



CHICAGO
HIGH SCHOOL



Barriers to College Attainment

Lessons from Chicago

Jenny Nagaoka, Melissa Roderick, and Vanessa Coca,

The Consortium on Chicago School Research at The University of Chicago January 2009

Center for American Progress



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Introduction and summary

The aspiration to attain a college degree has become nearly universal among high school students, and the percentage of students making the immediate transition to college has risen among all racial and ethnic groups.¹ While college enrollment is now a reachable goal, the proportion of students who complete a college degree has barely changed. Moreover, despite increases in enrollment, minority students continue to lag in both four-year college enrollment and degree completion rates. The primary issue in college access is no longer building college aspirations, but building a clear path for students to achieve their goals.

Several barriers face students, particularly urban, minority students, as they attempt to bridge the gap between their educational aspirations and college degree attainment. Over the past several years, the policy discussion has coalesced around three central explanations: poor academic preparation that undermines minority and low-income students' access to and performance in college, students' difficulties in navigating the college enrollment process, and the declining real value of financial aid combined with rising college costs.

The first focuses on human capital, or investments in high school reform in order to increase students' academic preparation.² The second focuses on the role of social capital—the role of guidance, information, and support in helping students effectively navigate the college search and application process.³ The third centers on financial explanations, particularly the rising cost of college, the declining real value of federal financial aid, and the resulting net price burden that low-income families face.⁴

This paper focuses on these first two explanations by drawing on the findings from a multi-year research project at the Consortium on Chicago School Research, or CCSR, at the University of Chicago that is studying the college qualifications, enrollment, and graduation patterns of Chicago graduates and examining the relationships among high school preparation, support, college choice, and postsecondary outcomes. The goal of this research is to better understand the determinants of students' postsecondary success and to identify key levers for improvement in Chicago and elsewhere. By focusing on the issues facing students in one large urban district, the project can serve as a case study for other cities and communities.

Chicago is a useful laboratory for national and state policymakers for a number of reasons. Over the past several years, the Chicago Public School system has engaged in a major initiative to address what has become a national policy question: How do we increase college access and attainment for low-income minority and first generation college students?

In 2003, the CPS administration established the Department of Postsecondary Education and Student Development, charged with ensuring that all Chicago students have access to the courses, opportunities, and experiences that will prepare them for a viable postsecondary education or career. As part of this initiative, CPS tracked and reported college participation rates of its graduates using data from the National Student Clearinghouse, becoming the first major school system in the country to do so. The data from the NSC verifies and tracks the enrollment and degree completion for more than 2,800 colleges, covering 91 percent of postsecondary enrollment in the United States. The CPS initiative also includes new supports to build strong postsecondary guidance systems and accelerated efforts to expand participation in rigorous coursework such as Advanced Placement courses.

In collaboration with CPS, CCSR mounted a major research project to track the postsecondary experiences of successive cohorts of graduating Chicago students and examine the relationship among high school preparation and supports, college choice, and postsecondary outcomes. The CCSR project works closely with CPS to identify critical points of intervention and potential levers for improving graduates' educational attainment. This partnership can provide useful lessons to national and state policymakers as well districts and schools.

The first section of this paper defines the policy problem: the aspirations-attainment gap, namely the gulf between students' educational aspirations and their actual attainment of college degrees. Students are largely convinced of the importance of a college education, particularly for improving their future earnings potential. However, these increased aspirations have created a demand for access to postsecondary education that poses new challenges for high schools and postsecondary institutions. Simply having access to college is not enough; students must also have the skills and support to succeed in the postsecondary environment.

The next section of this paper examines the first explanation for the aspirations-attainment gap: the extent to which academic qualifications shape access to four-year colleges—particularly selective and very selective four-year colleges—among Chicago graduates.⁵ Improving high school qualifications has become one of the central strategies in improving postsecondary access and success, as the link between high school and postsecondary outcomes has become explicit.⁶ We then examine the effect of academic qualifications on the six-year college graduation rates of two earlier cohorts. Data from Chicago suggest that the current policy focus on increasing qualifications is warranted; low qualifications pose a significant barrier to college enrollment and degree attainment for graduates, particularly Latino, African-American, and male graduates.

In section three, we turn to our primary focus, the second set of explanations that center around social capital.⁷ We examine whether Chicago students who aspire to attain four-year college degrees take the necessary steps to apply to and enroll in four-year colleges. Research suggests that if we are to address the central barrier to college access—raising academic qualifications—there must be an equivalent attempt to ensure that first-genera-

tion students aspire to attend the colleges that demand those qualifications, and that they have access to the guidance, information, and support they need to effectively navigate the college application process that their more advantaged counterparts have. Andrea Venezia and colleagues found that few minority students and their families fully understand the requirements of college application and admission.⁸ Similarly, others have found that low-income students lack critical information about the steps they must take to effectively participate in college and financial aid applications.⁹ In our work, we find that students struggle with navigating the college enrollment process, and that schools can help bridge the gap in students' ability to successfully enroll in a four-year college.

Section four examines the role of college search and college choice—a different aspect of the social capital explanations—and how they affect students' likelihood of attaining a college degree. Our analysis suggests that Chicago students, even those who are qualified to attend four-year colleges, often do not conduct broad college searches, and, as a result, they enroll in colleges that are less selective than they are qualified to attend. Then, using our earlier analysis of the college graduation rates of prior cohorts, we demonstrate the importance of college choice for low-income minority students. Supporting students in the college application and enrollment process, as well as paying attention to the wide variation in college outcomes across colleges of differing selectivity, should be an important part of the policy discussion.

Finally, we discuss three strategies that district, state, and federal policymakers can use to help close the aspirations-attainment gap. First, our work in Chicago—and any efforts to increase college attainment—rests on having data systems that link high school to college outcomes. Accountability systems and understanding the nature of the problem require tracking outcomes across schools and institutions and over time. Second, improving college readiness and college access will require supporting and building the capacity of high school educators to meet the challenge of providing their students the skills and guidance they need. Finally, the federal government, states, and districts must develop policies that send strong signals and provide incentives to students and schools about what is required to gain access to and succeed in college.

We do not explicitly address the third area, financial explanations. There is a rich literature demonstrating the extent to which cost has a negative impact on college enrollment and completion, and it is clear that the financial barriers faced by urban students are daunting. However, this area is largely beyond the realm of high school policy, which is our primary focus. We do examine the intersection between social capital and financial barriers, and how a lack of participation in the financial aid process undermines students' likelihood of college enrollment. A critical goal of the research project in the Chicago schools is to understand where students encounter difficulty and success as they navigate the college search and application process. Promoting understanding and effective participation in the financial aid process is a critical component of any strategy to improve college access and attainment.

Defining the policy problem: The aspirations-attainment gap

During the final two decades of the 20th century, the postsecondary aspirations of the nation's high school students became dramatically more ambitious. The share of 10th graders nationally who stated that they hoped to earn a bachelor's degree or higher doubled, from 40 percent in 1980 to 80 percent in 2002.¹⁰ These rising aspirations were shared across racial and ethnic groups, with low-income students registering the greatest increases. The share of high school graduates making an immediate transition to college has also been rising among all racial and ethnic groups, although significant racial and ethnic and income gaps remain. Overall, enrollment has grown more in four-year institutions than in two-year colleges. Between 2000 and 2005, enrollment in four-year institutions increased by 17.6 percentage points, while enrollment in two-year colleges grew by nine percentage points.¹¹

The central policy problem is that rising aspirations have not translated into concomitant increases in college enrollment and graduation rates. While increasing numbers of minority and low-income high school graduates are making the transition to college, their enrollment rates continue to lag behind those of middle- and higher-income students.¹² Among students who plan to attend a four-year college, minority students are much more likely to attend a two-year college or none at all.¹³ Minority and first-generation college students who do enroll in four-year colleges are much more likely to be placed in remedial courses that do not count for college credit.¹⁴ Most importantly, few of these students ever attain four-year college degrees. From 1990 to 2004, the percentage of African American young adults aged 25-29 who had graduated from high school and attended some college increased by 16 percentage points, so that by 2004 over half of African-American young adults had attended some college. But only 17 percent of them had graduated from college, an increase of just four percentage points since 1990. During this same time period, Latino students have shown little progress in either college enrollment or completion rates. In 2004, less than one-third of Latino young adults had attended some college and only 11 percent had obtained a bachelor's degree or higher, a rate only slightly higher than it was about 15 years earlier.

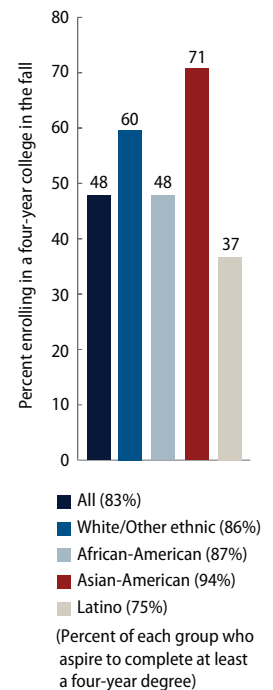
We see the same patterns in Chicago. Like their counterparts nationally, Chicago students have high educational aspirations. On a 2005 survey, 83 percent of Chicago seniors stated that they hoped to earn a bachelor's degree or higher, and an additional 13 percent aspired to attain a two-year or vocational degree. Parents seem to support their children's aspira-

tions. More than 90 percent of seniors stated that their parents wanted them to attend college in the fall after high school graduation. Latino students, reflecting national trends, were slightly less likely to aspire to complete a four-year degree (with 75 percent aspiring to a four-year degree), and slightly fewer, 87 percent, reported that their parents wanted them to attend college.

Despite these ambitious educational aspirations, many Chicago graduates do not make the immediate transition to a four-year college. Data from the NSC reveals that among 2005 Chicago graduates who aspired to attain at least a bachelor's degree, less than half enrolled in a four-year college in the fall following high school graduation (see Figure 1).¹⁵ Latino graduates are particularly unlikely to make the immediate transition to a four-year college, with only 37 percent enrolling. Chicago graduates of different racial and ethnic backgrounds enroll in two-year colleges at a similar rate, about 22 percent. Furthermore, perhaps reflecting the barriers facing these students, a defining characteristic of the college-going patterns of Chicago graduates is that they are highly concentrated in a limited number of local, mostly public institutions that generally have low graduation rates, even when compared to schools with similar selectivity. Among Chicago graduates who enroll in a four-year college, nearly two-thirds attend just seven institutions.¹⁶

While these students have not yet had time to complete college, we can estimate the proportion of students who will attain college degrees within six years using earlier data. Our analysis of the college completion rates of two previous Chicago cohorts (graduates from 1998 and 1999) reveals that only 45 percent of Chicago graduates who enrolled in a four-year college during the year following high school graduation attained a four-year college degree within six years.¹⁷ This dismal statistic stands in stark contrast to the 83 percent of seniors who aspire to attain a four-year college degree. African-American and Latino graduates, particularly males, are even less likely to attain a four-year college degree; we expect that only 8 percent of minority males will attain a four-year college degree with six years of high school graduation. These may be underestimates of the proportion of Chicago graduates who will eventually graduate from a four-year college. Some students will delay enrollment, some who enter two-year colleges will eventually earn four-year degrees, and some will take more than six years to graduate. Only a limited number of Chicago graduates will ever attain a four-year degree, despite their high aspirations.

Figure 1. Percent of CPS graduates who hope to complete at least a four-year college degree that enroll in a four-year college in the fall



Academic qualifications

The role of academic qualifications in the gap between students' educational aspirations and college attainment has largely been framed as an issue of access to college. However, the existence of open admission colleges means that all students who graduate from high school are eligible to enroll in some type of college. If all high school graduates can “walk through the door” of a college, how do we assess whether students are ready for college and are likely to accrue credits and eventually attain a college degree? Different studies have asserted different answers to that question. Many reports now base their definition of college readiness on high school coursework completed by students.¹⁸ However, a 2007 study conducted by ACT used a different tack, instead basing their definition of college readiness on college admissions test scores needed to attain particular grades in introductory college coursework. Other studies have focused on grades and found that grades, even self-reported grades, are a more important predictor of college performance than college admissions tests.¹⁹

Another body of work has suggested taking a step back from existing measures of college readiness and being more explicit about what sets of skills determine whether students are qualified for college.²⁰ We draw on previous research, particularly David Conley's work on college readiness, to identify three categories of skills that have been demonstrated as critical in determining college access, and more importantly, college performance: content knowledge and basic skills, core academic skills, and noncognitive skills and norms of performance.

In order for students to move from high school to college-level work, they must have basic skills (mathematics and reading) and content knowledge in core academic subjects. Equally important is having core academic skills such as thinking, problem-solving, writing, and research skills that can be used across subject areas that will allow students to engage in college-level work. Finally, meeting the developmental demands of college requires students to have a set of behavioral and problem-solving skills, sometimes termed noncognitive skills, that allows them to successfully manage new environments and new academic and social demands. This understanding of the skills students need in order to be ready to enroll and succeed in college allows us to better assess how we should measure college qualifications.

In our work we rely primarily on two measures to assess whether Chicago students graduate from high school ready to engage in college-level coursework: ACT scores and unweighted grade point averages in core classes. Since 2000, Illinois has required all juniors to take the ACT as part of the state's high school assessment test, the Prairie State Achievement Exam, allowing us to examine the ACT performance of almost all Chicago graduates, not just those who plan to attend college.²¹ College admissions tests are commonly used as a measure of qualifications because they provide a standardized indicator of students' college readiness—based on an independent measure of students' cognitive achievement, basic skills, content area knowledge, and analytic thinking ability—compared to peers nationwide.

We also consider grade point average to be an important measure of college readiness. Grades are a more comprehensive measure because they indicate whether students have mastered the material in their classes and provide an indicator of a different kind of college readiness—noncognitive skills such as whether students have demonstrated the work effort and study skills needed to meet the demands of college courses. Still, grades are sometimes seen as an imperfect gauge because they might be subject to inflation and are not based on set standards for performance that would allow measurement across high schools.²² Since taking more difficult courses is related to college readiness independent of performance in those courses, we separate GPA and course difficulty (such as honors and Advanced Placement courses) by examining students' unweighted GPAs in their core courses (English, mathematics, science, social science, and world language).

We also differ from other studies, such as those produced by ACT, in that we do not base our definition of college readiness on completion of a minimal set of course requirements. In 1996, Chicago adopted more rigorous graduation requirements: four years of English, three years of mathematics, three years of laboratory science, three years of social science, and two years of world language. For this reason, we know that all Chicago graduates have met basic curricular standards of college readiness.

To better understand how high school performance relates to college access, we developed a rubric that indicates the minimum GPAs and ACT scores that Chicago graduates would need to have a high probability of being accepted to and enrolling in certain classifications of colleges (see Table 1). We developed this rubric using the modal college attendance patterns of students with different GPA and ACT score combinations. In addition to our rubric, we further characterize students' qualifications by whether they took a coursework sequence that included honors classes and at least two AP courses or were enrolled in an International Baccalaureate program. For example, in Illinois, a student would have access to a somewhat selective college if he or she had at least a 2.0 GPA and an 18 on the ACT. Since most public universities in the state of Illinois fall under the somewhat selective category, this benchmark would mean that students would have access to a wide range of public and private institutions. Because all high school graduates have the option of attending a two-year college, we categorized graduates with ACT scores and GPAs that fall even below the level necessary for likely admittance to a nonselective four-year college as

being limited to attending two-year colleges. The GPA and ACT cutoffs we used are generally lower than the definitions used in college ratings such as Barron's and other existing rubrics to measure qualifications because we base this rubric on the actual GPAs and ACT scores of Chicago graduates who enrolled in these schools, not the average of the entering class of that college.

Table 1. Categories for access to college types based on CPS graduates' GPAs and ACT scores and patterns of college enrollment

	<2.0	2.0-2.4	2.5-2.9	3.0-3.4	3.5-4.0
Missing ACT	Two-year Colleges	Nonselective Four-year Colleges	Somewhat Selective Colleges	Selective Colleges	Selective Colleges
<18	Two-year Colleges	Nonselective Four-year Colleges	Somewhat Selective Colleges	Somewhat Selective Colleges	Selective Colleges
18-20	Nonselective Four-year Colleges	Somewhat Selective Colleges	Somewhat Selective Colleges	Selective Colleges	Selective/ Very Selective Colleges
21-23	Somewhat Selective Colleges	Somewhat Selective Colleges	Selective Colleges	Selective/ Very Selective Colleges	Selective/ Very Selective Colleges
24+	Somewhat Selective Colleges	Selective/ Very Selective Colleges	Selective/ Very Selective Colleges	Very Selective Colleges	Very Selective Colleges

Previous research has shown that racial and ethnic minority and low-income students are much less likely to leave high school with the qualifications (e.g., test scores, grades, and coursework) that give them access to college, particularly four-year colleges, and are critical to college performance and persistence. Similarly, our earlier study found that low ACT scores and GPAs presented significant barriers to enrollment in four-year colleges, particularly more selective colleges. In 2005, slightly more than half of Chicago students graduated with qualifications that would give them access to the majority of four-year public universities in Illinois (at least a somewhat selective college).²³ Only about one in four (23 percent) graduated with ACT scores and grades that would make it likely that they be accepted to a selective or very selective institution, such as the selective DePaul University or Loyola University, or the very selective University of Illinois at Urbana-Champaign.

Qualifications are particularly low among African-American and Latino students; approximately one-half of African-American and Latino seniors graduate with such low qualifications that they only have access to two-year or nonselective four-year colleges. The course performance of African-American and Latino students are of particular concern; approximately 40 percent graduate with unweighted GPAs of lower than a 2.0. In comparison, only 26 percent of white and 18 percent of Asian-American graduates have qualifications that limit their college options to two-year or nonselective four-year colleges, and similar proportions have GPAs below 2.0. Furthermore, about one-quarter of white and Asian-American graduates have access to very selective colleges, while only about 5 percent of Latino and African-American graduates have access to these top colleges.

Chicago graduates' ACT scores and GPAs suggest that few African-American and Latino graduates demonstrate the basic skills and content knowledge they need for college. The low GPAs and ACT scores of graduates suggest that they struggle academically throughout high school and that simply enrolling students in a college preparatory curriculum is not enough. It also appears that students are not challenged to work hard in their courses, and do not exhibit the study skills and engagement in coursework that signal they are ready to complete college-level work.

Students' ACT scores and grades shape access to college to different degrees. We ran a series of multivariate analyses that estimated differences among Chicago graduates by ACT score and unweighted GPA in their likelihood of enrolling in colleges of varying selectivity. Our results suggest that poor performance in high school is not a significant barrier to enrolling in college, but does considerably constrain students' range of college options. Students with ACT scores lower than 17 had only slightly lower probabilities of enrolling in college than their classmates with ACT scores over 24. However, these students were much more likely to enroll in two-year colleges instead of four-year colleges, and few enrolled in selective or very selective four-year colleges. Students' grades emerge as a more important predictor of college enrollment than ACT scores. Among students with similar ACT scores, students with higher GPAs were significantly more likely to enroll in college, in four-year colleges, and in selective or very selective four-year colleges.

In sum, it is not surprising, given Chicago graduates' low GPAs and ACT scores, that graduates are concentrated in two-year and nonselective four-year colleges. Within Chicago, students who had ACT scores above 18 and GPAs above 2.5 were much more likely to enroll in four-year colleges, and those who had ACT scores above 24 and GPAs above 3.5 were much more likely to enroll in selective or very selective four-year colleges. But few Chicago graduates have ACT scores and GPAs this high. It is clear that qualifications, as measured by ACT scores and GPAs, pose a major barrier to college access.

The impact of academic preparation on four-year college graduation rates

Earlier we noted that only 45 percent of Chicago graduates who begin at a four-year institution graduate within six years. As with college access, our analysis suggests that the low GPAs and test scores of Chicago graduates are important contributors to this low four-year degree attainment rate. We ran an analysis designed to disentangle how grades and test scores shape the likelihood of college completion among Chicago graduates for the classes of 1998 and 1999, accounting for student characteristics, high school course-taking, and other measures of high school performance.²⁴ Students who entered a four-year college with a 3.0 unweighted GPA were 20 percentage points more likely to graduate within six years than students who entered a four-year college with a 2.5 GPA. These students, of course, also had higher test scores and were more likely to take advanced coursework.

Among similar Chicago students who entered a four-year college with similar achievement test scores, students who entered with a 3.0 unweighted GPA were 15 percentage points more likely to graduate from a four-year college within six years than students who entered a four-year college with a 2.5 GPA.

Low GPAs, particularly among minority males, and low ACT scores seriously constrain Chicago students' access to four-year colleges and undermine their chances of success once enrolled. The strongest predictor of graduation from four-year colleges was GPA; students who graduated from Chicago high schools with unweighted GPAs less than 3.0 were very unlikely to graduate from college. Just over a third of students who enrolled in four-year colleges with GPAs between 2.6 and 3.0 graduated within six years and only about one in five students with GPAs below 2.5 graduated within the same time frame. On the other hand, Chicago students with high GPAs (greater than a 3.5) had graduation rates from four-year colleges (75 percent) above the national average. Thus, urban students who do well in high school, as measured by their course performance, can be successful in four-year colleges. However, only 9 percent of Chicago students in this cohort graduated with such a high GPA, having demonstrated that they had worked hard and mastered their coursework in high school.

We have painted a dire picture of the academic readiness for college and prospects for college graduation among Chicago graduates. Closing the aspirations-achievement gap must begin with a focus on improving students' qualifications. However, qualifications alone are not enough. In the next section, we discuss the role of social capital in shaping students' college access and choice.

Beyond qualification: The role of social capital

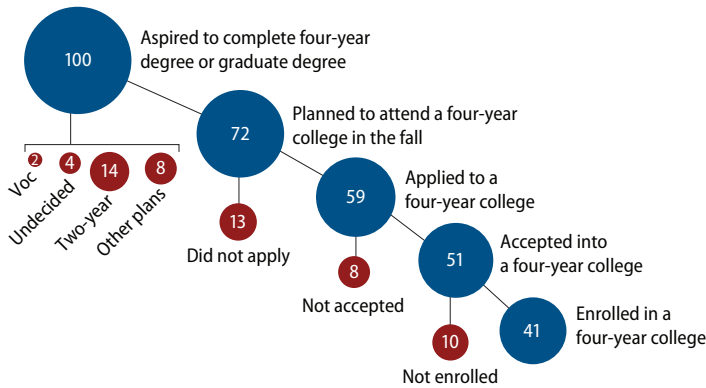
Applying to college is a complex and difficult process, even for the most academically qualified students. In school systems such as CPS in which the majority of students do not have college-educated parents, improving students' qualifications will not necessarily lead to increases in college enrollment if there is not also support for students as they navigate the application process. Research on college access and choice highlights the importance of the norms for college, access to college information, and concrete guidance and support, resources that first-generation college students often lack.²⁵ These are often termed social capital explanations. Sociological research on college choice suggests that low-income and first-generation students may have difficulty translating aspirations into enrollment in large part because of differences in access to social capital—they do not have access to norms for college, college knowledge, and guidance and support in their families, communities, and most importantly, high schools.²⁶

All high school students need significant adult support and guidance as they begin to think about applying to college. This is a daunting task for parents, particularly for those who do not have college experience or knowledge about the complex system of college search and application. The neighborhood and family background characteristics of Chicago students suggests that many of them will face considerable barriers as they begin to think about searching and applying for college. Having limited community access to adults with college-going experiences makes Chicago students especially dependent upon their teachers, counselors, and other nonfamilial adults in obtaining information and support in making educational plans and navigating the process of college applications.²⁷ In this paper, we focus on two ways that prior research finds students' family backgrounds may create barriers to their college enrollment: (1) students not taking the steps necessary for acceptance into a four-year college and to secure financial aid, and (2) students not considering a wide range of colleges and instead enrolling in traditional feeders. The first set of explanations focuses on issues related to college access. We identify key points of intervention and stress the role of support from high school educators. The second is closely related to how college choice shapes students' likelihood of success in college. Students who do not engage in broad college searches are much more likely to enroll in institutions that do not afford them high probabilities of attaining a degree.

Research finds that urban students with high aspirations often have difficulty taking the concrete steps needed to effectively apply to and enroll in four-year colleges.²⁸ For example, Avery and Kane compared seniors with similar aspirations who attended Boston

Public Schools to seniors attending suburban high schools in the Boston area. They found dramatic differences in the extent to which students in these two samples had taken the steps necessary to apply to college. Among students who planned to attend a four-year college, only slightly more than half of the Boston sample, compared to 91 percent of the suburban sample, had obtained an application from the college they were interested in attending. Only 18 percent of the Boston sample versus 41 percent of the suburban sample had applied to a four-year college by the fall of their senior year. Moreover, urban students may not effectively participate in the college application process simply because they lack information on what to do.²⁹ We call this “constrained college application.” In summation, research on college access suggests that Chicago students may face barriers to four-year college enrollment because they may have difficulty managing the process of college application and miss important steps in the process.

Figure 2. Tracking CPS students through the steps to college enrollment



We examined the path Chicago graduates took toward enrolling in a four-year college and identified key benchmarks.³⁰ First, students must aspire to attain a four-year degree; next, they must plan to enroll in a four-year college. After making these decisions, they must apply to a four-year college, be accepted, and finally enroll in a four-year college. Of the Chicago graduates who aspired to complete a four-year degree, only 41 percent met each of these benchmarks and enrolled in a four-year college the following fall (see Figure 2). An additional 9 percent of students managed to enroll in a four-year college without following all of these steps, for a total of 50 percent of all Chicago students who aspired to a four-year degree. Almost half of these additional students ended up enrolling in nonselective four-year schools.

Why do so few Chicago graduates who aspire to attain a bachelor’s degree fail to make the immediate transition to a four-year college? We might expect, given Chicago students’ poor qualifications, that the biggest barrier to enrolling in a four-year college would be getting accepted. But our analysis reveals a much more complicated picture. First, fewer than three-quarters (72 percent) of students who aspired to attain a four-year degree stated in April of their senior year that they planned to attend a four-year college in the fall. Some students simply decided to delay their enrollment. A larger group decided to go to college, but to start at a two-year college. Only 59 percent of students who aspired to attain a four-year degree had applied to a college by June. Acceptance is less of a barrier than might be expected; only 8 percent of students applied to a four-year college and were not accepted. Rather, a larger issue is that because many Chicago students do not apply to four-year colleges, they never face a college acceptance decision. Even more surprising is that 10 percent of all students who aspire to a four-year degree are accepted to a four-year college, but are not enrolled in the fall.

Many Chicago graduates make an early decision to attend a two-year college rather than a four-year college, and even among those who plan to attend a four-year college, many do not make it through the application process. Does this mean that students correctly judge their qualifications and decide that they are not qualified to attend a four-year college? Students who graduated with low GPAs and ACT scores, and thus have access to only two-year or nonselective colleges, were unlikely to plan, apply, or be accepted to four-year colleges. However, it is not just students with low qualifications who fail to meet benchmarks in the college application process; many students with access to the majority of four-year colleges in Illinois (access to at least a somewhat selective college) did not plan to attend a four-year college, and even among students who planned to attend, many did not apply. Only 73 percent of students qualified to attend a somewhat selective college planned to attend a four-year college in the fall and only 61 percent applied. Similarly, only 76 percent of students qualified to attend a selective four-year college applied to a four-year college. However, the students who did apply were accepted at very high rates.

Research has consistently found that Latino students have the most difficulty managing the college application process and gaining access to guidance and support.³¹ Not surprisingly, even among Chicago students qualified to attend a four-year college, Latino students were the least likely to plan to enroll in a four-year college after graduation and the least likely to apply to a four-year college. This largely explains their lower college-going rates.³² Only 60 percent of Latino graduates who aspired to attain a four-year degree planned to attend a four-year college in the fall, compared to 77 percent of African-American and 76 percent of white graduates. Fewer than half of Latino students who wanted a four-year degree applied to a four-year college, compared to about 65 percent of their African-American and white counterparts. Importantly, many Latino students (10 percent) were accepted at a four-year college but did not enroll. The loss of students between acceptance and enrollment, the last step, was quite similar for Latino, white (9 percent), and African-American students (12 percent). However, this 10 percentage point drop represents 25 percent of all Latino students who had been accepted to a college. The proportional loss for Latino students was larger because so few actually reached the point of acceptance to a four-year college.

Our look at Chicago seniors' road from aspirations to enrollment identifies three critical benchmarks that even many well-qualified students fail to meet. First, many students opt to attend a two-year, vocational, or technical school instead of a four-year college. Second, many students who plan to attend a four-year college do not apply. Third, even students who apply to and are accepted at a four-year college do not always enroll. Approximately 8 percent of the most highly qualified Chicago students were accepted to a college but ultimately did not enroll.³³ How could students who had been accepted to college not enroll? We examine this question in the next section.

Applying for federal financial aid

Taking the steps to enroll in college requires that students understand how to complete college applications as well as apply for financial aid. Research finds, however, that students' confusion about financial aid and real college costs are a barrier.³⁴ Further, there is an increasing recognition that the complexity of the federal student aid system, and particularly the Free Application for Federal Student Aid, or FAFSA, poses an important barrier to low-income students.³⁵ The recent Commission on the Future of Higher Education report concluded that "our financial aid system is confusing, complex, inefficient, duplicative, and frequently does not direct aid to students who truly need it."³⁶ Many students lack knowledge of what financial aid is available, what they are eligible for, and when and how to apply. Low-income students are more likely to state that financial aid is too complicated to apply for and believe that the costs of college are too high for them to apply, and they are less likely to apply for financial aid early in order to maximize their likelihood of receiving institutional and state aid.³⁷ The American Council on Education estimates that approximately one in five low-income students who are enrolled in college and would likely be eligible for Pell grants never filed a FAFSA.³⁸

One of the most puzzling findings in our analysis of the path to college was that a substantial number of students who had been accepted to a four-year college did not enroll. This can largely be explained by FAFSA submission; students who had been accepted to a four-year college and completed a FAFSA in spring were almost 50 percent more likely to enroll than students who had not completed a FAFSA.³⁹ Among students who had been accepted to a four-year college, some 84 percent of students who completed a FAFSA by the end of the school year attended a four-year college in the fall, compared to only 55 percent of students who did not file a FAFSA. This strong association holds even after we control for differences in student characteristics and support from parents, teachers, and counselors. Students who completed a FAFSA had an 84 percent predicted probability of enrolling in a four-year college versus a 56 percent predicted probability for students who did not complete a FAFSA. This finding may be a proxy for the overall level of norms and supports for college in the school environment. It may also indicate that failure to complete a FAFSA creates a significant barrier to college enrollment for low-income students.

FAFSA completion has been the subject of major efforts within Chicago. Beginning in 2006, Chicago initiated a new online tracking system that provides significant resources to schools to manage this problem. School staff can access an online FAFSA tracking system that shows them whether a student has filed a FAFSA, what grants the student might be eligible for, and whether the FAFSA application is complete. This is a significant step forward but it is only a first step. The tracking system has allowed Chicago to determine the extent of the problem: As of late March 2007, when most students make their college decisions, only one-third of Chicago seniors had completed a FAFSA. It is clear that schools must organize to use these data effectively in order to have an impact on these numbers. Schools must also work earlier to help families and students understand what financial aid

is, what funding is available, how the stated tuition differs from what they will be asked to pay, and how delaying applying for federal financial aid affects the sources of funding that students may be eligible for. The payoff to completing a FAFSA for Chicago students is likely to be large; in 2007, 47 percent of students who completed their FAFSA had zero expected family contributions, and over three-quarters were eligible for a Pell Grant.

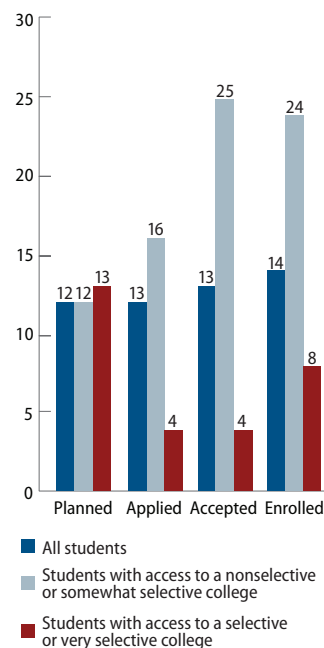
The college-going climate in high schools

Research on college choice often finds that one of the most important predictors of whether students go to college is whether they attend a high school where the majority of students tend to go to college.⁴⁰ College-going rates in the school may have a strong effect on an individual student’s behavior. The rate captures the overall college-going culture of the school, as well as whether the school provides critical guidance and support. College-going rates may also represent the importance of feeder patterns—that is, once students from a high school start going to a particular college, more students are likely to follow suit. However, defining a strong college-going climate by college-going rates does not provide guidance on how to create a strong college-going climate. Barbara Schneider, in her recent monograph, emphasizes that “...all teachers in a high school should explicitly articulate the expectation that all students will attend postsecondary school and provide resources and opportunities to make that happen.” It begins with individual relationships—what Schneider terms relational trust.⁴¹

We measured the college-going culture of a school using the school average of teacher survey responses on the college climate in their school. This variable is based on responses to questions asked of all high school teachers about the extent to which students in their school go to college, whether their school’s curriculum is geared toward preparing students for college, and whether teachers in their school helped students plan for college outside of class time.

Across all our analyses, the single most consistent predictor of whether students took steps toward college enrollment was whether students attended a school with a strong college-going climate (see Figure 3).⁴² That is, in schools where teachers report that they and their colleagues pushed students to go to college, worked to ensure that students would be prepared, and were involved in supporting students in completing their college applications, students were significantly more likely to plan to attend a four-year school, apply, be accepted, and, when accepted, enroll. Importantly, teachers’ expectations and involvement seemed to make the biggest difference for students with marginal levels of qualifications for four-year colleges, who need much more support from adults in managing the college search and application process. It is clear that students’ opportunities will be shaped by the extent to which schools, teachers, and counselors are organized and dedicated to the goal of creating environments with high expectations and structured support.

Figure 3. Likelihood of students with different qualification levels taking the steps toward college enrollment by whether their teachers reported that their school had a strong college climate



College mismatch and college choice

The process of searching for a college can be daunting. There are over 2,500 four-year colleges in the United States, including over 100 in the state of Illinois.⁴³ We have shown how Chicago students struggle with the process of searching through these options and how less than half of graduates with aspirations to attain at least a bachelor's degree enroll and make the immediate transition to a four-year college. We have provided evidence that suggests students' access to norms, support, and information at their high schools shapes their likelihood of enrollment. Other research has shown how this lack of information and support for the college application process often results in urban students limiting their college search and enrolling in traditional "enclaves." Indeed, we find that Chicago graduates follow this pattern of constrained enrollment in a small number of less selective institutions. Among Chicago graduates who enroll in a four-year college, nearly two-thirds attend just seven institutions.⁴⁴

This pattern of constrained enrollment is not necessarily surprising or troubling. Students make choices about college enrollment for a wide variety of reasons. The preference for a small number of local institutions may simply reflect the desire to live at home or attend college with friends. In addition, students with poor academic preparation may only be qualified to enroll in less selective institutions and thus their choices simply may reflect their reduced college options. However, low-income students are also vastly underrepresented at top-tier colleges, including flagship state universities, and this under-representation cannot solely be attributed to differences in college qualifications.⁴⁵

Research on talent loss finds that many urban, low-income students without access to information and strong guidance rely on their own familial and friendship networks for help, and these networks often only have limited college information.⁴⁶ This limitation results in many urban students focusing their entire college search within the enclave colleges of the traditional feeder patterns—largely public, two-year, or non- and somewhat selective four-year colleges.⁴⁷ Thus, many first-generation college students conduct constrained college searches that often lead to "mismatch," enrollment in colleges that are less selective than students are eligible to attend. Furthermore, research suggests that there are consequences to students' constrained college choices. The selectivity of institutions matters a great deal in shaping the likelihood of college graduation and in particular undermines the chances of four-year degree attainment for urban and minority students.⁴⁸

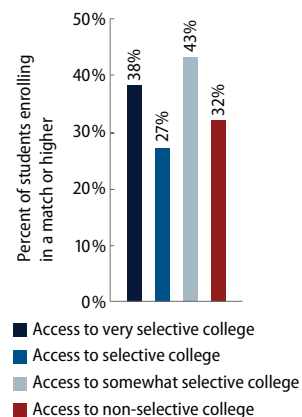
We now look for evidence of constrained college search and “mismatch” hypotheses by comparing the types of colleges in which Chicago students enrolled to the types of colleges to which they would have had access given their levels of qualifications. We compared the selectivity of the colleges students would have been eligible to attend given their ACT scores, GPAs, and coursework to the selectivity level of the colleges in which they enrolled, if any. We identified the selectivity of colleges by their Barron’s ratings. Although this project has focused specifically on the concept of “match,” ultimately finding the right college means more than gaining acceptance to the most competitive college possible. It is about finding a place that is a good “fit”—a college that meets a student’s educational and social needs and that will best support his or her intellectual and social development. Match is just one consideration of the larger process of engaging in an effective college search, but it is also an important indicator of whether students are engaged more broadly in a search that incorporates the larger question of fit.

As seen in Figure 4, college mismatch appears to be a common outcome. At the end of senior year, only 38 percent of students with highest qualifications enrolled in a match college, that is, a very selective college.⁴⁹ We might expect that matching would be hardest for students with access to very selective colleges. Students with the highest qualifications must enroll in a very selective college to be considered a match, and there are few of these institutions in the Chicago area. Also, the process of applying to a very selective college is typically far more complicated, and these colleges deny admission to the highest proportions of students.

Yet mismatch is an issue among Chicago students of all levels of qualifications. Students with access to selective colleges (such as DePaul University or Loyola University), were actually less likely to match than their classmates with access to very selective colleges. Only 16 percent of students with access to selective colleges enrolled in a match college. An additional 11 percent enrolled in a very selective college, a rating of higher than their match category. Thus, only 27 percent of Chicago graduates with access to a selective college enrolled in a selective or very selective college, while fully 29 percent of these students enrolled in a two-year college or did not enroll at all. This mismatch problem is nearly as acute for students who had access to somewhat selective colleges (the majority of four-year public colleges in Illinois). Fewer than half of students with access to somewhat selective colleges attended a college that matched or exceeded their qualifications.

Indeed, what is clear is that the dominant pattern of behavior for students who mismatch is not that they choose to attend a four-year college slightly below their match. Rather, many students mismatch by enrolling in two-year colleges or not enrolling in college at all. Across all, about two-thirds (62 percent) of students attended a college whose selectivity level was below the kinds of colleges to which they would have most likely been accepted given their level of qualifications. In the next section, we examine whether these college choices mattered for their likelihood of attaining a four-year degree.

Figure 4. Percent of students enrolling in a match or higher college by qualifications



The impact of college choice

How important for college attainment is this constrained college enrollment pattern and the large number of graduates who enroll in colleges below their level of qualifications? Earlier we demonstrated that Chicago graduates have lower probabilities of attaining a four-year degree within six years than their counterparts across the nation. This is likely related to Chicago graduates' constrained pattern of enrollment in a small number of local institutions that offer students very low probabilities of graduation, even when compared to schools in the same selectivity category. How much of these lower probabilities can be attributed to the characteristics of the institutions themselves, and how much can be attributed to the individual characteristics of students, such as low levels of preparation or low financial resources? One way to evaluate the consequences of this enrollment pattern is to examine how Chicago students fare in the most popular colleges.

Chicago graduates are concentrated in colleges with very low graduation rates. Of the seven most popular institutions for Chicago graduates, only two have an institutional graduation rate at or above the national average of 53 percent: the highly selective University of Illinois at Urbana-Champaign and the somewhat selective Northern Illinois University. Two of the most popular colleges, Northeastern Illinois University and Chicago State University, have abysmal six-year graduation rates, below 20 percent. Furthermore, at many colleges, Chicago students are less likely to graduate than students from other school districts.

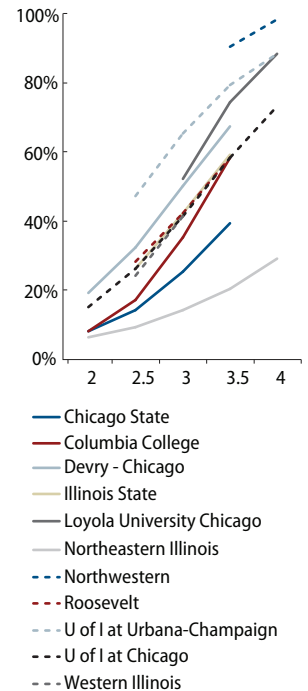
It is clear that one of the primary reasons why institutional graduation rates vary is that different colleges enroll very different types of students. We would expect that very selective colleges would have higher graduation rates than nonselective colleges simply because their students begin with higher levels of college qualifications. However, even after adjusting for background characteristics and high school preparation, the graduation rates at the most popular colleges for Chicago students were substantially below those of other colleges in Illinois. Quite simply, Chicago students who went to college someplace other than the most popular schools were more likely to graduate than students with similar preparation and backgrounds who followed the constrained path to college.

One explanation for the lower graduation rates for students who enrolled in the most popular colleges is that these students did not fully participate in the college search process and, as a result, ended up in institutions that were not a good match for their interests and skills. Enrollment in an enclave college could also be an indication of low levels of social capital, which also undermines students' likelihood of college success. Attending an out-of-state college and living on campus may allow students to more fully immerse themselves in the college experience. There are many possible reasons for these patterns, including both institutional and student characteristics.⁵⁰ To better understand the role of college choice in shaping graduation rates, we examined four-year college degree attainment rates among Chicago students with the same level of qualifications but who enrolled in different institutions.

Figure 5 demonstrates how college choice, in combination with high school GPA, was related to very different probabilities of attaining a four-year degree. Each of the lines in the chart represents a different college in Illinois, showing the graduation rates of the students with similar background characteristics who went to that college from Chicago by their high school GPA. We can see three important factors in students' likelihood of attaining a four-year degree. First, students with very low GPAs were unlikely to graduate regardless of which college they attended. The range of institutions attended by students with about a "C" average, a GPA of about 2.0, was limited, but no matter where they attended, fewer than 20 percent graduated. Students with a high school GPA of about 2.5 attended a broader range of colleges, but less than one-third graduated. Second, regardless of the college, high school GPA mattered. Within each institution, students with higher high school GPAs were more likely to graduate. This suggests, once again, that GPA is not only important in gaining access to selective schools but also in succeeding once there. Finally, we see that college choice mattered substantially for graduation, especially among high-achieving students. While Chicago graduates with a 4.0 high school GPA had a 97 percent probability of graduating from Northwestern University within six years, this figure drops to 29 percent for similar students enrolled in Northeastern Illinois University. It is very likely that students who enroll in Northwestern differ from students who enroll in Northeastern in many ways that we have not taken into account in our analysis. However, we still expect students that manage to attain a 4.0 GPA throughout high school would have a high probability of succeeding in college, particularly at a nonselective college.

It seems counterintuitive that college choice would be most critical for high-achieving students. We would expect that the best-prepared students would be able to succeed at any institution they attended. The students with the highest qualifications had the most options, yet where they enrolled still mattered greatly. It is possible that there are important unmeasured reasons underlying college choice that also have an impact on degree attainment. Still, the very large differences in graduation rates across colleges, even among students with the same high school GPAs, suggest that we need to pay attention to students' choices after high school. While it is clear that improving students' preparation for college is an essential step for increasing college access and degree attainment, the gains from these efforts can be rendered meaningless if students are not given the support they need to make good college choices.

Figure 5. College graduation rates by unweighted high school GPA for popular Illinois colleges



Conclusion and strategies

The focus of recent reforms in Chicago and around the country on college readiness, access, and attainment reflects the recognition that most students aspire to attain a four-year degree and ultimately participate in some form of postsecondary education. These reform efforts also suggest a growing consensus that high schools should be accountable for what their students' outcomes are after high graduation. Yet this creates a fundamental challenge for both high schools and governments at all levels around how to increase the academic readiness and college attainment rates of a significantly greater number of students.

To increase students' likelihood of college enrollment and success, policymakers and practitioners must first start with a focus on improving instruction and students' academic preparation in high school. Qualifications, particularly course performance, constrain graduates' access to and options among four-year colleges, and seriously undermine their chances of being successful once enrolled. The national debate has focused on increasing participation in rigorous curricula and improving students' measured college-readiness based on standardized achievement tests. These are important steps.

At the same time, research such as ours points to the importance of broadening our emphasis to include engaging students in developing the skills and habits, such as study skills and motivation to achieve, that are precursors to being successful in college. Our work suggests that more than improving achievement test scores, raising academic standards, or increasing graduation requirements, efforts to improve college access and attainment must focus on how students are performing and what they are learning in their classrooms on a daily basis.

Our study found that grades are a central determinant of college enrollment and completion. This should be no surprise. We cannot expect students with consistent patterns of poor performance in high school to perform well in college. It appears as though too many students in Chicago are managing to “get by” and pass their classes without having learned and engaged in the material. This difference between classes that allow students to get by with barely passing grades and classes that push students to excel goes beyond academic preparation. It is the difference between whether students develop or do not develop the kinds of noncognitive skills—such as the ability to work independently, study, and engage deeply with problems—that are critical for bridging the gap between students' aspirations to attain a college degree and actual degree attainment.

There are several steps that federal and state policymakers can take to address these kinds of challenges. At present, much of state and federal policy efforts around increasing college readiness and access are focused on raising academic standards in high school through a range of strategies, including raising high school graduation requirements, increasing the rigor of high school exit exams, and aligning state curricular standards to college-level work.

These policies can be worthwhile, but they do have significant limitations.⁵¹ Most critically, given our findings in Chicago, such external policy changes do little to build the capacity of schools to teach the content knowledge and core academic skills students need to prepare for and succeed in college. Nor do they send the message to high schools that developing college knowledge and providing support for students in the college-going process are a central part of their mission. To achieve these goals, policymakers will have to shift their focus from strategies that focus solely on raising standards to strategies that encourage and assist high schools in preparing all students to enter and succeed in college.

What policy approaches will lead high schools in this direction, while building the capacity of states, districts, and communities to support them on this journey? Below, we identify three strategies that the federal government and states can potentially pursue.

Strategy 1: Create data systems that track college readiness and attainment and build accountability.

One of the key lessons of our work in Chicago is that for high schools to become more accountable for their graduates' college outcomes, those schools must first know where they currently stand. Therefore, a first key step in increasing college readiness and attainment is for the federal government, states, and districts to work together to build data reporting and accountability systems that link school and college outcomes and can track these outcomes over time and across schools and institutions. While several states have begun to link high school and college data sets together for tracking purposes, few states and localities have made postsecondary outcomes a core component of their accountability systems. CPS has taken the lead in these efforts. It has built a tracking system and developed reports that provide high schools with detailed information about their students' participation in the college application process and their college enrollment patterns. These public reports give guidance to schools about how to target their efforts. CPS has also made college readiness indicators and college enrollment a central part of their high school accountability scorecard.

Unfortunately, few districts and states currently have the capacity to track college outcomes as Chicago does. For example, no state uses existing measures to benchmark college readiness and attainment, and only a few have linked these indicators to actual college performance. One potential role for federal policy is to help states and districts develop a set of college readiness and attainment indicators based on readily available data such as student coursework, grades, and test scores. To do so, states and districts will also require

data feedback systems like that of Chicago—systems that provide schools fine-grained information on the college outcomes of their graduates and the levels of performance that shape those outcomes. We simply cannot ask high schools to focus on the college readiness and postsecondary outcomes of their graduates if they do not know what happens to their students after they graduate and do not have measurable indicators of what determines college access and performance.

Strategy 2: Support and build the capacity of high school and college educators.

Accountability and data systems may help to focus high schools on postsecondary readiness and performance, but they do not in and of themselves build the capacity of schools and teachers to respond. Increasing college readiness is fundamentally an instructional challenge that will require developing classroom environments that deeply engage students in acquiring the skills and knowledge they will need to gain access to and succeed in college. Supporting this shift within the classroom will require a serious investment to increase the capacity of high schools by providing teachers and principals the development opportunities to enhance their instructional practice.

In addition to improving instruction, another key role for policy is to help districts and schools translate teacher and student learning and better academic preparation into concrete improvements in college access and success. From our work in Chicago, we believe that gains in academic preparation will not necessarily translate into college access if high schools do not provide better structure and support for students in the college search, college application, and financial aid processes and if those schools fail to build a strong college-going culture in their buildings. Too many students who aspire to attend four-year colleges fall through the cracks, not taking the steps necessary to apply to and enroll in four-year colleges. Students and their families need to believe that their high aspirations are attainable, and in part this belief is created when students feel supported and capable of achieving their goals. The need for guidance and information creates new roles for teachers and school staff and is as important a challenge for high school reform as raising achievement test scores. Part of this approach must also involve a local strategy to help families and students manage college finance, along with a national and state strategy to break down barriers to college affordability.⁵²

It is also critical that the federal government and states help high schools focus on college choice and encourage students to attend those colleges that offer high levels of support and environments conducive to student learning, particularly for underrepresented minorities. College, for many students, is a path to a good job. These students do not see colleges as an array of educational institutions that differ in their quality and offerings. One role for high schools is to provide guidance to students so that they understand these differences and understand that different institutions provide very different probabilities of attaining a degree.

It is also clear that better sorting among colleges is not a viable strategy for the nation. There is a significant need for research and policy attention in this area—investigating the determinants of disparities in institutional graduation rates and finding what supports in colleges are needed to improve these rates. The efforts in high schools to improve college readiness will not be enough to close the gap between college aspirations and attainment if the institutional characteristics that shape college completion rates are not understood. The bottom line is that four-year colleges and universities need to become part of the strategy for improving college graduation rates.

Strategy 3: Develop strong signals and clear incentives to students about the path to college.

A final strategy is for the federal government, states, and districts to adopt policies that reinforce all of these efforts by sending clear messages directly to students about what is required of them in order to prepare for college and, in turn, provide rewards for strong performance. Parents and students are more likely to strongly respond to programs if they receive a strong signal about expectations and if performance is connected to incentives and real payoffs they care about, particularly college attainment.⁵³ High schools cannot ask students to work hard, engage in more rigorous coursework, and develop specific sets of skills if students and their families do not understand the connection between their efforts in high school and attaining their college aspirations. James Rosenbaum has argued that open admissions policies have sent the message that all you need to do to go to college is to graduate from high school.⁵⁴ This is true; any high school graduate can go to college. However, the probability of attaining a bachelor's degree depends on the student's preparation and skills. Raising students' high school performance must begin by changing students' view that because a high school diploma allows admission to some form of college, working hard in high school does not matter for college. This linkage between college aspirations and working hard in high school must be a core part of building a college-going climate.

Finally, these three strategies will require efforts from all levels of government and from both high schools and higher education institutions. These are not strategies that can be enacted in isolation; without a comprehensive effort to build integrated data systems, increase capacity in high schools and colleges, and provide clear signals and incentives, the efforts to close the aspirations-attainment gap will not be successful. Closing the gap will require data systems that establish the means to understand the nature and urgency of the problem and build accountability systems. Progress cannot be made on the problem unless high schools and colleges increase their capacity and resources to respond effectively to the issues highlighted by the data. Finally, students and their parents need to be given the right signals and incentives that reinforce the behavior that will allow them to attain their aspirations. The barriers to closing the aspirations-attainment gap are daunting, but building coordinated and comprehensive strategies is a critical first step.

Endnotes

- 1 See Supplemental Table 15-1 in J. Wirt et al., "The Condition of Education 2004" (Washington: U.S. Department of Education, 2004) and Supplemental Table 9-1 in M. Planty et al., "The Condition of Education 2008" (Washington: U.S. Department of Education, 2008).
- 2 American Diploma Project, "Rising to the Challenge: Are High School Graduates Prepared for College and Work?" (2005); National Governors Association Center for Best Practices, "Getting It Done: Ten Steps to a State Action Agenda" (2005); National Governors Association Center for Best Practices, "A Profile of State Action to Improve America's High Schools" (2005); Clifford Adelman, "The Toolbox Revisited: Paths to Degree Completion from High School Through College" (Washington: U.S. Department of Education, 2006).
- 3 P. M. McDonough, *Choosing Colleges: How Social Class and Schools Structure Opportunity* (State University of New York Press, 1997); Stephen B. Plank and Will J. Jordan, "Effects of Information, Guidance, and Actions on Postsecondary Destinations: A Study of Talent Loss," *American Educational Research Journal* 38 (4) (2001): 947-979; Christopher Avery and Thomas K. Kane, "Student Perception of College Opportunities: The Boston COACH Program." In Caroline M. Hoxby, ed., *College Choices: The Economics of Where to Go, When to Go, and How to Pay for It* (Chicago: University of Chicago Press, 2004); M. W. Kirst and A. Venezia, *From High School to College: Improving Opportunities for Success in Postsecondary Education* (San Francisco: Jossey-Bass, 2004).
- 4 U.S. Department of Education, "Mortgaging Our Future" (2006); U.S. Department of Education, "A Test of Leadership: Charting the Future of U.S. Higher Education" (Washington: 2006).
- 5 This work is largely drawn from Melissa Roderick, Jenny Nagaoka, and Elaine Allensworth, "From High School to the Future: A First Look at Chicago Public School Graduates' College Enrollment, College Preparation, and Graduation from Four-Year Colleges" (Chicago: Consortium on Chicago School Research, 2006).
- 6 U.S. Department of Education, "A Test of Leadership."
- 7 This section largely draws on Melissa Roderick et al., "From High School to the Future: Potholes on the Road to College" (Chicago: Consortium on Chicago School Research, 2008).
- 8 Andrea Venezia, Michael Kirst, and Anthony Antonio, "Betraying the College Dream: How Disconnected K-12 and Postsecondary Education Systems Undermine Student Aspirations," (Stanford, CA: Stanford Institute for Higher Education Research, 2003).
- 9 Plank and Jordan, "Effects of Information, Guidance, and Actions on Postsecondary Destinations"; Patricia M. McDonough, *Choosing Colleges: How Social Class and Schools Structure Opportunity*, (Albany: State University of New York, 1997); Avery and Kane, "Student Perception of College Opportunities."
- 10 See J. Wirt et al., "The Condition of Education 2004."
- 11 M. Planty et al., "The Condition of Education 2008."
- 12 Estimates from the October Current Population Survey show that from 1980 to 2002 the percentage of recent high school graduates who were enrolled in college increased from 51 percent to 63 percent and among low-income students from 32.2 percent to 51 percent. The college enrollment of white high school graduates increased more than African American and, particularly, Latino graduates. In 2002, 66.4 percent of white, 57 percent of African American, and 54 percent of Latino recent high school graduates were enrolled in college. See Supplemental Table 20-1 in U.S. Department of Education, "The Condition of Education" (2005).
- 13 L. Berkner and L. Chavez, "Access to Postsecondary Education for the 1992 High School Graduates" (Washington: U.S. Department of Education, 1997).
- 14 Of students in NELS88, who represent 1992 high school graduates, less than 40 percent of Latino and African American 12th-graders were able to enroll in college without taking remedial coursework, compared with fully 64 percent of whites and 62 percent of Asian students (Edward C. Warburton, Rosio Bugarin, and Anne-Marie Nunez, "Bridging the Gap: Academic Preparation and Postsecondary Success of First-Generation Students" (Washington: U.S. Department of Education, 2001).
- 15 NSC is a nonprofit corporation that began in 1993 to assist higher education institutions in verifying enrollment and degree completion. In 2004, NSC expanded its services to high school districts and, through its new "Successful Outcomes" program, is allowing school systems to follow their graduates. More than 2,800 colleges currently participate in NSC, which covers 91 percent of postsecondary enrollment in the United States.
- 16 The seven four-year colleges in order of popularity are: University of Illinois at Chicago, Northeastern Illinois University, University of Illinois at Urbana-Champaign, Chicago State University, Northern Illinois University, Columbia College, and Southern Illinois University. See Table 12 for selectivity ratings.
- 17 One may argue that these statistics underestimate the proportion of Chicago students who may complete four-year degrees, because we do not include students who started at two-year colleges. We were not able to estimate the progress of these students because the City Colleges of Chicago, which the majority of Chicago students who enroll in two-year institutions attend, did not join the NSC until 2000. However, national data suggest that few students (less than 6 percent) who enter two-year colleges complete bachelor's degrees within six years.
- 18 Patte Barth, "A Core Common Curriculum for the New Century," (Washington: The Education Trust, 2003); Jay P. Greene and Greg Forster, "Public High School Graduation and College Readiness Rates in the United States." Working Paper 3 (Manhattan Institute, 2003); Act, Inc. and The Education Trust, "On Course for Success: A Close Look at Selected High School Courses that Prepare All Students for College" (2004).
- 19 Jomills H. Braddock II and Marvin P. Dawkins, "Predicting Black Academic Achievement in Higher Education," *The Journal of Negro Education* 50 (3) (1981): 319-327; Julie Noble and Richard Sawyer, "Predicting Different Levels of Academic Success in College Using High School GPA and ACT Composite Score" (Iowa City, IA: Act, Inc., 2002); Roderick et al., "From High School to the Future"; Saul Geiser and Maria Veronica Santelices, "Validity of High School Grades in Predicting Student Success Beyond the Freshman Year: High School Record vs. Standardized Tests as Indicators of Four-Year College Outcomes," *Center for Studies in Higher Education Research*, (Berkeley, CA: University of California, 2007).
- 20 James Heckman and Yona Rubinstein, "The Importance of Noncognitive Skills: Lessons from the GED Testing Program," *American Economic Review* 91 (2) (2001): 145-149; George Farkas, "Racial Disparities and Discrimination in Education: What Do We Know, How Do We Know It, and What Do We Need to Know?" *Teachers College Record* 105 (2003): 1119-1146; David Conley, "Toward a More Comprehensive Conception of College Readiness," (Eugene, OR: Educational Policy Improvement Center, 2007).
- 21 In our work we rely on students' ACT scores when they take the exam as a part of the Illinois state accountability system during their junior year. Some students take the exam additional times, and with these subsequent tries, their scores may increase, causing us to underestimate the ACT scores students use for admission to college.
- 22 Robert L. Ziomek and Joseph C. Svec, "High School Grades and Achievement: Evidence of Grade Inflation" (Iowa City, IA: ACT, Inc., 1995); David J. Woodruff and Robert L. Ziomek, "High School Grade Inflation from 1991 to 2003" (Iowa City, IA: ACT, Inc., 2004); ACT, Inc., "Are High School Grades Inflated?" (2005), available at www.act.org/path/policy/pdf/issues.pdf.

- 23 We developed a rubric using the modal college attendance patterns of students with different GPA and ACT score combinations that Chicago graduates would need to have a high probability of being accepted to and enrolling in certain classifications of colleges. For example, in Illinois, a student would have access to a somewhat selective college if he or she had at least a 2.0 GPA and a score of 18 on the ACT. We further characterize students' qualifications by whether they took a coursework sequence that included honors classes and at least two AP courses or were enrolled in an International Baccalaureate program. See Roderick et al., "From High School to the Future."
- 24 Unfortunately, because these earlier cohorts attended high school before the introduction of the new state tests, we do not have ACT scores for these students. We do have a measure of achievement based on the Test of Achievement Proficiency. Students' TAP and ACT scores were highly correlated (.86), which suggests that the TAP is a good proxy for students' overall achievement as would be indicated by the ACT.
- 25 McDonough, *Choosing Colleges*; George L. Wimberly, "School Relationships Foster Success for African American Students" (Act, Inc., 2002); Barbara Schneider and David Stevenson, *The Ambitious Generation: America's Teenagers, Motivated but Directionless* (New Haven, CT: Yale University Press, 1999); Alberto F. Cabrera and Steven La Nasa, "Understanding the College Choice of Disadvantaged Students," *New Directions for Institutional Research* 107 (2000): 5-22; James E. Rosenbaum, "Beyond College for All: Career Paths for the Forgotten Half" (New York: Russell Sage Foundation, 2001); Ricardo Stanton-Salazar, *Manufacturing Hope and Despair: The School and Kin Support Networks of U.S.-Mexican Youth* (New York: Teachers College Press, 2001); Kenneth P. Gonzalez, Carla Stoner, and Jennifer E. Jovel, "Examining the Role of Social Capital in Access to College for Latinas: Toward a College Opportunity Framework," *Journal of Hispanic Higher Education* 2 (1) (2003): 146-170; Tyrone C. Howard, "A Tug of War of Our Minds: African American High School Students' Perception of their Academic Identities and College Aspirations," *The High School Journal* 87 (1) (2003): 4-17.
- 26 For example, McDonough (1997) and Perna (2000) use Coleman's (1988) conceptualization of social capital. They and others have also framed these barriers as a deficit in cultural capital.
- 27 Janice L. Bloom, "(Mis)reading Social Class in the Journey Toward College: Youth Development in Urban America," *Teachers College Record* 109 (2) (2007): 343-368.
- 28 Grace Kao and Marta Tienda, "Educational Aspirations of Minority Youth," *American Journal of Education* 106 (1998): 349-384; Avery and Kane, "Student Perception of College Opportunities."
- 29 Venezia et al., "Betraying the College Dream."
- 30 Educational aspirations and college plans are based on student responses to the 2005 Consortium on Chicago School Research Survey, college application and acceptance information is based on the 2005 Chicago Senior Exit Questionnaire, and college enrollment is based on NSC data.
- 31 Stanton-Salazar and Dornbusch (1995); Gonzales, Stoner, and Jovel (2003).
- 32 One common explanation for why Latino Chicago students do not enroll in four-year colleges is that they are immigrants, particularly undocumented immigrants. However, in our multivariate analysis we found that immigration status alone cannot explain why so many more Latino students who aspire to attain four-year degrees are less likely to plan to enroll or apply than African American students.
- 33 We observe this trend even after we have adjusted our college enrollment numbers to account for the fact that not all colleges participate in the NSC. One concern is that because not all colleges participate in the NSC, we may undercount college enrollment. Specifically, some students may report on the Senior Exit Questionnaire that they had been accepted to a college that did not participate in the NSC. If we base our enrollment estimate solely on the NSC data, we will count these students as having been accepted to college based on their responses to the Student Exit Questionnaire, but not enrolled because their college does not participate in the NSC. To compensate for this undercount, we adjusted our college enrollment data by estimating a student's likelihood of enrolling if they stated on the Senior Exit Questionnaire that they were attending a college that does not participate in the NSC.
- 34 McDonough, *Choosing Colleges*; Michael W. Kirst and Andrea Venezia, *From High School to College: Improving Opportunities for Success in Postsecondary Education* (San Francisco: Jossey-Bass, 2004); Christopher Avery et al., "Cost Should Be No Barrier: An Evaluation of the First Year of Harvard's Financial Aid Initiative." Working Paper 12029 (National Bureau of Economic Research, 2006); Susan M. Dynarski and Judith E. Scott-Clayton, "College Grants on a Postcard: A Proposal for Simple and Predictable Federal Student Aid" (Cambridge, MA: Harvard University, 2007); U.S. Department of Education, "A Test of Leadership."
- 35 Avery et al., "Cost Should Be No Barrier"; Dynarski and Scott-Clayton, "College Grants on a Postcard"; U.S. Department of Education, "A Test of Leadership."
- 36 See pp. 3, U.S. Department of Education, "A Test of Leadership."
- 37 American Council on Education, "Missed Opportunities: Students Who Do Not Apply for Financial Aid" (2004); Mari Luna De La Rosa, "Is Opportunity Knocking? Low-income Students' Perceptions of College and Financial Aid," *American Behavioral Scientist* 49 (12) (2006): 1670-1686; Dynarski and Scott-Clayton, "College Grants on a Postcard."
- 38 American Council on Education, "Missed Opportunities."
- 39 FAFSA completion numbers are based on student self-reports on the Chicago Senior Exit Questionnaire.
- 40 Jason M. Fletcher, "Social Interactions in College Choice: The Interplay of Information, Preferences, Social Norms, and Individual Characteristics in Predicting College Choice" (Princeton, NJ: Texas Higher Education Opportunity Project, 2006).
- 41 B. Schneider, "Forming a College-going Community in U.S. Public High Schools" (Seattle, WA: Gates Foundation, 2007).
- 42 We also used the college-going rate of the prior year's graduating class as a measure of college-going culture, and the two variables yielded surprisingly similar results.
- 43 U.S. Department of Education, "Title IV Institutions, by Level and Control of Institution and State or Other Jurisdiction: Academic Year 2005-2006" (2005).
- 44 See note 16.
- 45 Plank and Jordan, "Effects of Information, Guidance, and Actions on Postsecondary Destinations"; Amanda Pallais and Sarah Turner, "Opportunities for Low-income Students at Top Colleges and Universities: Policy Initiatives and the Distribution of Students," *National Tax Journal* 59 (2) (2006): 357-386.
- 46 Plank and Jordan, "Effects of Information, Guidance, and Actions on Postsecondary Destinations"; Doo Hwan Kim and Barbara Schneider, "Social Capital in Action: Alignment of Parental Support in Adolescents' Transition to Postsecondary Education," *Social Forces* 84 (2) (2005): 1181-1205.
- 47 J.C. Hearn, "Academic and Nonacademic Influences on the College Destinations of 1980 High School Graduates," *Sociology of Education* 64 (3) (1991): 158-171; McDonough, *Choosing Colleges*; Plank and Jordan, "Effects of Information, Guidance, and Actions on Postsecondary Destinations"; Ann E. Person and James E. Rosenbaum, "Chain Enrollment and College Enclaves: Benefits and Drawbacks for Latino Students." In Catherine L. Horn, Stella Flores, and Gary Orfield, eds., *New Directions for Community Colleges: Community Colleges and Latino Educational Opportunity*, no. 133 (San Francisco: Jossey-Bass, 2006); Kim and Schneider, "Social Capital in Action"; De La Rosa, "Is Opportunity Knocking?"; Dynarski and Scott-Clayton, "College Grants on a Postcard."
- 48 Turner, "Going to College and Finishing College"; Sigal Alon and Marta Tienda, "Assessing the 'Mismatch' Hypothesis: Differences in College Graduation Rates by Institutional Selectivity," *Sociology of Education* 78 (4) (2005): 294-315; Mortenson, "Institutional Graduation Rates by Family Income, Student SAT Scores and Institutional Selectivity."
- 49 One quarter of students with access to a very selective college attended a college with a slightly lower level of selectivity (a selective college). About 20 percent enrolled in a somewhat selective college, a college with a selectivity rating far below her level of qualifications. An additional 18 percent enrolled in a nonselective four-year college, a two-year college, or no college at all.
- 50 We examined indicators of college quality, such as selectivity (e.g., median SAT, admittance rate), the types of students they enroll (e.g., percent part-time, percent age 25 or older, percent receiving Pell grants), their structure (e.g., size, reliance on part-time faculty, status as a historically black college/university, student-faculty ratio) and their costs and services (e.g., expenditures on students) to see their impact on college graduation rates. Once adjustments are made to account for different levels of high school preparation among students, only a few college characteristics show even moderate relationships with graduation, median SAT, educational expenditures per student, sector (private/public), and the percentage of students over age 25 (Roderick et al., *From High School to the Future*).
- 51 This section draws on strategies discussed in Melissa Roderick, Jenny Nagaoka, and Canessa Coca, "College Readiness for All: The Challenge for Urban High Schools," *The Future of Children* 19 (1) 2009.

- 52 There is a growing body of evidence that efforts to make college more affordable, particularly efforts that link scholarship to performance, improve students' motivation and college enrollment and ultimately their performance in college. Early evidence from the evaluation of the Gates Millennium Scholars Program has found that, relative to a comparison group, Gates scholarship recipients were more likely to enroll in very selective colleges, more likely to be engaged in activities on their college campuses, and more likely to persist in and complete college. See, for example, the recent report by the Institute for High Education Policy, "Expanding Access and Opportunity."
- 53 T. Domina, "Higher Education Policy as Secondary School Reform: Texas Public High Schools after Hopwood," *Educational Evaluation and Policy Analysis* 29 (3) (2007); C. K. Jackson, "A Little Now for a Lot Later: A Look at a Texas Advanced Placement Program," IRL Collection Working Papers (Cornell University, 2007); E. P. St. John, G. Musoda, and A. Simmons, "Keeping the Promise: The Impact of Indiana's Twenty-First Century Scholars Program," *Review of Higher Education* 27 (1) (2003); S. Dynarski, "The New Merit Aid." In Caroline Hoxby, ed., *College Choices: The Economics of Where to Go, When to Go, and How To Pay for It* (University of Chicago Press, 2004); T. J. Kane, "A Quasi-Experimental Estimate of the Impact of Financial Aid on College-Going," Working Paper 9703 (National Bureau of Economic Research, 2003).
- 54 Rosenbaum, "Beyond College for All."

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