Dr. Arcidiacono did not control for the rich information available to the Board from applicants' written responses I discussed in section VIII.B above. As I explained in section VIII.C above, Black applicants may well have singular experiences to account for. Dr. Arcidiacono's model ignores this context, resulting in regression estimates that likely mistake the Academy's preference for race-neutral characteristics for its direct consideration of race.

195. In his last model of this series, Dr. Arcidiacono adds applicants from prep school programs (in addition to BCAs),[303] but RABs and every other WPM components from prep schools are simply copied from their initial application and do not play any role in their current application,[304] and hence the only thing Dr. Arcidiacono accomplishes by including these applications into his flawed regression analysis is to duplicate those entries and make these applications receive more weight than the other observations, likely biasing his results. Not only are these RABs not being used to select these applicants into USNA, but they are in fact not a representation of this applicant's current "recommendations of the board", which is supposed to be the purpose of the regression.

196. Moreover, Dr. Arcidiacono chooses to model these regressions as ordinary least squares ("OLS"),[305] which is not appropriate in this context. RAB adjustments for a given candidate are capped at 9,000.[306] Despite acknowledging this cap himself,[307] he estimates a linear model, and linear regression models can be problematic for variables that are restricted in range because linear models will typically predict values

[302] *See* Appendix 1.

[303] *See* Arcidiacono's Report p. 102.

[304] *See* Section VI.E.2.

[305] *See* Arcidiacono's Report Table D.126.

[306] "Guidance for Recommendations of the Admissions Board (RABs)," USNA-00000070 at -70.

[307] *See* Arcidiacono Report p. A5.

outside that range for sufficiently extreme values of the predictors.[308] At no point does he acknowledge this issue.

C. Dr. Arcidiacono's Nomination Regressions Are Uninformative

197. Dr. Arcidiacono's nomination analysis relates to the consideration of race by nominating authorities, not the Academy. As a result, it is uninformative about the consideration of race by the Academy. Further undermining the relevance of his analysis of nominations, Dr. Arcidiacono acknowledges that he cannot assess discrimination in the nomination process because it is "unclear from the data provided by USNA whether an applicant sought a nomination and was rejected by the Member of Congress, or whether the applicant did not complete the nomination process."[309]

198. To be eligible to receive an offer from the Academy, a candidate must be nominated. A candidate's ability to secure a nomination is fundamental to their likelihood of being admitted into USNA, and Dr. Arcidiacono acknowledges the possibility that individuals from distinct racial backgrounds may encounter different levels of difficulty when trying to obtain a nomination from nominators. Discrimination in the nomination process may put minorities at a disadvantage to become eligible. Dr. Arcidiacono raises this concern but does not provide any empirical evidence about whether members of Congress discriminated against minorities when nominating candidates to the Academy.

199. Dr. Arcidiacono analyzes the consideration of race for slate-member rankings. Even if these analyses were reliable – which they are not for the same reasons Dr. Arcidiacono's econometric models are flawed– those results would be conditional on a congressperson giving a minority candidate a nomination in the first place. Thus, from this evidence, it is impossible to rule out any racial discrimination in the

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[308] James H Stock and Mark W. Watson, Introduction to Econometrics, 2nd Edition, Adison Wesley, 2006, p. 419.

[309] Arcidiacono Report, p. 58.

nomination process by Congress members that would necessarily bias the analysis Dr. Arcidiacono purports to do.

XII. PLAINTIFF'S CLAIMS OF RACIAL BALANCING ARE UNSUPPORTED

200. To the extent Plaintiff argues that USNA is engaging in racial balancing by matching the racial composition of its classes to the racial demographics of the U.S. population as a whole, the most recent U.S. Census data are inconsistent with any such "racial balancing" of this type. The 2020 Census provides the most recent decennial population count conducted by the U.S. Census Bureau.[310] The demographic data collected in the 2020 Census include race and ethnicity. In August 2021, the U.S. Census Bureau published a report showing the racial and ethnic composition of the U.S. population.[311] The U.S. Census Bureau analyzes diversity by defining mutually exclusive categories, including one for Hispanic or Latino of any race, and one for each race excluding Hispanic or Latino.

201. Dr. Arcidiacono finds a larger impact of race, for Black applicants in particular, for classes of 2025–2027 than for classes of 2023–2024.[312] Dr. Arcidiacono attributes these fluctuations to "increased attention to racial equity after the killing of George Floyd."[313] Dr. Arcidiacono's report, however, does not provide any empirical evidence to support this claim.

202. More generally, Dr. Arcidiacono's time-varying estimates do not provide evidence that any particular objective in terms of racial composition is being sought, including racial balancing. While Plaintiff does not describe the Snapshot data presented in the

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[310] U.S Census Bureau, 2020 Census, https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-main.html.

[311] "The U.S. Census Bureau collects race and ethnicity data in accordance with the 1997 Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity directed by the U.S. Office of Management and Budget (OMB) (see link below)." U.S. Census Bureau, "Racial and Ethnic Diversity in the United States: 2010 Census and 2020 Census," https://www.census.gov/library/visualizations/interactive/racial-and-ethnic-diversity-in-the-united-states-2010-and-2020-census.html.

[312] Arcidiacono Report, Tables D.84 and D.85.

[313] Arcidiacono Report, p. 64.

Complaint, these figures show that: (1) the difference in the number of enrollments between classes of 2025 and 2026 for White, Black, and Asian midshipmen was 0.6, 5.3, and 1.7 percent, respectively; and (2) the change in the share of enrollments for White, Black, and Asian midshipmen is below five percent from class of 2025 to class of 2026. Thus, Plaintiff appears to suggest that racial balancing is demonstrated by relatively stable racial and ethnic shares of enrollment over time. As I discuss below, this theory is incorrect.

A. Snapshot Data on Enrollment by Race for Classes of 2018–2027 Show Significant Fluctuations in Racial and Ethnic Composition

203. Plaintiff supports its claim of racial balancing by presenting data contained in Snapshot reports for two years. Snapshot reports summarize the outcomes of the admissions process – together with applicants' own matriculation choices, which the Academy does not control after offering appointment – on an annual basis and include a breakdown of enrollment counts by race and ethnicity. I expand the data reported by Plaintiff by also including enrollment counts for Hispanic midshipmen, and data for ten years from the 2018 through 2027 Snapshot reports.[314]

204. To assess the stability of racial and ethnic breakdown of annual enrollment counts, I calculated annual shares of total enrollment for White, Black, Asian, and Hispanic midshipmen. Then, I calculated year-over-year changes in share of enrollments for each category. These changes are reported in Exhibit 15. Exhibit 15 shows that enrollments shares for each race vary substantially over time. The shares of Black, Asian and Hispanic enrollments fluctuate year-over-year by as much as 21 percent.

205. As a threshold matter, enrollment counts depend not only on the Academy's admissions decisions, but also on each offer recipient's decision to accept or decline. Therefore, even if racial and ethnic breakdowns were stable, which they are not as shown above, this outcome could not be entirely attributed to the Academy, and it would be incorrect to conclude that the outcome is a result of the Academy's consideration of race.

[314] Class of 2025 Snapshot, USNA-00004387-89.

B. Enrollment Data for Classes of 2023-2027 Show Significant Fluctuations in the Racial and Ethnic Breakdown of Offers of Appointment

206. Enrollment decisions are not only dependent on the Academy's admissions decisions but also on candidates' acceptance decisions. Admission offers, in contrast, are an outcome that depends solely on the Academy's decisions. Therefore, I also evaluated whether the racial and ethnic breakdown of admission offers are stable over time.

207. To conduct this analysis, it is not possible to rely on Snapshot reports because the only breakdown by race and ethnicity they include are enrollment counts. Therefore, to complete this analysis, I rely on the admissions dataset I compiled for classes of 2023 through 2027.

208. In Exhibit 16, I show shares of admission offers by race and ethnicity. I calculated year-over-year changes in shares of admission offers for each racial and ethnic category. As Exhibit 16 shows, the shares of admission offers for racial and ethnic categories vary substantially over time. In particular, the shares of Black, Asian and Hispanic enrollments fluctuate year-over-year by as much as 15, 23 and 15 percent respectively.

C. Racial Composition at USNA Differs from the U.S. Population's

209. I report in Exhibit 17 the racial breakdown of the U.S. population as of 2020 and of the classes of 2024 through 2027. The racial and ethnic composition of the U.S. population as a whole and the enrolled USNA classes differ significantly for each of the four years. For example, the average absolute percentage difference in shares by race and ethnicity between the racial and ethnic breakdown reported by the 2020 U.S. census, which was not available at the time class of 2024 enrolled, and the composition of the class of 2024 is 59.3 percent. In particular, according to the 2020 census, Black or African American alone (non-Hispanic or Latino) account for 12.1 percent; in contrast, Black enrollments in the Class of 2024 account for 6.5 percent of the enrollments. Overall, average differences of at least 54 percent persist during the five most recent admissions cycles.

XIII. DECLARATION

I declare that the foregoing report is true and correct.

Executed on July 31, 2024.

Stuart D. Gurrea

Appendix 1—Database Documentation

I. Population Definitions

1. See subsection III.A for a technical description of Table 1's populations of applications to the United States Naval Academy (USNA or "Academy").

Table 1—Populations of Interest

Population	Description
Completed applications	Completed, Board-reviewed applications from domestic civilians not already in a Naval preparatory program.
Eligible	Among the completed applications population, those applications with medical qualification, passing the Candidate Fitness Assessment (CFA), having a nomination, and completing the Blue and Gold Officer (BGO) interview or are recruited athletes for basketball or men's football.

II. Initial Data Processing

II.A. Sources

2. The Academy maintains a suite of databases connected both to its online application system and its application-review interfaces that Admissions Board members, Slate Review Committee members, and admissions staff use.[1] USNA exported its data productions from both the application-review interfaces and from the underlying database software, providing all elements of all application files (excluding some attachments that would not have been amenable to statistical analysis anyway[2]). The Academy's data architecture uniquely identifies each application within a decade[3] that has passed the basic age and citizenship screening questions with a "candidate number."[4] The raw data productions contain a total of 70,449 valid candidate numbers (see section III.A below for a definition of *valid*).[5]

II.A.1. Oracle (class years 2023–2024)

3. Oracle data tables have application information for candidates applying for the class years 2023–2024. The data tables are broken into three categories, "General Information," "Academic," and "Recommendations" containing personal, academic, and teacher-recommendation data for each application. The General Information data tables include Oracle General Information Part 1a ("Oracle GIP1"), General Information Part 1b, Multiple, RAB, Parent, and Nominations. The data Academic data tables include Enrollment History, Current Couse Work, SAT, Language, and ECA. The Recommendation data tables include Academic, "English_Math", Military, Fitness, BGO, ECA Validation, and NASS. I have relied generally on the Oracle data dictionary.[6]

[1] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[2] "2024.02.16 USNA Data.pdf".
[3] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[4] Melody Hwang, USNA Admissions, on a telephone call with Secretariat on March 11, 2024.
[5] Exhibit 4.
[6] "USNA-00000498 Data Dictionary - Oracle pre-Class of 2025.xlsx", USNA-00000498.

II.A.2. Oracle Board Routing

4. Board Routing contains variables from a candidate's board review for 2023-2027. Each record is a board review of an application, once per review session. Oracle data does not have `Most Recent Board Result`, so Board Routing for 2023–2024 is read for Board Result and Most Recent Board Date. The Academy did not move Board routing data from Oracle to Salesforce after the class-year 2025 application cycle.[7]

II.A.3. BART (class years 2025–2027)

5. Board Application Review Tool (BART) is the software that the Admissions Board uses for reviewing applications starting with the class year 2025.[8] Its backing data storage is Salesforce Objects (there was an analogous program before the application cycle for class year 2025 whose backing data storage was Oracle).[9]

6. Its data tables have application information for candidates applying for the class years 2025–2027. The data tables are broken into three categories, "General Information," "Academic," and "Recommendations" containing personal, academic, and teacher-recommendation data for each application. The General Information data tables include BART General Information Part 1 ("BART GIP1"), Multiple, RAB, Parent, and Nominations. The Academic data tables include Enrollment History, Current Couse Work, Test Scores, Language General, "Lang detail prior," ECAs, and Accommodations. The Recommendation data tables include Academic, Eng (as in *English*), Math, Military, Fitness, BGO, CRC, Other, ECA Validation, NASS, and Attache.

II.A.4. Slate Review Report

7. Slate Review is software for use by the Slate Review Committee (there was an analogous program before 2025).[10] This Slate Review Report, produced from it, contains nomination information for class years 2023–2027 for candidates that received a nomination and whether they were charged to that nomination. Each record is a nomination for a candidate from a particular nomination source.

II.A.5. Salesforce Objects

8. A Salesforce database (whose tables are called "objects") provides the backing data storage for BART and Slate Review, i.e., BART and Slate Review are computer programs providing views into the Salesforce database.[11] When the Academy transitioned to BART for the application cycle for the class year 2025, it moved much but not all data over from the Oracle database, primarily moving such data as there was a one-to-one correspondence between the Oracle and Salesforce schemata.[12] I have relied generally on the Salesforce data dictionary.[13]

II.A.5.i. Salesforce Applications Object

9. Salesforce Applications Object contains candidates' personal and application information for class years 2023-2027. `Candidate Number` uniquely identifies rows. The data table combines Oracle and BART data.[14] For variables that exist in the BART years but not Oracle years that are present in the Applications Object, the variable is missing or takes on the same value for all Oracle years records. For instance,

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[7] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[8] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[9] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[10] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[11] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[12] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[13] "`USNA-00000499 Data Dictionary - Salesforce Class of 2025-present.xlsx`", USNA-00000499.
[14] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.

`Application Status` reports "Incomplete" for all applications in 2023–2024 regardless of whether the application was completed.

II.A.5.ii. Salesforce Nominations Object

10. Salesforce Nominations Object contains nomination records for class years 2023–2027, combining both Oracle and BART nominations data. I ignore the object's charging flags in favor of Candidate-level charging reports (see below). The data table combines Oracle 2023-2024 and BART 2025–2027 data. Each record is a nomination for a candidate from a particular nomination source.

II.A.6. DOJ Contact Matching

11. DOJ Contact Matching contains all candidate numbers from 2023–2027 found in Oracle/BART GIP1, the candidate's name and email, and their `Student Type`. Among 2025–2027 applications with a non-missing Board Result, `Student Type` is consistent between BART GIP1 and DOJ Contact Matching for all candidates, except candidate 660136, who is not in the completed-applications population (see section III.A below). I use `Student Type` from this table because Oracle does not have it for 2023–2024 applications.

II.A.7. Candidate-level charging reports

12. USNA-00015846–15850 identify the charging decision for each candidate who accepted an offer to USNA. While such decisions are available from other sources, this is the canonical source.[15] However, the candidate numbers appearing in Table 2 below have ambiguous charging data. My code manually replaces the charging decisions for them with Table 2's "Original Charge" column for the purposes of the Nominations table's Slate Winner and Applications table's Offer Category variables. Most ambiguous charges are the result of a midshipman, originally charged to a congressional or service-connected slate, separating from the Academy and then returning charged as an additional appointee.[16]

13. The Excel workbooks for class years 2025–2027, USNA-00015846–15848, record charging decisions only as background coloring for a candidate's row. My manually modified versions of the files, available in the workpapers, contain a macro for recording the background color as cell content that Stata can read.

Table 2—Ambiguous charging decisions

Candidate Number	Original Charge	Readmission/Erroneous Charge	Notes
311257	Presidential	Qualified-Alternate Appointment	Data error†
320672	North Carolina District 6§	Additional Appointee	
330090	Wisconsin District 1	Additional Appointee	
332662	Superintendent	Additional Appointee	Data error†
340263	Utah Senator 2	Additional Appointee	
340378	Utah Senator 2	Additional Appointee	
341639	New Mexico District 1	Additional Appointee	
360001*	Presidential‡	Sec. Navy/Regular‡	Potentially not a readmit
360163*	Presidential‡	Sec. Navy/Regular‡	Potentially not a readmit
360178*	Sec. Navy/Regular	Additional Appointee	Data error†
370055*	Presidential	Additional Appointee	
410653	Presidential	Additional Appointee	
433049	Excess Quota Texas 9	Additional Appointee	Texas District 7 before redistricting
460017*	Presidential	Additional Appointee	

[15] Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024.
[16] S. Bressler, M. Biondi, M. Hwang, 30(b)(6) Deposition, May 28, 2024 ("USNA Fact Depo."), pp. 23:7–22:1.

Note: The Candidate-level charging reports have unique charging decisions for all admitted candidates, after removing Excess Quota charges, except these.
* I include these adjustments for completeness, but these candidate numbers do not enter into my analyses because they are not present in the completed-applications population.
Sources: Marisa Biondi and Stephani Bressler, USNA IT, telephone call with Secretariat on May 13, 2024.
§ According to USNA, candidate 320672, who was readmitted, is charged to a presidential nomination slate and as an additional appointee.[17] However, both the charging report and the Salesforce Nominations object indicate the candidate was charged to North Carolina District 6 and as an additional appointee. Assuming readmission, I resolve the discrepancy in favor of the charging reports.
† S. Bressler, M. Biondi, M. Hwang, 30(b)(6) Deposition, May 28, 2024, p. 22:18–27:19.
‡ Inferred from the charging reports: they were charged to and slate winners for the Presidential nomination and charged to but not slate winners for the Sec. Navy/Regular nomination.

II.B. Data integrity verification

14. This section lists facts about the data that the database schema in section III below or my code rely upon.

II.B.1. Board Review and an Application Decision Imply Completeness

15. Among class of 2025–2027 applications in the completed-applications population, in BART GIP1, a non-missing "`Most Recent Board Result`" and non-missing "`Application Decision`" implies that "`Application Status`" is "Complete - Decision Made" and "`Application Stage`" is "Submitted". (Data for application status and stage were unavailable for 2023–2024 applications.)

II.B.2. Qualified-Alternate Appointment Charges Appear as Expected

16. With one exception, all candidates who accepted and are charged as a qualified-alternate appointment also have a congressional nomination, and there are exactly 150 QA nominations each year. The one exception is that in 2023, I manually set candidate 311257's charge to a presidential nomination (Table 2 above), leaving only 149 qualified-alternate appointment charges in 2023.

II.B.3. Candidate Number Begins with the Year

17. Other than the test record candidate number 601723,[18] error code candidate number 999999,[19] and missing candidate numbers, the most significant decimal digit of a candidate number c equals the least significant decimal digit of the class year y to which the candidate was applying, i.e., $y = \lfloor c/10^5 \rfloor + 2020$ since $c \in \{10^5, \ldots, 10^6 - 1\}$ and $y \in \{2023, \ldots, 2027\}$.

II.B.4. Eligible Candidates Have a Unique Final Disposition

18. All eligible candidates have the Salesforce Applications Object's `Application Decision` showing them as rejected from USNA, having declined a USNA offer, or accepted a USNA offer. For all candidates who accepted an offer, there is a unique solution in the Candidate-level charging reports, as corrected in subsection II.A.7 above, to identifying USNA's charging decision: the candidate was either a slate winner, a qualified-alternate appointee, an additional appointee, or one of the candidates in Table 2.

II.B.5. All USNA Appointments Go Only to Eligible Candidates

19. Among class of 2023–2027 applications, with only those exceptions listed below, all offers went only to applications for which Board Qualified and Eligible are 1. The only manual adjustments necessary were for the following candidate numbers:

    a. 420591, 422145, 422161, 430500, 432083, 730123 received an offer but were medically rejected.

[17] Marisa Biondi and Stephani Bressler, USNA IT, on a telephone call with Secretariat on May 13, 2024.
[18] USNA Fact Depo., p. 33:5-11.
[19] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.

b. 423656 has Board Result equal to "Not Qualified, Recommended for NAPS Direct" but was given a USNA offer.

II.B.6. All Superintendent Nominated Candidates Received a USNA Offer

20. Since Superintendent nominations are "typically used for qualified candidates that USNA highly desires but who lack nominations from other authorities",[20] I expect—and find—that, for all candidates in the completed-application population, Superintendent nominated implies USNA Offer Given.

III. Database Tables

21. This section describes the database schema organized by table. Each section starts by describing the rows of the corresponding table including primary keys and selection criteria. Subsections describe either a variable or group of variables. One group of variables with its own section is for *generated variables* (aka *calculated columns*)—fields computed from others already in the database rather than from raw data.

III.A. Applications

22. The primary key of this table is Candidate number, which uniquely identifies applications across all years for class years 2023–2027. Each applicant can have only one application per class year, and the Academy routinely searches for and consolidates any duplicates.[21] The Applications table includes exactly the *completed-applications population*, that is, all candidate numbers from Oracle/BART GIP1 for which:[22]

    a. **Civilian and not from a Naval preparatory program**: DOJ Contact Matching's `Student Type` $\notin$ {"Fleet", "Nuclear Power School"}, Salesforce Applications Object's `Feeder Source`[23] is empty, and the second most significant digit $\lfloor c/10^4 \rfloor \bmod 10$ of the candidate number c is not 6 (NAPS), 7 (Foundation), 8 (fleet), or 9 (Civilian Prep).[24]
    b. **Domestic**: DOJ Contact Matching's `Student Type` is not "Foreign National".[25]
    c. **Board reviewed**: Board Result is nonempty.

[20] Declaration of Stephen Bruce Latta, December 1, 2023 ("Latta Declaration"), ¶ 47.
[21] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[22] BART Academic Part 4 (Language General) and BART Academic Part 7 (Accommodations) tables include one candidate number, 732420, not present in BART GIP1. Because I include only board-reviewed applications, this candidate number would be excluded anyway.
[23] `Feeder Source` in Oracle GIP1 matches `Feeder Source` in Salesforce Applications Object for 2023–2024.
[24] Additionally, the second most significant digit of candidate number can also be 0–4, indicating geographic region within the United States, or 5, indicating foreign applicants. Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024.
[25] The Academy catches and corrects application data if a foreign applicant tries to pass him- or herself off as domestic. The Academy closes out such fraudulent applications, sets `Student Type` to "Foreign National", and sets the second digit of the candidate number to 5 (see fn. 24). Therefore, checking both `Student Type` and the candidate number's second most significant digit is redundant in retrospective data from prior years. Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024. Indeed the completed-applications population contains no candidate numbers with second-most significant digit equal to 5.

d. **Completed**. The Salesforce Applications Object's `Application Decision` is not "Candidate Withdrew" or missing,[26,27] and Board Result is not "USNA Deferred" because it suggests the application was too incomplete for the board to render a decision.[28]

e. **Valid**. Candidate number 601723 is invalid because it was a test record.[29] Candidates 712033, 701553, and 999999 are marked as test records by `Is Test Record` in the Salesforce Applications Object. Candidate number 999999 is invalid (typically indicating missing key data).[30] Finally, I discard observations missing a candidate number.

III.A.1. Candidate number

23. Primary key. The USNA application system issues a candidate number early in the application process when the applicant confirms his age and citizenship meet USNA's criteria.[31] The first digit of the six digit numbers identifies the last digit of the application's Class year (see § II.B.2). The second digit identifies the geographic region (for values 0–4) or fleet membership or prep school attendance as above. The remaining digits indicate the order in which the numbers were issued, i.e., when the candidate began the application.[32]

III.A.2. Application Process Data

24. This grouping of columns is merely for ease of reference.

III.A.2.i. Class year

25. Integer ∈ {2023, …, 2027} from the file name of the Oracle/BART GIP1 file representing the candidate's class year.

III.A.2.ii. Board Result

26. For class years 2025–2027, this is BART GIP1's `Most Recent Board Result`.

27. For class years 2023–2024, Oracle does not have `Most Recent Board Result` variable, so Oracle Board Routing's `Result Meaning` is used. The record with the latest "`Board Date`" is kept for each candidate. Two candidates, 323112 and 413549, have duplicate board results for their latest board date with one record reporting unqualified and the other reporting "Early Notify". Since these candidates were given an offer (as can be seen in the Salesforce Applications Object's `Application Decision`), the "Early Notify" result is kept. There are other candidates who have duplicate board results for their latest board date, but the results mean the same thing. For example, one candidate's record has "Result Meaning" as "Not Qualified, Recommended for NAPS Direct" and has another record as "Not Qualified, Prep Pool", both meaning not qualified. For these candidates, one of the `Result Meaning` values is

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[26] Candidates are marked as having withdrawn when they fail to complete the application process, e.g., having an offer conditional on a medical waiver and the candidate doesn't want to go through the medical waiver process. USNA does not track the date or point in the process at which a candidate withdraws. Melody Hwang, USNA Admissions, telephone call with Secretariat on May 13, 2024.

[27] All candidates in 2025–2027 who have `Application Status` as "Incomplete" or "Withdrawn" have a missing value for `Application Decision`. `Application Status` is not present for 2023–2024, so, based on 2025–2027 data, I conclude that, if a candidate is missing `Admission Decision`, their application is incomplete or withdrawn. See also section II.B.1.

[28] "USNA Application and Admissions Board: Admissions Board Training", August 2023, USNA-00000108, p. 26, ("Admissions Board Options… Defer • More information needed").

[29] USNA Fact Depo., p. 33:5-11.

[30] USNA Fact Depo., pp. 31:11–33:4, especially 32:19–33:4 ("MR. MCCARTHY: So is it the case that for any applicant that had this 999999 candidate number, that they would have not completed the entire application process? [...] MS. BRESSLER: Yes, that's correct.").

[31] Melody Hwang, USNA Admissions, on a telephone call with Secretariat on March 11, 2024.

[32] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.

always "[Not] Qualified, Prep Pool" and the other is "[Not] Qualified, Recommended for NAPS Direct (Foundation)". The "[Not] Qualified, Recommended for NAPS Direct (Foundation)" is kept.

III.A.2.iii. Most Recent Board Date

28. `Most Recent Board Date` from BART GIP1 and the most recent `Board Date` from Oracle Board Routing. I assumed board dates February 17, "0202" and April 30, 2002, were data errors and changed their years to 2022 and 2021, respectively, given the candidates' intended class years.

III.A.2.iv. Medically Qualified

29. Salesforce Applications Object, "`Medical Status USNA`" variable. Values of "Incomplete" and "Pending" are replaced with missing. Categorical, "Qualified" ↦ 1, "Rejected" ↦ 0, and missing. `Medical Status USNA` is always "Qualified" when `Medical Status DoDMERB` is "Waived by USNA", so only `Medical Status USNA` needs to be used. Candidate 730123 was medically qualified, received an offer, became injured, and then USNA changed the candidate's medical qualification to rejection.[33] My code manually changes the candidate's medical qualification to "Qualified" along with five additional candidates—420591, 422145, 422161, 430500, and 432083—who received an offer of admission despite having their medical qualification marked as "Rejected" or missing.[34]

III.A.2.v. CFA

30. Salesforce Applications object's "`Qualified CFA Status`" variable. CFA stands for Candidate Fitness Assessment. Missing records are left as missing. Categorical, "Qualified" ↦ 1, "Rejected" ↦ 0, and missing.

III.A.2.vi. Interviewed

31. To be eligible for admission, candidates must either have an interview with a Blue and Gold Officer (BGO) or be a recruited athlete in men's or women's basketball or in men's football.[35] So whether a candidate interviews with a BGO or with a coach, they must have an interview. This binary variable indicates that this has happened.

32. The Oracle Recommendations BGO table contains candidates that are missing `BGO Interview - Comment`. (Of the candidates missing `BGO Interview - Comment`, 82 are not missing `BGO Interview Date` but have all other variables entered as "NOT OBSERVED", "NOT RECOMMENDED", or "WITHDRAWN" and the rest are missing `BGO Interview Date`.) I assume that these candidates did not complete the BGO interview requirement and all other candidates in the dataset did complete the requirement.

33. BART Recommendations BGO table contains candidates that are missing "`Overall Evaluation`". It is assumed that these candidates did not complete the BGO interview requirement and all other candidates in the dataset did complete the requirement.

34. To be marked as interviewed, candidates must either be present in the BART/Oracle Recommendations BGO tables after the above restrictions or be a recruited athlete in the aforementioned sports. To count as the latter, candidates must have both DOJ Contact Matching's `Student Type` = "Recruited Athlete"

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[33] Melody Hwang, USNA Admissions, on a telephone call with Secretariat on May 13, 2024.

[34] USNA IT staff in private communication to Secretariat, June 14, 2024. Candidate 420591 was granted a medical waiver. Candidate's 422161, 430500, and 432083 were medically qualified. Candidate 422145 is marked as not medically qualified but received an offer nonetheless, so I manually changed this candidate to qualified.

[35] Marisa Biondi and Stephanie Bressler, USNA IT, telephone call with Secretariat on March 12, 2024.

and Oracle/BART GIP1's `Sport Code` ∈ {"WBB", "MBB", or "MFB"}.[36] However, I manually set candidate 640390's Sport Code to "MFB" for this algorithm.[37]

III.A.2.vii. Admission Decision

35. This is Salesforce Applications Object's `Application Decision` for all years. For 2025–2027, it matches BART GIP1's `Application Decision`.

36. I manually correct candidate 331333's Admission Decision to be "NAPS - Offer To NAPS Withdrawn By USNA".[38]

III.A.2.viii. Offer Category

37. Categorical according to Table 3 below. The discriminant values are chosen to simplify the definitions of USNA Offer Given and Prep School Offer Given. The categories are exhaustive and mutually exclusive for all candidates, so there are no missing values.[39] In particular, USNA and I consider an offer's being for a qualified-alternate appointment or additional appointment or to win a slate if and only if the applicant accepts the offer and is charged as such per the Candidate-level charging reports.[40]

Table 3—Offer Category Mapping

Discri-minant	Category	Admission Decision ∈
-2	NAPS offer	{"NAPS - Obligated To Reserve Enlistment",[41] "NAPS - Offer Accepted", "NAPS - Offer Declined", "NAPS - Offer To NAPS Withdrawn By USNA"[42]}
-1	Other prep school offer	{"CIV PREP - Candidate Accepts Civilian Prep", "CIV PREP - Candidate Declines Civilian Prep", "CIV PREP - Candidate Offered Civilian Prep", "FOUNDATION - Candidate Accepts Offer of Foundation Sponsorship", "FOUNDATION - Candidate Declines Offer of Foundation Sponsorship"}
0	No offer	(*All values not listed elsewhere in this table*)[43]
1	Qualified-alternate appointee	{"USNA - Offer Accepted"} (*depending on Candidate-level charging reports*)
2	Additional appointee	{"USNA - Offer Accepted"} (*depending on Candidate-level charging reports*)
3	Slate winner	{"USNA - Offer Accepted"} (*depending on Candidate-level charging reports*)

[36] Melody Hwang, USNA Admissions, telephone call with Secretariat on May 13, 2024. Candidate numbers 511407 and 540215 have `Student Type` = "Recruited Athlete" but are missing `Sport Code`. This does not end up mattering for candidate 540215, who meets the Interviewed requirement through a BGO interview. Candidate 511407 is marked as not satisfying the Interviewed requirement.
[37] USNA IT staff in private communication with Secretariat, June 14, 2024. Candidate 640390 was recruited both for track (sport code "MTR") and football ("MFB").
[38] USNA Fact Depo., 58:9–10.
[39] USNA does not identify which offers it charges as qualified-alternate appointments or additional appointments until charging occurs after the Academy's Induction Day. USNA Fact Depo., p. 112:9–17.
[40] USNA Fact Depo., p. 28:13–21 ("…so they should have been unchecked as a slate winner once they declined…. And so, ultimately, they did not come in, so they did not end up getting charged anywhere. So that's, again, all that matters.").
[41] "NAPS - Obligated to Reserve Enlistment" indicates that the candidate accepted the offer to attend NAPS and took the next, necessary step toward that of enlisting in the Navy. Melody Hwang, USNA Admissions, telephone call with Secretariat on May 13, 2024.
[42] USNA withdraws an offer when a candidate never responds to the offer, which is no different from declining. Melody Hwang, USNA Admissions, telephone call with Secretariat on May 13, 2024.
[43] Such values include "NAPS - Wait List Declined" and "USNA - Wait List Declined". These two mean that USNA did not offer an appointment to NAPS or USNA, respectively, but did offer the corresponding waitlist, and the candidate declined being put on the waitlist. Melody Hwang, USNA Admissions, telephone call with Secretariat on May 13, 2024.

4	Offer declined	{"USNA - Offer Declined", "USNA - Offer Declined - No Oath", "USNA - Offer Declined - No Show", "USNA - Offer of Appointment Withdrawn by USNA", "USNA - Offer of Appointment Withdrawn by USNA (Other)"}

III.A.2.ix. Blue Chip Athlete

38. Indicator variable sourced from Oracle/BART GIP1's `Blue Chip Athlete` of whether a candidate is a blue-chip athlete.

III.A.2.x. CFA Score

39. Candidate Fitness Assessment score is missing for some candidates. `Total Score` from Oracle Recommendation Fitness for 2023–2024 and `CFA Score` BART Recommendations Fitness for 2025-2027.

III.A.2.xi. Student Type

40. These are categories from DOJ Contact Matching's `Student Type:` "College",[44] "General", "Home School/Small School", "Recruited Athlete", and "Recruited Athlete (On Own)". Where USNA policies, such as those that the Interviewed variable reflects, regard recruited athletes, I consider them as applying only to those applicants whose student type is "Recruited Athlete" not "Recruited Athlete (On Own)" because the Academy's athletics department is not pursing them during the admissions process."[45]

41. I manually set candidate 320842 and 640235's Student Type to "Recruited Athlete".[46]

III.A.3. WPM and its components

42. "WPM and its components" is not the name of a variable in the Applications table, just a grouping of the WPM's output and its inputs.[47]

III.A.3.i. Highest SAT Math and Highest SAT Verbal

43. `High SAT Math` and `High SAT Verbal` from BART GIP1 and `High Math Official Score` and `High Verbal Official Score` from the Oracle GIP1. The lowest `High SAT Math` score is 350 and 320 for 2023 and 2024 respectively. The lowest `High SAT Verbal` score is 310 for 2023 and 2024. The scores of 200 are present for class year 2025 onwards, the same year that SAT became optional due to Covid.[48] These scores of 200 are placeholders for candidates who did not submit an SAT score.[49] Values of 200 are replaced as missing.

44. The WPM formula incorporates not the high SAT scores but "Normalized Math" and "Normalized Verbal" scores, which are prescribed affine functions of the respective raw SAT scores (or "converted ACT score[s]").[50]

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[44] The "College" category does not indicate that a candidate is in college when applying but only that the candidate has graduated high school. This definition has been stable over the data period. Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024.
[45] USNA Fact Depo., p. 75:13–15.
[46] USNA IT staff in private communication with Secretariat, June 14, 2024.
[47] USNA-00000505 tab 'WPM Elements & Recalculations'.
[48] Latta Declaration, ¶¶ 24 and 109.
[49] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.
[50] USNA-0000506, labeled USNA ITSD IE Dept. March 26, 2010, "Overview of Admissions Whole Person Multiple", pp. 1, 3, and 5.

III.A.3.ii. Combined RSO

45. This is the unmodified `Combined RSO` integer field from Oracle/BART General Information Multiple tables.

III.A.3.iii. Class Rank

46. `Standardized Rank In Class` from BART General Information Multiple and `Official Standardized Class Rank` in Oracle General Information Multiple. Missing entries are present. There are observations that are duplicates across candidate number, where class rank is populated for one of the observations and missing in the other. In such instances, I keep the record where class rank is non-missing and drop the empty observation. In the Oracle General Information Multiple table, there are two candidates with two different class rank values reported for each. I kept the lower rank value for these candidates.

III.A.3.iv. Non-Athletic Score

47. `Non-Athletic Score` from BART General Information Multiple and `ECA Non-Athletic Score` in Oracle General Information Multiple. Missing entries present.

III.A.3.v. Athletic Score

48. `Athletic Score` from BART General Information Multiple and `ECA Athletic Score` from Oracle General Information Multiple. Missing entries present.

III.A.3.vi. WPM

49. Integer. Oracle General Information Multiple `Whole Man Multiple` and BART General Information Multiple's `Multiple Score` (WPM). WPM is missing for candidate 712242; I replace it manually with the correct score 84,014.[51]

III.A.4. Candidate-Reported Personal and Socioeconomic Characteristics

50. This grouping of columns is merely for ease of reference.

III.A.4.i. Adversity Comment

51. Candidate short answer response describing adversity faced, if any. Sourced from Oracle/BART GIP1's `Adversity Comments`. Populated for all but one candidate in the Applications table who indicated they had experienced adversity in the Adversity Experience variable.

III.A.4.ii. Adversity Experience

52. Indicator variable of whether a candidate has stated that they have personally experienced some life adversity. Sourced from Oracle/BART GIP1's `Adversity Experience`, mapping "Yes" ↦ 1 and {"No", ""} ↦ 0.

III.A.4.iii. Annual household income

53. Sourced from Oracle/BART GIP1's `Annual Household Income`. Candidate self-reported annual household or family income. Ordinal variable containing six values for candidates to choose from: "Less than $20,000", "$20,000 - $40,000", "$40,000 - $60,000", "$60,000 - $80,000", "Greater than $80,000", and "Prefer Not to Answer".

[51] Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024. With the exception of candidate 712242, WPM's missing for a candidate means the application was missing information necessary to compute a WPM. "`2024.02.16 USNA Data.pdf`" ("If the applicant did not provide complete information, other data fields dependent on those information inputs (e.g., WPM) may not contain data.").

III.A.4.iv. Birth Date

54. This is a date variable in Oracle GIP1's `PMid Birth Date` and in BART GIP1's `Birth Date`. I convert it to Stata's date format.

III.A.4.v. E-mail

55. This is unprocessed from DOJ Contact Matching. USNA proactively cleans and deduplicates e-mail addresses so that it reliably uniquely identifies applicants across years if they have applied more than once.[52]

III.A.4.vi. English as Second Language (ESL)

56. Indicator of whether English was candidate's second (or later) language. English as Second Language (ESL) is 1 if a candidate listed any language besides English in the `Primary Language` variable from Oracle Academic Language and `Home Language` from BART Academic Language General, and 0 if the candidate put English or left the response empty.

III.A.4.vii. Female

57. Indicator variable for Oracle/BART GIP1's `Gender`, mapping {"Male", "M"} ↦ 0, {"Female", "F"} ↦ 1, and "" ↦ missing.

III.A.4.viii. First Generation American

58. Indicator variable based on `First Generation American` from BART GIP1 and `First Generation` from Oracle GIP1, mapping {"No", "N"} ↦ 0, {"Yes", "Y"} ↦ 1, and "" ↦ missing.

III.A.4.ix. First Generation College

59. Indicator variable based on `First Generation College` from BART GIP1 and `First College Attendee` from Oracle GIP1, mapping {"No", "N"} ↦ 0, {"Yes", "Y"} ↦ 1, and "" ↦ missing.

III.A.4.x. Height Weight Assessment

60. Sourced from Oracle GIP1's `Height Weight Standard` and BART GIP1's `Height Weight Assessment`, mapping "Outside Standards" ↦ 0 and "Within Standards" ↦ 1.

III.A.4.xi. Hardship Funding Received

61. Indicator variable of whether a candidate reports having ever received funding due to personal hardship. Sourced from Oracle/BART GIP1, mapping {"Yes", "Y"} ↦ 1 and {"No", "N", ""} ↦ 0.

III.A.4.xii. Hispanic

62. For the classes of 2025–2027, I use BART GIP1's `Hispanic or Latino` directly, converting it to a binary indicator. For the classes of 2023–2024, I use Oracle GIP1's `Ethnic Meaning`, taking as Hispanic or Latino (setting my indicator to 1) applicants with values "Other Hispanic descent", "Puerto Rican", "Mexican", "Cuban", and "Latin American with Hispanic descent".[53] All missing values are converted to zero.

III.A.4.xiii. Prior Military Experience

63. Oracle General Information Prior Military table's `Prior Military Service` and BART GIP1's `Prior Military Service`, mapping "Yes" ↦ 1 and {"No", ""} ↦ 0. It is almost all zeros.

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[52] Marisa Biondi and Stephanie Bressler, USNA IT, on a telephone call with Secretariat on March 12, 2024.

[53] Mark Vandervort (acting EOA program manager), "NAVY-WIDE DEMOGRAPHIC DATA FOR THIRD QUARTER FY 2010 (01 Apr 10 THROUGH 30 Jun 10)", memorandum from the office of the Director, Navy Equal Opportunity Office, August 18, 2010, USNA-00002376 at -2378, note 1.

III.A.4.xiv. Race Vector

64. The USNA application allows applicants to select "Decline to Respond" or zero or more of the categories "American Indian/Alaska Native", "Asian", "Black or African American", "Native Hawaiian or Other Pacific Islander", or "White".[54] The `Race` variable in Oracle/BART GIP1 contain that text (or, for a small number observations, the text "Declined to Respond") separated by a comma (Oracle) or semicolon (BART) if there is more than one selection. I create five corresponding indicator variables, `race_aian`, `race_asian`, `race_black`, `race_nhpi`, and `race_white`. "Decline to Respond" and missing both show up in these five variables as all of them being zero.

III.A.5. Generated variables

III.A.5.i. Board Qualified

65. Binary indicator, a candidate is *board qualified* if Board Result matches the regular expression "`Early Notify|^Qualified`". Candidate 423656 was not board qualified based on Board Result, but received an offer. Board Qualified is manually changed to 1 for this candidate.

III.A.5.ii. Eligible

66. Binary indicator for each of CFA, Medically Qualified, Interviewed, and Nomination all being equal to 1.

III.A.5.iii. USNA Offer Given

67. This is an indicator for a USNA appointment offer, computed as Offer Category > 0.

III.A.5.iv. Prep School Offer Given

68. This is an indicator for a prep-school admission offer, computed as Offer Category < 0.

III.A.5.v. Age

69. Integer number of years between Birth Date and Most Recent Board Date.

III.A.5.vi. Congressional nomination

70. Binary indicator whether a candidate number has a congressional nomination. From Nominations table if a candidate has Nomination Category = "Congressional" for any of that candidates' nominations.

III.A.5.vii. Nomination

71. Binary indicator of whether a candidate received at least one nomination of any type (in other words, if a candidate appears in the Nominations Table). There are three candidates—500374, 511031, and 630890—who received an appointment offer despite not being marked as having received a nomination.[55] I manually change this variable for these six candidates to indicate they did receive a nomination.

III.A.5.viii. RABs Vector

72. Integer. Sum of RABs Points by RABs Type and candidate number, reshaped wide on RABs Type. Applications receiving no RABs in of a particular RABs Type have a zero entry in the RABs Vector for that type.

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[54] Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024. These categories match those the Navy started using in January 2003. Mark Vandervort (acting EOA program manager), "NAVY-WIDE DEMOGRAPHIC DATA FOR THIRD QUARTER FY 2010 (01 Apr 10 THROUGH 30 Jun 10)", memorandum from the office of the Director, Navy Equal Opportunity Office, August 18, 2010, USNA-00002376 at -2377. *See also, e.g.*, "`USNA-00000499 Data Dictionary - Salesforce Class of 2025-present`", USNA-00000499, tabs "Contact" and "BART."

[55] USNA Fact Depo., pp. 58:17-61:10.

III.A.5.ix. Aggregated Race

73. Starting with the Race Vector, combine "American Indian or Alaska Native", "Native Hawaiian or Other Pacific Islander", and anyone who selected multiple races into a "Other or Multiracial" category (possibly abbreviated "Other/Multiple"). Everyone who selected no race (all values are zero) goes into a "None" category. Candidates who selected only White, only Black/African American ("Black/Afr. Am." or "Black"), or only Asian are placed into the "White", "Black/Af. Am.", and "Asian" categories respectively. The base population for regression interpretation purposes is White.

III.A.5.x. Board Recommended Early Notification

74. Indictor for whether Board Result = "Early Notify".

III.A.5.xi. Superintendent nominated

75. Whether a candidate has a superintendent nomination.[56] All 74 candidates in the completed-applications population with a superintendent nomination had no other nomination, except candidate 323120, who had one other nomination whose slate he did not win. All these candidates were also eligible and received an offer at USNA (see subsection II.B.6).

III.B. RABs

76. The table contains RAB adjustments from valid (non-test record) candidates in the Oracle/BART General Information RABs tables, which is the source of the raw variables mentioned below.

77. There are records in both tables that are duplicated across all variables. The Oracle General Information RABs table has a variable (called `RAB Adjustment`) that is the sum of `Points` across all RABs adjustments for each candidate. In Oracle General Information RABs, if `Board Date` is dropped and then duplicates across all variables are dropped,[57] the sum of `Points` equals `RABs Adjustment` for that candidate (except for candidates 310224, 410083, 413577, 422733, 423316, and 430850, all with a discrepancy of 500 points). I therefore dropped duplicates. I follow this practice in reading in the BART General Information RABs table as well even though I cannot verify that the same logic applies because it does not have the `RAB Adjustment` variable.

78. Oracle General Information RABs table has entries missing `Reason` and `Points`. These entries corresponded to candidate numbers with no other RABs in the data, so I dropped these entries. RABs that had `Points` equal 0 or missing but `Reason` is not missing were kept.

III.B.1. Candidate Number

79. Integer foreign key to Applications from `Candidate Number`.

III.B.2. Category

80. Categorical from `Category` with values "Auto", "Board", and "Manual", representing automatic, board-initiated, and admissions-staff-initiated RABs.

III.B.3. Points

81. Integer number of points added or subtracted from the WPM belonging to the corresponding candidate number. From `Points`.

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[56] "The Superintendent of the Naval Academy may nominate for appointment each year 50 persons from the country at large. Persons nominated under this paragraph may not displace any appointment authorized under paragraphs" authorizing nominations from the vice president, senators, congressional representatives, delegates to Congress (excluding Mariana Islands), or Puerto Rico. 10 USC § 8454(d).

[57] RABs adjustments appear to be duplicated if a candidate has multiple board dates.

III.B.4. Reason

82. String from `Reason`. Text is processed only to make values from the Oracle General Information Nominations table be title case. "PAE" stands for Physical Aptitude Exam and in later years was replaced with CFA, so I categorize PAE as "CFA".[58] USNA creates the RABs whose `Reason` begins with "College:" if and only if a candidate has some college experience.[59]

III.B.5. RABs Type

83. This is a many-to-one mapping of the Reason column whose range is the headings in USNA-00000070-77 plus "College" and "Other".[60] However, there are no `Reason`s from the BART/Oracle General Information RABs tables that clearly correspond to "Exceptional Candidates", so that heading is not used.

84. There are five candidates in 2023-2024 that have a Reason as "Language". Looking at the Oracle Academic Language data, none of the candidates specifically say that English is their second language. Three candidates list a non-English language as their `Primary Language`. The other candidates mention in the `CPDR Language Skills. Language Comments` field that they learned the language from parents at home. Therefore, `Reason`'s being "Language" is categorized as "Life Experience/Hardship".

III.C. Nominations

85. The table contains one row per active, valid (non-test record) nomination, unique on Candidate number, (cleaned) Nomination Name, and Vacancy Number.[61] All columns come from Salesforce Nominations Object except for Slate Winner, which comes from Candidate-level charging reports.

86. I exclude rows for which `Nomination Source Category` is "Excess Quota", indicating a congressional redistricting between nomination and charging.[62] Every candidate who has an excess quota nomination has Salesforce Nominations Object's `Slate Winner` equal to zero for the excess quota nomination and equal to one for some congressional nomination. Due to this, I conclude that the district the candidate was originally part of and the district they become a part of after redistricting are both present in the nominations data but are for the same nomination.

87. I exclude rows for which `Nomination Source Category` is "Additional Appointee" or "Qualified Alternate". These apparently record charging decisions that are better obtained from Candidate-level charging reports rather than actual nominations.

88. With one exception, I include rows for which `Nomination Status` is "Inactive" or "Withdrawn" as the values do not actually reflect an inactive or withdrawn nomination.[63] I exclude the record for candidate 422537 for which `Nomination Status` is "Withdrawn" because that record's `Slate Review Committee Comment` is "NOM ASSIST, belongs to NC-4. Nominated there (MH)". The candidate indeed has an active nomination for North Carolina District 4.

III.C.1. Nomination Source Category

89. Unmodified string from `Nomination Source Category`, e.g., "Congress/Representative", "Congress/Senator 1", "Presidential", or "ROTC Units/School - Honor".

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[58] Military Advantage, 2014-07-02, "How to Pass the Service Academy CFA", webpage, https://www.military.com/military-fitness/fitness-test-prep/service-academy-cfa accessed July 29, 2024.
[59] Melody Hwang, USNA Admissions, on a telephone call with Secretariat on May 13, 2024.
[60] "Guidance for Recommendations of the Admissions Board (RABs)", USNA-00000070 at -70–77.
[61] There is a duplicate record in the Salesforce Nominations Object for candidate 542877. However, that candidate is not in the completed-applications population, so I ignore those records.
[62] USNA Fact Depo., pp. 191:20–192:16.
[63] USNA IT staff in private communication with Secretariat, June 14, 2024.

90. No record with a value of "International" corresponds to a Candidate number in the Applications table.

III.C.2. Candidate number

91. Foreign key to Applications table from `Candidate Number`.

III.C.3. Slate Winner

92. This variable indicates that the Academy charged a midshipman to the corresponding nomination's slate. I derive this information from the Candidate-level charging reports, in which I create a temporary variable to indicate what nomination a candidate is charged to (ignoring additional appointments, qualified-alternate appointments, and excess-quota charges). An indicator that the row in the Nominations table successfully merges on Candidate number and Nomination Name with the Candidate-level charging reports is created.[64]

III.C.4. Granted Date

93. `Granted Date` converted to Stata date format.

III.C.5. Nomination Name

94. The year and candidate number are removed from `Nomination Name`, giving just the name of the nominating authority, such as "New York District 21", "Maryland Senator 1", "Presidential", or "ROTC Units/School - Honor".

III.C.6. Vacancy Number

95. Replaced "N" with zero in `Vacancy Number` and converted to an integer.

III.C.7. Standing

96. This is the unmodified integer value of `Nomination Standing`. For board-qualified candidates, it gives the rank order of that candidate within the slate.[65] It is missing for a large number of board-qualified candidates in class years 2023-2024.

III.C.8. Nomination Type

97. Unmodified `Nomination Type`. The nominator decides the nomination type and the three methods are Principal/Alternate, Principal/Competitive Alternate, and Competitive.[66]

III.C.9. Class Year

98. Unmodified `Class Year`.

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[64] Though available from the Salesforce Nominations Object's `Slate Winner` field, the Candidate-level charging reports are more reliable, avoiding a couple known errors. USNA Fact Depo., p. 28:3–21 ("Mr. MCCARTHY: Candidates 411030 and 413607 declined admission but are listed as a slate winner…. MS. HWANG: … they should have been unchecked as a slate winner once they declined…. And so… they did not end up getting charged anywhere. So that's, again, all that matters.").

[65] Salesforce Data Dictionary, USNA-00000499, "Nominations" tab, "Nomination Standing" label, "Description" entry: ("The candidates standing among the other candidates nominated by the nominator. Nomination Standing is a calculated field which is calculated for non-international candidates with a verified Board Result of 'Early Notify', 'Qualified', or 'USNA Deferred' [*sic*], and a Nomination Type of Principal, Competitive, or Competitive Alternate. The Nominations for the Nominator Source are ordered by the Nomination Type with Principals first and Competitive and Competitive Alternate grouped together, Whole Person Multiple (WPM), and last name. Each record is then assigned a sequential number starting with 1. Admissions uses this when they are determining the slate winner for the Nominator Source.").

[66] Salesforce Data Dictionary, USNA-00000499, "Nominations" tab, "Nomination Type" label, "Description" entry.

III.C.10. Generated variables

III.C.10.i. Nomination Category

99. Takes on the values "Congressional", "Statutory non-congressional", and "Service-connected". Nominations whose Nomination Source Category match the regular expression "`^Congress`" are congressional nominations. Those that match the regular expression "`^Vice President`" are Statutory non-congressional nominations. Nominations whose `Nomination Source Category` equals "Presidential", "International", or "USNA Superintendent" or match the regular expressions "`^Children of`", "`^ROTC Units`" or "`^Secretary of the Navy`" are service-connected nominations.

Exhibit 1

Curriculum Vitae of Stuart D. Gurrea, Ph.D.

Stuart D. Gurrea, Ph.D.

Managing Director

Current Position

Dr. Gurrea is a Managing Director at Secretariat.

Professional Experience

Dr. Gurrea has more than 20 years of experience in economic consulting. He earned his Ph.D. in economics from Northwestern University and specializes in industrial organization, financial economics, and econometrics. Dr. Gurrea has conducted economic analyses in the context of legal disputes, policy making, and business strategy, and has served as both a consulting and testifying expert in state and federal courts.

Dr. Gurrea's work combines theoretical modeling with the application of quantitative techniques to address economic questions, including those that arise in the context of breach of contract, asset valuation, securities fraud, labor market discrimination, antitrust, and intellectual property. Many of his assignments involve identifying and quantifying economic damages on an individual or class-wide basis, and evaluating damages claims in light of the principles of economics and finance. Dr. Gurrea has addressed economic issues in a variety of industries, including financial services, energy, airlines, telecommunications, and pharmaceuticals.

While attending Northwestern University, Dr. Gurrea worked as an investment research analyst. He also collaborated in numerous research projects involving the construction of data sets and the estimation of econometric models.

Contact Details

Direct: +1 415.975.3225
Email: sgurrea@secretariat-intl.com

Professional History

- Secretariat
- Economists Incorporated
- Dept. of Economics and Kellogg Graduate School of Business, Northwestern University
- Dept. of Economics, Northwestern University
- Zacks Investment Research, Inc.
- Official Chamber of Commerce, Seville, Spain

Education

- Ph.D., Economics, Northwestern University
- M.A., Economics, Northwestern University
- B.A., Economics, University of Seville, Spain

Accreditations

- American Economic Association
- American Finance Association
- American Bar Association, Antitrust Section

Testimony

- *Kewaunee Solutions Inc. vs. The United States of America* (Fed. Cl., No. 22-1299 C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Kewaunee Power Station. Submitted expert report, July 2024

- *Elizabeth Belyea, et al v. GreenSky Inc. et al.* (Fed. Cir. No. 3:20-cv-01693-JSC) – For Defendant, economic analysis of proposed methods to establish common injury and systematic calculation of damages in relation to class certification. Dispute concerned pass through of fees associated with facilitation of consumer home improvement loans at point of sale. Submitted expert report, July 2024

- *NextEra v. The United States of America* – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and removal from NextEra nuclear plants (Duane Arnold, Point Beach, St. Lucie, Seabrook, and Turkey Point). Related to cost recovery claim pursuant to settlement agreement for *Florida Power & Light Company v. United States, Fed. Cl. No. 98-483C, Interstate Power and Light Company v. United States, Fed. Cl. No. 04-0067C,* and *FPL Energy Seabrook, LLC v. United States, Fed. Cl. No.04-0088C,* March 30, 2009. Submitted expert reports (August 2020 and December 2020), rebuttal expert report (October 2022), and response expert report (April 2024)

- *Sreedhar Gopalakrishnan and Sumathy Krishnamurthy vs. Nationstar Mortgage LLC* (No. 2:21-CV-01983-JAM-KJN) – For defendant, analysis of economic damages related to mortgage payment dispute. United States District Court, Central District of California, Eastern Division. Submitted expert report, July 2023. Testified at deposition, November 2023

- *State of Louisiana, State of Missouri et al. v. Joseph R. Biden, Jr. et al*. (No. 3:22-cv-01213-TAD-KDM, U.S. District Court, Western District of Louisiana, Monroe Division) – For Defendants, analysis of market-based economic incentives to moderate content on social media platforms. Filed expert report, April 2023

- *Connecticut Yankee Atomic Power Company, Maine Yankee Atomic Power Company and Yankee Atomic Electric Company vs. United States of America* (Fed. Cl. Nos. 21-1116 C, 21-1118 C, & 21-1119 C (Consolidated)) – For Defendants, analysis of Plaintiffs' cost recovery expectations through litigation and effect on economic incentives to minimize costs. Submitted expert report, February 2023. Testified at deposition, April 2023

- *Nicole Tokarski v. Med-Data, Inc.,* (No. 2:21-CV-00631-TL, United States District Court, Western District of Washington at Seattle) – For Defendant, in response to plaintiff's motion for class certification, assessed proposed methodology for calculating damages on a class-wide basis in relation to alleged exposure of personal health records. Filed expert report, March 2023

- *Matthew K. Black and Charrisa Raynor v. United States of America* (Fed. Cl., No. 22-10 C) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

- *Walter Michael Ennis and Judith Hobson Ennis et al. v. United States of America* (Fed. Cl., No. 21-87 L) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

- *Irving Park Shops, LLC, et al. v. United States of America* (Fed. Cl., 21-546) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

- *Helen C. Wood, LLC, et al. v. United States of America* (Fed. Cl., No. 21-2143 L) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

- *Southern California Edison Company vs. The United States of America* (Fed. Cl., No. 19-1792 C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the San Onofre nuclear plant. Submitted expert report, August 2022. Testified at deposition, October 2022. Testified in the United States Court of Federal Claims, December 2023

- *Jai Kumar v. Jade Global, Inc.* (No. 01-20-0016-0647) – For Plaintiff, conducted assessment of valuation of vested shares and estimated fair market value of common stock in technology services company in relation to a stock purchase agreement. Submitted expert report and rebuttal expert report, American Arbitration Association, June 15, 2022, and June 30, 2022. Testified at deposition and arbitration, July 2022 and August 2022

- *Eugenio and Rosa Contreras et al. v. Nationstar Mortgage LLC et al.* (No. 2:16-cv-00302-MCE-EFB) – For defendant, in response to plaintiffs' motion for class certification, assessed plaintiffs' proposed methodology for calculating damages on a class-wide basis in relation to alleged improper property inspection fees and convenience fees charged to mortgage borrowers. Filed expert report, United States District Court, Eastern District of California, Sacramento Division, October 2021

- *Charles McNamee et al. v. Nationstar Mortgage LLC* (No. 14-1948) – For Defendant, assessed reliability of Plaintiff's expert's survey in relation to alleged violations of the Fair Debt Collection Practices Act. Filed expert reports, United States District Court, Southern District of Ohio, Eastern Division, July 2021 and October 2021

- *Duke Energy Progress and Duke Energy Florida LLC. vs. The United States of America* (Fed. Cl., No. 18-891C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Crystal River Nuclear Plant. Submitted expert report, June 2021. Testified at deposition August 2021

- *Paulette Johansen v. PHH Mortgage Corporation and Wells Fargo Bank, N.A.* (No. BC608637) – For defendant, analysis of economic damages related to alleged breach of settlement agreement in residential mortgage dispute. Superior Court of the State of California, County of Los Angeles, Central District. Testified at deposition, April 2021

- *NorthStar Vermont Yankee, LLC. vs. The United States of America* (Fed. Cl., No. 18-1209C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Vermont Yankee Nuclear Power Station. Submitted expert report, February 2021. Testified at deposition, March 2021. Testified in the United States Court of Federal Claims, November 2022

- *Dominion Energy Kewaunee Inc. vs. The United States of America* (Fed. Cl., No. 18-808C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Kewaunee Power Station. Submitted expert report, January 2021. Testified at deposition, March 2021

- *Exelon Generation Company LLC. et al. v. The United States of America* – For the U.S. Department of Energy, assessed reliability of claimant's experts' predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and removal from Oyster Creek Nuclear Generating Station and Three Mile Island Nuclear Generating Station. Related to cost recovery claim pursuant to settlement agreement, Exelon Generation Company LLC. et al. v. The United States of America, Fed. Cl., Nos. 98-521C, 04-102C, 04-103C and 04- 104C, August 5, 2004. Submitted expert report, November 2020, and rebuttal expert report, June 2021

- *Omaha Public Power District v. The United States of America* – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and removal from Fort Calhoun Nuclear Plant. Related to cost recovery claim pursuant to settlement agreement, Omaha Public Power District v. United States, Fed. Cl., No. 01-115C, June 5, 2006. Submitted expert report, August 2020 and rebuttal expert report, August 2021

- *Glendale Hoggard and Linda Patton v. Nationstar Mortgage LLC d/b/a Champion Mortgage Company* (No. 1:17-cv-00099-TK) – For Defendant, assessed reliability of Plaintiffs' expert's proposed methods to identify class members and calculate individual damages on a class-wide basis. Plaintiffs' complaint concerned fees charged related to servicing reverse mortgage loans. Filed expert report and testified at deposition, United States District Court for the District of Columbia, June and August 2019

- *Demetrius Robinson et al. v. Nationstar Mortgage LLC* (No. 8:14-cv-03667-TDC) – For Defendant, assessed reliability of Plaintiffs' expert's proposed methods to identify alleged violations of loan modification notification requirements on a class-wide basis. Filed expert report and declaration, United States District Court for the District of Maryland, Greenbelt Division, December 2018 and February 2019. Testified at Deposition, December 2018

- *State of California v. Wilbur L. Ross, Jr. et al.* (No. 3:18-cv-01865), and *City of San Jose et al. v. Wilbur L. Ross Jr. et al.* (No. 5.18-cv-02279) – For Defendants, conducted analysis of survey and evaluation of the impact of population undercounts associated with the inclusion of a citizenship question in the 2020 Census on congressional apportionment and the distribution of federal funds. Filed expert report and testified at deposition and trial, United States District Court for the Northern District of California, San Francisco Division, October 2018 and January 2019

- *Robyn Kravitz et al. v. U.S. Department of Commerce et al.* (No. 5:18-cv-01041-GJH), and *La Unión Del Pueblo Entero et al. v. Wilbur L. Ross Jr. et al.* (No. 8:18-cv-01570-GJH) – For Defendants, conducted analysis of survey and evaluation of the impact of population undercounts associated with the inclusion of a citizenship question in the 2020 Census on congressional apportionment and the distribution of federal funds. Filed expert report and testified at deposition and trial, United States District Court for the District of Maryland, Greenbelt Division, October 2018 and January 2019

- *William A. Leonard, Jr. Chapter 7 Trustee for the Estate of Paul Anthony Morabito v. Paul Anthony Morabito et al.* (No. BK-13-51237-GWZ, Chapter 7) – For Plaintiff, conducted valuation review and offered valuation opinion of spectrum-related lines of business. Filed expert report, United States Bankruptcy Court, District of Nevada, October 2016. Testified at deposition, May 2017

- *Fridman v. Wells Fargo Bank, N.A.* (No. BC478019) – For defendant, analysis of economic damages related to dispute over mortgage payments and mortgage records. Testified at deposition and trial, Superior Court of the State of California, County of Los Angeles, Central District, April 2015 and July 2015

- *LaDon Powell and Margeret Dennis vs. Ocwen Loan Servicing* (No. 14-cv-00113-SWS) – For defendant, economic analysis of late payment fees in response to breach of contract claims related to reinstatement agreement. Filed expert report, United States District Court for the District of Wyoming, May 2015

Representative Engagements

- *JLA Advisors, LLC v. Nara Rajagopalan et al. (No. 20CV374328)* – For Plaintiff, quantification of the economic impact of an alleged business interference, including quantification of lost income, diminution in value of management consulting business, and diminution in the value of ownership interest in telecommunications business

- *Paul Morinville and Gilbert P. Hyatt vs. United States Patent and Trademark Office (No. 1:19-cv-01779)* – For Defendant, economic assessment of the reliability of Plaintiffs' proposed method to quantify on a class-wide basis the effects of an alleged illegal implementation of a USPTO program

- *Basil Agapion, et al. v. United States and Chapman Spring/Garden, LLC, et al. v. United States (Fed. Cl.)* – For Defendant, economic analysis of the determination of the appropriate pre-judgment interest rate to be applied in lawsuits related to alleged takings of property

- *Melissa Robinson-Agles v. Wells Fargo & Company; Experian Information and Transunion, LLC* – For defendant Wells Fargo, assessed the reliability of Plaintiff's quantification of alleged punitive damages and hedonic damages, including the value of losses of enjoyment of life and loss of ability to borrow

- *Michael C. Cornell et al. v. Kramer Levin Natfalis & Frankel, LLP* – For plaintiff, economic analysis of damages in relation to legal malpractice claim. Analysis included valuation of business interest absent alleged misconduct

- *Farjad Fani et al. vs. Shartis Friese LLP et al.* – for Defendant, conducted valuation analysis of online fax business in response to legal malpractice lawsuit. Plaintiffs alleged fire sale of e-fax business as a result of Defendants' conduct

- *North American Soccer League, LLC v. United States Soccer Federation, Inc. and Major League Soccer, LLC* – For Defendant, counterfactual market analysis related to assessment of antitrust liability

- *Back Pay Estimation* – For Defendant, quantification of back pay damages on a class-wide basis for a class of employees in racial discrimination suit

- *For Barbados Fair Trade Commission* – Assessment of Barbados Power and Light Company Ltd.'s depreciation rate study and application, and preparation of recommendations

- *E & J Gallo Winery v. Strategic Materials, Inc.* – Economic analysis of contract damages related to glass manufacturing on behalf of defendant and counterclaim plaintiff

- *In re Deutsche Bank AG Securities Litigation* – For plaintiff class, analysis of structured finance instruments and Deutsche Bank's subprime exposure, risk management practices and actual credit risk exposure

- *Loreley Financing (Jersey) NO. 28, Limited vs. Merrill Lynch, Pierce, Fenner & Smith Incorporated et al.* – For Plaintiff, analysis of causation and damages in relation to alleged misrepresentations and omissions in the marketing and sale of notes of a collateralized debt obligation

- *Loreley Financing (Jersey) NO. 3, Limited et al. vs. Wells Fargo Securities, LLC, et al.* – For Plaintiff, analysis of causation and damages in relation to alleged misrepresentations and omissions in the marketing and sale of notes of collateralized debt obligations

- *BNSF Railway Company and Norfolk Southern Railway Company vs. First Energy Generation LLC* – For Defendant, valuation of liquidated damages claim related to dispute over rail transportation agreement

- *Wye Oak Technology Inc. v. The Republic of Iraq, et al.* – For Plaintiff, estimation of damages related to breach of contract, including estimation of expected future profits under the contract

- *Gloria J. Jackson et al. v. The United States of America* – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in class action lawsuit related to alleged takings of residential property

- *For U.S. Department of Justice and FDIC* – Economic analysis of trading behavior in spot and options foreign exchange markets in relation to criminal investigation of front running allegations against investment bank

- *FirstEnergy Generation, LLC v. BNSF Railway Company and CSX Transportation, Inc.* – For Plaintiff, determination of appropriate discount rate to bring to the present a stream of future liquidated damages payments

- *For Intuit/QuickBooks* – analysis of financial disclosures and determination of the consistency of certain financial calculations with The Truth in Lending Act as implemented by the Board of Governors of the Federal Reserve System's Regulation Z

- *For U.S. Department of Justice and U.S. Customs and Border Protection* – Construction of database and estimation of value of vehicles imported to the U.S. by foreign car manufacturer in relation to violations of customs regulations and the Clean Air Act

- *Federal Deposit Insurance Corporation v. PricewaterhouseCoopers LLP and Crowe Horwath LLP* – For plaintiff, quantification of economic harm in banking fraud case resulting from alleged failure to detect fraud

- *China Development Industrial Bank v. Morgan Stanley & Co. et al.* – For plaintiff, economic analysis of mortgage securitization, structured finance, and conflicts of interest in relation to the marketing and sale of a mortgage-backed collateralized debt obligation and alleged misrepresentations

- *Navajo Health Foundation – Sage Memorial Hospital, Inc. v. Silvia Mathews Burwell, et al.* – For defendant, The United States of America, analysis of damages claims related to alleged breach of contract related to the provision of hospital services in Navajo hospital

- *Always at Market, Inc. v. United States* – For defendant, conducted analysis of plaintiff's econometric model of new registrations on on-line auction site and responded to damages claims based on this model

- *Entergy Nuclear Vermont Yankee, LLC, v. The United States of America* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pickup of spent nuclear fuel

- *Southern California Edison Company v. The United States of America* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pickup of spent nuclear fuel

- *Gilberte Jill Kelley, and Scott Kelley, M.D. v. The Federal Bureau of Investigation et al.* – For defendant, economic analysis of lost earnings claim related to alleged violation of the Privacy Act and the General Petreaus scandal

- *The West Virginia Investment Management Board and The West Virginia Consolidated Public Retirement Board v. The Variable Annuity Life Insurance Company* – For defendant, analysis of alleged damages to retirement fund resulting from receiving fragmented distribution of investment funds rather than lump sum payment

- *In re Goldman Sachs Group, Inc. Securities Litigation* – For plaintiff class, economic analysis of mortgage securitization, structured finance, and conflicts of interest in relation to the creation of four mortgage-backed collateralized debt obligations

- *Clear-View Technologies v. John H. Rasnick et al.* – For plaintiff, estimated damages related to interference in funding of startup business. Computation required conducting business valuation

- *Matthew Burnett et al. v. Robert Bosch LLC, USA* – For defendant, conducted statistical analysis to assess impact on sparkplug prices of alleged false marketing practices to evaluate the economic basis for class certification

- *Valuation of Mitchell Woods Pharmaceuticals LLC* – Conducted economic valuation of early stage pharmaceutical company developing drug to combat various types of cancer

- *Starr International Company Inc. v. The United States of America* – For defendants, economic analysis of the determination of the appropriate prejudgment interest rate in class action lawsuit related to alleged takings of AIG stock during the 2008-2009 financial crisis

- *For Millicom International Services, LLC.* – Co-authored the study "Assessing the Competitiveness of the Mobile Telephone Industry in Paraguay"

- *Scott J. Bloch v. U.S. Office of Personnel Management* – For defendants, economic assessment of lost income and lost reputation monetary claims

- *Weili Dai, Sehat Sutardja, and Sutardja Family Partners v. Goldman Sachs & Co., Bradley Defoor, and Graham Brandt* – For claimants in FINRA arbitration, quantification of economic damages related to margin calls in the midst of the 2007-2008 financial crisis

- *The Economic Impact of the SEC's Proposed Rule on Required Pay Ratio Disclosure* – For the Center On Executive Compensation, study of the economic effects of mandatory compensation disclosures pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act

- *In re Text Messaging Antitrust Litigation* – For plaintiffs, economic analysis of liability and damages related to alleged collusion among wireless SMS text messaging service providers in the U.S.

- *Rothschild Capital Partners, LP, et al., v. Gorfine, Schiller & Gardyn, P.A., et al.* – For defendants, economic analysis of damages claim related to lost business opportunities

- *Meda AB v. 3M Company, 3M Innovative Properties Company, and Riker Laboratories, Inc.* – For plaintiffs, quantification of damages associated with the withholding of material information during the purchase of 3M's European pharmaceutical business
- *Securities and Exchange Commission v. Brian H. Stoker* – For plaintiff, analysis of adverse selection in creation of a synthetic collateralized debt obligation squared
- *Entergy Gulf States, Inc. and Entergy Louisiana, LLC v. The United States of America* – For defendant, economic analysis of plaintiffs claim for interest on damages
- *Portland General Electric Company et al. v. The United States of America* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pickup of spent nuclear fuel
- *Sacramento Municipal Utility District. v. The United States of America* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pickup of spent nuclear fuel
- *Kenneth D. Klaas et al., v. Vestin Mortgage Inc., et al.* – For defendants, economic analysis of contract damages claims in hard money lending industry
- *Entergy Corporation and Affiliated Subsidiary Companies vs. Commission of Internal Revenue* – For defendants, analysis of plaintiffs' evaluation of decommissioning funds transferred as part of the nuclear plant acquisition
- *Novartis Pharmaceuticals Corporation v. Mylan Pharmaceuticals Inc. and Mylan Inc.* – For defendants, evaluation of competitive effects of foreclosure of generic fluvastatin drug
- *Tyr Sport, Inc. v. Warnaco Swimwear, Inc. United States Swimming, Inc. et al.* – Analysis on behalf of defendants in response to antitrust liability claims
- *In re Korean Airlines Co., Ltd. Antitrust Litigation* – For plaintiffs, economic analysis of alleged agreement between Korean Air Lines Co., Ltd. and Asiana Airlines, Inc. to raise prices and the effects of that agreement on purchasers of airline services in class action suit
- *Kansas Gas And Electric v. The United States of America* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pick-up of spent nuclear fuel
- *Burlington Northern Santa Fe Railway* – Study estimating the cost of capital
- *Pacific Gas And Electric Company v. The United States of America* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pick-up of spent nuclear fuel in remanded case
- *Yankee Atomic, Connecticut Yankee Atomic Power Company, Maine Yankee Atomic Power Company v. United States* – For defendant, economic assessment of the development of a market and subsequent trading of allocation rights for pick-up of spent nuclear fuel in remanded case
- *United States of America v. Ralph Cioffi and Matthew Tannin* – Economic analysis of hedge fund operations
- *Charles Felton et al., v. Vestin Realty Mortgage II, et al.* – For defendants, economic analysis of contract damages claims in hard money lending industry

- *National Fire Insurance Co. of Pittsburgh, PA vs. Puget Plastics Corporation et al.* – Economic analysis of lost profits and diminution in business value
- *Consolidated Edison Company of New York And Entergy Nuclear Generation Company v. The United States of America* – For defendant, economic analysis of alleged diminution in proceeds from sale of nuclear assets because of partial breach of contract
- *Arizona Public Service Company v. The United States of America* – For defendant, analysis of damages in connection with partial breach of the contract for disposal of spent nuclear fuel between plaintiff and the Department of Energy ("DOE")
- *Deutscher Tennis Bund, et al., v. ATP Tour Inc.* – Analysis of antitrust liability on behalf of ATP in response to claims of monopolization
- *Southern California Company v. The United States of America* – For defendant, analysis of damages in connection with partial breach of the contract for disposal of spent nuclear fuel between plaintiff and the Department of Energy ("DOE")
- *Dominion Resources, Inc. v. The United States of America* – For defendant, analysis of damages in connection with partial breach of the contract for disposal of spent nuclear fuel between plaintiff and the Department of Energy ("DOE")
- *MGP Ingredients, Inc. v. Mars, Inc. and S&M NuTec, LLC* – Analysis of damages for defendant in patent infringement and misappropriation of trade secrets suit in the pet food industry
- *Dairyland Power Cooperative v. The United States of America* – Economic assessment of the development of a market and subsequent trading of allocation rights for pick-up of spent nuclear fuel
- *Boston Edison Company And Entergy Nuclear Generation Company v. The United States of America* – For defendant, economic analysis of alleged diminution in proceeds from sale of nuclear assets because of partial breach of contract
- *Clinton Reilly v. Medianews Group et al.* – Analysis of the effects of the acquisition of several newspapers in the San Francisco Bay Area in response to antitrust suit
- *Republica Oriental del Uruguay v. Chemical Overseas Holdings, Inc. et al.* – For plaintiff, calculation of economic injury in the midst of the Argentine financial crisis in fraud suit
- *Pacific Gas And Electric Company v. The United States of America* – Economic assessment of the development of a market and subsequent trading of allocation rights for pick-up of spent nuclear fuel
- *Northern States Power Company v. The United States of America* – For defendant, analysis of damages in connection with partial breach of the contract for disposal of spent nuclear fuel between plaintiff and the Department of Energy ("DOE")
- *Hawaii Renewable Portfolio Standards* – For The Public Utilities Commission of the state of Hawaii, optimal policy design to implement renewable portfolio standards
- *An Economic Analysis of the Competitive Effects of the SBC/AT&T and Verizon/MCI Mergers on the Internet Backbone Market* – Paper submitted before the Infocomm Development Authority of Singapore (IDA) and to the U.S. Federal Communications Commission

- *British Telecommunications Analysis* – Analysis of competitive effects in the market for special local access, provision of enterprise telecommunications services and Internet backbone following the proposed mergers between SBC and AT&T, and Verizon and MCI

- *Southern Nuclear Operating Company v. The United States of America* – For defendant, analysis of damages in connection with partial breach of the contract for disposal of spent nuclear fuel between plaintiff and the Department of Energy

- *DRAMS* – On behalf of Respondent Hynix Semiconductors, paper submitted before the Japanese Ministry of Finance and Ministry of Economy, Technology and Industry in response to econometric analysis evaluating the price effects of alleged subsidies in the market for DRAMs

- *Video Rental Industry Competition Analysis* – Statistical analysis for delineating relevant markets and estimating unilateral effects in relation to the acquisition of Hollywood Entertainment. Analysis in the context of Hart-Scott-Rodino review by the Department of Justice

- *Dr. Steven Nadler v. Aspen Valley Hospital, Inc. et al.* – For defendant, analysis of monopolization and exclusionary conduct allegations in emergency professional orthopedic services

- *Martin Leach v. Ford Motor Company* – For defendant, economic analysis of the reasonableness of a non-compete clause and event study analysis to evaluate the impact of direct competition from former executives

- *Advertising Effectiveness* – Statistical analysis of survey data to determine effectiveness of alternative advertising campaigns in influencing teenager's attitudes, beliefs and intentions toward smoking and tobacco

- *Canadian Lumber International Trade Study* – Study of the effect of the U.S.-Canada Softwood Lumber Agreement ("SLA"), a tariff- rate quota, on the volume and price of Canadian lumber imports. Presented before the U.S. International Trade Commission

- *Westways World Travel, et al. v. AMR Corp.* – For defendant, economic analysis of damages claims in class action suit related to American Airlines' ticketing

- *Consumer Product Merger* – Demand estimation using scanner sales data for delineating relevant markets and estimating unilateral effects of the merger

- *Barron Aircraft, L.L.C. v. Dassault Falcon Jet Corp.* – For plaintiff, design, implementation and statistical analysis of survey of business-jet aircraft professionals

- *Tobacco Merger* – Demand estimation using scanner sales data for delineating relevant markets and estimating unilateral effects of the merger

- *EchoStar Satellite L.L.C. vs. Viacom Inc., et al.* – For defendants, economic analysis of EchoStar's allegation that Viacom illegally tied the sale of some of its cable programs to its CBS broadcast retransmission rights

- *Federal Communications Commission Inquiries into Broadcast Television* – Econometric analyses regarding media ownership rules prepared on behalf of Fox, NBC, and Viacom/CBS for FCC filings

- *Daisy L. Holoman et al. v. Pfizer Inc. and Warner Lambert Corporation* – For defendants, quantification of damages in class action suit related to a diabetes prescription medication

- *Indiana Michigan Power Company v. The United States of America* – For defendant, analysis of damages in connection with partial breach of the contract for disposal of spent nuclear fuel between plaintiff and the Department of Energy
- *Diane L. Walter-Brock v. Ford Motor Company et al.* – For defendants, analysis of the economics of punitive damages in a product liability suit
- *Julia Tennin and Patricia Alexander v. Ford Motor Company* – For defendants, analysis of the economics of punitive damages in a product liability suit
- For defendant (an internet service provider marketing cell phone service) analyzed plaintiff's damages claims for compensation in a cell phone service false advertising class action suit
- *R. Straman Co. and Newport Convertible Engineering, Inc. v. Volkswagen of America, et al.* – For defendants, analysis concerning antitrust liability and antitrust injury in monopolization claim
- *Bureau of Public Enterprises, Federal Republic of Nigeria* – Report and recommendations for competition policy and anti-trust reform in Nigeria
- *Newhall Land and Farming Co. v. Kerr McGee Operating Corporation, et al.* – For defendant, analysis concerning the economics of punitive damages
- *Thayer/Patricof Education Funding L.L.C. v. Fred Pryor et al.* – For Plaintiff, analysis of damages related to an acquisition in an accounting fraud suit
- *Marzia Spielholz, et al. v. Los Angeles Telephone Company, et al.* – For defendant, analyzed plaintiff's damages claims for compensation in a cell phone service false advertising class action suit
- *Cardiac Institute General Partnership v. Banner Health System et al.* – Competition analysis for defendant in monopolization claim
- *Braintree Laboratories, Inc. v. Schwarz Pharma, Inc.* – For defendant (and counter-claim plaintiff), demand estimation for delineation of relevant antitrust product market and analysis of market power in pharmaceuticals patent infringement and monopolization suit
- *William H. McKee and Paul R. Estrada v. Heller, Ehrman, White & McAuliffe et al.* – For defendants, business valuation of Monsterbook.com in a negligent misrepresentation and fraud suit
- *Exxon Chemical Plant Fire* – For defendant, analysis concerning the economics of punitive damages
- *Karlsson et al. v. Ford Motor Company et al.* – Analysis for defendants of liability in a product liability suit and the economics of punitive damages
- *Michael Meitus, et al. v. Dain Rauscher Wessels, Dain Rauscher Corporation and Dain Rauscher Inc.* – Competitive analysis of the brokerage industry and valuation of acquired investment bank
- *American Institute of CPAs* – Study of the provision of non-audit services by auditors evaluating efficiency effects and impact on audit quality
- *Competition for Video Programming* – Analysis of the effects of exclusive distribution contracts and the FCC's restrictions affecting cable operators
- *New Skies Satellites Position Paper* – Analysis of the adverse competitive impact of Export-Import Bank financing of iPSTAR satellite on the Asian satellite services market

- *ID Security Systems Canada v. Checkpoint Systems, Inc.* – Analysis for defendant of restraint of trade and tying claims in security tag systems

Presentations and Publications

- "Challenges to Quantifying Economic Harm from Data Breaches," presented to Chartered Business Valuators Institute, January 17, 2024
- "A Primer on Big Data for Litigators, Investigators, and Regulators" (with William Schwartz), *The Exchange*, Insurance and Financial Services Committee, American Bar Association, Section of Antitrust Law, Spring 2023
- "The Impact of Zero-Sum Games on Class Certification," *Economists Ink*, Secretariat 2Q 2022
- "The Use of Survey Evidence in Class Actions," *Economists Ink*, Secretariat 1Q 2022
- "The Assessment of Survey Evidence in the Epic v. Apple Litigation," *Economics Committee Newsletter*, Winter 2021, Volume 22 (2), Economics Committee, American Bar Association (with Stephanie M. Mirrow)
- "Data Science in Litigation," presented to the United States Department of Justice Civil Division, Federal Programs Branch, November 3, 2021
- "Data Science in Litigation," California approved CLE webinar for CA attorneys, presented to Severson and Werson, San Francisco, September 13, 2021
- "The Transition Away from LIBOR to SOFR," *Economists Ink* (with Jonathan A. Neuberger), Spring 2021
- "COVID-19 and Natural Experiments to Quantify Economic Harm," *Economists Ink*, Fall 2020
- "Measuring the Impact of Sensitive Questions on Survey Response Rates," *Economists Ink* (with Jonathan A. Neuberger), Fall 2019
- "Financial Markets Reform and Alleged Dealer-Bank Collusion," *Economists Ink* (with Jonathan A. Neuberger), Winter 2018
- "Has Collusion Hindered Financial Market Reform?" (with Jonathan A. Neuberger), *The Exchange*, Insurance and Financial Services Committee, American Bar Association, Section of Antitrust Law, Spring 2018
- "Chapter 8: Overcharges," (with Henry McFarland, Kelsey Shannon and Clarissa Yeap) in Proving Antitrust Damages, American Bar Association, Section of Antitrust Law, 3d ed., 2017
- "Financial Derivatives," presented at The U.S. Department of Justice, Washington D.C., October 11, 2017
- "Goldman Sachs Settles Allegations of Derivatives Benchmark Rate Manipulation," *Economists Ink* (with Jonathan Neuberger), Spring 2017
- "Different Competitive Effects in Financial Rate-Setting Cases," *Economists Ink* (with Jonathan Neuberger), Summer 2016

- "Perspectives On Four Years Of The CFPB's Consumer Complaints Database," (with Jonathan A. Neuberger), *The Exchange*, Insurance and Financial Services Committee, American Bar Association, Section of Antitrust Law, Spring 2016
- "Foreign Exchange Manipulation and Economic Harm," *Economists Ink* (with Jonathan Neuberger), Summer 2015
- "Foreign Exchange Manipulation and Economic Harm," (with Jonathan A. Neuberger), *The Exchange*, Insurance and Financial Services Committee, American Bar Association, Section of Antitrust Law, Spring 2015
- "Rate Manipulation and Antitrust Liability," *Economists Ink* (with Jonathan Neuberger), Summer 2014
- "Economic Harm and LIBOR Manipulation," *The Exchange*, Section of Antitrust Law, Insurance and Financial Services Committee, The American Bar Association (with Jonathan Neuberger), Spring 2013
- "Economic Harm and the LIBOR Scandal," *Economists Ink* (with Jonathan Neuberger), Winter 2012
- "The (Mis)Use of Screens in Economic Analysis," *Economists Ink* (with Jonathan Neuberger), Spring 2012
- Market Power Handbook: Competition Law & Economic Foundations (2d ed.) American Bar Association, Section of Antitrust Law, (contributor), March 2012
- "The Economics of Google's Acquisition of ITA Software," *Icarus, The Newsletter of the Communications & Digital Technology Industries Committee* (with Gloria Hurdle), ABA Section of Antitrust Law, Spring 2011
- "Remedies in Google's Acquisition of ITA Software," *Economists Ink* (with Gloria Hurdle), Spring 2011
- "Sensitivity Analysis in Economic Modeling," *Economists Ink* (with Jonathan A. Neuberger), Winter 2010
- "The Two Faces of Credit Default Swaps: Risk Management Versus Speculation," *Economists Ink* (with Jonathan A. Neuberger), Summer 2010
- "Financial Innovation, Banking and The Subprime Financial Crisis," presented at The U.S. Department of Justice, Washington D.C., May 13 and 14, 2010
- "The Determinants of Broadband Adoption: The Chinese and Indian Experience," *Icarus, The Newsletter of the Communications & Digital Technology Industries Committee*, ABA Section of Antitrust Law, Fall 2009
- "Comparing China's New Antimonopoly Law and India's Amended Competition Act," *Economists Ink* (with Su Sun), Spring 2009
- "China's New Antimonopoly Law and India's Amended Competition Act: How New Antitrust Regimes in These Important Emerging Markets May Impact High Tech Companies*," Icarus, The Computer & Internet Committee Newsletter* (with Su Sun), ABA Section of Antitrust Law, November 2008
- "Price Squeezes – Are They Detrimental to Consumer Welfare*?" Communications Industry Committee Newsletter*, American Bar Association, Section of Antitrust Law, Fall 2008

- "Imperfect Information, Entry, and the Merger Guidelines,"(with Barry C. Harris and Allison M. Ivory) in Issues in Competition Law and Policy, Volume 2, pp. 1589-1611, American Bar Association, Section of Antitrust Law, 2008

- "Strategic Departure-time Differentiation And Low Cost Carrier Competition," presented at the panel on airline economics, Annual Meeting of The Southern Economic Association, Charleston, SC, November 18, 2006

- Discussant of "An Empirical Investigation into The Causes of Flight Delays" by Nicolas Rupp, and chaired panel on airline economics at The Annual Meeting of The Southern Economic Association, Charleston, SC, November 18, 2006

- "Imperfect Information, Entry and The Merger Guidelines," *Economists Ink* (with Barry C. Harris and Allison M. Ivory), Summer 2006

- "International Airline Code Sharing and Entry," in Darin Lee, ed., Advances in Airline Economics, Chapter 5, Vol. 1, Elsevier, 2006

- "The Antitrust Economics of Intellectual Property," (with Phil B. Nelson and Robert D. Stoner), in Antitrust and Intellectual Property: A Guide for Practitioners, American Bar Association, Section of Antitrust Law, 2006

- "Economic Tools in Antitrust Analysis. The Use of Econometric Tools in Antitrust," presented at the Second Coloquio Foro Competencia, October 21, 2005, Buenos Aires, Argentina

- "Using Simulation And Econometric Models to Estimate The Effects of a Trade Restraint," *Economists Ink* (with Henry B. McFarland and Robert D. Stoner), Spring 2005

- "The Economic Effects of the Filed Rate Doctrine on Wholesale Electricity Markets," *The Energy Antitrust News*, (with Manny A. Macatangay), Spring 2005

- "Economic Analysis and Sampling of Populations," *Economists Ink*, Winter 2004

- "Event Study Methodology in Securities Litigation," *Economists Ink*, Winter 2004

- "Low Cost Carrier Competition And Flight Departure-Time Differentiation," presented at the Third Conference of the Japan Economic Policy Association, Meiji University, Tokyo, Japan, November 13, 2004

- "EU Guidelines on Competition and Technology Transfer Agreements," *Economists Ink*, Spring 2004

- "Coordinated Interaction and Clayton §7 Enforcement," *George Mason Law Review*, Volume 12, number 1, pp. 89-118, Fall 2003, (with Bruce M. Owen)

- "Coordinated Effects and Merger Policy Enforcement," *Economists Ink*, (with Bruce M. Owen), Fall 2003

- The Economics of Innovation: A Survey, American Bar Association, Section of Antitrust Law, (contributor), July 2002

- "The Intersection of Antitrust and Intellectual Property Law," *Economists Ink* (with Tessie Su), Spring/Summer 2001

- "Measuring the Competitive Effects of International Airline Code Sharing," *Economists Ink*, Fall 2001

- "Airline Code Sharing and Entry Deterrence." Paper delivered at the 7th Conference of Industrial Organization, Universitat Pompeu Fabra, Barcelona, September 2001
- "Cooperation Among Competitors: Evidence from Airline Alliances." Paper delivered at Northwestern University's Transportation Center, Fall 2000

Exhibit 2

Deposition and trial testimony of Stuart D. Gurrea during the past four years.

▪ *Sreedhar Gopalakrishnan and Sumathy Krishnamurthy vs. Nationstar Mortgage LLC* (No. 2:21-CV-01983-JAM-KJN) – For defendant, analysis of economic damages related to mortgage payment dispute. United States District Court, Central District of California, Eastern Division. Submitted expert report, July 2023. Testified at deposition, November 2023

▪ *Connecticut Yankee Atomic Power Company, Maine Yankee Atomic Power Company and Yankee Atomic Electric Company vs. United States of America* (Fed. Cl. Nos. 21-1116 C, 21-1118 C, & 21-1119 C (Consolidated)) – For Defendants, analysis of Plaintiffs' cost recovery expectations through litigation and effect on economic incentives to minimize costs. Submitted expert report, February 2023. Testified at deposition, April 2023

▪ *Matthew K. Black and Charrisa Raynor v. United States of America* (Fed. Cl., No. 22-10 C) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

▪ *Walter Michael Ennis and Judith Hobson Ennis et al. v. United States of America* (Fed. Cl., No. 21-87 L) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

▪ *Irving Park Shops, LLC, et al. v. United States of America* (Fed. Cl., 21-546) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

▪ *Helen C. Wood, LLC, et al. v. United States of America* (Fed. Cl., No. 21-2143 L) – For Defendants, economic analysis of the determination of the appropriate prejudgment interest rate in lawsuit related to alleged takings of property. Submitted expert report, November 2022. Testified at deposition November 2022

▪ *Southern California Edison Company vs. The United States of America* (Fed. Cl., No. 19-1792 C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the San Onofre nuclear plant. Submitted expert report, August 2022. Testified at deposition, October 2022. Testified in the United States Court of Federal Claims, December 2023

▪ *Jai Kumar v. Jade Global, Inc.* (No. 01-20-0016-0647) – For Plaintiff, conducted assessment of valuation of vested shares and estimated fair market value of common stock in technology services company in relation to a stock purchase agreement. Submitted expert report and rebuttal expert report, American Arbitration Association, June 15, 2022, and June 30, 2022. Testified at deposition and arbitration, July 2022 and August 2022

▪ *Duke Energy Progress and Duke Energy Florida LLC. vs. The United States of America* (Fed. Cl., No. 18-891C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Crystal River Nuclear Plant. Submitted expert report, June 2021. Testified at deposition August 2021

▪ *Paulette Johansen v. PHH Mortgage Corporation and Wells Fargo Bank, N.A.* (No. BC608637) – For defendant, analysis of economic damages related to alleged breach of settlement agreement in residential mortgage dispute. Superior Court of the State of California, County of Los Angeles, Central District. Testified at deposition, April 2021

▪ *NorthStar Vermont Yankee, LLC. vs. The United States of America* (Fed. Cl., No. 18-1209C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Vermont Yankee Nuclear Power Station. Submitted expert report, February 2021. Testified at deposition, March 2021. Testified in the United States Court of Federal Claims, November 2022

▪ *Dominion Energy Kewaunee Inc. vs. The United States of America* (Fed. Cl., No. 18-808C) – For the U.S. Department of Energy, assessed reliability of claimant's expert's predictions regarding a market for exchanges of spent nuclear fuel acceptance rights and schedule of removal of spent nuclear fuel from the Kewaunee Power Station. Submitted expert report, January 2021. Testified at deposition, March 2021

Materials Considered

Gurrea Report – SFFA v. USNA

Journal Articles

Allensworth, Elaine M., and Kallie Clark, "High School GPAs and ACT Scores as Predictors of College Completion: Examining Assumptions About Consistency Across High Schools", *Educational Researcher* , 2020, pp. 198-211.

Altonji, Joseph, Todd Elder, and Christopher Taber, "Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools," *Journal of Political Economy,* vol. 132(7), 2005, p. 182.

Antonovics, Kate, and Ben Backes, "The Effect of Banning Affirmative Action on College Admissions Policies and Student Quality", *The Journal of Human Resources,* 2014, pp. 295-322.

Arcidiacono, Peter, Josh Kinsler, and Tyler Ransom, "Asian American Discrimination in Harvard Admissions", *European Economic Review,* 2022, p.144.

Arcidiacono, Peter, and Josh Kinsler, "What the Students for Fair Admissions Cases Reveal about Racial Preferences," *Journal of Policial Economy Microeconomics,* vol. 1(4), 2023 pp. 651–652.

Bartunek, Jean M., and Myeong-Gu Seo, "Qualitative Research Can Add New Meanings to Quantitative Research", *Journal of Organizational Behavior,* 2002, pp. 237-242.

Bhopal, Raj, "Glossary of terms relating to ethnicity and race: for reflection and debate", *Journal of Epidemiology & Community Health* 58(6), 2004, pp. 441-445.

Espenshade, Thomas J., Chang Y. Chung, and Joan L. Walling, "Admission Preferences for Minority Students, Athletes, and Legacies at Elite Universities", *Social Science Quarterly,* 2004, pp. 1422-1446.

Krauth, Brian, "Bounding a Linear Causal Effect Using Relative Correlation Restrictions, *Journal of Econometric Methods,* vol. 5(1), 2016, pp. 117-141.

McLaughlin, Jacqueline E, Gerald W McLaughlin, Josetta S McLaughlin, and Carla Y White, "Using Simpson's diversity index to examine multidimensional models of diversity in health professions education", *Int J Med Educ,* 2016, pp. 1-5.

Micklewright, John, and Sylke V. Schnepf, "How reliable are income data collected with a single question*?", Journal of the Royal Statistical Society Series A: Statistics in Society*, 173(2), 2010, pp. 409-429.

Mood, Carina, "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It", *European Sociological Review,* 2009, pp.67–82.

Moore, Jeffrey C., Linda L. Stinson, and Edward J. Welniak, "Income measurement error in surveys: A review*", Journal of Official Statistics-Stockholm*, 16(4), 2000, pp. 331-362.

Oster, Emily, "Unobservable Selection and Coefficient Stability: Theory and Evidence", *Journal of Business & Economic Statistics* 37(2), 1949.

Simpson, E. H. April 30, 1949. "Measurement of Diversity", *Nature* 163, 688. DOI: 10.1038/163688a0.

Tootell, Geoffrey M.B., "Defaults, denials, and discrimination in mortgage lenging", *New England Economic Review*, September, 1993, pp. 45–51.

Yagan, Danny, "Supply vs. demand under an affirmative action ban: Estimates from UC law schools", *Journal of Public Economics,* 2016, pp. 38-50.

Books

Allen, Mark, Robert Hall, and Victoria Lazear. 2011. "Reference Guide on Estimation of Economic Damages." In *The Reference Manual on Scientific Evidence*, by National Research Council, Federal Judicial Center, Policy and Global Affairs, Technology, and Law Committee on Science and Committee on the Development of the Third Edition of the Reference Manual on Scientific Evidence. Washington, DC: The National Academies Press.

Baciu, Alina, Yamrot Negussie, and Amy Geller. 2017. *Communities in Action: Pathways to Health Equity*. Washington, D.C.: National Academies Press.

Judea Pearl, 2009, *Causality: Models, Reasoning, and Inference*, 2nd ed., Cambridge University Press.

StataCorp. 2023. *Stata 18 Base Reference Manual*. College Station, TX: Stata Press, [R] estat classification, available at https://www.stata.com/manuals/restatclassification.pdf accessed June 29, 2024.

Stock, James H., and Mark W. Watson. 2006. *Introduction to Econometrics*. Pearson.

Train, Kenneth. 2009. *Discrete Choice Methods with Simulation*. The Cambridge University Press.

Wooldridge, Jeffrey M. 2012. *Introductory Econometrics : a Modern Approach*. Mason, Ohio: South-Western Cengage Learning.

Wooldridge, Jefrey M. 2002. *Econometric Analysis of Cross Section and Panel Data*. The MIT Press.

Public reports and documents

APA Dictionary of Psychology, *ethnicity*, Updated on 11/15/2023, AMERICAN PSYCHOLOGICAL ASSOCIATION, available at https://dictionary.apa.org/ethnicity, Last accessed June 29, 2024.

U.S. Bureau of Labor Statistics. 2018. "Race, Economics, And Social Status." Spotlight on Statistics.

Board of Governors of the Federal Reserve System. 2017. "Survey of Consumer Finances."

Board of Governors of the Federal Reserve System. 2022. "Survey of Consumer Finances". https://www.federalreserve.gov/econres/scfindex.htm

Aladangady, Aditya, Andrew C. Chang, and Jacob Krimmel. 2023. *Greater Wealth, Greater Uncertainty: Changes in Racial Inequality in the Survey of Consumer Finances*. FEDS Notes, Board of Governors of the Federal Reserve System.

Brey, Cristobal de, Lauren Musu, and Joel McFarland. 2019. *Status and Trends in the Education of Racial and Ethnic Groups 2018*. National Center for Education Statistics: Institute of Education Sciences, U.S. Departmetn of Education.

FBI Uniform Crime Reporting Program. 2021. *Supplemental Hate Crime Statistics*. Washington, D.C.: Federal Bureau of Investigation.

Military Advantage, 2014-07-02, "How to Pass the Service Academy CFA", webpage, https://www.military.com/military-fitness/fitness-test-prep/service-academy-cfa Last accessed July 29, 2024.

Office of Management and Budget. 1994. *Standards for the Classification of Federal Data on Race and Ethnicity*. Federal Register, Obama White House Archives.

United States Census Bureau. 2021. Racial and Ethnic Diversity in the United States: 2010 Census and 2020 Census. U.S. Department of Commerce.

USNA Admissions. 2023. *Class Portrait: Class of 2027*. Annapolis: U.S. Naval Academy, (last accessed Jul 31, 2024), https://www.usna.edu/Admissions/Apply/Class-Portrait.php

National Association of Realtors. 2023. "Snapshot of Race and Home Buying in America." Chicago.

U.S. Bureau of Labor Statistics, *Consumer Price Index,* accessed via FRED, (last accessed Jul. 26, 2024), https://fred.stlouisfed.org/series/CPIAUCSL#0

U.S Census Bureau, 2020 Census, https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-main.html, (last accessed July 31, 2024).

U.S. Census Bureau, "Racial and Ethnic Diversity in the United States: 2010 Census and 2020 Census," https://www.census.gov/library/visualizations/interactive/racial-and-ethnic-diversity-in-the-united-states-2010-and-2020-census.html, (last accessed April 30, 2024).

Case-specific documents

Bates-stamped documents

Class of 2018 Snapshot, (USNA-00032517).

Class of 2019 Snapshot, (USNA-00032513).

Class of 2020 Snapshot, (USNA-00032509).

Class of 2021 Snapshot, (USNA-00032505).

Class of 2022 Snapshot, (USNA-00032504).

Class of 2023 Snapshot, (USNA-00004382).

Class of 2024 Snapshot, (USNA-00004390).

Class of 2025 Snapshot, (USNA-00004387).

Class of 2026 Snapshot, (USNA-00004394).

Data Dictionary - Oracle pre-Class of 2025 (USNA-00000498).

Data Dictionary - Salesforce Class of 2025-present (USNA-00000499).

Guidance for Recommendations of the Admissions Board (RABs): Adjustments to document from admissions office describing calculation of numerical score (WPM) (USNA-00000070-77).

Recommendations of the Admission Board Quick Reference Guide (USNA-00000078).

USNA Board Training: Materials describing admissions process (USNA-00000108).

Dean of Admissions Supplemental Guidance for the Class of 2028: Materials describing admissions process (USNA-00000146).

Document with initial calculation with removal of SAT/ACT weights due to COVID: Materials describing calculation of numerical score (USNA-00000147, USNA-00000505).

Guidance for Recommendations of the Admissions Board (RABs), (USNA-00000070)

Mark Vandervort (acting EOA program manager), "NAVY-WIDE DEMOGRAPHIC DATA FOR THIRD QUARTER FY 2010 (01 Apr 10 THROUGH 30 Jun 10)", memorandum from the office of the Director, Navy Equal Opportunity Office, August 18, 2010 (USNA-00002376).

Overview of Admissions Whole Person Multiple: Materials describing calculation of numerical score (USNA-00000506, USNA-00000748, USNA-00001362).

QA List - 2023 (USNA-00030530.XLSX)

QA List - 2024 (USNA-00030524.XLSX)

QA List - 2025 (USNA-00030498.XLSX)

QA List - 2026 (USNA-00021118.XLSX)

QA List - 2027 (USNA-00030495.XLSX)

Class of 2025 Snapshot (USNA-00004387–89)

S.S. Buck: Application Guidance for the Class of 2028 (USNA-00000146-148).

The Naval Academy Information Program, "Blue and Gold Officer Handbook", June 29, 2023, USNA-00001384.

USNA, "Nominations and Appointments Brief," December 2023, (USNA-00001162).

"USNA-00015846 Master Charging Report 2027.XLSX."

"USNA-00015847 Master Charging Report 2026.XLSX."

"USNA-00015848 Master Charging Report 2025.XLSX."

"USNA-00015849 Charging Report 2024.XLSX."

"USNA-00015850 Charging Report 2023.XLSX."

Data

BART Academic Data Production.

BART General Information Data Production.

BART Recommendations Data Production.

"DOJ Contact Application Matching(2023-2027).csv"

"HIGHLY CONFIDENTIAL DOJ Slate Review Report (Updated).csv."

"HIGHLY CONFIDENTIAL yyyy - General Information Part 1c (Prior Military Service).csv" for class years 2023-2024.

"HIGHLY CONFIDENTIAL 2023 - General Information Part 1b.csv"

Oracle Academic Data Production.

Oracle General Information Data Production.

Oracle Recommendations Data Production.

Oracle Board Routing Data Production.

Salesforce Objects Data Production.

"2024.02.16 USNA Data.pdf"

Depositions

30(b)(6) Deposition of Stephanie Bressler, Marisa Biondi, and Melody Hwang on May 28, 2024 and Exhibits.

Official complaint

Students for Fair Admissions v. The United States Naval Academy, The United States Department of Defense, Lloyd Austin, Carlos Del Toro, Bruce Latta, and Rear Admiral Fred Kacher: 10/5/2023.

Case Expert Reports

Dr. Peter S. Arcidiacono, July 15, 2024, "Expert Report of Peter S. Arcidiacono*", Students for Fair Admissions, Inc., v., The United States Naval Academy, et al.,* No. 23 Civ. 2699 (RDB).

Richard D. Kahlenberg, July 15, 2024, "Expert Report of Richard D. Kahlenberg", *Students for Fair Admissions v. United States Naval Academy*, no. 1:23-cv-02699, United States District Court for the District of Maryland, Northern Division.

Other

Declaration of Stephen Bruce Latta, December 1, 2023.

Dr. David Card, "Report of David Card, Ph.D." Document 419-141, 2017, Students for Fair Admissions, Inc. v. President and Fellows of Harvard College et al., Civil Action No. 1:14-cv-14176, plaintiff expert witness report.

Dr. Peter S. Arcidiacono, "Expert Report of Peter S. Arcidiacono" Document 415-8, 2017, *Students for Fair Admissions, Inc. v. President and Fellows of Harvard College et al.,* Civil Action No. 14-14176-ADB (D. Mass), URL: https://docs.justia.com/cases/federal/district-courts/massachusetts/madce/1:2014cv14176/165519/415/1.html accessed 7/24/2024, plaintiff expert witness opening report.

Dr. Peter S. Arcidiacono, "Rebuttal Expert Report of Peter S. Arcidiacono" Document 415-2, 2017, *Students for Fair Admissions, Inc. v. President and Fellows of Harvard College et al.*, Civil Action No. 14-cv-14176-ADB (D. Mass), plaintiff expert witness rebuttal report.

Marisa Biondi and Stephani Bressler, USNA IT, telephone call with Secretariat on May 13, 2024.

Marisa Biondi and Stephanie Bressler, USNA IT, telephone call with Secretariat on March 12, 2024.

Marisa Biondi and Stephanie Bressler, USNA IT, telephone call with Secretariat on March 22, 2024.

Melody Hwang, USNA Admissions, telephone call with Secretariat on March 11, 2024.

Melody Hwang, USNA Admissions, telephone call on May 13, 2024.

Melody Hwang, USNA Admissions, telephone call with Secretariat on July 29, 2024.

USNA: Nominations and Appointments Brief.

USNA IT staff in private communication to Secretariat on June 14, 2024.

10 USC §§ 8453–58.

Further Bates-stamped documents

USNA-00003501.CSV–USNA-00003564.CSV
USNA-00005425.CSV–USNA-00005480.CSV
USNA-00015837.CSV–USNA-00015838.CSV
USNA-00016170.CSV–USNA-00016171.CSV
USNA-00016381.CSV
USNA-00016388.CSV
USNA-00001165.PPT
USNA-00003260.PPT
USNA-00003300.PPT–USNA-00003301.PPT
USNA-00005889.PPT
USNA-00006323.PPT
USNA-00006327.PPT
USNA-00006329.PPT
USNA-00006553.PPT
USNA-00006559.PPT
USNA-00000108.PPTX
USNA-00000252.PPTX
USNA-00000369.PPTX
USNA-00000643.PPTX–USNA-00000660.PPTX
USNA-00000662.PPTX–USNA-00000677.PPTX
USNA-00000679.PPTX–USNA-00000695.PPTX
USNA-00001162.PPTX–USNA-00001164.PPTX
USNA-00001166.PPTX
USNA-00001199.PPTX–USNA-00001224.PPTX
USNA-00001355.PPTX
USNA-00001357.PPTX–USNA-00001358.PPTX
USNA-00001360.PPTX
USNA-00001362.PPTX
USNA-00002359.PPTX
USNA-00002365.PPTX–USNA-00002367.PPTX
USNA-00002650.PPTX
USNA-00002653.PPTX
USNA-00002724.PPTX
USNA-00002763.PPTX
USNA-00002787.PPTX
USNA-00002789.PPTX
USNA-00002794.PPTX–USNA-00002811.PPTX
USNA-00002813.PPTX–USNA-00002822.PPTX
USNA-00002824.PPTX–USNA-00002831.PPTX
USNA-00002833.PPTX–USNA-00003010.PPTX
USNA-00003012.PPTX–USNA-00003046.PPTX
USNA-00003156.PPTX–USNA-00003157.PPTX
USNA-00003196.PPTX
USNA-00003266.PPTX–USNA-00003267.PPTX
USNA-00003302.PPTX–USNA-00003304.PPTX
USNA-00003314.PPTX
USNA-00003358.PPTX–USNA-00003368.PPTX
USNA-00003450.PPTX–USNA-00003452.PPTX
USNA-00003454.PPTX
USNA-00003569.PPTX
USNA-00003571.PPTX
USNA-00003574.PPTX
USNA-00003576.PPTX
USNA-00003580.PPTX
USNA-00004366.PPTX–USNA-00004372.PPTX
USNA-00004406.PPTX
USNA-00004415.PPTX–USNA-00004418.PPTX
USNA-00004425.PPTX
USNA-00004811.PPTX
USNA-00004923.PPTX
USNA-00004926.PPTX–USNA-00004932.PPTX
USNA-00004989.PPTX–USNA-00005029.PPTX
USNA-00005122.PPTX–USNA-00005126.PPTX
USNA-00005300.PPTX–USNA-00005386.PPTX
USNA-00005499.PPTX
USNA-00005504.PPTX
USNA-00005508.PPTX
USNA-00005510.PPTX–USNA-00005511.PPTX
USNA-00005891.PPTX
USNA-00005902.PPTX–USNA-00005903.PPTX
USNA-00005941.PPTX
USNA-00006321.PPTX
USNA-00006324.PPTX–USNA-00006326.PPTX
USNA-00006328.PPTX
USNA-00006552.PPTX
USNA-00006562.PPTX–USNA-00006563.PPTX
USNA-00006699.PPTX
USNA-00016001.PPTX
USNA-00016005.PPTX
USNA-00016007.PPTX
USNA-00000498.XLSX–USNA-00000505.XLSX
USNA-00001225.XLSX–USNA-00001245.XLSX
USNA-00002619.XLSX
USNA-00002721.XLSX–USNA-00002723.XLSX
USNA-00002764.XLSX
USNA-00002788.XLSX
USNA-00002793.XLSX
USNA-00003011.XLSX
USNA-00003568.XLSX
USNA-00003570.XLSX
USNA-00003573.XLSX
USNA-00003575.XLSX
USNA-00003581.XLSX
USNA-00004583.XLSX–USNA-00004617.XLSX
USNA-00004820.XLSX–USNA-00004821.XLSX
USNA-00004852.XLSX–USNA-00004857.XLSX
USNA-00005505.XLSX–USNA-00005507.XLSX
USNA-00005512.XLSX
USNA-00005560.XLSX–USNA-00005561.XLSX
USNA-00005568.XLSX–USNA-00005596.XLSX
USNA-00005890.XLSX
USNA-00005892.XLSX
USNA-00005900.XLSX–USNA-00005901.XLSX
USNA-00005904.XLSX–USNA-00005905.XLSX
USNA-00005942.XLSX
USNA-00006018.XLSX–USNA-00006050.XLSX
USNA-00006052.XLSX
USNA-00006054.XLSX–USNA-00006070.XLSX
USNA-00006075.XLSX–USNA-00006083.XLSX
USNA-00006322.XLSX
USNA-00006330.XLSX–USNA-00006332.XLSX
USNA-00006337.XLSX
USNA-00006341.XLSX
USNA-00006370.XLSX–USNA-00006372.XLSX
USNA-00006374.XLSX–USNA-00006383.XLSX
USNA-00006594.XLSX–USNA-00006600.XLSX
USNA-00015846.XLSX–USNA-00015850.XLSX
USNA-00016002.XLSX
USNA-00016006.XLSX
USNA-00016008.XLSX
USNA-00016045.XLSX
USNA-00016382.XLSX–USNA-00016387.XLSX
USNA-00030487.XLSX–USNA-00030538.XLSX
USNA-00000001.pdf
USNA-00000006.pdf–USNA-00000015.pdf
USNA-00000023.pdf–USNA-00000024.pdf
USNA-00000029.pdf–USNA-00000045.pdf
USNA-00000049.pdf
USNA-00000051.pdf–USNA-00000053.pdf
USNA-00000062.pdf
USNA-00000067.pdf–USNA-00000068.pdf
USNA-00000070.pdf
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Applications Dropped and Remaining after Initial Filtering

	Category	Year 2023	2024	2025	2026	2027	Total
Raw Data	**Applications with Valid Candidate Numbers***	**13,418**	**13,774**	**16,309**	**12,604**	**14,344**	**70,449**
Ignored Applications (Filtered out of Database)	Missing Board Results**	7,845	8,301	11,039	8,323	9,459	44,967
	Foreign Applications	50	48	44	55	55	252
	Fleet Applications	167	162	184	174	191	878
	Prep Applications	271	266	275	248	275	1,335
	USNA Deferred	-	-	-	5	3	8
	Application Withdrawn	585	-	19	5	-	609
Within Completed Applications Population	**Completed Applications Population**	**4,972**	**4,859**	**4,686**	**3,658**	**4,225**	**22,400**
	Not Eligible†	1,908	2,021	2,589	1,483	1,702	9,703
	Blue Chip Athlete (BCA) Application	172	202	182	172	190	918
	Missing Certain Variables§	-	-	80	12	8	100
	Eligible†, non-BCA, not Missing Certain Variables	**2,892**	**2,636**	**1,835**	**1,991**	**2,325**	**11,679**

Data Source: See Data Appendix

Notes:

1) Counts of remaining applications after a filter are in boldface.

2) Filters are cummulative and applied in order shown.

* "Valid Candidate Number" excludes applications with candidate numbers 999999 and 601723, which are used by USNA only for testing purposes.

** "Missing Board Result" indicates the application was not reviewed by USNA' s Admissions Board.

† Eligible candidates are those who have received a nomination, are medically and CFA qualified, and have either had a BGO interview or are recruited athletes in basketball or men's football.

§ SAT Math Score, SAT Verbal Score, Class Rank, Athletic Score, Non-Athletic Score, and Combined RSO Score.

Exhibit 5

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Net Value of All RAB Points by Reason and Source Categories

Completed, Board-Reviewed Applications from Domestic, Civilian Applicants Not Already in a Naval Preparatory Program, 2023–2027

	Sum of Net Value of Points			
RAB Reason Category	**Auto**	**Board**	**Manual**	**Total**
BGO Interview	1,714,500	-19,400	2,000	1,697,100
CFA	3,251,000	0	8,500	3,259,500
Character Issues	0	59,500	-37,500	22,000
College	0	403,850	3,430,800	3,834,650
ECAs/Year Round Sport	0	2,534,600	83,600	2,618,200
High School Courses	0	5,731,100	302,500	6,033,600
High School Quality	16,263,500	350,000	32,250	16,645,750
Legacy	653,000	1,534,100	96,500	2,283,600
Life Experience/Hardship	500	8,204,700	471,500	8,676,700
Other	0	330,920	21,670	352,590
Personal Statement	0	-144,000	-1,000	-145,000
Summer Seminar	2,086,000	28,000	111,000	2,225,000
Super STEM	0	868,600	43,500	912,100
Teacher Recommendations	0	5,000	0	5,000
Total	**23,968,500**	**19,886,970**	**4,565,320**	**48,420,790**

Source: See Data Appendix.

Exhibit 6

Highly Confidential

Absolute Value of All RAB Points by Reason and Source Categories

Completed, Board-Reviewed Applications from Domestic, Civilian Applicants Not Already in a Naval Preparatory Program, 2023–2027

	Sum of Absolute Value of Points			
RAB Reason Category	**Auto**	**Board**	**Manual**	**Total**
BGO Interview	1,714,500	27,600	2,000	1,744,100
CFA	13,934,000	0	48,500	13,982,500
Character Issues	0	874,500	58,500	933,000
College	0	910,250	4,930,200	5,840,450
ECAs/Year Round Sport	0	2,535,800	83,600	2,619,400
High School Courses	0	5,738,100	302,500	6,040,600
High School Quality	16,263,500	350,000	32,250	16,645,750
Legacy	653,000	1,535,100	96,500	2,284,600
Life Experience/Hardship	500	8,212,700	471,500	8,684,700
Other	0	356,920	27,670	384,590
Personal Statement	0	157,000	1,000	158,000
Summer Seminar	2,086,000	105,000	117,000	2,308,000
Super STEM	0	871,600	43,500	915,100
Teacher Recommendations	0	8,000	0	8,000
Total	**34,651,500**	**21,682,570**	**6,214,720**	**62,548,790**

Source: See Data Appendix.

Exhibit 6

Highly Confidential

	Share of Points by Source			
RAB Reason Category	**Auto Share**	**Board Share**	**Manual Share**	**Total Share**
BGO Interview	98.30%	1.58%	0.11%	100.00%
CFA	99.65%	0.00%	0.35%	100.00%
Character Issues	0.00%	93.73%	6.27%	100.00%
College	0.00%	15.59%	84.41%	100.00%
ECAs/Year Round Sport	0.00%	96.81%	3.19%	100.00%
High School Courses	0.00%	94.99%	5.01%	100.00%
High School Quality	97.70%	2.10%	0.19%	100.00%
Legacy	28.58%	67.19%	4.22%	100.00%
Life Experience/Hardship	0.01%	94.57%	5.43%	100.00%
Other	0.00%	92.81%	7.19%	100.00%
Personal Statement	0.00%	99.37%	0.63%	100.00%
Summer Seminar	90.38%	4.55%	5.07%	100.00%
Super STEM	0.00%	95.25%	4.75%	100.00%
Teacher Recommendations	0.00%	100.00%	0.00%	100.00%
Total	**55.40%**	**34.67%**	**9.94%**	**100.00%**

Exhibit 6

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	Share of Points by RAB Reason			
RAB Reason Category	**Auto**	**Board**	**Manual**	**Total**
BGO Interview Share	4.95%	0.13%	0.03%	2.79%
CFA Share	40.21%	0.00%	0.78%	22.35%
Character Issues Share	0.00%	4.03%	0.94%	1.49%
College Share	0.00%	4.20%	79.33%	9.34%
ECAs/Year Round Sport Share	0.00%	11.70%	1.35%	4.19%
High School Courses Share	0.00%	26.46%	4.87%	9.66%
High School Quality Share	46.93%	1.61%	0.52%	26.61%
Legacy Share	1.88%	7.08%	1.55%	3.65%
Life Experience/Hardship Share	0.00%	37.88%	7.59%	13.88%
Other Share	0.00%	1.65%	0.45%	0.61%
Personal Statement Share	0.00%	0.72%	0.02%	0.25%
Summer Seminar Share	6.02%	0.48%	1.88%	3.69%
Super STEM Share	0.00%	4.02%	0.70%	1.46%
Teacher Recommendations Share	0.00%	0.04%	0.00%	0.01%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Exhibit 7

Highly Confidential

Absolute Value of College RAB Points by Source Category and College RAB Sub Category

Completed, Board-Reviewed Applications from Domestic, Civilian Applicants Not Already in a Naval Preparatory Program, 2023–2027

	Sum of Absolute Value of Points			
Reason	**Board**	**Manual**	**Total**	**Total Share**
College Club Sports	1,500	0	1,500	0.03%
College Course Load	287,050	12,500	299,550	5.13%
College Course Mix	156,500	1,000	157,500	2.70%
College ECAs	76,500	4,500	81,000	1.39%
College GPA	84,200	4,167,200	4,251,400	72.79%
College Ma or	242,500	7,500	250,000	4.28%
College Reapplicant	6,000	734,500	740,500	12.68%
College Varsity Sport	46,000	3,000	49,000	0.84%
College rong Courses	10,000	0	10,000	0.17%
Total	**910,250**	**4,930,200**	**5,840,450**	**100.00%**

Source: See Data Appendix.

Exhibit 8

Adjustments in RAB Category "Other" by Source Category and Point Adjustment Value

Completed, Board-Reviewed Applications from Domestic, Civilian Applicants Not Already in a Naval Preparatory Program, 2023–2027

	Adjustments in RAB Category "Other"		
Points	**Board**	**Manual**	**Total**
-2,400	1	0	1
-2,000	0	1	1
-1,600	1	0	1
-1,000	6	1	7
-500	6	0	6
0	0	3	3
70	1	0	1
500	647	36	683
560	1	0	1
790	1	0	1
1,000	15	3	18
2,000	2	0	2
3,670	0	1	1
Total	**681**	**45**	**726**

Source: See Data Appendix.

Note: Count of RABs adjustments for each point value are shown.

Exhibit 9

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Multiplicity of Race by Race

Completed, Board-Reviewed Applications from Domestic Civilians not Already in a Naval Preparatory Program, 2023–2027

Race on Application	At least this race	ust this race	Multiracial Share	Hispanic or Latino and ust this race	Share of non Multiracial Hispanic or Latino who are ust this
American ndian or Alas a Native	481	98	79.6%	53	2.1%
Asian	2,973	1,751	41.1%	71	2.8%
Blac or African American	1,641	1,135	30.8%	133	5.3%
Native awaiian or Pacific slander	384	108	71.9%	21	0.8%
ite	18,529	16,740	9.7%	2011	80.5%
No Race Selected	584	584	0.0%	210	8.4%
Total	**22,400**	**20,416**	**8.9%**	**2,499**	**100.0%**

Source: See Data Appendix.

Notes

1 "At least is" indicates an application of a person w o selects t e race, regardless of w et er t ey are ispanic or w et er t ey ave selected any ot er races

2 " st t is" indicates an application of a person w o as selected exactly one race, regardless of w et er t ey are ispanic

Exhibit 10

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Race Multiplicity by Ethnicity

Completed, Board-Reviewed Applications from Domestic Civilians not Already in a Naval Preparatory Program, 2023–2027

Races Selected	Not Hispanic		Hispanic		Total	
0	374	1.91%	210	7.50%	584	2.61%
1	17,543	89.50%	2,289	81.78%	19,832	88.54%
2	1,527	7.79%	265	9.47%	1,792	8.00%
3	143	0.73%	33	1.18%	176	0.79%
4	14	0.07%	2	0.07%	16	0.07%
Total	**19,601**	100.00%	**2,799**	100.00%	**22,400**	100.00%

Source: See Data Appendix.

USNA Admission Offer Rate by Race and Ethnicity*, 2023–2027

Eligible**, Completed, Board-reviewed, Non-BCA Applications not Missing Certain Variables† and From Domestic Civilians Not Already in a Naval Preparatory Program

Race	Applicant Count	Applicant Share	Admit Count	Admit Share	Admit Rate
Asian	979	8.38%	555	12.03%	56.69%
Black/Afr. Am.	434	3.72%	155	3.36%	35.71%
None	298	2.55%	93	2.02%	31.21%
Other or Multiracial	1,193	10.21%	546	11.84%	45.77%
White	8,775	75.13%	3,264	70.76%	37.20%
Total	**11,679**	**100.00%**	**4,613**	**100.00%**	**39.50%**

Ethnicity	Applicant Count	Applicant Share	Admit Count	Admit Share	Admit Rate
Hispanic or Latino	1,459	12.49%	579	12.55%	39.68%
Not Hispanic or Latino	10,220	87.51%	4,034	87.45%	39.47%
Total	**11,679**	**100.00%**	**4,613**	**100.00%**	**39.50%**

Data Source: See Data Appendix.

1) Share columns represent the racial breakdown of the corresponding count column. "Admit Rate" represents the success rate of each race.

* See the Data Appendix for a description of the categorization of race and ethnicity.

** Eligible candidates are those who have received a nomination, are medically and CFA qualified, and have either had a BGO interview or are recruited athletes in basketball or men's football.

† SAT Math Score, SAT Verbal Score, Class Rank, Athletic Score, Non-Athletic Score, and Combined RSO Score.

USNA Admission Offer Rate by Arcidiacono Categorization of Race and Ethnicity, 2023–2027*

Eligible**, Completed, Board-reviewed, Non-BCA Applications not Missing Certain Variables† and From Domestic Civilians Not Already in a Naval Preparatory Program

Race	Applicant Count	Applicant Share	Admit Count	Admit Share	Admit Rate
Asian	1,376	11.78%	780	16.91%	56.69%
Black	696	5.96%	282	6.11%	40.52%
Missing	200	1.71%	68	1.47%	34.00%
Native American/Hawaiian	268	2.29%	114	2.47%	42.54%
White	7,705	65.97%	2,833	61.41%	36.77%
Hispanic	1,434	12.28%	536	11.62%	37.38%
Total	**11,679**	**100.00%**	**4,613**	**100.00%**	**39.50%**

Ethnicity	Applicant Count	Applicant Share	Admit Count	Admit Share	Admit Rate
Hispanic or Latino	1,553	13.30%	587	12.72%	37.80%
Not Hispanic or Latino	10,126	86.70%	4,026	87.28%	39.76%
Total	**11,679**	**100.00%**	**4,613**	**100.00%**	**39.50%**

Data Source: See Data Appendix.

1) Share columns represent the racial breakdown of the corresponding count column. "Admit Rate" represents the success rate of each race.

* Arcidiacono Report, p. G1.

** Eligible candidates are those who have received a nomination, are medically and CFA qualified, and have either had a BGO interview or are recruited athletes in basketball or men's football.

† SAT Math Score, SAT Verbal Score, Class Rank, Athletic Score, Non-Athletic Score, and Combined RSO Score.

Candidates' Stated Adversity, 2023–2027

Eligible*, Completed, Board-reviewed, Non-BCA Applications not Missing Certain Variables† and From Domestic Civilians Not Already in a Naval Preparatory Program

Adversity Term	Total
Abuse	78
Accident	88
Addict	29
Alcohol	63
Antisemitism	9
Assault	40
Autism	16
Bullied	53
Cancer	200
Coming Out	1
Died	140
Divorce	232
Drugs	29
Eviction	4
Foster Care	5
Gay/Lesbian	3
Gender	1
Homeless	25
Hospital	59
Immigrant	19
Injury	50
Jail/Prison	13
Killed	21
Low Income	9
Obesity	5
Orphan	5
Overdose	4
Pass Away	108
Poor	16
Poverty	14
Racism	38
Sexism	5
Sexual Assault/Rape	5
Sick	12
Single Parent	74
Suicide	40
Surgery	80
Survivor	27

Exhibit 13

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Transgender	1
Tumor	14
Unemployment	13
Welfare	3
Total[§]	**1,147**

Data Source: See Data Appendix.

* Eligible candidates are those who have received a nomination, are medically and CFA qualified, and have either had a BGO interview or are recruited athletes in basketball or men's football.

** Candidates' stated adversity comes from *Adversity Comments* field in BART/Oracle GIP1

[†] SAT Math Score, SAT Verbal Score, Class Rank, Athletic Score, Non-Athletic Score, and Combined RSO Score.

[§] The total does not equal the column sum because many applicants list multiple adversity comments.

Exhibit 14

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oodness-of-Fit Measures and A erage Marginal Effects of Race and Ethnicity Variables in Models 6, 6 , and 6

	Model 6	Model 6	Model 6
Sensiti ity	81.29	80.89	78.48
Specificity	88.15	87.88	86.27
Blac AME pct pts	24.29	18.53	
Blac ower Bound pct pts	21.93	15.72	
Blac pper Bound pct pts	26.64	21.33	
ispanic AME pct pts	11.12	9.83	
ispanic ower Bound pct pts	9.37	8.09	
ispanic pper Bound pct pts	12.87	11.56	
Asian AME pct pts	17.55	17.31	
Asian ower Bound pct pts	15.52	14.97	
Asian pper Bound pct pts	19.58	19.65	
Nati e AME pct pts	12.63		
Nati e ower Bound pct pts	8.78		
Nati e pper Bound pct pts	16.48		
None AME pct pts	0.37	0.78	
None ower Bound pct pts	-3.84	-2.62	
None pper Bound pct pts	4.58	4.19	
ther Multiple AME pct pts		15.15	
ther Multiple ower Bound pct pts		13.09	
ther Multiple pper Bound pct pts		17.21	

Notes:

1) Model 6 is the preferred model in Dr. Arcidiacono s report.

2) Model 6 is the preferred model in Dr. Arcidiacono s report, except with my method of categorizing race and ethnicity.

3) Model 6 is the preferred model in Dr. Arcidiacono s report, excluding the race regressor.

4) Lower and Upper Bound Refer to the bounds of the 95 confidence interval of the Average Marginal Effect estimate.

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-------------------------------------------------------------------------------
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       log:  ./SE-additions/Regression-Coefficients.log
  log type:  text
 opened on:  31 Jul 2024, 14:48:04

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.
. // Show Model 6 Coefficients
. estimates replay base6

-------------------------------------------------------------------------------
Model base6
-------------------------------------------------------------------------------

Logistic regression                                     Number of obs =  12,300
                                                        LR chi2(62)   = 8225.46
                                                        Prob > chi2   =  0.0000
Log likelihood = -4080.2505                             Pseudo R2     =  0.5020

------------------------------------------------------------------------------
        Admit | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
--------------+---------------------------------------------------------------
RaceEthURMP~y |
       Asian  |   1.465999   .0896526    16.35   0.000     1.290284    1.641715
       Black  |    2.88955   .1325532    21.80   0.000      2.62975    3.149349
Declined/M~g  |   .0378915   .2203942     0.17   0.863    -.3940732    .4698562
    Hispanic  |   1.151715    .090709    12.70   0.000     .9739283    1.329501
Native Ame..  |   1.208555   .1879843     6.43   0.000     .8401127    1.576998
              |
     1.Female |   .2854176   .0659153     4.33   0.000     .1562261    .4146091
1.FirstGenC~l |   .0497269   .1485609     0.33   0.738    -.2414471    .3409009
1.HHIncLe~80k |  -.0939458   .0826661    -1.14   0.256    -.2559683    .0680767
1.MissingHH~c |  -.0797623    .099702    -0.80   0.424    -.2751747      .11565
Percent4Yea~2 |   1.268127   .1505197     8.42   0.000     .9731133     1.56314
ncesPrivate~2 |   .2591357   .1011182     2.56   0.010     .0609476    .4573238
ncesPctFRPL~2 |   .1498689   .1831348     0.82   0.413    -.2090687    .5088065
irsAvgS~yImp2 |   .0482935   .0511157     0.94   0.345    -.0518915    .1484785
1.MissingPe~e |  -.0346825   .1913275    -0.18   0.856    -.4096775    .3403125
1.Missingnc~e |  -.3596753   .1683656    -2.14   0.033    -.6896659   -.0296847
1.Missingnc~L |    .045762   .0983111     0.47   0.642    -.1469242    .2384482
1.Missingir~y |  -.1119515   .1546696    -0.72   0.469    -.4150984    .1911954
wpmHighSATM~h |   1.275247   .0769016    16.58   0.000     1.124523    1.425971
wpmHighSATV~l |   .8087224    .076374    10.59   0.000     .6590321    .9584127
wpmStandard~s |   .5706989   .0336951    16.94   0.000     .5046577      .63674
wpmAthletic~e |   .3657937   .0256132    14.28   0.000     .3155927    .4159948
wpmNonAthle~e |   .2134594   .0213006    10.02   0.000      .171711    .2552079
wpmCombined~O |   .5227289   .0254455    20.54   0.000     .4728566    .5726012
  CFAScoreMax |   .3940028   .0371188    10.61   0.000     .3212513    .4667543
              |
         Post#|
           c. |
wpmHighSATM~h |
           1  |  -.6218004    .099208    -6.27   0.000    -.8162446   -.4273563
              |
         Post#|
           c. |
wpmHighSATV~l |
           1  |  -.6839568   .1049677    -6.52   0.000    -.8896898   -.4782239
              |
         Post#|
           c. |
wpmStandard~s |
           1  |    .070187   .0468532     1.50   0.134    -.0216436    .1620175
              |
         Post#|
           c. |
wpmAthletic~e |
           1  |    .046925    .034051     1.38   0.168    -.0198137    .1136637
              |
```

Exhibit 14

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```
         Post#|
           c. |
wpmNonAthle~e |
           1  |   .1643183   .0331187     4.96   0.000     .0994069    .2292297
              |
1.AnyNomCon~l |   .2850531   .1661258     1.72   0.086    -.0405475    .6106537
1.MultNomCo~l |   .3691795   .1222572     3.02   0.003     .1295599    .6087991
1.AnyNomNav~r |   .6803199   .2682267     2.54   0.011     .1546052    1.206035
1.AnyNomValor |   1.017595   .1992156     5.11   0.000     .6271394     1.40805
1.NuclearPo~l |   3.003017   .3448262     8.71   0.000      2.32717    3.678864
   Type1Slate |   9.213425   .8789616    10.48   0.000     7.490692    10.93616
   Type2Slate |   3.420181   .9149019     3.74   0.000     1.627006    5.213355
   Type3Slate |  -.2290869   .1284593    -1.78   0.075    -.4808625    .0226886
EverPrincip~3 |    4.42422    .137424    32.19   0.000     4.154874    4.693566
anyWithin4k~1 |   .1159793   .0818394     1.42   0.156    -.0444231    .2763816
anyWithin4k~2 |   .5013565   .1671108     3.00   0.003     .1738254    .8288877
       AnyA4K |   1.382226   .1990797     6.94   0.000     .9920365    1.772415
   lcompType1 |  -.6342907   .1002983    -6.32   0.000    -.8308718   -.4377096
   lcompType2 |  -1.318752   .1401416    -9.41   0.000    -1.593424   -1.044079
minType1WPM~n |  -1.150623   .1260334    -9.13   0.000    -1.397644   -.9036024
minType2WPM~n |  -.0127704   .1411145    -0.09   0.928    -.2893498     .263809
              |
TotalNomina~s |
           2  |   .0027615   .0911588     0.03   0.976    -.1759064    .1814295
           3  |   .2911925   .1531676     1.90   0.057    -.0090105    .5913955
           4  |   .6183729    .310746     1.99   0.047     .0093219    1.227424
           5  |   2.474394   1.259119     1.97   0.049     .0065665    4.942221
              |
    ClassYear |
        2024  |   .3675778   .0864638     4.25   0.000     .1981118    .5370437
        2025  |   8.588997   .7915676    10.85   0.000     7.037553    10.14044
        2026  |   8.799841   .7900783    11.14   0.000     7.251316    10.34837
        2027  |   8.283111   .7913559    10.47   0.000     6.732082     9.83414
              |
1.Paren~yNavy |   .5245466   .1324872     3.96   0.000     .2648765    .7842168
1.Paren~tNavy |  -.2950247   .1538538    -1.92   0.055    -.5965725    .0065231
1.APIBHonor~B |   .2052594   .0588252     3.49   0.000     .0899641    .3205547
              |
bgoOverallE~l |
BGO Top 25..  |  -.3940325   .0700411    -5.63   0.000    -.5313106   -.2567544
BGO Above ..  |  -.6227793   .1006832    -6.19   0.000    -.8201147   -.4254439
 BGO Average  |  -.8629344   .1448982    -5.96   0.000     -1.14693   -.5789392
BGO Below ..  |  -1.865568   .4121251    -4.53   0.000    -2.673318   -1.057818
BGO Not Re..  |  -.8383824    .386107    -2.17   0.030    -1.595138   -.0816266
BGO Not Ob..  |  -2.523128   .6435322    -3.92   0.000    -3.784428   -1.261828
              |
        _cons |  -28.52021   .8049901   -35.43   0.000    -30.09796   -26.94246
------------------------------------------------------------------------------

.
. // Show Model 6' Coefficients
. estimates replay se_base6

------------------------------------------------------------------------------
Model se_base6
------------------------------------------------------------------------------

Logistic regression                                     Number of obs =  12,300
                                                        LR chi2(62)   = 8091.96
                                                        Prob > chi2   =  0.0000
Log likelihood = -4147.0004                             Pseudo R2     =  0.4938
```

Admit	Coefficient	Std. err.	z	P>|z|	[95% conf. interval]	
se_race						
Asian	1.44462	.1021654	14.14	0.000	1.244379	1.64486
Black/Afr...	2.351239	.1564222	15.03	0.000	2.044657	2.657821
Other/Mult~e	1.392148	.0975426	14.27	0.000	1.200968	1.583329
None	.078962	.1739613	0.45	0.650	-.2619959	.4199199
1.se_hispan~o	.9790891	.0871087	11.24	0.000	.8083592	1.149819
1.Female	.2784946	.0653298	4.26	0.000	.1504506	.4065387
1.FirstGenC~l	.0459395	.1476308	0.31	0.756	-.2434115	.3352904
1.HHIncLe~80k	-.0596767	.0820199	-0.73	0.467	-.2204326	.1010793
1.MissingHH~c	-.0731722	.0987001	-0.74	0.458	-.2666207	.1202764
Percent4Yea~2	1.261067	.149122	8.46	0.000	.9687933	1.553341
ncesPrivate~2	.2517901	.1003755	2.51	0.012	.0550578	.4485225
ncesPctFRPL~2	.1976095	.1811321	1.09	0.275	-.157403	.5526219
irsAvgS~yImp2	.0467796	.0508385	0.92	0.357	-.0528621	.1464213
1.MissingPe~e	-.0552256	.1909391	-0.29	0.772	-.4294594	.3190082
1.Missingnc~e	-.3485851	.1669242	-2.09	0.037	-.6757504	-.0214197
1.Missingnc~L	.0599622	.0973748	0.62	0.538	-.130889	.2508133
1.Missingir~y	-.106635	.1532383	-0.70	0.487	-.4069766	.1937066
wpmHighSATM~h	1.210196	.0756127	16.01	0.000	1.061998	1.358394
wpmHighSATV~l	.779851	.0752391	10.36	0.000	.632385	.927317
wpmStandard~s	.5582513	.0333694	16.73	0.000	.4928484	.6236542
wpmAthletic~e	.3566615	.0253031	14.10	0.000	.3070683	.4062547
wpmNonAthle~e	.2099167	.0210936	9.95	0.000	.168574	.2512594
wpmCombined~O	.5157057	.0252599	20.42	0.000	.4661972	.5652142
CFAScoreMax	.3849566	.0367171	10.48	0.000	.3129925	.4569207
Post#c. wpmHighSATM~h 1	-.5978248	.0981566	-6.09	0.000	-.7902083	-.4054414
Post#c. wpmHighSATV~l 1	-.6478932	.1038909	-6.24	0.000	-.8515156	-.4442707
Post#c. wpmStandard~s 1	.0708917	.0464617	1.53	0.127	-.0201715	.1619549
Post#c. wpmAthletic~e 1	.0420702	.0336699	1.25	0.211	-.0239217	.108062
Post#c. wpmNonAthle~e 1	.1591644	.0329091	4.84	0.000	.0946637	.223665
1.AnyNomCon~l	.2380654	.1649008	1.44	0.149	-.0851342	.5612651
1.MultNomCo~l	.3872643	.1210718	3.20	0.001	.1499679	.6245607
1.AnyNomNav~r	.6574281	.2657382	2.47	0.013	.1365908	1.178265
1.AnyNomValor	1.022323	.1979464	5.16	0.000	.6343554	1.410291
1.NuclearPo~l	2.931943	.3420114	8.57	0.000	2.261613	3.602273
Type1Slate	9.099251	.8697622	10.46	0.000	7.394548	10.80395
Type2Slate	3.251146	.9145487	3.55	0.000	1.458664	5.043629
Type3Slate	-.2279642	.1274184	-1.79	0.074	-.4776996	.0217712
EverPrincip~3	4.311841	.1353325	31.86	0.000	4.046594	4.577088
anyWithin4k~1	.0994556	.0810705	1.23	0.220	-.0594396	.2583508
anyWithin4k~2	.502867	.1661471	3.03	0.002	.1772247	.8285092
AnyA4K	1.373749	.1978893	6.94	0.000	.9858931	1.761605
lcompType1	-.5923223	.0990351	-5.98	0.000	-.7864276	-.398217
lcompType2	-1.245765	.1386676	-8.98	0.000	-1.517549	-.9739817
minType1WPM~n	-1.142334	.124766	-9.16	0.000	-1.386871	-.8977968
minType2WPM~n	-.0145243	.1411401	-0.10	0.918	-.2911539	.2621053

```
TotalNomina~s |
            2 |    -.02001   .0900913    -0.22   0.824    -.1965856    .1565656
            3 |   .2659846   .1512049     1.76   0.079    -.0303717    .5623408
            4 |   .5620994   .3058016     1.84   0.066    -.0372607     1.16146
            5 |   2.406293   1.249049     1.93   0.054     -.041799    4.854384
              |
    ClassYear |
         2024 |   .3610654   .0854965     4.22   0.000     .1934954    .5286355
         2025 |   8.168941   .7840918    10.42   0.000     6.632149    9.705732
         2026 |   8.372429   .7820478    10.71   0.000     6.839643    9.905214
         2027 |   7.856598   .7836522    10.03   0.000     6.320668    9.392528
              |
1.Paren~yNavy |   .5346661   .1311303     4.08   0.000     .2776555    .7916767
1.Paren~tNavy |  -.2982304   .1526849    -1.95   0.051    -.5974873    .0010265
1.APIBHonor~B |   .2136033   .0583047     3.66   0.000     .0993282    .3278785
              |
bgoOverallE~l |
BGO Top 25..  |   -.392419    .069405    -5.65   0.000    -.5284504   -.2563876
BGO Above ..  |  -.6309094   .0999385    -6.31   0.000    -.8267852   -.4350336
 BGO Average  |  -.8411246   .1438711    -5.85   0.000    -1.123107   -.5591424
BGO Below ..  |  -1.808171   .3961439    -4.56   0.000    -2.584599   -1.031743
BGO Not Re..  |  -.8300194   .3840675    -2.16   0.031    -1.582778   -.0772609
BGO Not Ob..  |  -2.264876   .6939688    -3.26   0.001     -3.62503   -.9047223
              |
        _cons |  -27.53607   .7849338   -35.08   0.000    -29.07451   -25.99763
------------------------------------------------------------------------------

.
. // Show Model 6″ coefficients
. estimates replay no_race_base6

------------------------------------------------------------------------------
Model no_race_base6
------------------------------------------------------------------------------

Logistic regression                                     Number of obs =  12,300
                                                        LR chi2(57)   = 7477.22
                                                        Prob > chi2   =  0.0000
Log likelihood = -4454.3703                             Pseudo R2     =  0.4563

------------------------------------------------------------------------------
        Admit | Coefficient  Std. err.      z    P>|z|     [95% conf. interval]
--------------+---------------------------------------------------------------
     1.Female |   .3429833   .0629304     5.45   0.000     .2196421    .4663246
1.FirstGenC~l |   .2190659   .1415597     1.55   0.122    -.0583861    .4965178
1.HHIncLe~80k |   .1895086   .0778687     2.43   0.015     .0368887    .3421286
1.MissingHH~c |  -.0208375    .093751    -0.22   0.824    -.2045861    .1629111
Percent4Yea~2 |   1.194042   .1438096     8.30   0.000     .9121799    1.475903
ncesPrivate~2 |   .2364694   .0963851     2.45   0.014     .0475581    .4253808
ncesPctFRPL~2 |   .4100752   .1731991     2.37   0.018     .0706112    .7495391
irsAvgS~yImp2 |   .1027068   .0487067     2.11   0.035     .0072435    .1981701
1.MissingPe~e |  -.0938069   .1789718    -0.52   0.600    -.4445851    .2569713
1.Missingnc~e |  -.2641709   .1605254    -1.65   0.100    -.5787949    .0504531
1.Missingnc~L |   .0152952   .0930615     0.16   0.869     -.167102    .1976925
1.Missingir~y |  -.0323112   .1478521    -0.22   0.827    -.3220961    .2574736
wpmHighSATM~h |   1.197218   .0721341    16.60   0.000     1.055838    1.338598
wpmHighSATV~l |    .642759    .071921     8.94   0.000     .5017965    .7837216
wpmStandard~s |   .5009816   .0319264    15.69   0.000     .4384071    .5635562
wpmAthletic~e |   .3011405   .0242359    12.43   0.000     .2536389     .348642
wpmNonAthle~e |   .1972995   .0202306     9.75   0.000     .1576483    .2369507
wpmCombined~O |   .4549448   .0239809    18.97   0.000      .407943    .5019466
  CFAScoreMax |   .3374187   .0351227     9.61   0.000     .2685795    .4062579
              |
         Post#|
           c. |
wpmHighSATM~h |
            1 |  -.6081983   .0945697    -6.43   0.000    -.7935516    -.422845
              |
         Post#|
           c. |
wpmHighSATV~l |
            1 |  -.6059254    .099963    -6.06   0.000    -.8018493   -.4100015
```

Exhibit 14

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Post#c. wpmStandard~s 1	.0709844	.0448137	1.58	0.113	-.0168488	.1588176
Post#c. wpmAthletic~e 1	.0186872	.0325108	0.57	0.565	-.0450328	.0824073
Post#c. wpmNonAthle~e 1	.1517802	.0317573	4.78	0.000	.089537	.2140234
1.AnyNomCon~l	.0583538	.1595681	0.37	0.715	-.2543938	.3711015
1.MultNomCo~l	.2305635	.1171323	1.97	0.049	.0009885	.4601386
1.AnyNomNav~r	.4985917	.2531962	1.97	0.049	.0023364	.9948471
1.AnyNomValor	.9895075	.1920378	5.15	0.000	.6131204	1.365895
1.NuclearPo~l	2.461188	.3244153	7.59	0.000	1.825345	3.09703
Type1Slate	8.859994	.8373789	10.58	0.000	7.218761	10.50123
Type2Slate	2.527393	.8896907	2.84	0.005	.7836315	4.271155
Type3Slate	-.2141644	.1236421	-1.73	0.083	-.4564984	.0281697
EverPrincip~3	3.971447	.1279852	31.03	0.000	3.7206	4.222293
anyWithin4k~1	.0897464	.0780769	1.15	0.250	-.0632816	.2427744
anyWithin4k~2	.4935301	.1611416	3.06	0.002	.1776983	.8093619
AnyA4K	1.436937	.1951645	7.36	0.000	1.054421	1.819452
lcompType1	-.516148	.0954773	-5.41	0.000	-.7032801	-.3290159
lcompType2	-1.060302	.1332771	-7.96	0.000	-1.321521	-.7990841
minType1WPM~n	-1.140432	.1201098	-9.49	0.000	-1.375843	-.9050207
minType2WPM~n	.024472	.1371589	0.18	0.858	-.2443545	.2932986
TotalNomina~s						
2	.0109501	.086879	0.13	0.900	-.1593295	.1812297
3	.2519651	.1460519	1.73	0.084	-.0342914	.5382216
4	.588639	.3023741	1.95	0.052	-.0040034	1.181281
5	2.444338	1.184996	2.06	0.039	.1217881	4.766889
ClassYear						
2024	.3357395	.0819619	4.10	0.000	.175097	.4963819
2025	8.131318	.7586585	10.72	0.000	6.644375	9.618262
2026	8.285641	.7563638	10.95	0.000	6.803195	9.768086
2027	7.793665	.7583209	10.28	0.000	6.307384	9.279947
1.Paren~yNavy	.4351528	.1264194	3.44	0.001	.1873753	.6829303
1.Paren~tNavy	-.4866168	.146013	-3.33	0.001	-.772797	-.2004367
1.APIBHonor~B	.2156989	.0560643	3.85	0.000	.1058148	.3255829
bgoOverallE~l						
BGO Top 25..	-.3856196	.0670456	-5.75	0.000	-.5170266	-.2542126
BGO Above ..	-.5743994	.0960813	-5.98	0.000	-.7627153	-.3860835
BGO Average	-.7311268	.1376441	-5.31	0.000	-1.000904	-.4613494
BGO Below ..	-1.548067	.3743439	-4.14	0.000	-2.281767	-.814366
BGO Not Re..	-.5499941	.3685685	-1.49	0.136	-1.272375	.1723869
BGO Not Ob..	-1.568138	.5571484	-2.81	0.005	-2.660128	-.4761468
_cons	-24.66867	.7303698	-33.78	0.000	-26.10017	-23.23717

Exhibit 14

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```
.
. log off
      name:  <unnamed>
       log:  ./SE-additions/Regression-Coefficients.log
  log type:  text
 paused on:  31 Jul 2024, 14:48:05
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
      name:  <unnamed>
       log:  ./SE-additions/Regression-Coefficients.log
  log type:  text
resumed on:  31 Jul 2024, 14:48:10

.
. display as text "Model 6 Sensitivty:        " as result `6sens' _newline ///
>         as text "Model 6′ Sensitivty:       " as result `6primesens' _newline
> ///
>         as text "Difference:                " as result `6sens' - `6primesens'
Model 6 Sensitivty:        81.290955
Model 6′ Sensitivty:       80.891836
Difference:                .3991197

.
. display as text "Model 6 Specificty:        " as result `6spec' _newline ///
>         as text "Model 6′ Specificty:       " as result `6primespec' _newline
> ///
>         as text "Difference:                " as result `6spec' -  `6primespec
> '
Model 6 Specificty:        88.153853
Model 6′ Specificty:       87.876275
Difference:                .27757842

.
. display as text "Model 6 Sensitivty:        " as result `6sens' _newline ///
>         as text "Model 6″ Sensitivty:       " as result `6pprimesens' _newline
>  ///
>         as text "Difference:                " as result `6sens' - `6pprimesens
> '
Model 6 Sensitivty:        81.290955
Model 6″ Sensitivty:       78.478712
Difference:                2.8122434

.
. display as text "Model 6 Specificty:        " as result `6spec' _newline ///
>         as text "Model 6″ Specificty:       " as result `6pprimespec' _newline
>  ///
>         as text "Difference:                " as result `6spec' -  `6pprimespe
> c'
Model 6 Specificty:        88.153853
Model 6″ Specificty:       86.274747
Difference:                1.879106

.
. log off
      name:  <unnamed>
       log:  ./SE-additions/Regression-Coefficients.log
  log type:  text
 paused on:  31 Jul 2024, 14:48:10
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
      name:  <unnamed>
       log:  ./SE-additions/Regression-Coefficients.log
  log type:  text
resumed on:  31 Jul 2024, 14:48:10
```

Exhibit 14

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```
.
. display as text ///
>     "Out of `outof' applications in the regression sample there are " ///
>     as result "`admits' Admits" as text " and " as result "`rejects' Rejects."
>
Out of 12300 applications in the regression sample there are 4726 Admits and 757
> 4 Rejects.

.
. log close
      name:  <unnamed>
       log:  ./SE-additions/Regression-Coefficients.log
  log type:  text
 closed on:  31 Jul 2024, 14:48:10
----------------------------------------------------------------------------------
```

Changes in Enrollment Racial/Ethnic Breakdown for Classes of 2018-2027 [1]

Based on USNA Snapshot Reports using USNA's reporting categorization of race and ethnicity

	African American	Asian American	Hispanic	White	Other [2]	Class Size [5]
Class of 2018	77	80	142	776	116	1,191
Class of 2019	86	87	142	756	120	1,191
Class of 2020	76	83	129	762	127	1,177
Class of 2021	80	86	148	748	152	1,214
Class of 2022	96	84	138	746	144	1,208
Class of 2023	85	94	141	696	165	1,181
Class of 2024	78	96	148	707	165	1,194
Class of 2025	79	115	178	672	138	1,182
Class of 2026	75	117	180	676	136	1,184
Class of 2027	90	125	177	633	150	1,175
Share of Class of 2018	6.5%	6.7%	11.9%	65.2%	9.7%	
Share of Class of 2019	7.2%	7.3%	11.9%	63.5%	10.1%	
Share of Class of 2020	6.5%	7.1%	11.0%	64.7%	10.8%	
Share of Class of 2021	6.6%	7.1%	12.2%	61.6%	12.5%	
Share of Class of 2022	7.9%	7.0%	11.4%	61.8%	11.9%	
Share of Class of 2023	7.2%	8.0%	11.9%	58.9%	14.0%	
Share of Class of 2024	6.5%	8.0%	12.4%	59.2%	13.8%	
Share of Class of 2025	6.7%	9.7%	15.1%	56.9%	11.7%	
Share of Class of 2026	6.3%	9.9%	15.2%	57.1%	11.5%	
Share of Class of 2027	7.7%	10.6%	15.1%	53.9%	12.8%	
YoY Change in Share, 2018-2019	11.7%	8.8%	0.0%	-2.6%	3.4%	
YoY Change in Share, 2019-2020	-10.6%	-3.5%	-8.1%	2.0%	7.1%	
YoY Change in Share, 2020-2021	2.1%	0.5%	11.2%	-4.8%	16.0%	
YoY Change in Share, 2021-2022	20.6%	-1.8%	-6.3%	0.2%	-4.8%	
YoY Change in Share, 2022-2023	-9.4%	14.5%	4.5%	-4.6%	17.2%	
YoY Change in Share, 2023-2024	-9.2%	1.0%	3.8%	0.5%	-1.1%	
YoY Change in Share, 2024-2025	2.3%	21.0%	21.5%	-4.0%	-15.5%	
YoY Change in Share, 2025-2026	-5.2%	1.6%	1.0%	0.4%	-1.6%	
YoY Change in Share, 2026-2027	20.9%	7.7%	-0.9%	-5.6%	11.1%	

Notes:
[1] Counts do not include applicants denoting a given race in conjunction with other races.
[2] "Other" category includes applicants with multiple races, American Indian, Native Hawaiian/Other Pacific Islander, International, and Declined to Respond.
[3] "Decline to Respond" is not reported for 2023. It is assumed to be 10 due to 1181-696-141-94-85-1-3-13-615=10.
[4] The Class of 2024 snapshot appears to double-count Hispanic class members. I have subtracted the number of Hispanic class members from the number White class members presented on the snapshot. This yields both the correct Class Size and a White class member total within range of other class years.
[5] The sum of the racial breakdown is one lower than the reported class size for 2022 and 2025. The sum is reported.

Data Sources:
Class of 2018 Snapshot.
Class of 2019 Snapshot.
Class of 2020 Snapshot.
Class of 2021 Snapshot.
Class of 2022 Snapshot.
Class of 2023 Snapshot, USNA-00004382-85.
Class of 2024 Snapshot, USNA-00004390-93.
Class of 2025 Snapshot, USNA-00004387-89.
Class of 2026 Snapshot, USNA-00004394-97.
Class of 2027 Snapshot, https://www.usna.edu/Admissions/Apply/Class-Portrait.php.
Class of 2026 Induction Day Demographics, USNA-00005988

Racial Breakdown of USNA Offers, 2023-2027*

Eligible**, Completed, Board-reviewed, Non-BCA Applications not Missing Certain Variables† and From Domestic Civilians Not Already in a Naval Preparatory Program

	Admit Share					YoY Change in Share			
Race	**2023**	**2024**	**2025**	**2026**	**2027**	**2023-2024**	**2024-2025**	**2025-2026**	**2026-2027**
Asian	10.2%	10.4%	12.8%	13.9%	12.8%	2.0%	22.8%	8.6%	-8.1%
Black/Afr. Am.	2.8%	3.3%	3.6%	3.8%	3.3%	15.5%	10.1%	4.7%	-11.4%
None	2.2%	2.0%	1.0%	2.5%	2.3%	-8.0%	-49.5%	148.3%	-7.0%
Other/Multiple	13.8%	10.7%	10.6%	11.7%	12.3%	-22.2%	-1.7%	10.9%	5.4%
White	70.9%	73.6%	72.0%	68.1%	69.2%	3.7%	-2.1%	-5.5%	1.6%

	Admit Share					YoY Change in Share			
Ethnicity	**2023**	**2024**	**2025**	**2026**	**2027**	**2023-2024**	**2024-2025**	**2025-2026**	**2026-2027**
Hispanic	12.8%	10.9%	12.4%	13.1%	13.7%	-15.5%	13.9%	5.8%	4.6%
Not Hispanic	87.2%	89.1%	87.6%	86.9%	86.3%	2.3%	-1.7%	-0.8%	-0.7%

Data Source: See Data Appendix.

* See the Data Appendix for a description of the categorization of race and ethnicity.

** Eligible candidates are those who have received a nomination, are medically and CFA qualified, and have either had a BGO interview or are recruited athletes in basketball or men's football.

† SAT Math Score, SAT Verbal Score, Class Rank, Athletic Score, Non-Athletic Score, and Combined RSO Score.

Racial Breakdown in The US And at USNA

Based on US Census and USNA Snapshot Reports using
US Census's reporting categorization of race and ethnicity

Race and Ethnicity [1] [2]	2020 U.S. Census	USNA Class of 2024	USNA Class of 2025	USNA Class of 2026	USNA Class of 2027
Hispanic or Latino	18.7%	12.4%	15.1%	15.2%	15.1%
American Indian and Alaska Native alone	0.7%	0.4%	0.3%	0.1%	0.3%
Asian alone	5.9%	8.0%	9.7%	9.9%	10.6%
Black or African American alone	12.1%	6.5%	6.7%	6.3%	7.7%
Native Hawaiian and Other Pacific Islander alone	0.2%	0.4%	0.3%	0.3%	0.6%
Two or More Races	4.1%	10.1%	8.9%	8.8%	9.0%
White alone	57.8%	59.2%	56.9%	57.1%	53.9%

Notes:
[1] Hispanic or Latino includes Hispanics or Latinos of any race. Racial categories exclude Hispanic or Latino.
[2] Excludes small percentages for "Other race alone" and "Declined to respond."

Sources:

U.S. Census Bureau, "Racial and Ethnic Diversity in the United States: 2010 Census and 2020 Census," https://www.census.gov/library/visualizations/interactive/racial-and-ethnic-diversity-in-the-united-states-2010-and-2020-census.html.
Class of 2024 Snapshot, USNA-00004390-93.
Class of 2025 Snapshot, USNA-00004387-89.
Class of 2026 Snapshot, USNA-00004394-97.
Class of 2027 Snapshot, https://www.usna.edu/Admissions/Apply/Class-Portrait.php.