ANNENBERG
BROWN UNIVERSITY

EdWorkingPaper No. 23-749

Inequality beyond Standardized Tests: Trends in Extracurricular Activity Reporting in College Applications across Race and Class

Julie J. Park
University of Maryland, College Park

Brian Heseung Kim
Common Application, Inc.

Nancy Wong
University of Maryland, College Park

Jia Zheng
University of Massachusetts, Amherst

Stephanie Breen
University of Maryland, College Park

Pearl Lo
University of Maryland, College Park

Dominique Baker
University of Delaware

Kelly Rosinger
Pennsylvania State University

Mike Hoa Nguyen
New York University

OiYan Poon
University of Maryland, College Park

For years, discussions on inequality in college admissions have addressed standardized tests, but less is known about inequality in non-standardized components of applications. We analyzed extracurricular activity descriptions in 6,054,104 applications submitted through the Common Application using natural language processing methods. Overall, White, Asian American, wealthier, and private school students reported more activities, top-level leadership roles, and distinctive accomplishments (e.g., honors, awards). However, there was little to no difference in the percentage of activities with top-level leadership roles for different racial/ethnic groups. Disparities decrease when controlling for key variables, but salient differences related to race and class remain. Findings do not necessarily support a return to required standardized tests or ending consideration of activities in admissions. Implications are discussed.

VERSION: December 2024

Suggested citation: Park, Julie J., Brian Heseung Kim, Nancy Wong, Jia Zheng, Stephanie Breen, Pearl Lo, Dominique J. Baker, Kelly Ochs Rosinger, Mike Hoa Nguyen, and OiYan Poon. (2024). Inequality Beyond Standardized Tests: Trends in Extracurricular Activity Reporting in College Applications Across Race and Class. (EdWorkingPaper: 23 -749). Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/jkcy-x822

Inequality beyond Standardized Tests: Trends in Extracurricular Activity Reporting in College Applications across Race and Class

Julie J. Park, University of Maryland, College Park
Brian Kim, Common App
Nancy Wong, University of Maryland, College Park
Jia Zheng, University of Massachusetts, Amherst
Stephanie Breen, University of Maryland, College Park
Pearl Lo, University of Maryland, College Park
Dominique J. Baker, University of Delaware
Kelly Rosinger, Pennsylvania State University
Mike Hoa Nguyen, New York University
OiYan Poon, University of Maryland, College Park

Abstract: For years, discussions on inequality in college admissions have addressed standardized tests, but less is known about inequality in non-standardized components of applications. We analyzed extracurricular activity descriptions in 6,054,104 applications submitted through the Common Application using natural language processing methods. Overall, White, Asian American, wealthier, and private school students reported more activities, top-level leadership roles, and distinctive accomplishments (e.g., honors, awards). However, there was little to no difference in the percentage of activities with top-level leadership roles for different racial/ethnic groups. Disparities decrease when controlling for key variables, but salient differences related to race and class remain. Findings do not necessarily support a return to required standardized tests or ending consideration of activities in admissions. Implications are discussed.

This work was supported by the Bill & Melinda Gates Foundation. Open-source codebase and appendices can be found on our GitHub repository at https://github.com/brhkim/extracurricular_trends_common_app

Keywords: college admissions, extracurricular activities, holistic review, inequality, race-conscious admissions

Introduction

During the COVID-19 pandemic, an unprecedented number of colleges and universities made SAT/ACT scores optional or even eliminated consideration of test scores altogether (Bennett, 2022), representing a massive shift in higher education. With standardized tests playing less of a role at many institutions, attention has shifted to non-standardized components of the application. However, little is known about how inequality influences these parts of the application due to longstanding limitations in obtaining and processing large-scale, system-wide application data (Alvero et al., 2021).

One prominent but understudied non-standardized component of applications is extracurricular activity reporting. Many activities are "pay to play," involving significant costs related to lessons, coaching, and transportation (Meier et al., 2018; Hextrum, 2021). Colleges are known to favor athletics, and in particular, sports like swimming and rowing are traditionally more accessible to White and more affluent students (Hextrum, 2018; Jayakumar & Page, 2021). Higher or more intensive extracurricular involvement is linked with admission to elite institutions (Card, 2017). However, due to methodological limitations, large-scale analyses of extracurriculars have largely focused on counting the number of reported activities (e.g., Espenshade & Radford, 2009) versus examining the way that students describe their involvement through leadership roles, honors, and awards. Both quantity and the nature of involvement are all relevant to understanding how inequality may shape extracurricular reporting, regardless of whether institutions return to tests or not. Deeper understanding is also necessary to inform the practice of holistic review following the Supreme Court ruling on race-conscious admissions.

Thus, we analyze how students report extracurricular activities in a large national sample of applications (n=6,054,104) from the Common Application ("Common App") database, a

unified postsecondary application platform serving over 800 institutions—the most exhaustive collection of college applications to exist in the U.S. context. We employ robust econometric frameworks in combination with natural language processing (NLP) techniques (Fesler et al., 2019) to analyze extracurricular activities and self-described roles/accomplishments (e.g., leadership positions, awards) among students who applied to at least one selective (admit rate of 40% or less) institution during the 2018-2019 and 2019-2020 cycles. In doing so, we examine trends in extracurricular reporting specifically among students who are applying to selective institutions, versus the overall student population. We ask: 1) How do the quantity and nature (i.e., activity type, top-level leadership positions, awards/honors) of extracurricular activities vary by race/ethnicity, SES, and school type (public versus private) among applicants to selective institutions? 2) How does the *likelihood* of top-level leadership positions or excellence (awards/honors) in extracurricular activities vary by race/ethnicity, SES, and school type? And 3) To what extent are any observed differences by race and SES explained by other factors such as a student's high-school context (e.g., opportunities and resources for specific activities) and academic achievement? This work represents the most comprehensive study to date on how extracurricular activities reported in college applications are linked to race/ethnicity, socioeconomic status (SES), and school type.

To preview results, we found that White, Asian American, higher SES, and private school students listed more activities, reported more top-level leadership roles, and reported more activities reflecting accomplishments and distinctions. For example, White applicants reported an average of 68% more activities with top-level leadership positions than Black applicants, and continuing-generation applicants reported 76% more activities with honors and distinctions than first-generation applicants. Such differences were most pronounced in Athletics,

Academic, and Art activities. However, applicants of different race/ethnicities were similarly *likely* to report top-level leadership or excellence distinctions, conditional on participation in a given activity. This finding suggests that meaningful disparities are driven by certain groups (e.g., higher SES students) enjoying more opportunities and resources to try more activities, given that many differences remain even after accounting for school contexts. Our work informs ongoing conversations around how non-standardized features of the application should be assessed, highlighting the importance of evaluating accomplishments in the context of opportunity. We also suggest that re-examining the quantity of extracurriculars that students are encouraged to list may reduce observed disparities.

Literature Review

To set the context, we discuss how pre-collegiate extracurricular activities are influenced by inequality, as well as how activities can perpetuate inequality in college admissions.

The Influence of Inequality on Extracurricular Activities Prior to College

Extracurricular activities include a wide variety of activities such as sports, music, student government, the arts, community service, speech and debate, religion, and vocational skills. Extracurriculars can offer students a number of benefits that lead students to join, including skill-building, teamwork, friendship, socio-emotional development, and general enjoyment (Covay & Carbonaro, 2010). At the same time, access to extracurricular activities varies notably by race and class (Lareau, 2011; 2015; Meier et al., 2018). While seemingly any student has the opportunity to participate, many activities are "pay to play," involving significant expenses (e.g., travel sports, private coaching, see Hextrum, 2021). Costs, transportation barriers, and time commitments can make it difficult for many students to participate in activities. The need to work or meet family responsibilities also affects participation (Lareau, 2011). Not all

activities are available in schools, and more affluent schools tend to offer more opportunities for participation (Putnam, 2016; Stearns & Glennie, 2010).

Consequently, students from low SES backgrounds are less likely to participate in extracurricular activities than affluent and White peers, a gap that has grown (Lareau, 2015; Putnam, 2016). Due to historical and contemporary exclusion (e.g., exclusion of Black youth from swimming pools prior to the 1960s and beyond, see Wiltse, 2014), racial disparities persist. Some activities are heavily frequented by certain groups (e.g., classical music and Whites/East Asian Americans, spelling bees and South Asian Americans, see Dhingra, 2020), reflecting the role of community-based socialization and expectations (Lee & Zhou, 2015). These dynamics can result in the exclusion, intentional or not, of certain populations. In one analysis of data from 1986 to 2013, Latinx students had lower participation in activities compared to White, Black, and Asian American students (Meier et al., 2018).

While disparities in extracurricular activities can seem innocuous, extracurricular engagement has been linked to valued outcomes, including retention/academic achievement, enhanced socioemotional development, admission into a selective university, and future earnings (Covay & Carbonaro, 2010; Espenshade & Radford, 2009; Meier et al., 2018; McNeal, 1995; Putnam, 2016; Snellman et al., 2015). Other activities are signifiers of elite status and facilitate navigation of the white-collar workforce (e.g., golf in business circles). Over several decades, disparities have grown as affluent parents enroll their children in activities at younger ages, investing more money and time than previous generations (Snellman et al., 2015; Vincent & Ball, 2007). Such trends reflect anxieties about college admissions and the desire to cement a place in the upper strata of society (Gaztambibe-Fernandez, 2009; Hamilton et al., 2018).

Lareau (2011) coined the term "concerted cultivation" to describe how middle and upper-middle class parents craft and structure activities as a way for their children to gain institutional advantages and key skills applicable to future goals, such as teamwork and communication (p. 2). Engagement in activities is part of a broader set of actions associated with concerted cultivation, all of which have the goal of socializing young people into the dispositions and norms of upper-middle class and affluent families (Dhingra, 2020; Lareau, 2011). Affluent parents leverage their capital to provide academic, social, and career support to their children prior to, during, and even after college (Hamilton et al., 2018). While efforts are often driven by parental concern, they are also often driven by status anxiety and fear of children falling behind in an increasingly precarious economic landscape (Ehrenreich, 1990). Knowing that extracurricular activities are considered in selective college admission, many upper-class families strategically support their children's activities, especially athletics (Hextrum, 2021). Means of support include transportation, better training facilities, and hiring expensive coaches (Jayakumar & Page, 2021). Such inequities influence athletic recruitment and scholarships, which are disproportionately awarded to White students at many institutions (Hextrum, 2021; Jayakumar & Page, 2021).

Extracurricular Activities and Inequality in Elite College Admissions

Unequal access to extracurricular activities both reflects and enables the reproduction of inequality in higher education. Given the intense competition for limited spots at elite institutions, extracurricular activities have become a prominent way for students to distinguish themselves in the college application process (Bastedo & Flaster, 2014; Gaztambibe-Fernandez, 2009; Hextrum, 2021; Warikoo, 2017). In one study of 34 admissions officers from 17 elite colleges, extracurricular activities were considered important non-academic criteria that reflected

characteristics like dedication, passion, and leadership (Killgore, 2009). Participants reported that athletics was considered as the most important and attractive activity. Indeed, elite institutions often favor applicants who play sports like rowing or hockey that are frequented by White, affluent students (Hextrum, 2021; Jayakumar & Page, 2021; Shulman & Bowen, 2011), and recruited athletes at elite institutions are predominantly White (Jayakumar & Page, 2021). These types of sports often require access to practice facilities, including land and waterways (in the case of rowing), that not all high schools have access to. While sports like football tend to be more diverse and garner the most scholarship slots for male athletes, being a recruited athlete in a more niche sport still can give the student an edge in being admitted—a prized opportunity at elite institutions even in the absence of scholarship funding. As an extreme example, the Varsity Blues scandal showed how athletic recruitment can be exploited by wealthy families. Analyzing data from 11 sports at 40 elite institutions, wealthy and White students were "7 to 20 times as likely to exhibit exceptional performance in activities prized by 'elite' institutions" (Jayakumar & Page, 2021, p. 1112). In the same study, ". . . 45% of the men in tennis and lacrosse at [Harvard, Princeton, Stanford, and Williams College] attended elite private high schools, 35% attended [predominantly wealthy] public high schools, with the other 20% attending parochial schools" (p. 1128).

The actual impact of extracurricular activities on selective admissions beyond athletics has been difficult to gauge due to limited access to applicant data, as well as distinguishing between how extracurricular activities may be evaluated differently depending on whether a student is being recruited to represent the university versus evaluating activities as part of holistic review. In one study, participating in more activities was linked with a higher likelihood of admission in a sample of eight selective institutions (Espenshade & Radford, 2009).

Extracurricular and leadership involvement was associated with higher odds of enrolling at selective colleges for Black and Latinx students, particularly for higher SES Black and Latinx students (Posselt et al., 2012). In another study, low-income student enrollment was significantly lower at moderately selective institutions where admissions officers reported weighing extracurricular activities more heavily, although it was not at highly selective schools (Rosinger et al., 2021). Weighing extracurriculars more was not related to lower underrepresented racially minoritized (URM) enrollment at either institutional type. In finding that students from the top 1% of household incomes ($611,000 or more) were 58% more likely to enroll at an "Ivy- Plus" institution than peers with the same SAT scores from homes in the 70th to 80th percentile ($93,000-$114,000), Chetty et al. (2023) estimated that about 30% of this advantage came from non-academic traits observed from extracurricular activities, letters of recommendation, and other sources. About 24% came from students in the top 1% being more likely to be recruited athletes, and 40% was linked to legacy status. Much of the differential in non-academic ratings came from private school attendance.

The case *Students for Fair Admissions v. Harvard* shed insight into the influence of extracurricular activities at one elite institution. Harvard showed considerable favor to athletes, both recruited and non-recruited (Card, 2017).[1] Harvard likely favored non-recruited athletes as well (Card, 2017, p. 31). White applicants were most likely to get high athletic ratings among non-recruited applicants (14% of White versus 7% of Black applicants, *SFFA v. Harvard* Document 672, 2019, p. 56). Asian American applicants were more likely to receive a top extracurricular rating; however, differences between groups narrowed notably when controlling for academic background (*SFFA v. Harvard* Document 415-1, 2018, p. 51).

While the Harvard investigation provided detailed information on activities within a single pool of applicants, it mainly relied on tallying the total number of activities reported by applicants. Qualitative studies have provided textured insight into the social context surrounding activities, but within understandably limited samples (e.g., Hextrum, 2021). Existing research has probed little of the nuance within activities, such as how students describe the nature of involvement through leadership roles and honors, and whether disparities persist when controlling for academic achievement and school context. These questions remained unaddressed in prior work largely due to limited access to student-level applicant data, as well as the inability to code and analyze entries from hundreds of thousands of applications. Thus, our study will advance existing literature by combining NLP techniques with human qualitative rater insight to analyze applications submitted by over 860,000 students through Common App.

Theoretical Grounding

Our study draws upon concepts linked to cultural capital (concerted cultivation and habitus; Bourdieu, 1984; Lareau, 2011; McDonough, 1997), as well as Jayakumar and Page's (2021) framework related to opportunities for extracurricular participation. As noted, in knowing the "rules of the game," affluent families deploy a strategic approach to college admissions that involves heavy investment in extracurricular activities (Edgerton & Roberts, 2014). This strategic approach is a manifestation of "concerted cultivation," an active, intensive, hands-on parenting style utilized by affluent families to raise young people to occupy their position in the status hierarchy (Lareau, 2011; Lareau & Weininger, 2003). Attendance at an elite college or university is seen as the crowning achievements of such efforts (Stevens, 2007). Concerted cultivation is a manifestation of cultural capital, which consists of the dispositions and tendencies of the elite that perpetuate and exacerbate inequality (Bourdieu, 1977; Lareau, 2011). Affluent

families mobilize and transfer cultural capital to their children's "behavioral repertoire" (Edgerton & Roberts, 2014, p.195)—academic/technical skills and social/behavioral achievements. In turn, selective institutions value and reward the skills, knowledge, and dispositions (i.e., cultural capital) of affluent students showcased through extracurricular accomplishments (Jayakumar & Page, 2021). In this study, we frame heavy involvement in extracurricular activities and the reporting of leadership roles, honors, and awards as byproducts of cultivated concentration, reflecting forms of cultural capital that are generally more accessible to affluent, White, and to some extent, East/South Asian American students (Dhingra, 2020).

The concept of habitus is influential in discussions of cultural capital (Bourdieu, 1984; McDonough, 1997). Habitus can be thought of as an internalized bubble or force field that surrounds individuals, shaping their perceptions of what type of behavior is possible, normal, and expected. While habitus is driven by social class (Bourdieu & Passeron, 1977), it is also influenced by race/ethnicity, given the role that policies and institutions play in fostering racial stratification (Horvat, 2001; Perna, 2006). We propose that habitus shapes extracurricular participation by making certain behaviors feel normative among traditionally well-resourced groups, which will manifest itself through how students report extracurricular activities and accomplishments. Such behaviors include heavier involvement in extracurriculars, as well as how students approach and write about their involvement—for example, seeking out and reporting more leadership roles, and working to accumulate more documentable awards.

We also utilize Jayakumar and Page (2021)'s framework on extracurricular activities to guide analyses. They posit that many elite institutions use "exceptionalism" as a criteria to recruit students who demonstrate unique qualities and achievements (Jayakumar & Page, 2021), with exceptionalism reflecting top performance, such as being a recruited athlete or the recipient

of a national prize. However, opportunities to participate and excel in activities are not distributed randomly within society, and three conditions—opportunity, specialization, and support—drive racial and economic inequality in extracurricular participation. Affluent and White students have greater *opportunity* to try more types of extracurricular activities, with the ability to participate in elite activities with limited access such as fencing or debate, reflecting *specialization*. They also receive additional familial and school *support* that adds to the substantial advantages they already leverage in college admissions (Jayakumar & Page, 2021).

In our study, we hypothesize that on average, upper-SES, White, and Asian American[2] students will list more activities on their applications, reflecting how these groups have greater opportunity to try more activities, as noted by Jayakumar and Page (2021). Because they have more opportunity to try activities, we also predict that they will have greater opportunity to garner honors, achievements, and titles, and will do so as a way to mark themselves as exceptional and unique. Further, we are guided by the framework's concept of support, and hypothesize that students at private schools and higher SES students will both report more activities and more honors, awards, and leadership positions, reflecting how private schools provide intensive support for navigating college admissions (Khan, 2012; McDonough, 1997). To note, public schools, including lower-SES schools, play an important compensatory role in shaping extracurricular involvement through offering activities and support. However, disparities in involvement and resources for students between private versus public, as well as between higher-SES and lower-SES public schools, still exist (Jayakumar & Page, 2021).

Methods

Data

Our dataset consists of de-identified applications submitted through the Common App platform during the 2018 (Fall of 2018 through Spring of 2019) and 2019 (Fall of 2019 through Spring of 2020) application cycles. The vast majority were submitted before the start of the Covid-19 pandemic and the shift to test-optional admissions, which is important to note since extracurricular involvement was affected deeply by the pandemic. The data include nearly all submitted components for each student, such as academics, course-taking, standardized test scores, and demographics. Also included are the student's activities, covering the activity type (bucketed into broad categories like Academics, Athletics, etc.), timing and intensity of involvement (hours per week, weeks per year, participation periods during year, and years participated), honors and positions held (open response, capped at 50 characters), detailed descriptions (open response, capped at 150 characters), and intention of continuing in college (yes/no) for each activity reported. Students can list up to ten activities.

We focus on applicants who submitted a complete application to at least one selective four-year institution (admit rate of 40% or lower, given that these are the institutions where extracurriculars are most likely to influence decision-making, see Rosinger et al., 2021). We used 2019 admit rates from the Integrated Postsecondary Education Data System to determine which institutions met criteria for selectivity.[4] We included only domestic applicants to focus on the U.S. high school context.[5] Our final analytic sample contains 873,615 applicants and 6,054,104 applications (activities are generally fixed across all of a given student's applications given the structure of how the Common App works; we thus make sure to de-duplicate students' activities in our analyses accordingly), which is approximately 42% of the total applicants who submitted via Common App in the 2018 and 2019 cycles.[6] Table 1 displays summary statistics for the sample by year and combined.

[Table 1. Study Sample Descriptive Statistics.]

The sample is skewed slightly female at 57%, and 25% of the sample identified as first-generation.[7] To examine SES, we relied on two separate measures given that applicants are not asked to report household income or wealth. First, we used receipt of a Common App application fee waiver to reflect low-income status,[8] which about 26% of the sample received. To capture high-income status, we merged in ZIP code level median household income data from the U.S. Census (we use the American Community Survey 5-year estimates for 2015-2019 for both years of our data) to create a rough proxy for each individual applicant's community income level. To simplify this measure, we created a binary measure for whether an applicant lived in a ZIP code in the top quintile of ZIP codes with respect to median household income, which we interpreted as living in one of the highest income communities in the U.S. Importantly, this indicates *community* income level, rather than *individual* income level. Note also that this is the applicant's ZIP, not the ZIP of the high school they report attending. Similar to the general Common App population, 59% of the sample indicated living in high-income communities. About 47% identified as White, and about 28% were from a URM group.[9] About 77% went to a public school, while 22% attended private school.

Each applicant submitted an average of roughly 7 activities, for a total of about 6 million activities. Altogether, 23% submitted 1-3 applications, 39% submitted 4-7, and 38% submitted 8 or more (Common App caps students at 20 per season). Applicants also submitted cumulative GPA alongside their GPA scale; we created a common "scaled GPA" variable where a value of 1.0 indicates the top of their grade scale (e.g., a 4.0 on a 4.0 scale). We set as Missing any obviously erroneous values (e.g., scaled GPAs higher than 1.5 and lower than 0.5) due to likely reporting issues (we find that the vast majority of these issues are due to typos, like 400 instead

of 4.00, and placeholder values, like 9999), though we allowed for values higher than 1.0 given the prevalence of weighted GPA schemes. More than a third of our sample reported values higher than 1.0, and only 17% reported a value below 0.9 (roughly equivalent to having just below an A- average on a standard 4.0 scale). The vast majority submitted applications prior to the COVID-19 pandemic and the shift to test-optional admissions at most selective four-year institutions; 82% of our sample submitted either an SAT or ACT score as part of their application. Nearly 15% reported a score at the 99th percentile or higher, and about 44% reported a score at least at the 90th percentile.

We should also note that the distribution of the number of activities reported by students is relatively idiosyncratic with heavily skewed "bunching" at the top-end of the distribution, as displayed in Figure 1. Very few students reported zero activities (1.5%), while the vast plurality of students reported the maximum of 10 (34%). These patterns motivated us to check the robustness of our regression analyses with negative binomial models, as discussed more in the next section. We also tested whether our findings using the count of activities reported was robust to alternative outcome specifications. First, we checked whether results differed if we transformed the number of activities to instead be the proportion of activity slots used (e.g., reporting 2 out of 10 is 0.2) using a linear probability model and a logit. We also checked whether results differed if we used a binary indicator for students reporting the maximum number of activities (e.g., a student reporting 5 activities is a 0, while a student reporting 10 activities is a 1), again both with a linear probability model and a logit model. Results were all ultimately concordant with our main results on the number of activities reported and are available upon request.

[Figure 1. Distribution of Total Activities Reported by Sample Students.]

Analytical Approach

To analyze *how* students describe their activities, we focus on two constructs of interest as informed by research on admissions practices in selective institutions: "top-level leadership" and "excellence" (Card, 2017; Jayakumar & Page, 2021; Killgore, 2009). Importantly, these two concepts can overlap with one another, as well as other relevant socioeconomic and cultural dynamics (e.g., social capital, financial constraints and barriers, etc.).

1. **Top-level leadership**: Whether the applicant reported holding a position or title corresponding to the highest level of leadership or responsibility for a given activity.
    a. **Examples**: "Captain," "president," "founder," "CEO," "chairwoman"
2. **Excellence**: Whether the applicant reported holding any position/title or receiving any award/honor/distinction indicating a noteworthy level of skill or accomplishment for a given activity.
    a. **Examples**: "Most valuable player," "prize," "1st place," "junior Olympic," "champs"

We sought to measure the prevalence of these phenomena in reported activities, as well as disparities across race/ethnicity, SES, and school type. While ideally a team of trained researchers would manually code every activity description, a solely human-driven approach is infeasible because the dataset includes 6 million reported activities. Instead, we use an algorithmic approach guided by a team of researchers to detect the phenomena at scale (often referred to as a "human-in-the-loop" approach). Our goal was to approximate how admissions counselors likely read and evaluate these activity descriptions. Because the appraisal of an activity description can vary across institutional contexts and even among individual readers at

the same institution, we similarly attempted to incorporate differences of opinion and conceptual ambiguity explicitly in our approach. Our analysis was guided by five phases:

- **Phase 1**: Generated a data- and theory-informed "dictionary" of keywords and phrases that we think are likely indicative of each phenomenon listed above.
- **Phase 2**: Examined actual uses of each dictionary keyword in the data and revised our dictionaries accordingly. Used these examples in context to generate a list of common "exclusion" phrases for each keyword to refine our analysis (e.g., while "CEO" appears in the phrase "interned for the CEO," this sort of phrase actually does not indicate top-level leadership and should be excluded from the analyses).
- **Phase 3**: Applied our dictionaries to applicants' reported activities using an approach known as keyword frequency analysis, counting which and how many activities applicants reported with keywords corresponding to top-level leadership and excellence (minus any exclusions).
- **Phase 4**: Conducted validation exercises to measure the extent to which an activity description coded as demonstrating a specific phenomenon by our keyword dictionary algorithm *actually* demonstrated that phenomenon when interpreted by a trained human reader.
- **Phase 5**: Examined systematic differences in each phenomenon across key demographic measures (e.g., SES, race/ethnicity) and school type using regression analyses to account for a variety of salient confounders (e.g., high school fixed effects).

To elaborate, in **Phase 1**, we created a list of the most common phrases and terms across the entire dataset, and also within subsamples of interest (e.g., looking only at activities reported by Black/African American students, by American Indian or Alaska Native students, and so on). We

moreover used a machine-learning approach (unsupervised topic modeling using the "BERTopic" algorithm from Grootendorst, 2022) to create an additional reference of common phrases and terms used in the data grouped into related categories. Using these combined references, a team of four researchers from our team independently created dictionaries, coding specific words and phrases for each of the two constructs (e.g., assigning the "top-level leadership" code to "CEO"). Through a series of harmonization discussions, the team revised their individual dictionaries and then consolidated them into a single unified dictionary. We also generated a list of less common but relevant excellence terms by examining online resources related to activities (e.g., "Eagle Scout" and "First Chair" being excellence phrases used in only specific activities). Finally, we supplemented the dictionary with terms gleaned from admissions rubrics and materials we obtained from several selective institutions' admissions offices. For example, some terms included "captain or co-captain," "drum major," and "founder."

In **Phase 2**, we randomly sampled 100 examples of actual activity descriptions from applications for each keyword/phrase included in our unified dictionary (as well as keywords/phrases where the team disagreed on their inclusion or exclusion). The team reviewed each word's examples and determined whether revisions to the dictionaries were necessary. Example revisions include removing a given word/phrase entirely, adding special "exclusion" rules for a word/phrase (e.g., counting appearances of "CEO" as indicative of top-level leadership, but not when it appeared in the context of "interned for the CEO"), or changing the indicated phenomena of a given word/phrase based on its actual use. The final list of included phrases and exclusion rules is available at our online Github codebase.

In **Phase 3**, we then tallied the number of valid terms/phrases that reflected our constructs of interest (e.g., top-level leadership, excellence) within each applicant's listed activities. We

processed these simple counts in two primary ways.[11] First, we measured whether each activity had *any* term/phrase indicating top-level leadership or excellence – regardless of how many such terms/phases were used within that activity description (which we hereon refer to as an "activity-level" analysis). Thus, we measured *how many activities* an applicant reported where a key construct was used. Second, we calculated what share or proportion of activities an applicant reported which included top-level leadership or excellence (i.e., "proportion-level" analysis). For example, if an applicant reported 5 activities, and 4 of them had top-level leadership roles, the proportion was 0.8 (min=0, max=1). We then measured each outcome for both concepts overall (i.e., for all activities combined) as well as for within specific categories of activity (e.g., Athletics, Career, Arts, etc.), more information is available upon request.[12]

For **Phase 4**, we created two randomized subsamples of 320 activity descriptions each (stratified by applicant sex, URM status, first-generation status, high school type, and fee waiver status). Three graduate assistants rated each description for the presence of top-level leadership and excellence (one construct per set). We trained and harmonized the raters in the conceptual definitions of the constructs and encouraged them to use their own judgment and interpretation of the activity descriptions as written in context to determine final ratings. This was to better mirror how admissions counselors might encounter and interpret activity descriptions slightly differently from one another during the reading process. We then compared intraclass correlation coefficients (ICC) for the ratings among human raters (following guidance from Hallgren, 2012 and Lacy et al., 2015), and examined how that ICC changed when adding in the algorithmic ratings. We benchmarked changes to the ICC against a series of hypothetical best- and worst-case scenarios for the algorithm, to create bounds for its possible performance. Finally, we examined whether the ICC was significantly different for activity descriptions by different

applicant groups (e.g., for URM and non-URM applicants) to test for the prevalence of algorithmic bias – i.e., whether measured disparities in our phenomena of interest could be the result of bias in the measurement of these phenomena by the algorithm, rather than true disparities. More on this process is available at our online GitHub codebase. To summarize, we found that the algorithm generally agreed with the human raters almost exactly as often as the human raters agreed with one another, and the algorithm was at or approaching the theoretical upper bound for possible agreement with the human raters. In other words, observed discrepancies between the algorithm and the humans can be interpreted as the result of reasonable and inevitable differences of interpretation, rather than deficiencies in the algorithm. ICC with the algorithm was meaningfully higher for top-level leadership (0.68) than for excellence (0.47), and there are no significant differences in ICC across student demographic populations for either construct.

Last, we examined disparities in activity reporting phenomena primarily across URM, first-generation, low-income, and high-income status using a regression approach in **Phase 5**. We begin with a parsimonious and relatively uncontrolled specification, and then add a series of increasingly stringent controls in sequence to examine how estimates of the disparities change. We interpret differences in coefficients of interest across specifications as offering suggestive evidence for what factors may contribute meaningfully to any observed disparities. The first regression specification, displayed formally in Equation 1 below, examines each key demographic variable of interest separately and includes only simple student-level controls closely related to activity reporting but generally unrelated to the key demographic measures (whether a student is a senior or attended multiple schools). Note that we do not include a year fixed-effect to facilitate our high-school fixed effects approach later.

$$\textbf{(1)} \quad Y_i = \beta_0 + \beta_1 DS_i + X_i + \varepsilon_i$$

Y_i represents any one of the activity phenomena measures as described previously (e.g., how many activities a student reported that indicated a top-level leadership position/title) from student i. B_0 is the intercept term. DS_i represents an indicator for any **single** key demographic measures of interest: Black, Asian American, Hispanic/Latinx, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, Two or More Races, first-generation status, fee waiver receipt, high income community status, and whether the applicant attended a private school. B_1 then represents our main coefficient of interest – the average difference in activity outcome Y_i across the given key demographic measure.[14] Finally, X_i represents the vector of simple student-level controls (whether a student is a senior or attended multiple schools), and ε_i represents the idiosyncratic error term.

In our second regression specification, Equation 2, we modify Equation 1 only slightly to include **all** key demographic variables of interest at once with DA_i, a vector of indicators for each key demographic measures of interest. Thus, the reference group estimated in the intercept term becomes White, continuing-generation, fee waiver non-recipient, non-high income community, and public school applicants. This allows us to better distinguish (though still imperfectly) disparities in activity reporting driven by racial/ethnic characteristics from socioeconomic characteristics.

$$\textbf{(2)} \quad Y_i = \beta_0 + DA_i + X_i + \varepsilon_i$$

In Equation 3, we modify Equation 2 to include high school fixed effects as λ_s – thus controlling for any student-invariant characteristics of a high school. For this reason, note that we can no longer include private school status in the vector of demographic indicators DA_i, and we lose the intercept term B_0. Adding these fixed effects allow us to examine whether disparities

observed in the previous specifications persist when looking *within* schools. If disparities disappear completely, it would indicate that most of the disparities are driven by differences in activity reporting (and likely opportunities and support for extracurricular involvement) *across* schools (e.g., because of disparities between well-funded high schools and lesser-funded high schools in the availability/feasibility of certain activities). If disparities do not change in magnitude at all, likely most of the disparities are driven by differences in activity reporting *within* schools (e.g., because of disparities in how opportunities and support for extracurricular activities are allocated within a given school).

$$\mathbf{(3)} \quad Y_{is} = \lambda_s + DA_i + X_i + \varepsilon_{is}$$

Our last regression specification maintains the use of Equation 3 above but restricts our sample of interest to only those applicants who reported an SAT/ACT equivalent score in the 95th percentile or higher (roughly a 1430 or higher on the SAT for the 2018-2019 administrations). If the regression estimates we obtained in the full sample remain unchanged in the high achievement subsample, the disparities we measure across demographic characteristics are not explainable solely by general differences in applicants' competitiveness and academic achievement across demographics.[15] Disparities in this specific subsample may also be of interest given that activities are likely more influential at the selective institutions that many of these students aspire to (Killgore, 2009).

In general, we preference the use of linear regression for all specifications and outcomes (to include binary and proportion outcomes, i.e., linear probability models) described above for simplicity of analysis and consistency of interpretation. That being said, we have verified that our results are robust to alternative regression approaches like logit (for binary and proportion outcomes) and negative binomial regression (for count-based outcomes) and see no meaningful

change in the substance of results across models (likely owed in part due to our reliance on categorical and binary variables rather than continuous variables for all of our covariates). Complete comparison results are available upon request.

Limitations

Like all studies, we encountered key limitations. First, our NLP-based approach may not capture more subtle cues related to the constructs of interest, and/or phrases indicating these phenomena that we are not familiar with due to our own biases, experiences, and cultural familiarity. Second, we cannot account for compounded biases inherent in closely related educational processes (e.g., standardized test preparation) or for characteristics not recorded in applications (e.g., number of siblings, which could affect families' abilities to invest in activities). However, our data is the same information that most colleges receive; thus, our estimates remain highly relevant. Third, we cannot infer the causal impact of student race on parameters of interest, nor the causal impact of these parameters of interest on admissions probability due to a lack of actual decision data (i.e., if students were accepted or not). Fourth, while we described how we generated our codebooks and the related validation processes, we remain limited in our ability to characterize nuance and complexity in these text data by the computational tools currently available to us (e.g., students using unexpected vocabulary and phrases to describe their participation, or using more complex phrasing or sentence construction that changes the "true" attribution of leadership/excellence/etc. we could not anticipate); future qualitative work could address these issues. Fifth, our analysis is limited to examining the data available; we are unable to examine the counterfactual of how much inequality might exist in participation without the provision of activities by public schools, which could yield key insights on the effect of schooling. Finally, we recognize the limitations of our focus on traditional,

status-oriented leadership roles and recognitions, which does not capture the full scope of accomplishments that students can communicate in their applications. We hope to conduct an analysis of constructs reflecting forms of community cultural wealth (Yosso, 2005) in the future.

Findings

Descriptive Analyses

First, we show simple group averages in the number of activities reported for each demographic group in Figure 2 (the "activity-level"). Each point represents a different group and is sized according to the number of students in that group in our sample. All groups reported at least four activities on average, which could be viewed as a high level of involvement across the sample. At the same time, stark and substantial differences exist across nearly every measure of race and SES when examined without controls: White applicants reported an average of 56.5% more activities than Black applicants (7.38 versus 4.83), non-URM applicants reported an average of 34% more than URM applicants, continuing-generation applicants reported an average of 41.8% more than first-generation applicants, and the like. Private school students listed an average of 18.7% more activities than public school students, including 37.4% more Athletics activities.

[Figure 2. Average Number of Activities Reported by Applicant Demographics.]

When we split these results out by activity type (Figure 3), differences are especially pronounced for Academic, Art, Athletic, Career, and Service activities. For example, White students report notably more Athletic activities than Asian American, Black, and Latinx students. Service activities are reported more frequently by Asian American, continuing-generation, and private school students.

[Figure 3. Average Number of Activities for Activity Type by Applicant Demographics]

Figure 4 mirrors the format of Figure 2 but displays the average number of activities with a top-level leadership role. Disparities generally persist at a larger scale here. For example, fee waiver non-recipients reported an average of 59.1% more top-level leadership roles across all activities than recipients (1.05 versus 0.66), and Asian American students reported 71% more top-level leadership roles on average, and White students 67.7% more, than Black students.

[Figure 4. Average Number of Activities with Top-level Leadership Roles Reported by Applicant Demographics.]

Examining top-level leadership by activity type (Figure 5) reveals that a vast share of overall disparities is in Athletics. This is one of the only areas where the average for Asian American applicants is notably lower than White applicants. Academic activities (e.g., captain of speech and debate team) also make up a substantial share of the reporting disparity for overall top-level leadership, followed by Service and Other activities.

[Figure 5. Average Number of Activities with Top-level Leadership Roles Reported for Each Activity Type by Applicant Demographics.]

The similarity of results across Figures 2 and 4 raises the question: Are disparities in top-level leadership due to lower-SES and URM populations simply reporting fewer activities in general? Or is it the case that, *conditional* on reporting a given activity, lower-SES and URM students are actually less likely to report top-level leadership roles? Figure 6 addresses this question descriptively by analyzing the proportion of activities with top-level leadership.

[Figure 6. Average Proportion of Reported Activities with Top-level Leadership Roles by Applicant Demographics.]

Interestingly, many of the previously observed disparities in top-level leadership are substantially attenuated here. Students across race/ethnicity and SES reported top-level

leadership positions at similar rates per activity reported, from 0.13 to 0.15.[16] In other words, while Black applicants reported fewer top-level leadership activities on average than White applicants (Figure 3) in absolute terms, Black applicants were about as *likely* to report a top-level leadership role conditional on participation in an activity. That said, some differences exist by activity type, as shown in Figure 7. With two exceptions (Asian Americans having a higher proportion of top-level leadership in Academic activities, and Native Hawaiian or Other Pacific Islander and American Indian or Alaska Native applicants being roughly 30% more likely to report leadership in a School Government/Spirit activity, conditional on reporting an activity of that type), differences remain small in magnitude. Overall, a substantial share of disparities in activity reporting is driven by the *number* and *types* of activities that applicants of varying backgrounds participate in, rather than disparities in the likelihood of attaining top-level leadership roles conditional on participation.

[Figure 7. Average Proportion of Reported Activities with Top-level Leadership Roles for Each Activity Type by Applicant Demographics.]

Next, we document similar patterns for excellence (e.g., honors, awards). Figure 8 shows the number of activities coded with excellence in the description (activity-level analysis).

[Figure 8. Average Number of Reported Activities with Excellence by Applicant Demographics.]

Disparities are nearly identical to, if not slightly larger than, those observed in top-level leadership reporting. White applicants had the highest average number of activities with excellence among racial/ethnic groups, reporting 84.5% more activities with excellence terms than Black students, 4.3% more than Asian Americans, and 45% more than Latinx students. Similarly, fee waiver non-recipients listed 73.4% more activities with excellence than recipients,

and private school students had 25% more activities with excellence terms than public school applicants. Splitting this by activity category (Figure 9) reveals similar trends as with top-level leadership: disparities in activities with excellence terms is most prominent within Athletics and Academic activities.

[Figure 9. Average Number of Reported Activities with Excellence for Each Activity Type by Applicant Demographics.]

Similar to top-level leadership, differences between groups narrow considerably (with a general range of 0.22 to 0.27 for all but Native Hawaiian or Other Pacific Islander applicants) when we examine the *proportion* of activities with excellence terms in Figure 10.

[Figure 10. Average Proportion of Reported Activities with Excellence by Applicant Demographics.]

The same is true of excellence reporting by activity type in Figure 11. As with top-level leadership, it appears that disparities in excellence reporting are largely driven by the overall number and type of activities reported more generally, rather than differences in the likelihood of reporting excellence given involvement in a certain activity.

[Figure 11. Average Proportion of Reported Activities with Excellence for Each Activity Type by Applicant Demographics.]

Regression Analyses

Overall, *descriptive* disparities across SES and race/ethnicity were generally most substantial when looking at absolute numbers of reported activities (whether overall, for top-level leadership, or for excellence), rather than the proportion of activities reflecting a key construct. Table 2 displays the results of several regression specifications for the outcome of overall number of activities reported. Each column displays a different model or subsample

specification, as described earlier. Results from Model 1 (each demographic characteristic regressed on the outcome separately, with minimal controls) generally replicate the descriptive results as intended to serve as a baseline. In results from Model 2 (including all key demographic characteristics together in a single regression, rather than separately), nearly all coefficients are slightly attenuated versus Model 1, but many remain meaningfully large, and all remain highly statistically significant. For example, the coefficient reflecting Black/African American race/ethnicity goes from -2.259 in Model 1 to -1.53 in Model 2, indicating that at least some of the disparity we observed between Black and White applicants is driven by other characteristics like SES. Given a sample mean of 6.86, this difference of -1.53 remains substantively meaningful despite the attenuation (~22.3% relative difference). Of note, private school attendance (which we interpret as indicating higher SES) is linked with reporting 0.874 more activities on average than public school attendance in Model 2.

[Table 2 about here]

In Model 3, we add high school fixed effects, asking whether observed disparities in Model 2 persist when looking at applicants *within* a given high school.[17] A large number of disparities remain. For example, Hispanic/Latinx applicants reported on average 0.551 fewer activities than White applicants in Model 2; in Model 3, they still report 0.384 fewer (~5.6% difference relative to the sample mean). Likewise, the coefficient on first-generation status changes from -1.179 in Model 2 to -0.942 in Model 3. This suggests that disparities across these demographics cannot be explained by school-to-school differences in activity availability or resources alone, as disparities *within* schools persist. Finally, Model 4 uses the same specification as Model 3, but examines only the subset of applicants who scored at the 95th percentile or higher on the SAT/ACT. These coefficients essentially estimate whether disparities

exist when comparing more academically competitive students in the same school. Here, many differences are attenuated and become less substantively meaningful. For example, the coefficient for fee waiver receipt drops to -0.125; compared with a sample mean of 6.86, this is only a ~1.8% relative difference in the number of activities. One exception is first-generation status, which went to -0.687 in Model 4 (a ~10% difference relative to the mean) from -0.942 in Model 3, meaning that disparities in the number of activities reported between first-generation and continuing-generation applicants persist even when looking only at students with higher test scores within a given high school.

In Table 3, we display corresponding regression results for the number of top-level leadership roles reported. Shifts in coefficients between models are similar to the number of activities reported more generally, reducing in magnitude from Model 1 to 2 to 3. In other words, this indicates that some of the naïve descriptive differences in top-level leadership reporting between racial/ethnic groups are driven partially by interrelated SES-related factors, but not completely, and that the disparities persist even when we look within schools using school fixed effects (i.e., racial/ethnic and SES-related disparities in activity reporting are driven partially by school-to-school variation in activity availability, resources, etc., but not completely).

[Table 3 about here]

Highlighting select results of interest, in Model 2, attending private school holds the largest coefficient for reporting activities with top-level leadership at 0.237 – a large and meaningful difference given the sample mean of 0.95. The Black/African American and first-generation variables have the largest negative coefficients in Model 3 at -0.155 and -0.21, respectively. In the analysis of the high SAT/ACT subsample, however, the first-generation coefficient remains almost exactly the same, whereas the Black/African American coefficient

drops to non-significance. This indicates that racial disparities in top-level leadership reporting do not seem to be pronounced among high SAT/ACT applicants coming from the same schools. However, first-generation applicants continue to report fewer leadership roles even among students with high test scores, suggesting that academic achievement does not fully mitigate barriers to accessing leadership positions for this group. In Table 4, we report results for the outcome of the number of reported activities where applicants used excellence terms to describe accomplishments. Patterns here mirror those we observed for top-level leadership. Meaningful racial/ethnic disparities persist in Models 1, 2, and 3, but are largely insubstantial among the high SAT/ACT subgroup (with differences relative to the mean mostly below 10%). Meanwhile, disparities between first-generation and continuing-generation students remain large and persistent across all model specifications. For example, even among the high SAT/ACT subsample, first-generation applicants report -0.434 fewer activities with excellence than continuing-generation applicants, a roughly 26% difference relative to the sample mean of 1.68.

[Table 4 about here]

We also examine each outcome for specific activity categories (e.g., number of Athletics activities reported with top-level leadership roles). For concision, we review only top-level leadership results for three of eight activity types: Athletics, Academics, and Culture/Identity. Athletics and Academics had some of the largest differences in levels across groups; trends for Culture and Identity notably run counter to trends we observe in other activity types. Full regression results for all outcomes and types are available upon request. Beginning with Athletics activities (Table 5), Asian American applicants have some of the most consistent and negative coefficients versus White applicants, between -0.154 and -0.19 across all models. Given a sample mean of 0.34, these are substantial differences. This difference persists in both Models

3 and 4, indicating that White and Asian American applicants in the same schools, and with similarly high test scores, still differ meaningfully in the number of top-level leadership positions in Athletics activities. The coefficients for Black, first-generation, and fee waiver recipients are similarly consistent and negative, though to a generally lesser degree (between -0.063 and -0.163 for Models 2 through 4). Private school students report notably more top-level leadership roles in Athletics activities than public school counterparts in both Models 1 and 2.

[Table 5 about here]

Table 6 shows top-level leadership for Academic activities. The coefficients for Asian American applicants are consistently the largest across models; indeed, Asian American applicants in the same high schools with similar test scores still report more than twice as many top-level leadership positions in Academic activities as White applicants, even accounting for SES. We also see consistently negative and substantively large coefficients for first-generation applicants across all models (between -0.044 and -0.073). Conversely, coefficients for fee waiver recipients and Black applicants are negative and substantive in Models 2 and 3, but lose significance by Model 4 when looking only among high SAT/ACT applicants.

[Table 6 about here]

Finally, we examine Culture and Identity activities with top-level leadership in Table 7.

[Table 7 about here]

Unlike other activity types, disparities are either non-existent or lean towards higher levels of top-level leadership for racially minoritized and underserved populations when it comes to Culture and Identity activities. For example, the coefficient for Black applicants is 0.022 in Model 3 and 0.067 in Model 4, differences that are 37% and 112% higher than the sample mean of 0.06 (though note that the sample mean for Model 4 subsample is different from the overall

sample mean; we rely on the overall sample mean here only to establish a general magnitude). We also observe consistently positive coefficients for Asian, Hispanic/Latinx, and Two or More Races applicants, as well as fee waiver recipients. Coefficients for American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander applicants are also generally positive, but imprecisely estimated and not statistically significant. Admissions officers may view these types of activities as reflective of URM populations' assets in the admissions process.

Discussion and Conclusion

Overall, we found that White, Asian American, higher SES, and private school students reported more activities, top-level leadership roles, and signifiers of excellence (e.g., honors and awards) when describing involvement. While URM students listed fewer activities and leadership roles, they reported similar if not identical *proportions* of top-level leadership roles among their activities as White and Asian American peers. When controlling for key characteristics, White and private school students reported more top-level leadership roles in Athletics, while Asian Americans reported more top-level leadership roles in Academic activities. Disparities narrowed when comparing only students with test scores in the 95th percentile. Still, even among high-scoring test takers from the same high schools, first-generation students listed notably fewer activities, fewer top-level leadership roles, and fewer excellence signifiers than continuing-generation peers. Racially minoritized students reported more top-level leadership roles in Culture/Identity activities.

Our study is the first to capture more nuanced measures of extracurricular activity reporting (e.g., leadership positions, honors) in a large-scale, national dataset, while accounting for other salient applicant- and school-level factors. Students join extracurricular activities for a multitude of reasons like fun, friendship, and skill-building. At the same time, findings reflect

how some students are likely strategically positioning themselves to be as competitive as possible across both standardized *and* non-standardized application components. Research and media document how increasingly, some students, especially those with financial means, respond to dwindling acceptance rates by applying to more schools, participating in more activities, taking SAT/ACT prep, and hiring private college consultants (Park, 2012; Huang, 2023; Tough, 2019). The accumulation of leadership roles and honors revealed in our analysis reflects how resume-building and award-seeking may be a normative and expected behavior for many of those aspiring to attend a selective institution (Lee & Zhou, 2015; McDonough, 1997), potentially reflecting the roles of habitus and concerted cultivation as noted in our theoretical framework (Bourdieu, 1977; Lareau, 2011).

Our results contend that it is not the case that White, Asian American, upper-SES, and private school students are somehow innately more likely to be leadership "material" and worthier of recognition. Indeed, URM students were similarly likely to report top-level leadership roles for their activities as non-URM applicants, conditional on participation. However, non-URM peers engaged in a higher raw number of activities, likely reflecting greater opportunity and financial means, to support sustained and varied involvement. Even when comparing within the same high schools, White, Asian American and higher SES students reported more activities and top-level leadership roles than URM and lower SES peers, and more signifiers of excellence to describe their accomplishments. These gaps are reduced somewhat when only comparing students with high SAT/ACT scores, but many still persist, reflecting how a lack of opportunity and support (e.g., finances) shape extracurricular involvement.

In general, equity gaps are largest in the area of Athletics for low-SES and URM students, followed by Arts, and in some cases, Academic activities. Academic activities like

debate and Science Olympiad are known to have barriers to access, and Arts and Athletics activities often require significant financial investments through years of lessons/coaching, equipment, and transportation. Some students are perhaps less socialized to "package" or present certain activities in their own communities as Service, compared to an affluent student who pays to do community service in another country. Here too, the role of habitus, both individual level and school-level, can play a role (McDonough, 1997): Private college counselors are known to encourage students to frame their activities in certain ways (Huang, 2023), and peers may swap strategies on how to describe their accomplishments. The web has no shortage of consulting services that offer advice to students on how to navigate this issue as well. While platforms like Common App encourage students to consider experiences like family responsibilities as activities, students may need more explicit prompting and upfront examples to get them to list them. High school counselors can also encourage and remind students of the importance of highlighting these experiences. Regardless, low-SES and URM students carry tremendous assets, and are more likely to report and lead activities related to Culture and Identity.

Of note, we found private school students reported more activities, top-level leadership positions, and excellence/honors, mirroring how many private schools provide intensive support for college admissions and extracurricular involvement (Connor et al., 2013; Jayakumar & Page, 2021). Private schools often provide strong support for athletic and artistic involvement through fundraising for high quality facilities and resources. Smaller class sizes can allow more students to be able to take on leadership positions. These factors work in combination with the greater financial resources that most private school families have. Gaps between public and private school students are most apparent in the area of Athletics, which has been found to be disproportionately favored in elite admissions (Hextrum, 2021; Killgore, 2009).

Future analyses can use different methods and a stronger array of covariates to further clarify the effects associated with private school attendance and institutional-level resources, as well as variables like the number of siblings or the context of one's high school (e.g., urban, rural, etc.). There are additional dimensions of students' extracurricular involvement worth examining, including sophistication of language, hours per week dedicated to activities, and the number of years a student was involved. Also of interest is understanding how activities themselves are evaluated by admissions readers, including how certain activities may be deemed as more prestigious or rare, and the impact of involvement on admissions decisions. In future work, we hope to probe more deeply into the variation that exists within communities of color, as well as analyses of less accessible activities (e.g., lacrosse, fencing). Qualitative analyses of subsets of applications would yield notable insights on inequalities in precise description phrasings and constructions. Qualitative inquiry could also provide greater insight into the myriad of motivations for extracurricular participation, as well as whether and how various external forces shape the way students write about their activities. For instance, are students mirroring language that they perceive as being prioritized by selective institutions? Previous research notes how private college consultants coach students on how to shape or frame their experiences in essays and extracurricular reporting (Huang, 2023), and future studies could ask students about how they approached writing about their activities and experiences.

Some might read our findings and feel that because extracurricular activities are subject to inequality they should be omitted from the application, a conclusion that we view as premature. Others may think that higher education should revert to requiring standardized tests writ-large because they seem more "objective," a view that ignores the influence of coaching and other factors that shape the SAT/ACT (Park, 2012). In our view, a logical reaction to our work is

something more along the lines of "proceed for now, with caution," with some possible changes to the section. For example, reforms to the application format can be considered, such as lowering the number of activities that students can list. White, Asian American, high SES, and private school students are more likely to list the maximum number of activities allowed, and listing more activities was linked with a higher likelihood of acceptance in one study (Espenshade & Radford, 2009). Reducing the maximum number of activities that students can list (e.g., to four or five) could have several benefits, such as reducing favorable bias towards students who list more activities, encouraging quality or sustained involvement over quantity, and lowering stress and pressure on students. Such a reduction might also mitigate the influence of the extracurricular opportunity gap we remark on here: Disparities between groups were reduced when examining the proportion of leadership positions or excellence terms (versus the raw number), which suggests that groups are engaging in similar levels of leadership relative to the number of activities reported. In Fall 2023, Lafayette College, whose president is the founder and former CEO of the College Advising Corps, decided to start only considering six activities versus ten, a move that researchers and policymakers should track.

Of note, while some of admission advantage of students from the top 1% of income is linked to non-academic traits (which can be gleaned in part from activities and is mediated by private school attendance, see Chetty et al., 2023), non-standardized components like activities can still be considered in admissions. However, they must be evaluated within a student's context of opportunity. Findings point to the critical need for admissions staff to be trained in how inequality and opportunity shape extracurricular engagement, and for them to take this context into account when evaluating students. Previous research suggests that few admissions officers fully consider educational opportunity, hardship, and other relevant context when

reading applications (Bastedo et al., 2018). The admissions profession has a high amount of turnover at the entry-level, necessitating constant training of new personnel. Findings provide key insights relevant to training, such as the way that higher SES and private school students may be prone to describe their accomplishments, possibly due to being more likely to receive intensive, personalized support in the admissions process (McDonough, 1997).

The reporting of extracurricular accomplishments may still have a role to play if the field thinks that it yields helpful insights on applicants and their unique assets. Applicants may feel that they have more agency over shaping extracurricular participation, despite engagement being shaped by race and class. Future research and dialogue are greatly needed to discern whether the merits gained from reporting extracurriculars outweigh any costs. Sustained dialogue is also needed on the ways that universities value activities that not all students have equal opportunity to participate in, and in particular, athletics (Card, 2017; Hextrum, 2021; Jayakumar & Page, 2021). The privileging of specialized athletics (e.g., rowing, lacrosse) with substantial financial and cultural barriers in admissions has been an under-questioned practice within elite colleges and universities (Hextrum, 2018; 2021). Our findings add to dialogue on how favoring athletics perpetuates existing and well-known inequalities (Chetty et al., 2023). Similar attention needs to be given to other types of limited-access activities as well.

Expanding access and equity continue to be critical needs for higher education institutions, and the urgency is especially pronounced following the 2023 Supreme Court ruling in the *Students for Fair Admissions* cases. Our study highlights how opportunities for involvement and accomplishments are linked to both race and class, and the need to evaluate student achievement in the context of the numerous factors that shape opportunity. Altogether, our deep dive into extracurricular activities documents how inequality in extracurriculars is not

just limited to the types of activities that students engage in, but the way they describe their involvement through leadership roles, honors, and distinctions. There may still be value to allowing students to list their extracurricular activities in applying to college. However, it remains essential that activities and achievements are evaluated within a student's social context, with readers considering the many conditions that affect activity participation and reporting.

Notes

[1] 1,340 recruited athletes applied from 2014-2019, representing an average of 235 admitted students a year (at an admit rate of 88%; Card, 2017)—a sizeable portion of students.

[2] We recognize the disparities that exist particularly within the Asian American community, and emphasize that these trends are *average* trends for aggregate populations. Future analyses will ideally disaggregate by ethnicity.

[3] While the 2019-2020 application cycle was partially affected by the onset of the COVID-19 pandemic, the overwhelming majority of our sample applicants from this season (>99%) had already submitted their application prior to February of 2020 – well before most U.S. communities began any semblance of pandemic response.

[4] Of the 924 active member institutions using the Common App in the 2018-2019 season, 102 of these members met the selectivity criteria. Per IPEDS, 95 were private, 7 were public, only 3 were historically minority-serving institutions. The average admit rate was 21.85%, and the average undergraduate enrollment was 5,431 students.

[5] In alignment with the conventions used by the Common App in their reporting, we consider any U.S. citizen (whether living abroad, or holding dual-citizenship) or U.S. permanent resident (to include individuals covered by DACA) to be domestic.

[6] Though it is the case that applicants may apply across multiple seasons, we include only the most recent application we observe from a given applicant in our sample. This is because students applying in consecutive seasons are generally applying "lightly" in their Junior year, and then apply more seriously in their Senior year following, so the second year of data tends to be more complete and updated.

[7] As the Common App only includes four-year institutions, our definition of first-generation more specifically implies that students reported that no parent or immediate guardian completed any four-year degree – whether in the United States or outside of it.

[8] Applicants self-identify as eligible for the fee waiver, and eligibility criteria include common indicators like receipt of an SAT/ACT test fee waiver, receipt of free or reduced price lunch, receipt of public assistance, participation in a low-income student program like TRIO, and so on.

[9] We use the conventions employed by the National Science Foundation: applicants identifying as Black or African American, Latinx, Native American or Alaska Native, or Native Hawaiian or Other Pacific Islander are classified as URM applicants. Thus, White, Asian, Two or More Races, and Missing Race/Ethnicity students are classified as non-URM.

[10] We also examine a separate and more expansive measure of leadership, "General Leadership," that encompasses all named roles with any level of responsibility or leadership in a given activity (e.g., secretary, treasurer, etc.). As results for this phenomenon are largely similar to what we find for top-level leadership, we exclude these results from the narrative for concision; results are available upon request.

[11] In supplementary analyses, we also analyzed the raw counts of terms/phrases for each phenomenon, given that applicants may list a given phenomenon multiple times for a single activity (e.g., if a student states that they were both CEO and president), and also whether an applicant listed *any* activity reporting a given phenomenon. Because the results of these analyses are broadly similar to our main measures, we exclude them for concision, though these results are available upon request.

[12] Applicants submitted the category of each activity from a list provided by Common App, which we simplified from 29 activity types to 8 categories (e.g., Athletics, Career, Arts, etc.). For example, Work (Paid) is joined with Internship, Junior ROTC, and Career Oriented categories into the Career category. The full list of original and condensed activity types are available at our online GitHub codebase.

[13] We report a marginally significant difference in ICC for excellence between male and female applicants; however, as we do not examine sex disparities explicitly in this paper, this should not pose a concern for the validity of analyses presented here.

[14] Note that we include a separate indicator for whether an applicant is missing data for the key demographic measure (e.g., race/ethnicity) in the regression as well. This allows these applicants to contribute to estimating the high school fixed effects coefficients without contributing to the coefficient for the key demographic measure. We observe perfectly whether an applicant received a fee waiver or not, and first-generation status is also not missing for any applicant due to the way the Common App operationalizes first-generation status (applicants who submit no parental education data are marked mechanically as continuing-generation). About 4.5% of our sample is missing race/ethnicity data, and 1.8% are missing ZIP-level median household income data.

[15] We have explored other means of specifying this "highly competitive" applicant subsample, such as using "college application profiles" that measure the average admissions selectivity of institutions each applicant applied to, per Dale & Krueger (2002; 2011). Our findings are not substantively different, and so we opt for this more interpretable proxy of SAT/ACT for concision.

[16] The only exception to this trend is for Native Hawaiian or Other Pacific Islander applicants at 0.18; that said, this may be an artifact of their smaller group sample size and thus higher likelihood of more extreme values.

[17] As mentioned before, because high school type (public/private) is fixed within schools, this variable is subsumed by the fixed effects coefficients and cannot be estimated in this specification

References

Alvero, A. J., Giebel, S., Gebre-Medhin, B., Antonio, A. L., Stevens, M. L., & Domingue, B. W. (2021). Essay content and style are strongly related to household income and SAT scores: Evidence from 60,000 undergraduate applications. *Science Advances*, *7*(42), 1-10. https://doi.org/10.1126/sciadv.abi9031

Bennett, C. T. (2022). Untested admissions: Examining changes in application behaviors and student demographics under test-optional policies. *American Educational Research Journal*, *59*(1), 180-216. https://doi.org/10.3102/00028312211003526

Bastedo, M. N., & Flaster, A. (2014). Conceptual and methodological problems in research on college undermatch. *Educational Researcher*, *43*(2), 93-99. https://doi.org/10.3102/0013189X1452303

Bastedo, M. N., Bowman, N. A., Glasener, K. M., & Kelly, J. L. (2018). What are we talking about when we talk about holistic review? Selective college admissions and its effects on low-SES students. *The Journal of Higher Education*, *89*(5), 782-805. https://doi.org/10.1080/00221546.2018.1442633

Bourdieu, P. (1977). *Outline of a theory of practice*. Cambridge University Press.

Bourdieu, P. (1984). *Distinction: A social critique of the judgment of taste*. Harvard University Press.

Bourdieu, P., & Passeron, J-C (1977) *Reproduction in education, society, and culture.* SAGE.

Card, D. (2017). *Expert report for Students for Fair Admissions, Inc. v*. Harvard, Technical report.

Chetty, R., Deming, D. J., & Friedman, J. N. (2023). *Diversifying Society's Leaders? The Causal Effects of Admission to Highly Selective Private Colleges* (No. w31492). National Bureau of Economic Research.

Conner, J., Pope, D., & Miles, S. (2013, April 28). *Extracurricular activity in high-performing school contexts: Stress buster, booster or buffer?* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Covay, E., & Carbonaro, W. (2010). After the bell: Participation in extracurricular activities, classroom behavior, and academic achievement. *Sociology of Education*, *83*(1), 20-45. https://doi.org/10.1177/0038040709356565

Dale, S. B., & Krueger, A. B. (2002). Estimating the payoff to attending a more selective college: An application of selection on observables and unobservables. *The Quarterly Journal of Economics*, *117*(4), 1491–1527. https://doi.org/10.1162/003355302320935089

Dale, S. B., & Krueger, A. B. (2011). *Estimating the return to college selectivity over the career using administrative earnings data* (Working Paper No. 17159). National Bureau of Economic Research. https://doi.org/10.3386/w17159

Dhingra, P. (2020). *Hyper education: Why good schools, good grades, and good behavior are not enough*. NYU Press.

Espenshade, T. J., & Radford, A. W. (2009). *No longer separate, not yet equal: Race and class in elite college admission and campus life*. Princeton University Press.

Edgerton, J. D., & Roberts, L. W. (2014). Cultural capital or habitus? Bourdieu and beyond in the explanation of enduring educational inequality. *Theory and Research in Education*, *12*(2), 193-220. https://doi.org/10.1177/1477878514530231

Ehrenreich, B. (1990). *Fear of falling: The inner life of the middle class*. New York: Harper Perennial.

Fesler, L., Dee, T., Baker, R., & Evans, B. (2019). Text as data methods for education research. *Journal of Research on Educational Effectiveness*, *12*(4), 707-727. https://doi.org/10.1080/19345747.2019.1634168

Gaztambide-Fernández, R. A. (2009). *The best of the best: Becoming elite at an American boarding school*. Harvard University Press.

Grootendorst, M. (2022, March 11). *BERTopic: Neural topic modeling with a class-based TF-IDF procedure*. https://doi.org/10.48550/arXiv.2203.05794

Hallgren, K. A. (2012). Computing inter-rater reliability for observational data: an overview and tutorial. *Tutorials in quantitative methods for psychology*, *8*(1), 23. https://doi.org/10.20982%2Ftqmp.08.1.p023

Hextrum, K. (2021). *Special admission: How college sports recruitment favors white suburban athletes*. Rutgers University Press.

Hextrum, K. (2018). The hidden curriculum of college athletic recruitment. *Harvard Educational Review*, *88*(3), 355–377. https://doi.org/10.17763/1943-5045-88.3.355

Hamilton, L., Roksa, J., & Nielsen, K. (2018). Providing a ‘‘Leg up’’: Parental involvement and opportunity hoarding in college. *Sociology of Education*, *91*(2), 111-131. https://doi.org/10.1177/0038040718759557

Horvat, E. M. (2001). Understanding equity and access in higher education: The potential. *Higher education: Handbook of theory and research*, *16*, 195-238.

Huang, T. J. (2023). Translating Authentic Selves into Authentic Applications: Private College Consulting and Selective College Admissions. *Sociology of Education*, 00380407231202975.

Jayakumar, U. M., & Page, S. E. (2021). Cultural capital and opportunities for exceptionalism: bias in university admissions. *Journal of Higher Education*, *92*(7), 1109–1139. https://doi.org/10.1080/00221546.2021.1912554

Killgore, L. (2009). Merit and competition in selective college admissions. *The Review of Higher Education*, *32*(4), 469–488. https://doi.org/10.1353/rhe.0.0083

Lacy, S., Watson, B. R., Riffe, D., & Lovejoy, J. (2015). Issues and best practices in content analysis. *Journalism & mass communication quarterly*, *92*(4), 791-811. https://doi.org/10.1177/1077699015607338

Lareau, A. (2011). *Unequal Childhoods*. University of California Press.

Lareau, A. (2015). Cultural knowledge and social inequality. *American Sociological Review*, *80*(1), 1–27. https://doi.org/10.1177/0003122414565814

Lareau, A., & Weininger, E. B. (2003). Cultural capital in educational research: A critical assessment. *Theory and society*, *32*(5), 567-606. https://doi.org/10.1023/B:RYSO.0000004951.04408.b0

Lee, J., & Zhou, M. (2015). *The Asian American Achievement Paradox*. Russell Sage Foundation.

McDonough, P. M. (1997). *Choosing colleges: How social class and schools structure opportunity*. Suny Press.

McNeal Jr, R. B. (1995). Extracurricular activities and high school dropouts. *Sociology of education*, *68*(1), 62-80. https://doi.org/10.2307/2112764

Meier, A., Hartmann, B. S., & Larson, R. (2018). A quarter century of participation in

school-based extracurricular activities: Inequalities by race, class, gender and age?. *Journal of youth and adolescence*, *47*(6), 1299-1316. https://doi.org/10.1007/s10964-018-0838-1

Park, J.J. (2012). It takes a village (or an ethnic economy): The varying roles of socioeconomic status, religion, and social capital in SAT preparation for Chinese and Korean American students. *American Educational Research Journal*, *49*(4), 624-650.

Posselt, J. R., Jaquette, O., Bielby, R., & Bastedo, M. N. (2012). Access without equity: Longitudinal analyses of institutional stratification by race and ethnicity, 1972–2004. *American Educational Research Journal*, *49*(6), 1074-1111. https://doi.org/10.3102/0002831212439456

Perna, L. W. (2006). Studying college access and choice: A proposed conceptual model. In Smart, J. C. *Higher Education: Handbook of theory and research* (pp. 99-157). Springer.

Putnam, R. D. (2016). *Our kids: The American dream in crisis*. Simon and Schuster.

Rosinger, K. O., Sarita Ford, K., & Choi, J. (2021). The role of selective college admissions criteria in interrupting or reproducing racial and economic inequities. *The Journal of Higher Education*, *92*(1), 31-55.

Shulman, J. L., & Bowen, W. G. (2011). *The game of life: College sports and educational values* (Vol. 62). Princeton University Press.

Snellman, K., Silva, J. M., Frederick, C. B., & Putnam, R. D. (2015). The engagement gap:

Stearns, E., & Glennie, E. J. (2010). Opportunities to participate: Extracurricular activities' distribution across and academic correlates in high schools. *Social Science Research*, *39*(2), 296-309.

Social mobility and extracurricular participation among American youth. *The ANNALS of the American Academy of Political and Social Science*, *657*(1), 194-207.

Students for Fair Admissions Inc. v. Harvard, Document 672 (D. Mass 2019). https://www.govinfo.gov/content/pkg/USCOURTS-mad-1_14-cv-14176/pdf/USCOURTS-mad-1_14-cv-14176-4.pdf

Students for Fair Admissions Inc. v. Harvard, Document 619 (D. Mass 2019). https://lawyerscommittee.org/wp-content/uploads/2020/07/Docket-619-main_Harvard-Post-Trial-Brief.pdf

Students for Fair Admissions Inc. v. Harvard, Document 415-1 (D. Mass 2018). https://samv91khoyt2i553a2t1s05i-wpengine.netdna-ssl.com/wp-content/uploads/2018/06/Doc-415-1-Arcidiacono-Expert-Report.pdf

Stevens, M. (2007). *Creating a class: College admissions and the education of elites*. Harvard University Press.

Tough, P. (2019). *The years that matter most*. Random House.

Vincent, C., & Ball, S. J. (2007). 'Making up' the middle-class child: Families, activities and class dispositions. *Sociology*, *41*(6), 1061-1077.

Wiltse, J. (2014). The Black–White swimming disparity in America: A deadly legacy of swimming pool discrimination. *Journal of Sport and Social Issues*, *38*(4), 366-389

Warikoo, N. (2017, December 13). *You're not going to get accepted into a top university on merit alone*. The Conversation.

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, *8*(1), 69-91.

Table 1. Study Sample Descriptive Statistics

Variable	2018	2019	Full Sample
Sample			
Applicants	432,721	440,894	873,615
Activities	2,913,757	3,078,857	5,992,614
Activities Per Applicant	6.734	6.983	6.86
Student Demographics			
Female	0.572	0.575	0.573
First-Generation	0.245	0.244	0.245
Fee Waiver Receipt	0.258	0.262	0.26
Highest Income Quintile	0.597	0.589	0.593
Missing Community Income	0.017	0.018	0.018
Student Race/Ethnicity			
White	0.479	0.467	0.473
Black or African American	0.113	0.12	0.117
Hispanic or Latinx	0.158	0.164	0.161
Asian	0.144	0.15	0.147
American Indian or Alaska Native	0.002	0.002	0.002
Native Hawaiian or Other Pacific Islander	0.001	0.001	0.001
Two or More Races	0.054	0.055	0.055
Missing	0.048	0.041	0.044
Combined Underrepresented Racially Minoritized (URM) Status			
URM	0.275	0.287	0.281
Student School Sector			
Public School	0.77	0.774	0.772
Private School	0.224	0.219	0.222
Other School	0.007	0.007	0.007

Variable	2018	2019	Full Sample
Applications Sent			
1-3	0.241	0.217	0.229
4-7	0.391	0.393	0.392
>=8	0.367	0.39	0.379
Scaled GPA Group			
Other/Missing	0.164	0.103	0.133
<0.90	0.159	0.172	0.166
0.90-0.99	0.295	0.309	0.302
1.00	0.042	0.043	0.042
>1.00	0.341	0.373	0.357
SAT/ACT Percentile Group			
Missing	0.203	0.168	0.185
<75	0.175	0.197	0.187
75-89	0.179	0.189	0.184
90-94	0.145	0.147	0.146
95-98	0.152	0.15	0.151
>=99	0.145	0.149	0.147

Note: For URM status, we use the conventions employed by the National Science Foundation: applicants identifying as Black or African American, Latinx, Native American or Alaska Native, or Native Hawaiian or Other Pacific Islander are classified as URM applicants. Thus, White, Asian, Two or More Races, and Missing Race/Ethnicity students are classified as non-URM.

Figure 1. Distribution of Total Activities Reported by Sample Students

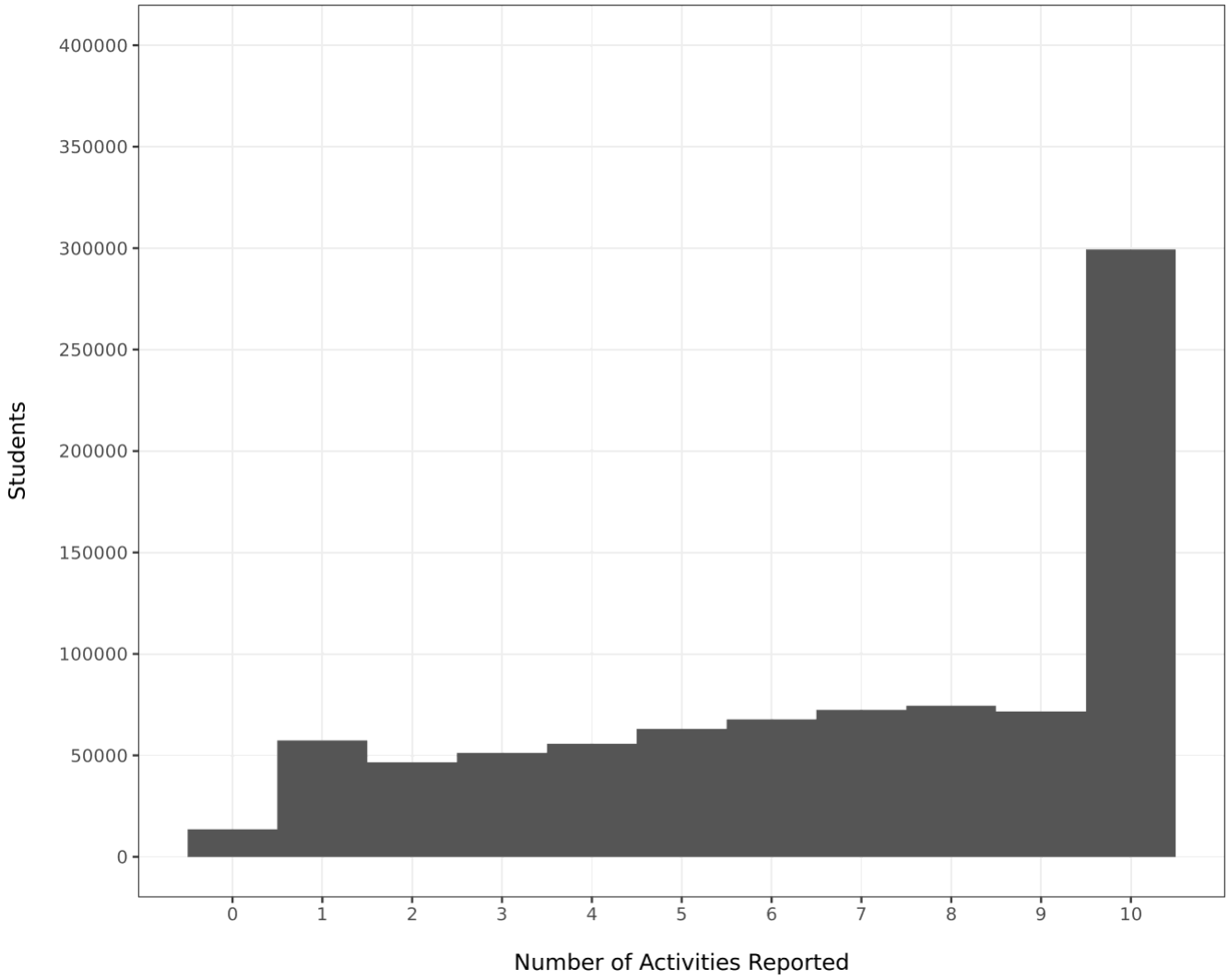

Figure 2. Average Number of Activities Reported by Applicant Demographics

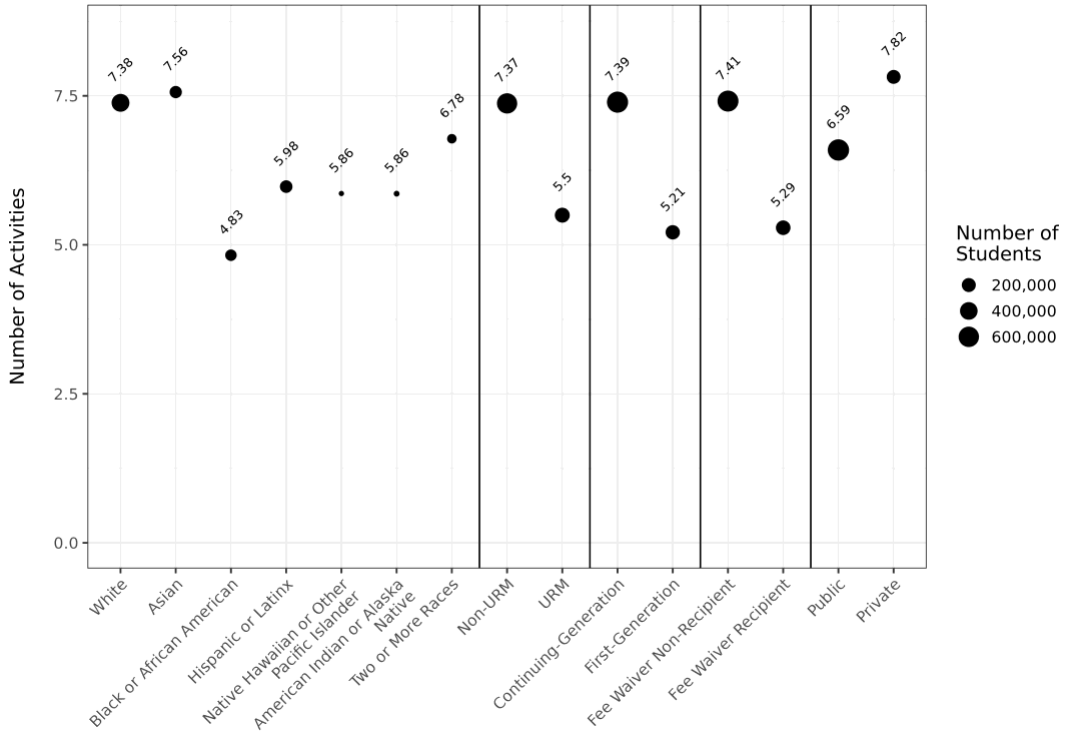

Figure 3. Average Number of Activities for Activity Type by Applicant Demographics

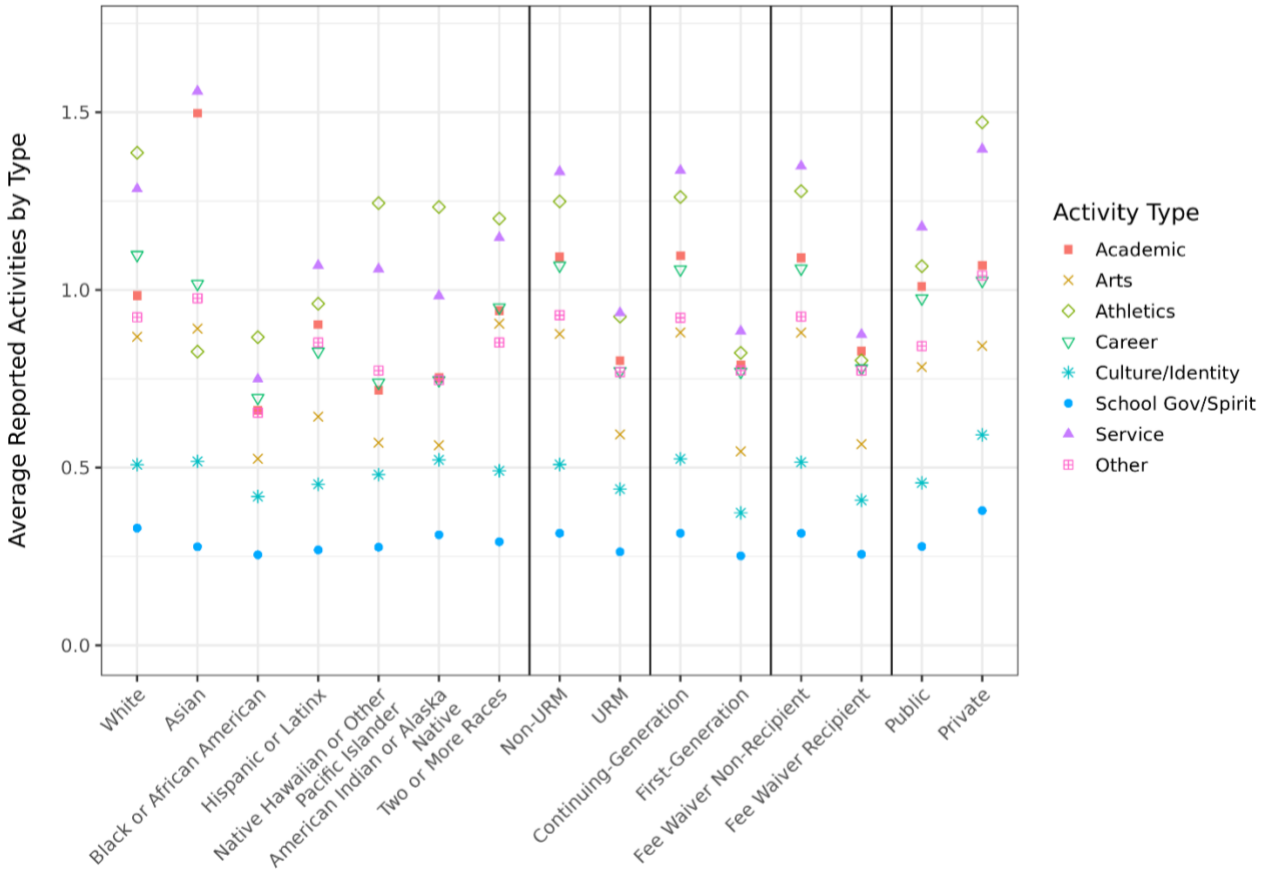

Figure 4. Average Number of Activities with Top-level Leadership Roles Reported by Applicant Demographics

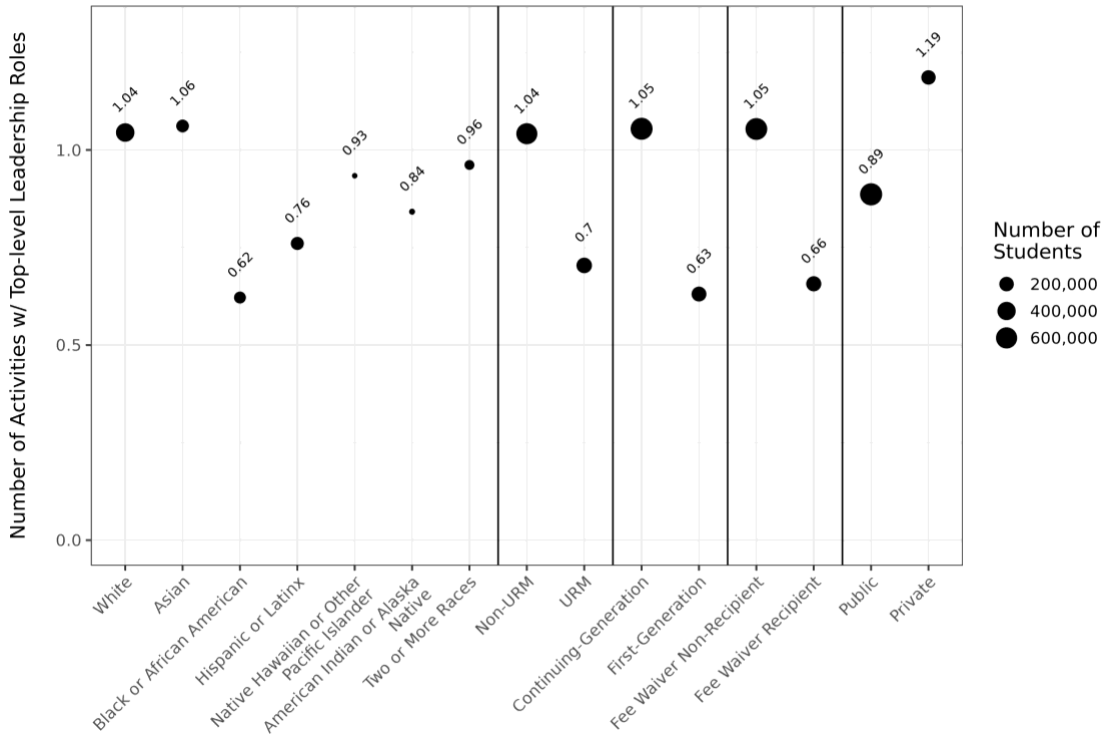

Figure 5. Average Number of Activities with Top-level Leadership Roles Reported for Each Activity Type by Applicant Demographics

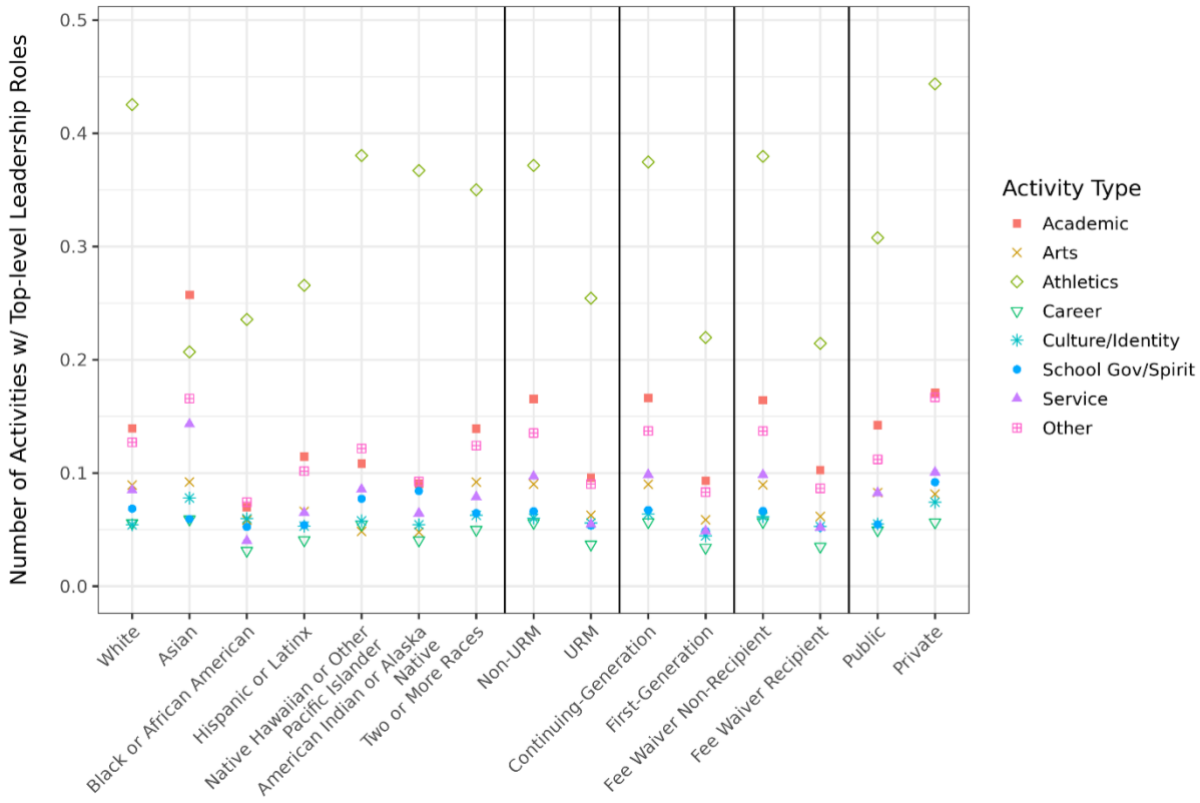

Figure 6. Average Proportion of Reported Activities with Top-level Leadership Roles by Applicant Demographics

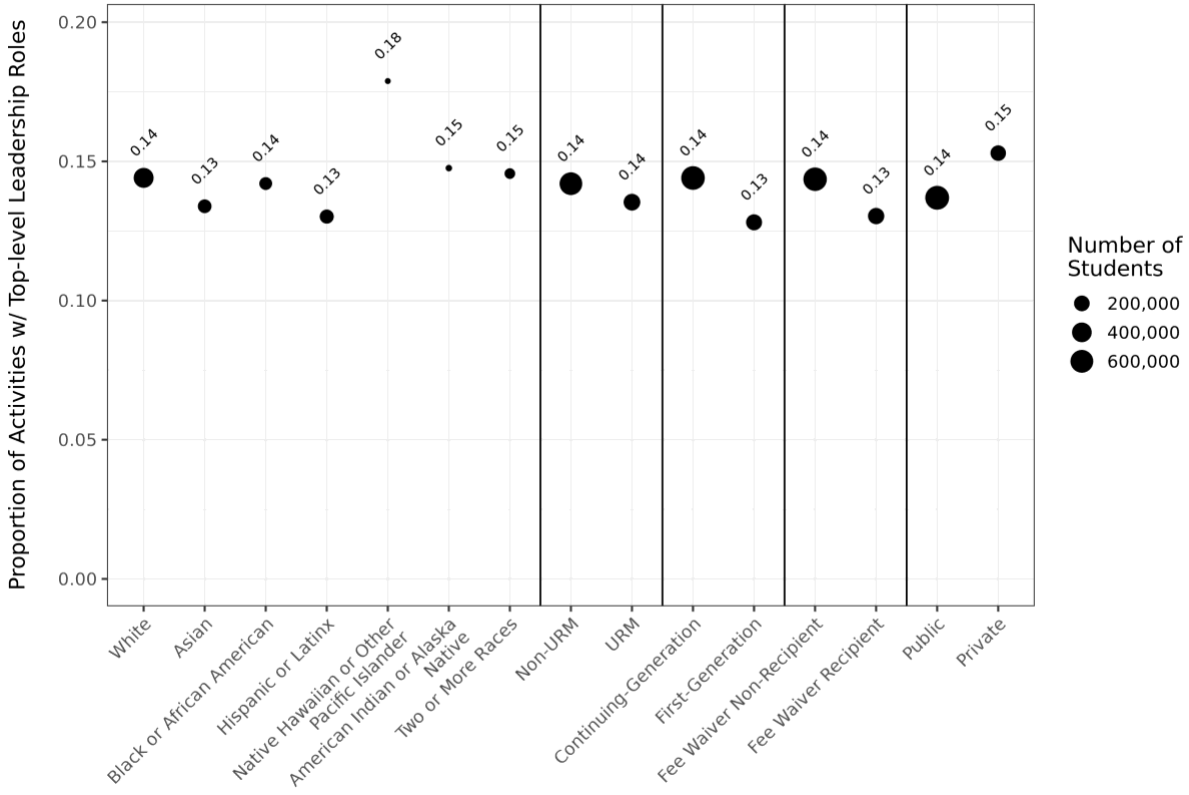

Figure 7. Average Proportion of Reported Activities with Top-level Leadership Roles for Each Activity Type by Applicant Demographics

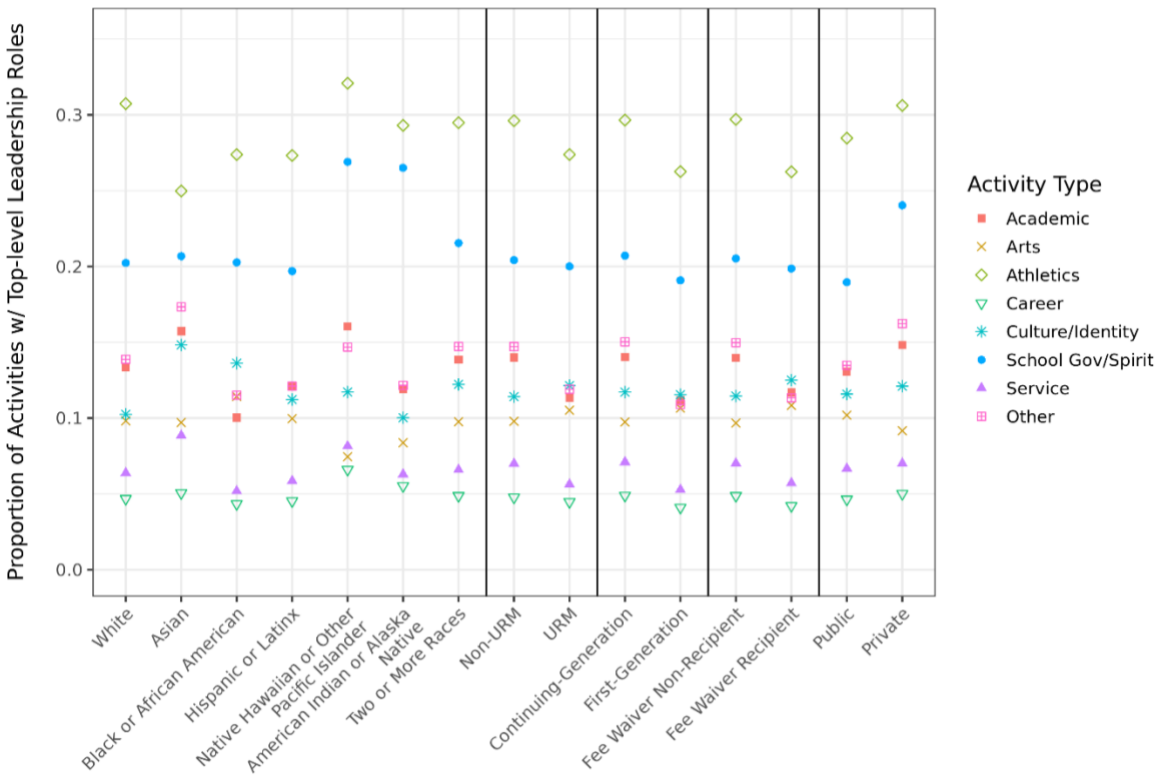

Figure 8. Average Number of Reported Activities with Excellence by Applicant Demographics

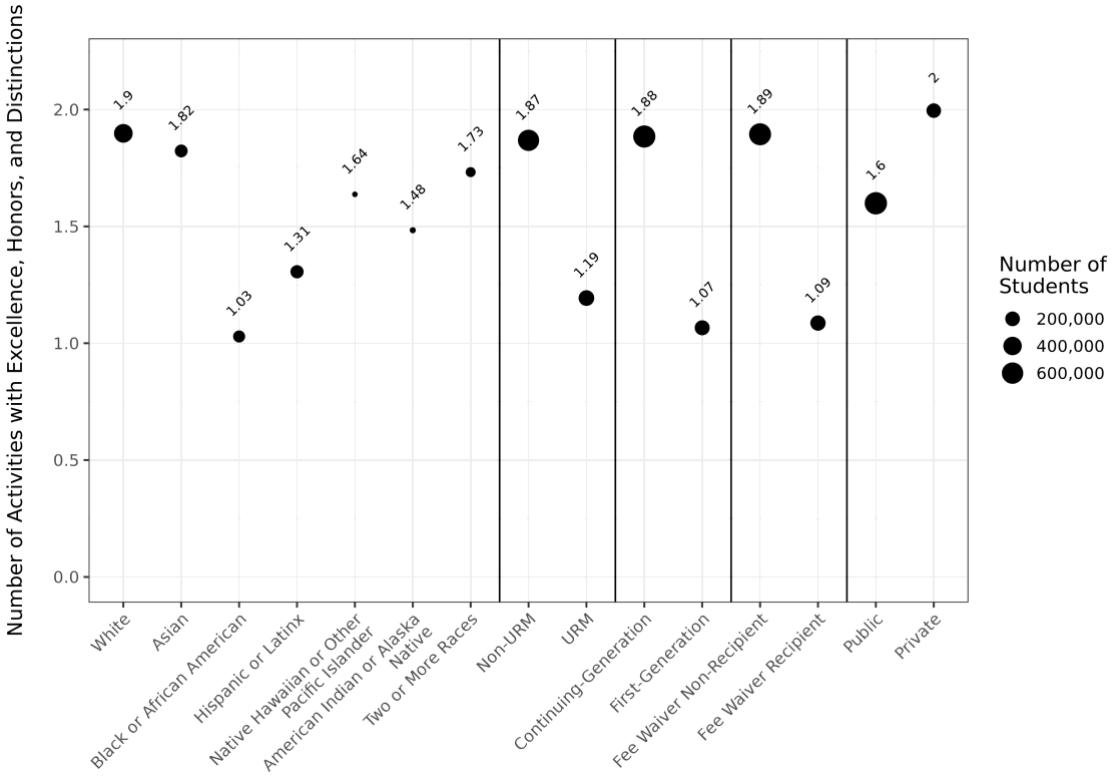

Figure 9. Average Number of Reported Activities with Excellence for Each Activity Type by Applicant Demographics

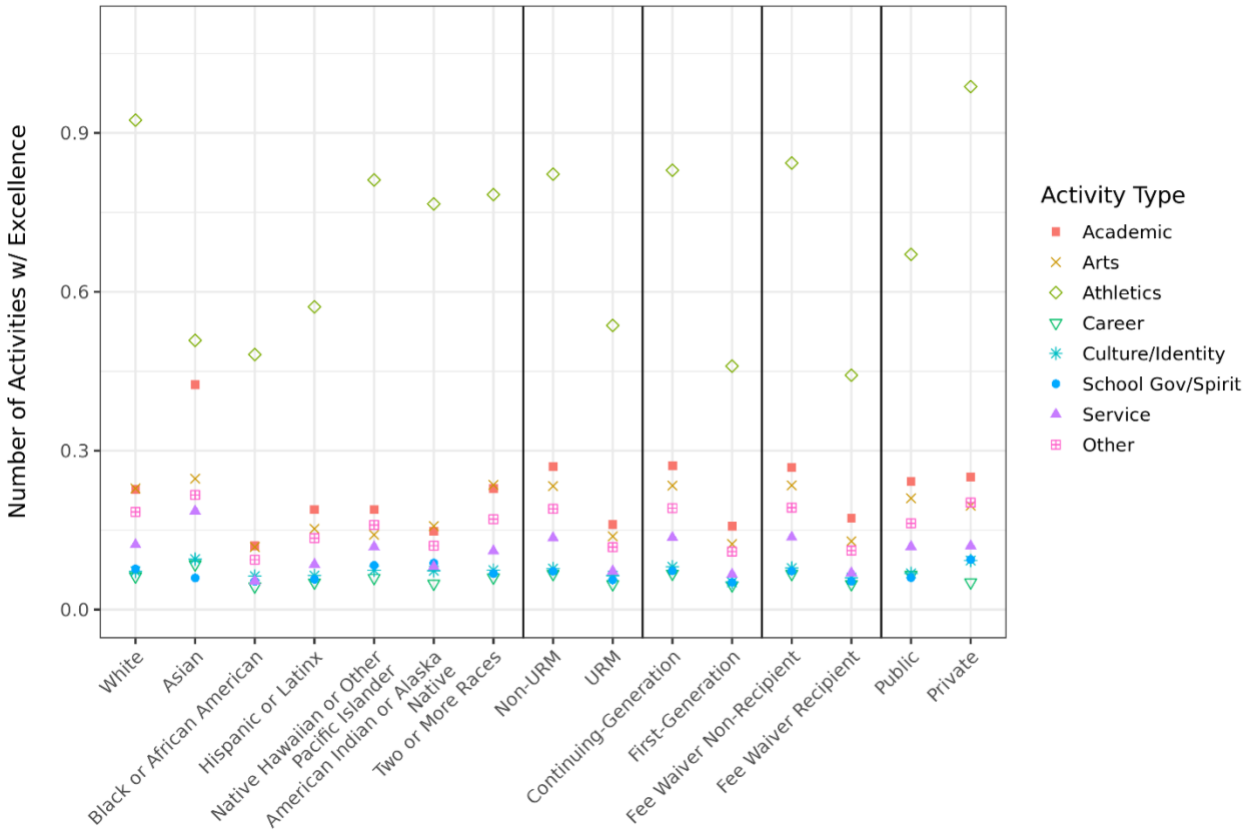

Figure 10. Average Proportion of Reported Activities with Excellence by Applicant Demographics

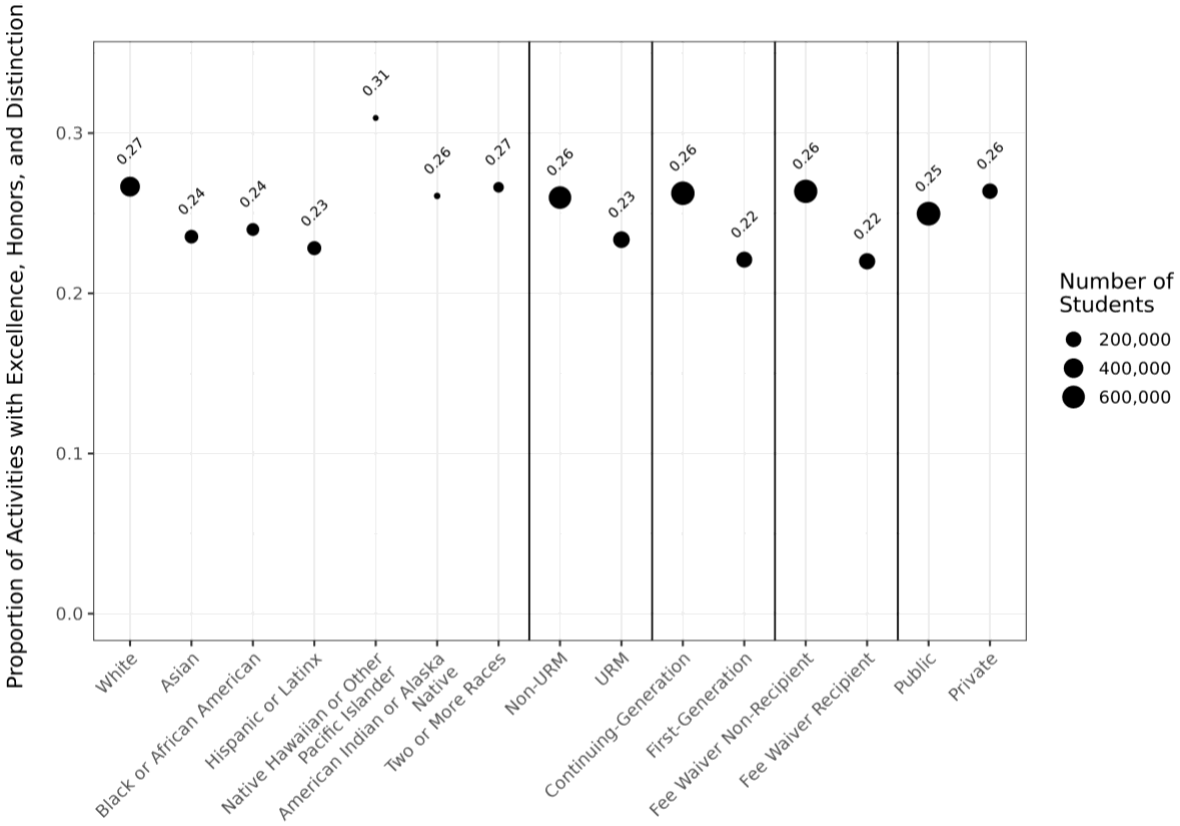

Figure 11. Average Proportion of Reported Activities with Excellence for Each Activity Type by Applicant Demographics

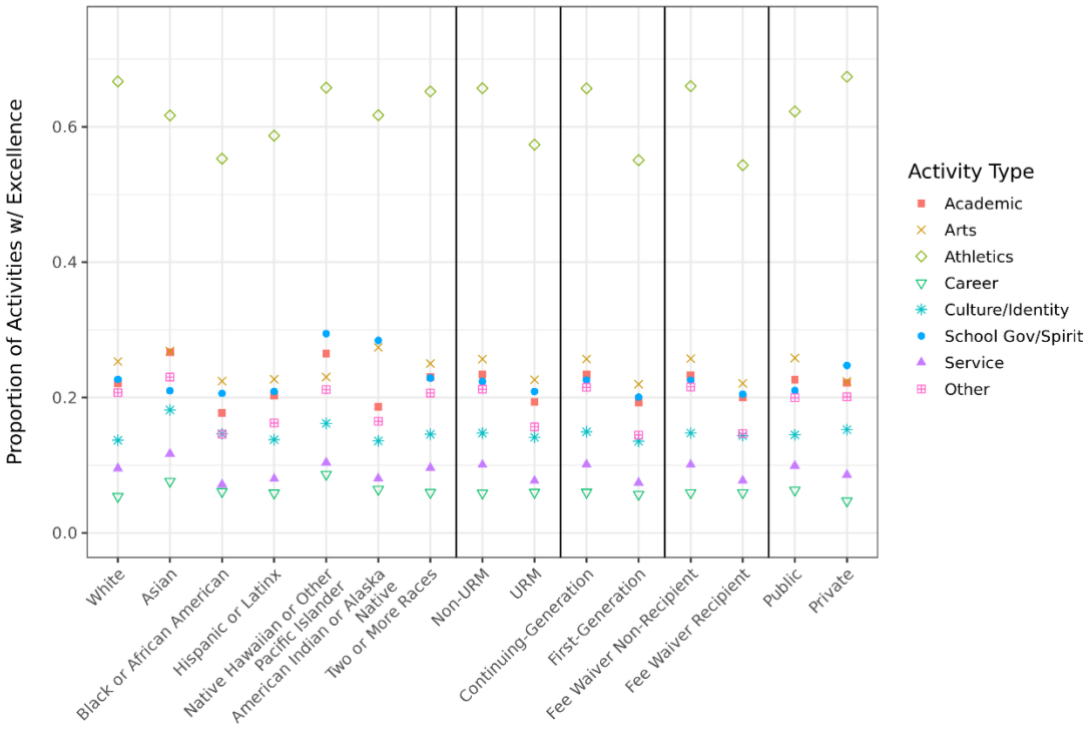

Table 2. Regression Results: Number of Activities Reported, All Activity Types

Variable	Model 1	Model 2	Model 3	Model 4
Black or African American	-2.259 *** (0.026)	-1.53 *** (0.021)	-1.071 *** (0.017)	-0.288 *** (0.038)
Asian	0.875 *** (0.036)	0.464 *** (0.021)	0.457 *** (0.016)	0.354 *** (0.019)
Hispanic or Latinx	-1.016 *** (0.024)	-0.551 *** (0.018)	-0.384 *** (0.012)	-0.117 *** (0.021)
American Indian or Alaska Native	-0.95 *** (0.086)	-0.801 *** (0.082)	-0.591 *** (0.085)	-0.304 (0.201)
Native Hawaiian or Other Pacific Islander	-0.96 *** (0.237)	-1.162 *** (0.191)	-0.745 *** (0.106)	0.195 (0.199)
Two or More Races	-0.036 + (0.018)	-0.366 *** (0.016)	-0.273 *** (0.015)	-0.084 *** (0.02)
First-Generation Student	-2.18 *** (0.019)	-1.179 *** (0.013)	-0.942 *** (0.011)	-0.687 *** (0.023)
Fee Waiver Receipt	-2.119 *** (0.023)	-0.646 *** (0.016)	-0.389 *** (0.013)	-0.125 *** (0.021)
Highest Income Quintile	1.408 *** (0.023)	0.506 *** (0.015)	0.232 *** (0.012)	0.191 *** (0.018)
Private School	1.266 *** (0.034)	0.874 *** (0.025)		
Observations		865926	862075	255042
R2		0.165	0.25	0.146
Within/Adj. R2		0.165	0.047	0.014
High School FEs			Y	Y
High SAT/ACT Group				Y

Note:

Each column represents a different regression specification as articulated in our methods section. For models 2, 3, and 4, each column is a single regression with all indicated covariates included; for Model 1, each cell is a separate regression with only the indicated covariate included. Because this column actually represents multiple regressions, we omit reporting the Observations and R-squared value from only this model for conceptual clarity and to reinforce that fact. For models 2, 3, and 4, White applicants are the omitted reference group for each categorical value of race/ethnicity. The reference group for each other categorical variable are the inverse of the listed group (e.g., continuing-gen applicants for first-gen, public school applicants for private school, and so on). Finally, note that the private school coefficient cannot be estimated once high-school fixed effects are added, as private school status is invariant at the high school level and thus subsumed by the high-school fixed effect indicators. Coefficient estimates are displayed in each cell; standard errors in parentheses below each coefficient estimate. Significance is indicated as follows: + for p<=0.10, * for p<=0.05, ** for p<=0.01, and *** for p<=0.001

Table 3. Regression Results: Number of Activities with Top-level Leadership Roles, All Activity Types

Variable	Model 1	Model 2	Model 3	Model 4
Black or African American	-0.36 *** (0.005)	-0.227 *** (0.006)	-0.155 *** (0.005)	0.008 (0.019)
Asian	0.141 *** (0.011)	0.082 *** (0.009)	0.079 *** (0.006)	0.135 *** (0.01)
Hispanic or Latinx	-0.218 *** (0.006)	-0.122 *** (0.006)	-0.092 *** (0.004)	0.008 (0.011)
American Indian or Alaska Native	-0.095 *** (0.028)	-0.069 * (0.028)	-0.086 ** (0.031)	0.046 (0.091)
Native Hawaiian or Other Pacific Islander	-0.006 (0.053)	-0.048 (0.048)	-0.018 (0.038)	0.083 (0.098)
Two or More Races	0.025 *** (0.006)	-0.034 *** (0.006)	-0.031 *** (0.006)	-0.006 (0.011)
First-Generation Student	-0.423 *** (0.005)	-0.244 *** (0.004)	-0.21 *** (0.003)	-0.208 *** (0.01)
Fee Waiver Receipt	-0.394 *** (0.006)	-0.124 *** (0.005)	-0.095 *** (0.004)	-0.02 + (0.011)
Highest Income Quintile	0.219 *** (0.006)	0.044 *** (0.005)	0.068 *** (0.004)	0.078 *** (0.011)
Private School	0.313 *** (0.012)	0.237 *** (0.012)		
Observations		865926	862075	255042
R2		0.047	0.114	0.106
Within/Adj. R2		0.047	0.016	0.005
High School FEs			Y	Y
High SAT/ACT Group				Y

Note:

Each column represents a different regression specification as articulated in our methods section. For models 2, 3, and 4, each column is a single regression with all indicated covariates included; for Model 1, each cell is a separate regression with only the indicated covariate included. Because this column actually represents multiple regressions, we omit reporting the Observations and R-squared value from only this model for conceptual clarity and to reinforce that fact. For models 2, 3, and 4, White applicants are the omitted reference group for each categorical value of race/ethnicity. The reference group for each other categorical variable are the inverse of the listed group (e.g., continuing-gen applicants for first-gen, public school applicants for private school, and so on). Finally, note that the private school coefficient cannot be estimated once high-school fixed effects are added, as private school status is invariant at the high school level and thus subsumed by the high-school fixed effect indicators. Coefficient estimates are displayed in each cell; standard errors in parentheses below each coefficient estimate. Significance is indicated as follows: + for p<=0.10, * for p<=0.05, ** for p<=0.01, and *** for p<=0.001

Table 4. Regression Results: Number of Reported Activities with Excellence, All Activity Types

Variable	Model 1	Model 2	Model 3	Model 4
Black or African American	-0.723 *** (0.008)	-0.478 *** (0.008)	-0.323 *** (0.006)	-0.142 *** (0.022)
Asian	0.182 *** (0.019)	0.045 *** (0.013)	0.074 *** (0.008)	0.146 *** (0.012)
Hispanic or Latinx	-0.437 *** (0.009)	-0.264 *** (0.009)	-0.169 *** (0.005)	-0.037 ** (0.013)
American Indian or Alaska Native	-0.181 *** (0.037)	-0.145 *** (0.036)	-0.191 *** (0.039)	-0.052 (0.118)
Native Hawaiian or Other Pacific Islander	-0.027 (0.075)	-0.077 (0.056)	-0.06 (0.048)	0.182 (0.12)
Two or More Races	0.071 *** (0.008)	-0.068 *** (0.008)	-0.053 *** (0.007)	0.01 (0.014)
First-Generation Student	-0.819 *** (0.007)	-0.454 *** (0.006)	-0.399 *** (0.005)	-0.434 *** (0.013)
Fee Waiver Receipt	-0.805 *** (0.008)	-0.315 *** (0.007)	-0.222 *** (0.005)	-0.13 *** (0.013)
Highest Income Quintile	0.437 *** (0.01)	0.087 *** (0.008)	0.11 *** (0.006)	0.124 *** (0.013)
Private School	0.416 *** (0.015)	0.264 *** (0.013)		
Observations		865926	862075	255042
R2		0.09	0.159	0.11
Within/Adj. R2		0.09	0.03	0.01
High School FEs			Y	Y
High SAT/ACT Group				Y

Note:

Each column represents a different regression specification as articulated in our methods section. For models 2, 3, and 4, each column is a single regression with all indicated covariates included; for Model 1, each cell is a separate regression with only the indicated covariate included. Because this column actually represents multiple regressions, we omit reporting the Observations and R-squared value from only this model for conceptual clarity and to reinforce that fact. For models 2, 3, and 4, White applicants are the omitted reference group for each categorical value of race/ethnicity. The reference group for each other categorical variable are the inverse of the listed group (e.g., continuing-gen applicants for first-gen, public school applicants for private school, and so on). Finally, note that the private school coefficient cannot be estimated once high-school fixed effects are added, as private school status is invariant at the high school level and thus subsumed by the high-school fixed effect indicators. Coefficient estimates are displayed in each cell; standard errors in parentheses below each coefficient estimate. Significance is indicated as follows: + for p<=0.10, * for p<=0.05, ** for p<=0.01, and *** for p<=0.001

Table 5. Regression Results: Number of Activities Reported with Top-level Leadership, Athletic Activities Only

Variable	Model 1	Model 2	Model 3	Model 4
Black or African American	-0.112 *** (0.003)	-0.112 *** (0.003)	-0.074 *** (0.003)	-0.073 *** (0.009)
Asian	-0.154 *** (0.003)	-0.19 *** (0.003)	-0.157 *** (0.002)	-0.16 *** (0.004)
Hispanic or Latinx	-0.085 *** (0.003)	-0.099 *** (0.003)	-0.064 *** (0.002)	-0.036 *** (0.006)
American Indian or Alaska Native	0.033 * (0.017)	-0.006 (0.017)	-0.006 (0.018)	0.092 (0.062)
Native Hawaiian or Other Pacific Islander	0.045 + (0.025)	-0.012 (0.025)	0.022 (0.023)	0.03 (0.05)
Two or More Races	0.016 *** (0.003)	-0.054 *** (0.003)	-0.037 *** (0.003)	-0.044 *** (0.006)
First-Generation Student	-0.155 *** (0.003)	-0.071 *** (0.002)	-0.077 *** (0.002)	-0.068 *** (0.005)
Fee Waiver Receipt	-0.163 *** (0.003)	-0.063 *** (0.002)	-0.068 *** (0.002)	-0.063 *** (0.005)
Highest Income Quintile	0.069 *** (0.003)	0.012 *** (0.003)	0.024 *** (0.002)	0.025 *** (0.005)
Private School	0.144 *** (0.005)	0.107 *** (0.005)		
Observations		865926	862075	255042
R2		0.035	0.089	0.109
Within/Adj. R2		0.035	0.015	0.013
High School FEs			Y	Y
High SAT/ACT Group				Y

Note:

Each column represents a different regression specification as articulated in our methods section. For models 2, 3, and 4, each column is a single regression with all indicated covariates included; for Model 1, each cell is a separate regression with only the indicated covariate included. Because this column actually represents multiple regressions, we omit reporting the Observations and R-squared value from only this model for conceptual clarity and to reinforce that fact. For models 2, 3, and 4, White applicants are the omitted reference group for each categorical value of race/ethnicity. The reference group for each other categorical variable are the inverse of the listed group (e.g., continuing-gen applicants for first-gen, public school applicants for private school, and so on). Finally, note that the private school coefficient cannot be estimated once high-school fixed effects are added, as private school status is invariant at the high school level and thus subsumed by the high-school fixed effect indicators. Coefficient estimates are displayed in each cell; standard errors in parentheses below each coefficient estimate. Significance is indicated as follows: + for p<=0.10, * for p<=0.05, ** for p<=0.01, and *** for p<=0.001

Table 6. Regression Results: Number of Activities Reported with Top-level Leadership, Academic Activities Only (Sample mean: 0.15)

Variable	Model 1	Model 2	Model 3	Model 4
Black or African American	-0.085 *** (0.001)	-0.041 *** (0.002)	-0.037 *** (0.002)	0.002 (0.008)
Asian	0.134 *** (0.004)	0.127 *** (0.004)	0.125 *** (0.003)	0.169 *** (0.006)
Hispanic or Latinx	-0.037 *** (0.002)	0 (0.002)	-0.003 + (0.002)	0.02 *** (0.005)
American Indian or Alaska Native	-0.053 *** (0.009)	-0.029 *** (0.008)	-0.036 *** (0.01)	-0.04 (0.042)
Native Hawaiian or Other Pacific Islander	-0.038 ** (0.013)	-0.025 * (0.012)	-0.019 (0.012)	-0.01 (0.038)
Two or More Races	-0.005 * (0.002)	0.007 ** (0.002)	0.007 ** (0.002)	0.021 *** (0.005)
First-Generation Student	-0.073 *** (0.001)	-0.051 *** (0.001)	-0.044 *** (0.001)	-0.053 *** (0.005)
Fee Waiver Receipt	-0.061 *** (0.002)	-0.018 *** (0.002)	-0.014 *** (0.001)	0.006 (0.005)
Highest Income Quintile	0.034 *** (0.002)	-0.004 * (0.002)	0.016 *** (0.002)	0.014 ** (0.005)
Private School	0.03 *** (0.003)	0.021 *** (0.003)		
Observations		865926	862075	255042
R2		0.02	0.066	0.085
Within/Adj. R2		0.02	0.013	0.012
High School FEs			Y	Y
High SAT/ACT Group				Y

Note:

Each column represents a different regression specification as articulated in our methods section. For models 2, 3, and 4, each column is a single regression with all indicated covariates included; for Model 1, each cell is a separate regression with only the indicated covariate included. Because this column actually represents multiple regressions, we omit reporting the Observations and R-squared value from only this model for conceptual clarity and to reinforce that fact. For models 2, 3, and 4, White applicants are the omitted reference group for each categorical value of race/ethnicity. The reference group for each other categorical variable are the inverse of the listed group (e.g., continuing-gen applicants for first-gen, public school applicants for private school, and so on). Finally, note that the private school coefficient cannot be estimated once high-school fixed effects are added, as private school status is invariant at the high school level and thus subsumed by the high-school fixed effect indicators. Coefficient estimates are displayed in each cell; standard errors in parentheses below each coefficient estimate. Significance is indicated as follows: + for p<=0.10, * for p<=0.05, ** for p<=0.01, and *** for p<=0.001

Table 7. Regression Results: Number of Activities Reported with Top-level Leadership, Culture and Identity Activities Only (Sample mean: 0.06)

Variable	Model 1	Model 2	Model 3	Model 4
Black or African American	0.001 (0.001)	0.015 *** (0.001)	0.022 *** (0.001)	0.067 *** (0.006)
Asian	0.023 *** (0.001)	0.027 *** (0.001)	0.024 *** (0.001)	0.021 *** (0.002)
Hispanic or Latinx	-0.007 *** (0.001)	0.007 *** (0.001)	0.011 *** (0.001)	0.019 *** (0.003)
American Indian or Alaska Native	-0.005 (0.006)	0.006 (0.006)	0.013 + (0.007)	0.033 (0.027)
Native Hawaiian or Other Pacific Islander	-0.001 (0.008)	0.008 (0.008)	0.009 (0.008)	0.006 (0.021)
Two or More Races	0.004 ** (0.001)	0.011 *** (0.001)	0.009 *** (0.001)	0.01 *** (0.003)
First-Generation Student	-0.019 *** (0.001)	-0.019 *** (0.001)	-0.011 *** (0.001)	-0.01 *** (0.003)
Fee Waiver Receipt	-0.008 *** (0.001)	0.004 *** (0.001)	0.012 *** (0.001)	0.024 *** (0.003)
Highest Income Quintile	0.012 *** (0.001)	0.008 *** (0.001)	-0.003 ** (0.001)	-0.006 * (0.003)
Private School	0.02 *** (0.002)	0.021 *** (0.002)		
Observations		865926	862075	255042
R2		0.004	0.036	0.054
Within/Adj. R2		0.004	0.002	0.002
High School FEs			Y	Y
High SAT/ACT Group				Y

Note:

Each column represents a different regression specification as articulated in our methods section. For models 2, 3, and 4, each column is a single regression with all indicated covariates included; for Model 1, each cell is a separate regression with only the indicated covariate included. Because this column actually represents multiple regressions, we omit reporting the Observations and R-squared value from only this model for conceptual clarity and to reinforce that fact. For models 2, 3, and 4, White applicants are the omitted reference group for each categorical value of race/ethnicity. The reference group for each other categorical variable are the inverse of the listed group (e.g., continuing-gen applicants for first-gen, public school applicants for private school, and so on). Finally, note that the private school coefficient cannot be estimated once high-school fixed effects are added, as private school status is invariant at the high school level and thus subsumed by the high-school fixed effect indicators. Coefficient estimates are displayed in each cell; standard errors in parentheses below each coefficient estimate. Significance is indicated as follows: + for p<=0.10, * for p<=0.05, ** for p<=0.01, and *** for p<=0.001