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STUDENTS CHOOSING COLLEGES: UNDERSTANDING THE MATRICULATION DECISION AT A HIGHLY SELECTIVE PRIVATE INSTITUTION

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ABSTRACT

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1)Where does a student apply?

2)Which schools accept the students?

3)Which offer of admission does the student accept?

This paper addresses question three. Specifically, we offer an econometric analysis of the matriculation decisions made by students accepted to Williams College, one of the nation's most highly selective colleges and universities. We use data for the Williams classes of 2008 through 2012 to estimate a yield model. We find that—conditional on the student applying to and being accepted by Williams—applicant quality as measured by standardized tests, high school GPA and the like, the net price a particular student faces (the sticker price minus institutional financial aid), the applicant's race and geographic origin, plus the student's artistic, athletic and academic interests, are strong predictors of whether or not the student will matriculate.

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I. Introduction

The college choice process can be reduced to three questions:

1) Where does a student apply?
2) Which schools accept the students?
3) Which offer of admission does the student accept?

This paper addresses question three. Specifically, we offer an econometric analysis of the matriculation decisions made by students accepted to Williams College, one of the nation's most highly selective colleges and universities. We use data for the Williams classes of 2008 through 2012 to estimate a yield model. We find that—conditional on the student applying to and being accepted by Williams—applicant quality as measured by standardized tests, high school GPA and the like, the net price a particular student faces (the sticker price minus institutional financial aid), the applicant's race and geographic origin, plus the student's artistic, athletic and academic interests, are strong predictors of whether or not the student will matriculate.

While getting accepted into a selective college seems to be a public obsession, there is less focus (except by the colleges themselves) on the matriculation decision. Yet, while colleges choose students, students also select colleges. The tables turn when,

around April 1st, students, parents, guidance counselors and their friends relax their efforts at proving an applicant is worth a bulky envelope (or increasingly these days a cheerful e-mail message), and colleges and universities, regardless of how selective, go on the offensive through their myriad "conversion" activities.

While the economics literature on the matriculation decision is sparse, the college choices made by prospective students significantly impact individuals, colleges, and society in general.[1] On a personal level, a student's matriculation decision likely impacts his or her development during college as well as post-college opportunities. On the college level, matriculation decisions impact financial aid expenditures and the academic and demographic composition of the student body. On a societal level, different concentration levels of specific types of students likely lead to different social outcomes.

The analysis presented here is most salient to selective institutions of higher education. Yield management is a central responsibility of all selective institutions. Schools can only accommodate a relatively fixed number of freshmen and selective institutions are eager to enroll the "best" possible freshman class. The competition for talented students is intense, and even the most selective colleges and universities must admit a substantially larger number of students than the number of available slots in order to fill their freshman classes. But there is an asymmetric risk for these institutions. Small, moderate or even substantial under-yields can typically be remedied by admitting students from the waitlist. However, since these schools typically have tight limitations on the number of students they can accommodate, even moderate over-yields are problematic and capable of generating significant expenses and/or embarrassment for a

[1] The main components of the literature include Avery and Hoxby (2003), Chapman (1981), Linsenmeier (2006), Perry and Rumpf (1984), and Weiler (1996).

college. Thus, it would be especially beneficial for selective colleges to have a rigorous way of predicting which admitted students will matriculate and which will not.

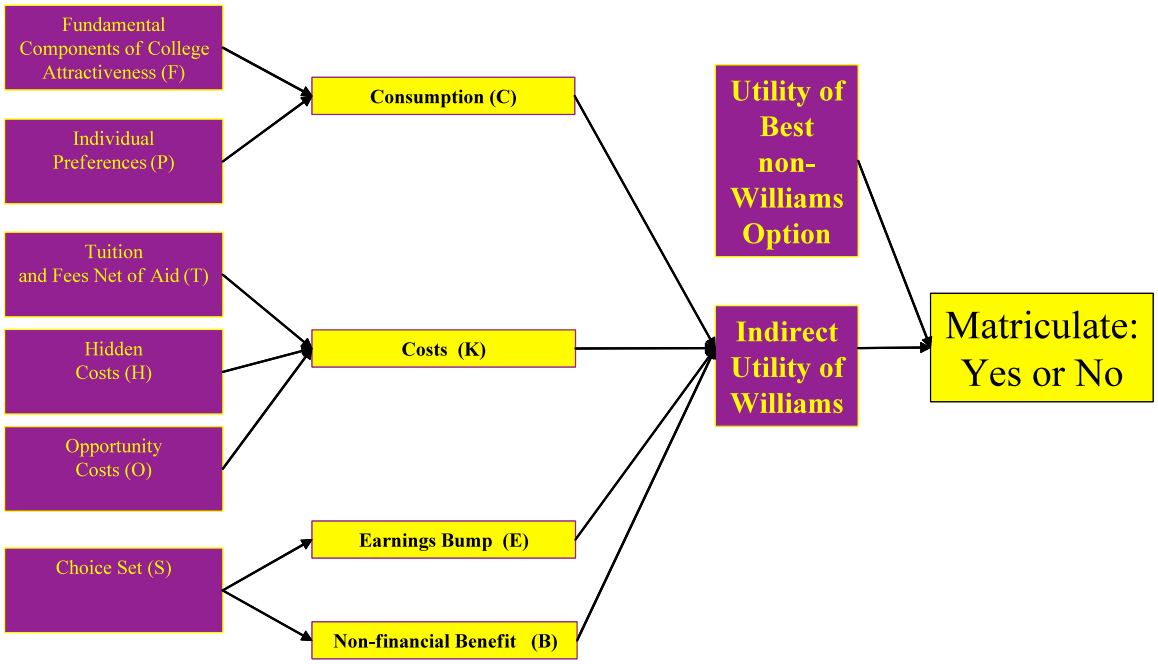
The results presented here identify the predictive power of different parts of an accepted student's application, casting light on which of these personal characteristics indicate that an applicant intends or does not intend to come to Williams. These findings are then used to calculate the probability that a given student will matriculate at Williams, thereby allowing us to estimate the overall yield from a given batch of accepted students. While this analysis is based on Williams-specific variables and data, the general theoretical framework presented in this paper can be applied to all institutions and a researcher with access to data from other selective institutions can engage in an analogous examination based on that institution's admission and financial aid variables.

The paper proceeds as follows: section II lays out a simple model of the matriculation decision, section III discusses the data used in the analysis, section IV presents the empirical results, section V discusses applications of the model, and section VI concludes.

II. A Model of the Matriculation Decision

Figure 1 illustrates and provides a structural framework for the matriculation decision.

Figure 1: The Matriculation Decision Schematic



The matriculation decision is influenced by many factors. A college education is an unusual type of good; it is simultaneously a consumption good—similar to a country club membership—and an investment product—similar to an annuity. Both of these aspects of a college impact the utility a student derives from a particular institution. For an individual applicant, the consumption utility of a school is determined by the quality of the match between the applicant's preferences and the school's fundamental characteristics. For example, an art history-loving student might derive a large consumption benefit from a school with a first-rate art history department, and a city life enthusiast could derive a big consumption benefit from a school located in a major metropolitan area. Alternatively, the investment utility derived from a particular school is determined by the quality of the career options—in terms of expected lifetime financial remuneration, prestige and occupational satisfaction—available to a student upon graduation from the institution. The investment utility of a college is difficult to properly

conceptualize and specify. Since the vast majority of students in this analysis were likely bound for other "top" colleges, this component of utility is best described in relative terms. It is the lifetime earnings and non-financial occupational benefit increase that stems from going to the given institution instead of taking the next best option in the student's college choice set. Thus, the magnitude of this benefit is related to the quality of the applicant's choice set. The better—however the individual student defines better—the student's choice set, the lower this relative value of investment utility will be.

Direct and indirect costs are also important factors in the matriculation decision. In addition to evaluating the potential utility provided by different institutions, students must also consider the relative costs of different institutions and other options—i.e. direct entry into the workforce. These financial and opportunity costs differ from institution to institution and are highly influenced by the student's college choice set. Under this framework, the costs and utility associated with a given institution—for a particular student—combine to generate the indirect utility value that the student derives from attending that institution. If that indirect utility value exceeds the indirect utility of all of the other options available to the student, the student should matriculate at the school. If that indirect utility is exceeded by the indirect utility of at least one of the student's other options, the student should not matriculate at the school.

This theoretical framework suggests the following empirical model of a student's decision to matriculate at a specific institution.

$$\text{Probability(Matriculation)} = F(X)$$

Under this construction, X is a vector of student characteristics. Since this model is for a particular institution, the college's characteristics are not included in the specification.

Rather, the student's attributes capture the quality of the match between the applicant and the institution and proxy for the student's opportunity set. The X vector contains variables representing the applicant's academic achievements, extra-curricular achievements, high-school activities, academic interests, extra-curricular interests, demographic characteristics, contact with the institution, and relationship to the institution or its officers. The vector also includes direct cost variables specific to the student.

III. The Data

The model presented above is applied to the group of students admitted during the regular decision process to the Williams College classes of 2008, 2009, 2010, 2011 and 2012. All of the data used in this analysis were provided by the Williams College admissions and financial aid offices.

Williams is a highly selective liberal arts college in western Massachusetts with an enrollment of around 2,000 undergraduate students. A perennially top-ranked institution, Williams generally accepts between 15% and 20% of its applicants. However, due to intense competition from other elite institutions and a policy of admitting the "best" applicants regardless of whether or not they are likely to matriculate, Williams' matriculation rate for students admitted regular decision has recently hovered around 35%.[2]

In order to generate a model that can be used to predict admissions yield in future years, this analysis only uses information available to the school at the time of the

[2] Williams' early admissions program is binding.

admissions decision. These data include race, gender, geographic origin, high school type, extra-curricular activities and interests, athlete status, connections to the institution, potential future donations to the school, legacy connections, academic interests, overall academic rating, overall non-academic rating, contact between the applicant and the school, net price of the institution, financial aid status, and subjective variables designed to capture desirable applicant qualities that appear in recommendation letters or essays but are not sufficiently measured by traditional applicant characteristics. The primary variables of interest are discussed below.

III.1 Average Academic and Average Non-Academic Reader Ratings

Academic and non-academic ratings are subjective measures determined by the college's admissions officers. After evaluating the applicant's SAT scores, high school grades, essays, class rank, high school academic program, support from the high school administration, AP test score—or IB test scores—and teacher recommendations, admissions readers assign the applicant an academic rating from the scale 1 – 9, with 1 being the best.[3] Similarly, after evaluating the applicant's extra-curricular activities, non-academic awards, community service work, non-academic skills—i.e. special musical, athletic, acting, or other ability—and other non-academic activities, admissions readers

[3] While the academic reader ratings are somewhat subjective, they are strongly influenced by the following guidelines. Academic 1: at top or close to top of HS class / A record / exceptional academic program / 1520 – 1600 composite SAT I score; Academic 2: top 5% of HS class / mostly A record / extremely demanding academic program / 1450 – 1520 composite SAT I score; Academic 3: top 10% of HS class / many A grades / very demanding academic program / 1390 – 1450 composite SAT I score; Academic 4: top 15% of HS class / A – B record / very demanding academic program / 1310 – 1400 composite SAT I score; Academic 5: top 20% of HS class / B record / demanding academic program / 1260 – 1320 composite SAT I score; Academic 6: top 20% of HS class / B record / average academic program / 1210 – 1280 composite SAT I score; Academic 7: top 25% of HS class / mostly B record / less than demanding program / 1140 – 1220 composite SAT I score; Academic 8: top 33% of HS class / mostly B record or below / concern about academic program / 1000 – 1180 composite SAT I score; Academic 9: everyone else.

assign the applicant a non-academic rating from the scale 1 – 5, with 1 again being the best.[4] Around 60% of the admitted students in the data set had academic ratings of one or two. Roughly 75% of the admitted students had non-academic ratings of two or three.

III.2 Attributes

Recorded and assigned by the admissions office, the attributes proxy for qualities that are in some way desirable to the Williams community. This analysis uses the following attributes: alumni grandparent, alumni other, alumni parent, alumni sibling, studio art, development or future fundraising potential, dance, institutional connection, intellectual vitality, local, music, politically active, religious, research science, economically disadvantaged, social service, theater, top athlete, tier 2 athlete, and tier 3 athlete. Strong candidates have many attributes—they are well rounded—or are especially talented with regard to a specific attribute. Unfortunately, the admissions office does not record the strength of the attributes assigned to each applicant. All of the attributes except for the intellectual vitality attribute are relatively self-explanatory. The intellectual vitality attribute is given to an applicant that demonstrates "extraordinary academic depth / talent as usually revealed in the recommendations" or a student who admissions officers believe will be "a classroom catalyst who would have a significant

[4] While the non-academic reader ratings are somewhat subjective, they are strongly influenced by the following guidelines. Non-academic 1: at least two activities / at least 3 consecutive years of involvement in one activity / top regional or national standing in an activity / student exhibits a rare level of leadership and engagement; Non-academic 2: at least two activities / at least 3 consecutive years of involvement in one activity / top local standing in two activities / student exhibits high-level work in differeing activities; Non-Academic 3: at least two activities / at least 3 consecutive years of involvement in one activity / top local standing in one activity / student exhibits high-level work in one area and long-term commitment to activities; Non-Academic 4: at least two activities / at least 2 consecutive years of involvement in one activity / moderate level of achievement in two activities / the student participates in a few activities for less than two years; Non-Acemic 5: everyone else.

impact in labs or class discussion."[5] Recommendation letters with phrases such as "the smartest kid I have taught in 30 years" or "learns for the sake of learning" or "goes above and beyond expectations" or "drives the conversation in the classroom" or "challenges peers to more deeply engage the material" commonly lead to a student being given the intellectual vitality tag. Of the 2,901 admitted students in the data set, 27% received the intellectual vitality attribute.

III.3 Financial Aid

Sticker prices at selective private colleges are not cheap. Thus it is reasonable to assume that financial aid packages significantly influence matriculation decisions. Williams meets the total demonstrated need of all admitted students. The Williams grant—the amount by which Williams reduces the sticker price—is used as the measure of financial aid. This analysis takes net price to be the difference between the average, over the five year sample period, of Williams' annual comprehensive fees and the individual student's Williams grant.[6] Just under half of the admitted students in the data set were offered grant aid. Within the subgroup of students who were offered grants, the majority of grants fell between 50% and 75% of the sticker price.

III.4 Geography

The data set includes each applicant's zip code, home state, and country. Williams' applicants come from around the world, but the majority of Williams' admitted

[5] From the Williams Admissions Office's *Attributes Long Descriptions Class of 2010* spreadsheet. This reference document is used to train new admissions officers.
[6] The comprehensive fee for each student equals the average of the comprehensive fees from fiscal years 2004, 2005, 2006 and 2007. The average comprehensive fee for that period was $43,442.

and matriculating domestic students come from the northeast and the east and west coast of the United States. Matriculation rates range from 28% for students from the West to 41% for students from the Northeast. Outside of the United States, matriculation rates range from 16% in South and Central America to 44% in East Asia and 46% in non-USA North America.

III.5 Contact Between the Student and the School

The admissions office records all contact between applicants and admissions officers. Such contact ranges from the applicant visiting campus and signing up at the admissions office (walk in) before a campus tour, to the student attending a local evening information session, to an admissions officer traveling to the student's high school, to the student attending a summer open house, to the applicant attending a college fair manned by either a Williams alumnus or a Williams staff member. An individual applicant can have multiple points of contact with the school. The data show that fewer than 15% of admitted students signed up at the admissions office and only around 5% attended a Williams-run information session at their high school.

III.6 Early Write Notification

Not all students who apply regular decision are notified of the admissions office's decision at the same time. Most accepted students are notified of their acceptance at the end of March. However, some students receive what the admissions office calls "early write" acceptances. These students receive personalized letters between the beginning of February and the end of March. The early write notifications tend to be sent to students

who have two qualities: they are very attractive to the admissions officers and the admissions officers think there is a significant chance they might matriculate somewhere else.

III.7 Denied Aid

This dummy variable equals one if the student applied for financial aid but was not offered any grant aid.

IV. Empirical Results

The fully specified model generates the following probit results.[7] To illustrate the main implications of the model, the results of a single regression are presented in two tables. In the specification presented here, the reader ratings enter the model as dummy variables—with a rating of one as the omitted category—in order to allow for a non-linear relationship between the reader ratings and the probability of matriculation. The coefficients on these reader rating variables are reported first.[8] The tables report the marginal effects—calculated at the means—of the explanatory variables.

Table 1: The Reader Rating Dummy Variables

[7] This paper only includes one specification of the model. The results from additional specifications are available upon request.

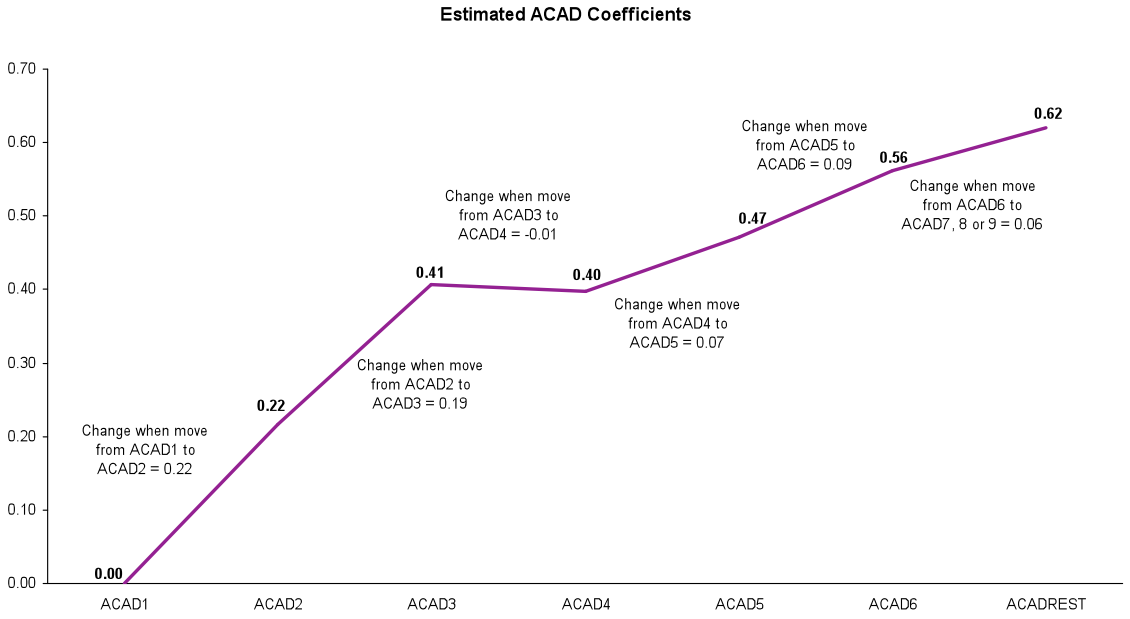
[8] Other specifications of this model include terms interacting the reader rating dummy variables with race and gender variables. In those models, only the terms interacting the African American variable and the academic reader ratings were significant. Including those interaction terms did not meaningfully impact the coefficients on the other variables in the model. Those results are not presented here, but they are available upon request.

Dependent Variable: Matric	n= 2573	R^2= 0.1989
ACAD2	0.216	***
	(0.029)	
ACAD3	0.407	***
	(0.040)	
ACAD4	0.397	***
	(0.050)	
ACAD5	0.472	***
	(0.050)	
ACAD6	0.561	***
	(0.049)	
ACADREST	0.621	***
	(0.041)	
NACD2	0.094	***
	(0.034)	
NACD3	0.137	***
	(0.038)	
NACDREST	0.276	***
	(0.065)	

*Note: Standard Errors are given in parentheses, *** Indicates significance at the 1% level*

Except for the small decline between the ACAD3 and ACAD4 coefficients, the magnitude of the reader rating coefficients increases monotonically as the numerical reader rating score increases—for both the academic and the non-academic reader ratings. Recall that numerically higher reader ratings are associated with worse applicant quality. Thus, this result implies that applicants with worse—numerically larger—reader ratings are more likely to matriculate than their peers. By construction, these coefficients represent the percentage point difference in the probability of matriculation when a student moves from the base case—reader ratings of 1—to the category represented by the dummy variable. The following figure displays these coefficients.

Figure 2: The Academic Reader Rating Coefficients



This plot shows the impact of moving between reader ratings on the probability of matriculation. The matriculation probability jump from moving between ACAD1 and ACAD2 is almost identical to the jump from moving between ACAD2 and ACAD3, as moving to the numerically higher reader rating increases the probability of matriculation by around 20 percentage points. These results imply that there are substantial differences in the opportunity sets available to students with ACAD1, ACAD2, and ACAD3 ratings. Moving from an ACAD3 to an ACAD4 does not meaningfully alter the probability of matriculation. Thus, the model indicates that—ceteris paribus—students with ACAD3 and ACAD4 ratings have similar opportunity sets. Finally, moving from an ACAD4 rating to an ACAD5 rating increases the probability of matriculation by 7 percentage points, moving from an ACAD5 to an ACAD6 increases the probability of matriculation by 9 percentage points, and moving from an ACAD6 to an ACAD7, ACAD8 or ACAD9 increases the probability of matriculation by 6 percentage points. Thus, there appears to be a substantial change in opportunity sets as students move along the worse portion of

the reader rating scale—though less than the change in opportunity sets as applicants move from being ACAD1s to ACAD2s or ACAD2s to ACAD3s. The results are similar for the non-academic reader ratings. The coefficients on the other variables in the model are reported below.

Table 2: The Remaining Variables

Dependent Variable: Matric, n= 2573, R^2= 0.1989	
Demographic Background	
Black	-0.322 ***
	(0.023)
Hispanic	-0.234 ***
	(0.026)
Asian	-0.079 ***
	(0.029)
American Indian	-0.257 ***
	(0.049)
Low Socioeconomic Status	-0.018
	(0.031)
International Student	0.019
	(0.046)
Distance from Home to Williams (10,000 KM)	-0.197 ***
	(0.073)
Urban Home	-0.043 *
	(0.024)
Male	0.015
	(0.021)
Local	0.041
	(0.077)
High School Type	
Public HS	0.040
	(0.026)
Catholic HS	0.084 *
	(0.046)
Non-Catholic Religious HS	-0.009
	(0.055)
Other HS	0.387 ***
	(0.119)

Attributes		
	Art	-0.127 **
		(0.056)
	Dance	-0.032
		(0.077)
	Music	0.023
		(0.035)
	Theater	-0.098 *
		(0.051)
	Politically Active	0.015
		(0.061)
	Religious	0.017
		(0.053)
	Social Service	-0.056
		(0.048)
	Top Athlete	0.107 **
		(0.047)
	Middle Athlete	0.201 **
		(0.092)
	Lowest Athlete	0.283
		(0.176)
	Intellectual Vitality	-0.089 ***
		(0.024)
	Institutional Connection	0.051
		(0.098)
	Development Attribute	0.069
		(0.185)
	Legacy	0.055 *
		(0.033)
Academic Interests		
	Hard Science or Math	0.010
		(0.024)
	Research Science	-0.062 *
		(0.033)
	No Idea	0.103 ***
		(0.038)
	Pre-Professional	-0.028
		(0.028)
	English, Art, Theater, Language or Classics	0.003
		(0.025)

Contact Between the Student and the School		
	Walked Into the Admissions Office	0.123 ***
		(0.030)
	Attended Williams Evening Program	0.235
		(0.178)
	School Visit by Staff	0.041
		(0.048)
	Summer Open House	0.028
		(0.095)
	College Fair by Staff	-0.095
		(0.064)
	College Fair by Alumnus	0.315 **
		(0.125)
Other		
	Early Write Notification	-0.085 ***
		(0.025)
	Net Price ($5,000)	-0.013 ***
		(0.004)
	Denied Financial Aid	-0.124 ***
		(0.026)

*Note: Standard Errors are given in parentheses, *** Indicates significance at the 1% level, ** Indicates significance at the 5% level, and * indicates significance at the 10% level*

This specification explains just under 20% of the variation in the matriculation variable. The race variables are among the strongest predictors of matriculation. When all other applicant characteristics are controlled for, minority applicants are substantially less likely than their white counterparts to enroll at Williams if accepted. The probability of matriculation for an African American student is over 32 percentage points lower than the probability of matriculation for a white student. The probability of matriculation for a Hispanic student is over 23 percentage points lower than the probability of matriculation for a white student.

The studio art attribute variable is statistically significant with a sizable coefficient. Applicants with strong studio art backgrounds are 13 percentage points less likely to come to Williams than applicants without that attribute. At the other extreme, the coefficients on top and middle athlete are positive, significant, and quite large (11 and

20 percentage points). Self-reported pre-enrollment academic interests are also very important. Students determined to pursue research science interests are less interested in coming to Williams than their peers—their probability of matriculation is 6 percentage points lower than that of students without this interest. Alternatively, students who do not know what academic interests they want to pursue are 10 percentage points more likely than students with social science interests to matriculate.

The impact of net price on the probability of matriculation is also significant, but the magnitude of the impact—and implicitly the elasticity of demand for a Williams education—is small. A $5,000 increase in net price only reduces the probability of matriculation by only 1.3 percentage points, 20% of the impact, for example, of a research science interest. This result may simply be picking up the fact that, for a given student, while differences in net price may be important, the limited spread in aid offers among highly selective institutions might make it difficult to pick up the full impact of this variable. However, students who are denied aid altogether are substantially less likely to matriculate at Williams—the probability of matriculation falls by 12 percentage points. The admissions office's recruiting efforts also seem to have important influences on the probability of matriculation. A student who visits the admissions office is 12 percentage points more likely to attend Williams than a student who does not. The distance between Williams and the student's home also has a key impact on the matriculation decision. The adverse matriculation impact of living in an urban area is equivalent to the impact of moving an additional 2205 kilometers away from Williams.

The proxy variables for unquantifiable applicant quality are also highly significant. Students who receive the intellectual vitality tag are 9 percentage points less

likely than their peers to matriculate, which is equal to the effect of early write notification. On the other hand, legacy status increases the probability of matriculation by 6 percentage points.

The results presented here provide no evidence of causal relationships between the explanatory variables in the model and the probability of matriculation. For example, the positive impact of signing up in the admissions office before a campus tour could either indicate the presence of a compelling tour guide, an otherwise unmeasured interest in attending Williams, or some combination of the two. However, these results identify a range of powerful predictors of the probability of matriculation.

V. Applications of the Model and Empirical Results

The work presented here has numerous practical applications. Admissions and financial aid officers from selective institutions can use this approach with their own institutions' data to perform the following analyses.

V.1 Assigning Matriculation Probabilities to Individual Applicants

Using this model to assign estimated matriculation probabilities to individual applicants is a straightforward application of the results presented above. The coefficients reported above are the marginal effects at the mean. However, with the model given above, the same statistical package—in this case STATA version 10—will also compute the probit regression coefficients. With those regression coefficients, the probit value for a given applicant can be computed by multiplying each coefficient by the corresponding variable value for the applicant, and summing across all of the variables. When input into the standard normal cumulative distribution function, this probit value is

uniquely mapped to an estimated probability of matriculation between zero and one. Table 3 presents some sample estimated probabilities computed from the results of the above model and hypothetical applicant variable values.

Table 3: Hypothetical Predicted Probabilities

Type	Applicant Characteristics	Estimated Probability of Matriculation
Low Yield Applicant	African American, low socioeconomic status, lives 1,000 KM from Williams, urban home, male, public high school, studio art attribute, intellectual vitality attribute, visual arts academic interests, net price of $7,500, academic rating of 2, non-academic rating of 3	5.6%
Medium Yield Applicant	White, lives 1,000 KM from Williams, urban home, female, private high school, social service attribute, mid-tier athlete, legacy, social science academic interests, visited the admissions office, full tuition payer, academic rating of 1, non-academic rating of 2	51.6%
High Yield Applicant	White, lives 10 KM from Williams, male, local attribute, public high school, politically active, religious, top-tier athlete, institutional connection, development attribute, legacy, hard science academic interests, visited the admissions office, attended a school visit by a Williams staff member, full tuition payer, academic rating of 3, non-academic rating of 3	98.4%

V.2 Forecasting the Total Number of Matriculants

This application is an extension of the previous application. The technique described in the prior subsection can be used to compute an estimated probability of matriculation for each applicant in a pool of admitted students. Once all of those probabilities have been computed, the forecast can be made in two ways. Under the first method, the model is calibrated by selecting a cutoff probability such that for a base data set the number of students with estimated probabilities above the cutoff equals the number of students in the base data set who actually matriculated. The forecast is then made by predicting that all students in the new data set with an estimated probability of matriculation greater than or equal to the cutoff will matriculate and all others will not matriculate. The number of students with predicted probabilities greater than or equal to the cutoff is the predicted yield. Alternatively, the yield can be computed by simply summing all of the estimated probabilities and rounding to the nearest whole number. The two methods generate very similar predictions.[9] Under the first method, the applicant by applicant predictions can also be used to predict the composition of the class along demographic, gender or any other lines.

V.3 Forecasting the Financial Aid Budget

Finally, the analysis in the previous subsection can be further extended to predict the financial aid budget needed to cover the grants offered to a pool of admitted students. This analysis is performed by transforming the applicant by applicant predictions generated from the first technique in the previous subsection into a dummy variable that takes on the value one if the applicant is predicted to matriculate and zero otherwise. For

[9] These methods were both highly accurate when applied to the Williams class of 2013 data.

each applicant, this new dummy variable is then multiplied by the grant offered to the student.[10] The predicted aid budget from the applicant pool is computed by summing these products across all of the applicants in the data set.

Finally, with the explosion of merit aid over the past two decades, this type of analysis could go a long way in minimizing economic rents, as smaller merit aid packages could be offered to students whose characteristics indicate that they are likely to matriculate regardless of the net price they face.

VI. Conclusion

The empirical analysis described above, while based on Williams College, can be easily applied elsewhere. However, if Williams is representative of other selective schools, it should be noted that even with the presence of an extensive range of explanatory variables, much of the total variation in matriculation decisions remains unexplained. Perhaps it is the weather on preview day, or the attractiveness of the tour guide that attracts or repels a prospective student. Or perhaps the analysis might benefit from nuanced measures of college name brand recognition—and the connotations associated with different names.

The analysis of college yield could provide fertile ground for future researchers. The paucity of empirical studies, and the overall importance of the subject, suggest that further work is warranted.

[10] An identical analysis can be performed with loan or any other type of aid offers.

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