New York City Goes to College
A First Look at Patterns of College Enrollment, Persistence, and Degree Attainment for NYC High School Students
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November 2014
ACKNOWLEDGMENTS

This report would not have been possible without critical feedback and support from a number of individuals. In particular, I would like to thank the staff at the Research Alliance for New York City Schools. A very special thanks goes to James Kemple for providing instrumental support, advice, and guidance on the direction of the report, as well as the larger body of work we are developing in this area. I am also grateful to my colleagues Lisa Merrill, Kristen Black, and Molly Alter, who participated in reviews of this report, and to the Research Alliance communications team, Chelsea Farley and Shifra Goldenberg, for their invaluable support, meticulous feedback, and expert efforts throughout the report’s production. In addition, I would like to acknowledge the key contributions of former Research Alliance staff, Micha Segeritz and Dyuti Bhattacharya, to the early stages of this research and report. Thanks also to the members of Research Alliance’s Steering Committee, who shared their comments on early versions of these findings.

We are indebted to current and former staff at the New York City Department of Education who provided significant feedback and guidance at various stages of this work, particularly Simone D’Souza, Ailish Brady and Michelle Paladino. Thanks also to our new thought partners at the Office of Institutional Research at the City University of New York, David Crook, Colin Chellman, and Sarah Truelsch, for their constructive commentary.

In addition, I would like to thank our external reviewers, Elizabeth Kahn (Cypress Hills Local Development Corporation), Eliza Moeller (University of Chicago Consortium on Chicago School Research), and Gregory Wolniak (NYU), for their thoughtful comments and suggestions on an early draft of this report.

Special thanks goes to the staff of the Chicago Postsecondary Transition Project at the University of Chicago Consortium on Chicago School Research for their feedback and substantive guidance on this emerging line of work at the Research Alliance. In many ways, the work in Chicago on students’ transitions to college provided a standard for the quality of work we strive to produce.
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1: Introduction

Over the past 15 years, in New York City and across the country, expectations for high schools—and high school students—have changed dramatically. Prior to the turn of the century, the City had seen almost 30 years of graduation rates hovering at or below 50 percent. Throughout the 1980s and 1990s, policymakers and educators responded with a near singular focus on reducing dropout rates and increasing the proportion of students who earned a high school diploma. In the early 2000s, the City began to make headway on these seemingly intractable problems. But educators were also confronting a new reality: A high school diploma, once seen as the key to a stable career, could no longer be counted on to open doors in the labor market. In recent years, numerous analyses have underscored this point. One 2013 study, for instance, predicted that, by 2020, 69 percent of jobs in New York State will require some form of post-secondary education (Carnevale, Smith, & Strohl, 2013).

As a result of these changes, high schools are now being called on not only to increase graduation rates, but also to impart knowledge, skills, and experiences that will prepare students to succeed in college. Furthermore, here in New York City and in other districts, public K-12 and post-secondary systems are starting to work together in ways that are largely unprecedented. Where there were once two distinct systems, many now envision a seamless education pipeline that begins in kindergarten and extends through college and a career.

But what does this “pipeline” look like today? As policymakers, educators, and families embrace a post-secondary degree as the new standard for success, there is a clear need to learn more about students’ pathways into and through college. In New York City Goes to College: A First Look, we describe patterns of college enrollment, persistence, and completion for students coming out of New York City public schools. We also begin to explore two sets of factors that may affect college outcomes for these students—their academic preparation while in high school and the type of post-secondary institution they attend.

This report aims to present a reference point by which to measure citywide progress over time, and to help practitioners and policymakers develop strategies for improvement. We also hope it will stimulate dialogue among local stakeholders about barriers that may help explain the patterns we have documented.
Overview of the Report

Tracking students’ trajectories from high school and then through college is challenging, in part because the data needed for these kinds of analyses are rarely available from a single source. To conduct the analyses for this report, we assembled a unique dataset that tracks multiple cohorts of NYC students from 9th grade through college. To do so, we combined high-school level data about NYC public school students with information from the National Student Clearinghouse (NSC), a non-profit organization that collects data about post-secondary enrollment and degree attainment (all data was provided via the NYC Department of Education). This report presents findings from the initial analyses we conducted using this important new dataset, and as such, it is truly a first look at system-wide patterns of college enrollment, persistence, and completion for NYC students. Future reports will follow additional cohorts of students and delve more deeply into the patterns we describe here (see “About the New York City Goes to College Series” at right).

More information about the data, sample, and methods used in this report can be found in Appendix A.

Our findings are organized into three chapters. Chapter 2 presents an analysis of system-wide trends in high school graduation, college enrollment, and college persistence for students who came out of NYC public high schools between 2006 and 2012. It also looks at rates of post-secondary degree attainment for the 2006 cohort of on-time high school graduates.

In Chapter 3, we dig into system-wide averages to examine whether students’ post-secondary trajectories differ by high school academic performance. Specifically, we examine whether students with higher levels of academic preparation—as measured by the type of high school diploma they received—enrolled in college, persisted, and attained post-secondary degrees at higher rates than students with lower levels of academic preparation. In light of shifts in the types of high school diploma offered to
and received by NYC students in the last decade, we also examine whether these patterns have changed over time.

Chapter 4 explores where students enroll in college. We look at initial enrollment by level of institution (i.e., community college versus four-year institutions), by tiers of colleges within the City University of New York (CUNY) system, and by institutional selectivity. We also examine how rates of persistence and degree attainment diverge for students who attended different types of post-secondary institutions.

The report concludes with a discussion of the policy implications stemming from our findings as well as important areas for future research.

### Barriers to College Enrollment

Past research has pointed to several key factors that can prevent students from enrolling in college. First is cost. According to a report by the Institute for Higher Education Policy (IHEP), students who did not immediately enroll in college cited financial concerns—particularly access to scholarships and grants—as a major reason (Hahn & Price, 2008). Troublingly, studies also show that decisions to delay or forgo college often occur well before students have had the chance to check and compare financial aid packages from different schools (La Rosa, Luna, & Tierney, 2006; McDonough, 1997; Roderick et al., 2009 & 2011), which suggests that these choices are being made with little or no information on the actual costs of attendance.

A number of studies have also highlighted a lack of academic preparation as a critical barrier to college enrollment. Interestingly, the recent growth of post-secondary institutions with no or minimal admissions requirements has made college accessible, at least in terms of academic requirements, to almost anyone with a high school degree. This is particularly true in New York City, where a large proportion of the CUNY system is open admission. However, students who are technically eligible to enroll in college may not see themselves that way. For example, the IHEP report found that a quarter of “college-qualified” students—defined as having graduated from high school while earning at least a 2.5 grade point average and completing certain coursework—who did not attend college within a year of finishing high school perceived themselves as academically unprepared for college (Hahn & Price, 2008). Thus, perceptions of poor academic preparation continue to be a barrier to college enrollment.

College entry is also dependent on students’ capacity to navigate the college search, application, and financial aid processes. Unfortunately, low-income students and would-be first-generation college-goers are more likely to encounter problems in the college planning process (La Rosa, Luna, & Tierney, 2006; McDonough, 1997; Roderick et al., 2009, & 2011). In addition, these students often attend high schools with limited resources to support college planning and applications. According to a recent report from the Center for New York City Affairs, the average caseload for a licensed guidance counselor in New York City, a district composed largely of students who qualify for free or reduced-price lunch, was 316 students in 2012 (Nauer & Tainsh, 2013). These constraints on resources and supports in high schools could hinder students’ ability to effectively navigate the application process and enroll in college.

Students can encounter myriad other obstacles that shape their post-secondary plans, including health problems and lack of access to affordable health care, citizenship status, child-care needs, and other family obligations. Thus, improving access to college in New York City will likely require dealing with these broader issues, in addition to helping students’ overcome common academic, financial, and process-based barriers.
2: PATTERNS OF COLLEGE ENROLLMENT, PERSISTENCE, AND DEGREE ATTAINMENT

The road to college completion is lined with critical markers that indicate students’ progress. In an effort to reveal how NYC students fare in arriving at these key road markers, this chapter explores basic patterns of high school graduation, college enrollment and persistence, and post-secondary degree attainment for recent cohorts of NYC public high school students. The specific questions we address in this chapter include:

- What proportion of NYC students enrolled in college immediately after finishing high school? Has this changed over time?
- What proportion of these students stayed in college for at least one year? How many stayed for two years? Have patterns of persistence changed over time?
- How many students attained a post-secondary degree within four years of starting college?

To present a rich picture of key post-secondary outcomes, we look at patterns of college enrollment, persistence, and degree attainment from a number of different perspectives. We start by examining changes in high school graduation rates over a seven year period, and consider how these changes provide a backdrop for trends in college enrollment. We then look at college enrollment and persistence rates for on-time graduates of NYC public high schools (referred to throughout this report as “high school graduates”) across these seven years. Finally, we focus on the educational trajectories of a single cohort by taking a semester-by-semester look at rates of persistence and degree attainment for students who graduated high school in 2006.

High School Graduation and College Enrollment

In recent years, New York City’s high school graduation rates have improved substantially. Our analyses revealed that patterns of immediate enrollment in college have run parallel with growth in on-time high school graduation rates. As shown in Figure 1, only 58 percent of the 2002 cohort of entering 9th graders graduated from high school on time, and 35 percent of that cohort enrolled in college immediately after high school (i.e., in fall of 2006). In comparison, 70 percent of 2008 entering 9th graders graduated from high school on time, and 45 percent entered college in the
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Thus, the odds that an entering 9th grader would finish high school and proceed to post-secondary education grew by 10 percentage points during this period.

Another way to look at college enrollment is to focus on the proportion of high school graduates (rather than the proportion of entering 9th graders) who immediately went to college. This helps us understand whether more students were attending college simply because high school graduation rates improved, or if, over time, students who finished high school had increasingly better access to college. This perspective has the added benefit of allowing us to compare college enrollment rates in NYC to national rates, which are generally expressed as a percentage of high school graduates. As shown in Figure 2 (on page 11), the share of NYC’s high school graduates who immediately enrolled in college increased from 58 in 2006 to 66 percent in 2009, then decreased slightly in 2010 and held steady around 64 percent in the following two years.

The causes of this leveling off in college enrollment are unclear. It is likely that a number of complex and overlapping factors have played a role, including changes in the population of students, changes in the economic context, and limits on the capacity of post-secondary institutions to absorb increasing numbers of students.
Indeed, the sheer increase in the numbers of graduates coming out of NYC public high schools certainly had the potential to create a burden on local post-secondary institutions, as they had to process many more college applications and serve larger cohorts of incoming freshmen. The number of applications to full-time associate’s or bachelor’s degree programs in CUNY schools skyrocketed from 161,217 in 2006 to 242,260 in 2010—a 50 percent increase (New York State Education Department, 2013). In addition, New York State saw a 9 percent increase in the number of first-time college applicants who enrolled in an associate’s or bachelor’s degree program between the fall of 2006 and fall of 2010. While a 9 percent increase may seem insubstantial, it represents over 15,000 students, enough to pose problems for colleges related to scheduling, hiring, and space.
By 2012, local post-secondary institutions seemed to have experienced some reprieve in terms of the number of students applying to and entering college. However, the ability of post-secondary institutions to respond to the ebb and flow of applicants and enrollees has meaningful consequences for students wanting to continue their education. Future studies of college enrollment in NYC should examine this issue.

National comparisons can help put NYC’s college enrollment rates in context. Our findings provide some evidence that NYC is in fact outpacing the nation in immediate enrollment into college, given the characteristics of NYC students (see Appendix Table C-2 for more information on the demographic characteristics of recent high school graduates) and the barriers to college that many of them face (see “Barriers to College Enrollment” on page 6). For instance, according to the U.S. Department of Education’s 2014 Condition of Education report, in 2012, slightly over half of U.S. high school graduates from low-income families enrolled in college immediately after high school (Kena et al., 2014). Similarly, the National Student Clearinghouse found that 52 percent of the nation’s high school graduating class of 2012 from “low-income, high minority” urban schools enrolled in college in the fall after graduation (NSC, 2014a). Thus, compared to similar students nationwide, NYC high school graduates appear to be more likely to enroll in college.

Future reports in the New York City Goes to College series will examine college enrollment rates for different student subgroups and different City high schools. This information should provide important guidance for local stakeholders working to ensure that all high school graduates have equal opportunities to pursue higher education.

Patterns of Persistence in College

Matriculation only provides a partial account of New York City high school graduates’ transitions to college. Especially in light of the rapid growth of colleges with no or minimal admissions requirements, successful transitions should be judged by how students perform once in college, whether they stay in college, and whether they attain a post-secondary degree. Our data allow us to investigate the latter two topics.

Although the expansive literature on college attrition has generally focused on first-to-second year retention, in this report, we examine rates of college persistence across multiple years. “College persistence” refers to continued enrollment regardless of the specific college attended, whereas “college retention” refers to whether a student stays enrolled in the specific college (or college system) of initial entry. Our focus
on persistence allows for a more flexible look at students’ educational pathways, as students today often attend more than one institution during their college careers.\(^\text{12}\)

Figure 2 shows that persistence rates are slightly lower for recent high school graduates (2010-2011) than for earlier cohorts (2006-2009 high school graduates). Rates of persistence for three semesters (i.e., the year after initial enrollment) peaked at 56 percent of 2009 graduates, and then declined slightly.

The proportion of high school graduates who persisted for three semesters was the same for the 2006 cohort as the 2010 and 2011 cohorts (52 percent). It is important to keep in mind, however, that more students enrolled in college in 2010 and 2011, compared to 2006. When we zero in on the subset of students who enrolled immediately in college, we see that 88 percent persisted for three semesters among the 2006 cohort, compared to 81 percent of the 2011 cohort.

What could explain the observed downward trend in rates of persistence? A decline could point to changes in the economy or other contextual factors (see “College-Going and the Great Recession” on page 15). Alternatively, differences over time could point to changes in demographic or academic characteristics of NYC high school graduates. It is worth noting that, nationally, persistence rates have also declined slightly since 2009 (NSC, 2014b). In the next chapter, we will begin to investigate...
whether changes in the academic characteristics of student cohorts may help explain changes in system-wide rates of persistence.

One of the advantages of our unique dataset is that it allows us to construct a detailed picture of students’ pathways through college, looking at specific cohorts. In this case, we focused on students who graduated on time from NYC public high schools in 2006 and then enrolled in college immediately. Figure 3 presents the semester-by-semester progression through college for this cohort (who we also refer to as 2006 “college enrollees”). The eight bars in Figure 3 reflect the eight semesters (four fall and four spring) for which we can track this group through college. Each bar shows the proportion of 2006 enrollees who either stayed in college continuously\(^ {13}\) (the top section of each bar) or attained their first post-secondary degree (bottom section) by the end of each semester.\(^ {14}\) In the leftmost bar, we see the entire cohort—100 percent—of 2006 college enrollees. By the second semester (i.e., the spring of 2007), 95 percent of the cohort was still enrolled in college. By the fourth semester, 82 percent were still enrolled in a post-secondary institution, and a tiny fraction (2 percent) had attained some type of post-secondary degree.

**Figure 3: There Was Slow and Steady Attrition from College Over Eight Semesters**

*(Persistence and Degree Attainment, for First-Time College Enrollees, 2006)*

2006 On-Time High School Graduates Who Enrolled in College Immediately (%)

![Figure 3 Diagram]

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders in 2002, graduated in 2006, and enrolled in college in the fall of 2006 (N=20,982). See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
Looking over the next three semesters, a clear pattern emerges: The proportion of students who stayed enrolled steadily dropped, and a slowly increasing proportion received a college degree. At the eighth semester, we see a large jump in the proportion of students who earned a post-secondary degree. However, even after this jump, 34 percent of students who started college in 2006 were still enrolled without a degree, and about 30 percent had dropped out or temporarily stopped out of college.

Overall, these persistence rates are somewhat encouraging, as they indicate that a large proportion of college enrollees are determined to continue their education in spite of potential obstacles. However, the steady loss of students across semesters is notable. This trend suggests that students may need support throughout their college career, not just during the first or second year, where many post-secondary institutions focus their retention efforts. The next step for education practitioners and policymakers is to determine what kind of supports—e.g., academic, financial, or social—are most critical, and for which specific students, to keep more enrollees on track to earn a college degree.

Post-Secondary Degree Attainment

While enrollment and persistence are both useful indicators of a successful college transition, the educational outcome of most interest to students, their families, and policymakers is college completion.

Our findings show that high levels of early persistence did not translate into similarly high rates of college completion within four years. While 88 percent of NYC students who entered college in 2006 were still enrolled by the third semester, only 36 percent had attained a two-year or four-year degree by the end of summer 2010 (see Figure 3). This suggests that high rates of persistence conceal a number of elements that could affect degree attainment, such as changes in enrollment status (i.e., from full-time to part-time), low credit accumulation, weak course performance, complications related to transferring between colleges, and competing demands on students’ time (e.g., from work or family).

There are a few key factors to consider when interpreting our rate of college completion. First, this number combines students who started at two-year and four-year colleges, whereas many reports on college completion separate students by level of initial degree pursued (Chapter 4 provides completion rates disaggregated by level of institution initially attended). In addition, most reports on college completion look
beyond four years after initial enrollment, because traditional timelines (i.e., four years for a bachelor’s degree and two years for an associate’s degree) are no longer the norm. Nationally, the median time to degree attainment is 52 months for bachelor’s degree recipients; almost a quarter of bachelor’s degree recipients take more than 72 months to complete their degree (Cataldi et al., 2011). The median time between enrollment and degree attainment for students whose first degree earned is an associate’s degree is 33 months (Green & Radwin, 2012).

Thus, our four-year college completion rate is certainly lower than we would expect to see if we examined degree attainment within five or six years after initial enrollment. In fact, institutional reports from CUNY suggest a large jump in the percentage of bachelor’s degree-seeking students who receive a diploma in their fifth year. For instance, CUNY data show that about 23 percent of full-time, first-time freshmen who entered bachelor’s degree programs in the fall of 2006 earned a bachelor’s or associate’s degree within four years. After five years, that number increased to 45 percent (CUNY, 2014a). For full-time, first-time freshmen who entered associate’s degree programs in Fall 2006, attainment of a bachelor’s or associate’s degree increased from 18 percent in year four to 26 percent in year five (CUNY, 2014b). Thus, we have strong reason to believe that our rate of college completion will see a boost in the fifth year.

Interestingly, our calculation of NYC’s rate of degree attainment within four years (i.e., 36 percent for the 2006 cohort) appears roughly in line with national rates of college completion within six years for similar students (see Appendix Table C-3 for more information on the demographic characteristics of recent NYC public school students who enrolled in college). For example, the national rate of six-year degree attainment for Black students who entered post-secondary institutions in the fall of 2003 was approximately 37 percent; it was 41 percent for Latino students, 45 percent for students coming from the lowest income quartile, and about 41 percent for students with parents who did not attend college (Skomsvold et al., 2011). This suggests that if we take into account the large expected bump in completion after five years and a small additional bump after six, it is possible that NYC’s 2006 high school graduates are outperforming the nation in degree attainment.

Despite the fact that NYC students appear to be obtaining degrees at rates similar to or higher than comparable students around the country, overall college completion rates are still low. It’s unlikely that most New Yorkers would be satisfied knowing that just over a third of 2006 college enrollees—which translates to less than a quarter
of high school graduates—obtained a college degree within four years. The next crucial question is where should policymakers invest their efforts to significantly improve college completion in New York City? The most common response to this question has been to focus on improving students’ academic preparation in high school. In the next chapter, we begin to investigate this strategy by examining how patterns of college enrollment, persistence, and degree attainment differ based on students’ academic credentials from high school.

**College-Going and the Great Recession**

This report examines college matriculation, persistence, and completion over a period that includes the economic downturn known as the Great Recession. There are several ways in which the realities of this time period may have shaped NYC students’ decisions to enroll or stay in college.

On one hand, research has shown that college enrollment generally increases during economic downturns (Bell & Blachflower, 2011; Ewing, Beckert, & Ewing, 2010; Long, 2004 & 2013). Additionally, young adults were disproportionately vulnerable to unemployment and underemployment during the Great Recession (Fernandes-Alcantara, 2012). Limited employment options might lead us to expect that NYC high school graduates entered college at higher rates than in the past.

However, many older adults enter college during a recession (Barr & Turner, 2012; Long, 2013). An influx of older adults into higher education, at a time when the number of NYC high school graduates was also growing, might have had the effect of “crowding out” recent high school graduates.

Furthermore, because college entry is dependent on whether individuals and their families can (or perceive that they can) pay tuition, it is plausible that a recession could cause a decrease in college enrollment. Indeed, a recent report from ACT showed a decline in family income and an increase in unemployment in high school students’ households from 2006 to 2012 (Buddin & Croft, 2014). In addition, state funding for public higher education institutions often declines during recessions (because appropriations are linked to tax revenue). As a result, tuition and fees at public institutions of higher education also tend to increase (Chitty, 2009; Long, 2013), which could make college less affordable.

While this study is not designed to investigate the effects of these national and local economic circumstances on college access and success, the conditions of the time should color our interpretation of the observed trends in college attendance and completion for students coming out of NYC public high schools.

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*a According to the National Bureau of Economic Research (2010), the Great Recession started in December 2007 and ended in June 2009.*
3: Routes Into And Through College By High School Preparation

A substantial body of evidence has shown that weak academic preparation in high school is a major barrier to college success (Adelman, 1999 & 2006). Locally, this concern is substantiated by the fact that, in 2010, about half of NYC high school graduates attending CUNY institutions were designated as in need of remedial coursework (NYC DOE, 2012). Therefore, it is imperative that we examine how students’ college trajectories diverge based on academic preparation coming out of high school. In this chapter, we address the following overarching questions:

- Did patterns of college enrollment, persistence and degree attainment differ by the type of high school diploma a student received (i.e., Local, Regents, or Advanced Regents)?

- Were the system-wide trends in college enrollment, persistence, and degree attainment shown in Chapter 2 consistent across students, regardless of diploma type?

College Enrollment and High School Preparation

High school diploma types reflect distinctions in the classes students take as well as their performance on the New York State Regents exams (see Appendix B for information on New York State high school diploma requirements), making diploma type a reasonable proxy for academic preparation while in high school.

In general, our findings support the extensive literature showing that academic preparation is related to college enrollment. As expected, we found that high school graduates with the more demanding Advanced Regents diploma had higher rates of immediate enrollment than their peers with a regular Regents diploma, who likewise had higher rates than their peers with a Local diploma (see Figure 4).

More surprisingly, we found that a sizable proportion of students who received an Advanced Regents diploma (between 14 to 20 percent, depending on the year) did not enroll immediately in college. This suggests that even the most academically prepared high school graduates are vulnerable to the non-academic factors that impact college entrance.

A second reason that we examined college outcomes by high school diploma is because there has been a tremendous shift in the proportions of students receiving each type of diploma. According to Kemple (2013), recent growth in high school
graduation rates can be attributed to a rise in the proportion of NYC high school graduates earning a Regents or Advanced Regents diploma, as opposed to the less demanding Local diploma (see Figure 5). Among incoming 9th graders in 2002, 23 percent left with a regular Regents diploma, compared with 48 percent of students who started 9th grade in 2008.

This shift has been accompanied by skepticism about whether the diplomas hold the same value that they once did. If the Regent’s diploma’s value had waned, we would expect to see lower rates of college enrollment and persistence over time for students earning this diploma. Conversely, we might expect to see college enrollment and persistence go up for students with a Local diploma, as the requirements for that diploma increased during this time period (until 2008, when the Local diploma was phased out for most entering 9th graders).19

Even though there are stark disparities in the rates of college enrollment across the three diploma types, each group reflects the system-level trends discussed in the previous chapter. Specifically, college enrollment for each group goes up slightly.
from 2006 to 2009, but then stagnates somewhat between 2009 and 2012. The fact that this pattern is consistent across diploma types suggests the possibility of macro-level factors that similarly influence enrollment for students with varying levels of academic preparation.

**College Persistence and Completion by High School Diploma Type**

In addition to differences in college matriculation, students with stronger academic credentials had higher rates of continuous persistence and degree completion, compared to their less qualified peers. Figure 6, which looks at persistence and completion for the 2006 cohort of high school graduates by high school diploma type, shows that persistence across the eight semesters is very high among students with an Advanced Regents diploma. In contrast, Regents and Local diploma recipients showed steady drops in persistence each semester. Troublingly, almost one in four students who entered college with a Local diploma did not return the following year. We also examined persistence rates by high school diploma type for
additional cohorts of students (Appendix Table C-6). As with college enrollment patterns, we found that changes in persistence over time for each diploma type reflected the larger system-wide patterns in persistence seen in Chapter 2 (i.e., a slight decline for all groups after 2009).

Perhaps the most striking difference among the three groups of high school graduates was in the patterns of post-secondary degree attainment. Of those who graduated with an Advanced Regents diploma in 2006 and enrolled in college immediately, more than half attained a college degree within four years. In contrast, only 29 percent of college enrollees with a regular Regents diploma and 20 percent with a Local diploma received a college degree within this time period.

**Figure 6: Patterns of College Persistence and Completion Varied by High School Diploma Type**

2006 Advanced Regents Diploma Recipients Who Enrolled in College Immediately (N=7,630) (%)

2006 Regents Diploma Recipients Who Enrolled in College Immediately (N=8,697) (%)

2006 Local Diploma Recipients Who Enrolled in College Immediately (N=4,655) (%)

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders in 2002, graduated in 2006, and enrolled in college in the fall of 2006. See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
The findings in this chapter highlight some interesting similarities in student pathways into and through college for students with varying high school credentials. The similar peaks and dips in enrollment and persistence patterns over time for all three groups suggest that system-wide fluctuations likely reflect shifts in the local economy, post-secondary policies and supply, or other factors not necessarily related to academic preparation.

The findings in this chapter show that students with stronger academic credentials are much more likely to enroll and persist in college and to earn a degree. This could be interpreted in a number of ways. One possible explanation is that students who graduate high school meeting stricter coursework and exit-exam requirements are academically prepared to succeed in their college courses and, in turn, are more likely to persist and complete a degree within four years. However, the divergence in college outcomes could reflect other factors. For instance, students who choose to complete the coursework needed to earn an Advanced Regents diploma may be especially motivated to stay enrolled and complete college. Furthermore, differences in college enrollment, persistence and degree attainment by diploma type may reflect demographic and socioeconomic disparities (for example, White and Asian students may be both more likely to obtain an Advanced Regents degree and more likely to graduate from college). Yet another interpretation is that more rigorous high school diplomas give some students access to better colleges, which are more equipped to support students, leading to better college outcomes for these students compared to their peers.

In the next chapter, we begin to dig into this last possibility, by exploring how pathways through college differ by the type of college that students initially enter.
Exploring Links Between the New York State Aspirational Performance Measure and Key College Outcomes

In 2011, the New York State Education Department released a state-specific benchmark for college readiness—the “Regents-Based Math and English Aspirational Performance Measure,” (APM). The APM is defined as earning a New York State Regents diploma and receiving a score of 80 or higher on a mathematics Regents exam and a score of 75 or higher on the English Regents exam. Students who meet the APM are automatically qualified to enter a CUNY four-year college and exempt from developmental coursework (CUNY, n.d.).

Given the frequent use of the APM as an indicator of ‘college readiness’ (including in recent Research Alliance studies), we wanted to examine the extent to which it is associated with key college outcomes. To do so, we compared patterns of college enrollment, persistence, and completion for high school graduates who met the APM with those who did not (Table 1).

We found that the APM does give some indication of students’ likely college trajectories as measured by persistence and degree attainment within four years. Approximately 29 percent of on-time high graduates from NYC public schools met the APM in 2006. Among these students, 78 percent enrolled in college immediately after high school; 73 percent were still enrolled in their third semester; and 69 percent were still enrolled in semester five. Ultimately, 43 percent of these high school graduates received a college degree within four years (i.e., 55 percent of college enrollees completed college). In contrast, among high school graduates who did not meet the APM, only about half enrolled in college immediately. Further, these students did not stay in college at the same rates as those who met the APM, and only 16 percent received a college degree within eight semesters (i.e., 32 percent of college enrollees).

While the APM provides a narrow interpretation of ‘college readiness,’ as it is solely determined by test scores, we found that it is associated with important differences in students’ college experiences. Future research should examine how other measures of high school achievement, such as grades, SAT scores, coursework, and even non-cognitive skills, are related to key college outcomes, and whether they can be used to develop more sensitive indicators of college readiness.

Table 1: Enrollment, Persistence, and Degree Attainment by New York State Aspirational Performance Measure (APM), High School Graduates, 2006-2012

<table>
<thead>
<tr>
<th>High School Graduation Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did Not Meet APM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>51.3</td>
<td>53.4</td>
<td>54.5</td>
<td>58.7</td>
<td>56.9</td>
<td>56.7</td>
<td>57.1</td>
</tr>
<tr>
<td>Persisted for three semesters</td>
<td>43.2</td>
<td>44.7</td>
<td>45.4</td>
<td>45.6</td>
<td>42.2</td>
<td>42.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>36.6</td>
<td>37.4</td>
<td>36</td>
<td>33.7</td>
<td>31.6</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>16.4</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of students</td>
<td>25,106</td>
<td>26,215</td>
<td>27,541</td>
<td>29,349</td>
<td>30,399</td>
<td>31,208</td>
<td>30,534</td>
</tr>
<tr>
<td>Met APM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>77.5</td>
<td>77.9</td>
<td>80.6</td>
<td>83.3</td>
<td>81.3</td>
<td>78.6</td>
<td>78.8</td>
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<td>Persisted for three semesters</td>
<td>73.1</td>
<td>73.4</td>
<td>75.9</td>
<td>77.1</td>
<td>72</td>
<td>71.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>69.1</td>
<td>69.2</td>
<td>70.7</td>
<td>68.4</td>
<td>65.4</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>42.8</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of students</td>
<td>10,455</td>
<td>11,529</td>
<td>13,147</td>
<td>14,058</td>
<td>15,117</td>
<td>14,663</td>
<td>15,413</td>
</tr>
</tbody>
</table>

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Table includes all students who enrolled in NYC public schools as first-time 9th graders and graduated in four years. See Appendix A for detailed explanation of our sample, methods, and definition of key outcomes.

* These test score cutoffs were derived from an analysis that found that they roughly predicted whether college students would earn at least a ‘C’ in CUNY freshman-level college courses (King, 2011).
4: Pathways Through College by Type of College First Attended

A growing body of research has established the relationship between college setting and future educational and economic outcomes. For example, there is mounting evidence that where a student decides to attend college may significantly influence his or her likelihood of attaining a post-secondary degree (Bowen, Chingos, & McPherson, 2009; Cohodes & Goodman, 2012; Kurlaender & Grodsky, 2013; Light & Strayer, 2000; Long, 2008). Research also finds that college choice is associated with future earnings, particularly for traditionally underrepresented groups (Dale & Krueger, 2002 & 2011; Schneider, 2010).

New York City is rare in the variety of local post-secondary options available to its college-going population. CUNY, one of the largest urban post-secondary systems in the country—made up of 11 four-year institutions and 7 community colleges—is the main post-secondary destination for NYC high school graduates. In light of what we know from existing research and about NYC’s specific context, this chapter examines students’ pathways into various types of colleges and their patterns of persistence and degree attainment based on college type.

Specifically, this chapter addresses the following questions:

- In what types of colleges did NYC public high school graduates initially enroll (in terms of college level, CUNY designation, and selectivity)? How have these patterns of initial enrollment changed over time?
- Did rates of persistence and degree attainment differ by the type of post-secondary institution initially attended?
- Among students who were academically well prepared, did rates of persistence and degree attainment differ by type of college initially attended?

College Level (Two-Year or Four-Year)

Although most high school students expect that they will attain at least a bachelor’s degree in the future, a large number choose to initially enroll in a community college (Chen et al., 2010; Ingels et al., 2011). Community colleges are attractive options for many students because they are often closer to home and more affordable than four-year institutions, and because they offer flexible programming for non-traditional students (e.g., students with children, who have to work full-time, or have
a GED). They also often provide specific programming for students who wish to transfer into four-year institutions. To better understand the implications of choosing a two- or four-year institution, we examined how NYC students’ pathways into and through college varied by the level of college attended.

It is important to note that multiple colleges in the CUNY system offer both associate’s and bachelor’s degree programs. The NSC (our data source) categorizes post-secondary institutions by the highest level of degree offered, meaning that associate’s programs within institutions that have multiple tracks are often not counted. Given the large number of students who enter associate’s programs at CUNY four-year institutions, using uncorrected NSC data would likely overstate NYC’s rates of four-year enrollment.

To address this potential misclassification of students, we re-categorized three CUNY schools with multiple programs (Medgar Evers College, the NYC College of Technology, and the College of Staten Island) as two-year institutions, because more than two-thirds of their first-time freshmen were enrolled in associate’s degree programs (Appendix Table A-1 shows the proportion of first-time freshmen pursuing associate’s degrees by CUNY institution).

Using this adjustment, we found that 44 percent of 2006 high school graduates enrolled directly into a four-year institution, and 15 percent enrolled in a two-year institution (see Figure 7). This means that, in 2006, two-year enrollment accounted for just 25 percent of all immediate enrollment in college by NYC high school graduates. By 2012, the proportion of students enrolling in a two-year institution had increased greatly, to 27 percent of high school graduates, accounting for 42 percent of immediate enrollment in college.

Thus, while overall enrollment increased, growth was concentrated in two-year institutions. In fact, the percentage of NYC graduates enrolling in a four-year institution actually declined from 44 percent in 2006 to 38 percent in 2012.

What could explain this shift toward enrollment in two-year institutions? Our findings are consistent with national trends showing that the share of recent high school graduates enrolled in community colleges has gone up as the share enrolled in four-year institutions has gone down (Dunbar et al., 2011; Kena et al., 2014). New York State saw a 15 percent increase in the number of first-time college applicants who enrolled in associate’s programs between 2006 (81,553) and 2010 (94,017; New York State Education Department, 2013). During the same period, New York State
saw only a 4 percent increase in the number of first-time applicants who enrolled in bachelor’s degree programs (from 96,982 in 2006 to 100,545 in 2010). This growth in two-year enrollment could suggest that more students chose to enter two-year institutions instead of four-year institutions, or that the cohort size at two-year institutions was allowed to increase during this time period, while the size of entering freshman cohorts at four-year institutions was not.

We expected to see differences in the rates of persistence and degree attainment by level of college attended. First, students who enter four-year institutions are expected to stay enrolled in college for longer spans of time (i.e., at least four years) in comparison to their counterparts pursuing associate’s degrees. In addition, extensive evidence shows that dropout rates at community colleges are high, and degree attainment rates are low (Goldrick-Rab, 2010).

As anticipated, rates of persistence did differ by the level of post-secondary institution initially attended. As shown in Table 2 (on the next page), NYC public high school graduates who started out at a four-year institution stayed in college at much higher rates than students who started at a two-year college. For example, among students who graduated from high school in 2006 and enrolled directly in a four-year institution, 91 percent were still enrolled by semester three, in contrast to approximately 79 percent of students who started at a two-year college. By semester five, 84 percent of students who started at a four-year institution were still enrolled, compared to only 76 percent of students who started at a two-year institution.

Figure 7: The Proportion of Students in Two-Year Colleges Has Increased (Immediate Enrollment by College Level, for High School Graduates, 2006-2012)

<table>
<thead>
<tr>
<th>High School Graduation Year</th>
<th>Enrolled immediately in a four-year institution</th>
<th>Enrolled immediately in a two-year institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>59</td>
<td>15</td>
</tr>
<tr>
<td>(N=35,561)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>61</td>
<td>18</td>
</tr>
<tr>
<td>(N=37,744)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>63</td>
<td>20</td>
</tr>
<tr>
<td>(N=40,888)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>67</td>
<td>25</td>
</tr>
<tr>
<td>(N=43,407)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>65</td>
<td>25</td>
</tr>
<tr>
<td>(N=45,516)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>64</td>
<td>27</td>
</tr>
<tr>
<td>(N=45,871)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>64</td>
<td>27</td>
</tr>
<tr>
<td>(N=45,947)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders, graduated in four years, and enrolled in college the immediate fall. See Appendix A for detailed explanation of our sample, methods, and definition of key outcomes.
percent of students who started at a four-year institution were still enrolled in college, compared to only 62 percent of students who started at a two-year institution.

System-wide trends in persistence rates differed slightly depending on the level of institution initially attended. For those starting at a two-year institution, persistence for three semesters increased between 2006 and 2008, and has since declined. In contrast, for students who started at year institutions, rates of three-semester persistence were fairly stable between 2006 and 2008, decreased in 2009 and 2010, and then rose slightly in 2011. Five-semester persistence rates have fallen over time among students attending both levels of college.

Among 2006 NYC high school graduates who enrolled in college immediately, Table 2 shows that 42 percent of those who began at a four-year institution earned a post-secondary degree within four years, compared to only 26 percent of those who started at a two-year college. This is a prominent distinction, given that four years is traditionally the minimum time required to earn a bachelor’s degree but twice the conventional amount of time required to earn an associate’s degree.

The completion rate for students in this cohort who started at a two-year institution was slightly below the national rate. Nationally, 29 percent of students who enrolled in a two-year college in the fall of 2006 graduated within 150 percent of the normal

Table 2: Persistence and Degree Attainment by College Level, for High School Graduates who Enrolled Immediately in College, 2006-2012

<table>
<thead>
<tr>
<th>High School Graduation Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initially Enrolled in Two-Year College</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Persisted for three semesters</td>
<td>78.8</td>
<td>79.5</td>
<td>80.6</td>
<td>75.6</td>
<td>72.1</td>
<td>70.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>62.1</td>
<td>62.2</td>
<td>59.0</td>
<td>52.4</td>
<td>50.4</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>26.1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of students</strong></td>
<td>5,428</td>
<td>6,643</td>
<td>8,208</td>
<td>10,718</td>
<td>11,747</td>
<td>12,139</td>
<td>12,170</td>
</tr>
</tbody>
</table>

| **Initially Enrolled in Four-Year College** |      |      |      |      |      |      |      |
| Started college in immediate fall | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Persisted for three semesters | 91.4  | 91.1  | 91.2  | 88.5  | 85.5  | 88.4  | N/A  |
| Persisted for five semesters | 83.8  | 83.4  | 82.5  | 76.2  | 76.1  | N/A  | N/A  |
| Received a degree within four years | 41.8  | N/A  | N/A  | N/A  | N/A  | N/A  | N/A  |
| **Number of students** | 15,554 | 16,345 | 17,403 | 18,235 | 17,833 | 17,088 | 17,419 |

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Table includes all students who enrolled in NYC public schools as first-time 9th graders, graduated in four years, and enrolled in college the immediate fall. See Appendix A for detailed explanation of our sample, methods, and definition of key outcomes.
time required to complete the degree (i.e., three years; NCES, 2013b). Presumably, the national rate would grow a bit in the fourth year and rise even further above the NYC rate for four years. In New York State, 22 percent of students who enrolled in less-than-bachelor’s degree program in the fall of 2006 attained an associate’s degree within three years (New York State Education Department, 2014). Because New York State does not track degree attainment for these students beyond 2009, we cannot precisely compare the state rate with our four-year rate for NYC students. However, it is clear that, at local, state, and national levels, degree completion rates for students in two-year institutions are quite low.

Given the fact that increasing proportions of NYC high school graduates have been entering two-year institutions over the last few years, this low level of degree attainment has important implications. Will we see overall rates of degree attainment decrease as more students enroll in two-year colleges? Future research will continue to track these patterns.

**CUNY Tier**

As previously mentioned, CUNY is the main post-secondary destination for NYC high school graduates. Thus, any look at the college trajectories of NYC students must examine what happens to students who enter the CUNY system. It is important to recognize that this system is characterized by a great deal of diversity. CUNY has seven community colleges (Borough of Manhattan, Bronx, Hostos, Kingsborough, LaGuardia, Guttman, and Queensborough Community Colleges) and 11 colleges that offer bachelor’s degrees. Five of these are informally recognized as “top-tier” colleges (Baruch, Hunter, Brooklyn, and Queens Colleges, and the City College of New York), and six are considered “second-tier” colleges (York, Lehman, and Medgar Evers Colleges, the NYC College of Technology, the College of Staten Island, and the John Jay College of Criminal Justice). As noted above, we reclassified three of these schools (the NYC College of Technology, the College of Staten Island and Medgar Evers College) as community colleges, given the large proportion of students pursuing associate’s degrees at these institutions.

Figure 8 shows that approximately 28 percent of 2006 high school graduates enrolled in a CUNY college directly after high school, meaning that CUNY enrollment accounted for almost half of all immediate enrollment into college by NYC public high school graduates that year. The cohort was not evenly distributed across CUNY
tiers: 13 percent enrolled in CUNY community colleges, 5 percent in second-tier institutions, and 11 percent in top-tier institutions.

These distributions have changed over time. Between 2006 and 2012, the share of NYC high school graduates enrolled in CUNY community colleges practically doubled. Enrollment in second-tier colleges was fairly flat, and enrollment in top-tier schools decreased slightly.27

Other researchers have found large demographic shifts in enrollment across CUNY institutions (Treschan & Mehrotra, 2012). Those analyses showed that the incoming cohorts at top-tier CUNY institutions have become increasingly White and Asian, while Black and Latino students are increasingly overrepresented in second-tier and community colleges. If top-tier institutions offer better odds of college completion, shifts in the demographic makeup across institutions could have serious implications for the persistence and graduation rates of Black and Latino college enrollees (later reports in the NYC Goes to College series will examine patterns of degree attainment by students’ race/ethnicity).

Indeed, Table 3 on the next page shows that persistence and degree attainment rates vary across CUNY tiers. A higher share of NYC graduates who enrolled in college persisted through the third and fifth semesters at top-tier and second-tier institutions than their peers who entered CUNY community colleges.

Figure 8: Enrollment at CUNY Two-Year Colleges Is Growing
(College Enrollment by College Level and CUNY Designation, High School Graduates, 2006-2012)

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders and graduated in four years. See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
Table 3: Persistence and Degree Attainment by College Level and CUNY Designation, Among High School Graduates Who Enrolled Immediately in College, 2006-2012

<table>
<thead>
<tr>
<th>High School Graduation Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top-Tier Four-Year CUNY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Persisted for three semesters</td>
<td>94.7</td>
<td>94.7</td>
<td>94.9</td>
<td>92.6</td>
<td>92.5</td>
<td>92.5</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>87.8</td>
<td>88.9</td>
<td>87.5</td>
<td>84.8</td>
<td>84.0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>29.4</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of students</strong></td>
<td>3,728</td>
<td>4,019</td>
<td>4,183</td>
<td>4,077</td>
<td>3,720</td>
<td>3,947</td>
<td>3,767</td>
</tr>
<tr>
<td><strong>Second-Tier Four-Year CUNY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Persisted for three semesters</td>
<td>88.2</td>
<td>87.3</td>
<td>89.5</td>
<td>85.9</td>
<td>85.7</td>
<td>85.9</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>76.9</td>
<td>75.5</td>
<td>76.8</td>
<td>69.1</td>
<td>71.3</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>20.1</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of students</strong></td>
<td>1,825</td>
<td>2,067</td>
<td>2,263</td>
<td>2,502</td>
<td>2,150</td>
<td>1,813</td>
<td>2,079</td>
</tr>
<tr>
<td><strong>CUNY Community College</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Persisted for three semesters</td>
<td>80.5</td>
<td>81.6</td>
<td>82.4</td>
<td>76.7</td>
<td>73.2</td>
<td>70.8</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>64.5</td>
<td>65.1</td>
<td>61.2</td>
<td>53.6</td>
<td>51.6</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>26.5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of students</strong></td>
<td>4,597</td>
<td>5,653</td>
<td>7,245</td>
<td>9,726</td>
<td>10,499</td>
<td>10,956</td>
<td>11,005</td>
</tr>
<tr>
<td><strong>Four-Year Non-CUNY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Persisted for three semesters</td>
<td>90.8</td>
<td>90.5</td>
<td>90.1</td>
<td>87.6</td>
<td>83.3</td>
<td>87.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>83.5</td>
<td>82.9</td>
<td>81.7</td>
<td>74.7</td>
<td>74.5</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>50.4</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of students</strong></td>
<td>10,001</td>
<td>10,259</td>
<td>10,957</td>
<td>11,656</td>
<td>11,963</td>
<td>11,328</td>
<td>11,573</td>
</tr>
<tr>
<td><strong>Two-Year Non-CUNY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Started college in immediate fall</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
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</tr>
<tr>
<td>Persisted for three semesters</td>
<td>69.4</td>
<td>67.7</td>
<td>66.9</td>
<td>65.2</td>
<td>62.6</td>
<td>63.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Persisted for five semesters</td>
<td>48.9</td>
<td>45.8</td>
<td>42.3</td>
<td>39.8</td>
<td>40.5</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Received a degree within four years</td>
<td>23.5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Number of students</strong></td>
<td>831</td>
<td>990</td>
<td>963</td>
<td>992</td>
<td>1,248</td>
<td>1,183</td>
<td>1,165</td>
</tr>
</tbody>
</table>

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Table includes all students who enrolled in NYC public schools as first-time 9th graders, graduated in four years, and enrolled in college the immediate fall. See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
While 29 percent of the 2006 college enrollees who started at a top-tier college graduated with a post-secondary degree within four years, just 20 percent of those who started at a second-tier college earned a degree in the same amount of time. Enrollees who initially started at a CUNY community college also had higher rates of degree attainment (27 percent) than their counterparts who started at a second-tier CUNY senior college. Of course, these rates are not exactly comparable, because a bachelor’s degree is expected to take at least four years, while an associate’s degree is expected to take at least two.

Finally, Table 3 shows some notable differences in persistence and completion patterns between CUNY and non-CUNY institutions. Students who initially enrolled in a four-year non-CUNY college graduated at far higher rates (50 percent) than their counterparts who initially enrolled in a top-tier or second-tier CUNY institution. This large discrepancy in completion is surprising, given that persistence rates are better for students starting out at top-tier CUNY institutions than those at non-CUNY four-year colleges. This finding suggests that the relationship between continuous persistence and degree completion may be more tenuous than presumed, particularly at CUNY institutions.

**Selectivity of Four-Year Institutions**

In the fall of 2006, NYC high school graduates who wanted to attend a four-year institution in the United States had more than 2,600 to choose from (NCES, 2013a). These colleges varied tremendously in the experiences and opportunities they offered. In an effort to capture one important dimension of this variation, we grouped four-year institutions by selectivity. Although selectivity is not necessarily a marker of a school’s quality, there is evidence to suggest that students have different college experiences in institutions of varying selectivity (see “National Degree Attainment Rates by Institutional Selectivity” on page 34). For instance, students in highly selective four-year institutions are more likely to meet with faculty outside of class, spend more time studying, and take more demanding courses than their peers in less selective institutions (Arum & Roksa, 2011). In addition, more selective institutions often spend more money per student than other institutions (Carnevale & Rose, 2003; Hoxby, 2009).

Given the implications of these different experiences, we examined NYC high school graduates’ college pathways using a modified version of Barron’s *Profiles of American Colleges* ratings (See Appendix Tables A-2 and A-3 for information on our modified...
categorization and examples of local institutions in each selectivity category). We grouped four-year institutions into five categories based on their 2011 Barron’s ratings: very selective, selective, somewhat selective, non-selective, and other.

First, we used these selectivity categories to examine whether there has been a shift in the type of four-year institutions students attended, corresponding with the overall decrease in enrollment in four-year institutions described earlier in this chapter. Figure 9 shows that 20 percent of 2006 NYC high school graduates initially enrolled in a very selective or selective institution, while 19 percent enrolled in a somewhat selective institution—a total of 39 percent of high school graduates. This number is relatively high compared to other urban school districts like Chicago (24 percent in 2010; Chicago Public Schools, 2014) or Baltimore (27 percent in 2007; Durham & Olson, 2013).

**Figure 9: The Proportion of NYC High School Graduates Enrolling in Selective Institutions Has Declined**

*(College Enrollment by School Selectivity Level, High School Graduates, 2006-2012)*

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders and graduated in four years. See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
Over time, four-year institutions at almost every level of selectivity saw a decrease in enrollment. This drop is most apparent for somewhat selective institutions, whose share declined from 19 percent in 2006 to 15 percent in 2012.

Figure 10 focuses on persistence and degree completion for the 2006 cohort of graduates. It shows that the drop in persistence over eight semesters was slower for students who enrolled in a very selective or selective college compared to those who enrolled in a somewhat selective or non-selective institution.

The most striking feature of Figure 10 is the sizeable discrepancy in college completion by institutional selectivity. Seventy-two percent of students who attended

Figure 10: Persistence Rates Differ Based on the Selectivity of Four-Year Institutions

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders in 2002, graduated in 2006, and enrolled in college in the fall of 2006. See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
a very selective institution completed a post-secondary degree within four years, compared to just 42 percent of students who attended a selective institution. Students who initially enrolled in somewhat selective or non-selective institutions had even lower degree completion rates (29 and 25 percent, respectively).

These outcomes could simply reflect the sorting of students into different types of institutions through the college application and admission process—schools that are more selective may have better outcomes because they admit more capable students. To begin to investigate this possibility, in the following section, we take a glimpse at the intersection of pre-college academic preparation and selectivity of college attended.

**College Outcomes for Students with an Advanced Regents Diploma by Selectivity of College Attended**

This section narrows our sample to the 2006 NYC high school graduates with an Advanced Regents diploma who enrolled in college directly after high school. These are students who one would generally expect to succeed in any college.³⁰

As shown in Figure 11, high school graduates with an Advanced Regents diploma who initially attended a very selective institution had higher rates of persistence and degree attainment than their similarly qualified peers who enrolled in an institution with a lower selectivity rating. In fact, 76 percent of students who started at a very selective institution completed college within four years, compared to half of students who attended a selective institution, and approximately 39 percent of students who attended a somewhat selective institution. Interestingly, students with an Advanced Regents diploma who initially enrolled in a non-selective four-year or a two-year college had slightly higher rates of degree attainment (45 or 40 percent, respectively) than those who attended a somewhat selective institution. It is important to note that only 8 percent of students with an Advanced Regents diploma attended a non-selective or two-year institution, and these students may be qualitatively different from their similarly qualified peers in ways that could affect their college outcomes.

Although these descriptive comparisons do not provide evidence that attending a particular type of college caused the observed differences in outcomes, these results, at the very least, warrant further study. How is it possible that similarly qualified students—as measured by receiving an Advanced Regents diploma—could have such disparate college outcomes at different types of colleges? Is this finding a reflection of the students who attend these more selective institutions, of the favorable conditions...
at these institutions, or a combination of both? Answers to these questions may help stakeholders develop strategies to replicate the promising outcomes we see at more selective institutions.

**Figure 11: Even for Students with Similarly Strong High School Credentials, Persistence and Degree Attainment Differ Based on College Selectivity**

*(Persistence, and Degree Attainment, for Advanced Regents Diploma Recipients, 2006)*

![Bar chart](chart.png)

**Selectivity of Initial College Attended**

Source: Research Alliance calculations using data from the NYC Department of Education, including National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders in 2002, graduated with an Advanced Regents diploma in 2006, and enrolled in college in the fall of 2006. See Appendix A for a detailed explanation of our sample, methods, and definition of key outcomes.
National Degree Attainment Rates by Institutional Selectivity

On average, more selective institutions have higher completion rates (Carnevale & Rose, 2003). In fact, Figure 12 shows that among a national sample of entering college freshmen in 2006, students who enrolled in colleges with more selective institutions had much higher rates of college completion than their counterparts at less selective colleges.

Some of the gap in college completion by selectivity can be attributed to the different academic characteristics of incoming students, as shown in our findings for students who earned the Advanced Regents’ diploma. However, Bowen, Chingos, & McPherson (2009) found that selectivity matters for college completion even for students with good high school grades and SAT scores.

The high graduation rates of more selective institutions are often attributed to factors like strong peer effects, higher expectations for academic success, stronger academic engagement, or better access to resources and supports. However, these explanations are largely based on anecdotal evidence, as there has been little rigorous research to compare these complex aspects of the college experience across institutions. More research is needed to examine the extent to which varying supports and experiences offered by post-secondary institutions in fact shape students educational outcomes.

Figure 12: National Six-Year Graduation Rates at Four-Year Institutions by Selectivity

- Open admissions: 33%
- At least 90.0%: 48%
- 75.0-89.9%: 56%
- 50.0-74.9%: 60%
- 25.0-49.9%: 72%
- Less than 25.0%: 86%

Source: NCES (2014).
Notes: Includes four-year degree-granting post-secondary institutions participating in Title IV federal financial aid programs. Graduation rates include students who received a bachelor's degree from initial institution attended.
CHAPTER 5: CONCLUSION

As mentioned in the introduction, this report is truly a first look at system-wide patterns of college enrollment, persistence and completion. The findings from this initial publication from our New York City Goes to College series are intended to provide a baseline understanding of the pathways into and through college for recent cohorts of students coming out of NYC public schools. We hope they serve as a benchmark by which to track progress toward improving college access and success in NYC. In addition, as outlined below, our findings raise many important questions that we hope to address in future work.

Between 2006 and 2012, NYC’s high school graduation rates improved considerably, as did the proportion of students who enrolled in college. This is welcome news, but our analyses point to several aspects of the college enrollment picture that deserve further attention. First, growth in enrollment rates tapered off during the last few years. Is this a temporary plateau, or does it signal larger challenges in continuing to improve college access for more New Yorkers? Does the post-secondary system have the capacity to serve growing numbers of students—now and into the future?

Second, our analysis revealed that the proportion of high school graduates enrolled in two-year institutions has increased sharply. What are the reasons for this? Do these students lack the academic credentials needed to attend a four-year school? Are they choosing two-year institutions because of cost? Do they hope to transfer to a four-year institution? It will be important to learn more about the conditions and aspirations that underlie students’ decisions about where to go college.

Third, it is noteworthy that in spite of generally high rates of college enrollment, about one in every five of the best prepared students (i.e., those with an Advanced Regents diploma) is not enrolling in any type of post-secondary institution. What barriers are preventing these well-qualified students from proceeding to the next level of their education? And what can be done to dismantle those barriers, or at least help more students work around them?

Finally, what do we know about the larger population of students who are not enrolling in college? What are they doing instead? What are their labor market outcomes? Are there viable alternatives to traditional post-secondary pathways that are helping young people prepare for and get good jobs?

Among NYC students who do enroll in college, our analysis showed fairly high rates of persistence, although there has been a slight decline in persistence for recent
cohorts of college enrollees. We did not find that any one semester was particularly problematic for students. Rather, we documented slow and steady attrition over the course of eight semesters. This suggests that college students may benefit from support that extends throughout their college career. Tailoring that support to effectively meet students’ needs will require better information about which students drop out and why.

Perhaps most worrisome, we found that few students graduated from college within four years—just over a third of those who started in 2006 received a degree of any kind by 2010. Much more research is needed to identify and address bottlenecks on the path to college graduation. Are students failing to attain a degree because of time spent in remediation, low credit accumulation, or not completing required coursework? Are students who transfer between colleges losing ground because some credits are not transferable? Are students switching to part-time enrollment because they cannot afford to go to school full-time and/or have to work?

While much is still unknown, our analysis strongly suggests that both high school preparation and supports offered in college make a difference for students’ outcomes. We found that students who left high school with strong academic credentials were much more likely to stay enrolled in college and obtain a degree. Likewise, students who attended a four-year college, particularly those who attended a more selective institution, had higher persistence and completion rates. How is it possible that similarly qualified students could have such disparate outcomes based on the selectivity of their college? Is this finding a reflection of the students who seek out and are accepted to these more selective institutions, or of the favorable conditions at these schools, or both?

The Research Alliance will explore many of these unanswered questions in future studies. We recently embarked on a formal partnership with CUNY and the NYC DOE, with support from the U.S. Department of Education’s Institute of Education Sciences, which will allow us to extend the analyses presented here in important ways. Moving forward, we will look more closely at variation between different groups of students, including more detailed information about students who attend CUNY, and follow new cohorts of students to learn more about the factors that influence their ability to reach—and succeed in—college.
Endnotes

1 It is important to note that our college enrollment and persistence rates may differ from those reported by the New York City Department of Education (DOE) because we rely solely on information from the NSC, whereas the DOE supplements NSC data with information received directly with CUNY (Wilkes et al., 2012). Also, NYC high schools can appeal their college enrollment rates based on formal evidence of their students’ enrollment in college. As a result of these two factors, the DOE may report higher rates than we do in this report.

2 This report uses the terms “college” and “post-secondary institution” interchangeably, even though there may be multiple colleges within a post-secondary institution.

3 Currently, our data only allows us to examine post-secondary degree attainment within four years of starting college for one cohort of on-time high school graduates (2006). As NSC data is updated, we hope to revisit the analyses in this report, to provide a more complete picture of college completion.

4 The report focuses on immediate fall enrollment because the vast majority of NYC high school graduates entered college in the fall. Among 2006 on-time high school graduates, 83 percent of first-time college enrollment up to five years after graduating high school occurred in the immediate fall semester. Also, prior research has shown that students who delay college enrollment are less likely to finish (Bozick & DeLuca, 2005). Thus, immediate entry appears to be a better benchmark for a successful transition into college than enrollment over an extended time period (e.g., within a year or 18 months).

5 Differences across time were not tested for statistical significance.

6 A student is considered an ‘immediate fall enrollee’ if he enrolled in a post-secondary degree-granting institution, full- or part-time, between August 1st and December 31st of the same calendar year he graduated from high school. If a student enrolled concurrently in more than one post-secondary institution, we identified his ‘initial institution’ as the college where he was enrolled for more days. If a student attended multiple institutions for the same number of days, we used the college where he had the highest level of enrollment (e.g., four-year over two-year institution). If both schools had the same level of enrollment, we used the institution in which the student had a more intensive enrollment status (e.g., full-time over part-time).

7 A student is considered an ‘on-time high school graduate’ if she graduated by October of her expected fourth year of high school. Throughout this report, the term ‘high school graduate’ only refers to students who graduated within four years of starting high school.

8 In response to the record number of college applications received, officials at CUNY imposed a new application deadline for the 2010 fall enrollment period (de Jesus, 2010). Students who submitted an application after the deadline were put on a waitlist. Students were admitted from the waitlist as space became available (CUNY, 2010).

9 The NSC report defined “low-income schools” as schools where at least 50 percent of the entire student population was eligible for free or reduced-price lunch. “High-minority schools” were defined schools where at least 40 percent of students were Black or Hispanic. Locale is defined by the NCES urban-centric locale code. Schools with a code from 11 to 13 are defined as urban.
For information on NYC college enrollment rates by race/ethnicity and gender, see *Moving the Needle: Exploring Key Levers to Boost College Readiness Among Black and Latino Males in NYC* (Villavicencio et al., 2013).

For example, we consider a student who initially enrolled in College A but transferred after one semester to College B as *persisting* to the second semester; whereas a report that focused on retention would find that this transfer student was not retained after the first semester. From the K-12 perspective, which may want to hold high schools accountable for their graduates’ college outcomes, institutional rates of retention overestimate non-enrollment because they do not incorporate transfer to other colleges.

See Peter & Cataldi (2005).

Furthermore, transferring may be a positive result if students are transferring to a school that better suits their needs.

We define a student as ‘continuously persisting’ for each semester (fall or spring) that she was actively enrolled in any post-secondary institution consecutively following initial enrollment. For example, a student was considered to persist to the fifth semester if she initially enrolled in college the fall of 2006 and was still enrolled in any post-secondary institution for each fall and spring semester up to the fifth semester (i.e., the fall of 2008).

It is important to note that this figure (along with Figures 6 and 10, which use the same method) do not fully capture the complexity of possible pathways through college. For example, some students who we defined as not persisting may have returned to college or received a degree in a subsequent semester. However, in this figure, we do not count those students as persisting upon their return. We do so because students who leave college often experience significant barriers when trying to return. Also, while some students may have received an associate’s degree and continued enrollment in pursuit of a bachelor’s degree, this figure stops counting persistence once a student earns their first degree, and thus does not capture that continued enrollment. In other parts of this report (see Tables, 1, 2, and 3 or Figures 2 and 11), persistence rates also include students who continue enrollment after earning their first degree. In addition, we found that an additional 1.4 percent of on-time high school graduates who enrolled in college immediately in 2006 received a post-secondary degree within four years, but were not included in the completion rate for this graph within four years because they had left college prior to degree attainment (see Appendix A for more information).

The term ‘drop out’ implies that a student never returns to college, whereas ‘stop out’ indicates temporary withdrawal. However, because we do not have more semesters in which to see whether members of our cohort return, we do not differentiate between students who drop out of college from students who stop out of college. It is also important to note that we cannot differentiate between students who voluntarily leave college from those who were dismissed.

Families in the lowest income quartile earned less than $32,000 in 2001.

Differences across subgroups were not tested for statistical significance.

Some exceptions to this rule were made for students with disabilities.

In the fall 2013, almost three-quarters of the first-time freshmen in CUNY were graduates of NYC public schools. (CUNY, 2014c).
In this chapter, we examine how students’ college pathways differ by the college characteristics of their initial college. However, it is important to note that about one in five NYC public high school graduates (of 2006 or 2007 cohorts) transferred to a different post-secondary institution within four years after finishing high school. For simplicity, we focus on students’ initial enrollment into college. We hope to revisit the issue of college transfer in future reports.

Differences across subgroups were not tested for statistical significance.

We use the term ‘community college’ interchangeably with ‘two-year institution,’ although ‘community college’ generally refers to public two-year institutions, not private institutions. A small proportion of NYG students attend private, two-year institutions.

This scenario assumes that students in associate’s degree programs do not intend to continue their education after getting their degree. In fact, the majority of students who start at community colleges aspire to transfer to a four-year institution (Lee & Frank, 1990; Bradburd, Hurst, & Peng, 2001; Adelman et al., 2003; Roksa, 2006). However, our analyses focus on students’ first post-secondary degree.

Guttman Community College (initially known as the New Community College) was opened in 2012, and is not included in any of the analyses in this report.

This categorization of CUNY schools into tiers was also used by Treschan & Mehrotra (2012).

While rates of enrollment at top-tier CUNY colleges fell between 2006 and 2011, the absolute number of NYC public high school graduates who enrolled at these institutions rose and fell between 2006 and 2012, leaving only a small difference between the number of students enrolled in 2006 and the number of students enrolled in 2012 (see Appendix Table B-3).

This modified categorization system has been also used by other researchers (Bowen, Chingos, & McPherson, 2009; Roderick et al., 2008, 2009, & 2011; Smith, Pender, & Howell, 2013).

Barron’s rates four-year institutions using a combination of incoming students’ average SAT/ACT scores, GPAs and class ranks, as well as the percentage of applicants admitted to an institution.

Only 27 percent of the 2006 graduating cohort received an Advanced Regents diploma, and 80 percent of those students enrolled immediately in college (See Appendix Table B-1). This means that this particular analysis includes only 21 percent of the original cohort of NYC public high school graduates (N=35,561), leaving a sample of N=7,630 for this brief section.

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