

STRATEGIC **DATA** PROJECT

SDP COLLEGE-GOING DIAGNOSTIC

Delaware Department of Education

July 2014





THE STRATEGIC DATA PROJECT (SDP)

Since 2008, SDP has partnered with 56 school districts, charter school networks, state agencies, and nonprofit organizations to bring high-quality research methods and data analysis to bear on strategic management and policy decisions. Our mission is to transform the use of data in education to improve student achievement.

Part of the Center for Education Policy Research at Harvard University, SDP was formed on two fundamental premises:

1. Policy and management decisions can directly influence schools' and teachers' ability to improve student achievement.
2. Valid and reliable data analysis significantly improves the quality of decision making.

SDP's theory of action is that if we are able to bring together the right people, assemble the right data, and perform the right analysis, we can help leaders make better decisions—ultimately improving student achievement significantly.

To make this happen, SDP pursues three strategies:

1. Building a network of top-notch data strategists who serve as fellows for two years with our partners (e.g., school district, charter management organization, nonprofit, or state education agency).
2. Conducting rigorous diagnostic analyses of teacher effectiveness and college-going success using agency data.
3. Disseminating our tools, methods, and lessons learned to the education sector broadly.

The project is supported by the Bill & Melinda Gates Foundation.

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Introduction and Background

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A few generations ago, a high school diploma opened doors to skilled jobs and middle-class earnings. Today, a college diploma is just as essential. Postsecondary education, whether in the form of a two- or four-year college or a technical program, has become a critical step to achieving stable employment and financial security. A Georgetown University study estimates that by 2018, 59% of jobs in Delaware will require postsecondary training (Carnavale, Smith, & Strohl, 2010). Yet U.S. Census Bureau (2012) statistics show that only about 37% of adults in the state have a postsecondary degree. These trends, coupled with the fact that an individual with a bachelor's degree will earn approximately \$844,000 more, on average, over his or her lifetime than a high school graduate, underscore the importance of preparing students to graduate from high school with the knowledge and skills to enroll in, persist at, and complete higher education (U.S. Census Bureau, 2009).

Parental expectations reflect the growing importance of higher education for career readiness. Nationwide, nine out of 10 students in Grades 6 through 12 have parents who expect them to continue their education beyond high school (Lippman et al., 2008). In addition, according to a recent national Gallup survey, approximately 60% of parents agree that their children need to complete postsecondary education to earn more money, and pursue their desired career (Sallie Mae & Gallup, 2010, p. 48).

Given these patterns, we at the Strategic Data Project (SDP) designed a set of analyses called the SDP College-Going Diagnostic as a means to:

- better inform leaders of school districts and state education agencies about the college-going outcomes of their students; and
- identify potential areas for action to increase students' levels of academic achievement, preparedness for college, and postsecondary attainment.

The SDP College-Going Diagnostic is part of a partnership between the SDP and the Delaware Department of Education to expand the use of data to inform policy and management decisions. It is neither an exhaustive set of analyses nor a

set of specific recommendations for the state to implement. Rather, the diagnostic is a collection of analyses that can help the state better understand its current performance, set future goals, and plan responses strategically. Additionally, the diagnostic is meant to demonstrate more broadly how education agencies can capitalize on existing data to better inform decision making.

This report examines students' high school performance, college enrollment, and college persistence patterns, and compares these patterns across a variety of student characteristics and academic experiences. To conduct the analyses, researchers connected individual student data (including demographics and test scores) to corresponding college enrollment data, allowing student outcomes to be tracked not only through high school, but also through college.

Specifically, we obtained postsecondary enrollment records from the National Student Clearinghouse (NSC), a nonprofit organization that provides postsecondary enrollment verification for colleges and universities. The NSC maintains student enrollment records for more than 3,500 institutions of higher education throughout the United States that collectively serve 98% of all postsecondary students nationwide, 93% of postsecondary students in Delaware, and 92% in neighboring states.¹ However, not all institutions are covered, and, in a number of instances, students may file requests for privacy that prohibit the disclosure of their enrollment information, as authorized under the Family Educational Rights and Privacy Act (FERPA). A recent study estimates that, as a result of these two factors, individual-level enrollment records from the NSC cover about 86% of undergraduate students in Delaware (Dynarski, Hemelt, & Hyman, 2013). Thus, actual enrollment rates in the state are likely to be higher than those reported in this brief.

The report is organized as follows: Section I provides an overview of student educational attainment in Delaware across the entire college-going pathway—from entering ninth grade through persisting to the second year of college. Section II examines student performance during high school in terms of both credit accumulation and high school completion. The last two sections of the report discuss findings related to students' college-going outcomes: Section III focuses on college enrollment, and Section IV examines college persistence.

The analyses were completed the research team at the Center for Education Policy Research at Harvard University in collaboration with staff and SDP Fellows at the Delaware Department of Education, and with generous support from the Rodel Foundation of Delaware and the Longwood Foundation.

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Key Findings

Section I. Overall Secondary and Postsecondary Educational Attainment

- For every 100 first-time ninth graders who enroll in public high schools in Delaware, 75 graduate high school within four years, 37 seamlessly transition to college, and 30 persist to their second year of college.
- Students from low-income families and students with lower levels of middle-school academic achievement are less likely to complete high school and to enroll and persist in college.

Section II. Performance in High School

- More than one in four high school students in the state fall off track to graduate at some point. The majority of these students begin to struggle as early as the ninth grade.
- The share of students off track to graduate by the end of ninth grade has declined steadily—from 19% in 2008 to 12% in 2012.
- Ninth-grade off-track rates and high school graduation rates vary considerably across high schools, even among students with similar incoming academic achievement.

Section III. College Enrollment

- On average, half of all public high school graduates in Delaware enroll in college the fall after high school graduation: 33% enroll at four-year colleges and 18% enroll at two-year colleges. In comparison, 68% of high school graduates nationwide enroll in college seamlessly.
- College enrollment rates differ substantially across high schools, even among schools whose students have similar average incoming achievement.
- Nearly two out of 10 highly qualified graduates do not enroll in college. More than one quarter of highly qualified students from low-income families forgo college.

Section IV. College Persistence

- Persistence rates are higher for students enrolled at four-year colleges: On average, 90% persist to their second fall in college, compared with 59% of students enrolled at two-year colleges.
- Persistence rates are higher for students who enroll in college seamlessly after high school, compared to students who delay enrollment. On average, 79% of seamless enrollers in the state persist to their second year of college while 46% of delayed enrollers do so.
- Students enrolled in college full time are more likely to persist to the second year than their classmates attending college part time. For example, 91% of students at four-year colleges return to the second year of college, compared with 70% of half-time students and 29% of students enrolled at less than half time.

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Analyses: Overall Secondary and Postsecondary Educational Attainment

Section I. Overall Secondary and Postsecondary Educational Attainment

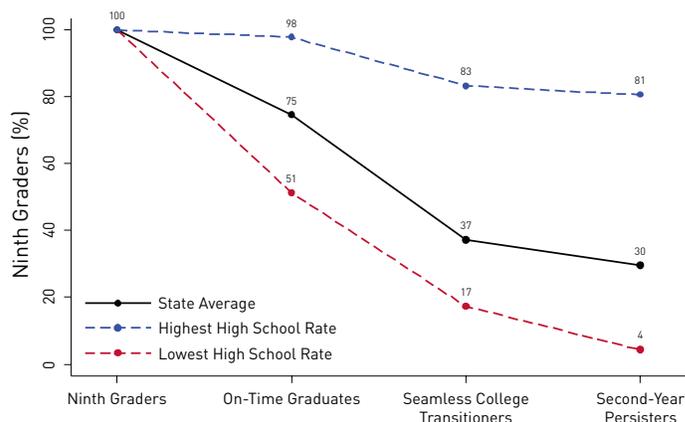
This section provides an overview of student performance in Delaware across the entire college-going pathway—from entering ninth grade through persisting to the second year of college. The analysis tracks the percentage of ninth graders who complete high school on time, seamlessly enroll in college, and persist to the second year of college.

Three out of every 10 ninth graders complete high school on time, seamlessly enroll in college, and persist to their second year of college.

As shown in Figure 1, for every 100 first-time ninth graders who enrolled in a public high school in the state of Delaware in 2006–07, 75 completed high school within four years, 37 seamlessly transitioned to college, and 30 persisted to the second year of their postsecondary studies. In comparison, for every 100 ninth graders nationwide, 78 graduate high school within four years, 53 immediately enroll in college, and 35 persist to their second year.² Students in Delaware are also less likely to enroll and persist in college than their peers in the other four states for which SDP has conducted similar analyses: Across these states, college enrollment rates range from 42% to 56%, and college persistence rates range from 35% to 48% (analyses not shown here).

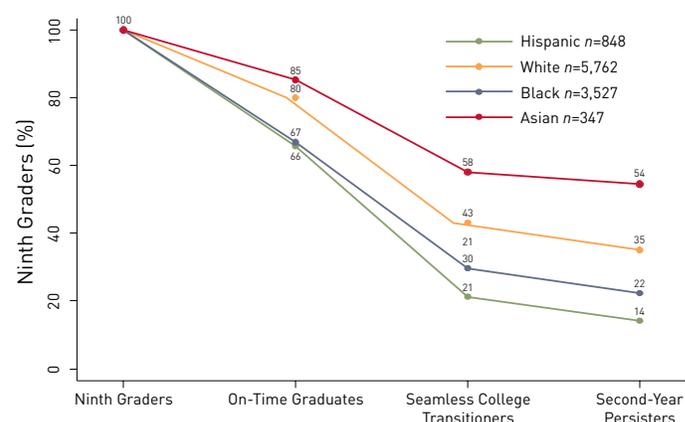
While college enrollment and persistence rates in the First State are lower than both the national average rates and those of other SDP partner states, students in different high schools in Delaware progress along the college-going pathway at vastly different rates. In Figure 1, we also show the highest and the lowest average rates of high school graduation, college enrollment, and college persistence across all public high schools in the state. At the highest performing high school, more than eight out of 10 ninth graders not only enroll in college seamlessly but also persist to the second year of college. In contrast, at the school with the lowest college enrollment and persistence rates, 17% of ninth graders enroll in college seamlessly and only 4% return to college the second year. Several analyses in this report investigate this school-level variation in greater depth and begin to unpack the differences observed across high schools.

Figure 1. Student Progression From Ninth Grade Into College



Note. The sample includes 2006–07 first-time ninth graders.

Figure 2. Student Progression From Ninth Grade Into College by Student Race/Ethnicity



Note. The sample includes 2006–07 first-time ninth graders.

Student success through high school graduation and beyond is influenced by a multitude of factors, including socioeconomic background and academic preparation in middle school. Figures 2 through 4 display student performance along the college-going pathway by a variety of student demographic, socioeconomic, and academic characteristics. Figure 2 examines the success of students of different racial and ethnic backgrounds in navigating major milestones along the college-going trajectory. On average, Asian students in Delaware public schools

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Analyses: Overall Secondary and Postsecondary Educational Attainment

outperform their classmates—85% complete high school on time, 58% enroll in college seamlessly, and just over half persist to the second year of college. In contrast, 66% of Hispanic students graduate from high school within four years, 21% enroll in college, and only 14% persist to the second year of college.

Additional analyses conducted by the Delaware Department of Education (2013) found that Hispanic and Black female students are more likely to graduate from high school than their male peers of the same race. Black female students also enroll and persist in college at higher rates than Black male students, but the female “advantage” disappears in Hispanic students’ college outcomes.

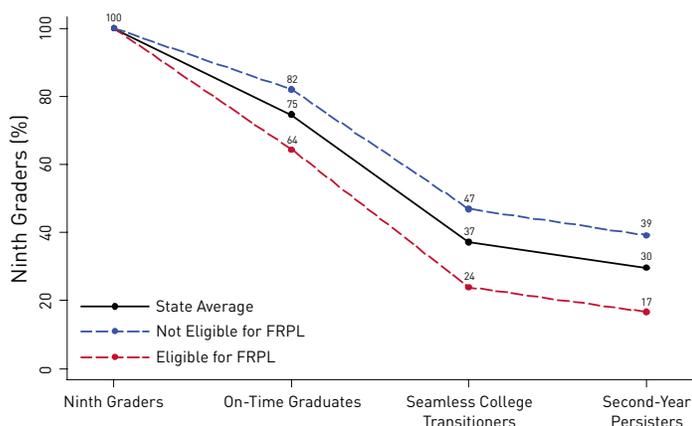
At the same time, students of different races and ethnicities may also differ in other characteristics related to college success, such as family income and academic achievement prior to high school. In fact, additional analyses not shown here find that accounting for factors such as student eligibility for free or reduced price lunch (FRPL) and eighth-grade academic achievement greatly reduces—and in some cases completely eliminates—the racial and ethnic gaps in high school graduation, college enrollment, and college persistence shown in Figure 2 (Delaware Department of Education, 2013). Figures 3 and 4 explore in further detail differences in college-going outcomes between students from different family income backgrounds and prior academic achievement levels.

As Figure 3 shows, economically disadvantaged students—those eligible for FRPL—are considerably less likely to complete high school on time, to enroll in college, and to persist in college than their peers from higher-income families. In fact, students eligible for FRPL enroll and persist in college at less than half the rate of students who do not qualify for the program.

Student academic achievement in elementary and middle school grades is a particularly powerful predictor of high school graduation and college-going success. In Figure 4, we examine differences in the rates of high school graduation, college enrollment, and college persistence for students of different levels of prior academic achievement. Specifically, for this analysis, we grouped students across the state into four quartiles based on their eighth-grade Delaware Student Testing Program (DSTP) math test scores.³ These quartiles serve as our measures of prior academic achievement.

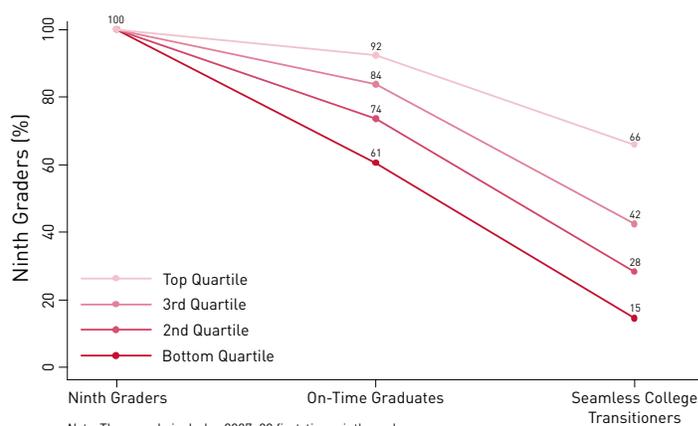
Not surprisingly, students with higher levels of academic preparation upon high school entry are far more likely to graduate on time and enroll in college than their less prepared classmates. Among top-performing ninth graders—those whose eighth-grade test scores place them in the top quartile statewide—more than nine out of 10 graduate from high school in four years, and two thirds enroll in college. Among the least prepared ninth graders, in contrast, 61% complete high school on time and 15% seamlessly enroll in college. (Data availability precludes us from examining differences in college persistence by prior academic achievement.)

Figure 3. Student Progression From Ninth Grade Into College by Eligibility for Free or Reduced-Price Lunch (FRPL)



Note. The sample includes 2006–07 first-time ninth graders.

Figure 4. Student Progression From Ninth Grade Into College by Prior Student Achievement



Note. The sample includes 2007–08 first-time ninth graders.

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Analyses: Performance in High School

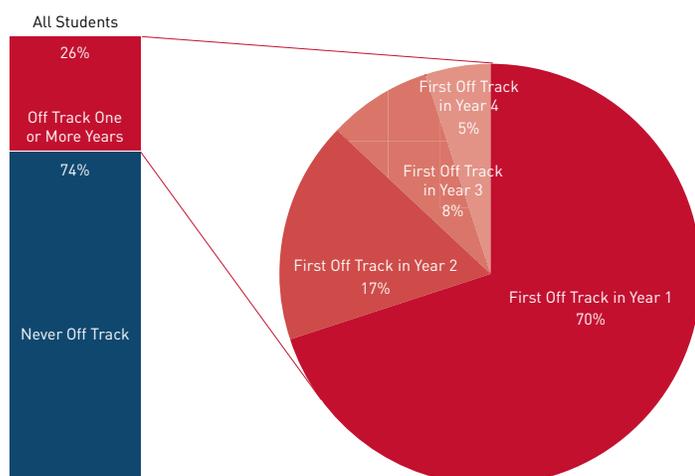
Section II. Performance in High School

Students who fail to graduate from high school do not do so suddenly. Rather, the majority of students who drop out send clear signals years earlier. Ninth grade, in particular, appears to be a crucial year for high school success. Focusing on student performance during ninth grade is important because it enables the early identification of many potential dropouts, leaving sufficient time to plan and implement supports that increase students' likelihood of graduation. This section of the report examines student performance during high school in terms of both credit accumulation and high school graduation rates.

One quarter of the students in the state fall off track to graduate at some point in high school. Among students who ever fall off track, the majority—70%—do so in ninth grade.

Overall, more than one quarter of students in Delaware fail to accumulate sufficient credits at some point during their high school career, falling off track to graduate on time (see Figure 5).⁴ For the majority of students who fall off track, the ninth grade year represents a substantial hurdle. For example, 70% of students who entered high school in 2007–08 and fell off track at some point in the next four years did so in the ninth grade.

Figure 5. When Students First Fall Off Track (Among Students Ever Off Track to Graduate in Years 1–4 of High School)



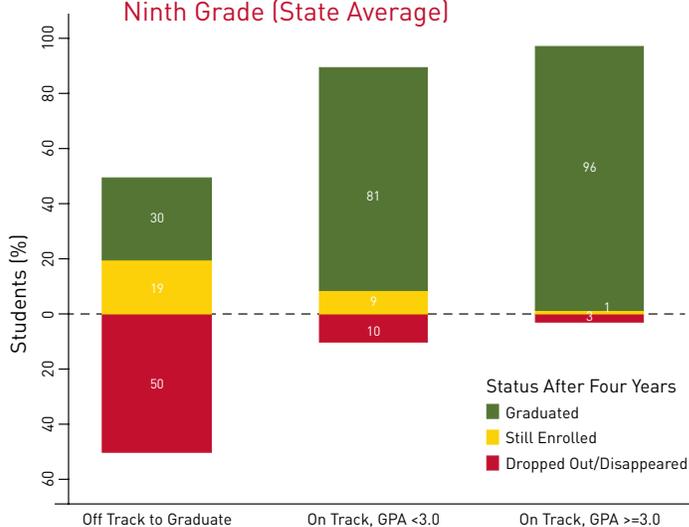
Note. The sample includes 2007–08 first-time ninth graders.

Failing to keep up with course credit accumulation has a lasting influence on students' ability to succeed in high school: Only about one third of students who fall off track at some point during high school are able to recover sufficient credits and graduate within four years (analyses not shown here). In fact, academic performance even as early as the ninth grade can be a powerful predictor of high school completion. Figure 6 compares the high school completion outcomes of students who fell off track to graduate at the end of ninth grade with those of their peers who remained on track.

Ninth-grade on-track status is highly predictive of students' high school completion four years later.

On average, only 30% of students who fall off track in the ninth grade complete high school within four years (left-hand bar in Figure 6). These students are far less likely to graduate on time, compared with students who do not fall off track during their ninth-grade year. For example, nearly all high-performing ninth graders—that is, students who accumulate sufficient credits at the end of ninth grade and earn a GPA of at least 3.0—complete high school in four years (right-hand bar). In addition, eight out of 10 on-track students who receive lower grades complete high school on time, and only one in 10 drops out (middle bar, Figure 6).

Figure 6. High School Completion Status After Four Years in High School by On-Track Status at the End of Ninth Grade (State Average)



Note. The sample includes 2007–08 first-time ninth graders.

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Analyses: Performance in High School

The state's share of students off track to graduate at the end of ninth grade has declined steadily, but off-track shares vary considerably across high schools.

Figure 7 shows the shares of first-time ninth graders from five consecutive cohorts who struggled with credit accumulation during their first year of high school. Over these five cohorts—all of which left middle school with very similar levels of academic achievement—the First State experienced a steady decline in the shares of off-track ninth graders. In 2007–08, nearly one out of five freshmen failed to earn sufficient course credits in ninth grade. By 2011–12, the share of off-track ninth graders had declined to 12%.

The analysis in Figure 8 focuses on first-time ninth graders in 2007–08 and examines their off-track status across high schools in the state. (Charter high schools are excluded due to incomplete course information available from the statewide student information system.) The shares of students who struggle with credit accumulation in the ninth grade vary substantially across high schools. For example, nearly one third of ninth graders at McKean, Seaford, Penn, and Dickinson—and almost four in 10 at Dover—fall off track during their first year of high school. In contrast, 2% of high school freshmen at Hodgson VoTech and Polytech fail to accumulate sufficient credits in ninth grade. Furthermore, the statewide improvement trend highlighted in Figure 7 is apparent in all but a handful of high schools: Between 2008 and 2011, 27 of the 32 schools included in this analysis saw declines in their shares of ninth graders who are off track to graduate after their first year of high school (not shown).

As we noted earlier, student success in high school is influenced by a multitude of factors, including academic preparation in elementary and middle school, and high schools often serve student populations of very different incoming achievement levels. At the same time, high schools themselves can make an important difference. The analyses shown in Figures 9 and 10 explore in more detail the relationship between incoming academic achievement and student performance at individual high schools. As in Figure 4, for these figures, we divided students into four quartiles statewide based on their eighth-grade math test scores.

Figure 7. Shares of Students Off Track at the End of Ninth Grade by Ninth-Grade Cohort (State Average)

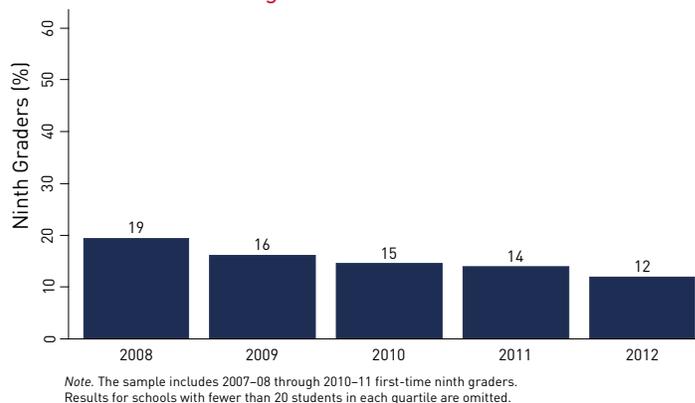
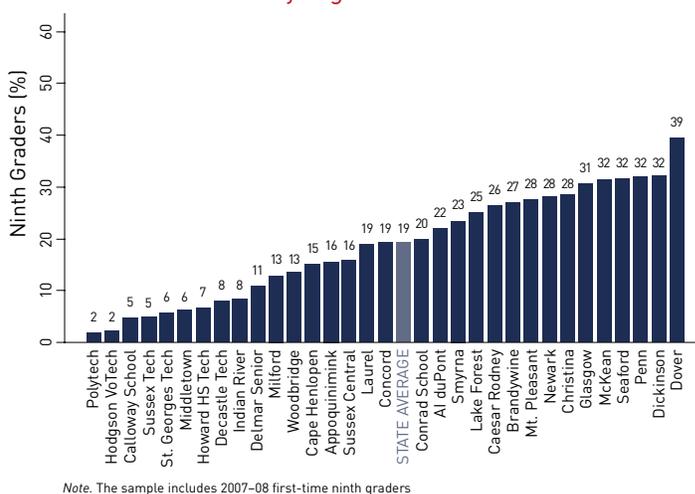


Figure 8. Shares of Students Off Track at the End of Ninth Grade by High School in 2008



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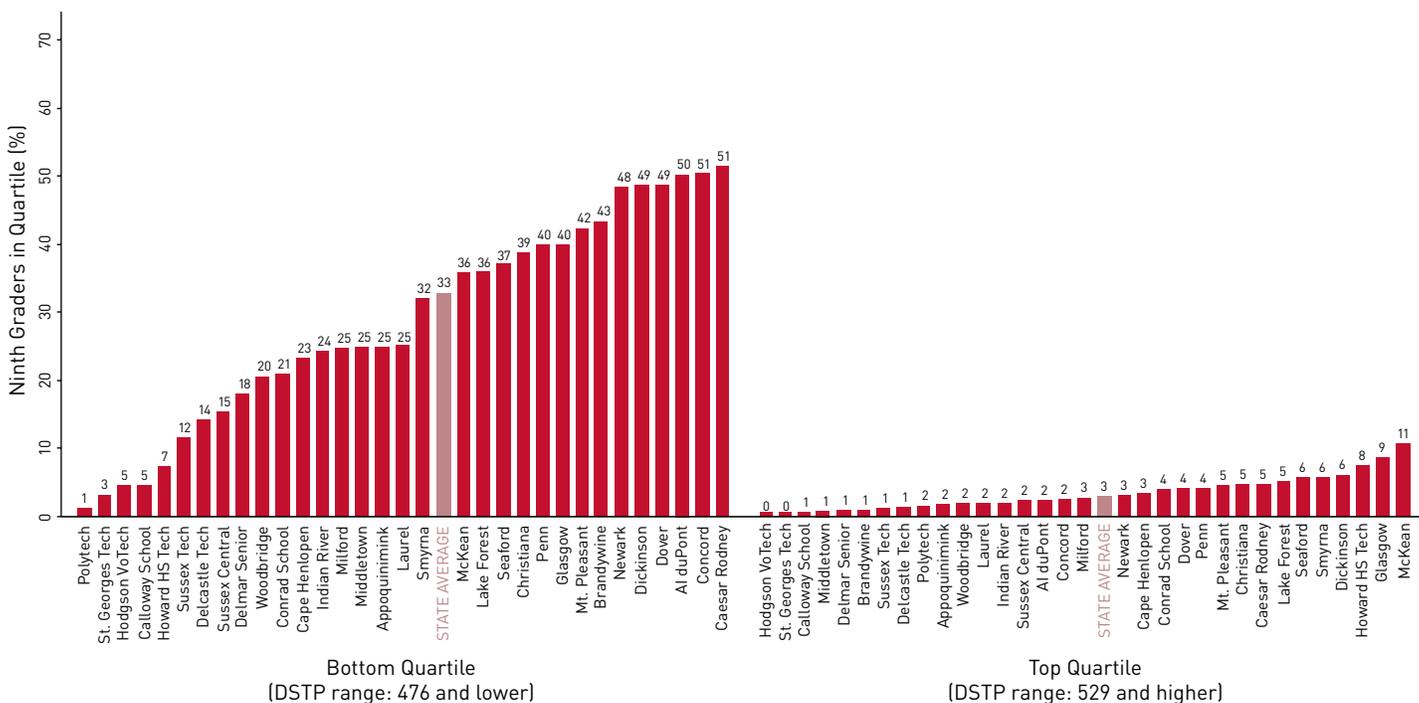
Analyses: Performance in High School

Large differences in off-track rates and high school graduation rates exist across high schools, even among students with similar incoming achievement levels.

Figure 9 compares the shares of off-track ninth graders by high school for two groups of students with very different prior achievement levels—students scoring in the lowest quartile and students scoring in the highest quartile in eighth-grade math across the state. Not surprisingly, off-track rates are higher for students with low prior achievement: On average, one third of these students fall off track in the ninth grade, compared with only 3% of their classmates with the highest levels of middle school achievement. However, within each quartile (that is, among students with similar incoming

achievement), off-track rates vary across high schools—particularly among students with the lowest achievement upon high school entry. At several high schools, half or more of first-time ninth graders with bottom-quartile eighth-grade math scores fall off track during the first year of high school. In contrast, at other schools, particularly at the vocational-technical high schools, fewer than one in 10 ninth graders with very low prior achievement levels struggle with credit accumulation.

Figure 9. Shares of Students Off Track at the End of Ninth Grade by Prior Academic Achievement and by High School

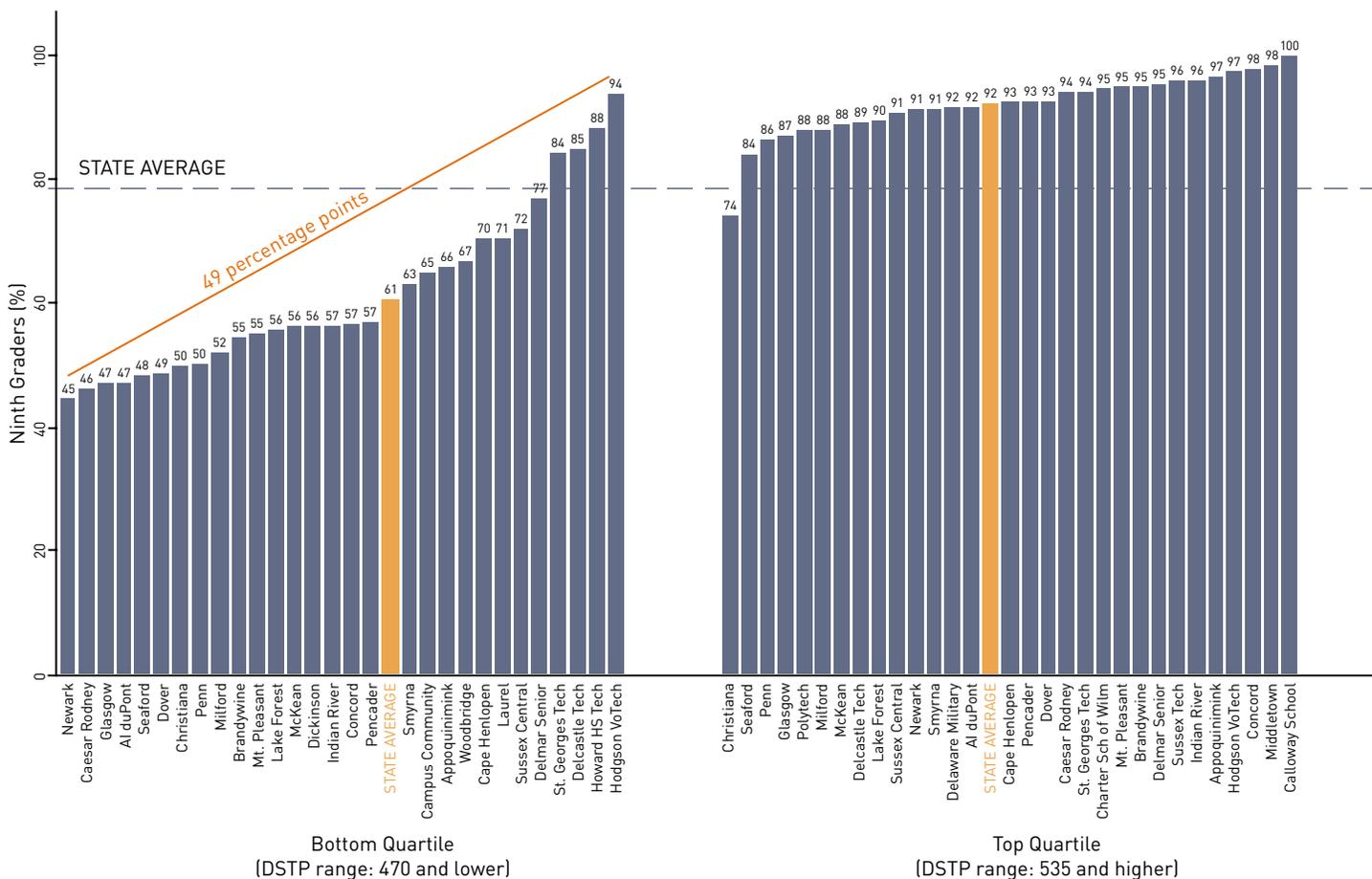


Note. The sample includes 2007–08 through 2010–11 first-time ninth graders with eighth-grade DSTP math test scores.

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Analyses: Performance in High School

Figure 10. High School Graduation Rates by Quartile of Prior Academic Achievement and by High School



Note. The sample includes 2007–08 through 2010–11 first-time ninth graders with eighth-grade DSTP math test scores. Results for schools with fewer than 20 students in each quartile are omitted.

Figure 10 examines four-year high school graduation rates for students with top- and bottom-quartile eighth-grade achievement. Not surprisingly, on average, Delaware students with higher incoming eighth-grade math scores are far more likely to graduate from high school in four years than their lowest-performing peers. However, similar to the rates at which students fall off track at the end of ninth grade, high school graduation rates vary substantially across high schools when we examine students with similar prior academic achievement.

As with off-track rates, this variability is especially pronounced among students with eighth-grade test scores in the lowest quartile (left-hand group of bars). At a number

of high schools, including all vocational-technical schools, more than eight out of 10 students with very low prior achievement complete high school in four years, compared with fewer than half at several other high schools. In fact, low-performing students at the school with the highest graduation rate (Hodgson VoTech) are more than twice as likely to complete high school on time as similarly prepared students at the school with the lowest graduation rate (Newark)—the difference in the graduation rates between these two schools is 49 percentage points. Among students with top-quartile prior academic achievement (right-hand group of bars), there is much less cross-high school variability in on-time high school completion.

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Analyses: Performance in High School

Questions to Consider

- What do the state and its districts and schools know about students who are likely to fall off track for high graduation? How successful are they in identifying such students early on?
- What strategies are currently in place to help off-track students recover credits and graduate from high school? What evidence exists about the effectiveness of these strategies?
- What additional programs or practices can districts, schools, and the state pursue to identify and support struggling students in the ninth grade and throughout high school?
- How can the state differentiate support to districts and schools to increase high school graduation rates? For example, how can the state support schools in which a high percentage of students performed in the bottom quartile in eighth grade?
- Given the variation in performance across high schools, what promising practices are currently utilized in schools with high on-track rates and graduation rates across all levels of academic achievement?

Vocational-Technical (VoTech) High Schools

There are four vocational-technical (VoTech) high schools in Delaware—Howard High School of Technology, Delcastle Technical High School, Hodgson VoTech High School, and St. Georges Technical High School. These schools offer an integrated vocational and academic curriculum that aims to prepare students for both employment and higher education. Students wishing to attend a VoTech high school need to submit an application in eighth grade. Accepted students choose to study a career path within six broad clusters, such as health services, construction technologies, or transportation (see <http://www.nccvotech.com>).

Analyses in this report show that the four VoTech schools outperform most other high schools in the state in terms of several indicators. Fewer than one in 10 VoTech students fall off track to graduate in the ninth grade, compared to 19% statewide (see Figure 8). Off-track rates are very low even among students with low prior achievement (see Figure 9), despite the fact that

the majority of students in each VoTech school have eighth-grade scores that placed them in the bottom half of all students in the state. VoTech students also graduate from high school at rates higher than the state average, both across all students and among students with very low prior achievement (see Figure 10).

At the same time, VoTech graduates are less likely to enroll in college than their peers at most other high schools (see Figures 11–13). While VoTech schools aim to prepare students to succeed in both college and careers, their relatively low college enrollment rates may reflect the particularly strong appeal of their vocational preparation programs. Instead of pursuing higher education, VoTech graduates may be opting for employment at greater rates than graduates from other high schools. Unfortunately, due to the limited availability of employment data, we are unable to examine students' outcomes in the workplace, such as employment, occupational choices, or wages.

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Analyses: College Enrollment

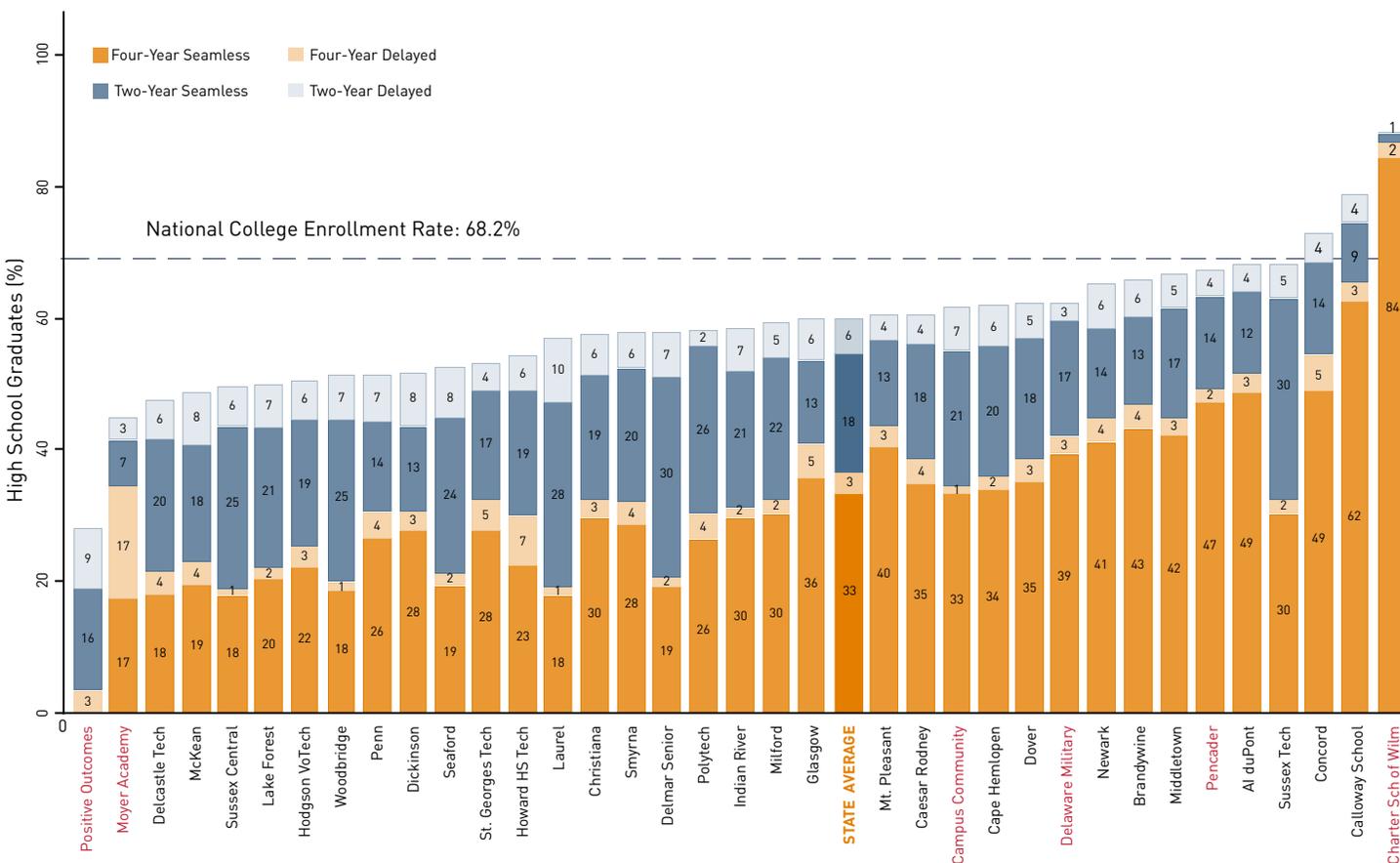
Section III. College Enrollment

Given the substantial economic and social benefits of a college degree, understanding high schools' role in preparing students to enroll in and persist through college is essential. This section provides key findings that highlight students' college-going outcomes across high schools in Delaware.

As Figure 11 shows, half of all public high school graduates in Delaware enroll in college seamlessly in the fall following high school graduation: 33% enroll at four-year colleges, and 18% enroll at two-year colleges. In comparison, 68% of high school graduates nationwide enroll in college seamlessly: 42% at four-year colleges and 26% at two-year colleges (U.S. Department of Education, 2012b).⁵ Furthermore, another 9% of Delaware high school graduates delay enrollment, pursuing college at some point within two years of high school graduation. (Charter schools are shown in red in all figures that display analyses by high school.)

College enrollment in the state is lower than the national average but differs widely across high schools.

Figure 11. College Enrollment Rates by High School (Seamless and Delayed Enrollers)



Note. The sample includes 2007-08 through 2010-11 high school graduates.

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Analyses: College Enrollment

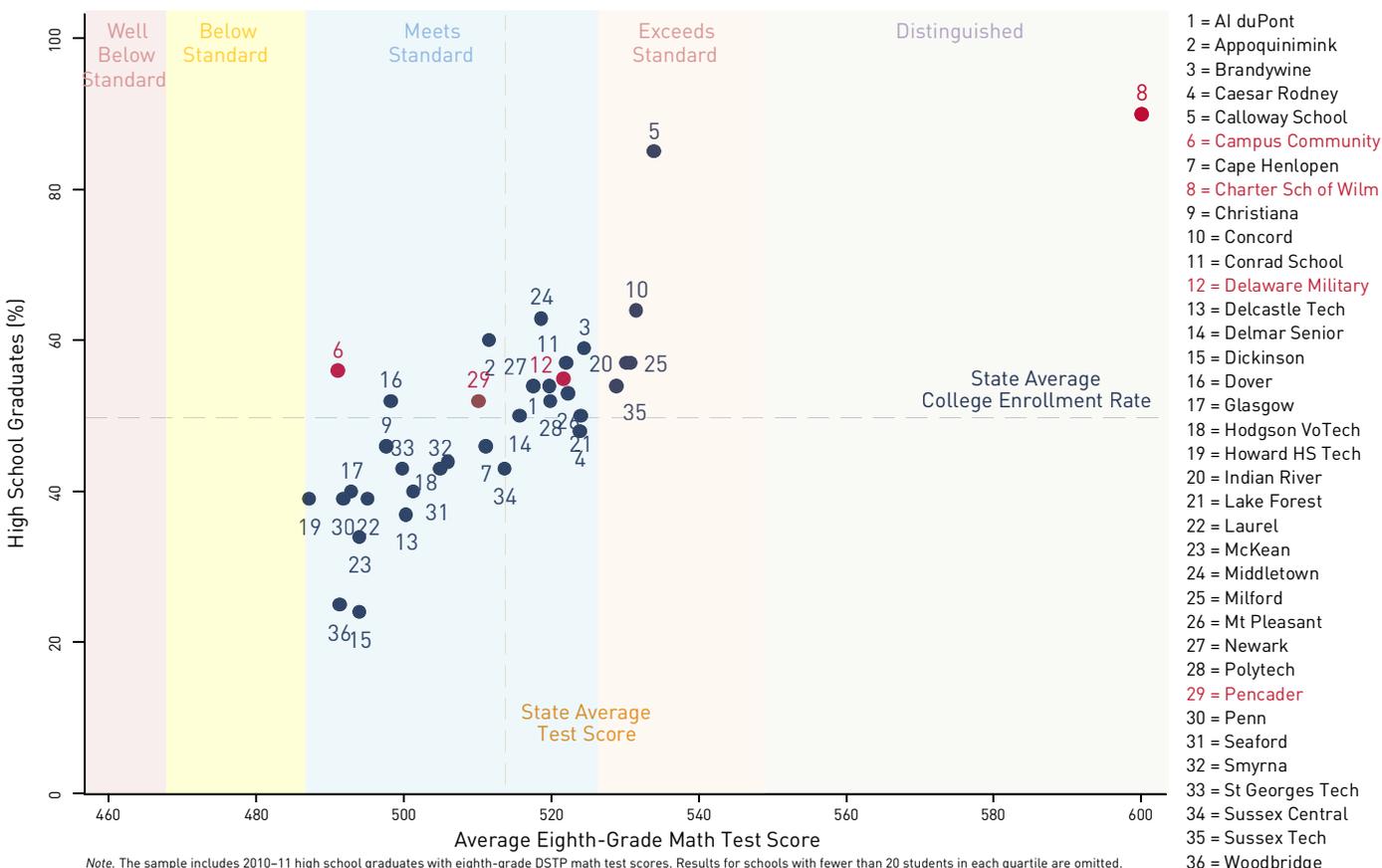
College enrollment rates vary considerably across high schools in the state. At the Charter School of Wilmington, for example, 87% of graduates enroll in college within two years of high school graduation; 84% do so seamlessly at four-year colleges. At the same time, fewer than three out of 10 graduates from Positive Outcomes—a charter school serving students who have experienced academic difficulty in traditional public school setting—enroll in college within two years of graduating high school, and only 16% do so seamlessly.

On average, high schools with higher average eighth-grade test scores also have higher college enrollment rates. Nonetheless, some schools send to college a higher share of their graduates than others, despite similar average incoming achievement.

As with high school graduation rates, college enrollment outcomes are related to the academic preparation students acquire even prior to entering high school. As Figure 12 shows, high schools with higher average incoming prior achievement, as measured by average eighth-grade DSTP math test scores, have higher college enrollment rates, on average.

However, differences in average prior student achievement do not explain all of the variation in college enrollment rates across high schools. Many high schools with similar average incoming eighth-grade math scores have different college enrollment rates. For instance, high school graduates from Dover (16) and Dickinson (15) entered ninth grade with similar average eighth-grade math scores. Students from Dover, however, are more than twice as likely to enroll in college seamlessly upon high school graduation. Likewise, several high schools send their graduates to college at vastly higher rates than their students' incoming test scores would suggest. For instance, Dover (16) graduates enter high school with average test scores lower than their peers at Milford (25). Nevertheless, the two schools' college

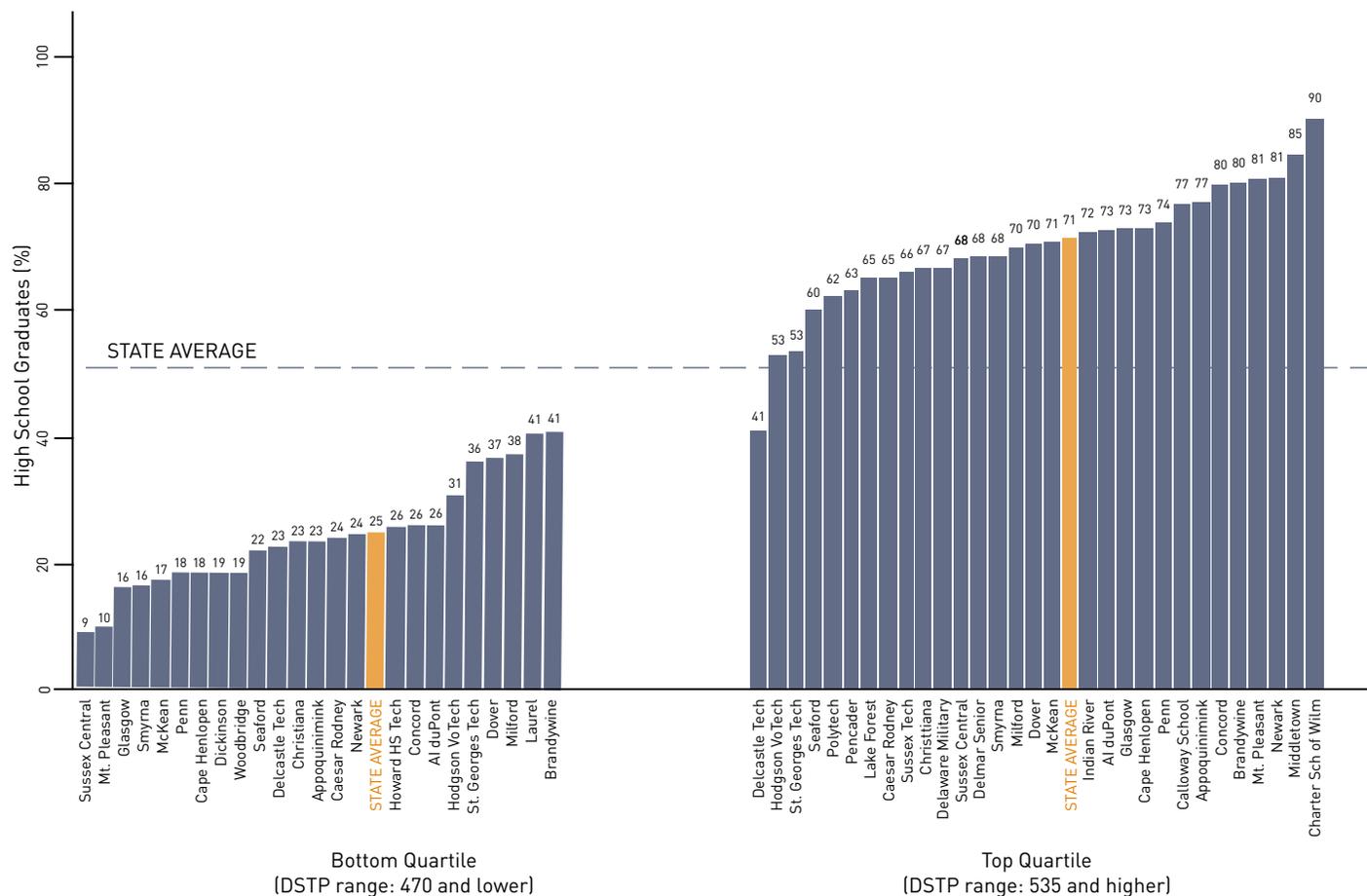
Figure 12. Seamless College Enrollment Rates by Average Prior Academic Achievement by High School



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Analyses: College Enrollment

Figure 13. Seamless College Enrollment Rates by Quartile of Prior Academic Achievement by High School



Note. The sample includes 2010–11 high school graduates with eighth-grade DSTP math test scores. Results for schools with fewer than 20 students in each quartile are omitted.

enrollment rates are very close, suggesting the possibility that individual schools may be influencing, at least in part, their students' likelihood to enroll in college.

In Figure 13, we present seamless college enrollment rates, by high school, for students with the highest and the lowest quartiles of eighth-grade DSTP math test scores. As expected, seamless college enrollment rates are higher for students with stronger incoming academic achievement. On average, 71% of students with eighth-grade math test scores in the top quartile enroll in college the first fall after high school graduation, compared with only one quarter of students with bottom-quartile eighth-grade test scores.

However, college enrollment rates differ widely across high schools, even when we compare students with similar

eighth-grade achievement. Among students with eighth-grade performance in the top quartile, college enrollment rates for individual high schools range from 41% at Delcastle Tech to 90% at the Charter School of Wilmington. Among students with bottom-quartile eighth-grade performance, the range in college enrollment rates is similar, albeit at considerably lower levels. Not more than one in 10 students with bottom-quartile eighth-grade test scores at Sussex Central and Mt. Pleasant enrolled in college seamlessly, compared with four out of 10 similarly low-performing students at Brandywine and Laurel. In fact, both among low-performing and high-performing students, graduates from Brandywine were more likely to enroll in college than their peers with similar prior achievement who attended most other high schools.

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Analyses: College Enrollment

Nearly two out of 10 graduates with combined SAT scores of 1550 or higher do not enroll in college. Among highly qualified low-income students, more than one quarter forgo college.

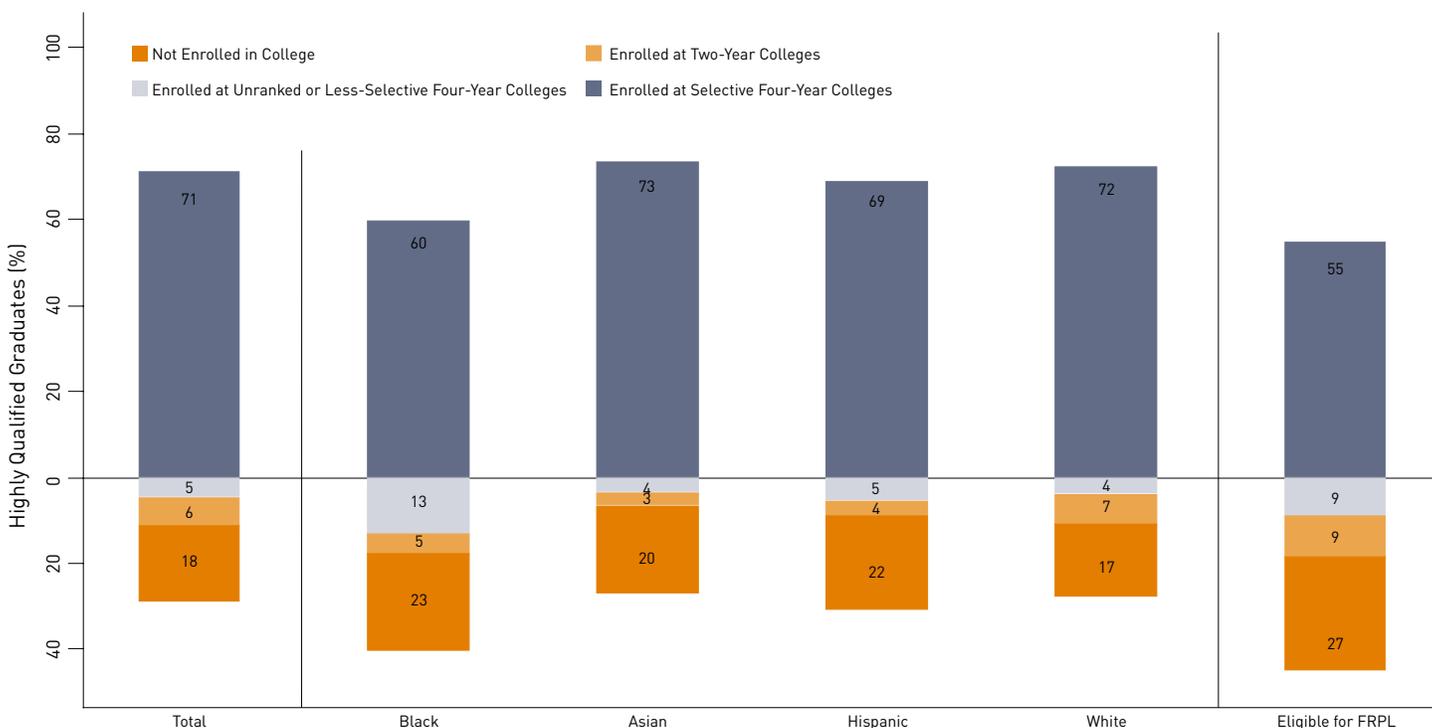
Recent research suggests that students are more likely to complete a postsecondary degree if they attend a college with a level of selectivity well matched to their own academic skill (Light & Strayer, 2000). Choosing colleges that provide the appropriate academic fit appears to be an important factor in improving students' college success. In the analysis shown in Figure 14, we therefore examine the extent to which highly qualified high school graduates from Delaware enroll in colleges and universities that provide the right academic match for their level of academic preparation.

For this analysis, we utilize Barron's college selectivity rankings as an index of postsecondary academic rigor.⁶ We consider students to be highly qualified if they have received

combined mathematics, critical reading, and writing SAT scores equal to or higher than 1550 and are therefore arguably well prepared to succeed at a four-year college. A combined SAT test score of 1550 is also consistent with Delaware's own definition of college readiness. In addition, research by the College Board has shown that achieving a combined score of 1550 on the SAT provides students with a 65% likelihood that they will earn a 2.7 first-year cumulative GPA—the equivalent to a B– average. In turn, according to the same report, a first-year GPA average of a B– or higher is highly predictive of college success and completion (Wyatt et al., 2011).

As Figure 14 shows, seven out of 10 highly qualified high school graduates from Delaware pursue enrollment at selective four-year colleges that match their academic potential. At the same time, a considerable share of high-performing graduates appear to make postsecondary educational choices that “undermatch” their high academic achievement: About one in 10 enrolls at either a less-selective four-year college or at a two-year college, and 18% do not enroll in college at all. Undermatch in college choices is particularly prevalent among highly qualified students from low-income families. For example, 27% of highly qualified students who are eligible for FRPL do not enroll in college; just over half pursue selective four-year colleges.

Figure 14. College Choices of Highly Qualified High School Graduates by Race and FRPL Status

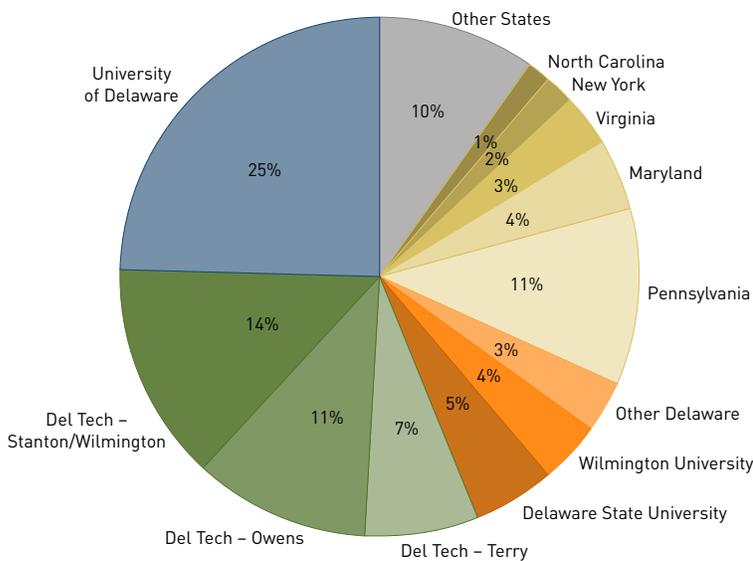


Note. The sample includes 2007–08 through 2010–11 high school graduates with combined SAT scores equal to or higher than 1550.

SDP COLLEGE-GOING DIAGNOSTIC

Analyses: College Enrollment

Figure 15. Top-Enrolling Colleges and Universities of Seamless-Enrolling College-Bound Graduates from Delaware Public High Schools



Note. The sample includes 2007-08 through 2009-10 high school graduates.

In conclusion of this section, Figure 15 shows the distribution of college-goers from the state of Delaware by postsecondary institution. The top-enrolling four-year colleges for college-bound high school graduates in the state are the University of Delaware (25%), Delaware State University (5%), and Wilmington University (4%). The three campuses of the Delaware Technical Community College system collectively enroll one third of seamless enrollers in the state. Three out of every 10 seamless enrollers pursue college out of state.

Questions to Consider

- What do the state and its districts and schools know about students who are likely to fall off track for high graduation? How successful are they in identifying such students early on?
- What strategies are currently in place to help off-track students recover credits and graduate from high school? What evidence exists about the effectiveness of these strategies?
- What additional programs or practices can districts, schools, and the state pursue to identify and support struggling students in the ninth grade and throughout high school?
- How can the state differentiate support to districts and schools to increase high school graduation rates? For example, how can the state support schools in which a high percentage of students performed in the bottom quartile in eighth grade?
- Given the variation in performance across high schools, what promising practices are currently utilized in schools with high on-track rates and graduation rates across all levels of academic achievement?

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Analyses: College Persistence

Section IV. College Persistence

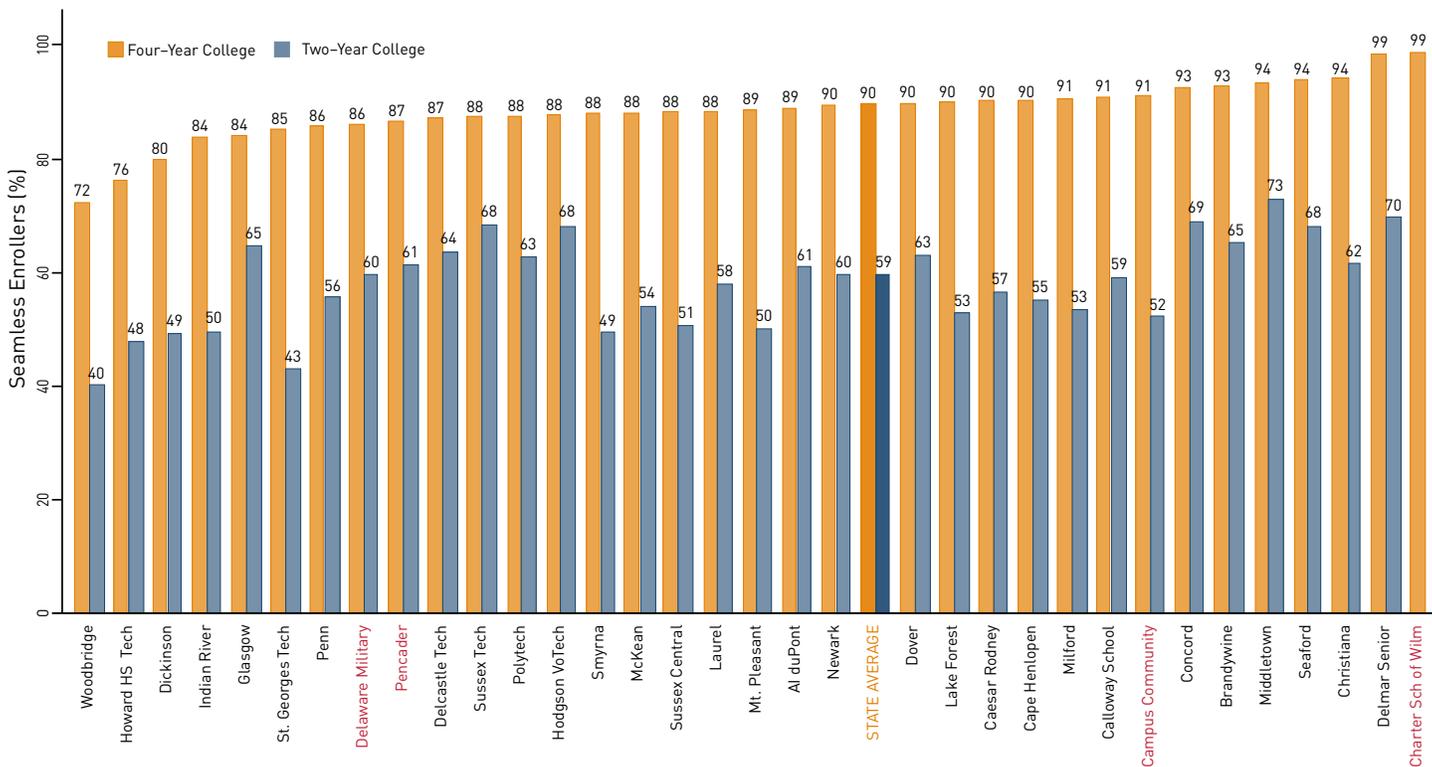
For many high school graduates, college enrollment is just the first of many hurdles on the road to postsecondary success. The final section of the report focuses on the extent to which Delaware students are experiencing successful college careers beyond their initial enrollment at a postsecondary institution. The main indicator of college success used in these analyses is college persistence—that is, the rate at which high school graduates enrolled in college after high school graduation continue to attend college for a second consecutive year. Patterns of persistence to the second year of college may provide valuable and early indicators of student progress towards college degree attainment.

Across the state, college persistence rates for students who seamlessly enrolled at four-year colleges are higher than for their peers who enrolled at two-year colleges. On average,

Persistence rates are higher for students enrolled at four-year colleges.

90% of students enrolled at four-year colleges persist to their second fall in college, compared with 59% of those at two-year colleges—a 31-percentage-point difference. However, students who enroll in two-year colleges tend to have different characteristics that are also related to college persistence—for example, they are more likely to be eligible for FRPL and less likely to have done well academically in middle school and high school than students pursuing four-year colleges. Analyses that account for differences in student socioeconomic background and academic achievement yield a diminished, albeit still considerable persistence gap of 26 percentage points between four-year and two-year-college-goers (not shown).

Figure 16. College Persistence by Type of College by High School (Seamless Enrollers Only)



Note. The sample includes 2007–08 through 2009–10 high school graduates.

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Analyses: College Persistence

While high school graduation and college enrollment rates vary substantially across high schools, gaps in college persistence rates are relatively small, particularly among students enrolled at four-year colleges. In all but two high schools in the state, at least eight out of 10 seamless enrollers at four-year colleges persist to their second year of college. Across-school differences in persistence among two-year-college-goers are more pronounced, ranging from 40% at Woodbridge to 73% at Middletown.

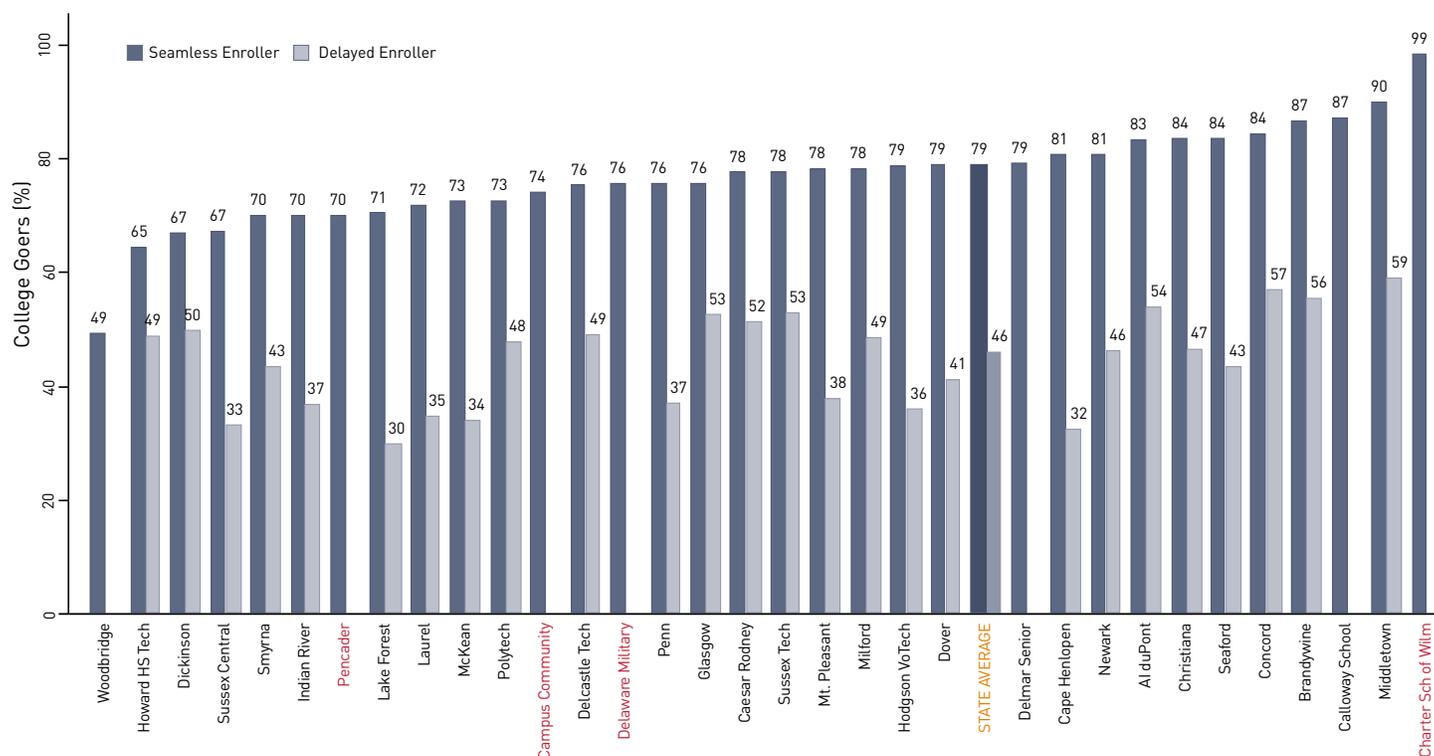
college seamlessly: More than half of delayed enrollers opt for two-year colleges, compared with just over one third of seamless college-goers (not shown). Overall, 79% of seamless enrollers in the state persist to their second year of college; in contrast, only 46% of delayed enrollers return for a second year of college—a difference of 33 percentage points. Accounting for student socioeconomic status and 10th-grade achievement reduces this persistence gap to 25 percentage points (not shown).

Persistence rates are higher among seamless college enrollers than among students who delay enrollment.

Across all high schools, persistence rates among seamless enrollers are considerably higher than among their classmates who delay enrollment by up to two years. Delayed enrollers are also considerably more likely to enroll at two-year colleges than their peers who go to

Disaggregating second-year persistence by the type of college in which students enroll during their second year reveals that the vast majority of students persist at the same type of postsecondary institution (two-year or four-year) as the one in which they initially enrolled (analyses not shown). Transfer rates across college types—from a two-year college to a four-year college and vice versa—are generally low. For example, among seamless enrollers at four-year colleges, 85% return to a four-year college the second fall, and 80% return to the same institution. Only 5% switch to a two-year college between their first and second year in college. Among students initially enrolled at two-year colleges, 56% persist to a two-year college, and 4% transfer to a four-year college the second fall.

Figure 17. College Persistence by Timing of College Enrollment by High School



Note. The sample includes 2007–08 through 2008–09 high school graduates.

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Analyses: College Persistence

Figure 18 explores differences in students' likelihood to persist by their enrollment status during the first year in college. We examine three groups of seamless enrollers: students attending college full time, students attending half time, and students attending less than half time. Overall, the more college courses students take during their first year—that is, the “fuller” their enrollment status—the more likely they are to persist to their second year of college, regardless of whether they attend two-year or four-year colleges. Nine out of ten full-time college students at four-year colleges persist to the second year of college, compared with seven out of 10 half-time students and fewer than three in 10 students enrolled less than half time. Among two-year-college-goers, two thirds of full-time students persist to the second year, compared with 46% of half-time students and 26% of less-than-half-time students.

In addition, among students with the same college enrollment status, those enrolled at four-year colleges have higher persistence rates—particularly among students enrolled full time or half time. For example, 91% of full-time students at four-year colleges return to college the second fall, compared with 65% of full-time students at two-year colleges. For half-time students, the difference in persistence rates by college type is of similar magnitude.

As we showed in Figure 15 earlier, two thirds of college-bound students from Delaware enroll at one of six postsecondary institutions in the state. In Figure 19, we examine persistence rates for students seamlessly enrolled at each of these top-enrolling postsecondary institutions. Consistent with earlier findings, students enrolled at the three top-enrolling four-year institutions are more likely to persist to their second year of college compared with their peers at the Delaware Technical Community College campuses. Nine out of 10 students enrolled at the University of Delaware, the most popular postsecondary choice, persist to a second year at a four-year college; 3% transfer to a two-year college. Persistence rates for students initially enrolled at one of the three campuses of Delaware Technical Community College are lower and very similar to one another. On average, just over half of their students return to a two-year college the second fall after high school graduation, and 2% to 5% transfer to a four-year college.

Figure 18. College Persistence to Second Year by Type of College of Initial Enrollment and by Student Enrollment Status in College

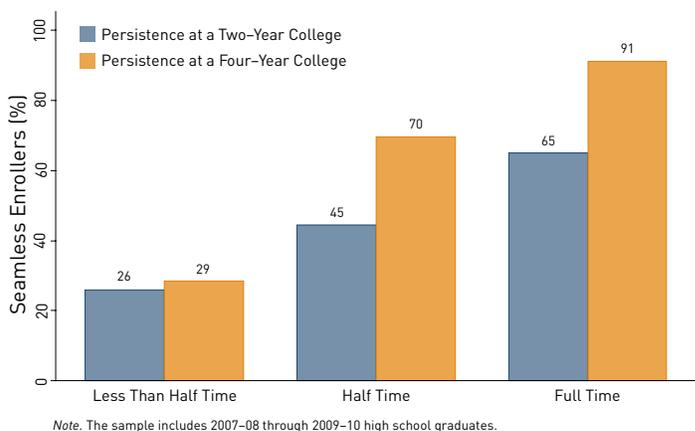
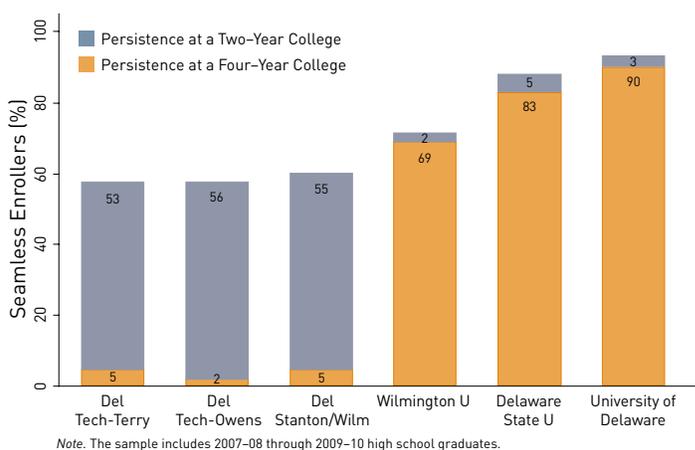


Figure 19. College Persistence by College of Initial Enrollment and by Type of College of Second-Year Enrollment



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Analyses: College Persistence

Questions to Consider

- Given the differences in persistence rates by type of college (two-year and four-year), what college counseling do students currently receive about the types of postsecondary institutions that maximize their chances of postsecondary success?
- Given the greater persistence among seamless full-time college-goers, how could college counseling services to seniors reinforce the importance of seamless full-time college enrollment?
- Can the state track high school graduates through college to identify postsecondary institutions where they are most likely to flourish?
- How could the state incorporate such information into college-guidance services to encourage students to enroll in well-matched colleges where they are most likely to persist?

Conclusion

The SDP College-Going Diagnostic, summarized in this report, yields new and valuable insights about the performance of Delaware students in high school and beyond. Overall, 75% of students in Delaware graduate from high school on time, 37% enroll in college in the fall, and 30% persist to their second year in college. The diagnostic also reveals substantial differences in student performance across high schools in Delaware. Certain schools vastly outperform both the state and the nation in terms of high school graduation and college enrollment, while other trail far behind.

Most students in Delaware who drop out of high school send signals of academic disengagement years earlier. For example, more than one quarter of Delaware high school students failed to accumulate sufficient credits at some point during high school, thereby falling off track to graduate on time with their classmates. The majority of these off-track students began to struggle as early as ninth grade. This finding is consistent with similar analyses in other SDP partner agencies and highlights the crucial importance of the ninth grade as a “make-it or break-it” year for high school success. Fortunately, off-track rates for ninth graders in the state have been on the decline: In 2007–08, 19% of freshmen were off track; by 2011–12, the off-track rate had declined to 12%. Recognizing the importance of tracking and supporting student performance in the ninth grade, policymakers in the state have implemented a number of initiatives over the past few years. For example, using Race to the Top funds, several school districts have initiated ninth grade academies, summer preview programs, and

other programs to support students during the challenging transition from middle school into high school.

The report also finds that about half of all high school graduates in Delaware enroll in college, though as with on-track status and high school graduation, college enrollment rates vary widely across high schools. Even among well-prepared, highly qualified graduates, many struggle to navigate the transition into postsecondary education—especially if they are from disadvantaged backgrounds. More than one quarter of high-achieving low-income graduates fail to enroll in any postsecondary institution.

In light of these findings, state education officials have planned a number of initiatives to improve both college readiness and college enrollment among students in Delaware. For example, the Delaware Department of Education has partnered with the Center for Education Policy Research at Harvard University and the College Board to implement the Summer Nudge initiative. Through this initiative, the state has been actively contacting college-ready high school graduates who have not yet applied in order to provide them with support and encouragement in the college-going process. The state also expanded College Application Week—a program piloted last year—to a College Application Month and made it available in more high schools across Delaware. Finally, the state has partnered with U.S. Department of Education and the state Office of Volunteerism to expand FAFSA nights, assisting students and their families in learning about college financing options and completing federal financial aid paperwork.

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Appendices

Appendix 1: Data Sources

Which students are included in these analyses?

For most analyses, we combine student-level data from several consecutive cohorts of either first-time ninth graders or graduates from public high schools. This ensures that we have sufficient numbers of students at each school and reduces short-term random variation in outcomes. While this is appropriate for understanding recent high school graduation and college-going outcomes of students in the state as a whole, major changes that occurred in any individual school over any given year examined may be muted in the reported outcomes.

We use primarily the ninth-grade cohorts of 2006–07 and 2007–08 to analyze variation in high school on-track status and graduation outcomes and the high school graduate cohorts from 2007–08 through 2010–11 to examine college-going outcomes. Due to data availability and quality, however, some of the analyses presented in this brief may include a subset of these cohorts. We exclude from high school graduation analyses students who transferred out of the Delaware public school system between ninth and 12th grade but do include students who were enrolled in ninth grade elsewhere but transferred into the state in a later grade. We exclude from most on-track status analyses students who transferred out of the state between ninth and 12th grade and students who were not observed as enrolled in high school sequentially from one year to the next.

Alternative schools and schools that provide special services are excluded from all analyses. Due to incomplete student course-taking data for charter schools, students who attend such schools are excluded from the on-track analyses in Section II. Students at charter schools are included in all other analyses.

Which tests are used to identify prior student achievement?

For analyses that display information on prior academic achievement (for example, Figure 4 in Section I), we use students' eighth-grade test scores on the mathematics portion of the Delaware Student Testing Program (DSTP). Using eighth-grade student scores from the ELA portion of the same test yields very similar results. In 2010–11, the state replaced the DSTP with the Delaware Comprehensive Assessment System (DCAS). However, this change is too recent to be reflected in the analyses shown in this brief.

Appendix 2: Definitions

On-Track-to-Graduation Status

We determine students' on- and off-track status in the first four years of their high school careers based on the total number of credits attained during each school year. Using high school graduation requirements of the state of Delaware as guidelines, we consider a student to be on track during each year of high school if he or she accumulates as many or more total credits as presented in Table 1.

Table 1: Credits Required for a Student to be Considered On Track

Year in High School	Total Credits
First year	5
Second year	10
Third year	16
Fourth year (graduation)	22

High School Completion Rate

To calculate high school completion rates, we use a cohort-based formula similar to the "compact rate" used by the National Governors Association and required for graduation-rate accountability by the No Child Left Behind Act.⁷ The SDP formula divides the number of high school completers (students earning standard diplomas) by the number of first-time ninth graders four years earlier. To identify the number of first-time ninth graders four years earlier, we add together two groups of students: 1) students enrolled in ninth grade in a public high school in the state and 2) students enrolled in ninth grade elsewhere who transferred into the Delaware public school system at some point during high school. We exclude from the calculation students who transferred out of the state between ninth and 12th grade.

College Enrollment Rate

We report on two college enrollment outcomes for students who earn high school diplomas: 1) enrollment in college the fall following high school graduation (seamless enrollers) and 2) enrollment at any point within two years of graduating high school (delayed enrollers). To calculate seamless enrollment, we determine whether a student is enrolled in college as of October 1 of his or her high school graduation year. To calculate enrollment within two years, we use a cut-off date of two calendar years from the date of graduation.

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Appendices

College Persistence Rate

We examine persistence rates in college for high school graduates who enroll in college. To calculate persistence rates, we determine whether a student remains enrolled in any college on October 1 one year following his or her initial enrollment date.⁸ Research suggests that students who seamlessly transition from high school to college are more likely to complete a degree than delayed college-goers (Adelman, 2006; Bozick & DeLuca, 2005; Horn, Cataldi, & Sikora, 2005). Thus, in some analyses we calculate rates separately for seamless college enrollers and delayed college enrollers.

Endnotes

- 1 The national coverage rate is reported by the National Student Clearinghouse (2013). We calculate the state rates by comparing postsecondary institutions in the National Student Clearinghouse with the universe of postsecondary institutions in Delaware and its neighboring states (Maryland, New Jersey, Pennsylvania) as reported in the Integrated Postsecondary Education Data System (U.S. Department of Education, 2013).
- 2 The national high school graduation rate estimate is for 2009–10 and is reported by the U.S. Department of Education’s National Center for Education Statistics (NCES). The national average college enrollment and college persistence rates of ninth graders are calculated by the authors based on college enrollment (for 2009–10) and persistence (for 2010–11) data reported by the NCES (U.S. Department of Education, 2012a,b,c). Because NCES’s data collection, methodology, and analysis approach differ from ours, we encourage caution when comparing Philadelphia-specific rates to these national estimates.
- 3 In 2010–11, the state replaced the DSTP with the Delaware Comprehensive Assessment System (DCAS). The analyses discussed here were conducted with students who were in eighth grade when the DSTP was still in effect.
- 4 The Consortium on Chicago School Research pioneered the use of on-track indicators and their relationship to eventual high school completion (Allensworth & Easton, 2005).
- 5 The national college enrollment rate estimate is for 2010–11 and is reported by the U.S. Department of Education’s NCES based on data from the Census Bureau’s Current Population Survey. The NCES calculates the college enrollment rate as the share of individuals aged 16 to 24 and completing high school in the preceding 12 months who enrolled in college as of October 2011. This method is similar to the one used in this analysis.
- 6 The selectivity category used here is based on the 2009 Barron’s college selectivity rankings, and includes colleges that Barron’s assigns are “Most Competitive,” “Highly Competitive,” “Very Competitive,” and “Competitive.” Other selectivity ratings used by Barron’s include “Less Competitive,” “Non-Competitive,” and “Special.”
- 7 The National Governors Association “compact rate” is a four-year, adjusted cohort graduation rate used to determine the percentage of on-time high school graduates from a given four-year student cohort. It is widely considered a valid and reliable formula and has been adopted by more than half of the states to improve the consistency and accuracy of graduation rate reporting. For more information on the compact rate, see National Governors Association, 2005, 2010.
- 8 This persistence outcome is not dependent on maintaining enrollment at the same institution from one year to the next. Therefore, we consider a student to have persisted to the second year if we observe that student enrolled at any college over the course of two subsequent years.

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Appendices

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