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Holistic Admissions After Affirmative Action: Does "Maximizing" the High School Curriculum Matter?

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Selective colleges and universities purport to consider students' achievement in the context of the academic opportunities available in their high schools. Thus, students who "maximize" their curricular opportunities should be more likely to gain admission. Using nationally representative data, we examine the effect of "maximizing the curriculum" on admission to selective colleges. We find that curriculum maximization has very little effect on students' probability of college admission outside of states with affirmative action bans. Low-income students are less likely to maximize their high school curriculum, and underrepresented racial minority students are both less likely to maximize their high school curriculum and less likely to benefit from doing so when applying to colleges in states that ban affirmative action. Thus, even if widely diffused, holistic admissions practices may be unlikely to adequately reduce race or class disparities in higher education.

Keywords: *college admissions, affirmative action, high school curriculum, holistic admissions, stratification*

American high schools vary widely in their ability to offer advanced courses for their students. Rural, low-income, and underrepresented racial minority (URM) students are less likely to have access to Advanced Placement (AP), International Baccalaureate (IB), dual-enrollment, or dual-credit coursework (Iatarola, Conger, & Long, 2011; Klopfenstein, 2004; Planty, Provasnik, & Daniel, 2007). Yet, admissions offices may weigh such courses more favorably in the process of transcript evaluation (Clinedinst, 2015; Perna, 2004). To level the playing field and enhance access for disadvantaged students, many selective institutions advocate the use of holistic or comprehensive evaluation of applicants. In holistic review, admissions offices review college applications in light of the students' family context and the academic opportunities available at their high schools (Lucido, 2014).

Inequality in advanced course offerings is a particular concern given national data on the persistent stratification of higher education. Despite substantial increases in their academic preparation for college, low-income students have made no gains in their enrollment in selective colleges since the 1970s (Bastedo & Jaquette, 2011; Perna & Titus, 2004). A similar pattern can be seen among URM students (Posselt, Jaquette, Bielby, & Bastedo, 2012), and in women's access to the most elite universities (Bielby, Posselt, Jaquette, & Bastedo, 2014). Both trends are driven by an increasingly competitive admissions market in which low-income and URM students from underserved high schools are often poorly prepared to compete (Bastedo & Jaquette, 2011; Posselt et al., 2012). Aware of these persistent trends, admissions officers use information about high school context as a means to not only provide equity among applicants to selective colleges but also to improve the quality of decision making about the comparable skills, abilities, and contributions of individual students.

Holistic review is used across a wide spectrum of selective colleges and universities (Clinedinst, 2015; College Board, 2002). For example, the University of California, Santa Barbara, implemented a holistic review process in the 1990s. The director of admissions, Susan Wilbur, described the practice as "achievement in context," stressing the need to avoid comparing "a student who's attending a well-resourced school with a student who may be attending a high school that offers few or no honors courses" (Foderaro, 2009, n.p.). Doing so, Wilbur noted, provides "an apples-to-oranges comparison." Massachusetts Institute of Technology (MIT) also uses a context-based assessment of applicants. Matt McGann (2005), director of admissions at MIT, described the role of the application evaluator in a context-based process:

> We consider each applicant on their own, within the context of their environment. What does it mean that we consider context? It means that we recognize that no two applicants are alike. High schools have different offerings. Different regions have different opportunities. Different families have different resources. The primary job of the application reader is to summarize a student's qualifications *within context*. (n.p.)

Using a holistic approach, the motivated yet disadvantaged student who takes the most challenging courses available to him or her ought to be judged favorably in the admissions process. Conversely, the privileged student who took advantage of very few of the advanced offerings available to him or her would receive a more neutral or critical evaluation. Aspiring applicants, then, are encouraged to take the most rigorous coursework available to them—in admissions parlance, to "max out" the curriculum of their high school.

This is not to say that reviewing academic credentials in context is the only component of holistic admissions. Universities that use holistic admissions also look at family demographics, extracurricular activities, letters of recommendation, and essays (Mamlet & VanDeVelde, 2012). However, contextualized review of credentials is really the sine qua non of holistic admissions. As stated by Lucido (2014), a former enrollment manager at University of Southern California, "Given unequal educational opportunity, it is incumbent upon admission evaluators to strive to understand the conditions under which the applicant has performed and to make judgments based on the context of those conditions" (p. 157). This has become particularly true in states with bans on affirmative action, as holistic review, legal under *Gratz v. Bollinger* (2003), allows admissions offices in these states to strive for equal opportunity.

Looking at longitudinal high school transcript, course offering, and college application data, we examine the degree to which students who maximize their curriculum are rewarded in the college admission process. Although holistic review was purportedly designed to help low-income and underrepresented students gain access to selective institutions, we find that high-SES, White, and Asian students are the most likely to "max out" their high school curricula. White and Asian students are also the most likely to benefit from "maxing out" when they apply to highly selective institutions in post–affirmative action states.

Somewhat supporting the claims of admissions officers who use holistic review, we find that "maxing out" the high school curriculum improves admission chances for applicants to selective colleges, but only within states that have implemented bans on affirmative action. This suggests that affirmative action bans have led to more consistent implementation of holistic review in these states. Overall, however, we do not find evidence that holistic review has been implemented systematically in selective colleges, or that any recent changes in admissions practices are benefitting students of color or applicants from low-SES families. This study also raises doubts that defining holistic review as "achievement in context" has the potential to reduce disparities in elite college admission that have been widely claimed by its proponents.

Access to Advanced Curricula

Maximizing the curriculum generally requires enrollment in advanced, college-level courses in high school. Access to these courses—namely, AP, IB, dual-credit, or dual-enrollment courses—varies widely in the United States. Nearly all (97%) of America's largest high schools—those with enrollments of 1,200 or more—offer AP courses (Planty et al., 2007). With larger faculties and more resources, large high schools benefit from a more specialized faculty, improving the ability of such institutions to offer advanced coursework (Iatarola et al., 2011). For example, large high schools will likely have one or more faculty members whose sole focus is physics instruction, whereas science teachers at smaller high schools often function as generalists providing a variety of science instruction. In addition, larger high schools are more likely to have a critical mass of students who desire advanced offerings. Smaller high schools, in contrast, are less likely to provide these opportunities; only 40% of high schools with fewer than 500 students report offering any AP or dual-enrollment courses (Planty et al., 2007).

Rural schools and schools with a high proportion of low-income students are similarly disadvantaged in access to an advanced curriculum. Only half of America's rural high schools provide AP, IB, dual-credit, or dual-enrollment offerings (Planty et al., 2007). Analysis of the National Educational Longitudinal Survey suggests that the socioeconomic composition of a school's student body predicts whether such students have access to advanced courses (Attewell & Domina, 2008); students from low-income families are least likely to have access to such coursework (Klopfenstein, 2004). A school's proportion of students receiving free lunch is inversely related to the number of AP courses offered by the institution (Barnard-Brak, McGaha-Garnett, & Burley, 2011). An analysis of statewide Florida data suggests that schools serving a higher proportion of Black or Latino/a students are slightly more likely to offer advanced courses than those serving primarily White students (Iatarola et al., 2011). Controlling for SES, however, masks many racial disparities in access to advanced offerings. Klopfenstein (2004) noted that Black and Latino/a students are 3 times more likely than their peers to be low-income and thus have disproportionately less access to AP programs. Statistics such as these support admissions officers' rationale for implementing holistic review of student coursework, as disadvantaged students are more likely to attend underserved schools that lack an expansive college prep curriculum.

However, this is not the case for disadvantaged students who attend high schools that are integrated by social class and race. Although formal tracking policies have been abolished in many integrated schools, students continue to experience barriers to unrestricted enrollment in advanced courses due to disparities in information about course options, uneven teacher or parent encouragement, and differential enforcement of course prerequisites across racial/ethnic, social class, and ability groups (Yonezawa, Wells, & Serna, 2002). These practices may partially explain why low-income and URM students who attend highly integrated schools take less intensive coursework than their counterparts who attend more segregated schools (Crosnoe, 2009; Kelly, 2009). As a result of de facto tracking, disadvantaged students who attend well-resourced high schools are not guaranteed access to rigorous courses that is equal to the access enjoyed by their more advantaged peers (Lucas & Berends, 2002).

Because curriculum maximization represents the rigor of students' course selections within the context of the opportunities that are available to them, we hypothesize the following:

Hypothesis 1a (H1a): Due to limited course offerings within underreserved high schools, students from rural high schools and those with predominantly low-SES and URM populations will be more likely to max out their high school curricula than students from suburban high schools and those with predominantly White and Asian populations.

Hypothesis 1b (H1b): Due to the stratification of course enrollments within schools, URM students will be less likely to max out their high school curriculum than White and Asian students.

Hypothesis 1c (H1c): Due to the stratification of course enrollments within schools, students from low-SES backgrounds will be less likely to maximize their high school curriculum than students from high-SES backgrounds.

High School Coursework and College Admissions

Although performance on standardized tests and high school grade point average (GPA) are known factors in college admissions decisions, the rigor of an applicant's coursework plays a crucial role in an admissions officer's evaluation. Sternberg (2010) noted,

> College admissions officers consider not just the numerical value of the GPA, but also the courses that make up that GPA. The course load and profile can tell admissions officers quite a lot about the student's academic skills and motivations. Is the student taking very challenging courses or relatively easy ones? (p. 40)

Indeed, a recent survey of admissions officers conducted by the National Association for College Admissions Counseling revealed that a student's grades in college prep courses (defined as AP, IB, dual-enrollment, and other advanced/college-level coursework) was rated as *considerably important* for more than 80% of respondents (Clinedinst, 2015). When compared with other evaluation criteria, this was the most commonly cited factor in applicant evaluation, followed by performance on standardized tests (60%), grades in all courses (57%), and class rank (28%). The consideration of advanced coursework holds particular salience for the most elite colleges, particularly as the use of class rank has declined. The most selective institutions place a greater emphasis on a student's performance on AP tests, SAT II subject tests, and IB exams than do less selective colleges and universities.

When evaluating an applicant, however, admissions officers assert the need to consider courses pursued in the context of the opportunities available to students. A survey conducted by the National Research Council (2002) examined the perceptions of 264 deans of college admissions regarding the role of AP and IB courses in the admissions process. The findings suggest that "admissions officers carefully review applicants' transcripts to determine how well and to what extent the applicants have taken advantage of the school- and community-based opportunities available to them in high school" (p. 55). The survey also revealed that admissions officers rely on high school profiles and firsthand observations during recruiting trips to determine the offerings of particular high schools.

Given this literature, we hypothesize the following:

> **Hypothesis 2 (H2):** Students who maximize their high school curriculum will be more likely than their nonmaximizing counterparts to be admitted to a selective institution, controlling for academic and demographic traits.

Holistic Admissions and Affirmative Action

In the mid-1990s and early 2000s, a number of states began eliminating the use of affirmative action in higher education admissions (Backes, 2012; Garces, 2012, 2013; Long, 2007; Pusser, 2004). California, Texas, Washington, Florida, Georgia, and Michigan were the first to enact such bans. URM enrollment at public universities subsequently declined, and in California, the declines were most pronounced among the flagship public institutions, whereas URM enrollments at less selective universities increased (Antonovics & Backes, 2013; Hinrichs, 2012). The noticeable declines prompted lawmakers and postsecondary administrators to seek alternative ways to enhance URM student opportunities in postsecondary education.

One of the earliest responses came in 1998 as lawmakers in Texas passed House Bill 588, often referred to as the Texas Ten Percent Plan (Niu & Tienda, 2010). The program guaranteed admission to any public university for students who graduated among the top 10% of their high school class. California soon followed suit, with lawmakers guaranteeing admission to a public university for those in the top 4% of their class. Florida, too, would implement its own version of the practice—the *Talented Twenty* program guaranteed admission to at least one public university for students who graduated in the top 20% of their class.

Although state legislators searched for legal solutions to bolster URM enrollments after affirmative action, leadership in the University of California system sought ways to modify admissions evaluations with the same purpose in mind (Contreras, 2005). Shortly before the conception of California's top 4% program, the University of California Regents approved the practice of comprehensive evaluations, several years after the affirmative action ban was enacted. The practice of comprehensive evaluations—which emphasized consideration of the applicant in the context of his or her environment—was, in part, intended to reverse the declines in enrollment among students of color. There is no evidence, however, that these practices have become another form of racial preferences, as shown by close analysis of comprehensive review at Berkeley (Hout, 2005) and examining national data (Blume & Long, 2014).

Nationally, *Grutter v. Bollinger* (2003) explicitly permitted and privileged the holistic admissions procedures being used at the University of Michigan Law School, setting a clear signal to the higher education field about what was allowable. This provided a clear template for admissions officers to modify their practices in response to state affirmative action bans. Thus, we hypothesize the following:

> **Hypothesis 3 (H3):** Curriculum maximization will have a greater positive influence on admission to public colleges in states with affirmative action bans than in public colleges located in states without affirmative action bans.

Data and Measures

We use data from a nationally representative sample of the 2004 U.S. high school class. The Educational Longitudinal Study (ELS) of 2002 surveyed and tracked a sample of high school students beginning in 10th grade with a follow-up survey in 2004 when most participants were in their senior year of high school. We use data from both the base and first follow-up data collection. In the second follow-up, ELS administrators collected student transcripts and information about course offerings within each student's high school. Course grades were standardized according to each high school's grading scale and course offerings coded with its respective Classification of Secondary School Courses code. This high level of standardization allows us to compare course offerings and student course-taking behavior regardless of school-level differences in grading schemas or course labeling.

In addition to rich high school coursetaking information, ELS also contained data related to a student's college application process. Information was collected for each school to which a student applied. ELS administrators also noted whether this application was part of the "first round" of a student's college application process. Finally, whether an offer of admission was extended to the student was tracked for each application.

Because the practice of holistic review is most widely discussed in the context of America's highly selective institutions, for most of our analysis we restrict our sample to students who eventually applied to at least one postsecondary institution classified as a very, highly, or most competitive institution in Barron's *Profiles of American Colleges* (n = 3,477 applicants; Barron's Educational Series, 2003). For a comprehensive discussion of the Barron's classification scale, see Bastedo and Jaquette (2011). Within our sample, students applying to very competitive institutions were accepted 80% of the time and students applying to highly competitive institutions were accepted 72% of the time. The acceptance rate at the most competitive colleges and universities was much lower at 53%. SAT 25th and 75th percentiles for each respective competitiveness category were 1,047 to 1,263, 1,168 to 1,360, and 1,293 to 1,472. To minimize the influence of late applications, we further constrain our analysis to applications submitted during students' "first round" of college applications (classified by National Center for Education Statistics as applications occurring while the student is still enrolled in high school).

The nature of our research questions required the data to be examined at two different levels of analysis. H1a, H1b, and H1c, evaluating students' curriculum maximization behavior in high school, required data with the individual student as the unit of analysis. H2 and H3, evaluating the relationship of curriculum maximization behavior with postsecondary admission, required that we consider each student's application to one or more postsecondary institutions. The unit of analysis for the latter analyses was the student application.

Variables

Dependent Variable. The dependent variable of interest to our analysis is whether students were offered admission at the institutions to which

TABLE 1
Application Behavior Among College Applicants in ELS

	Female	Male	URM	Non-URM	SES quartile				Overall
					Bottom	2nd	3rd	Top	
Average application count for									
All college applicants	2.82	2.61	2.78	2.70	2.36	2.53	2.86	3.63	2.72
Those applying to at least one									
Very competitive IHE	4.22	3.89	4.42	3.96	4.00	3.78	3.92	4.52	4.07
Highly competitive IHE	5.03	4.43	4.97	4.70	4.75	4.53	4.42	5.12	4.75
Most competitive IHE	5.82	5.38	5.66	5.60	5.77	5.39	5.48	5.74	5.62
Very competitive IHEs									
% applying to 1 or more	30.7	29.9	22.8	33.5	18.1	26.6	36.1	53.5	30.3
% accepted at 1 or more[a]	82.6	77.6	68.2	83.8	69.5	75.8	82.5	89.7	80.3
Highly competitive IHEs									
% applying to 1 or more	16.3	15.5	10.6	18.2	7.7	9.9	20.2	37.6	15.9
% accepted at 1 or more[a]	73.3	71.2	63.9	74.5	62.7	62.4	72.1	81.5	72.4
Most competitive IHEs									
% applying to 1 or more	9.2	8.9	6.1	10.3	3.9	5.5	10.4	24.3	9.1
% accepted at 1 or more[a]	47.6	58.4	37.1	56.5	37.2	34.7	51.2	65.9	52.6

Note. ELS = Educational Longitudinal Study; URM = underrepresented minority; SES = socioeconomic status; IHE = Institution of Higher Education.
[a]Conditional on having applied to an institution in this competitiveness category.

they applied. The variable is coded as “0” if a student was not offered admission and “1” if the student was admitted.

Application behavior and acceptance rates for students in our sample are presented in Table 1. Whereas the average student submitted roughly three college applications in the first round of college applications, students applying to the nation’s most competitive institutions submit nearly twice that number, on average. Approximately 9% of students in our sample applied to at least one most competitive college or university.

Covariates. The primary independent variable of interest is the degree to which students maximized their high school curricula. The operationalization of this variable was a novel process, so a number of metrics were constructed and tested via univariate, bivariate, and multivariate analyses.

In our first construction, we developed a proportional variable for three high school subject areas: English, mathematics, and science. The selection of these subjects was based on their centrality within American’s high school curricula and our ability to rank order courses within each subject. English courses, by and large, are numerically labeled on high school transcripts and in high school course offering profiles (e.g., English 1, English 2) and we ordered math and science courses according to standard “pipeline” measures (Burkam, Lee, & Owings, 2003; Dalton, Ingels, Downing, & Bozick, 2007). Table 2 shows

TABLE 2

Levels of Coursework Used to Construct Measures of Course Offering and Taking

Level	English	Math	Science
1	English 1	No/Low Math	No/Low Science
2	English 2	Alg I/Plane Geom	Basic Bio/Physical Science
3	English 3	Alg II	General Bio
4	English 4	Alg III/Trig/Analytic Geom	Chem I or Physics I
5	AP Lang. or AP Lit. or IB	Precalc	Chem I and Physics I
6	AP Lang. and AP Lit.	Calc	Chem II or Physics II or Adv Bio
7	—	AP Calc AB	One AP Science course
8	—	AP Calc BC	Two AP Science Courses
9	—	—	Three AP Science Courses

Note. AP = Advanced Placement; IB = International Baccalaureate.

TABLE 3

Distribution of Curriculum Maximization Variables and Number of Students Maximizing Their Curricula (N = 8,987)

	Nonstandardized				Standardized			
	English	Math	Science	E/M/S Comp.	English	Math	Science	E/M/S Comp.
M	0.69	0.55	0.64	1.87	−0.10	−0.25	−0.16	−0.24
SD	0.26	0.25	0.22	0.52	0.96	0.97	0.99	0.95
Minimum	0.17	0.13	0.11	0.40	−2.03	−1.89	−2.52	−2.96
25th	0.50	0.38	0.44	1.50	−0.80	−0.92	−1.02	−0.93
50th	0.75	0.50	0.67	1.84	0.13	−0.44	−0.02	−0.31
75th	0.83	0.71	0.78	2.23	0.43	0.39	0.47	0.42
Maximum	1.00	1.00	1.00	3.00	1.05	1.49	1.47	1.85
Max *n*	2,523	1,268	1,371	278	—	—	—	—

Note. E/M/S Comp. is derived by adding the proportions of English, math, and science curricula maximized by each student. Max *n* = number of students in the sample with transcript and high school course offering data who fully maximized the curriculum in a given content area (those for whom their unstandardized English, math, or science indicator = 1.0, or composite indicator = 3.0). Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT]. ELS = Educational Longitudinal Study.

the levels of courses offered by high schools and taken by students in the ELS sample.

Course-offering variables were constructed for each high school by first generating dichotomous variables for each level of courses from the ELS school database, with “1” representing a school offering a specific level of coursework and “0” representing that level not being offered. Those binary variables were then combined into a single variable representing the highest level of coursework offered at each high school in the sample. Student-level coursetaking variables were subsequently generated from the ELS student transcript data in the same manner. Students were considered to have taken a course if they had passed at least one credit in that course.

Subject-level coursetaking and offering information were then used to generate a proportion by dividing the level of coursework taken by the student by the level of coursework offered at that student’s institution. Each variable ranges from “0” (i.e., the student took none of the available coursework in that subject) to "1" (i.e., the student took all available courses). For example, if the highest math course available at a student's high school was AP Calculus AB (Level 7), but the highest math course he or she took was precalculus (Level 5), then the student did not maximize his or her math curriculum because he or she took 0.71 (5/7) of the coursework available at the high school. If one had taken AP Calculus AB, the person would have maximized his or her math curriculum because his or her value for this variable would have been 1.0 (7/7). Students whose transcripts reflected more rigorous courses (e.g., local community college coursework, prior high school coursework) than were reportedly offered by their school were considered to have fully maximized their high school curriculum. Each subject-level maximization index was subsequently standardized for ease of interpretation. Students with a maximization index of 0 are representative of the average student and values can be interpreted in terms of standard deviations from the mean. To create a metric representing students' overall curriculum maximization behavior in core academic courses, we added together the subject-specific maximization variables for English, science, and mathematics. The distributions of these curriculum maximization variables are shown in Table 3.

To test H3, we examine whether applicants were accepted to a public institution located in a state that banned the use of affirmative action in college admissions. The affirmative action state variable is a binary variable set to "1" for colleges or universities in California, Texas, or Washington and "0" otherwise. These three states enacted affirmative action bans before 2004, the year the majority of students in our sample would have applied to college.

A number of control variables are also included in the multivariate analyses. High school preparation variables include SAT score and cocurricular participation in student government, sports, performing arts, and service-oriented clubs. We also tested a student's leadership experiences, ultimately choosing to exclude this variable when no effect was observed. Students who took the ACT instead of or in addition to the SAT had their scores converted to SAT scores using published concordance tables; the highest score was retained for each student and converted into 100s for ease of interpretation. Given differential tuition and financial aid availability to students attending an in-state college or university, we included a binary variable indicating whether the application was to a school in the student's home state.

Demographic variables included dichotomous variables representing SES quartiles (excluding the lowest quartile as a reference), sex, and status as an underrepresented minority (URM) in postsecondary education. Students who self-identified as White or Asian were not considered to be URM students given their prevalence on college campuses; students who otherwise identified were considered to be URM. Because ELS does not oversample students applying to elite institutions, racial groups were reluctantly combined to avoid problems with small numbers of college applications in the most competitive category.

We also control for high school urbanicity, coding rural and urban schools with dichotomous variables leaving suburban schools as the reference group. To further account for high school context, we include controls for the percentage of URM students in the high school. In addition, we include the percentage of students in the high school eligible for the Federal Free or Reduced Lunch (FORL) program as a proxy for socioeconomic composition of the high school student body. Both are measured in 10s of percentage points.

Missing Data. Two approaches were used to account for missing data. For applications to institutions that had not been rated by Barron's in 2004, we imputed the Barron's classification using institutional selectivity information obtained from the Integrated Postsecondary Education Data System (IPEDS). IPEDS captures acceptance rates and SAT percentiles for the most recently admitted class; we placed each school into a Barron's category according to those statistics. In sum, we categorized 33 institutions as very, highly, or most competitive.

Multiple imputation using the Markov chain Monte Carlo method was used to impute values for students missing their SAT score, with 20 imputations generated for each case. This technique not only allows for the estimation of missing values, but it also does so while ensuring that the imputations "reflect an appropriate degree of uncertainty" (Schafer, 1999, p. 5). The use of multiple imputation not only provides for more robust estimates of significance, but also demands certain trade-offs: Although we preserve nearly 8% of cases that were missing SAT scores—which would have been lost without imputation—the pooling step of multiple imputation limits the application of many traditional postestimation techniques. As a result, goodness of fit statistics are not indicated for models estimated using multiple imputation (White, Royston, & Wood, 2011). Our final sample contains 3,477 students who submitted 8,666 applications to colleges or universities categorized as very, highly, or most competitive.

Method

All multivariate analyses were conducted via linear probability regression (LPR). Although logistic or probit regression have advantages when modeling dichotomous outcomes (Long, 1997), our interest in comparing different models estimated on different subsamples complicates matters because researchers "cannot straightforwardly interpret and compare coefficients as [they] do in linear regression" when using binary regression models (Mood, 2010, p. 79). The general equation used in our estimation is as follows:

$$P\left(Accepted = 1\right)_i = \alpha + \beta x_i + \varepsilon, \tag{1}$$

where $P(Accepted = 1)_i$ is the probability of application i being accepted given a vector of demographic, socioeconomic, high school context, and academic covariates (x_i) and the vector of coefficients (β) for these covariates. Coefficients represent the change in $P(Accepted = 1)$ for each one-unit change in the independent variable. We used clustered and robust standard errors to account for potential intra-applicant residual correlation and heteroscedasticity of the errors that may be induced by applying LPR to a binary outcome.

We test a variety of models, beginning with a model that includes demographic, academic, high school context, and extracurricular participation variables, but excludes curriculum maximization. Next, we add in the curriculum maximization variables in both subject-specific and composite forms. We estimated independent models for the nation's very, highly, and most competitive colleges and universities (presented in Tables 5 to 7 respectively). Finally, we constrain our analysis to public postsecondary institutions and differentiate between applications to universities in states with and without affirmative action bans (see Table 8).

Limitations

Because the construct of interest, curriculum maximization, has not been studied previously, we considered many different ways of operationalizing a student's curriculum maximization behavior. Among those tested were raw counts of years of curriculum by subject, dichotomous operationalizations by subject ("did the student take the most challenging math, science, and English course in school?"), and models which differentiated between honors-level courses. Each yielded similar results. Therefore, the operationalizations presented in this article were limited for the sake of parsimony and ease of interpretation. We also tested a curriculum maximization index that considered only math and science coursetaking, but found that the three-subject operationalization performed better.

We also caution that, like many studies that use secondary data, our analysis is correlational. We cannot definitively prove that curriculum maximization does or does not cause changes in a student's probability of admission because we lack data from a well-designed randomized trial or quasi-experiment. The longitudinal nature of the data we use does allow us to determine clear temporal ordering, however, which is one of the conditions necessary to establish cause-and-effect relationships. In sum, our results constitute suggestive, but not definitive, evidence of the relationship between maximizing the high school curriculum and admission to selective colleges.

Results

H1: Maximization Among Traditionally Underserved Students

We first seek evidence to confirm our first set of hypotheses, which suggested that curriculum maximization at rural high schools and high schools with higher proportions of disadvantaged

TABLE 4
Average Standardized Maximization Indices Among Subgroups in ELS

	Among all college applicants				Among applicants to at least one most competitive IHE			
	English	Math	Science	E/M/S Comp.	English	Math	Science	E/M/S Comp.
Overall	−.10	−.25	−.16	−.24	.31	.58	.15	.49
Student characteristics								
Female	**−.06**	−.26	−.12	**−.21**	.35	.48	.08	.44
Male	**−.15**	−.24	−.20	**−.27**	.27	.68	.23	.55
URM	**−.22**	**−.51**	**−.35**	**−.50**	**.00**	**.27**	.06	**.15**
Non-URM	**−.05**	**−.14**	**−.08**	**−.13**	**.39**	**.65**	.17	**.58**
Bottom SES quartile (ref.)	−.10	**−.52**	**−.19**	**−.38**	.11	**.35**	.08	.26
2nd SES quartile	−.13	**−.30**	−.19	**−.29**	.16	.44	.08	.32
3rd SES quartile	−.14	**−.10**	−.16	**−.18**	.29	**.55**	.01	.41
Top SES quartile	.01	**.15**	**−.04**	**.06**	.45	**.72**	.29	.69
High school characteristics								
Suburban high school (ref.)	**−.11**	−.26	**−.17**	**−.25**	**.36**	**.61**	**.20**	.55
Urban high school	−.20	−.25	−.26	−.33	.26	**.50**	**.11**	.41
Rural high school	**.06**	−.22	**.02**	**−.07**	**.27**	.65	**.05**	.47
% URM low (ref.)	**.02**	**−.09**	**.08**	**.00**	**.40**	**.62**	.18	.57
% URM middle	**−.13**	**−.23**	**−.20**	**−.26**	**.30**	**.57**	.18	.50
% URM high	**−.17**	**−.40**	**−.32**	**−.41**	.25	.54	.10	.42
% FORL low (ref.)	−.15	**−.03**	−.13	−.14	.28	**.51**	**.05**	**.40**
% FORL middle	−.16	**−.26**	−.20	−.29	.28	.64	**.13**	.50
% FORL high	−.03	**−.33**	−.12	−.22	.40	**.58**	.33	**.61**

Note. Bolded statistics indicate that maximization values were significantly different among subgroups at the 95% confidence level or higher. Ref. is the reference group for test of equality of means in mutinomial variables. All maximization indices were standardized using the full ELS college applicant sample. E/M/S refers to a composite measure of curriculum maximization that includes all three subject areas. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. ELS = Educational Longitudinal Study; IHE = Institution of Higher Education; SES = socioeconomic status; URM = underrepresented minority; FORL = Federal Free or Reduced Lunch.

students would be higher given their constrained course offerings. However, due to evidence of de facto tracking in integrated high schools with extensive course offerings, we also hypothesized that individual URM and low-SES students would have lower curriculum maximization indices than White, Asian, and high-SES students.

In Table 4, we observe that students often differ in the amount of the available academic courses they take depending on the characteristics of their high schools. Consistent with H1a, we observe that students in rural high schools have maximization indices that are 0.17 *SDs* higher in English and 0.19 *SDs* higher in science than students from suburban high schools. Among applicants to the most competitive institutions, however, rural students have maximization scores that lag behind their suburban peers.

We find mixed support for this hypothesis for rural students.

We also observe that students who attend high schools with higher proportions of low-SES students (as proxied by FORL program participation) have higher maximization indices than students who attend high schools with lower proportions of low-SES students; this is true for all college applicants and for applicants to the most selective colleges in particular, although only the math and science curriculum maximization measures tend to be significantly different. This provides support for our hypothesis that constrained course offerings at high schools with poor resources results in students taking more of the available coursework. However, contrary to our expectations, students who attend schools with higher proportions of underrepresented students generally have lower maximization indices, although the disparities across high school terciles are less pronounced among applicants to the most selective colleges.

Table 4 also indicates that disadvantaged students generally have lower maximization indices than advantaged students. Some of the most profound differences are observed for math: Students from the lowest SES quartile had math maximization indices that were 0.67 *SDs* lower than those of the most affluent students and URM students had math maximization indices that were 0.27 *SDs* lower than White and Asian students. Even after restricting the sample to students who applied to the nation's most competitive institutions, URM students have composite maximization indices that are well below their White and Asian counterparts. Similarly, math maximization indices for low-SES applicants are lower than high-SES applicants' indices. We therefore find support for H1b and H1c. It is also interesting to note that, among all college applicants, women are more likely to maximize the curriculum than men, but this advantage is not present among applicants to the most competitive colleges.

H2: Maximization and College Admissions

Given differences in admissions standards and enrollment capacity by institutional type, we conduct individual analyses on each of the top three Barron's competitiveness categories. In addition, we first estimate the model excluding any maximization component. We then test subject-level maximization before replacing it with a composite maximization index representing the three subject-level scores. Given the salience of mathematics and science in education research, we also tested a composite that accounted only for math and science; in the models for which it was significant, it underperformed relative to the three-subject composite. Results for applications to very competitive institutions are presented in Table 5. Table 6 contains estimates for highly competitive colleges and universities and Table 7 for the most competitive schools.

When controlling for student demographics, academic performance, extracurricular participation, and a variety of high school context characteristics, curriculum maximization does not appear to have a strong relationship with admission to selective colleges. Most of the variation in admission decisions is attributed to GPA, SAT composite, and certain high school context variables. However, among very competitive schools, mathematics maximization is predictive of admissions; for each 1-*SD* increase in the proportion of the high school math curriculum a student completed, his or her predicted probability of admission increases by 3 percentage points. No other subject maximizations are significant, nor is the composite maximization.

For applicants to highly competitive institutions, the composite maximization index approaches significance ($t = 1.66$; $p = .097$), as does science maximization ($t = 1.93$; $p = .054$). For schools categorized as most competitive by Barron's, neither the subject maximization variables nor the composite are significant predictors of admission. For all three Barron's competitiveness tiers, we estimated models [not shown] in which the effect of the composite maximization variable was allowed to vary by URM status and socioeconomic quartile. None of these interactions were significant at the 95% level, suggesting that disadvantaged students do not benefit disproportionately from the practice of holistically assessing their coursetaking behavior. Overall, our analyses provide scant support for H2. Only students applying to very competitive institutions who maximize their math curriculum in high school appear to be rewarded in the college admissions process.

Before turning to our final analysis, several other results in Tables 5 to 7 merit discussion, namely, we

TABLE 5

Regression of Acceptance at a Very Competitive College or University

Variable	Coefficient: Maximization excluded	Coefficient: Subject-level maximization	Coefficient: Composite maximization
English maximization		−.01	
Math maximization		.03**	
Science maximization		.00	
Composite maximization			.01
GPA	.18***	.17***	.18***
SAT composite (in 100s)	.05***	.04***	.05***
SES quartile (vs. bottom)			
2nd quartile	.03	.00	.00
3rd quartile	.01	.00	.00
Top quartile	.03	.03	.03
Female	.00	.01	.00
Underrepresented minority	.01	.01	.01
In-state applicant	−.01	−.01	−.01
School urbanicity (vs. suburban)			
Rural	.02	.02	.02
Urban	.02	.02	.02
HS FORL % (in 10s)	.01	.01	.01
HS Minority % (in 10s)	−.01**	−.01*	−.01*
Extracurricular participation			
Sports team	.04**	.04*	.04*
Student government	.02	.02	.02
Performing arts	−.03	−.03	−.03
Service club	.04**	.04*	.04*
F (joint test)	3.84**	3.76**	3.69**
Constant	−0.41	−0.32	−0.37
n (applications)	4,243	4,243	4,243
n (applicants)	2,777	2,777	2,777
F	27.84***	24.22***	26.15***

Note. Goodness of fit statistics are not indicated when multiple imputation is used. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. SES = socioeconomic status; HS = high school; FORL = Federal Free or Reduced Lunch; ELS = Educational Longitudinal Study; GPA = grade point average.
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

observe that our measures of extracurricular participation had a modest relationship with admission at very and most competitive schools, but not at the highly competitive. As we know that extracurricular activities are crucial predictors of admission to elite colleges (Espenshade & Radford, 2009), it is more likely that the ELS measures are simply too crude to find an effect. Admissions offices consider not only participation in such organizations but also the time and effort of such commitments; such nuances were not captured by ELS.

SAT composite was also highly predictive of admission across all institutional types. Students from URM groups had predicted probabilities of admission that were significantly greater than their White and Asian peers at the most competitive colleges and universities. This is consistent with past research showing a rare advantage for URM students applying to elite colleges (Grodsky, 2007), but notably only when academic achievement is held constant. In addition, students from the second SES quartile were less

TABLE 6
Regression of Acceptance at a Highly Competitive College or University

Variable	Coefficient: Maximization excluded	Coefficient: Subject-level maximization	Coefficient: Composite maximization
English maximization		.00	
Math maximization		.01	
Science maximization		.02†	
Composite maximization			.02†
GPA	.26***	.25***	.25***
SAT composite (in 100s)	.06***	.06***	.06***
SES quartile (vs. bottom)			
2nd quartile	.00	.00	.00
3rd quartile	−0.02	−.01	−.02
Top quartile	.01	.01	.01
Female	−.01	.00	.00
Underrepresented minority	.05	.05	.05
In-state applicant	.04	.04	.04
School urbanicity (vs. suburban)			
Rural	.03	.03	.03
Urban	.06*	.06*	.06*
HS FORL % (in 10s)	.03***	.02***	.02***
HS Minority % (in 10s)	−.01†	−.01†	−.01†
Extracurricular participation			
Sports team	.03	.02	.02
Student government	.00	.00	.00
Performing arts	.05	.04	.04
Service club	−.01	−.01	−.01
F (joint test)	0.82	0.72	0.72
Constant	−0.95	−0.88	−0.89
n (applications)	2,139	2,139	2,139
n (applicants)	1,515	1,515	1,515
F	14.09***	16.41***	17.71***

Note. Goodness of fit statistics are not indicated when multiple imputation is used. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. SES = socioeconomic status; HS = high school; FORL = Federal Free or Reduced Lunch; ELS = Educational Longitudinal Study; GPA = grade point average.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

likely than those from the lowest quartile to be admitted to the most competitive colleges, suggesting that working class or lower middle class students may be at an additional disadvantage when it comes to admission at elite colleges.

H3: Maximization and Affirmative Action

We earlier proffered that students who maximize their curricula would be more likely to be admitted to public colleges in states where affirmative action practices were banned. Thus, we estimated models by competitiveness category for applications submitted to public institutions in states with and without such bans (Table 8). We find strong support for H3, suggesting that public universities in states with bans are using the principles of holistic review with more fidelity than are public universities in other states.

In states without affirmative action bans, we observe a significant advantage for underrepresented minorities at most competitive institutions

TABLE 7

Linear Probability Regression of Acceptance at a Most Competitive College or University

Variable	Coefficient: Maximization excluded	Coefficient: Subject-level maximization	Coefficient: Composite maximization
English maximization		−.01	
Math maximization		.01	
Science maximization		.01	
Composite maximization			.01
GPA	.20***	.19***	.19***
SAT composite (in 100s)	.04***	.04***	.04***
SES quartile (vs. bottom)			
2nd quartile	−.14***	−.14***	−.14***
3rd quartile	−.04	.04	.04
Top quartile	.01	.01	.01
Female	−.04	−.04	−.04
Underrepresented minority	.14***	.14***	.14***
In-state applicant	.14***	.14***	.14***
School urbanicity (vs. suburban)			
Rural	−.01	−.01	−.01
Urban	.03	.03	.03
HS FORL % (in 10s)	−.01	−.01	−.01
HS Minority % (in 10s)	−.01†	−.01†	.01†
Extracurricular participation			
Sports team	.07***	.07***	.07***
Student government	.00	−.01	−.01
Performing arts	.06	.06†	.06
Service club	.02	.02	.02
F (joint test)	2.47*	2.55*	2.47*
Constant	−0.90	−0.84	−0.84
n (applications)	2,284	2,284	2,284
n (applicants)	972	972	972
F	13.32***	11.26***	12.62***

Note. Goodness of fit statistics are not indicated when multiple imputation is used. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. SES = socioeconomic status; HS = high school; FORL = Federal Free or Reduced Lunch; ELS = Educational Longitudinal Study; GPA = grade point average.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

(0.47); no advantage is observed for very or highly competitive institutions. In states with affirmative action bans, however, we observe no statistically significant advantage in admission for URM applicants. Thus, consistent with Blume and Long (2014), we see no evidence that affirmative action bans are being subverted by public university admissions offices, a common claim made by conservative watchdog groups. Curriculum maximization does play a more distinct role in admissions processes in these states. For each 1-*SD* increase in the composite maximization index, an applicant increases her probability of admission to very competitive colleges by 6 percentage points, highly competitive colleges by 10 percentage points, and most competitive colleges by 9 percentage points. This suggests that these institutions do, indeed, place greater weight on the curriculum opportunities available in high school compared with states

TABLE 8

Regression of Acceptance at a Competitive Public College or University in States With and Without Affirmative Action Bans (Standardized Composite Maximization Index)

	Coefficient					
	States with AA bans			States without AA bans		
Coefficient	Very competitive	Highly competitive	Most competitive	Very competitive	Highly competitive	Most competitive
Composite maximization	.06*	.10*	.09**	.02*	.01	−.02
GPA	.25***	.35**	.16	.20***	.19***	.50**
SAT composite (in 100s)	.04*	.02	.07***	.04***	.07***	.02
SES quartile (vs. bottom)						
2nd quartile	−.05	−.05	−.10	.02	−.06	−.53**
3rd quartile	.03	.01	−.05	−.04	−.08	−.23
Top quartile	.03	.03	−.03	.04	−.03	−.30†
Female	.07	.02	.06	−.04	.01	−.26**
URM	−.02	−.05	.03	−.04	.07	.47***
In-state applicant	−.04	.37**	.04	.02	.09*	.27†
School urbanicity (vs. suburban)						
Rural	.09	−.02	−.07	.04	.00	.15
Urban	−.01	.11	−.02	.03	.02	.17
HS FORL % (in 10s)	.05*	.06**	.04†	.00	.04**	−.05†
HS URM % (in 10s)	.00	−.01	−.01	.01	−.01	.00
Extracurricular participation						
Sports team	.05	.05	.07	.02	−.03	.19
Student government	−.14*	.04	−.11†	.05†	.05	−.11
Performing arts	.16	.14	.08	−.07†	.09	.02
Service club	.03	.01	.04	.03	.00	−.10
Constant	−0.72	−1.38	−1.22	−0.42	−0.87	−1.41
n (applications)	557	218	363	2,112	862	146
n (applicants)	391	215	253	1,724	726	121
F	6.85***	7.51***	4.41***	26.15***	10.30***	6.60***

Note. Goodness of fit statistics are not indicated when multiple imputation is used. States with AA bans are California, Texas, and Washington. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. AA = affirmative action; SES = socioeconomic status; URM = underrepresented minority; HS = high school; FORL = Federal Free or Reduced Lunch; ELS = Educational Longitudinal Study; GPA = grade point average.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

without affirmative action bans. In addition, consistent with recent research on gender stratification in elite colleges (Bielby et al., 2014), we observe an admissions penalty for female applicants to the most competitive colleges and universities, but only at institutions located in states without bans. Curriculum maximization also appears to be related to the probability of admission at very selective colleges in states without affirmative action bans, although the effect is small in magnitude (0.02).

In Table 9, we pool the data for applicants to public institutions in states with and without bans to calculate predicted probabilities of admission to a most competitive public college or university while varying GPA and maximization. We observe that

TABLE 9

Predicted Probabilities of Admission to a Most Competitive Public College or University

	States with AA bans			States without AA bans		
Maximization index	4.00 GPA	3.75 GPA	3.50 GPA	4.00 GPA	3.75 GPA	3.50 GPA
1.0—Above Average	.45 (.07)	.38 (.07)	.31 (.07)	.51 (.07)	.44 (.06)	.37 (.06)
0.0—Average	.36 (.08)	.29 (.07)	.22 (.07)	.49 (.08)	.42 (.07)	.35 (.07)
−1.0—Below Average	.27 (.10)	.19 (.09)	.12 (.09)	.47 (.13)	.40 (.12)	.33 (.11)

Note. Standard errors of predicted probabilities are in parentheses. All other regressors were held at their respective mean for applicants applying to any most competitive college or university. States with AA bans are California, Texas, and Washington. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. AA = affirmative action; ELS = Educational Longitudinal Study; GPA = grade point average.

TABLE 10

Regression of Acceptance at a Competitive Public College or University in States With and Without Affirmative Action Bans (Maximization Interactions Included)

	Coefficient					
	States with AA bans			States without AA bans		
Coefficient	Very competitive	Highly competitive	Most competitive	Very competitive	Highly competitive	Most competitive
Composite maximization	.09***	.18***	.10***	.02†	−.01	−.10
Maximization × SES	−.04	−.03	.05	.00	.04	.05
Maximization × URM	−.10†	−.20**	−.17**	−.01	.02	.10
Controls	Yes	Yes	Yes	Yes	Yes	Yes
n (applications)	557	218	363	2,112	862	146
n (applicants)	391	215	253	1,724	726	121
F	13.21***	10.12***	12.92***	30.94***	14.29***	10.51***

Note. States with AA bans are California, Texas, and Washington. Statistics are calculated using the ELS second follow-up transcript weight [F2QTSCWT] and cluster-robust standard errors. Control variables are all variables included in Table 8. SES is a continuous variable. AA = affirmative action; URM = underrepresented minority; ELS = Educational Longitudinal Study; SES = socioeconomic status.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

students applying to schools in states with affirmative action bans have significantly different predicted probabilities of admission as a function of their curriculum maximization. A high-achieving (4.0 GPA), low-maximizing (1.0 *SD* below the mean) student has a probability of admission of only .27. Had that student taken better advantage of his high school curriculum (maximization of 1.0 *SD* above the mean), his probability of admission would increase to .45. Similar trends are observed for lower GPAs. Conversely, the predicted probabilities of admission for a high-achieving student do not significantly improve as a function of maximizing at universities in states without affirmative action bans. As a result of variation across student GPA and state policy, the probability of admission for an applicant with a 3.5 GPA and below average maximization in a state without a ban (0.33) is more than double that of a comparable applicant in a state with a ban (0.12).

Last, we reestimated the models that examine whether curriculum maximization enhances the probability of admission in states with and without affirmative action bans while allowing the effects of maximization to vary by social class and URM status. To simplify the calculation of interaction effects, we include social class as a continuous variable. The results, which are shown in Table 10, indicate that the effect of maximizing the curriculum does not vary by SES at any level of institutional competitiveness at the 95% level, although the positive interaction coefficient approaches significance at the most selective colleges. Thus, there is some limited evidence that higher SES applicants may benefit from maximizing their curriculum more than lower SES applicants at public elite colleges that ostensibly practice holistic admissions.

Conversely, we can conclude with 95% confidence that the effect of maximizing the curriculum does vary according to a student's underrepresented status in states that ban affirmative action at the top two Barron's tiers. Overall, Black, Latino/a, and Native American students are *less* likely than White or Asian students to be rewarded for maximizing their high school curricula when applying to colleges that are highly and most competitive. We calculated predicted probabilities of admission to most selective colleges in states with affirmative action bans (not shown) and found that URM and non-URM applicants are equally likely to be admitted when their standardized composite maximization indices are average for applicants to most competitive colleges (0.59 *SD* above the mean for all college applicants). However, at levels of curriculum maximization that are greater than the norm for competitive college applicants, White and Asian students are more likely to be admitted than their URM counterparts. Due to the magnitude of the interaction term's negative coefficient, URM students' probability of admission is actually greater at lower levels of curriculum maximization—although relatively few applicants to the most competitive colleges actually have maximization indices in the left tail of the distribution.

Discussion and Implications

We began this analysis by highlighting the persistent stratification of higher education by social class and race/ethnicity, as well as the importance that admissions officers at selective colleges ascribe to holistic admissions in ameliorating such disparities. Thus, we developed measures of curriculum maximization that account for the degree to which students "achieve in context," or challenge themselves within the resource constraints of their high schools. Analysis of these measures indicates that URM, low-SES, and male students take the smallest proportion of the core academic coursework available in their high schools. Among applicants to the most competitive colleges and universities in particular, there are large disparities in English and math coursetaking behavior among URM, White, and Asian students. These disparities have troubling implications for institutional stratification and point to the need for ongoing attention to disparities in advanced coursetaking in U.S. high schools.

Despite considerable national discussion among admissions professionals of considering achievement in context, we find inconsistent support for the relationship between curriculum maximization and college admissions. When considering both public and private selective universities, curriculum maximization measures are only significant when examining the effect of maximizing math curriculum on admissions at very competitive institutions. Thus, in contrast to admissions officers' claims and the advice provided to students who aspire to attend selective colleges, curriculum maximization does not appear to have a demonstrable effect on a student's likelihood of being admitted to the nation's elite colleges as a whole. This also seems inconsistent with research suggesting strong effects for class rank in the admissions process (Attewell, 2001; Espenshade et al., 2005), although class rank is variably calculated across high schools, making its use difficult both for researchers and admissions officers.

Students and their families are provided with messages about the importance of taking full advantage of one's high school offerings to bolster their likelihood of attending a selective college. Yet maximization varied widely among our sample, as did its relationship with college admissions. Within our sample, we identified students with subject maximization scores under 0.25 who gained admission to the most competitive institutions, whereas other students with perfect maximization (1.0) were denied. Admissions professionals need to consider whether their practices truly consider "achievement in context," and, if not, how those practices might be improved in the interest of equity and access.

Once our analysis is restricted to public institutions, the degree to which students maximize their high school curriculum becomes predictive of admission at colleges in states with affirmative action bans, where holistic review seems to be most institutionalized. However, a more nuanced model indicates this is only the case for White and Asian students. We offer two possible explanations. First, the negative relationship between high levels of curriculum maximization and the probability of admission for underrepresented students may be spurious, the result of an omitted variable such as admissions essay quality or teacher recommendations, which are variables that are not available in ELS. Second, admissions officers in states with affirmative action bans could be overly concerned about violating state law, and thus "overcorrect" their holistic assessments of URM students. The small number of URM applicants to elite colleges in the ELS sample, however, precludes us from exploring these hypothesized causes in greater depth. Future research on curriculum maximization should be conducted using a larger, more detailed sample of applicants to selective colleges.

It is also important to note that low-income students did not receive any additional benefit for maximizing their curriculum, despite facing significant life challenges and no laws barring class-based affirmative action in the admissions process. If anything, our models suggest that high-SES students may gain a slight admissions advantage from maximizing their curriculum over low-SES students when applying to the most competitive public universities in California, Texas, and Washington.

The insignificance of curriculum maximization measures in general, and for low-SES applicants in particular, is unfortunate as considering applicants' qualifications in context is an intuitive solution to inequality. This is consistent with research finding that practices touted as potential promoters of diversity, such as test-optional admissions, more often benefit higher income applicants (Belasco, Rosinger, & Hearn, 2014). Even well-meaning interventions, such as QuestBridge, may not result in institutional change (Furquim & Glasener, 2015). If administrators and policymakers' aim is to ameliorate educational disparities across race and class, they should be wary of policies and practices not specifically targeted at assisting disadvantaged students. We must also consider whether well-meaning practices will be ineffective if they are paired with enrollment management practices that emphasize revenue and rankings (Bastedo, in press).

In addition, this study helps to inform our understanding of the effects of affirmative action bans in higher education. Our results suggest that holistic admissions has been implemented with greater fidelity in states with affirmative action bans than it has in other states. In "ban states," admissions officers have sought to achieve a diverse student body within a post–affirmative action legal framework (Blume & Long, 2014; Contreras, 2005; Garces, 2012). However, because URM students are less likely to maximize their curriculum, they would be unlikely to benefit in a holistic admissions process even if the relationship between maximizing the curriculum and the probability of admittance was race neutral. Holistic admissions cannot compensate for affirmative action when coursetaking patterns in secondary education remain so highly stratified by race.

In particular, policymakers and admissions practitioners could promote the development of information systems that provide more accurate information on high school context to admissions officers. Our analysis benefited from standardization in the way in which course offerings were collected and coded for students in our sample; admissions offices, by and large, often have inconsistent information on high school context. High schools may provide self-produced profile sheets listing their coursework and notable accomplishments, but admissions officers often questions the accuracy of these profiles (Posselt et al., 2012). Inconsistent, out-of-date, or inflated reports of available coursework may explain why students who attend low-SES high schools have lower curriculum maximization indices, as underserved high schools may report offering courses in their guidebooks that are rarely offered to students in practice.

Our work also has implications for high school guidance, which remains inaccessible or low quality for many students who remain mystified by the academic and cultural expectations for admission to selective colleges (McDonough, 1997; Perna et al., 2008). The low levels of curriculum maximization among many students, particularly marginalized students, indicate a lack of quality counseling or a lack of access to advanced courses even when they are offered in the high school. More research is needed at the high school level to understand the role that guidance and course selection play in curriculum maximization.

Concerns about high school counseling have led to widespread discussion of "undermatching" between low-income students and the selectivity of the school that they ultimately attend (Bowen, Chingos, & McPherson, 2009; Bastedo & Flaster, 2014). Although improving student–college match is unlikely to change the overall stratification of low-income students in higher education (Bastedo & Jaquette, 2011), there could be improved outcomes—particularly graduation rates and life opportunities—for particular undermatched low-income and URM students (Hoxby & Turner, 2013). Our research is salient to this work. Although "maxing out" the curriculum has surprisingly modest effects on admissions decisions, future research should examine whether students who maximize their curricular opportunities have more academic success in college, are more likely to persist and graduate, and are less likely to undermatch.

Finally, it is unknown whether curriculum maximization should primarily be conceptualized as an increase in human capital or a proxy for student motivation. It is likely that "maxing out" behavior constitutes some of both. For example, previous research has reasonably considered an application to an elite college as a proxy for unobserved student motivation (Dale & Krueger, 2011). It is probable, however, that curricular intensity leads to improved academic performance and odds of college graduation (Gaertner, Kim, DesJardins, & McClarty, 2014). The increased odds have been more modest than expected, however (Attewell & Domina, 2008). Future research needs to help distinguish between motivation and human capital effects.

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