The Effects of College Counseling on High-Achieving, Low-Income Students: Results of a Pilot Study with a Randomized Controlled Trial

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Abstract: This paper reports the results of a pilot study, using a randomized controlled trial to provide college counseling to high-achieving students from relatively poor families. We followed 107 high school seniors through the college admissions process in 2006-2007; we selected 52 of these students at random, offering them ten hours of individualized college advising with a nearby college counselor. The counseling had little or no effect on college application quality, but does seem to have influenced the choice of where the students applied to college. We estimate that students offered counseling were 7.9 percentage points more likely than students not offered counseling to enroll in colleges ranked by Barron's as "Most Competitive", though this effect was not statistically significant. More than one-third of the students who accepted the offer of counseling did not follow through on all of the advice they received. Going beyond the framework of the randomized experiment, our regression results suggest that counseling would have had approximately twice as much effect if all students matched with counselors had followed the advice of the counselors.

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Introduction

In the past fifty years, selective colleges have transformed themselves by opening their gates to women, minorities, and many other students who could not have enrolled under the old boy system that prevailed through World War II (Karabel, 2005, Lemann 1999). But though their admission practices have become decidedly more egalitarian[1], these selective colleges still enroll relatively few students from poor families. If anything, the representation of students from working class families has *declined* at Ivy League and comparable colleges in past decades. For example, 10% of students enrolling in Harvard's class of 1970 were from families living below the poverty line (Karabel, p. 288). By contrast, a recent study of 28 institutions that are part of the Consortium on Financing Higher Education (COFHE) indicates that only 10% of the students enrolled in these colleges in 2001-2002 come from the bottom 40% of the income distribution, with only about 5% falling below the poverty line[2] (Hill, Winston, and Boyd, 2004).

The hallmark of the admissions process at selective colleges is "holistic review," evaluating each applicant on a comprehensive profile created from all the materials submitted by that applicant.[3] While this system enables colleges to admit students with a variety of outstanding qualities in addition to numerical credentials, it may also favor relatively wealthy students, who have the financial means and the savvy to craft college applications that highlight their skills and minimize their flaws.[4] It seems ironic that an

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[1] See Karabel (2005) for detailed discussion of the historical shift in admissions practices. Two main results of this shift have been the dramatic increase in applications to highly selective colleges along with a corresponding increase in the concentration of high ability students at the most prestigious colleges. For example, Frank (2001) observes that 43% of the students who scored above 700 on the SAT verbal section in 1989 enrolled in one of the 33 colleges rated as "most competitive" by Barron's, whereas only 33% of students in this category did so in 1979. See also Hoxby (1997) for further evidence of the growing concentration of high scoring students at the most selective colleges.

[2] Carnevale and Rose (2004) were among the first to publicize this phenomenon; the title of their paper solidified the use of the term "low-income" to describe students from families with below-median income.

[3] In 2003, The Supreme Court upheld the affirmative action practices of the University of Michigan for Law School admission (Grutter vs. Bollinger), but ruled that its affirmative action practices for undergraduate admission violated the equal protection clause of the 14th Amendment (Gratz vs. Bollinger), in part because the undergraduate admissions process did not constitute "holistic review".

[4] In fact, holistic review was originally introduced in the 1920s to help justify the strong ties between Ivy League colleges and elite preparatory schools; in 1930, a set of twelve preparatory schools provided one-quarter of the students at Harvard, Princeton, and Yale (Karabel, 1984).

admissions system that is designed to identify the most interesting students may in fact be implicitly biased in favor of those from the most privileged backgrounds.

Motivated by these facts, this paper reports the results of a randomized controlled trial of the effects of college counseling for students from low-income backgrounds. The trial was conducted as a pilot study with a relatively small number of participants, and the goal of assessing the feasibility and desirability of a more ambitious study. With the help of the College Board, we followed 100+ high school seniors through the college admissions process in 2006-2007. All of these students lived in neighborhoods with relatively low average incomes and attended high schools that tended not to have many graduates enrolling in highly selective colleges. Just under half of the students were offered the opportunity to receive ten hours of individualized advising from an experienced college counselor, and most accepted this offer.

The small sample size for this pilot study dramatically limits the power of statistical analysis of study data. For example, with a binary outcome measure (such as "enrolled at college ranked 'Most Competitive' by the Barron's Guide) and a sample of 100 students, students offered counseling would have to enroll at a rate at least 20 percentage points higher than those not offered counseling for a simple comparison of the outcomes for the two groups to produce statistically significant results. The main goals of this pilot study are to learn about the aspirations and choices of students in depth and to produce some broad brush assessments of the (potential) value of expert counseling for highly-qualified, low-income students. A related goal of the pilot study is to provide guidance towards the design of future randomized trials with substantially larger samples of students.

The paper proceeds as follows. Section 2 provides a literature review, further explaining the motivation for the study. Section 3 describes the logistics of the project and data used in the study. Section 4 provides descriptive statistics and qualitative information about the qualifications and college choices of the students. Section 5 provides formal quantitative analysis of the results of college counseling in the study. Section 6 discusses the implications of the results. Section 7 concludes.

II. Literature Review

There are several broad classes of explanations for the limited numbers of low-income students at selective institutions. The first explanation is that there is a "pipeline problem" – that there are disproportionately few low-income students who are qualified to succeed at selective colleges (Winston and Boyd, 2005, Owings et al, 1995). A second explanation is that financial constraints may limit the ability of some students to attend selective colleges. Although these first two classes of explanations are undoubtedly of practical importance, a series of recent studies indicate that highly-qualified low-income students are disproportionately unlikely to enroll at selective colleges by comparison to affluent peers with similar credentials (Winston and Hill, 2005). This disparity in enrollment patterns even extends to highly selective public colleges (Pallais and Turner, 2007), a phenomenon that is unlikely to be the result of financial constraints.

This paper focuses on a third possibility, that talented students from low-income families may not have enough information and expertise to navigate the college admission process and enroll at the (selective) colleges that match their qualifications and interests. For example, the initial results of Harvard's Financial Aid Initiative supports the hypothesis that talented low-income students do not realize that they can afford to attend selective colleges.[5] Harvard's program actually represented a relatively small change in policy, but was widely publicized and resulted in a large increase in applications for students who qualified for it (Avery, Hoxby, et al., 2006).

College Counseling

This project targets high achieving students at public high schools that send few graduates to selective colleges. Counseling problems for these students are threefold: (1) their schools lack counseling resources; a recent study by the National Center for

[5] Past research suggests that most high school seniors in city public schools have aspirations for completing a postsecondary degree and understand the economic value of a four-year degree, (Dominitz and Manski, 1996, Avery and Kane, 2004, Rouse, 2004) but does not address the students' knowledge about selective colleges and financial aid programs at those colleges.

Education Statistics estimates an average of 315 students per full-time counselor;[6] (2) their counselors are overburdened with responsibilities other than college counseling;[7] (3) the counselors lack experience in advising students who are competitive candidates for selective colleges. By contrast, even in cases where public schools in relatively wealthy districts have large ratios of students per counselor, they also can implicitly rely on outside resources to ensure that all of their graduates receive high quality counseling.[8]

The Independent Educational Consultants Association estimates that 22% of students applying to competitive colleges receive one-on-one counseling beyond their high school guidance system. Academic research confirms the presumption that "students who use private counselors are economically privileged, have higher SAT scores and high school academic records than the average college-bound students, and in general, are advice seekers" (McDonough, 1997, p. 119; see also McDonough, Korn, and Yamasaki, 1997). Based on market demand, the services of private college counselors are very valuable. McDonough (1997) cited average prices between $25 and $125 per hour for private counselors. At the upper extreme, some families pay thousands of dollars for the best-known private counselors.[9]

There are two obvious ways that counseling could improve college application outcomes for students. First, the counselor could offer suggestions to improve their decisions about when and where to apply to college. Advice on colleges that best match their interests

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[6] "High School Guidance Counseling," National Center for Education Statistics, (2003). This figure is remarkably consistent with a widely cited estimate from the early 1980s of 323 students per counselor in the public schools (Coleman, Hoffer, Kilgore, 1982).

[7] Approximately one-third of the public schools in the National Center for Education Statistics study report that their counselors devote more than 20% of their work time to "School attendance, discipline, and other school and personal problems" (Table 14 of the report). In addition, 17% of public schools with less than 50% of graduates who are college-bound report that their counselors devote more than 10% of their work time to "Non-guidance activities" including hall/lunch duty, substitute teaching, and bus duty.

[8] Nadella (2004) interviewed fifteen high school seniors from Newton North High School in suburban Boston and found that five of them had hired outside counselors, while others were advised by well-informed relatives and peers.[8] As a result, the school counselors were able to focus their efforts on the few students whose parents were "completely unfamiliar with the process".

[9] "Before College, Costly Advice on Getting In," (New York Times, July 19, 2009) cites counselors who charge families up to $40,000 for their services http://www.nytimes.com/2009/07/19/education/19counselor.html?pagewanted=all. See also "Seeking College Admissions Help with Pricey Counselors. NPR Morning Edition, October 27, 2005, http://www.npr.org/templates/story/story.php?storyId=4976703.

may be of particular importance to low-income students (e.g. because their parents are relatively unlikely to have graduated from college). Not surprisingly, McDonough et al. (1998) find that low-income students are most likely to cite the US News and World Report college rankings as an important source of information about colleges, suggesting that these students lack other sources of information about colleges.

On a more advanced, strategic level, the counselor can help students choose a better portfolio of applications. McDonough (1997) found that students at the least competitive high school applied to many fewer colleges than the other students in her study. Similarly, Avery and Turner (2009) find that low-income students in Virginia disproportionately apply only to schools that they deem as "safety schools". These students clearly could have benefitted from expert advice on where to apply.

The second obvious way that counseling can improve college application outcomes is by improving the quality of a student's application, generally by helping the student to craft more compelling essays. As Ann Hulbert observed from her experience with the College Summit program, many low-income students have wonderful stories to tell, but do not realize that these stories would be of interest in a college application.[10] Similarly, Avery and Kane (2004) found that a number of qualified low-income students in their study did not complete college applications, primarily because they were daunted by the prospect of writing the application essay.

[10] "The New College Try," Ann Hulbert, Slate.com, September 12, 2005 http://www.slate.com/id/2125147/.

III. Logistics of the Project

A. Selection of Participants

We selected students from the "Search File" of potentially qualified applicants provided by the College Board to the Harvard Admissions Office.[11] More than 60,000 students nationwide appeared in the Harvard Search File for the high school graduating class of 2007. In the summer of 2006, we used the Harvard Search File to identify high school seniors who live in relatively poor neighborhoods and who attend public high schools that were not identified as likely "feeder schools" to most selective colleges.

Table 1 summarizes the steps by which we identified these high school seniors to invite to participate in the study. First, we used geocoding software to produce estimates of family income based on the data for the census blocks corresponding to the home addresses of the students. We restricted eligibility for the project to students who attend public high schools and who lived in census blocks with median income of $60,000 or less and average income of $70,000 or less.

Table 1: The Number of Possible Participants in the Project

Participation Restrictions	Number of Eligible Students
Students in CT, MA, NY, RI and in Harvard Search File	8,475
AND Matched to US Census	8,310
AND Public School	6,185
AND Low Income Neighborhood	1,265
AND Not Attending Feeder School	853
AND in CT, MA, RI, Brooklyn, Manhattan, Queens	559
AND Minimum Estimated Income, One or Two Students per High School.	214

[11] We received this list directly from the Harvard Admissions Office with prior authorization from the College Board. This list consists of high school seniors who are deemed as competitive applicants for admission to Harvard based on their PSAT or SAT scores, self-reported grades, academic interests and other demographic information. The minimum standard for inclusion in the list, as set by the Harvard Admissions Office, varies by student demographics and academic interests, and cannot be easily summarized.

Based on past records from the Harvard Admissions office and consultation with participating guidance counselors in each state, we excluded students from forty high-performing public high schools. Since New York is a very large state, we decided to limit participation to those in four areas near New York City: Bronx, Brooklyn, Manhattan, and Queens. This left 559 students as potential participants in the project. Finally, we selected 214 students to invite to participate based on minimum estimated income and a self-imposed restriction to include no more than two students per high school (to limit idiosyncratic effects related to particular schools).

We mailed introductory information about the project along with a self-addressed stamped return envelope and a parental consent form in September 2006 to each of these 214 students. Each student was offered a $100 stipend for participation. The introductory information included full information about the series of interviews and surveys that participants would be asked to complete, but did not mention that some students would be chosen on a randomized basis and offered individualized college counseling. A total of 202 eligible students received invitations to participate in the project.[12] 110 students returned the parental consent form, and were formally included in the project. Of these 110 participants, all but three completed the study.[13]

As students returned their consent forms, we matched them into pairs who lived relatively close to each other and in neighborhoods with similar median incomes. We then randomly selected one student in each pair to be offered ten hours of individualized college counseling with an experienced local counselor. We stopped selecting students for counseling once we had consent forms from (approximately) 100 students. Using this process, we offered college counseling to 52 students and 45 of them accepted the offer.[14]

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[12] Two of these students proved to be ineligible for the project: one is delaying high school graduation and another actually attends a school that we had excluded from the project. We had incorrect addresses for an additional ten students; these students never received the invitation to participate in the project.

[13] Two students made formal requests to be withdrawn from the study. A third provided incorrect contact information and never returned any study materials.

[14] We invited at most two students per high school to participate in the project. For schools with two participants, we decided that both students should be offered counseling or neither student should be offered counseling. Apart from this complication, students were chosen for counseling on a simple randomized basis.

Table 2: Participation in the Research Project by State

State	Number of Students Who Agreed to Participate	Number of Students Offered (Accepting) Individualized College Counseling
Connecticut	18	9 (8)
Massachusetts	42	22 (18)
New York	39	17 (16)
Rhode Island	8	4 (3)
TOTAL	107	52 (45)

Table 2 summarizes participation by state. A total of 49 male and 58 female students participated in the project, with 23 of the male and 29 of the female students also receiving offers individualized of college counseling.

B. The College Counseling Curriculum

Twenty-eight experienced college counselors worked with students as part of the project. With one exception, these counselors were all employed in full-time college counseling positions at well-known high schools at the time of the study.[15] Each counselor worked with one or two students matched with them by geography. One additional counselor served as "Lead Counselor" for the study, devising a standardized curriculum and organizing training sessions to ensure uniformity across meetings with students.

The counseling curriculum focused on the choice of where to apply to college (sessions 1 to 4) and the details of completing application forms and essays (sessions 5 to 8). The appendix provides a detailed outline of this standardized curriculum. The final two sessions in the spring were devoted to understanding financial aid and choosing a college. The counselors began meeting with students in October, 2006. Most of the meetings took place at public places, such as libraries, near the students' homes, though some meetings took place by prior arrangement at either the student's or the counselor's school. The counselors deviated from the curriculum to some degree at the request of students to focus on the areas of greatest need. In some cases, the counselors and students agreed to truncate their set of meetings, especially during the spring in instances where the student had an obvious choice of college and did not need further support.

[15] The counselors were compensated $50 per hour for their work with students for the study – which they conducted above and beyond the requirements of their regular jobs.

C. Data and Empirical Approach

The study consisted of a series of three phone interviews and two written surveys over the course of the academic year. Nearly all participants completed all three phone interviews, and most, though not all, completed both written surveys. In addition, we asked all participants to submit a copy of a completed college application to us; we recruited three of the participating guidance counselors with college admissions experience to evaluate these applications. A total of 80 students provided sufficient information for their applications to be evaluated.[16]

Participating guidance counselors provided written reports of their meetings with students. We also interviewed them at length about their interactions with each student over the course of the year.

We rely, for the most part, on the Barron's college rankings for the purposes of evaluating the admissions and enrollment decisions of students in the study. These rankings classify colleges into broad categories of selectivity, thereby avoiding some of the well-known pitfalls of numerical ranking schemes such as those used by US News and others. In particular, the Barron's rankings are quite consistent from year to year, and are not generally affected by machinations designed to influence the US News rankings. We focus on the top tier of colleges, designated "Most Competitive" in the Barron's rankings, and we use the 2007 Barron's rankings throughout the analysis.

Although not all students who were offered counseling accepted the offer and met with a counselor, it is appropriate to evaluate the effect of the counseling based on "Intent to Treat" (i.e. proceeding as if everyone who was offered the chance to receive counseling actually did so). Otherwise we would never be able to disentangle the connection between the choice to participate in counseling sessions and the value of the counseling for individual students.

[16] Some students had to send piecemeal components of their application rather than a formal completed application because they did not realize that the Common Application website deletes accounts from the previous year in early June.

IV. Descriptive Statistics and Results from Qualitative Interviews

The goal of the project is to learn about the nature of the college application process for students who are 1) high achievers; 2) attending high schools that do not ordinarily send graduates to selective colleges; 3) from disadvantaged backgrounds (e.g. first-generation to college and/or from low SES background). Our interviews and surveys revealed that the students do indeed have these characteristics.

Table 3: Numerical Qualifications for Subgroups of Students

	Offered Counseling	Not Offered Counseling
Average SAT Combined Scores*	1294.2	1289.8
Class Rank*	95.2%	95.7%
Neither Parent Graduated from College*	45.4%	40.4%
Very Rare for Graduates from HS to Attend Selective Colleges **	45.6%	63.5%
Took SAT-2 Test(s)*	82.7%	78.2%
Fee Waivers for All Applications ***	41.7%	36.0%
Initial First Choice College Ranked "Most Competitive" **	75.0%	69.1%

* Computed from information provided by students in the fall survey (#1 of 2 surveys).
** Computed from information provided by students in the fall interview (#1 of 3 interviews).
*** Computed from information provided by students in the winter interview (#2 of 3 interviews).

A. Academic Credentials:

The students who participated in the study are indeed high achievers. As shown in Table 3, they scored well on the SAT, with mean combined math and critical reasoning score of 1290 (the mean combined score was 1260). Perhaps even more impressive, the average class rank of these students was in the 95th percentile of their high school classes; nearly half of the students were in the 99th percentile of their high school cohort in class rank.

B. Parental Income and Education

We did not ask the students directly about their family finances. Just under 40% (38 of 98 who responded to this interview question) of participants reported that they received formal fee waivers for (almost) all of their applications.[17] The official criterion for a fee waiver is based on the federal poverty level and translates to a family income of approximately $30,000 / year.[18] With some conspicuous exceptions, our interviews suggested that the vast majority of participants come from families with relatively low incomes. Along these same lines, several of the counselors described situations of clearly disadvantaged students.

> *His mother is doing custodial work and his father [who lives abroad] won't contribute anything.*[19]
>
> *Her mom was working temp jobs …Her father is down south – he hasn't been seen in years.*
>
> *Her dad left the family and her mother was a crack addict. She was shipped off to relatives in the south until high school when her mother was deemed well enough to have her back.*
>
> *Before [working with this student], I thought I knew what poverty was, but I was wrong.*

Similarly, nearly half of the students come from families where neither parent has a college degree. Just more than one-quarter of the students come from families where both parents hold college degrees; nine reported that both parents hold graduate degrees.

We asked students to report their "Expected Family Contribution" (EFC) from the completion of FAFSA forms on the second written survey completed in the spring of the study. Eighty-eight students completed this survey and sixty-two of them provided information about the EFC. More than half (51.6%) of those reported an EFC indicated an EFC less than $5,000, roughly corresponding to family income of $50,000 to $60,000

[17] A much greater percentage reported that they had received a fee waiver from one or two specific colleges, but in most cases these fee waivers did not seem to be based on family incomes.

[18] In several cases, our interviews suggested that students who did not receive fee waivers might well have qualified for them, and also that some students who did receive fee waivers probably did not meet the official guidelines.

[19] Quotations from qualitative interviews with counselors are italicized to differentiate from quotations from qualitative interviews with students.

or less.[20] Students who did not apply for federal financial aid would not be able to respond to this question about the level of EFC. This suggests a non-response bias in estimating the number of poor families based on the EFC results, but some students had yet to learn their EFC when they completed the survey. There are also other reasons that students would not be able to answer this question (e.g. a POSSE scholarship winner might not need to complete federal aid forms).[21]

C. High School Rigor and Peer Networks

We systematically excluded low-income students from high schools where we knew that many of the graduates attend selective colleges. A student at one of these schools whose family is unfamiliar with college admissions will likely be able to make up this deficit through informal advising from sophisticated classmates. Not surprisingly given this selection rule, the majority of participants attended relatively weak schools, as they explained in their interviews.

> My high school … is being taken over by the state or already has been.

> I have a school profile. Let me get it out… The graduation rate is 66%. The dropout rate is 22.9%. The percent that go to college is 36%. Those are the four-year colleges. The ones that go to two-year is [about] 24%. … Have you seen the movie "Lean on Me"? It's kind of like that.

> When my class entered in 2003, there were 350 kids in our class. Now, we just got ranked. They only ranked 243 kids. Somewhere we lost 110 kids.

These schools tend to offer few advanced courses, holding back the participants, who could clearly take on greater academic challenges.

> It's not very good academically, I won't lie. They offer two AP courses, AP Calc and Art. There are 9 or 10 honors classes, but the requirements aren't too hard.

> I guess in comparison to other high schools in the state, it's a pretty good high school. There's not many fights or anything like that. We don't have AP courses or anything like that.

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[20] There is not a direct correspondence between family income and EFC because the EFC varies with family composition and the number of children in the family who are currently enrolled in college.

[21] Among all participants, 43.6% of those who reported an EFC also stated that they had received application fee waivers, while 31.8% of those who did not report an EFC stated that they had received application fee waivers. This suggests that students who did not report an EFC come from somewhat poorer families, but not dramatically poorer families than those who did report a value for the EFC.

> Since it's a fashion school, they don't really have good academics. … I haven't had math in two years. I haven't had foreign language at all since I had foreign language in junior high. I didn't have science last year or English because it interfered with my major. I haven't had math in two years. My major is fashion design... [but] I don't want to pursue fashion any more.

We asked the participants in the project about the percentage of graduates from their high schools who attend four-year colleges and separately about the number of graduates who attend selective or out-of-state colleges. More than half indicated that it is very rare for graduates from their high schools to attend selective colleges.

> You've got the people who are going to community colleges for nursing, there's another level that wants to go to U Mass Boston. And then there are people applying to Holy Cross and Boston U.
>
> People are surprised that I'm trying for those kind of [selective] schools, most people would expect you to go to a public school or Bristol Community College.
>
> Most of my friends, not to be rude, are not as smart as me, so I don't think they have such high aspirations. My best friend is considering Temple, just because he has connections in Philly. My other friends are considering community college, which is not something I want to do.

D. Information from High School Guidance Counselors

The motivation for the study was the presumption that the students targeted for the project suffer from limited access to counseling. Consistent with this view, many students explained that they had very limited useful contact with their school counselors.

> The college advisor at my school – he has 243 kids to talk to. Unfortunately I just had my college meeting with him. It was like 10 minutes, filling out a questionnaire. It's going to take us 4 months to get through everyone. Also we have to turn in our college applications by Nov 13th.
>
> I was kind of apprehensive of getting information from him because he had messed up other people's applications.
>
> If we walked into guidance, you would find not much, only in-state schools. Nothing that I would call competitive. For all that stuff, you had to go online and it was just harder to get information.
>
> They told me to go to collegeboard.com. … They said, 'Do your own research' because we don't have the things you need that meet your GPA and SAT score.

Just less than one-quarter of the students cited their guidance counselors as their most important source of information about college admissions. Most of these students described fruitful interactions where they received sensible advice.

> She basically helps you in every conceivable way: the SATs, how to choose courses and how it will look like to colleges, helps you with your essay, your application, she makes sure that you're looking at the right colleges, visiting them, doing everything you're supposed to.

A handful of students explained that they had received extensive advice and supervision from an outside program rather than from their guidance counselors.

> [I participate in] SEO – Scholars for Educational Opportunity – it's helping minority kids get into or apply to selective colleges. We take essay writing classes so I learned to write my personal statement. They also helped set me up with my enrichment program over the summer. I went to Argentina, stayed with a family, did community service. … They take us on college visits. I feel that they've really been the most important thing.

Several counselors associated with the study commented that only very entrepreneurial students would receive adequate attention from the guidance office at these schools.

> *He is a little shy – one of those kids who could have gone on his own for a long time – for a while he was avoiding his counselor. He felt kind of nervous, apprehensive, not clear what the meeting would be about.*
>
> *The school didn't even have free material – like SAT preparation. It's not clear that the transcripts and letters of recommendation ever got sent up [to colleges].*

Some counselors associated with the study felt that the students they were assisting had been misdirected by their school counselors.

> *I told him to make an appointment to talk with his guidance counselor about his letter of recommendation and she basically told him to write his letter of recommendation because she didn't have time to write it. I edited his letter and his guidance counselor sent a different letter. She said that his letter was 'way too long and that's not what colleges are looking for.' The letter that the guidance counselor produced was terrible – including nothing personal about him at all – it read like a form letter.*
>
> *Her counselor was telling her to go to community college.*
>
> *Her [high school] counselor told her not to apply early – that early applications were 'for impatient kids who can't wait for a decision'. She wanted to apply early to Harvard and was confused because I was encouraging her to do it. At the end … she added schools that didn't make sense and never even applied to Harvard.*

E. First Choice Colleges and College Enrollment

One explanation for the paucity of low-income students at selective colleges is that these students, even the most qualified, are unlikely to apply to selective colleges. For the most part, we find that this explanation does not apply to the participants in the study. Table 4 lists the popular colleges for students in the study, including each college that was the initial first choice or that ultimately enrolled three or more participants in the study.

There was surprising consensus among participants. More than 60% of the students listed one of six colleges - five Ivy League schools and MIT – as their initial first choice. Almost all of the students in the New York area had visited or were applying to Columbia and/or NYU, and almost all of the Massachusetts students were applying to selective colleges in Boston. Although many students were not accepted at their first-choice colleges, they were still quite successful in admissions outcomes. A total of 18 students are attending one of the six colleges that were initially most popular and three additional students are attending Ivy League colleges (one each at Dartmouth, Penn, and Princeton).

Table 4: Popular College for Study Participants

College	First Choice College at Outset of Study *	Number of Students Enrolling *
Harvard College	22 (21.6%)	6 (5.7%)
Columbia University	11 (10.8%)	2 (1.9%)
Cornell University	10 (9.8%)	3 (2.8%)
MIT	8 (7.8%)	1 (1.0%)
Yale University	6 (5.9%)	3 (2.8%)
Brown University	5 (4.9%)	4 (3.8%)
Northeastern University	4 (3.9%)	3 (2.8%)
Boston College	3 (2.9%)	2 (1.9%)
New York University	3 (2.9%)	3 (2.8%)
University of Connecticut	3 (2.9 %%)	2 (1.9%)
University of Massachusetts, Amherst	2 (2.0%)	3 (2.8%)
Boston University	1 (1.0%)	6 (5.7%)
Tufts University	1 (1.0%)	4 (3.8%)
University of Rhode Island	0 (0.0%)	3 (2.8%)
Other	23 (22.5% each)	61 (58.1%)

* 102 students provided sufficient information in the fall interview to identify a first-choice college; 105 students provided sufficient information in spring survey and/or interview to identify their final choice of college.

V. Evaluating the Effects of Counseling

The descriptive statistics in Table 3 indicate that the group of students who were offered counseling were quite similar in characteristics to the group of students who were not offered counseling.[22] The largest disparity between the groups was that a substantially higher proportion of students not offered counseling reported that it was very rare for graduates of their high schools to attend selective colleges.

Since the two groups of students are similar for the most part, straightforward statistical comparisons provide roughly equivalent results. One overarching pattern in the results is that participants who identified an initial first-choice college ranked by Barron's as "Most Competitive" (75% of all participants) had substantially different patterns of applications and college choices than did the remainder of the students. We report regression results separately for (1) all students and (2) the subset of students with initial first-choice colleges that were "Most Competitive". Of course, some students who were offered counseling may have altered their first-choice college as a result of initial meetings with counselors, though we have no evidence of instances where this occurred.[23] For this reason, we exclude information about initial first-choice college from regression analysis for the entire sample of students.

A. Choice of Where to Apply

Table 5 lists the average number of applications submitted by students. The calculations in this table exclude seven participants, including four who were offered counseling, who were admitted and enrolled through Early Decision programs. These students either withdrew or did not submit any other applications. Since they did not submit a full roster of applications, we exclude them from the analysis in this section.[24] Students offered

[22] The students were assigned at random in order to assure that each group would be similar in terms of geographic location and average incomes for the neighborhoods where they lived, but there was no assurance that this procedure would yield groups of students that would be similar in other characteristics.

[23] We identified "initial first-choice colleges" for each student from fall phone interviews; these interviews were conducted when the students had met with the counselors (at most) a few times. There were no instances where either a student or a counselor reported that their initial meetings caused the student to change his or her first-choice college.

[24] Five participants, all of whom were offered counseling, received special scholarships from either POSSE or Questbridge that matched them with particular colleges. Four of them accepted this offer, but given the

counseling, particularly those who had a "Most Competitive" first choice college, applied on average to more "Most Competitive" colleges than did those who were not offered counseling, though this difference in numbers is not statistically significant.

We divided the set of "Most Competitive" colleges into a one group consisting of the most selective (the Ivy League Colleges, Cal Tech, Duke, MIT, Stanford, Williams) and a second group including all other "Most Competitive" colleges. Across all students, those offered counseling submitted significantly more applications to this second set of "Most Competitive" colleges (1.77 vs. 1.20 average applications overall with difference significant at the 10% level; 2.23 vs. 1.38 average applications overall for students with "Most Competitive" first choice college, with difference significant at the 5% level).[25]

Table 5: Average Number of Applications Submitted

	Students Offered Counseling	**Students Not Offered Counseling**	**Students Offered Counseling**	**Students Not Offered Counseling**
1st Choice College	**ANY**	**ANY**	**"Most Competitive"**	**"Most Competitive"**
Average Number of Applications	6.67 (3.04)	6.94 (2.69)	7.51 (2.57)	7.18 (2.71)
Average Number of Applications to "Most Competitive"	3.03 (2.78)	2.74 (2.22)	3.91 (2.66)	3.47 (2.15)
Average Number of Applications to Less Selective "Most Competitive"	1.77 (1.94)	1.20 (1.12)	2.23 (1.38)	1.38 (1.16)
Total Students	48	50	35	34

* Based on responses to spring survey and interview. Standard deviations are presented in parentheses. These calculations exclude seven students who were admitted through formal Early Decision programs.

timing of the offers, all but one of them applied and received admissions decisions from other colleges. We exclude the one student who received a special scholarship and applied to only one college from analysis in this section (as one of the seven students described as Early Decision admits in the text).

[25] Interestingly, students offered counseling were somewhat more likely to have a first choice college among the 13 most selective colleges in the "Most Competitive" category (34 of 38 vs. 29 of 37), so the differences in application patterns do not seem to be a function of the particular first-choice college for each student.

The results in Table 5 are consistent with comments from counselors, who indicated that students were ambitious but not very sophisticated in forming their college lists.

> *I knew that there might be a lack of information out there, but I was surprised that the gap was as big as it was.*
>
> *She had no idea of the Reach / Match / Safety categorization.*
>
> *She was focused on Harvard, but probably was not strong enough a candidate.*
>
> *She was thinking only in terms of Ivy League schools, but her scores were not high enough to be really competitive.*
>
> *Her initial list was just top tier schools.*
>
> *He was applying high, but didn't know about the middle.*

Of course, the counselors were not particularly oriented to "Most Competitive" colleges in the Barron's classifications.[26] They did not always recommend that students should apply to more colleges or focus on more selective colleges. Their main goals were for students to identify colleges that matched their interests and qualifications and to create sensible college lists. In the best cases, study counseling helped students to refine their college lists to include only excellent matches and better strategic choices.

> As a result of working with her, I applied to colleges that fit me better and had what I wanted. As a result, I was able to write better about my interests in those colleges, and that improved my chances of being able to get in.
>
> When I came to her, I had a small list. I would have done myself a disservice had it stayed that way.
>
> He helped me find a balance between safety, match, and tough schools, rather than applying to all really tough schools.
>
> Because of her, I added University of Rochester, Dartmouth, and Michigan. [but] … she took out a few safety schools. I applied to the University of Pittsburgh Early Action [and was admitted early]. She asked me about a few safety schools -- would I rather go there or Pitt? I said I would rather go to Pitt, so there would be no point applying to those schools.

Only one student expressed any complaints about advice from the counselor.

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[26] We provided counselors with no specific information about how we would evaluate their results.

> He was trying to convince me to apply to schools that I had researched and decided not to apply to. He would try to convince me to apply anyway. … I thought he was trying to make it seem more of his choice than my choice. I didn't ask for his help as much as I should have because I thought he might not agree with all the decisions I was making.

Table A1 (see Appendix) presents regression analysis results to assess the effect of being "offered counseling" on total number of applications and on the number of applications submitted to colleges ranked by Barron's as "Most Competitive". Consistent with the results of Tables 5, these regression results suggest a positive but statistically insignificant effect of counseling on applications to "Most Competitive" colleges. The results in columns (5) and (6), with applications to "Less Selective, Most Competitive" colleges are on the borderline of statistical significance. For students with an initial first choice college that was "Most Competitive", the result in column (6) indicates a point estimate of an increase of 0.66 applications per student to colleges in this category for those offered counseling.

B. Application Quality and Admissions Decisions

College application essays take on almost mythical importance in the minds of high school students. But the participants in this project often have limited experience or training in analytic writing, particularly about themselves, as exemplified by the following comments from study counselors.

> *She had so many strong points that she wasn't addressing in the essay.*

> *He was guilty of a standard thing. Students think about these essays as more than they actually are, but you're not going to get it published. He started out with a metaphorical, obscure essay.*

> *It was hard for him to be confident that someone would care about his voice.*

Almost all of the study counselors reported that they had helped students with their essays, giving editorial suggestions to help tighten the writing and strengthen the students' presentation of themselves. On a more basic level, several counselors felt that helped to identify and eliminate unacceptable aspects from the essays.

[I encouraged her] to reorient her essay from [focusing on] complaints about mother to about [emphasizing] her own business.

Her [initial] essay was really dark.

I think he would have left in disparaging remarks about his classmates in his essay [if I hadn't advised him to remove them].

He wasn't aware that his essay could be perceived as offensive or that it included a lot of anger towards women.

Still, in several cases, the counselors explained that they were less than satisfied with a student's final application, because they wanted to make sure that the application represented the student's own work.

She had strong SAT math scores, but her essay was extremely literal. Her writing was clear and grammatically correct, but very flat and factual. We discussed [and worked on] her essay, but it ended up lacking depth.

She was limited in the end by her writing style.

There is a fine line of providing assistance and maintaining student's voice. [In the end] he is what he is.

It [the final version] was not as tight as I would have liked, but it was all his.

In addition, some students were not always responsive to suggestions from their study counselors about how to improve their essays.

He didn't have any sense of how to present himself in essays. We discussed a story of a racial incident at his school – I thought he was quite heroic – but he was reticent to write about it.

They wanted to get the task done for essays, but not to the degree that I would have liked.

I'm not sure how much he took my advice. [His essay was] fascinating, but too technical. I didn't see his final application. He would only take so much help.

We asked three study counselors with extensive college admissions experience to assess the essays and applications for the students they did not know. Eighty students provided sufficient information to enable the counselors to rate their materials; almost all of them were evaluated by two counselors. The counselors graded both the essay and the overall quality of the application on a standard "A = 4", "B = 3", "C = 2", "D = 1", "F = 0" scale.

Table 6 compares the results for students who were matched with counselors to the results for students who were not matched with counselors. The average ratings for students offered counseling were very slightly higher than for those not offered counseling, but by essentially trivial amounts. Table A2 presents regression analysis results to assess the effect of being "offered counseling" on application and essay quality. None of the results are significant and in three of four specifications, the point estimates for the effect of counseling are actually negative (though close to zero). This suggests that counseling had little or no discernible effect on application quality.

Table 6: Average Ratings for Quality of Essays and College Applications

	Students Offered Counseling	**Students Not Offered Counseling**	**Students Offered Counseling**	**Students Not Offered Counseling**
1st Choice College	**ANY**	**ANY**	**"Most Competitive"**	**"Most Competitive"**
Application Overall Rating	3.12 (0.75)	3.03 (0.75)	3.22 (0.68)	3.10 (0.75)
Essay Rating	3.25 (0.63)	3.20 (0.69)	3.24 (0.64)	3.18 (0.69)
Total Students	42	38	34	29

* Based on responses to spring survey and interview. 80 students provided enough information for their applications to be rated, while 72 students provided enough information for their essays to be rated. Standard deviations are presented in parentheses.

Admissions Outcomes

Table 7 summarizes the admissions outcomes for students in the study. Across all students in the study, nearly two-thirds of applications resulted in positive outcomes of admission. Further, Table 7 indicates that these students were very likely to be admitted to all but colleges classified as "Most Competitive". For example, among those offered counseling, the only student to be rejected from "Very Competitive" or less competitive colleges had an unusually low SAT math score of 420, more than 100 points below the score for any other student in the study.

Given that we find very little effect of counseling on application quality, there is little reason to anticipate an effect of counseling on admissions outcomes conditional on

applying. Not surprisingly, the admission results for the two groups of students, as reported in Table 7 are quite similar.

Table 7: Admissions Decisions and Barron's College Ranking

Barron's College Classification	All	Offered Counseling	Not Offered Counseling
Most Competitive	45.0% (127 of 282)	47.3% (69 of 146)	42.6% (58 of 136)
Highly Competitive	82.4% (136 of 165)	80.5% (62 of 77)	84.1% (74 of 88)
Very Competitive	91.1% (72 of 79)	93.6% (29 of 31)	89.6% (43 of 48)
Other	97.5% (116 of 119)	94.4% (51 of 54)	100% (65 of 65)
TOTAL	69.9% (451 of 645)	68.5% (211 of 308)	71.2% (240 of 337)

* Based on responses to spring survey and interview. These tabulations include results for 100 students.

C. College Choices

Table 8 compares the college choices for students, with the colleges classified by their Barron's ranking. Based on these results, the margin of interest in terms of enrollment is between "Most Competitive" and "Highly Competitive" colleges in the Barron's rankings. Including all students in the study, those offered counseling were 9.3 percentage points more likely to enroll in "Most Competitive" colleges. Restricting attention only to those students whose original first choice college was "Most Competitive", those offered counseling were 9.9 percentage points more likely to enroll in "Most Competitive" colleges. Interestingly, students not offered counseling were approximately 10 percentage points more likely to enroll in "Highly Competitive" colleges. That is, if there was any effect of counseling, it promoted students from "Highly Competitive" colleges to "Most Competitive" colleges.

The point estimates suggested by Table 8 are reasonably large in magnitude, but are only about half as large as necessary for statistical significance given the small sample size of the pilot study. Table A4 presents regression analysis results to assess the effect of being "offered counseling" on admission and enrollment to "Most Competitive" colleges. These regression results provide point estimates of a 3.1 percentage point increase in probability of admission to at least one "Most Competitive" college and an 11.0 percentage point increase in probability of enrollment in a "Most Competitive" college, though none of these results is statistically significant.

Table 8: Ranking of Colleges for Students Offered and Not Offered Counseling

	Students Offered Counseling	Students Not Offered Counseling	Students Offered Counseling	Students Not Offered Counseling
1st Choice College	**ANY**	**ANY**	**"Most Competitive"**	**"Most Competitive"**
"Most Competitive"	27 (51.9%)	23 (42.6%)	26 (66.7%)	21 (56.8%)
"Highly Competitive"	7 (13.5%)	12 (22.2%)	5 (12.8%)	9 (24.3%)
"Very Competitive"	3 (5.8%)	2 (3.7%)	2 (5.1%)	1 (2.7%)
"Competitive" or Lower	15 (28.9%)	17 (31.5%)	6 (15.4%)	6 (16.2%)
Total Students	52	54	39	37

* Based on responses to spring survey and interview. These tabulations include results for 100 students.

Six counselors identified cases where they believed that their work with students clearly resulted in the change in the student's ultimate choice of college. In four cases, a student enrolled at a college where he/she would not have applied without the advice of the counselor.[27] A fifth counselor indicated that the student dramatically improved her application in their work together; he believes that the student would not have been admitted to the college that she chose (Harvard) without counseling. A sixth counselor explained that a student followed her advice that Amherst College was a better match than Boston University, but would otherwise have chosen Boston University.

Qualitative interviews these six students suggest that three of them would not have enrolled in "Most Competitive" colleges without counseling. These three students had second-choice colleges that were not "Most Competitive". Since 52 students were offered counseling, the interviews suggest a lower-bound of 3 / 52 = 5.8% for the point estimate of the effect of counseling on the number of students enrolling in "Most Competitive" colleges. This lower-bound from qualitative interviews is generally consistent with the tabulations in Table 9 and the regression results in Table A4.

[27] These colleges were Bates College, Case Western Reserve, Cooper Union, and Dartmouth College. Each of these four students confirmed in separate qualitative interviews that they would not have applied to these colleges on their own.

VI. Discussion

The results of this pilot study suggest several important observations about the effects of individualized counseling. First, the importance and likely nature of college counseling depends critically on the geographic location of students. Given that the students in this study were all located in states with Ivy League colleges, it is not surprising that the majority of students (both those offered and not offered counseling) were ambitious in their choice of applications. As described in Section 5, counselors in the study generally encouraged students to consider and to apply to a wider range of schools just below the most selective. But in a different geographical context, the counselors would likely have shaped a different approach.[28]

Second, the study suggests that counselors are much more likely to influence student outcomes through the choice of where to apply rather than by helping students to improve the quality of their applications. In fact, counseling might have had even greater effect on application strategies if the counselors could meet with students before the fall of the senior year of high school. Given the timing of the study, the counselors had little ability to influence the choice of college visits and the choice of early application strategies for students.

Third, any positive effect of college counseling is likely to be incremental rather than dramatic. Even if we take the point estimates for the effect of counseling as accurate (though they are statistically insignificant for the sample size of the current study), the primary effect of counseling for this group of students is to shift enrollment from "Highly Competitive" to "Most Competitive" colleges. It is also possible that counseling helped students to enroll at more suitable colleges within a given Barron's classification level, but it is beyond the scope of the study to identify such effects.

[28] Avery and Turner (2009) studied the application patterns for students in Virginia. Though the students in the two studies had similar qualifications, those in Virginia submitted many fewer applications on average and were much less likely to apply to "Most Competitive" colleges, even though two public colleges in Virginia (University of Virginia and College of William and Mary) are ranked "Most Competitive".

Fourth, the effect of counseling is limited by both the need of students for expert advice and by the willingness of students to follow that advice. Among the 52 students offered counseling, seven refused the offer. Six of these seven students are attending "Most Competitive" colleges (Brown, Duke, Harvard (2), MIT, NYU),[29] and did not need counseling to be confident of a good outcome in the admissions process.

Of the 45 students who accepted the offer of counseling, more than one-third (35.6%) did not always follow the advice of the counselors about where to apply. Four students agreed to meet with counselors but never did so; they missed appointments and did not respond to follow-up invitations from those counselors. Three of these students originally identified a first-choice college that was "Most Competitive", but none are attending a "Most Competitive" college.

Among the 41 students who met with a study counselor, nearly 30% of the students did not follow through on that advice, not applying to certain colleges that the counselors viewed as critical to their success. In three cases, the counselor made fruitless arrangements for visits to particular colleges.

> *Initially he was interested in Brown. I suggested Wesleyan and Tufts and even set up an interview for him at Wesleyan, but he never applied [to any of these three].*
>
> *I got her late admission to a weekend for minority students at Holy Cross – where she would have done well – but she didn't apply.*
>
> *He didn't follow up on my arrangement for a free trip to Tufts. I was desperately trying to get him to apply to Tufts or Harvard, but he was worried about fee waivers and he wouldn't do it.*

The first two students quoted above are not attending "Most Competitive" colleges in the Barron's list, but it seems at least reasonably likely that they would be doing so if they had visited and applied to the colleges that were suggested by study counselors. Similarly, one study counselor suggested particular "Most Competitive" colleges to each of the two students he advised, but they did not apply and ultimately enrolled at less selective colleges.

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[29] The seventh student explained that he had already decided to enroll at the local community college.

I pushed him towards Carnegie Mellon [for his interest in engineering] and he didn't apply. He would have gotten in and I would have put him in touch with the minority recruiter, but it may have seemed too far away to him.

I gave her a list of more competitive schools … She would have been a likely candidate at a lot of these schools since she is demographically interesting, but there was just no moving her on this. I sent a list of 15 colleges to her, but she didn't apply to any of them.

Another student did not retake the SAT even though the study counselor clearly believed that this would have dramatically enhanced his opportunities.

It wasn't that he hadn't done so well – I just knew that he would do better. … Then I tried to talk him into the ACT, but he just wouldn't do it.

We reviewed the cases of each student who was offered counseling but did not ultimately enroll at a "Most Competitive" college, and classified them into six separate categories, as represented in Table 9. Categories 1 through 4 include students who (probably) achieved the best outcome possible given the advice of the study counselors. Those students in categories 1 and 2 preferred their opportunities and generous scholarships at colleges not ranked as "Most Competitive". Those in category 3 and 4 were probably not admissible or were poor matches for "Most Competitive" colleges, as reflected by the fact that they followed the advice of counselors but did not apply or were not admitted to "Most Competitive" colleges.

Table 9: Results for Students Offered Counseling, Not Enrolled at "Most Competitive" College

Category	Number of Students
1. Received POSSE or Questbridge Scholarship	2 (8%)
2. Admitted to "Most Competitive", Did Not Enroll	2 (8%)
3. Applied to "Most Competitive", Not Admitted	7 (28%)
4. Did Not Apply to "Most Competitive": First-Choice College in a Different Category	2 (8%)
5. Did Not Meet with Counselor	4 (16%)
6. Met with Counselor, Did Not Follow Advice	8 (32%)
TOTAL	**25**

Combining categories 5 and 6, nearly half of the students who were offered counseling and did not enroll in "Most Competitive" college either did not meet with a counselor or did not wholly follow the counselor's advice. In addition, six of these twelve students

identified an original first-choice college that was ranked "Most Competitive" by Barron's. It seems likely that at least some of these students would ultimately have enrolled at "Most Competitive" colleges if they had been more receptive to the advice that they were offered.

Table A4 extends prior analysis to provide speculative assessments of the effect of counseling if all students who accepted the offer met with counselors and followed the advice they received.[30] In sum, our best assessment is that counseling would have been approximately twice as effective if all students had followed the guidance offered by study counselors.

The results in Table A4 are based on the same regression specification as in Table A3, but with the addition of a single new independent variable – a dummy variable identifying the 12 students who met with a counselor but did not follow the counselor's advice and the four additional students who accepted the offer of counseling but never actually met with a counselor. Not following advice is estimated to have a large and statistically significant effect, reducing the probability of enrollment at "Most Competitive" colleges by 30.1 percentage points among all students and by 39.0 percentage points among students with an original first-choice college ranked by Barron's as "Most Competitive". Correspondingly, counseling is estimated to increase the probability of enrollment at "Most Competitive" colleges by 22.6% among students with an original first-choice college that was "Most Competitive" and who follow the advice of counselors; this estimate is significant at the 10% level.

Ideally, our evaluation of the effects of the counseling provided by the study would focus on student contentment and the college and career opportunities that were available to them at high school graduation. But since these concepts are quite nebulous, it is necessary to adopt imperfect numerical measures (such as the Barron's rankings) for the

[30] Since the choice not to follow advice of the counselor is endogenous to the randomized design of the study, we intentionally did not incorporate this information into the regression frameworks in Tables A1 through A3.

purpose of evaluation. But adopting any external measure willfully ignores the possibility that students would have preferences that clash with the measure rankings. From the perspective of "Revealed Preference", it is natural to conclude that when students discarded the advice of a study counselor, that advice must not have been suitable. Yet, at the same time, since we find the greatest effect of not following advice for students who identified a "Most Competitive" college as their first choice, it is hard to believe that it was truly in the self-interest of these students to ignore the advice offered by study counselors.

VII. Conclusion

The qualitative and quantitative results of this pilot study provide suggestive evidence of the value of individualized college counseling for high-achieving students from low-income backgrounds. Specifically, the results of the study suggest that counseling can have an important influence on the application patterns of these students. Though more than 60% of the students in the study identified Ivy League colleges or MIT as a first-choice college, they were typically not aware of slightly less selective colleges that would be good matches for their interests and qualifications. As shown in Table 5, students offered counseling submitted approximately fifty percent more applications to less selective colleges within the group of "Most Competitive" colleges than did students not offered counseling, producing a result on the borderline of statistical significance despite the small sample size of the study. Primarily as a result of this difference in application patterns, students offered counseling were approximately nine percentage points more likely to enroll in "Most Competitive" colleges than students not offered counseling.

While these results provide suggestive evidence of the value of counseling, the study also provides two broad reasons that counseling is not even more effective. First, though qualitative interviews suggested that counseling helped students to improve their college applications, the results in Table 6 suggest little or no difference in assessed quality of applications for students offered and not offered counseling. Second, more than one-third of the students who accepted the offer of individualized counseling either did not meet with counselors or did not follow the advice that they were given. The results in Table A4 suggest that counseling might have had about twice as much effect on student outcomes if all students had followed advice.

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Table A1. Regression Results: Determinants of Number of Applications

	(1)	(2)	(3)	(4)	(5)	(6)
					MC_2	MC_2
Dependent Variable	Apps	Apps	MC Apps	MC Apps	Apps	Apps
Offered Counseling	-0.22	0.38	0.15	0.32	0.39	0.66 *
	(0.53)	(0.63)	(0.46)	(0.58)	(0.30)	(0.39)
SAT Verbal	0.008 *	0.002	0.014 **	0.012 **	0.006 **	0.005
	(0.004)	(0.005)	(0.004)	(0.004)	(0.002)	(0.003)
SAT Math	0.002	0.005	0.002	0.003	-0.003	-0.003
	(0.005)	(0.005)	(0.004)	(0.005)	(0.003)	(0.003)
SAT Missing	4.55	4.12	9.35 **	9.07 **	1.64	0.93
	(3.29)	(4.06)	(2.87)	(3.73)	(1.82)	(2.48)
Male	-1.10 *	-1.38**	0.11	-0.08	0.00	-0.03
	(0.56)	(0.67)	(0.49)	(0.62)	(0.31)	(0.41)
"Very Rare" for HS Grad to Attend Selective College	0.61	1.15 *	0.08	0.47	0.10	0.45
	(0.54)	(0.62)	(0.47)	(0.57)	(0.30)	(0.38)
Neither Parent Graduated from Coll.	-0.23	0.51	0.56	0.23	0.17	0.18
	(0.63)	(0.78)	(0.56)	(0.71)	(0.35)	(0.47)
One Parent Has Graduate Degree	-0.39	0.67	0.69	0.45	0.36	0.32
	(0.80)	(0.96)	(0.70)	(0.86)	(0.44)	(0.59)
Used Fee Waivers	2.42 **	1.98 **	1.39 **	1.56**	0.73 **	0.70 *
	(0.57)	(0.68)	(0.50)	(0.63)	(0.32)	(0.42)
Constant	0.41	1.65	-8.45 **	-7.09 *	-1.36	-0.29
	(3.20)	(3.89)	(2.79)	(3.57)	(1.77)	(2.37)
Only 1st Choice "Most Competitive"	NO	YES	NO	YES	NO	YES
Observations	98	69	98	69	98	69
R-squared	0.30	0.26	0.31	0.26	0.19	0.18

Standard errors in parentheses
* significant at 1%;
**significant at 5%

Notes: Based on responses to qualitative interviews and written surveys. 105 students provided sufficient information to be included in analysis; the results exclude seven applicants who were admitted through formal Early Decision programs.

Table A2. Regression Results: Determinants of Number of Admissions

	(1)	(2)	(3)	(4)	(5)	(6)
			MC	MC	MC_2	MC_2
Dependent Variable	Admits	Admits	Admits	Admits	Admits	Admits
Offered Counseling	-0.39	0.21	0.08	0.13	0.31	0.46
	(0.48)	(0.56)	(0.36)	(0.48)	(0.29)	(0.42)
SAT Verbal	-0.001	-0.05	0.008**	0.006	0.003	0.002
	(0.004)	(0.004)	(0.003)	(0.004)	(0.002)	(0.003)
SAT Math	0.004	0.008	-0.001	-0.000	-0.001	-0.001
	(0.004)	(0.005)	(0.003)	(0.004)	(0.003)	(0.003)
SAT Missing	2.98	3.30	4.09*	4.42	1.14	0.65
	(2.97)	(3.61)	(2.21)	(3.08)	(1.77)	(2.51)
Male	-1.23**	-1.71**	0.03	-0.22	0.10	0.02
	(0.51)	(0.60)	(0.38)	(0.51)	(0.30)	(0.42)
"Very Rare" for HS Grad to Attend Selective College	0.51	1.20**	0.06	0.42	-0.009	0.20
	(0.49)	(0.55)	(0.36)	(0.47)	(0.29)	(0.38)
Neither Parent Graduated from Coll.	0.24	0.91	0.42	0.22	0.25	0.16
	(0.57)	(0.69)	(0.42)	(0.59)	(0.34)	(0.48)
One Parent Has Graduate Degree	-0.09	1.08	0.61	0.49	0.33	0.21
	(0.72)	(0.85)	(0.54)	(0.73)	(0.43)	(0.59)
Used Fee Waivers	1.10**	0.95	0.32	0.55	0.21	0.30
	(0.52)	(0.61)	(0.39)	(0.52)	(0.31)	(0.42)
Constant	1.44	2.02	-3.41	-2.74	-0.95	-0.05
	(2.89)	(3.46)	(2.15)	(2.95)	(1.72)	(2.40)
Only 1st Choice "Most Competitive"	NO	YES	YES	YES	NO	YES
Observations	96	68	97	68	97	68
R-squared	0.14	0.24	0.17	0.10	0.08	0.05

Standard errors in parentheses
* significant at 1%;
** significant at 5%

Notes: Based on responses to qualitative interviews and written surveys. 104 students provided sufficient information to be included in analysis; the results exclude seven applicants who were admitted through formal Early Decision programs.

Table A3. Determinants of number of Admission and Enrollment at Most Competitive Rank

	(1)	(2)	(3)	(4)
Dependent Variable	Admitted to "Most Competitive"	Admitted to "Most Competitive"	Enrolled at "Most Competitive"	Enrolled at "Most Competitive"
Offered Counseling	0.016	0.027	0.079	0.112
	(0.108)	(0.117)	(0.104)	(0.121)
SAT Verbal	0.002**	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
SAT Math	0.001	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
SAT Missing	0.710**	0.424	0.675	0.376
	(0.103)	(0.106)	(0.153)	(0.293)
Male	0.017	0.009	0.064	0.095
	(0.114)	(0.126)	(0.110)	(0.128)
Very Rare for HS Grad to Attend Selective College	-0.127	-0.059	-0.056	-0.032
	(0.108)	(0.115)	(0.106)	(0.119)
Neither Parent Graduated from Coll.	0.139	0.039	0.145	0.112
	(0.127)	(0.144)	(0.126)	(0.147)
One Parent Has Graduate Degree	-0.023	-0.087	0.106	0.151
	(0.164)	(0.185)	(0.156)	(0.162)
Used Fee Waivers	-0.091	-0.084	0.031	0.005
	(0.115)	(0.126)	(0.115)	(0.133)
Predicted Probability at X-Bar	0.538	0.695	0.472	0.624
Only 1st Choice "Most Competitive"	NO	YES	NO	YES
Observations	106	76	106	76
Pseudo R-squared	0.19	0.06	0.21	0.04

Standard errors in parentheses
* significant at 1%;
** significant at 5%

Notes: Based on responses to qualitative interviews and written surveys. 106 students provided sufficient information to be included in analysis; the results exclude seven applicants who were admitted through formal Early Decision programs.

Table A4. Regression Results with "Did Not Follow Advice" Included as Independent Variable

	(1)	(2)
Dependent Variable	Enrolled at "Most Competitive"	Enrolled at "Most Competitive"
Offered Counseling	0.186	0.234 *
	(0.119)	(0.132)
Did Not Follow Advice	-0.314*	-0.409 **
	(0.134)	(0.181)
SAT Verbal	0.001	0.000
	(0.001)	(0.001)
SAT Math	0.001	0.000
	(0.001)	(0.001)
SAT Missing	0.636	0.295
	(0.216)	(0.442)
Male	0.082	0.137
	(0.122)	(0.132)
Very Rare for HS Grad to Attend Selective College	-0.035	-0.002
	(0.107)	0.122
Neither Parent Graduated from Coll.	0.147	0.117
	(0.129)	(0.151)
One Parent Has Graduate Degree	0.124	0.170
	(0.157)	(0.160)
Used Fee Waivers	0.048	0.040
	(0.117)	(0.136)
Predicted Probability at X-Bar	0.467	0.629
Only 1st Choice "Most Competitive"	NO	YES
Observations	106	76
Pseudo R-squared	0.11	0.07

Notes: Based on responses to qualitative interviews and written surveys. 106 students provided sufficient information to be included in analysis; the results exclude seven applicants who were admitted through formal Early Decision programs.