New York City Goes to College
New Findings and Framework for Examining College Access and Success

Kristin Black
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EXECUTIVE SUMMARY

Only three decades ago, the top priority for leaders of the New York City school system was clear: to cut the high school dropout rate. Since then, on-time graduation rates have increased dramatically, from 45 percent in 1987 to 70 percent in 2016—when dropout rates reached an historic low of 9 percent (Perlez, 1987; NYCDOE, 2016a, 2016b). Much of the progress occurred over the last decade.

Yet this rapid improvement in high school graduation rates has come in the midst of changes in the global economy, rising educational expectations for all students, and an expansion in the range of postsecondary options. Educational priorities have changed, as have the standards for success. Our new report, the second in the Research Alliance’s New York City Goes to College series, explores how rising high school graduation rates are playing out as students move into and through college.

To do so, the report focuses on the 9th grade cohort as the primary reference point for understanding how the system is changing over time. It uses up to 10 years of enrollment and degree data (through the 2014-2015 academic year), allowing us to report six-year college completion rates. This measure is aligned with similar literature nationwide and reflective of the lengths of time many students require to complete a degree. We use a definition of college enrollment and persistence that includes students who delay or interrupt their enrollment. Importantly, we also examine how patterns of college-going differ across groups of students, reporting on how the college landscape varies by gender, race/ethnicity, and neighborhood income.

In service to this broad perspective, we introduce a new visual representation of students’ pathways through high school and college. Figure ES-1 on the next page presents the 2003 cohort (i.e., the group of students who started 9th grade in any New York City public school in the fall of 2003) as it progressed from the first year of high school toward college completion ten years later. Each circle represents one percent of the original 9th grade cohort. We depict three distinct pathways of initial college enrollment, based on the type of college and the timing of students’ entry. Previous research has found very different persistence and completion rates associated with these factors (Coca, 2014; Bowen, Chingos, & McPherson, 2009; Long & Kurlaender, 2009; Bozick & DeLuca, 2005; Niu & Tienda, 2013).
Figure ES-1 helps visualize potential points for intervention. If we wanted to change the world so that more students attain a college degree, we might work to increase the proportion of students who graduate from high school and enroll in college, improving overall access to higher education. We could also increase the persistence within each of the pathways by helping students stay enrolled—perhaps by implementing more robust academic counseling, or offering more flexible course-taking options that work with students’ lives outside school. Or we could encourage students to pursue relatively more efficient pathways—for example, by enrolling full-time or entering the traditional four-year pathway, where the average student is more likely to earn a degree. Finally, although variations by subgroup are not shown here we could work to ensure students of all backgrounds were equitably represented in the cohort’s outcomes.
Together, these elements comprise a four-part framework—*access, persistence, efficiency*, and *equity*—which we use to examine students’ pathways from 9th grade to the end of college. Key findings from this analysis are presented below. For more detailed information, please see our full report.

**Access:** There have been broad improvements in college access, driven largely by rising high school graduation rates. The proportion of 9th graders who enroll in college has increased over time, from 55 percent of students who started high school in 2003 to 61 percent of those who started high school in 2008 (see Figure ES-2 on the next page). This growth is mainly a result of improvements in on-time high school graduation rates, which rose for all of the student subgroups examined in our report. As a proportion of high school graduates, however, college enrollment rates have changed very little over the study period; a consistent 80 percent of graduates from the 2003 through 2008 cohorts enrolled in college within two and a half years of their expected graduation.¹

The largest percent increases in both high school graduation and college enrollment have been among the most underrepresented populations—that is, students in the poorest neighborhoods, Black and Latino students, and young men. But these students continue to lag well behind their counterparts in both high school graduation and college enrollment. Among those in the 2008 cohort, more than a quarter of Black and Latino students and young men, and more than a third of students in the poorest neighborhoods still did not graduate.

This means that, despite the strong growth in high school graduation rates, the largest diversion from the pathway to college still occurs during the high school years, rather than during the relatively short transition from high school to college.

**Persistence:** Higher rates of college access have been eroded by somewhat higher rates of departure after one or two years of college. Broad improvements in college access have meant higher proportions of the original 9th grade cohort persisting through college. But persistence has not improved as much as we would expect given the 6-percentage point increase in enrollment from the 2003 to 2008 cohort. As shown in Figure ES-2, a third of those gains, about 2 percentage points, were lost within the first two years of college for the 2008 cohort.
In other words, although college access has improved over time, early attrition from college has also grown slightly.

Our analysis cannot assess the underlying causes of this shift, whether lack of student preparedness, institutional challenges in serving new student populations, or broad economic conditions. What is clear, however, is that for some students, improved access to college has meant simply delaying their departure from the system until the first or second year of college. This may mean that current students are still better off than their older peers—with improved labor market opportunities (Scott-Clayton & Wen, 2017), credits toward future college work, and knowledge about college that can be shared with others (Attewell, 2007). But it also means that more students are out of the labor market and potentially accruing debt in their early years of college without a degree to show for it. These findings underscore that the early years of college continue to be critical period of reckoning for students as they work toward a degree.
Efficiency: Although four-year colleges remain the primary source of degrees, increasing proportions of students have enrolled in two-year colleges over time. The proportion of students delaying their enrollment in college has dropped. In the 2003 cohort, fully two thirds of the degrees earned went to students who graduated high school on time and enrolled immediately in a four-year college. Yet, as the proportion of students delaying enrollment has decreased over time, we’ve seen more students entering the two-year pathway. What these trends mean for degree attainment patterns of future cohorts remains to be seen. Students who enroll in two-year institutions have historically been far less likely to earn a degree or even to remain enrolled by the end of six years compared with those who attend four-year colleges. But they are still more likely to earn a degree than those who delay college. It is difficult to know how shifting enrollment patterns will influence degree attainment for future cohorts.

This is particularly true in light of several recent initiatives in New York City that have focused specifically on improving the two-year pathway toward a college degree. CUNY has undertaken a comprehensive overhaul of developmental education (also known as remedial education) in its community colleges (CUNY, 2016). It has also launched programs such as the Accelerated Study in Associate Programs (Scrivener et al., 2015) and Guttman Community College (Hertz, 2015), which require full-time enrollment, provide frequent advising and a familiar cohort of classmates, and offer a range of other supports. These more structured environments may ultimately make the student experience more like that in a four-year, residential college and improve the efficiency of the two-year pathway, particularly as these new programs are scaled up.

The data we present in this report largely precede these reforms. Our findings therefore serve as a baseline that can be used to assess how these initiatives are changing New York City’s college landscape and outcomes over time.

Equity: Gaps by gender and neighborhood income have persisted, and there is some evidence that differences by race/ethnicity have actually grown over time. All students have seen improved college access over time, but what these improvements mean as students move into college differs depending on their gender, neighborhood income, and race/ethnicity. Between the 2003 to 2008 cohorts, young men closed the college enrollment gap with young women by about 2 percentage points, from 11 points to just over 9. But these gains disappeared by the
second year of college, as a result of higher departures from the system by young men. During this same time period, students in the poorest neighborhoods closed the college enrollment gap with those from better-resourced neighborhoods by about 3 percentage points, and by the second year of college, the gap between the two groups had narrowed even further. Unfortunately, these improvements were modest in relation to the magnitude of the gap; at the end of our study period, the persistence rate for the poorest students was still 23 percentage points less than that of students from better resourced neighborhoods.

Finally, our data suggest that, even among students with similar neighborhood-income levels, gaps by race/ethnicity have actually grown slightly over time. The 25-percentage point difference in college enrollment between Asians and Latinos (the

Figure ES-3: Changes in Type of Enrollment by Race Over Time, Middle 50% Neighborhood Income, 2003 and 2008 Cohorts (%)

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, and National Student Clearinghouse data.

Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders in 2003 or 2008, lived in middle neighborhood income census tracts, and who identified as Asian, Black, Latino, or White. (N=64,682). See note 2 below or Appendix B for further information about the neighborhood income variable.
highest and lowest attaining groups) living in middle-income neighborhoods remained unchanged from the 2003 to 2008 cohort, but the gap between the groups after two years of college actually widened from 27 to 29 points.

These trends may relate to what we call in the report “differential engagement in the four-year pathway,” or the fact that White, Asian, and better resourced students tend to take advantage of the relative efficiency of four-year colleges at much higher rates than Black, Latino and poorer students (see Figure ES-3 on the previous page). Of course, much of this difference in college-going originates earlier in students’ academic trajectories, with Black and Latino students and those from the poorest neighborhoods attending less selective high schools and having fewer opportunities to prepare for and apply to college (Lewis & Burd-Sharps, 2017). While the root causes of the problem are complex, the highly disproportionate enrollment of underrepresented groups in two-year colleges presents real challenges as the City works toward more equitable college outcomes.

Implications for Research, Policy, and Practice

Understanding the role of academic preparation in shaping early college outcomes is an important next step for researchers, practitioners, and policymakers. The years we examine in the current report were a whirlwind of education policy changes in New York City, including the expansion of high school choice, increasing emphasis on charters, strengthening of accountability policies, and a renewed focus on graduating students college- and career-ready. Standards for New York City high school diplomas were increasing even as graduation rates rose precipitously, which suggests that the City has been successful in its push to prepare more students for college. And yet many of the trends we observe in this study beg for explanation in the form of what students know and can do as they make the transition from high school into and through college.

Increased attrition during the early years of college, for example, suggests the need for further research on the changing meaning of the high school diploma, the role of high school quality in student enrollment and success, and the impact of recent CUNY developmental education reforms. In other words, how is academic preparation shaping early outcomes as students work toward a college degree? Is the role of academic preparation different for students attending two-year rather than four-year colleges? How are these dynamics implicated in the inequities we observe in college
outcomes? And to what extent will recent reforms at CUNY shift the directions of trends we observe in this time period? We see these questions as some of the most urgent and complex lines of inquiry that we hope to pursue in future work.

Flexible, non-continuous, and lengthy periods of enrollment require a wider lens for measuring student outcomes. Substantial numbers of students in the study period enroll well after high school graduation, take time off from college, and remain enrolled after the ten-year timeframe we used for this report. To the extent that underrepresented students are disproportionately likely to take these non-traditional pathways, accurately measuring these forms of postsecondary participation is an important part of supporting a more equitable high school-to-college system. Absent this shift, we may be undercounting the participation of underrepresented students in the postsecondary system—and undervaluing the institutions that serve them.

We also need to better understand enrollment patterns and the reasons behind them if we are to help long-term enrollees complete their degrees. As much as 8 percent of the 2003 9th grade cohort (a little more than 15 percent of all enrollees) were still enrolled in college six years after high school graduation, and these students represent real potential improvements in the degree attainment rate if they are able to eventually finish their degrees.

Improvements in one area of the system may mean trade-offs in another. The trends we discuss in the report also raise a set of broader questions about how to think of the values of access, persistence, efficiency, and equity in relation to each other. There is some indication in our findings that, at least in the short term, access, persistence, and efficiency may be somewhat countervailing forces. Simultaneously widening access, helping students remain enrolled for longer periods, and making the process by which students earn their degrees smoother and faster is a challenging task. The institutional flexibility that makes it possible for previously unrepresented students to attend college may be the very flexibility that makes the system less efficient. Yet, in New York City and across the country, it has become common to refer to the twin policy goals of moving students into and through college, improving both access and success, when these goals may require different policy approaches.
Even more troubling, perhaps, broad improvements in college access have not necessarily produced more equitable outcomes for historically underrepresented groups as they have moved into and through the first years of college. Although we have seen gains in high school graduation and enrollment among all students, regardless of background, more advantaged students have been able to maintain these gains as they have transitioned into college in ways that underrepresented students have not. Figuring out how to promote more equitable outcomes is a central challenge facing the City’s policymakers and educators.

These are tradeoffs that are worth discussing more explicitly in our public policy conversations. Whether the City aims for broad college access for all students, higher overall degree attainment irrespective of duration of enrollment, more expeditious degree completion, or more equitable outcomes for underrepresented students—the decision will almost certainly require policymakers to balance a variety of competing values and institutional priorities.

**Conclusion**

New York City has made extraordinary progress in its high school graduation rates in the last decade and a half—and these changes have in turn driven improved college access for students who, even 20 years ago, would never have had the opportunity to enroll. As patterns of college-going grow more complex, however, and as policymakers and practitioners set their sights on a college completion agenda, it is crucial that we begin to widen our scope of analysis to understand how changes in access are influencing persistence and degree attainment. Although these findings surface a number of compelling research questions, our most critical challenge in the coming years is likely to be addressing the vast differences in college outcomes for underrepresented groups of students. It is a challenge that begins well before the transition from high school to college and one that the Research Alliance will continue to examine in future work.
Executive Summary Notes

1 New York City generally outperforms other large cities in its rates of college access, although most cities report the percentage of on-time high school graduates who enroll in immediately college (as opposed to our focus on the 9th grade cohort). For example, in Boston, 57 percent of on-time high school graduates enrolled in college immediately in 2007; in Dallas, this number was 60 percent; and in Baltimore, it was 49 percent—compared with the 71 percent of New York City graduates who enrolled in college that same year (Sum et al., 2013; Dallas Independent School District, 2013; Durham & Olson, 2013).

2 Given differences in access, persistence, and efficiency by neighborhood income, we chose to limit our investigation of disparities by race/ethnicity to students living in neighborhoods with median incomes between $30,424 and $56,491—the middle of our income distribution. Controlling for neighborhood income in this way allows us to begin to isolate the role that race plays for students in generally similar economic conditions. See our full report for a more complete discussion.

3 Figure ES-1 shows 9 percent of the cohort still enrolled without a degree at the end of 2013, but this is due to rounding within each pathway. Three percent of the cohort are still enrolled from the four-year pathway, 2.6 percent of the cohort are still enrolled within the two-year pathway, and 2.7 percent are enrolled within the delayed pathway.
CHAPTER 1: A FRAMEWORK FOR MORE INCLUSIVE RESEARCH ON COLLEGE-GOING IN NYC

Only three decades ago, the top priority for leaders of the New York City school system was clear: to cut the high school dropout rate. At the time, 22 percent of high school students dropped out before graduation, and only 45 percent graduated within the expected four years (Perlez, 1987). The City has come a long way since then. In 2011, the dropout rate hit an historic low of 9 percent, and more than two thirds of all students graduated on time (NYC DOE, 2016). Even more notable, perhaps, much of this progress occurred over the last decade.

Yet this rapid improvement in high school graduation rates has come in the midst of changes in the global economy, rising educational expectations for all students, and an expansion in the range of postsecondary options. Our educational priorities have changed, as have the standards for success. And we are only beginning to understand what these relatively recent changes in high school graduation outcomes might mean for a college completion agenda.

Nationally, for example, college enrollments among 18- to 24-year-olds hit an all-time high in 2009, fueled in part by the recent economic downturn that made community colleges especially attractive, and in part by the record number of high school graduates available to enroll in college (Shapiro et al., 2015; Fry, 2009). But college completions among these enrollees actually declined in comparison to previous cohorts—and this was the case both at two-year institutions as well as at four-year colleges (Shapiro et al., 2015).

We reported similar trends for NYC in A First Look (Coca, 2014), our inaugural report in the New York City Goes to College series. We found that college enrollment rates in the City have largely kept pace with rising high school graduation rates, but that this rise in enrollment had been concentrated in two-year institutions, where persistence tends to be lower. Whether and how those trends in access and persistence would play out in eventual degree attainment was an important and open question from our first report. We also wondered how much of NYC’s college-going behavior might be missing from our analysis, which focused on on-time high school graduation and immediate college enrollment.

We know, for example, that as the pool of high school graduates has increased, so too has the range of postsecondary enrollment options. Students with aspirations to
attend college may choose to delay their enrollment to gain work experience or earn income to pay for their education (Reeves, Miller, & Rouse, 2011; Niu & Tienda, 2013; Choy, 2002). They may transfer across sectors, attend multiple institutions simultaneously, enroll in online programs, or interrupt their enrollment for periods of time before returning (Crosta, 2013b; Bahr, 2012; Mullin, 2012).

All three of these features—rapid changes in high school graduation rates, the increasingly complex enrollment landscape, and an especially accessible postsecondary system in NYC—demand a wider frame for research, as well as measures of student success that are more in line with how today’s students engage in postsecondary education (Shapiro et al., 2015).

We begin to tackle these challenges in the present study. First, we expand the scope of our analysis beyond that of our first report by focusing on the 9th grade cohort as the primary reference point for understanding how the system is changing over time. This wider perspective allows us to analyze whether the high school-to-college system as a whole is improving—and particularly how early trends, such as rising high school graduation, are playing out as the cohorts move through college.

Second, this new analysis benefits from two additional years of enrollment and degree data (through the 2014-2015 academic year), allowing us to describe six-year college completion rates, rather than the four-year rates we previously reported. This measure of completion is better aligned with similar literature nationwide and more reflective of the lengths of time many students require to complete a degree. Similarly, we adopt a wider set of definitions for enrollment and persistence that are more reflective of the way students engage in college today. For example, we include students who delay their enrollment into college, as well as those who “stop out”—that is, students who leave college and return later. The current study also examines how patterns of college-going differ across groups of students, reporting on how the college landscape varies by gender, race/ethnicity, and neighborhood income (see text box on page 20 and Appendix B).

In service to this wider perspective, we introduce a new visual representation of students’ pathways through high school and college. Figure 1 on the next page presents the 2003 cohort (i.e., the group of students who started 9th grade in any NYC public school in the fall of 2003) as it progresses from the first year of high school toward college completion ten years later. Each circle represents one percent of the original 9th grade cohort. We depict three distinct pathways of initial college enrollment, based on previous research that has found very different outcomes.
depending on the type of college and the timing of students’ enrollment (Coca, 2014; Bowen, Chingos, & McPherson, 2009; Long & Kurlaender, 2009; Bozick & DeLuca, 2005; Niu & Tienda, 2013). Although this figure is a simplified view of the college-going landscape as a whole—it does not depict transfers from two- to four-year colleges, for instance—it has the advantage of allowing us to compare graduation, enrollment, and degree completion across the different pathways.

Figure 1 also serves as a heuristic for thinking about system-level changes in the rates of college completion. If we wanted to change the world so that more students attain a college degree, we might work to increase the proportion of students who graduate from high school and enroll in college. This would increase completion rates by improving overall access to higher education. We could also increase the persistence

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**Figure 1: College Pathways for the 2003 Cohort of NYC 9th Graders**

- **9th Grade Cohort:** 100 9th graders
- **HS Graduates:** 59 on-time graduates
- **College Enrollees:** 27 4-year enrollees
- **College Degrees:** 17 BAs, 1 AA, 3 still enrolled
- **Total Persisting:** 69

- **College Enrollees:** 10 late graduates
- **College Degrees:** 8 on-time HS graduates + 5 late HS graduates = 13 delayed enrollees
- **Total Persisting:** 55

- **College Enrollees:** 15 2-year enrollees
- **College Degrees:** 3 BAs, 3 AAs, 3 still enrolled
- **Total Persisting:** 35

- **Notes:** See page 43.
within each of the pathways by helping students stay enrolled—perhaps by implementing more robust academic counseling, or offering more flexible course-taking options that work with students’ lives outside school. Or we could encourage students to pursue relatively more efficient pathways—e.g., by enrolling full-time or entering the traditional four-year pathway, where the average student is more likely to earn a degree. Finally, although variations by subgroup are not shown in this figure, we could work to ensure students of all backgrounds were equitably represented in the cohort’s outcomes.

Throughout the remainder of this report, we will use this four-part framework to describe students’ pathways from 9th grade to the end of college, examining access, persistence, efficiency, and equity in relation to the outcome of interest—college degree attainment. In Chapter 2, we describe the college-going pathways for the 2003 9th grade cohort, the first cohort for which we have a full ten years of data. In Chapter 3, we describe how the college-going landscape has changed over time from the 2003 cohort to the 2008 cohort (i.e., the group of students who started 9th grade in 2008 and were scheduled to graduate high school in 2012). We focus particularly on how improved access is playing out as students move through college, and on how inequities by gender, race/ethnicity, and neighborhood income have changed over time. In Chapter 4, we turn to some of the larger implications of our findings for policy and practice, as well as next steps for the New York City Goes to College series.
Whose Outcomes Are Missing from this Report?

*New York City Goes to College: New Findings and Framework* aims for a more inclusive account of college-going in NYC, but we have imposed two restrictions on our sample to make the findings easier to interpret and to make comparisons across time more feasible. First, we required students to have graduated with a Regents or local diploma within six years of starting high school—which excludes those who earned a special education diploma, received a GED, or took longer than six years to graduate. Second, we required that students enter college within five semesters of their expected high school graduation. For the 2003 cohort, which was expected to graduate high school in the spring of 2007, students had until fall of 2009 to be counted in our enrollment figures.

The timing restrictions allowed us to make consistent comparisons across cohorts by ensuring that each cohort we examined had an equal period of time in which to enroll. If, instead of limiting our enrollment window, we gave graduates the full six years to enroll in college, we would see an additional 3.4 percent of the 2003 cohort enrolling, an additional half a percent receiving a degree, and an additional 1.6 percent remaining enrolled without a degree (see Table 1 below).

Excluding students who did not earn a standard high school diploma within six years was a more difficult decision, because there were students in this category who enrolled in college within two years of their expected graduation—about 4.5 percent, in fact. In the case of students who never received a high school diploma but who did eventually enroll, it is not clear from the data whether they simply graduated after 6 years, received a GED that was not reported, or enrolled in a college without a high school credential. Although we chose not to include these students in our current report, this analysis has alerted us to the need to better understand how special cases of high school graduation are playing out in City’s college outcomes.

In total, these excluded data would increase our reported enrollment rates by about 10 percent and completion rates by about 1 percent.

*Table 1: Enrollment and Degree Attainment Not Reflected in this Report (Percent of 2003 Cohort)*

<table>
<thead>
<tr>
<th></th>
<th>Enrolled in College Within 5 Semesters</th>
<th>Enrolled in College After 5 Semesters</th>
<th>College Degree Within 6 Years</th>
<th>Still Enrolled in College; No Degree in 6th Year</th>
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<td>HS Graduate</td>
<td>—</td>
<td>3.4</td>
<td>0.5</td>
<td>1.6</td>
</tr>
<tr>
<td>enrolled in college after 5+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>semesters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GED or Special Education</td>
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<td>0.5</td>
<td>0.3</td>
<td>0.6</td>
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<td>Diploma</td>
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<tr>
<td>No HS degree or equivalent</td>
<td>2.7</td>
<td>1.8</td>
<td>0.3</td>
<td>0.9</td>
</tr>
<tr>
<td>within 6 years</td>
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<td></td>
<td></td>
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</tr>
<tr>
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<td>5.7</td>
<td>1.1</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, and National Student Clearinghouse.

Notes: Denominator is all students who enrolled in NYC public schools as first-time 9th graders in 2003 (N=64,152).
CHAPTER 2: ACCESS, PERSISTENCE, EFFICIENCY, AND EQUITY IN THE 2003 COHORT

In this chapter, we explore the educational pathways of a single cohort of NYC students who started high school in the fall of 2003—referred to in this report as the 2003 cohort. This group of students entered the 9th grade in a whirlwind of policy changes: the expansion of high school choice, increasing emphasis on charters, strengthening of accountability policies, and a renewed focus on graduating students college- and career-ready.

New York City is considered a minority-majority school district; in the 2003 cohort, Asians constituted 14 percent of the student population, Latino students 36 percent, Black students 34 percent, and White students 14 percent. About 48 percent of the cohort reported speaking a language at home other than English, and 27 percent were born outside the United States. Approximately 9 percent of students received special education services in either the 8th or 9th grade.

This chapter follows the 2003 cohort through their scheduled high school graduation (in Spring 2007) and then through six years of engagement with the postsecondary system. By the spring of 2013, approximately 21 percent of the cohort had earned a Bachelor’s degree, and another 6 percent had earned an Associate’s. The chapter examines several important intermediate outcomes, in an effort to understand where in the high school-to-college transition these students were most likely to encounter challenges. To this end, we present information about access, persistence, efficiency, and equity for students in the 2003 cohort.

Access: High school graduation was the biggest barrier to college access for the 2003 cohort.

It may be obvious that the road to college must begin with high school graduation, but Figure 1 brings that fact into stark relief. For the 2003 cohort, by far the largest attrition from the system occurred before high school graduation. A full 31 percent of all students did not finish high school or finished more than two years late. This is in contrast to the 14 percent of students who graduated high school but did not enroll...
in college, and the 20 percent of students who enrolled but left before completing a degree.

Looked at another way, an impressive percentage of NYC high school graduates eventually enrolled in college. For the 2003 cohort, about 80 percent of them engaged with the postsecondary system within two and a half years of their expected high school graduation.7

There is enough variation in enrollment definitions that comparisons across cities and to national rates can be a challenge, and we are not aware of college enrollment rates from other cities using our definition of access. It is far more common to report immediate enrollment rates among on-time graduates. For the 2003 cohort of on-time high school graduates in NYC, this rate was 71 percent (i.e., 71 percent of the students who graduated on time in 2007 entered college the following fall). This is generally higher than comparable enrollment rates nationwide and in other large cities. In Boston, immediate enrollment into both two- and four-year colleges among 2007 high school graduates was 57 percent (Sum, 2013). In the Dallas Independent School District, this statistic was 60 percent for the class of 2008 (Hall, 2014). In Baltimore, only 49 percent of 2007 high school graduates enrolled immediately (Durham & Olson, 2013). In Chicago, where enrollment rates for two-year colleges have not been published until recently, immediate four-year enrollment among on-time high school graduates in 2007 was 36 percent. This is substantially lower than the 46 percent of NYC graduates who enrolled immediately in a four-year institution that same year (Nagaoka & Healey, 2016; Coca, Nagaoka & Seeskin, forthcoming).

While there are doubtless still improvements to be made in getting NYC graduates to enroll in college, our analysis suggests that it is not the relatively short transition from high school graduation to college that presents the largest barrier to student access. For all the progress we have seen in the last three decades on high school graduation rates, it is clear that the four or more years during which students must navigate the varied demands of high school play the determining role in limiting access to college for a large proportion of students.
Persistence: Students in the 2003 cohort often experienced interruptions in their college education and were enrolled for longer lengths of time than are typically used for research.

For the sake of simplicity, Figure 1 shows only college enrollment and completion, but there are, of course, six intervening years of persistence data that can tell us quite a lot about when students leave the postsecondary system—information that can then guide the timing and focus of interventions and support.

In our first report in the New York City Goes to College series, we described continuous persistence among on-time high school graduates who enrolled immediately in college—that is, students who began college in the semester following their high school graduation and remained enrolled for every semester thereafter. This definition is typically how researchers and practitioners in higher education define persistence, but it also excludes many of the students following less traditional pathways through college. Those who must stop out—to care for family, to work, or for any other reason—are counted as dropping out entirely.

Therefore, for this report, we decided to examine a measure of non-continuous persistence that is more inclusive of the wide range of enrollment patterns in New York City. We report the percentage of students who were enrolled in either the fall or the spring in each of six academic years after their expected high school graduation date. This definition allows us to observe students who delay enrollment, as well as those who stop out and return at a later date. It also means that when we discuss persistence, we are talking not about whether individual students remain in college semester after semester, but whether the cohort as a whole continues to engage in postsecondary education. For the 2003 cohort, then, one-year persistence refers to the percent of the cohort enrolled in either the spring or the fall of the 2008-2009 academic year, which would include both immediate enrollees who have returned for a second year and those who are enrolling in college for the first time. As in our first report, we include in the persistence rates those who have already earned their degree (see Figure 2 on the next page).

In A First Look, we found that student attrition was slow and steady throughout college—that there seemed to be no single semester that presented particular difficulties for students. As shown in Figure 2, our measure of non-continuous persistence through college largely confirms this finding, though attrition from college after the first year is slightly higher than in subsequent years.
Figure 2: Persistence in the 2003 9th Grade Cohort (%)

<table>
<thead>
<tr>
<th></th>
<th>Enrolled</th>
<th>Earned Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate High School</td>
<td>69.0</td>
<td></td>
</tr>
<tr>
<td>Enroll in College</td>
<td>55.2</td>
<td></td>
</tr>
<tr>
<td>Persist 1+ Years</td>
<td>48.4</td>
<td>3.3</td>
</tr>
<tr>
<td>Persist 2+ Years</td>
<td>44.7</td>
<td>15.5</td>
</tr>
<tr>
<td>Persist 3+ Years</td>
<td>40.3</td>
<td>23.3</td>
</tr>
<tr>
<td>Persist 4+ Years</td>
<td>37.4</td>
<td>27.0</td>
</tr>
<tr>
<td>Persist 5+ Years</td>
<td>36.1</td>
<td></td>
</tr>
</tbody>
</table>

(N = 64,152)

Notes: See page 43.

Figure 3: Continuous vs. Non-Continuous Persistence in the 2003 Cohort (%)

<table>
<thead>
<tr>
<th></th>
<th>Non-Continuous Persistence</th>
<th>Continuous Persistence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enroll in College</td>
<td>55.2</td>
<td>55.2</td>
</tr>
<tr>
<td>Persist 1+ Years</td>
<td>48.4</td>
<td>42.7</td>
</tr>
<tr>
<td>Persist 2+ Years</td>
<td>44.7</td>
<td>34.9</td>
</tr>
<tr>
<td>Persist 3+ Years</td>
<td>40.3</td>
<td>31.2</td>
</tr>
<tr>
<td>Persist 4+ Years</td>
<td>37.4</td>
<td>29.3</td>
</tr>
<tr>
<td>Persist 5+ Years</td>
<td>36.1</td>
<td>29.3</td>
</tr>
</tbody>
</table>

(N = 64,152)

Notes: See page 43.
Figure 3 compares the two measures of persistence and shows that continuous persistence underreports the cohort’s engagement in higher education by 6-10 percentage points every year. This discrepancy is even greater among those who first enrolled in two-year colleges, where, non-continuous persistence is, on average, 16 percentage points higher than continuous persistence (see Appendix D).

Persistence matters for another reason, as well, and that is that we are naturally limited in the length of time we have to observe degree attainment. Although six years might not be enough time for students in non-traditional tracks to complete a degree, their long-term enrollment gives us a sense of how many additional degrees we might expect to see from the 2003 cohort. In this case, approximately 8 percent of the original 2003 cohort was still enrolled in college six years after their expected high school graduation without having earned a postsecondary degree—a number that represents more than 15 percent of the students who ever enrolled in college. These are students who, in much national research, are written off as not finishing college, and yet they have the potential to substantially alter college completion rates if they are able to attain their degrees.

We noted in the first report that, as the average time to complete a college degree has gone up over the past two decades, we clearly need to look beyond the traditional lengths of time (i.e., two years for an Associate’s degree and four years for a Bachelor’s degree) to assess college completion rates (Bound, Lovenheim, & Turner, 2010). But our findings here suggest that even six years may not be sufficient to accurately capture long-term degree attainment.

Efficiency: The vast majority of degrees in the 2003 cohort were earned by students who initially enrolled in a four-year college.

The persistence piece of this framework prioritizes a long and inclusive view of college enrollment, which is important for capturing the full extent of participation in the postsecondary system. But there is a real tension between this perspective and the financial needs of students and institutions. College is expensive, in terms of both direct costs and lost time in the labor market. Given this reality, it is generally preferable for the social and economic benefits of a college degree to start sooner rather than later in person’s life. These concerns motivate us to look at the system’s efficiency—how many degrees can we expect students to earn in a constrained time period, and in which parts of the postsecondary system is this most likely to occur?
One of the most striking features of the 2003 College Pathways figure (Figure 1) is just how many of the college completions are by students pursuing the four-year pathway (represented by the top arrow). As shown, 27 percent of the 2003 cohort earned a degree of some kind within 10 years; fully two thirds of these went to students who graduated high school on time and enrolled immediately in a four-year college. We might expect these students to earn more degrees because there are far more of them than students enrolled in either the two-year or the delayed pathway. But students in the four-year pathway are also more likely to earn a degree after accounting for their larger enrollment numbers. Approximately 68 percent of those who enrolled immediately in a four-year college earned a degree within six years, in contrast with 39 percent of two-year enrollees and 22 percent of those who delayed enrollment (Figure 4). One can imagine the total number of degrees in future cohorts rising in one of two ways: by more students within each of the pathways earning a degree, or by students choosing relatively more efficient pathways in which to enroll (four-year instead of two-year, or two-year instead of delayed).

Figure 4: Enrollment-to-Degree Efficiency in the 2003 Cohort (%)

Notes: See page 43.
We refer to these dynamics—the rates of six-year degree completion for each pathway, and the distribution of students into these pathways—as the efficiency of the postsecondary system.

The efficiency of a pathway is a function of both institutional and individual characteristics. Students who delay high school graduation or college enrollment may be different in fundamental ways from those who choose to enroll immediately, as are students who choose to enroll in a two-year college rather than a four-year. They may have more family responsibilities, constrained financial resources and options, less robust academic preparation, the desire to pursue different kinds of work, less familiarity with the college application process, or a host of other factors driving their enrollment choices. At the same time, a growing body of literature documents the institutional barriers that students in two-year colleges encounter (see Bailey, Jaggars, & Jenkins, 2015 for a summary), and it is almost certainly an interaction of these two factors that influences whether students will be able to attain a degree within our observed timeframe.

This does not mean that all students would be better off in a four-year college; certainly different students need different things from their postsecondary educations. We do note, however, at the system level, that if students enroll in relatively more efficient pathways over time, we are likely to observe more degrees per enrollment than in previous cohorts. This is different from the overall rate of degree attainment, which could also be affected by increasing access to the system (more students graduating high school and enrolling in college).

Whether and how the efficiency of the pathways is changing over time is a central question in Chapter 3.

Equity: There are vast disparities in access, persistence, and degree attainment based on student background characteristics, and the pattern of gaps varies by gender, neighborhood income, and race/ethnicity.

The 2003 College Pathways figure does not tell us about access, efficiency, and persistence for specific student subgroups, but we provide a table with these data in Appendix C. For the purposes of comparing subgroups, we simplify the 2003 College Pathways figure to two main features—the cohort’s persistence and the degree efficiency for each pathway. We also limit our discussion here to differences by gender, neighborhood income, and race/ethnicity—not because other aspects of
students’ backgrounds are unimportant, but because these differences are particularly salient and illustrate a meaningful set of patterns in the data.

**Gender**

Figure 5 shows access and persistence rates of the 2003 cohort broken out by gender. It displays the percentage of female and male students who graduate from high school, enroll in college, and then remain engaged in the postsecondary system for each of the six years after their expected high school graduation. The figure allows us not only to see where students tend to leave the education system but also to compare their patterns of leaving and staying to each other.

For instance, we can observe here that the gap between male and female students widens over the course of six years, from 9 percentage points at high school graduation to just over 11 percentage points at enrollment, to almost 13 percentage points six years later. This increase in the differences by gender—an additional 44 percent over the gap at graduation—suggests that young men are vulnerable throughout the duration of their college engagement and that they may need more sustained forms of support to make up the gap in eventual degree attainment.

**Figure 5: Persistence by Gender in the 2003 Cohort (%)**

![Persistence by Gender in the 2003 Cohort (%)](image)

**Notes:** See page 43.
Figure 6 shows, by gender, the percentage of enrollees in each of the pathways who received degrees by the end of our ten-year timeframe. We can add the number of degrees earned in each of the pathways to calculate the total rate of degree attainment for men and women. In the 2003 cohort, for example, approximately 22 percent of young men received a degree by 2013. Almost 33 percent of young women did so.

Young male students face a double disadvantage in their engagement with the most efficient four-year pathway, being both less likely to enroll in a four-year college immediately after high school and less likely to earn a degree when they do. Nearly 23 percent of women earn a degree after initially enrolling in a four-year college, while only 15 percent of men do—which means that almost 8 percentage points of the 11-point gap in degree attainment can be traced to differences in engagement with the four-year pathway.

This is not to argue that young men could only make up this difference by enrolling in four-year colleges. But the probability of earning a degree after enrolling initially in a two-year college—at least for the 2003 cohort—is low enough that it would be extremely difficult to make up the degree attainment difference through this pathway. There would need to be extraordinary changes in how many students earn a degree through the two-year pathway, and men would need to be able to take disproportionate advantage of this shift in comparison to women.
Neighborhood Income

In this report, we use a measure of poverty that is relatively new to the Research Alliance: students’ median neighborhood income, based on census tract information from the U.S. Census Bureau’s American Community Survey. For each student in our sample, we determine the median income of families located in their neighborhood of residence in 8th grade, or 9th grade if the earlier information is missing. Students whose median neighborhood incomes are in the lowest 25 percent of the distribution (below $30,424 in the 2003 cohort) are placed Quartile 1 (Q1) of Neighborhood Income. Those in the central 50 percent of the distribution (between $30,424 and $56,491 in the 2003 cohort) are designated Q2-Q3 Neighborhood Income. And students in the upper quartile of the distribution, with median neighborhood incomes in excess of $56,491, are placed in the Q4 Neighborhood Income category.

Of course, in a city with as high a cost of living as New York, $56,000 is likely too little for a family to live comfortably, so some students in our Q4 category may struggle financially, while others are genuinely “high income.” We discuss this challenge, as well as some virtues of this measure of poverty, in the text box on page 20 and in greater detail in Appendix B.

Figure 7: Persistence by Neighborhood Income in the 2003 Cohort (%)
The differences in access and persistence by neighborhood income, as displayed in Figure 7 above, are even more pronounced than they are for gender. Approximately 21 percentage points separate the Q4 and Q1 groups at high school graduation, a gap that widens to more than 27 points after one year of college and then narrows slightly to 25 percentage points by the end of our observed timeframe. These differences are more than double what we observe in access and persistence by gender.

The changes in the gap as we follow the 2003 cohort over time are relatively small in comparison with the size of the gap at high school graduation. In fact, the most notable feature of the access and persistence figure for neighborhood income is just how parallel the lines appear—a marked contrast to the differences by gender. For students from the poorest neighborhoods, the obstacles to degree completion are concentrated early in the pathway through college—with high school graduation serving as a particular challenge.

Differences in degree efficiency by neighborhood income (Figure 8) are no less startling than those in access and persistence. The gap in total degree attainment

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**Figure 8: Enrollment–to-Degree Efficiency by Neighborhood Income in the 2003 Cohort (%)**

<table>
<thead>
<tr>
<th>Bottom 25% (Q1)</th>
<th>Middle 50% (Q2-Q3)</th>
<th>Top 25% (Q4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Year, On Time</td>
<td>2-Year, On Time</td>
<td>4-Year, On Time</td>
</tr>
<tr>
<td>Enrolled</td>
<td>Earned Degree</td>
<td>Enrolled</td>
</tr>
<tr>
<td>16.8</td>
<td>11.8</td>
<td>13.3</td>
</tr>
<tr>
<td>9.7</td>
<td>11.8</td>
<td>13.3</td>
</tr>
<tr>
<td>4.0</td>
<td>5.9</td>
<td>3.1</td>
</tr>
<tr>
<td>13.3</td>
<td>15.2</td>
<td>13.9</td>
</tr>
<tr>
<td>26.5</td>
<td>31.2</td>
<td>39.7</td>
</tr>
<tr>
<td>2.5</td>
<td>5.9</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Notes: See page 43.
between Q4 and Q1 students is almost 23 percentage points; 39 percent of Q4 students earned a degree by 2013 while only 16 percent of Q1 students did so.

The role of the four-year college path in driving both total degree attainment and the gaps by income is particularly evident here. Students from the poorest neighborhoods are much less likely to enroll in a four-year institution, and when they do, they are less likely to earn a degree: Only about 10 percent of Q1 students earn a degree after initially enrolling in a four-year college, whereas 29 percent of Q4 students do so. Differential engagement with the four-year pathway thus constitutes more than 19 points, or 84 percent, of the 23-percentage point gap in degree attainment between high- and low-income students.

In the 2003 cohort, Q1 students were also far more likely to delay their enrollment into college—almost a third of all enrollees were delayed—a fact that is particularly problematic because so few delayed enrollees earn a degree or even remain enrolled after six years.

**Race/Ethnicity**

Given the differences in access, persistence, and efficiency by neighborhood income, we chose to limit our investigation of disparities by race/ethnicity to those students living in neighborhoods with median incomes between $30,424 and $56,491 (Q2 and Q3). Controlling somewhat for neighborhood income allows us to begin to isolate the role that race plays for students in generally similar economic conditions. The distribution of students in our middle category largely reflects the proportions within the City more broadly. Asian students constitute about 16 percent of the Q2-Q3 category, Latino students 40 percent, Black students 32 percent, and White students 11 percent.

Even with these constraints, Figure 9 on the next page is a stark and troubling representation of the inequities in access and persistence by race. The pattern of gaps also differs substantially from those by gender and neighborhood income, indicating that inequities by race/ethnicity may require an entirely different kind of policy response than other attainment gaps.

Although the differences in high school graduation rates are not as stark here as they were by neighborhood income, Black and Latino students show a steep drop-off between high school graduation and enrollment, far steeper than any attrition we
observe by gender or neighborhood income. The gap between the highest and lowest attaining groups—Asian and Latino students—is about 18 percentage points at high school graduation and widens to 25 points at enrollment and then to almost 28 points after one year of college. This gap remains through the end of our observed timeframe in 2013.

Differences in enrollment and degree efficiency by race (Figure 10 on the next page) are similarly grim. By 2013, 48 percent of Asian students and 43 percent of White students have earned a degree, while just 20 percent each of Latino and Black students have done so. And as is the case for gaps by gender and neighborhood income, much of those disparities can be traced to different patterns of engagement with the four-year pathway.

If we compare Asian students and Latino students, the highest- and lowest-attaining groups, respectively, we observe that more than 25 points of the 28 percentage point gap in degree attainment is created by differential engagement with the four-year pathway (i.e., Latino students are less likely to enroll in a four-year school and, when they do enroll there, are less likely to obtain a degree). In fact, these differences in degree attainment are so stark that there are almost as many Asian students who...
eventually earn a degree as there are Latino students who ever enroll in college. It is probably not realistic, then, to attempt to ameliorate the difference in degrees solely by helping underrepresented students stay in college. Given what we know of the efficiency of the pathways, far more Black and Latino students must enroll in college—and particularly in four-year colleges—to have any chance of improving the equity of college outcomes in NYC.

**Figure 10: Enrollment-to-Degree Efficiency by Race, Middle 50% Neighborhood Income, in the 2003 Cohort (%)**

Notes: See page 43.
Measuring Poverty in NYC: An Ongoing Challenge

A perennial problem for the Research Alliance and other researchers in New York City is identifying a measure of poverty that is appropriate to the diverse urban environment that we study. In the absence of family income data, eligibility for free or reduced price lunch has the longest history in education research as a marker of poverty. But New York City has a large population that meets the free/reduced lunch eligibility criteria and an increasing number of Universal Feed schools, in which all students receive free lunch. Almost 75 percent of students in the 2003 cohort qualify as low-income based on these criteria, and so the measure has very little power to distinguish among students.

The median neighborhood income measure we use in this report has several virtues from a research perspective. First and foremost, it reflects the deep economic segregation of the City and allows us to foreground the roles of geography and community resources in shaping students’ opportunities and development. Second, the measure is continuous, which means that it allows us to make far more nuanced comparisons. In contrast with the free/reduced lunch, which conceals enormous variations in family circumstances, median neighborhood income permits us to establish a cutoff for poverty or extreme poverty that is either in line with previous research or that makes sense given the distribution of sampled students. Finally, neighborhood income operates more or less as we would expect based on prior research on poverty and educational attainment. In the 2003 cohort, for example, approximately 61 percent of students in the top quartile for neighborhood income graduated from high school on time, in contrast with 47 percent of students in the middle of the distribution, and only 39 percent of the bottom-quartile group.

This approach is not without limitations, however, perhaps most important, the fact that New York City students live in neighborhoods with somewhat lower incomes than the national median ($41,332 in contrast with $43,318 in 2003), while, at the same time, New York City has a much higher cost of living than most of the country. Together, these facts mean that our higher-neighborhood income category (Q4) captures a broad swath of families, including those who face real financial difficulties and those who are very wealthy, while our middle neighborhood income category (Q2-Q3) may be quite a bit poorer than students from median-income families elsewhere in the country.

Finally, a crucial challenge with this measure is the extent to which economic segregation overlaps with racial segregation in the City, with Latino and Black students disproportionately represented in the bottom quartile group by neighborhood income, and White and Asian students disproportionately represented in the upper quartile. Being thoughtful about the intersections of race and class is one of the primary challenges of this report, but it is a challenge we think is reflective of the broader social dynamics of the City as a whole.

We discuss both of these limitations—aggregate vs. individual poverty, and the interaction between race and income—in Appendix B.
In this chapter, we examine how trends in college-going have changed from the 2003 through 2008 cohorts. This task is made somewhat challenging by the fact that as we look to later cohorts, we are able to observe less and less of their students’ progress through college. Currently, for example, we have a full ten years of data for only one additional cohort, the students who entered high school in 2004. For this cohort, we know that the six-year degree attainment rate remained virtually unchanged, increasing only marginally from 27 percent in the 2003 cohort to 27.3 percent.

Students who started high school in 2008, with expected graduation in 2012, are the last group for whom we can observe five semesters of college enrollment (through the fall of 2014). Student demographics in the NYC district changed only slightly from the 2003 to 2008 cohorts, with small increases in the percentage of Asian students (from 14 percent in 2003 to 16 percent in 2008) and Latino students (from 36 to 39 percent), and small decreases in the percentage of Black (from 34 to 32 percent) and White students (from 14 to 13 percent). The percentage of the cohort speaking a language other than English at home dropped somewhat, from 48 to 45 percent, as did the percentage of students having been born outside the United States, from 27 to 23 percent. Approximately 11 percent of the cohort received special education services in either the 8th or 9th grade, a small increase over the 2003 cohort.

Although we do not have the full six years of college going data for this 2008 cohort, the information we do have allows us to observe some of the relationships among access, persistence, efficiency, and equity, as each changes over time.
Access: High school graduation rates rose precipitously for the 2003 through 2006 cohorts and plateaued in the cohorts thereafter. College enrollment rates have largely kept pace.

As shown in Figure 11 below, there was a tremendous increase from the 2003 to 2006 cohort, when the number of students who graduated within six years increased from 69 percent to just over 77 percent. From the 2006 to 2008 cohorts, six-year graduation rates actually fell slightly. The college enrollment patterns over this time period mirror almost exactly these same trends, with strong growth in the early years followed by two years of slightly decreasing enrollment rates.

Because college enrollment more or less kept pace with rising high school graduation rates, the proportion of high school graduates who went on to enroll in college remained basically stable at 80 percent from the 2003 through the 2008 cohort. In other words, it appears that increasing college enrollment rates were driven almost entirely by increasing high school graduation rates, rather than by any improvement in how many graduates eventually enrolled.

Figure 11: Changes in Access Over Time, 2003-2008 Cohorts (%)
Persistence: Higher rates of college access have been eroded by somewhat higher rates of departure after one or two years of college.

Figure 12 displays the access and persistence rates for two different cohorts, with 2003 represented in solid blue and 2008 represented in dashed blue. The gap between the lines at any given time point indicates change over time. Rates of high school graduation grew more than 5 percentage points over this time period, as did college enrollment rates.

Broad improvements in college access have meant higher proportions of the original 9th grade cohort persisting through college, but it’s not as much as we would expect given the 6-percentage point increase in enrollment from the 2003 to 2008 cohort. A third of those gains, about 2 percentage points, were lost within the first two years of college for the 2008 cohort. In other words, although college access has improved over time, early attrition from college has also grown slightly. This trend is evident in Figure 12, where the cohort lines begin to converge at the two-year persistence mark despite the larger graduation and enrollment numbers in 2008.

Improved college access has therefore been a double-edged sword. On the one hand, the influx of new high school graduates has meant more enrollments in college and a higher percentage of the original 9th grade cohort continuing to engage in postsecondary education. On the other hand, it is possible that more students are
graduating high school and enrolling in college even though they lack the requisite knowledge, habits, and skills to be successful there—or, alternatively, that colleges are not prepared to meet the needs of a far more diverse set of incoming students.

**Efficiency:** Students are enrolling in more efficient pathways over time, with drops in delayed enrollment and corresponding increases in immediate two-year enrollment. Degree attainment in the early years does not appear to be growing at the same rate as enrollment.

There is evidence that students are taking more efficient pathways over time—with fewer students taking the delayed pathway in favor of the two-year pathway (Figure 13 below)—but the data also suggest that increases in degree attainment are not keeping pace with the increases in college enrollment (Figure 14, on the next page). In other words, as the rates of college access have increased, a smaller percentage of students who enroll are earning degrees within the observed timeframe. We examine each of these trends in turn.

**Figure 13: Types of Enrollment Over Time, 2003-2008 Cohorts (%)**

![Figure 13: Types of Enrollment Over Time, 2003-2008 Cohorts (%)](image)

**Notes:** See page 43.
Patterns in college enrollment grew more efficient over time (Figure 13), with substantial decreases in the proportion of students delaying their enrollment in college (from 24 percent of enrollees in 2003 to 19 percent in 2008) and corresponding increases in the proportion of students enrolling immediately after graduation into two-year colleges (from 27 percent of enrollees in 2003 to 33 percent in 2008). The proportion of students enrolling immediately into four-year colleges dropped by just a little over one percentage point in this timeframe; in the 2008 cohort, as in 2003, about half of all college enrollees were students who graduated high school on time and entered into a four-year college the following year. The trend toward more efficient pathways is generally good news for NYC. However, as we discuss below, there is some early evidence that college enrollees have become less likely to earn a degree.

As Figure 14 indicates, we see only slight increases in the degree attainment rates for the 2003 through 2006 cohorts. Four-, five- and six-year degree rates—which we can only track into the 2006, 2005, and 2004 cohorts, respectively—appear to be increasing but not at the same pace as college enrollment. The proportion of the cohort earning a degree within four years increased from about 15.5 percent in the 2003 cohort to 16.1 percent in the 2006 cohort.

**Figure 14: Degree Attainment Over Time, 2003-2008 Cohorts (%)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Degree in 6 Years</th>
<th>Degree in 5 Years</th>
<th>Degree in 4 Years</th>
<th>Degree in 3 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>55.16</td>
<td>27.0</td>
<td>23.3</td>
<td>15.5</td>
</tr>
<tr>
<td>2004</td>
<td>57.76</td>
<td>27.3</td>
<td>23.6</td>
<td>15.9</td>
</tr>
<tr>
<td>2005</td>
<td>59.84</td>
<td>23.9</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>2006</td>
<td>61.07</td>
<td>16.1</td>
<td>4.0</td>
<td>16.1</td>
</tr>
<tr>
<td>2007</td>
<td>60.65</td>
<td>4.2</td>
<td>4.5</td>
<td>4.2</td>
</tr>
<tr>
<td>2008</td>
<td>60.82</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
</tbody>
</table>

*Notes: See page 43.*
Therefore, when we look at the proportion of enrollees who have completed a degree (instead of the proportion of 9th graders), we see a somewhat concerning drop: In the 2003 cohort, approximately 28.5 percent of college enrollees earned a degree within four years. In the 2006 cohort, only 26.6 percent of enrollees did so.

Three-year degree attainment, by contrast, does seem to be increasing over time, even as a proportion of enrollees. This trend suggests that students may be earning more Associate’s degrees earlier in their college careers even if enrollees as a whole are not faring as well. We discuss some of the possible reasons for this trend in Chapter 4.

**Equity: Substantial improvements in college access among underrepresented students have done relatively little to reduce disparities in later college outcomes—and there is some evidence that differences by race/ethnicity are actually growing over time.**

In this section, we show rates of access, persistence, and degree efficiency by gender, neighborhood income, and race/ethnicity over time. We find that although there has been some degree of gap-closing, particularly in high school graduation rates, progress has been relatively modest compared to the overall magnitude of those gaps.

**Gender**

Both young men and young women increased their rates of high school graduation, enrollment, and early persistence through college from the 2003 cohort to the 2008 cohort (Figure 15 on the next page). For young men, high school graduation rates increased by more than 9 percentage points, enough to narrow the graduation gap with young women from 9 percentage points to just 6. These early gains faded as the cohort moved into and through college, however, as young men tended to leave the education system in higher numbers than young women. At the two-year persistence mark, the gap between male and female students was actually slightly larger in the 2008 cohort (11.4 percentage points) than it was for the 2003 cohort (11.1 percentage points).
Although we cannot yet observe degree attainment for the 2008 cohort, we can observe the kinds of college pathways that students entered after high school (Figure 16 on the next page). Apart from the overall increase in enrollments for both male and female students, the most striking change over time was in the proportion of enrollments in the two-year pathway. For young women, two-year enrollments grew from about 26 percent of all enrollments to more than 31. For young men, two-year enrollments grew from 28 percent to 34 percent of all enrollments. We also see corresponding drops in the proportion of students taking delayed pathways and very small decreases in the proportion enrolling immediately in four-year colleges. Given what we know about the relative efficiency of the different pathways, we might expect this configuration of enrollments to produce slightly more degrees for both men and women but very little change in the gap between them.

The gender gap is illustrative of two challenges with ameliorating educational disparities. For one, all students made gains over our observed time period, which means we see relatively few changes in the differences between student subgroups from our first cohort to our last. In order to see real progress in equity, young men would need to make highly disproportionate progress in comparison with young women. Second, improving males’ outcomes early in the pathway—by increasing
graduation rates—clearly had less impact than we would have hoped, with gains in graduation rates fading out as young men enrolled and persisted at lower rates. Young women, on the other hand, seem to have been able to maintain their earlier gains through the college transition. Together, these differences have driven continued inequity later in the college pathways.

**Neighborhood Income**

As with differences in access and persistence by gender, we see large growth across all neighborhood income categories in rates of high school graduation, particularly for students in the poorest neighborhoods (Figure 17 on the next page). The gap in graduation rates between the Q4 and Q1 groups shrank by just over 2 percentage points, from a 21-point gap in the 2003 cohort to 19 in the 2008 cohort. And unlike the patterns we observe with young men in the 2008 cohort, students from the poorest neighborhoods were able to maintain their early gains as they moved into and through college. After two years of college, Q1 students had narrowed the persistence gap with Q4 students by about 4 points—from about 27 percentage points in the 2003 cohort to 23 in 2008.
From the 2003 to 2008 cohort, students across income groups made substantial progress in their rates of college enrollment. Students in the poorest neighborhoods increased their enrollment by 7 percentage points, from 42 to 49 percent (Figure 18 on the next page), while Q2-Q3 students improved by 6 percentage points, and Q4 students by 4 percentage points. As we found in our analysis of change over time by gender, much of this growth came from increased enrollments in the two-year pathway.

The most salient feature of Figure 18 might be what does not change over time—the proportion of students in each neighborhood income category who entered the four-year pathway. These proportions are remarkably stable over the time period we observe, which, given the importance of the four-year pathway in degree attainment rates, suggests that we will see only modest improvement in the college completion
gap that divides Q1 from Q4 students. Even more than our findings on gender, then, changes in attainment by neighborhood income suggest two somewhat contradictory interpretations. On the one hand, students from the poorest neighborhoods in NYC have made enormous gains relative to their initial outcomes. On the other hand, the decrease in the gap between Q4 and Q1 students is small in comparison to the overall magnitude of those differences.

**Race/Ethnicity**

As in Chapter 2, here we examine differences by race among students who live in the middle 50 percent of neighborhoods by income.\(^\text{13}\) We find a small amount of progress in closing gaps in high school graduation for students in the 2008 cohort, but these improvements appear to fade as students move from high school into their first years of college.

The high school graduation gap between Asians and Latinos, the highest- and lowest-attaining groups, respectively, shrank by a single percentage point from the 2003 to 2008 cohort—from 18 to 17 points (Figure 19 on the next page). However, even these small gains did not hold up as students moved into and through college. In contrast to the growth we observe in Asian students’ graduation rates, which seems
Figure 19: Access and Persistence by Race, Middle 50% Neighborhood Income, in the 2003 and 2008 Cohorts (%)

<table>
<thead>
<tr>
<th>Race</th>
<th>Graduate High School</th>
<th>Enroll in College</th>
<th>Persist 1+ Years</th>
<th>Persist 2+ Years</th>
<th>Persist 3+ Years</th>
<th>Persist 4+ Years</th>
<th>Persist 5+ Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian 2003</td>
<td>81.3</td>
<td>73.6</td>
<td>68.9</td>
<td>66.4</td>
<td>62.9</td>
<td>59.7</td>
<td>57.9</td>
</tr>
<tr>
<td>Asian 2008</td>
<td>87.5</td>
<td>79.7</td>
<td>73.9</td>
<td>70.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black 2003</td>
<td>67.1</td>
<td>50.2</td>
<td>42.0</td>
<td>37.5</td>
<td>32.5</td>
<td>29.7</td>
<td>28.4</td>
</tr>
<tr>
<td>Black 2008</td>
<td>73.6</td>
<td>56.3</td>
<td>45.2</td>
<td>39.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino 2003</td>
<td>63.6</td>
<td>48.6</td>
<td>41.4</td>
<td>37.7</td>
<td>32.8</td>
<td>30.3</td>
<td>29.2</td>
</tr>
<tr>
<td>Latino 2008</td>
<td>70.9</td>
<td>54.8</td>
<td>44.5</td>
<td>40.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White 2003</td>
<td>75.7</td>
<td>67.1</td>
<td>62.4</td>
<td>59.6</td>
<td>55.3</td>
<td>52.9</td>
<td>51.4</td>
</tr>
<tr>
<td>White 2008</td>
<td>82.0</td>
<td>71.7</td>
<td>64.5</td>
<td>60.7</td>
<td></td>
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</tr>
</tbody>
</table>

Notes: See page 45
fairly stable over time, Black and Latino graduates left the system at even higher rates in 2008 than they did in 2003. By the two-year persistence mark, the gap between Asians and Latinos was actually slightly larger than it was for 2003: 31 percentage points as opposed to 29.

Figure 20, depicting the changes in students’ college pathways over time sheds some light on the differences we observe in students’ persistence rates. For White, Black, and Latino students, enrollments into the most efficient four-year pathway constituted slightly smaller proportions of all enrollments in 2008 than they did in 2003. Two-year enrollments, on the other hand, increased substantially for all three groups. Among Latinos, for instance, two-year enrollments increased more than 7 percentage points, meaning that almost 42 percent of all enrollments among Latino students in 2008 were in two-year colleges. Asian students, by contrast, are the only group for whom the proportion of four-year enrollments actually increased over this timeframe—from about 65 percent of enrollments to more than 68.

**Figure 20: Changes in Type of Enrollment by Race Over Time, Middle 50% Neighborhood Income, 2003 and 2008 Cohorts (%)**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Asian</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pathway</td>
<td>11.5</td>
<td>8.0</td>
<td>14.0</td>
<td>17.3</td>
<td>15.3</td>
<td>20.4</td>
<td>11.0</td>
<td>7.6</td>
</tr>
<tr>
<td>2-Year Pathway</td>
<td>48.1</td>
<td>54.4</td>
<td>45.5</td>
<td>22.9</td>
<td>15.1</td>
<td>22.6</td>
<td>40.8</td>
<td>41.8</td>
</tr>
<tr>
<td>4-Year Pathway</td>
<td>40.4</td>
<td>37.6</td>
<td>30.2</td>
<td>52.1</td>
<td>60.9</td>
<td>57.0</td>
<td>48.2</td>
<td>51.6</td>
</tr>
<tr>
<td><strong>Latino</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pathway</td>
<td>17.8</td>
<td>18.7</td>
<td>15.5</td>
<td>22.9</td>
<td>20.4</td>
<td>22.6</td>
<td>40.8</td>
<td>41.8</td>
</tr>
<tr>
<td>2-Year Pathway</td>
<td>54.4</td>
<td>15.1</td>
<td>18.7</td>
<td>22.9</td>
<td>15.1</td>
<td>22.6</td>
<td>40.8</td>
<td>41.8</td>
</tr>
<tr>
<td>4-Year Pathway</td>
<td>28.8</td>
<td>56.2</td>
<td>55.9</td>
<td>55.2</td>
<td>64.5</td>
<td>56.8</td>
<td>18.4</td>
<td>16.4</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delayed Pathway</td>
<td>15.3</td>
<td>20.1</td>
<td>14.7</td>
<td>20.1</td>
<td>13.6</td>
<td>20.1</td>
<td>11.0</td>
<td>7.6</td>
</tr>
<tr>
<td>2-Year Pathway</td>
<td>40.8</td>
<td>41.8</td>
<td>39.8</td>
<td>41.8</td>
<td>39.8</td>
<td>41.8</td>
<td>40.8</td>
<td>41.8</td>
</tr>
<tr>
<td>4-Year Pathway</td>
<td>44.9</td>
<td>17.1</td>
<td>45.4</td>
<td>17.1</td>
<td>45.4</td>
<td>17.1</td>
<td>48.2</td>
<td>51.6</td>
</tr>
</tbody>
</table>

**Notes:** See page 45
These striking differences by race/ethnicity have important implications for the 2008 cohort and for New York City more broadly. The first is that whatever growth we might observe in degree attainment among Black and Latino students in the most recent cohorts, it is unlikely to make any substantial dent in the completion gap that exists by race; there are simply too few of these students enrolling in college to come anywhere close to the number of degrees Asians and Whites currently receive. And the increases we’ve seen in two-year enrollments for Blacks and Latinos are unlikely to yield the same number of degrees as the corresponding increases in four-year enrollments among Asian students.

Second, it’s clear that even as rates of college access have increased for all student groups, there are qualitative differences in how students are entering and moving through the pathways. For instance, although the gains students made in their high school graduation rates were quantitatively similar—between 5 and 7 percentage points for each of the four groups—they were qualitatively different, with gains by Asian students being far more sustainable as the cohort moved into and through college than was the case for any of the other groups. Whether these differences are the function of inequitable opportunities for students to prepare for college, differences in the institutional characteristics of two- and four-year colleges, or some other factor cannot be determined from this analysis, but this is a line of research that we hope will grow out of this early descriptive work.
CHAPTER 4: DISCUSSION OF MAJOR FINDINGS AND IMPLICATIONS FOR POLICY, PRACTICE, AND RESEARCH

Inevitably, this report will leave many questions unanswered and raise new ones in the process. The length of time required to observe students through high school and college, the shifting landscape of educational options, and the magnitude of the equity challenges facing the City all indicate the need for more research. We hope that the framework presented here will provide a helpful structure for some of this research. Despite the continuing nature of the inquiry, though, a number of clear findings can be drawn from our work to date.

Discussion of Major Findings

There have been broad improvements in college access, driven largely by rising graduation rates. The proportion of 9th graders who enroll in college has increased over time, from 55 percent of NYC students who started high school in 2003 to 61 percent of those who started high school in 2008. These improvements in access have in turn meant that larger proportions of the original 9th grade cohorts are persisting through college. But this growth is mainly a result of broad improvements in on-time high school graduation rates, which rose for all the student groups we examine in this report. As a proportion of high school graduates, college enrollment rates have changed very little over the study period; a consistent 80 percent of graduates eventually enrolled in college in the 2003 through 2008 cohorts.

The largest percent increases in both high school graduation and college enrollment have been among the most underrepresented populations—that is, students in the poorest neighborhoods, Black and Latino students, and young men. In general, this is good news, particularly for schools and community-based organizations working to support students through high school and helping them navigate the college admissions process; our findings suggest that college access work taking place in the City appears to be paying off. But there remains much work to be done. Underrepresented groups continue to lag well behind their counterparts in both high school graduation and college enrollment. Among those in the 2008 cohort, more than a quarter of Black and Latino students and young men, and more than a third of students in the poorest neighborhoods still did not graduate.
These findings suggest that, despite the strong growth in high school graduation rates, the largest diversion from the pathway to college still occurs during the high school years, rather than during the relatively short transition from high school to college. And this is particularly a concern for Black and Latino students and for those from the poorest neighborhoods.

**Higher rates of college access have been eroded by somewhat higher rates of departure after one or two years of college.** Broad improvements in college access have meant higher proportions of the original 9th grade cohort persisting through college, but it’s not as much as we would expect given the 6-percentage point increase in enrollment from the 2003 to 2008 cohort. A third of those gains, about 2 percentage points, were lost within the first two years of college for the 2008 cohort. In other words, although college access has improved over time, early attrition from college has also grown slightly.

Our analysis is not designed to assess the underlying causes of this shift, whether lack of student preparedness, institutional challenges in serving new student populations, or broad economic conditions. What is clear, however, is that for some students, improved access has meant simply delaying their departure from the system until the first or second year of college. This tradeoff may still mean that students are in a better position—with improved labor market opportunities, credits toward future college work, and knowledge about college that can be shared with others (Attewell, 2007; Scott-Clayton & Wen, 2017). But it also means that more students are out of the labor market and potentially accruing debt in their early years of college without a degree to show for it. These findings underscore that the early years of college continue to be critical period of reckoning for students as they work toward a degree.

**Although four-year colleges remain the primary source of degrees, larger proportions of students have enrolled in two-year colleges over time. The proportion of students delaying their enrollment in college has decreased substantially.** In the 2003 cohort, fully two thirds of the degrees earned went to students who graduated high school on time and enrolled immediately in a four-year college. Yet, as the proportion of students delaying enrollment has dropped over time, we’ve seen more students entering the two-year pathway. What these trends mean for degree attainment patterns of future cohorts remains to be seen. On the one hand, students who enroll in two-year institutions have historically been far less likely
to earn a degree or even to remain enrolled by the end of six years compared with those who attend four-year colleges. But they are still more likely to earn a degree than those who delay college. These trends may mean higher degree attainment for future cohorts.

Additionally, several recent initiatives throughout New York City have focused specifically on improving the two-year pathway toward a college degree. CUNY has undertaken a comprehensive overhaul of developmental education (also known as remedial education) in its community colleges (CUNY, 2016). It has also launched programs such as the Accelerated Study in Associate Programs (Scrivener et al., 2015) and Guttman Community College (Hertz, 2015), which require full-time enrollment, provide frequent advising and a familiar cohort of classmates, and offer a range of other supports. These more structured environments may ultimately make the student experience more like that at a four-year, residential college and improve the efficiency of the two-year pathway, particularly as these new programs are scaled up (GraduateNYC, 2016).

The data we present in this report largely precede these reforms. Our findings therefore serve as a baseline that can be used to assess how these initiatives are changing New York City’s college landscape and outcomes over time.

**Gaps by gender and neighborhood income have persisted, and there is some evidence that differences by race/ethnicity have actually grown over time.** All students have seen improved college access over time, but what these improvements mean as students move into college differs depending on their gender, neighborhood income, and race/ethnicity. Young men closed the college enrollment gap with young women by about 2 percentage points from the 2003 to 2008 cohort (from 11 points to just over 9), but these gains disappeared by the second year of college, with higher departures from the system by young men. Students in the poorest neighborhoods closed the college enrollment gap with those from better- resourced neighborhoods by about 3 percentage points, and by the second year of college they narrowed the gap even further. Unfortunately, these improvements are modest in relation to the magnitude of the gap; at the end of our study period, the persistence rate for the poorest students was still 23 percentage points less than that of students from better resourced neighborhoods.
Finally, our data suggest that, even among students with similar neighborhoods, gaps by race/ethnicity have actually grown slightly over time. The 25-percentage point difference in college enrollment between Asians and Latinos (the highest and lowest attaining groups) living in middle-income neighborhoods remained unchanged from the 2003 to 2008 cohort, but the gap between the groups after two years of college actually widened from 27 to 29 points in the same period.

We speculate that at least a portion of this trend relates to what we have been calling “differential engagement in the four-year pathway,” or the fact that White, Asian, and better resourced students tend to take advantage of the relative efficiency of four-year colleges at much higher rates than Black and Latino students and poorer students. Of course, much of this difference in college-going originates earlier in students’ academic trajectories, with underrepresented students attending less selective high schools and having fewer opportunities to prepare for and apply to college (Lewis & Burd-Sharps, 2017). Increased enrollments in two-year colleges are unlikely to help underrepresented students close the college completion gap anytime soon, even given recent reforms in CUNY community colleges. Making the four-year pathway work better for Black and Latino students and students from the poorest neighborhoods is central to advancing equity in college outcomes.

This is not to say, though, that all students should simply attend a four-year college. The fact that the two-year colleges are the recipients of many of the new student populations suggests that they are filling an important role—as a more affordable option than traditional colleges, as an initial step toward transfer, or as a more flexible accommodation to students’ complex lives. And it may be that the two-year colleges are filling the role of teaching postsecondary literacy and numeracy to students who never had the opportunity to develop these skills in high school. Whatever the reason for the influx of underrepresented students into the two-year colleges, it’s clearly not feasible to simply encourage everyone to go to four-year institutions instead. But the highly disproportionate enrollment of underrepresented groups in two-year colleges presents real challenges as the City works toward more equitable outcomes, and it signals serious problems in dynamics of the school system more broadly.

How trends in demographics and enrollment are intersecting with recent policy shifts—particularly in two-year colleges—is an important question that comes out of this research.
Today’s students engage in flexible, non-continuous, and lengthy enrollment that demands a wider lens for measuring outcomes. Substantial numbers of students continue to enroll well after high school graduation, take time off from college, and remain enrolled after the 10-year timeframe we used for this report. To the extent that underrepresented students are disproportionately likely to take these non-traditional pathways, accurately measuring these forms of postsecondary participation is an important part of supporting a more equitable high school-to-college system. Absent this shift, we may be systematically undercounting these students’ participation in the postsecondary system—and undervaluing the institutions that serve them.

We also need to better understand enrollment patterns and the reasons behind them if we are to help long-term enrollees complete their degrees. As much as 8 percent14 of the 2003 cohort (a little more than 15 percent of all enrollees) were still enrolled in college more than six years after high school graduation. These students represent real potential improvement in the degree attainment rate if they are able to eventually finish their degrees.

Improvements in one area of the system may mean trade-offs in another. The trends discussed above raise a set of broader questions about how to think about the values of access, persistence, efficiency, and equity in relation to each other. There is some indication in these findings that, at least in the short term, access, persistence, and efficiency may be somewhat countervailing forces. Simultaneously widening access, helping students remain enrolled for longer periods, and making the process by which students earn their degrees smoother and faster is a challenging task. The institutional flexibility that makes it possible for previously unrepresented students to be able to attend college may be the very flexibility that makes the system less efficient. Yet, in New York City and around the country, it has become common to refer to the twin policy goals of moving students into and through college, improving both access and success, when these goals may require different policy approaches.

Even more troubling, perhaps, broad improvements in college access have not necessarily produced more equitable outcomes for historically underrepresented groups as they have moved into and through the first years of college. Although we have seen gains in high school graduation and enrollment among all students, regardless of background, more advantaged students have been able to maintain these
gains as they have transitioned into college in ways that underrepresented students have not. Figuring out how to promote more equitable outcomes is a central challenge facing the City’s policymakers and educators.

These are tradeoffs that are worth discussing more explicitly in our public policy conversations. Whether we aim for broad college access for all students, higher overall degree attainment irrespective of duration of enrollment, more expeditious degree completion, or more equitable outcomes for underrepresented students—the decision will almost certainly require policymakers to balance a variety of competing values and institutional priorities.

Next Steps for Research

Below, we describe briefly what we understand to be the most substantial lines of research suggested by these analyses. Some of these studies are already underway at the Research Alliance, while others are areas of rising concern among policymakers and practitioners in the City:

Understanding the role of academic preparation in shaping early college outcomes. Many of the trends we observe in this study beg for explanation in the form of what students know and can do as they make the transition from high school. In particular, slight increases in attrition during the early years of college suggest the need for further research in each of the following areas:

- **The changing meaning of a high school diploma:** Given the rapid increases we’ve seen in graduation rates over this time frame, and particularly for the 2003 to 2006 cohorts, have there been any qualitative changes in how students meet their graduation requirements? Has there been a wider reliance on credit recovery, for example? Is there evidence that students have had to take more exam preparation courses or take required Regents exams multiple times? Have we seen any changes in the range of entrance scores DOE students receive as part of their CUNY admissions process? Understanding how the profile of the average DOE graduate has changed is clearly an important part of the story that is missing in this high-level overview of progress through the system.

- **The role of high school quality:** Our current analysis refers to the differential likelihood of completing a degree through a four-year college, as opposed to
a two-year institution, a perspective that has some affinities with the literature on under match (Bowen, Chingos, & McPherson, 2009). But even before students apply to college in New York City, the local high school landscape is governed by a complex matching process, which is itself likely sorting students and guiding their decisions about where to enroll in college. Understanding how high schools as institutions are facilitating student access and persistence toward a college degree is a developing line of work at the Research Alliance. To this end, we have begun to examine the role of high school quality, above and beyond students’ eighth-grade credentials, in a working paper for the New York City Partnership for College Readiness and Success (Coca & Black, 2017).

- *The impact of CUNY developmental education reforms:* The time period we describe in this report precedes a number of policy shifts that have been underway in the CUNY community college system, including the overhaul of developmental coursework requirements, the scale-up of ASAP, and the opening of Guttman Community College (Scrivener et al., 2015; Hertz, 2015; GraduateNYC, 2016). Understanding how these shifts are changing the efficiency of the two-year pathway is an essential part of determining whether recent increases in two-year enrollments among underrepresented students are likely to support or undermine equity in degree attainment.

**More inclusive analysis of the college-going landscape.** Although this report attempts to examine NYC college-going from a more inclusive standpoint, there are aspects of the current approach that warrant further investigation:

- *Analysis disaggregated by degree type:* Our measures of efficiency in the current report indicate only whether students have completed any kind of degree within six years and do not distinguish between Bachelor’s and Associate’s degrees. Although this simplification was necessary given data constraints, conflating the two degrees is hardly optimal. Students with Bachelor’s degrees are likely to have a much wider range of labor market opportunities than those with only Associate’s degrees, so the college completion outcome may be concealing large differences in the future trajectories of students. We provide the information on degree types for the cohorts for which we currently have the full ten years of data (i.e., the 2003 and 2004 cohorts) in Appendix C.
We will continue to share this information for other cohorts as it becomes available.

• **The phenomenon of long-term and non-continuous enrollment**: We reported in Chapter 2 that continuous persistence measures and even the six-year observation period in this study were insufficient to fully account for NYC students’ engagement in college. However, we know very little about the students who engage in college in this way—what aspects of their lives make long-term and non-continuous persistence desirable or necessary, which students are making steady progress toward a degree and which are simply languishing, and what factors might support them in finishing their required coursework. Understanding these aspects of the story will be essential in crafting policies to help these students succeed in college and complete their degrees.

• **Role of transfer and mobility in the pathways**: As we discussed briefly in Chapter 1, transfers are not addressed in this report or displayed in the 2003 College Pathways (Figure 1); instead, we reference the pathways into which students’ initially enrolled as the basis for our analyses. This is partly because the complexity of transfer options available to today’s students is difficult to visualize, but it is also because we do not fully understand what kinds of transfer really matter for students’ persistence and degree attainment. Learning more about the role of transfers will be an important piece of future work.

• **Educational equity for other populations**: The findings in this report suggest the need to examine differences in access, persistence, and efficiency among other student subgroups, as well, including English language learners (ELLs), immigrants, and students receiving special education services. There is also a growing recognition that the four most common categories of race/ethnicity in DOE schools—used throughout this report—are insufficient for describing the diversity and complexity of NYC students’ cultural backgrounds and family histories. More nuanced exploration of the characteristics that shape students’ opportunities and outcomes is needed.
Methodological and Analytic Support:

- *Projections for Baselining*: The fact that we are able to observe how the most recent cohorts of students are progressing in their college careers—and how their progress compares to earlier cohorts—means that we can also make a decent guess as to how many degrees they are likely to earn by the end of their 10-year timeframe. This baselining approach has the potential to inform long-term planning and tracking efforts among the various institutions in New York City. A forthcoming working paper will present our preliminary efforts to tackle this problem.

- *Continued development of indicators of poverty*: The challenge of developing a precise, consistent, and transparent measure of socioeconomic status is an ongoing concern at the Research Alliance, and one that we feel is reflective of the complex urban environment in which we work. We are particularly focused on understanding the relationship between poverty, race, and geography that seems to be shaping not only the neighborhoods in which students live, but also the dynamics of their high school experience, beginning with how they approach the high school choice process (Corcoran & Baker-Smith, 2015). The fact that median neighborhood income, for all its limitations, is predictive of long-term college outcomes suggests that such aggregate measures of poverty may contribute some additional nuance to commonly used individual measures like free/reduced lunch eligibility.

Conclusion

New York City has made extraordinary progress in its high school graduation rates in the last decade and a half—and these changes have in turn driven improved college access for students who, even 20 years ago, would never have had the opportunity to enroll. As patterns of college-going grow more complex, however, and as policymakers and practitioners set their sights on a college completion agenda, it is crucial that we begin to widen our scope of analysis to understand how changes in access are influencing persistence and degree attainment. Although these findings surface a number of compelling research questions, our most critical challenge in the coming years is likely to be addressing the vast differences in college outcomes for underrepresented groups of students. It is a challenge that begins well before the transition from high school to college and one that the Research Alliance will continue to examine in future work.
Figure Notes

Figures 1-6

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, and National Student Clearinghouse.

Notes: Figures include all students who enrolled in NYC public schools as first-time 9th graders in 2003 (N=64,152). See Appendix A for a detailed explanation of our sample, methods, and definitions of key outcomes.

Figures 7-8

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, National Student Clearinghouse, and American Community Survey.

Notes: Figures include all students who enrolled in NYC public schools as first-time 9th graders in 2003 (N=64,152). See Appendix A for a detailed explanation of our sample, methods, and definitions of key outcomes.

Figures 9-10

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, National Student Clearinghouse, and American Community Survey.

Notes: Figures include all students who enrolled in NYC public schools as first-time 9th graders in 2003, lived in census tracts with median neighborhood incomes between $30,525 and $56,862 and who identified as Asian, Black, Latino, or White (N=31,813). See Appendix A for a detailed explanation of our sample, methods, and definitions of key outcomes. See Appendix B for further information about the neighborhood income variable.

Figures 11-16

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, and National Student Clearinghouse.

Notes: Figures include all students who enrolled in NYC public schools as first-time 9th graders in 2003 (N=64,152) and 2008 (N=66,000). See Appendix A for a detailed explanation of our sample, methods, and definitions of key outcomes.

Figures 17-18

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, National Student Clearinghouse, and American Community Survey.
Notes: Figure includes all students who enrolled in NYC public schools as first-time 9th graders in 2003 (N=64,152) and 2008 (N=66,000). See Appendix A for a detailed explanation of our sample, methods, and definitions of key outcomes.

Figures 19-20

Source: Research Alliance calculations using data from the NYC Department of Education, City University of New York, National Student Clearinghouse, and American Community Survey.

Notes: For the 2003 cohort, figures include all students who enrolled in NYC public schools as first-time 9th graders in 2003 or 2008, lived in middle neighborhood income census tracts, and who identified as Asian, Black, Latino, or White (2003 Cohort N=31,813; 2008 Cohort N=32,869). See Appendix A for a detailed explanation of our sample, methods, and definitions of key outcomes. See Appendix B for further information about the neighborhood income variable.
Endnotes

1 New York City generally outperforms other large cities in its rates of college access, although most cities report the percentage of on-time high school graduates who enroll in immediately college (as opposed to our focus on the 9th grade cohort). For example, in Boston, 57 percent of on-time high school graduates enrolled in college immediately in 2007; in Dallas, this number was 60 percent, and in Baltimore, it was 49 percent—compared with the 71 percent of New York City graduates who enrolled in college that same year (Sum et al., 2013; Dallas Independent School District, 2013; Durham & Olson, 2013).

2 Given differences in access, persistence, and efficiency by neighborhood income, we chose to limit our investigation of disparities by race/ethnicity to students living in neighborhoods with median incomes between $30,424 and $56,491—the middle of our income distribution. Controlling for neighborhood income in this way allows us to begin to isolate the role that race plays for students in generally similar economic conditions. See our full report for a more complete discussion.

3 Figure ES-1 shows 9 percent of the cohort still enrolled without a degree at the end of 2013, but this is due to rounding within each pathway. Three percent of the cohort are still enrolled from the four-year pathway, 2.6 percent of the cohort are still enrolled within the two-year pathway, and 2.7 percent are enrolled within the delayed pathway.

4 Since the 2014 publication of A First Look, we have also developed a new database that combines two sources of information on NYC students’ college outcomes, the National Student Clearinghouse (NSC) and administrative data from City University of New York City (CUNY). This new database provides a more accurate and detailed profile of New York City students’ college transitions than shown in our last report, which relied solely on the NSC for information about college enrollment. See Appendix A for further details on NSC and CUNY data coverage in this report.

5 We examined six cohorts of first-time 9th graders (school years 2003-2004 to 2008-2009) who were enrolled in a NYC public high school as a 9th grade student in either the fall or spring semester of a given school year. We did not include students who enrolled in NYC public high schools after their 9th grade year or who transferred out of the NYC system after 9th grade. We also excluded students who attended a special education high school (District 75), an alternative high school (District 79), a charter high school (District 84), or a school with fewer than 15 9th graders in a given year.

6 We use the word “efficiency” to describe the number of degrees earned per enrollment in each of the college pathways, as well as the distribution of students into them. In fact, this is the statistic that most college completion literature reports—the number of completions relative to the number of enrollments. We find it useful to distinguish between the overall degree attainment rate (using the 9th grade cohort as a denominator) and the efficiency ratios because they answer very different questions—how the system overall is serving students, in the first case, and how students and institutions are faring in each of the college pathways, in the second case.
Another 11 percent will do so either after our observed enrollment window or as part of an excluded group – see “Whose Outcomes Are Missing from this Report?” box on page 5.

See Dundar et al., 2011, for example.

Boston reports this statistic, however; 18 percent of the college enrollees from class of 2009 were still enrolled without a degree after 6 years (McLaughlin, 2016), substantially higher than the 8 percent we observe in this report.

Some benchmarks for measuring institutional graduation rates—the IPEDS survey, for one—favor 200-percent time over 150-percent time for precisely this reason (Cook & Pullaro, 2010), as have a number of other researchers in recent years (see Attewell, 2007). In this case, we are simply limited by the available data but may pursue a longer window as the degree and persistence statistics become available.

Our measures of efficiency in the current report indicate only whether students have completed any kind of degree within six years and do not distinguish between Bachelor’s and Associate’s degrees. This was largely a pragmatic decision related to data constraints. Over time, students who earned an AA in earlier years may ultimately receive a BA down the road, and simply indicating whether a student received any degree allows us to impose some stability on the analysis. We discuss this challenge further in Chapter 4.

At the time of publication, we have complete enrollment data through the 2014-2015 school year for the 2008 cohort. Although we could show immediate enrollment rates for cohorts after 2008, these numbers would not be comparable to the previous enrollment rates reported in this study, which gives students a full five semesters to enroll in college. For the 2008 cohort, our data limitations mean that we can observe a maximum of three years of college enrollment for high school students who enrolled immediately after on-time graduation. For students who graduated high school late or who delayed their enrollment, we are only able to observe one or two years of enrollment. See Appendix A for more information about data coverage for each of the cohorts.

See Appendix B for the neighborhood income statistics for the 2008 cohort.

Figure 1 shows 9 percent of the cohort still enrolled without a degree at the end of 2013, but this is due to rounding within each pathway. Three percent of the cohort were still enrolled from the four-year pathway, 2.6 percent of the cohort were still enrolled within the two-year pathway, and 2.7 percent were enrolled within the delayed pathway.
References


The Research Alliance for New York City Schools conducts rigorous studies on topics that matter to the city’s public schools. We strive to advance equity and excellence in education by providing nonpartisan evidence about policies and practices that promote students’ development and academic success.