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College Choices Have Consequences

By *Caroline Hoxby*

Of all countries, the United States has perhaps the greatest range of postsecondary institutions. Its top research universities and elite liberal arts colleges have the richest resources per student in the world. At the other extreme, citizens of other wealthy countries are often surprised by the modest resources and minimal admissions standards of some American postsecondary programs, a good share of which have little history of accreditation. It is not a coincidence that the United States has such a broad array of institutions: It is a manifestation of the country's having a fairly free market for postsecondary education, one that allows startups, program innovation, and participation by non-public entities—both non-profit and for-profit.

It is not unusual for political or media commentators to make statements that draw upon both ends of the higher education spectrum in the same breath. For instance, someone may comment on rapidly rising college tuition and fees at Berkeley (a public, highly selective university) and

then comment on graduation or default rates at non-selective, for-profit schools. Such statements can produce a great deal of confusion because diverse parts of the higher education spectrum are often on trajectories that are not just different but reflect different fundamentals.

In this brief, I discuss the latest evidence on how students make college choices and the consequences of those choices.

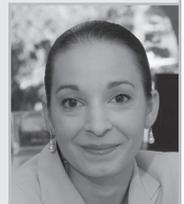
Colleges Differ a Great Deal

In a recent paper (Hoxby 2009), I show that U.S. colleges differ dramatically in how much they spend on instruction and what resources (faculty, laboratories, etc.) they offer students. The most selective colleges, where selectivity is measured based on students' college entrance scores, spend about \$100,000 per student, per year on student-oriented services (instruction, student support, academic support, and operation and maintenance of facilities used by students). The least

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selective colleges spend less than \$5,000 on the same services. No one should be surprised, therefore, that the most selective colleges offer faculty, class sizes, study opportunities, laboratories, and libraries that are much richer than those of the least selective colleges.

As shown in the figure, today's enormous differences in student-oriented expenditures did not exist 45 years ago. (The figure is in inflation-adjusted dollars.) The most selective schools spent only about \$17,400 per student in 1967. The least selective schools spent about \$3,900. Note that, regardless of what is reported in popular media, college spending has not risen much at less selective colleges. It has just about kept pace with the real increase in the incomes of people with college degrees, and this is not surprising because they are the people who teach postsecondary courses.

Before considering explanations for and implications of the expenditure differences, it is crucial to examine two additional pieces of evidence. The next figure shows that students at more selective colleges pay for *less* of their college education. In fact, in recent years, students at the most selective colleges have paid tuition and fees equal to only 20 percent of the expenditures on their education. The vast majority of the other 80 percent of expenditures is paid for by gifts to colleges. At these institutions, even students who receive *no* financial aid do not pay for much of the expenditure on their education. At the other extreme, students at the least selective colleges pay tuition and fees equal to about 50 percent of the expenditures on their education, with the remainder coming not from gifts but from federal and state taxes. Subsidies (the difference between

expenditure and tuition and fee payments) were not always so large—45 years ago, students at even the most selective colleges enjoyed only modest subsidies, as did students at less selective institutions.

As a rule, the same colleges that were more selective 45 years ago are more selective now and vice versa. However, the phrase “more selective” does not mean today what it meant then because the colleges that fall into this category have steadily raised their admissions standards over time. Conversely, colleges that were less selective in 1967 have lowered their admissions standards. This is shown in the next figure, which displays college admissions standards in absolute (unchanging) terms. What is the explanation? Relative to students in the past, students today care less about the proximity of a college and more about whether it enrolls students whose achievement is similar to their own. High-scoring students who used to attend a local, medium-selectivity college generally try to attend a high-selectivity college today even if it is far away. As students increasingly match themselves to college peers with similar achievement, they drive up the selectivity of more selective colleges and simultaneously drive down the selectivity of less selective colleges.

I argue in Hoxby (2009) and elsewhere that these phenomena—increasing expenditures and subsidies concentrated at the institutions whose selectivity is rising most—grow causally out of the economics of the market for higher education. They are not a mere coincidence. However,

Figure 1

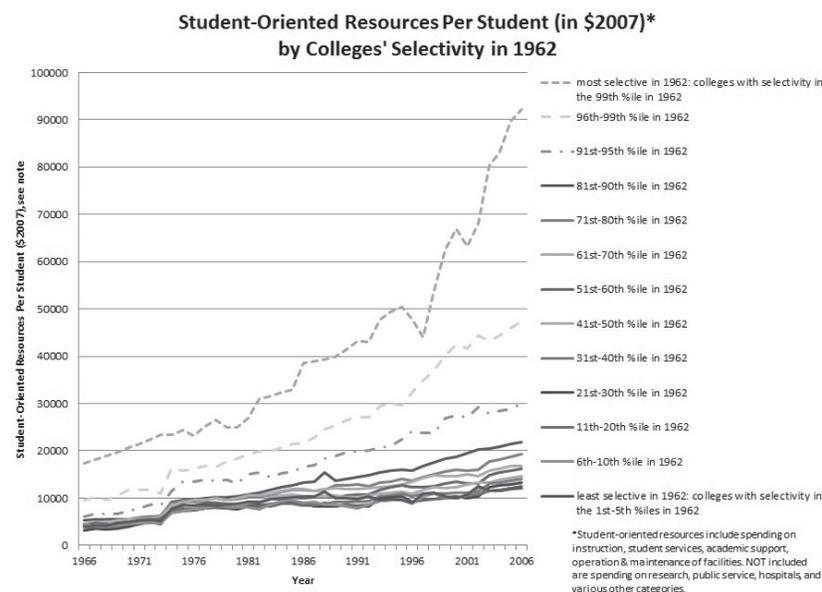


Figure 2

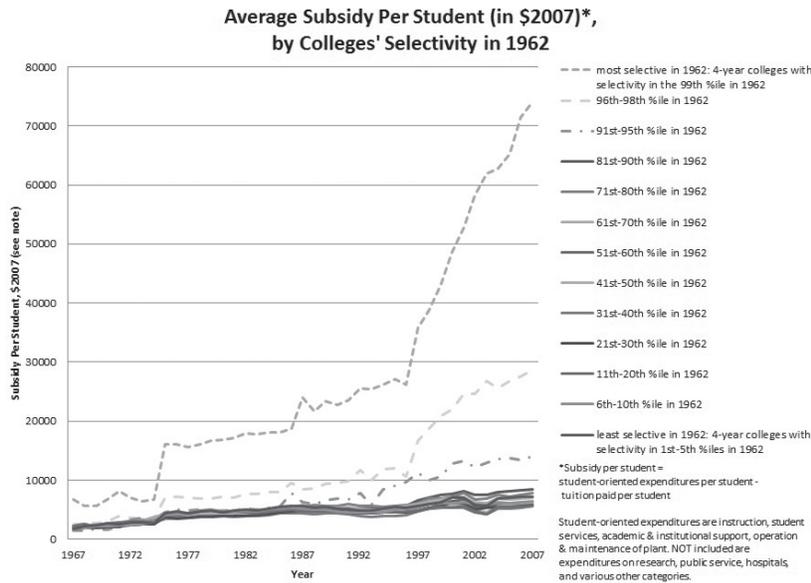
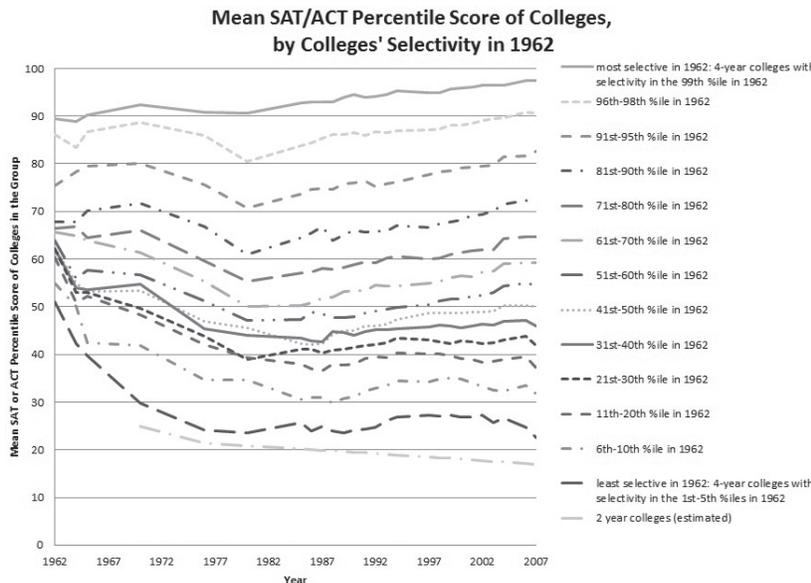


Figure 3



for the purposes of this brief, we need to take away only a few lessons. Students who attend more selective colleges enjoy greater expenditures on their education, and they pay for a smaller share of those

expenditures. In addition, they interact with classmates who are higher-achieving. All in all, this is a very different college experience from the one at the other end of the selectivity spectrum.

The Latest Evidence on the Return to Attending a More Selective College

At this point, a logical question is whether the higher expenditures and higher-achieving peers make any difference. The *experience* could differ among colleges of differing selectivity but students' *outcomes* could be similar at all of them. In such a case, college choices would not have lasting consequences.

For decades, researchers have attempted to answer the question of whether it pays to attend a more selective college. Their answers have generally been flawed because higher aptitude, more motivated students tend to enroll in more selective colleges. It is very hard to sort out whether the higher earnings and other good outcomes of graduates of top colleges are due to *who they are* or due to *what they got out of college*. Perhaps they would have had exactly the same outcomes if they had attended colleges that spent less and had lower-achieving peers. Given the flawed state of the evidence, I used to suggest that people pay little attention to it. Those who believed that attending more selective colleges paid off could keep believing it, and those who believed that students would turn out the same regardless could keep believing that too.

In the past few years, however, there has been a breakthrough because researchers have employed regression discontinuity methods to generate convincing evidence. A simple explanation of this method is as follows. Suppose

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that a selective college wants to admit 1,000 freshmen and has more than enough applicants. It constructs some index of the desirability of each of its applicants—a combination of their college exam scores, high school grades, extracurricular activities, and so on. It orders the students according to the index and admits the students numbered 1 to 1,000. Student 1,001 is not admitted and ends up attending a less selective college. Students 1,000 and 1,001 do not have meaningful different incoming achievement or motivation: The difference between them is so tiny that it is arbitrary. Thus, if we follow them over time and find that student 1,000 has substantially better outcomes than student 1,001, we must attribute this to the difference in their college experience, not to the difference in their incoming achievement or motivation. This is the essence of regression discontinuity evidence, although studies that use the method implement it with sophisticated econometrics.

Today, there is a crop of such studies: Hoekstra (2009), Saavedra (2009), Cohodes and Goodman (2012), Hastings, Neilson, and Zimmerman (2012), Kaufmann, Messner, and Solis (2012). All of these studies find substantial positive effects of attending a more selective college, and they examine a variety of outcomes: earnings, graduating on time, even the qualities of the person the student marries. Moreover, no study that uses the convincing regression discontinuity method has found negligible or even small effects of attending a more selective college. Hoekstra, whose study is the most useful

for our purposes, shows that students who attend a more selective university have earnings that are 20 percent higher each year than those of students who attend less selective colleges (less selective by 10 to 13 percentile points in terms of the median student's SAT score). This earnings difference swamps the difference in the expenditures between the more and less selective colleges in his study: about 6 percent. Moreover, people may have higher earnings for 40 or more years, but higher expenditures on colleges last only 4 years. In short, students who attend more selective colleges not only have a different experience, they also have substantially better outcomes.

How Do Students Choose Colleges?

Given the differences in experience and outcomes among U.S. colleges, it is important that students choose among them thoughtfully. The decisions are probably most important for students whose achievement is fairly high because they have the most choices open to them. However, low-achieving students also have important choices to make—a point to which I return below.

In Avery, Glickman, Hoxby, and Metrick (2013) and Avery and Hoxby (2004), we analyze the college choices of high-achieving students who attend high schools that graduate at least several students each year who score at or above the 90 percentile on the SAT or ACT exam. While the vast majority of these students attend public high schools and are middle class (the median student in

the sample has family income at the 64th percentile), we nevertheless expect them to be more sophisticated than students who attend high schools where there is no critical mass of high-achieving students.

We find that, on the whole, these students are very systematic when choosing colleges. They generally follow the advice to apply to several “match” colleges, a few “reach” colleges, and a couple of “safety” schools. (College counseling websites and professional college counselors routinely proffer this advice. See, for instance, College Board 2012.) These students very strongly prefer the most selective college that admits them: All else being equal, they are 63 percent more likely to attend this college. These students also tend to choose colleges with higher instructional spending, more distinguished faculty, and better libraries, laboratories, and other facilities. The students are largely indifferent to the distance from a college to their home, and they appear not to care whether a college is public or private (controlling for its resources, peers, and tuition). Although they may be more sophisticated than others, these students nevertheless do exhibit a few anomalies: They appear to value a dollar of loans about as much as 67 cents of grants, which means that they greatly overvalue loans. And if offered two equally valuable grants, one with a name (“The Smith Scholarship”) and one without, they strongly prefer the one with a name!

In fact, the students from high schools with a critical mass of high achievers are so systematic in their college choices that we

are able to use them to create a revealed preference ranking of American colleges. The idea is simple, although the econometrics are not. When a student chooses a college among those that have admitted him, that college “wins” his “tournament.” The revealed preference ranking efficiently integrates the information from all students’ tournaments. The method is analogous to the way in which tennis or chess players are ranked. The main takeaway from this ranking, shown in Avery, Glickman, Hoxby, and Metrick (2013), is that most fairly sophisticated students choose more selective colleges whenever they are able to do so. It seems unlikely that they have carefully examined the colleges’ differences in student-oriented expenditures or estimated differences in their returns. However, through whatever means, these students appear to have picked up on the idea that college choices can have substantial consequences.

Low-Income Students’ College Choices

In our sample of students from high schools that have a critical mass of high-achieving students, we find that low-income, high-achieving students make choices that closely mimic those of high-income, high-achieving students. This result may seem surprising. Regardless of their sophistication, how could the low-income students *afford* to attend the most selective college that admits them? The answer lies in need-based financial aid. It is so much more generous at the most selective

institutions that a low-income student’s cost of attending one of them, including room and board, is consistently *lower* than the cost of attending a less selective college—even one that is non-selective (i.e., admits all students). In fact, the table below shows that a low-income student’s cost of attendance peaks at colleges of low selectivity—specifically, at colleges in Barron’s “Less Competitive” category. There are 1,139 U.S. colleges that are more selective than the colleges in this category.

The implication of the table is somewhat startling: Low-income students who can gain admission to more selective colleges face

an apparently easy decision. By paying less, they enjoy higher expenditures on their education, interact with higher-achieving peers, and—based on the evidence reviewed above—end up with higher earnings. One might think, therefore, that every high-achieving, low-income student would enroll in the most selective college that would admit him. Yet, it turns out that such students are the exception rather than the rule. In other words, the low-income students from our sample of high schools with a critical mass of high-achievers exhibit behavior that is very unusual for low-income,

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Table 1
College Costs by Selectivity

Selectivity (Barron’s)	Comprehensive Cost (includes room and board)	Out-of-Pocket Cost for a Student at the 20th Percentile of Family Income (includes room and board)
most competitive	45,540	6,754
highly competitive plus	38,603	13,755
highly competitive	35,811	17,437
very competitive plus	31,591	15,977
very competitive	29,173	23,813
competitive plus	27,436	23,552
competitive	24,166	19,400
less competitive	21,262	26,335
some or no selection, 4-year	16,638	18,981
private 2-year	17,822	14,852
public 2-year	10,543	7,573
for-profit 2-year	21,456	18,486

Notes: The sources are colleges’ net cost calculators for the out-of-pocket cost column and the Integrated Postsecondary Education Data System for the comprehensive cost column.

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high-achieving students.

We know this because in Avery and Hoxby (2012), we study every student in the high school graduating class of 2008 who took either a College Board or ACT exam. We track these students through test-taking, applying to college, and graduating from college. Our goal is to understand how the college-going decisions of low-income students differ from those of their high-income counterparts who have the same level of achievement. We find that about 8 percent of high-achieving, low-income students apply to colleges in the same way that their high-income counterparts do. These students, whom we call “achievement-typical,” also enroll in and graduate from college in a manner that cannot be distinguished from that of their high-income peers. However, 53 percent of the high-achieving, low-income students in the United States apply to colleges in a manner that closely mimics that of low-achieving, low-income students. Specifically, they apply to non-selective colleges and they do not apply to any college that a counselor would consider to be a safety, match, or reach school for them. We call these students “income-typical.”

To develop hypotheses about why some students are income-typical instead of achievement-typical, we look at numerous variables that characterize their families, neighborhoods, and schools. We find that the achievement-typical students are easy to describe: They tend to come from high schools in central cities of *large* urban areas that have a critical

mass of high-achieving students. Stuyvesant, Boston Latin, and Lowell High School in San Francisco are examples. Many of these high schools are public schools that admit students on the basis of test scores or grades. In fact, 70 percent of the achievement-typical students come from just 15 urban areas. Income-typical students, in contrast, live dispersed in towns, suburbs, and cities that are too small to support high schools that have a critical mass of high-achieving students. We perform a few thought exercises in the study and show that college admissions staff cannot recruit the income-typical students in a cost-effective way, in person. The students are too dispersed and do not live in easy proximity to selective colleges.

Responding to these results, Sarah Turner and I developed a series of interventions designed to inform students about their college opportunities. These interventions, known as the Expanding College Opportunities project, cost about six dollars per student and are semi-customized. By “semi-customized,” we mean that each student receives a high dose of information about his local colleges and about financial aid and scholarships for which he is likely to be eligible. Of course, each student also receives information about the full, national array of colleges. The interventions are randomly assigned to about 32,000 students and a control group of 7,800 students.

In Hoxby and Turner (2012), we show that an intervention that combines information about how to apply to colleges (what a professional

college counselor would likely say), information about net costs and financial aid, and no-paperwork application fee waivers causes students to change their college applications and enrollment significantly. For instance, we find that this “combined” intervention causes high-achieving, low-income students to submit more applications to and enroll more in “match” colleges, selective colleges, and colleges with high graduation rates, low loan default rates, and high instructional spending. All of the effects are greatest for students who come from high schools where they were one—perhaps the only one—of very few high achievers. Our six-dollar interventions have effects that are similar to those of high-touch interventions that cost 100 times or more per student.

Conclusion

No one should make college-going decisions for another person: There are many factors to take into account, including personal and family preferences. However, college choices have consequences. In fact, choosing a college may be one of the most important economic and life decisions that a person makes. (I refer to choices among colleges with substantially different resources and selectivity, *not* choices among fairly similar colleges that differ on location, culture, atmosphere, emphasis, and so on. We have no evidence that such choices matter.) Therefore, it seems like a good idea to ensure that people make college choices in a manner that is as informed as possible. Students who attend high schools with

numerous high-achieving students systematically choose colleges that are more selective, have greater resources, and subsidize tuition more. Students who do not attend such high schools appear to be less sophisticated about applying to college. Fortunately, there are cost-effective ways to improve the information that students use to make college choices for themselves.

Thus far, I have emphasized the college choices made by high-achieving students. But, students who are only marginally prepared for postsecondary education also face consequential choices among institutions. They are likely to choose among public community colleges, non-selective non-profit private schools, and non-selective for-profit schools. Some of these choices are online, and more will surely be online in the future. Among these institutions, the cost of attendance can differ enormously, even in the same local area (Deming, Goldin and Katz 2011). Also, some of these institutions have dropout and loan default rates that are several times higher than those of other institutions. Thus, my ongoing research investigates ways to help students understand their returns to postsecondary education at all ends of the selectivity spectrum.

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