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A Review of the Role of College Applications on Students' Postsecondary Outcomes

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Summary

- Students tend to submit too few college applications and do not apply to enough "reach" and "match" colleges.
- The application barriers they face may be procedural, geographical, cultural, informational, or financial.
- Potential solutions to reduce and remove these barriers include programs that substantially alter the usual application processes, provide information about and support outreach by colleges, promote the use of college application fee waivers, and improve college counseling.

Identifying the best set of colleges to which to apply is not a simple task. The importance of any one application depends on the likely outcomes of other applications, and this logic and information is difficult to grasp for anyone, let alone high school students. To simplify this task, the College Board recommends that students submit a total of four to eight applications to a combination of "reach," "match," and "safety" schools.[1] However, many academically well-qualified students do not follow this advice, primarily by selecting too many "safety" schools relative to "reach" and "match" schools.

Quantifying the Problem

Some national longitudinal data sets (e.g., Education Longitudinal Study (ELS)) collect information on the set of colleges to which a nationally representative sample of students applied and were offered admission. Most administrative data sources (e.g., College Board data, state and district level data) do not compile this detailed information on college application choices. Although high schools are required to send transcripts to colleges to complete each student's application, in practice, this information is only rarely made available outside of the high school.[2]

Not Applying to Any/Enough Colleges

A full 39% of students in the Education Longitudinal Study (ELS) of 2002 did not apply to a single four-year institution. Among the remaining students who did apply to four-year colleges, 31% submitted one application, 25% submitted two applications,

17% submitted three applications, and 27% applied to four or more colleges.[3] Fu (2014) estimates that this striking percentage of students who do not apply could only be explained by financial motivations if the cost of the first college application was nearly $2,000, far more than any actual application fee.

Although it is a tautology that students who do not apply to four-year institutions cannot realize their aspirations of attending a four-year institution, there is clear causal evidence that, even among four-year college applicants, those who submit a second or third application dramatically increase their probability of enrolling in a four-year college (Smith, 2013). Thus, applying to a sufficient number of colleges can be as important to eventual student outcomes as applying to any four-year colleges.

Among the 61% of students in the class of 2004 who applied to four-year colleges, 31% submitted only one application, 25% submitted two, 17% submitted three, and 27% applied to four or more colleges.

A well-known divergence exists between the set of high school seniors who say that they plan to enroll at four-year colleges and the set of high school seniors who actually apply to four-year colleges (see, for example, Avery & Kane, 2004). The Consortium on Chicago School Research conducted a large-scale survey project of nearly 7,000 high school seniors in the class of 2005 (Roderick, Nagaoka, Coca, & Moeller, 2008). Among students who said that they planned to attend a four-year college in the fall after high school graduation, approximately 20% did not apply to a single four-year institution.[4]

One explanation for this divergence between aspiration and application to four-year colleges is that many students who say that they want to attend a four-year college are not actually college ready (and perhaps never really planned to apply). Yet, the Chicago survey finds that among students with strong enough academic credentials for (likely) admission to somewhat selective colleges, approximately 90% said that they wanted to attend a four-year college and only 81% actually applied to a four-year college. That is, nearly 10% of students who were to attend college and who wished to attend a four-year college did not apply to one.[5] Klasik (2012) finds somewhat similar results in analysis of the Education Longitudinal Study (ELS): Approximately 10%–15% of students who had taken a college entrance exam, had broadly sufficient academic qualifications, and expressed aspirations to enroll in a four-year college still did not apply to any four-year colleges.

Not Applying to Enough "Reach" and "Match" Colleges

In their book *Crossing the Finish Line*, Bowen, Chingos, and McPherson (2009) popularized the idea of "undermatching," which occurs when students do not apply to and/or enroll in

institutions that would be considered a "reach" or "match" academically. One central thesis of this book is that many students limit their chances of completing a bachelor's degree by enrolling at less selective colleges than the ones aligned with their academic credentials. Consistent with this theory, the Consortium on Chicago School Research study described above finds that, among students with the academic background to be admissible to at least a "somewhat selective" four-year institution, only about 60% applied to at least one college that matched their academic credentials (Roderick et al., 2008).

The phenomenon described above is troubling because it appears to be particularly pronounced among students from low-income and first-generation families. Among ELS respondents who did not enroll in a college or university that matched their own academic credentials, 66% of those in the lower half of the socioeconomic status (SES) distribution applied to zero match institutions, compared to 55% of their peers in the upper half of the SES distribution (Smith, Pender, & Howell, 2012). Using national data, Hoxby and Avery (2013) find that high-achieving, low-income students disproportionately apply to nonselective colleges, and less than 10% of them follow the successful college application strategies that tend to be used by their high-income peers with similar academic credentials.[6] Further, the relatively few high-achieving, low-income students who do apply to sets of colleges that match the guidelines suggested by the College Board tend to be geographically concentrated – predominantly attending a small set of well-known magnet and exam schools – making it challenging for typical college recruitment procedures to successfully reach them. Similarly, a survey of Virginia high school seniors with combined math and critical reading SAT® scores between 1200 and 1390 finds that low-income students were three times as likely (21 percent versus 7 percent) as other students to apply only to (self-identified) "safety" schools (Avery & Turner, 2010).

Low-income and first-generation students are much less likely to apply to colleges that match their academic credentials than their non-low-income and non-first-generation peers.

The research cited above provides suggestive evidence that the choice of college applications limits the prospects of qualified low-income students to complete a bachelor's degree. A burgeoning literature demonstrates a causal link between academic match and college completion. In numerous samples and using empirical methods designed to detect a causal relationship between academic match and college completion, this body of research resoundingly confirms that a student's choice of where to enroll and, as a key precursor, where to apply, substantively influences the probability of completing a bachelor's degree.[7]

Barriers

Students who are academically prepared for college have already exerted considerable effort to position themselves for admission to a four-year college. Yet, as discussed above, some of these students do not apply at all or do not apply to the best set of colleges, thereby reducing enrollment and degree completion.

A completed college application to a four-year college includes a number of pieces, including the application form, high school transcript, standardized test scores, and (possibly) an essay and recommendation letter(s). The vast majority of institutions charge an application fee, although low-income students qualify for fee waivers. Each one of these college application components requires some work and, thus, potentially acts as a barrier.[8]

College Application Essay

Perhaps the biggest challenge to completing a college application for some students is the required essay. Smith, Hurwitz, and Howell (2014) find that applications to a given college fall by an average of 4.5% when the college adds an essay to its application and increase by an average of 11% when it eliminates its required essay. The application essay alone cannot explain why some college-ready students do not apply to a four-year college because not all four-year colleges have an essay in their applications. The essay requirement may also be a barrier that directs some students to apply only to less selective four-year colleges whose applications are relatively simple.

Geographical and Cultural Barriers

Geographical proximity is the strongest predictor of college choice.[9] In addition to the potential cost savings associated with living at home, some students may also be driven by psychological motivations to attend college close to where their families live. Others may simply follow older siblings or previous graduates from their high schools. Data on 1.6 million sibling pairs of SAT takers reveal that one-fifth of younger siblings enroll in the same college as their older siblings (Goodman, Hurwitz, & Smith, 2014). Some students choose a college near to where they attended high school because their school counselors tend to recommend such colleges. One recent survey found that 21% of students and 44% of parents report that it is important to choose a college "close to home."[10]

> Students are dissuaded from applying to colleges that require an application essay and colleges located farther from home.

Cultural barriers, which are often difficult to quantify, may also play a substantial role in influencing students' college choices and may be linked with geographical preferences. Some evidence identifies that Hispanic students are more likely to choose a college that is geographically closer to home and report strong preferences for

living at home while enrolled. In 2006, 41.6% of Hispanic four-year college students were enrolled at institutions within 50 miles from their homes, compared to 34% of non-Hispanic white students, and Hispanic students are more likely to cite "I wanted to live near home" as a top reason for selecting their institution (Hurtado, Saenz, Santos, & Cabrera, 2008). Finally, students who do not know anyone at a particular college may simply conclude that they would be outsiders and would not thrive at that college. Counter to the anecdotal evidence on this topic, Hoxby and Avery (2013) find that high-achieving, low-income students who apply to colleges like their high-income counterparts have nearly the same college admission and success outcomes as their high-income peers.

Informational Barriers

Beyond the application essay, the primary barrier for applying to more selective colleges is information. Students at high schools where relatively few of their classmates attend selective colleges may not be familiar with the set of colleges that would be natural choices; low-income students seldom have the resources to visit colleges that are not geographically proximate to their homes. Similarly, students may not be familiar with application strategies; some may not understand their academic credentials well enough to predict where they are likely to be admitted and so they may not be able to determine whether a particular college is a "reach" institution for them.

Many students, especially low-income students, lack information about the natural set of college options for them. In particular, they may not know that selective colleges often provide generous financial aid (i.e., they may be influenced by list price rather than net price for college tuition and fees). Informational barriers around college outcomes also exist; students may also not be aware that graduation rates are strongly correlated with college selectivity, and they may not even know the identity of less publicized private colleges that might be good matches for their skills and interests. Finally, clear evidence supports the finding that both the size and composition of students' college application portfolios are somewhat haphazardly determined and unduly influenced by the performance of athletics teams (Pope & Pope, 2012) and unofficial rules of thumb (Pallais, 2013).

The thrust of previous descriptive studies, as discussed above, is that most, but not all, students who are qualified for admission to a four-year college have aspirations to attend a four-year college (Roderick et al., 2008; Klasik, 2012). This leaves open the possibility that some students do not fully understand the benefits of completing a four-year college degree, especially with regard to future career opportunities and wages. Some previous studies find that low-income students are actually quite accurate in their estimates of the average wages of college graduates and high school graduates without college degrees (Avery & Kane, 2004; Rouse, 2004; Dominitz & Manski, 1996).

Nevertheless, a recent study by Oreopoulos and Dunn (2012) finds that exposure to a three-minute video on the financial benefits of a postsecondary degree, combined with an introduction to a financial aid calculator, significantly increased the postsecondary aspirations of low-income high school seniors in Toronto. This result suggests that (lack of) financial literacy about the costs and benefits of college continues to limit educational aspirations for some otherwise qualified students.

Many academically qualified students still lack financial literacy about the costs and benefits of college, and they find that college application fees are prohibitive.

Financial Barriers

A final, possibly important barrier for low-income students is the college application fee. One recent study estimates that a 10% increase in a college's application fee corresponds to a 1% decrease in applications to that institution and, for racial/ethnic minority students, a 1.1% decrease in enrollment (Smith et al., 2014).

Although the College Board and the National Association for College Admission Counseling (NACAC) play key roles in providing guidelines for college application fee waivers, there is no single governing board that sets the rules. Counselors and some colleges use considerable discretion in determining which students receive application fee waivers, resulting in errors in both directions. Some students who qualify do not receive fee waivers for their college applications, while others receive fee waivers when they probably should not. Some automated application websites implicitly discriminate against students who are using application fee waivers by requiring them to submit hard copies of their applications, whereas students paying the application fee can apply electronically.[11] The result is that students who qualify for college application fee waivers face unnecessary time and financial costs for their applications.

Potential Solutions

There are a multitude of potential solutions for removing or reducing the college application barriers outlined above. We provide an overview of categories of solutions but acknowledge the difficulty of capturing a complete list of all activities and organizations working in this space. Additionally, the quality of evidence on the impact of the various types of solutions ranges substantially. Filling in these gaps in the evidence base is therefore strongly recommended.

Substantially Alter Traditional Application Processes

Several national nonprofit organizations, namely Posse Foundation and QuestBridge, conduct their own nomination and selection processes to match low-income students with selective private colleges. These programs bypass the ordinary college application process (completely in the

case of Posse and partially in the case of QuestBridge) and ensure that scholarship winners enroll at selective colleges where their families would be required to pay little, if any, of the cost of attendance. In addition, those students who participate in the scholarship process also become familiar with selective colleges even if they do not win a scholarship. Neither of these programs has ever been the subject of a formal evaluation, so it is not clear if they are improving student outcomes or if they are primarily placing students at colleges like the ones where they would have enrolled anyway. It is also not clear if scholarship winners are especially successful in the colleges where they are placed.

Posse, QuestBridge, and the Common Application all implement novel approaches to streamlining and/or bypassing the traditional college application process, but more evidence of the impact of these approaches on students' outcomes is needed.

The Common Application provides a shared application that school officials and students may use to more easily apply to over 500 participating institutions. The research on the impact of the Common App yields somewhat ambiguous results; Liu, Ehrenberg, and Mrdjenovic (2007) find that institutional membership in (or use of) the Common Application increases applications by 5.7%–7.0%, while Smith, Hurwitz, and Howell (2014) find no discernible impact of Common Application adoption on the number of applications participating institutions receive.

College Outreach Programs

Many colleges have created expansive outreach programs, often bolstered by generous financial aid at more selective institutions, to try to attract low-income applicants. These programs often include a component of peer-to-peer counseling in an attempt to overcome cultural and/or informational barriers that might limit applications by and enrollment of low-income, first-generation, and racial/ethnic minority students.[12]

One study of the first year of the Harvard Financial Aid Program (Avery et al., 2006) finds a significant increase in applications and enrollment among targeted students. The primary limitations of these outreach programs are that (1) they may simply "poach" low-income students from competitor schools rather than change outcomes for students who would not otherwise enroll at selective colleges, and (2) the aggregate effect of individual programs at a handful of selective colleges is still likely to be small.

Providing Information about Colleges

The White House college scorecard project provides standardized information about colleges, including detailed cost information as well as graduation rates.[13] The only study of the effect of this information on decision making suggests that parents are drawn to colleges with higher graduation rates

(Kelly & Schneider, 2011), but this study only considered initial reactions and would have to be considered suggestive at best.[14]

The College Board's BigFuture™ website provides similar information about colleges as well as specific guidance about how to craft a balanced portfolio of college applications. Once again, there has been no direct test of the effects of this information on student choices or outcomes.

Creating a College-Oriented Culture

Both the Chicago "Potholes" report (Roderick et al., 2008) and Radford (2013) identify high school culture as a critical factor that influences the college choices of students. While it is obviously difficult to change school culture with regard to college-going and choice, a number of school-based interventions have attempted to do so. One such intervention that included additional college counseling in the Houston Independent School District indicates a 4.3 percentage point increase in four-year college enrollment for students at treatment schools compared to students at control schools (Fryer, 2012).[15]

Providing College Counseling and Guidance

Another natural approach to favorably influencing the college application choices of students is to provide them with additional college counseling designed to overcome informational and procedural barriers. The existing evidence on counseling, coaching, and mentoring solutions is discussed in detail in a companion brief (Avery, Howell, & Page, 2014).

Promoting the Use of College Application Fee Waivers

For low-income students who are discouraged by the cost of applying to college, fee waivers may promote college applications in general. Harvard's Strategic Data Project conducted a fee-waiver intervention in Gwinnett County, Ga., mailing fee waiver forms to a randomly selected subset of students who qualified to receive them. However, the district still required these forms to be signed separately by school counselors, so the intervention can probably best be interpreted as an informational intervention where treatment group students were informed that they qualified for application fee waivers. The intervention had no discernible effect on college applications or choices (Nagy & Martin, 2012).

The Expanding College Opportunities intervention conducted by Hoxby and Turner (2013) provided no-paperwork college application fee waivers along with information on where and how to apply to selective colleges and semi-customized information about net price of attendance and degree completion rates at such colleges. Although the results based on the combined intervention receive the most attention, tests of the impact of the college application fee waivers alone indicate that these fee waivers were the most

important single mechanism that improved the choices and outcomes of students in that study.

Consequences and Implications

Students who do not follow the College Board's guidelines for creating a college list limit their postsecondary options, in some cases dramatically so. At one extreme, students who do not apply to a four-year college at all completely limit their choice set. Similarly, well-qualified students who only apply to less/nonselective colleges consign themselves to institutions with relatively few resources, low graduation rates, and academically weaker college peers. Low-income students typically underapply with regard to both the quantity and quality of college applications compared to higher-income students with similar academic qualifications. Thus, the choice of college application portfolio likely serves as an important mechanism that differentiates the college choices of low-income students from those of others.

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About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators and schools. For further information, visit www.collegeboard.org.

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1. See for example, http://professionals.collegeboard.com/guidance/applications/how-many and https://bigfuture.collegeboard.org/get-in/applying-101/how-to-finalize-your-college-list-admissions-college-application.
2. Some states keep track of applications and admission decisions to their pubic four-year systems. For example, Carrell and Sacerdote (2013) use this information to guide senior year interventions in New Hampshire in ongoing research. It may also be possible to work with the Common Application to track applications to its member colleges.
3. Authors' calculations based on the Education Longitudinal Study of 2002.
4. Among those students who said that they wanted to enroll in college, 72% said that they wanted to enroll in a four-year college, but only 59% applied to one. See Figure 11 of http://ccsr.uchicago.edu/sites/default/files/publications/CCSR_Potholes_Report.pdf
5. The Chicago report defines "access to a selective college" based on a combination of high school GPA and standardized test scores — essentially a GPA of at least 3.0 and ACT score of 18–20 (SAT equivalent of 860 to 970). See Table 1 and Figure 12 of "Potholes" report.
6. Students with a combined math and critical reading score of at least 1300 on the SAT are defined as high-achieving. Students with a family income below $41,472 are defined as low-income.
7. See Cohodes and Goodman (2014), Hoekstra (2009), Goodman, Hurwitz, and Smith (2014) and Kurlaender and Grodsky (2013).
8. We acknowledge that there are other barriers that are more indirect but that may also influence students' application choices. These include the perceived cost of attendance, filling out the FAFSA, and taking a college entrance exam. These more indirect barriers are not addressed explicitly here in the interest of brevity.
9. See, for example, evidence in Desjardins, Dundar, and Hendel (1999).
10. http://www.artsci.com/studentpoll/v6n2/index.aspx
11. See, for example, https://secure.gacollege411.org/applications/University_of_North_Georgia/apply.html, which states: " Because the online application requires submission of the $30 fee, applicants who have an SAT or ACT fee-waiver form must print, complete, and mail UNG's Application for Undergraduate Admissions with the waiver form."
12. See, for example, Carrell and Sacerdote (2013) and Horng, Evans, Antonio, Foster, Kalamkarian, Hurd, and Bettinger (2013) for evidence on near-peer counseling that successfully influences student outcomes. An overview of the research evidence on college counseling, coaching, and mentoring is available in Avery, Howell, and Page (2014).
13. See http://www.whitehouse.gov/issues/education/higher-education/college-score-card.
14. A field study of school choice at the K–12 level indicates that students are strongly responsive to scorecard information in ranking schools (Hastings, van Weelden, & Weinstein, 2007; Hastings & Weinstein, 2008).
15.The published version of this paper focuses on the effect of the intervention on math and reading scores and does not include any discussion of these college-going rates.