



What's Happening

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# What are the college outcomes after six years for Tennessee's high school class of 2007?

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## Key findings

- Approximately 55 percent of students who graduated from a Tennessee public high school in 2007 enrolled in a two- or four-year public college within six years.
- Enrollment rates by race/ethnicity varied from 37 percent among Hispanic students to 62 percent among Asian or Pacific Islander students.
- Approximately 69 percent of students who enrolled in a two- or four-year public college within six years did so in fall 2007 (the first semester after high school graduation).
- Approximately 16 percent of all graduates—and 38 percent of graduates who enrolled in fall 2007—completed a four-year degree within six years.

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## Summary

Many studies show a strong link between earning a college degree and receiving higher wages (for example, Carnevale, Jayasundera, & Gulish, 2015). Consequently, a large body of research is published each year analyzing indicators of progress toward increased college enrollment and completion (for example, National Student Clearinghouse Research Center, 2012, 2013a, 2013b, 2014). Such studies typically follow first-time, full-time college freshmen for three years to measure progress toward a two-year degree and for six years to measure progress toward a four-year degree. However, information is needed on college enrollment and completion among all high school graduates, including those who delay enrollment, to provide a more complete picture of this issue and to illuminate challenges that college enrollees face in earning degrees.

This study used data from the Tennessee Department of Education, the Tennessee Higher Education Commission, and the National Student Clearinghouse to explore Tennessee students' college histories. It measured, by semester from fall 2007 through spring 2013, the public college enrollment rate of the cohort of students who graduated from a Tennessee public high school in 2007; the cohort's two-, four-, and six-year public college persistence and completion rates; and the number of credits and the grade point averages that full-time enrollees in Tennessee public colleges accumulated in their first year and their grade point average during that time. Some results are broken down by race/ethnicity, and others are broken down by gender and high school urbanicity.

This study, a collaborative effort between Regional Educational Laboratory Appalachia and the Tennessee Higher Education Commission, responds to Tennessee stakeholders' need to better understand college outcomes of the state's high school graduates. The findings provide context for Tennessee's efforts to promote the college readiness of its high school graduates, including programs such as the Tennessee Promise scholarship, which makes two years of community or technical college free for eligible students. A companion study explores outcomes for Metropolitan Nashville Public Schools (Rolfhus, House, Douglas, & Leeds, 2017).

Key findings from the study include:

- Approximately 55 percent of students who graduated from a Tennessee public high school in 2007 enrolled in a public college within six years.
- The combined enrollment rate (the percentage of students who enrolled in either a two- or a four-year college within six years) was 62 percent for Asian or Pacific Islander students, 57 percent for White students, 52 percent for Black students, and 37 percent for Hispanic students.
- Approximately 50 percent of male students and 60 percent of female students enrolled in a two- or four-year college within six years.
- Approximately 69 percent of 2007 high school graduates who enrolled in a two- or four-year college within six years did so in fall 2007 (the first semester after high school graduation).
- Approximately 16 percent of high school graduates completed a four-year degree within six years. The completion rate is higher (38 percent) among students who enrolled in the first semester after high school graduation (fall 2007). An additional 3 percent of high school graduates (5 percent of students who enrolled in fall

2007) completed a two-year degree within six years and did not enroll in a four-year public college.

- After one year, students enrolled full time in a four-year Tennessee public college earned more credits and had higher grade point averages than students enrolled full time in a two-year Tennessee public college.

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## **Why this study?**

With workforce reports on the most recent economic recovery underscoring the relationship between earning a college degree and working at higher paying jobs (in the upper one-third of jobs rated by median wages of the occupations in which they are classified; Carnevale et al., 2015, p. 4), college readiness and degree completion remain crucial to students, their families, their home states, and U.S. society as a whole.

In recent years Tennessee policymakers have focused on improving the college outcomes of high school graduates.<sup>1</sup> For example, the Tennessee Promise scholarship established in 2014 offers two years of community or technical college free to eligible high school graduates (Tennessee Promise, 2015). In keeping with Tennessee's joint focus on readiness for both college and career, the scholarship benefits students who intend to transfer to a four-year college and students who participate in a certificate program aligned directly with a career path.

A large body of research is published each year at the national, state, and institutional levels that focuses on the productivity of two- and four-year colleges and universities—in particular, their ability to retain and graduate first-time, full-time students (for example, National Student Clearinghouse Research Center, 2012, 2013a, 2013b, 2014). Typically, first-time, full-time college freshmen are followed for 150 percent of the time it nominally takes to graduate—three years for a two-year degree and six years for a four-year degree. Because these rates are widely used in the media (such as *U.S. News & World Report* rankings) and in government publications (such as the National Center for Education Statistics *Digest of Education Statistics*), both researchers and the general public have come to associate six-year graduation rates for first-time, full-time students with college quality and student readiness.

There is little research on long-term college outcomes for all Tennessee high school graduates. The most recent Tennessee Higher Education Commission (2016) report on trends in Tennessee higher education provided six-year outcomes for college freshmen only—not for all Tennessee high school graduates. Another Tennessee Higher Education Commission (2010) report focused only on county-level college-going rates, rather than statewide long-term outcomes. The National Student Clearinghouse Research Center (2013a) reported six-year persistence and completion rates by state for first-time students of any age entering college in fall 2006.

These studies provide some information about how colleges and high schools educate their students but do not examine outcomes for a single cohort of high school graduates, which may be the most germane comparison for current high school students and their families. This study—a collaboration between Regional Educational Laboratory Appalachia and the Tennessee Higher Education Commission—responds to Tennessee stakeholders' need to better understand college outcomes by providing college enrollment, persistence, and completion rates for all high school graduates in the 2007 cohort. It does not provide a pure measure of college readiness, because factors such as career interests and financial resources also play a role in college enrollment and completion outcomes. And because students who do not enroll at a four-year college cannot complete a four-year degree, the four-year degree-completion rates in this study (which include students who did not enroll at any college and those who enrolled only at a two-year college) will be lower than those found by the National Student Clearinghouse Research Center.

***While previous studies provide some information about how colleges and high schools educate their students, they do not examine outcomes for a single cohort of high school graduates, which may be the most germane comparison for current high school students and their families***

This study also reports on credits earned and students' grade point average in their first year of college because completing the first year of college with passing grades is an important predictor of degree completion (Adelman, 1999, 2006).

### What the study examined

Three research questions guided this study:

- What is the public college enrollment rate, by semester from fall 2007 through spring 2013, of the cohort of students who graduated from a Tennessee public high school in 2007?
- What are the cohort's two-, four-, and six-year public college persistence and completion rates?
- How many credits did full-time enrollees in a Tennessee public college accumulate in their first year of college, and what was their grade point average?

The three research questions used different samples because of differences in data availability and because the study team wanted to allow straightforward comparison of similar groups of students. Some research questions have results disaggregated by student subgroup (gender, race/ethnicity, and high school urbanicity). The study team did not use a fixed criterion for highlighting subgroup differences, focusing instead on the largest differences.

The third research question focused only on students attending Tennessee public colleges because no national datasets track all students' credits earned and grade point average. Despite this limitation, the academic performance analyses still provide important information about a critical sample of cohort students. Restricting the analysis for this research question to full-time students allows for comparison of similar students without concern that the proportion of part-time students at either college type (two year or four year) might be affecting results.<sup>2</sup> Part-time enrollment was too low for separate analysis.

See box 1 for a discussion of key terms, box 2 for a summary of data and methods, and appendix A for more details on the data and methods.

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#### **Box 1. Key terms**

**2007 public high school graduate.** Any Tennessee student who received a diploma from a public high school (or passed a General Educational Development test) between January 1, 2007, and August 31, 2007 ( $N = 61,230$ ).

**Completion.** Attaining a college degree.

**Enrollment.** Being registered for a college degree at any accredited two-year or four-year public college in the National Student Clearinghouse database, which includes data from about 98 percent of U.S. colleges and universities. A variable indicating full-time or part-time status for each semester was provided by the Tennessee Higher Education Commission.

**Performance.** Students' mean credits earned and grade point average.

**Persistence.** Being enrolled in a semester subsequent to the first semester of enrollment.

**Urbanicity.** Whether the high school from which a student graduated is rural (denoted by the National Center for Education Statistics locale codes "town" or "rural") or urban (denoted by the National Center for Education Statistics locale codes "city" or "suburb").

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*This report presents college enrollment, persistence, and completion rates for all high school graduates in the 2007 cohort. It also reports on students' credits earned and students' grade point average in their first year of college*

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## Box 2. Data and methods

### Data

Data for the study came from three sources:

- Tennessee Department of Education: demographic and high school graduation data used to define the 2007 graduation cohort and its baseline characteristics. Data were obtained on 61,230 students. See the table for demographic information on the cohort.
- Tennessee Higher Education Commission: data on enrollment, completion, and first-year grade point average (measured on a four-point scale) and credits earned at Tennessee public colleges for fall 2007 through spring 2013. First-year credits earned included college credit that students earned in high school through dual credit, Advanced Placement, or International Baccalaureate programs.
- National Student Clearinghouse: data on enrollment and completion for out-of-state public colleges for fall 2007 through spring 2013. Data on grade point average or credits earned at out-of-state colleges could not be obtained. The study team combined in-state and out-of-state data on enrollment and completion; results are not reported separately. Results for credits earned and grade point average are for Tennessee public colleges only.

Both the Tennessee Higher Education Commission and the National Student Clearinghouse have data on enrollment and persistence for Tennessee college students. Although the study uses data from the Tennessee Higher Education Commission in calculating enrollment and persistence rates, results using the National Student Clearinghouse data were identical. This match also confirms the accuracy of the National Student Clearinghouse's data for out-of-state college enrollees.

### Methods

The study team placed students into one of five subgroups based on their highest level of education two, four, and six years after high school graduation, an approach that reflects the pipeline of students progressing to four-year degree completion:

1. *Never enrolled at any college.* The student did not enroll in a public two-year or four-year college within this time period.
2. *Enrolled in two-year college.* The student was enrolled in a public two-year college within this time period but did not complete a degree or enroll in a public four-year college.
3. *Two-year degree.* The student completed a degree at a public two-year college within this time period but did not enroll in a public four-year college.
4. *Enrolled in four-year college.* The student was enrolled in a public four-year college within this time period but did not complete a four-year degree; the student may or may not have attended a public two-year college or earned a two-year degree during this period as well.
5. *Four-year degree.* The student earned a degree from a public four-year college within this time period and may or may not have attended a public two-year college, earned a two-year degree, or progressed to a post-bachelor's degree during this period.

Student outcomes were tallied by semester. Enrollment in the summer was grouped with the following fall semester, and completion of a college degree in the summer was grouped with the previous spring semester. Students with no available data in a given semester were assumed not to have enrolled or progressed toward degree completion during that semester.

A data flag provided by the Tennessee Higher Education Commission indicated whether a student was full-time or part-time in each semester. Full-time status is often defined as attempting 12 or more credits per semester, for a minimum of 24 credits per year. However, students who attempt 24 or more credits may earn fewer than 24 credits per year: 39 percent of full-time students in a two-year college completed fewer than 24 credits, and 27 percent of full-time students in a four-year college completed fewer than 24 credits. This may be because students withdrew from courses, audited courses, or did not pass courses, among other reasons.

(continued)

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## Box 2. Data and methods *(continued)*

Data on credits earned and grade point average were available for 14,605 students enrolled full time in a Tennessee public college in both the fall 2007 and spring 2008 semesters (summer 2008 data were not included). These 14,605 students represent 24 percent of the full cohort and 64 percent of fall 2007 public college enrollees. The remaining 36 percent of fall 2007 public college enrollees enrolled in an out-of-state college, attended part time, did not persist in a Tennessee public college through spring 2008, were missing either grade point average or credit information, or attended both a two- and a four-year college. For comparability purposes, students who attended both two-year and four-year colleges during their first year were dropped from these analyses. A total of 1,425 students were dropped because they attended both types of colleges or were missing data on credits earned or grade point average.

**Box Table. Characteristics of Tennessee’s public high school class of 2007, by student subgroup**

Student subgroup	Number	Percent
All students	61,230	100.0
Gender		
Male	30,129	49.2
Female	31,101	50.8
Race/ethnicity		
Asian or Pacific Islander	923	1.5
Black	13,930	22.8
Hispanic	1,251	2.0
White	44,960	73.4
Other	166	0.3
High schools urbanicity		
Urban	40,012	65.3
Rural	21,218	34.7
Credential type		
Regular high school diploma	57,213	93.4
Other <sup>a</sup>	4,017	6.6

a. Includes passing a General Educational Development test or receiving a special education or school certification diploma.

Source: Authors’ analysis based on 2007 Tennessee Department of Education data.

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Statewide averages, even when broken down by student subgroups, may not reflect geographic variation in outcomes. As regional analyses are beyond the scope of this study, a companion study addresses the research questions presented here for Metropolitan Nashville Public Schools and compares those results to statewide results (Rolfhus et al., 2017).

### What the study found

This section reports on students’ college enrollment, persistence and completion, and first-year college performance, both overall and by subgroup.

#### College enrollment rates by semester

The study focused on first-time enrollments both overall and by college type and students’ race/ethnicity.

**First-time college enrollment was 38 percent in fall 2007.** The enrollment rate was highest in the first semester after high school graduation (fall 2007) and declined thereafter. In fall 2007, 38 percent of students enrolled in a public college—23 percent in a four-year college and 15 percent in a two-year college (figure 1). In the first spring semester (spring 2008) 3 percent of students enrolled for the first time, and in the second fall semester (fall 2008), which includes any enrollments during the summer semester, 6 percent enrolled for the first time.

For the entire 2007 cohort 55 percent of students enrolled in a public college at some point within six years. First-time enrollment in each spring semester was lower than in the prior fall semester.

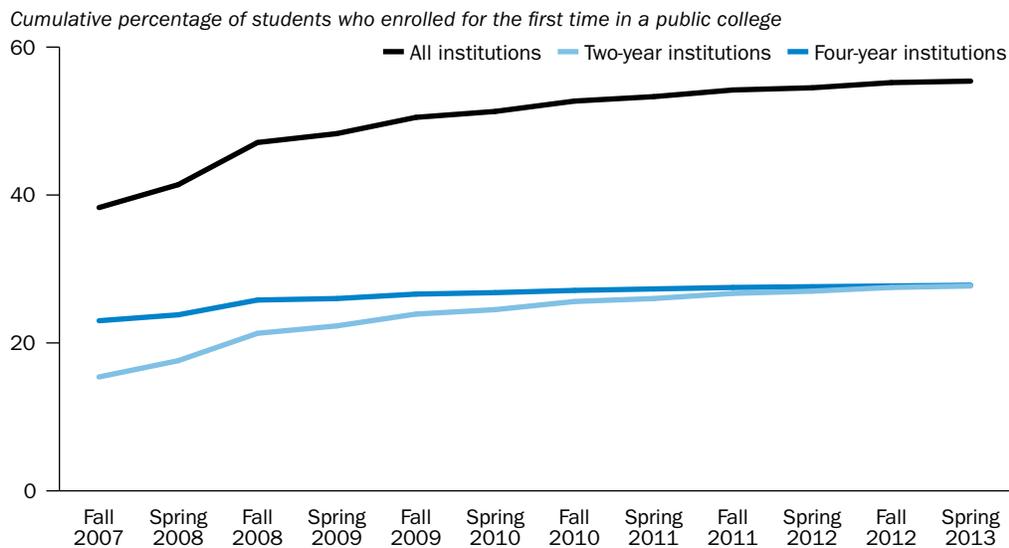
**In fall 2007 the enrollment rate in four-year colleges was highest among Asian or Pacific Islander students.** The enrollment rate at four-year colleges was next highest for White students, followed by Black students, then Hispanic students (figure 2). Students of other races/ethnicities represented too few students for meaningful analysis.

**For the entire 2007 cohort 55 percent of students enrolled in a public college at some point within six years**

The pattern was different for two-year colleges. In fall 2007 the enrollment rate at two-year colleges was highest among White students, followed by Black students (figure 3). The enrollment rate at two-year colleges was lowest and nearly identical among Hispanic and Asian or Pacific Islander students.

Asian or Pacific Islander students were also the least likely to delay college enrollment (as determined by dividing overall enrollment in fall 2007 by the cumulative overall enrollment as of spring 2013): 72 percent of Asian or Pacific Islander students who enrolled in

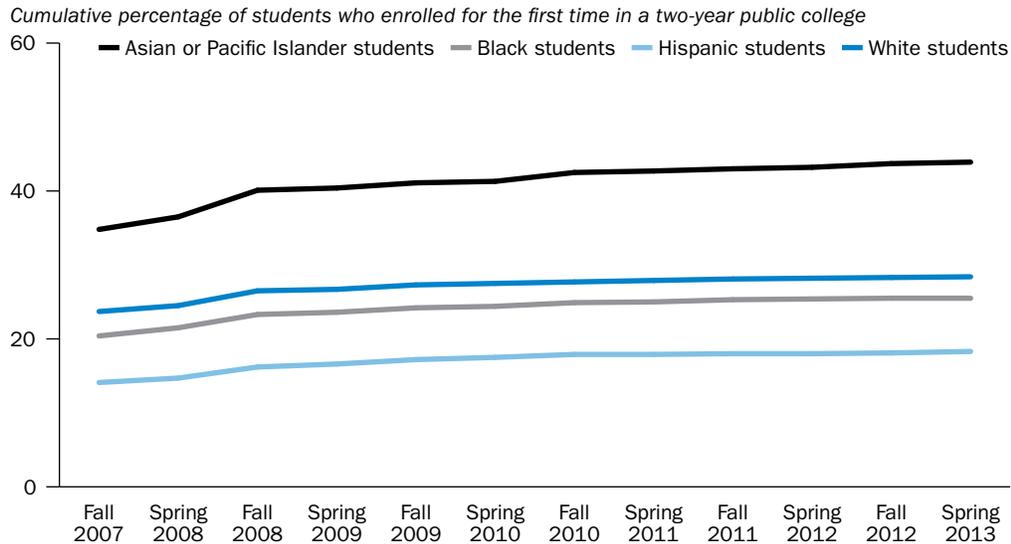
**Figure 1. The enrollment rate among students who graduated from a Tennessee public high school in 2007 was highest in the first semester after high school graduation (fall 2007) and declined thereafter**



**Note:** Enrollment in the summer was grouped with the following fall semester. Data include in-state and out-of-state enrollments. Students who start at one college type and transfer to another are counted only at the first college type at which they enrolled.

**Source:** Authors' analysis based on 2007–13 data from the Tennessee Higher Education Commission.

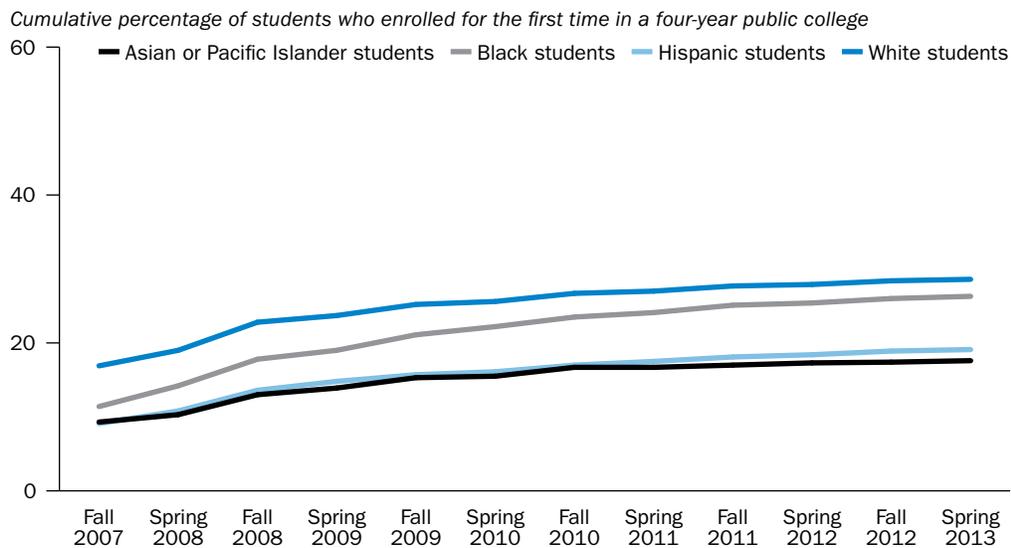
**Figure 2. The first-time college enrollment rate in four-year colleges among students who graduated from a Tennessee public high school in 2007 was highest among Asian or Pacific Islander students**



**Note:** Enrollment in the summer was grouped with the following fall semester. Data include in-state and out-of-state enrollments. Students who start at one college type and transfer to another are counted only at the first college type at which they enrolled. Students of other races/ethnicities (166 students in total) are not included.

**Source:** Authors' analysis based on 2007–13 data from the Tennessee Higher Education Commission.

**Figure 3. The first-time college enrollment rate in two-year colleges among students who graduated from a Tennessee public high school in 2007 was highest among White students**



**Note:** Enrollment in the summer was grouped with the following fall semester. Data include in-state and out-of-state enrollments. Students who start at one college type and transfer to another are counted only at the first college type at which they enrolled. Students of other races/ethnicities (166 students in total) are not included.

**Source:** Authors' analysis based on 2007–13 data from the Tennessee Higher Education Commission.

college did so in fall 2007, compared with 71 percent of White students, 62 percent of Hispanic students, and 61 percent of Black students.

### College persistence and completion rates within two, four, and six years

The study also tracked progress toward a degree within two years, four years, and six years of high school graduation for all 2007 high school graduates and for students who enrolled in college in the first semester after high school graduation (fall 2007). The study explored variation in these progress rates by students' gender, race/ethnicity, and high school urbanicity.

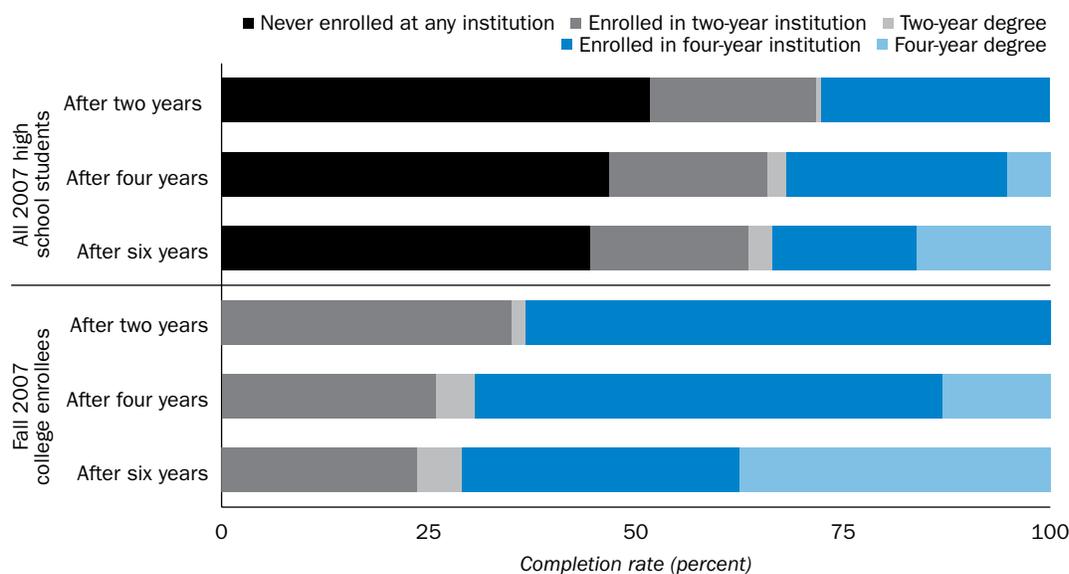
*Among students who enrolled in college in the first semester after high school graduation, 38 percent completed a four-year degree within six years (figure 4).* The current study's findings are not directly comparable to those of the National Student Clearinghouse studies cited elsewhere (for example, this study includes many students who do not intend to complete a four-year degree). The completion rate among students who enrolled full time at either a two- or four-year college (not shown here) was approximately 54 percent.

*Whereas 38 percent of students who enrolled in college in the first semester after high school graduation completed a four-year degree within six years, only 16 percent of all students did so*

*Only 16 percent of all students completed a four-year degree within six years.* This is more than 20 percentage points lower than the completion rate for students who enrolled in the first semester after high school graduation.<sup>3</sup> After six years, 3 percent of all students completed a two-year degree but did not enroll in a four-year college or attain a four-year degree.<sup>4</sup> Some 45 percent of all students did not enroll in any public college within six years.<sup>5</sup>

*Enrollment and completion rates were higher for female students, Asian or Pacific Islander students, and students from urban high schools.* Female students were more

**Figure 4. Among students who graduated from a Tennessee public high school in 2007 and enrolled in college in fall 2007, the completion rate for obtaining a four-year degree within six years was 38 percent**

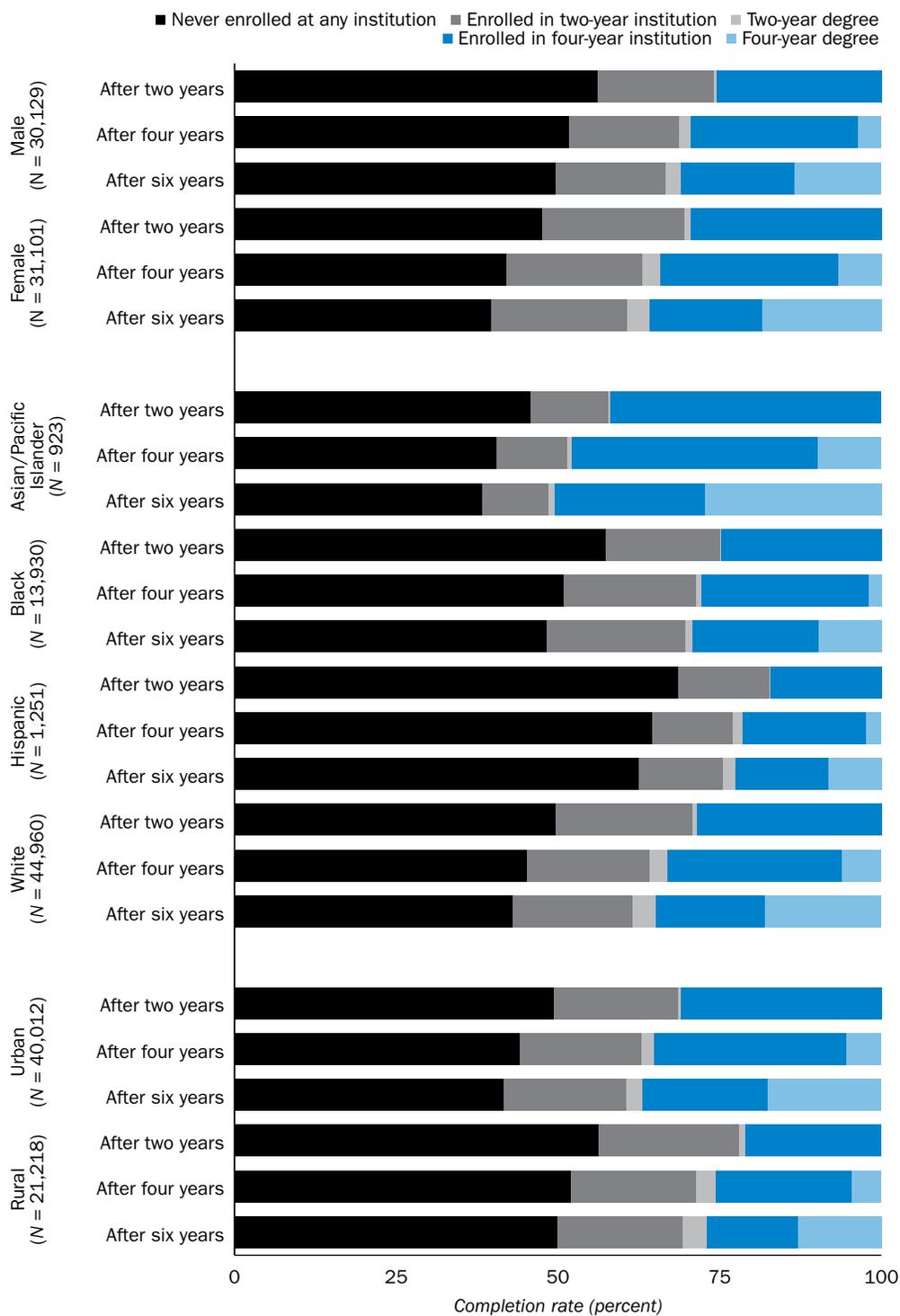


**Note:** Two-year outcomes end in spring 2009, four-year outcomes end in spring 2011, and six-year outcomes end in spring 2013; summer 2013 data were not included. By definition, enrollees cannot be in the never enrolled at any college subgroup.

**Source:** Authors' analysis based on 2007–13 data from the Tennessee Higher Education Commission.

likely to enroll in a public college than were male students (figure 5). Some 40 percent of female students and 50 percent of male students did not enroll within six years—a

**Figure 5. Among students who graduated from a Tennessee public high school in 2007, college enrollment and completion rates were higher for female students, Asian or Pacific Islander students, and students from urban high schools**



**Note:** Two-year outcomes end in spring 2009, four-year outcomes end in spring 2011, and six-year outcomes end in spring 2013; summer 2013 data were not included.

**Source:** Authors' analysis based on 2007–13 data from the Tennessee Higher Education Commission.

difference of 10 percentage points. Female students completed both two- and four-year degrees at higher rates than did male students.

Asian or Pacific Islander students had the highest completion rate: 27 percent completed a four-year degree within six years. Some 63 percent of Hispanic students did not enroll in college within six years.

Students from rural high schools had lower four-year completion rates (13 percent within six years) than did students from urban schools (18 percent).

### First-year college performance

The study also focused on credits earned and grade point average for students who were enrolled full time in a single college type for the full 2007/08 academic year.

*Students earned more credits after one year if they were enrolled in a four-year college, female, Asian or Pacific Islander, or from a rural high school.* Students at four-year colleges averaged more credits by the end of their first year (27.5) than did students at two-year colleges (24.2; table 1).<sup>6</sup> Female students earned approximately two more credits at two-year colleges (25.1) than did male students (22.9) but less than half a credit more at four-year colleges (27.7 versus 27.4). Students from rural high schools earned more credits than did students from urban high schools at both two-year colleges (25.6 versus 23.0) and four-year colleges (28.3 versus 27.3).

*Students at four-year colleges averaged more credits by the end of their first year and had a higher grade point average than did students at two-year colleges*

Across both college types Asian or Pacific Islander students earned the most credits. They also earned the most at four-year colleges (with White students a close second), whereas White students earned the most credits at two-year colleges.

**Table 1. Mean credits earned after one year of full-time college among students who graduated from a Tennessee public high school in 2007 and enrolled at a Tennessee public college in fall 2007, by student subgroup and college type, 2007/08**

Student subgroup	All colleges	Four-year colleges	Two-year colleges
All students (n = 14,605)	26.6	27.5	24.2
Male (n = 6,307)	26.1	27.4	22.9
Female (n = 8,298)	26.9	27.7	25.1
Asian or Pacific Islander (n = 292)	28.2	28.9	23.0
Black (n = 2,576)	22.2	22.9	19.8
Hispanic (n = 163)	26.6	27.9	23.8
White (n = 11,542)	27.5	28.7	25.3
Urban (n = 10,023)	26.3	27.3	23.0
Rural (n = 4,582)	27.2	28.3	25.6

**Note:** Values include credits accumulated in high school prior to fall 2007 college enrollment. The analysis by race/ethnicity excludes 32 students in the “other” category for statistical and privacy reasons.

**Source:** Authors’ analysis based on 2007/08 data from the Tennessee Higher Education Commission.

**Table 2. Mean grade point average after one year of full-time college education among students who graduated from a Tennessee public high school in 2007 and enrolled at a Tennessee public college in fall 2007, by student subgroup and college type, 2007/08**

Student subgroup	All colleges	Four-year colleges	Two-year colleges
All students (n = 14,605)	2.82	2.91	2.61
Male (n = 6,307)	2.71	2.81	2.45
Female (n = 8,298)	2.90	2.98	2.73
Asian or Pacific Islander (n = 292)	3.08	3.13	2.69
Black (n = 2,576)	2.48	2.54	2.27
Hispanic (n = 163)	2.77	2.80	2.69
White (n = 11,542)	2.89	3.00	2.67
Urban (n = 10,023)	2.81	2.89	2.54
Rural (n = 4,582)	2.85	2.95	2.70

**Note:** The analysis by race/ethnicity excludes 32 students in the “other” category for statistical and privacy reasons.

**Source:** Authors’ analysis based on 2007/08 data from the Tennessee Higher Education Commission.

*The mean grade point average was higher for students enrolled in a four-year college, female students, Asian or Pacific Islander students, and students from rural high schools.* The mean grade point average of students at four-year colleges (2.91) was higher than that of students at two-year colleges (2.61; table 2). Female students’ mean grade point average was higher than male students’. Asian or Pacific Islander students had the highest mean grade point average, followed by White, Hispanic, and Black students.<sup>7</sup>

The mean grade point average of students at two-year colleges was lower than that of students at four-year colleges for all subgroups. In contrast to the findings for four-year colleges, Hispanic and Asian or Pacific Islander students had the highest mean grade point average at two-year colleges, followed by White and Black students.

### Implications of the study findings

The findings of this study underscore that studying only students who enroll in the first fall after high school graduation ignores a sizable group of students that defer their enrollment and are therefore less likely to graduate within six years of high school graduation. Studying other outcomes and using other methodologies could expand findings in important ways; for example, regression analyses—which isolate and measure the different relationships between various factors and a given outcome—could examine the relationship between delayed college enrollment and credits earned or grade point average in a student’s first year of college.

The study also points to important subgroup differences that may warrant further study—for example, low enrollment and completion rates among Black and Hispanic students. Students from rural high schools also have low enrollment and completion rates; however, they also earn more credits, and their grade point average is above the mean for the cohort. Additional study may reveal why these differences exist and how they can be mitigated.

*The findings of this study underscore that studying only students who enroll in the first fall after high school graduation ignores a sizable group of students that defer their enrollment and are therefore less likely to graduate within six years of high school graduation*

Additional study is needed of why certain subgroups are more likely to attend one type of college rather than another or to not attend college at all. Future studies could determine how to support more students in their pursuit of college education and could identify the obstacles that prevent students from enrolling in and completing college.

The findings may help evaluate programs designed to improve college-going rates (such as the Tennessee Promise scholarship). This study provides a baseline against which future cohorts of Tennessee high school graduates can be assessed. Policymakers may also consider replicating this approach for future cohorts of high school graduates, reporting long-term outcomes to individual districts and schools where local decisionmakers can take action.

### **Limitations of the study**

This study provides descriptive information on one Tennessee graduating class's participation in college. It does not address a number of factors that can affect students' access to college, motivation to attend college, or success once in college. These factors, such as socioeconomic status, English proficiency, access to effective primary and secondary education, family culture, high school grade point average, and access to financial aid, all need further investigation.

The findings were based on a different group of students from that typically studied in research on college outcomes. It excluded students who graduated from a private high school or attended a private college and therefore likely underestimates the college outcomes of Tennessee's full 2007 graduating class. Similarly, academic performance measures were unavailable for students attending out-of-state colleges; these students may be systematically different from students who attend in-state colleges and may also face distinct challenges to degree completion. Consequently, the study's academic performance data may not be representative of all students who graduated from a Tennessee public high school in 2007.

The study did not calculate academic outcomes for students who transferred across college types; these students represent an important group for future study. Although the highest-enrollment metric measures progress toward a four-year degree, it is impossible to determine whether or when students stop their education or the rate at which their education is proceeding. For instance, under this metric a student who enrolls in a four-year college for one semester and then quits, a student who requires seven years to complete a four-year degree, and a student who enrolls in a four-year college five years after graduating from high school would all be categorized after six years as "enrolled in four-year college," despite their very different paths.

This study provides descriptive information for a single cohort of high school graduates and should not be used to draw inferences about future cohorts. Subgroup findings are correlational, not causal, and therefore do not imply inherent differences in the students themselves. Information on student eligibility for the federal school lunch program, for instance, might show whether economic disadvantage is more prevalent among particular groups or affects different groups in distinct ways.

***This study provides descriptive information for a single cohort of high school graduates and should not be used to draw inferences about future cohorts***

## **Appendix A. Data and methodology**

The college enrollment, completion, and performance data were acquired through Tennessee Higher Education Commission's (THEC's) standard data request process.

Data pertaining to student enrollment in Tennessee in-state colleges and universities were obtained from THEC, and data pertaining to enrollment in public colleges nationwide were obtained from the National Student Clearinghouse (NSC) through THEC. Data were provided for each semester (fall, spring, and summer) from fall 2007 through spring 2013.

THEC data include all students graduating from a Tennessee public high school in 2007 and enrolled in a public college in the United States. For this study a 2007 high school graduate is defined as any Tennessee student who received a public high school diploma or passed a General Educational Development test between January 1 and August 31, 2007.

THEC provided separate data files for THEC-sourced records (enrollment at in-state public colleges) and NSC-sourced records (enrollment at out-of-state public colleges). Three types of record-level data were provided: semester (fall, spring, and summer) enrollment and performance for each student (zero to many records per student), degrees granted (zero or more records per student), and student-level demographics (one record per student).

Each file was purged of duplicate records; highly similar records were resolved in collaboration with THEC staff (such as when a student graduated with two different high school diploma types). The de-identified demographic file was used as the base file, and all college semester-level enrollments and degrees completed were merged at the student level into a single flat file for analysis.

Subgroups were defined using 2007 student-level demographic information collected by the Tennessee Department of Education. All data were de-identified; subgroups of fewer than 10 students were masked to preserve anonymity, in accordance with THEC standards. Individual student counts were tabulated and used to calculate percentages.

All NSC data were at the student level. The NSC collates college data to verify enrollment for financial aid purposes; to aid high schools in tracking their students' college outcomes; to provide an electronic exchange for transcripts; and to provide data for districts, states, and researchers upon appropriate request. NSC collects data from more than 3,500 colleges nationally, accounting for 98 percent of students (National Student Clearinghouse Research Center, 2014).

The NSC has several limitations, including not capturing 100 percent of college enrollment and not collecting data on credits earned or grade point average.

## Notes

1. See <http://www.tennessee.gov/thec/topic/complete-college-tn-act> and [https://www.tn.gov/assets/entities/thec/attachments/CMSummer2010\\_CMSummer2010\\_I.A.1.%20Attachment%20-%20Master%20Plan.pdf](https://www.tn.gov/assets/entities/thec/attachments/CMSummer2010_CMSummer2010_I.A.1.%20Attachment%20-%20Master%20Plan.pdf).
2. Part-time students by definition take fewer credits than full-time students. If part-time students are more likely to enroll in either type of institution, this alone would make students at that institution type appear to take fewer credits. If the mean grade point average for students who were ever enrolled part time is lower than that for students who were only ever enrolled full time, a similar argument would hold. Focusing on full-time students eliminates these concerns.
3. Students who first enrolled in fall 2010 and subsequent semesters cannot reasonably be expected to have completed a four-year degree in the study timeframe; figure 1 shows that these students constituted less than 3 percent of the cohort.
4. A total of 292 students (0.5 percent of the cohort) initially enrolled in a four-year institution, transferred to a two-year institution, and completed a two-year degree. These students are included in the enrolled in a four-year institution subgroup because the highest attainment approach was used to categorize students.
5. Approximately 50 students have a degree listed but no enrollment. This explains the discrepancies between enrollment percentages in figures 1 and 2 and the never enrolled subgroup in figures 3 and 4.
6. Although students at four-year institutions enrolled in college with more dual credit, Advanced Placement, or International Baccalaureate credits (2.9) than did students at two-year institutions (1.3), the difference (1.6) accounts for less than half the difference at the end of the first year of college (3.3).
7. Separate analyses were run for 288 part-time students, and the results are available on request. Although extreme caution should be used in interpreting the results because of the small sample size, it appears that part-time students at four-year institutions earned fewer credits and had a lower grade point average than part-time students at two-year institutions across all subgroups studied and that mean grade point average was lower for part-time students than for full-time students across all subgroups.

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