



College Enrollment and Retention in the Era of Covid

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Introduction

The covid-19 pandemic disrupted education in the spring of 2020, just as many admissions offices across the country were preparing to extend admissions offers to seniors in the high school graduating class of 2020. A March 2020 survey by Art & Science Group foreshadowed a potentially alarming disruption in college enrollment among recent high school graduates. Nearly one in six students from the high school graduating class of 2020 reported rethinking their decision to enroll in college, and two-thirds expressed concern about attending their first-choice college (Goebel, Strauss, and Hesel 2020).

Meanwhile, students already on college campuses across the country were quickly sent home as residential buildings closed and learning was moved online. Adding to concerns about whether prospective first-year students would commit to enrolling in the fall, colleges began to worry about retention among college students balancing the realities of virtual instruction against fears about the health risks of in-person classes. Leading indicators of the effect of covid-19 on retention were not reassuring, particularly with regard to low-income college students. By late spring of 2020, FAFSA renewals had declined by 5% over the previous year, suggesting that some low-income college students were not planning to re-enroll. More troublingly, FAFSA renewals fell by 8% among college students from the lowest-income families, defined as those earning \$25,000 annually or less (Fain 2020).

This report provides a rigorous, quantitative examination of how covid-19 affected the fall 2020 college enrollment plans of the class of 2020 and first-year to second-year retention patterns among college students from the high school class of 2019. We paint a comprehensive national picture of how covid-19 affected enrollment and retention among recent high school graduates, both overall and for subgroups defined by student demographics, academic preparation, high school attributes, college characteristics, and geography. Research shows that delayed college enrollment or failure to persist after the first year negatively impacts college completion and diminishes lifetime earnings (Witteveen and Attewell 2021), thus the results have both short-run relevance and long-run implications.

The research draws on data from College Board and the National Student Clearinghouse (NSC), resulting in a sample of nearly 10 million students who represent approximately 80% of all U.S. high school graduates in the last three cohorts. The students in our sample attend more than 22,000 U.S. high schools and 2,800 U.S. colleges, resulting in a nationally representative data set for understanding the impact of covid-19 on college enrollment and retention among recent high school graduates.

The descriptive analyses in Section 1 provide raw enrollment rate and retention rate data in the context of several years of recent trends.¹ Visible in recent years of data (e.g., enrollment rates in Figure 1) are pre-pandemic trends that research suggests are related to changes in student demographics and college going (Bransenberger et al. 2020; Grawe 2021). We incorporate those known pre-pandemic factors into statistical models that identify only the portion of fall 2020 enrollment and retention rate changes that are attributable to covid-19. We present these regression-adjusted covid-19 effects on

1. The descriptive analyses in Section 1 are similar to the approach taken by the National Student Clearinghouse Research Center (2020) and Nagaoka et al. (2021).

enrollment (Section 2) and retention (Section 3) through many student, high school, college, and geographic lenses. Five major themes are revealed in the results.

- 1. As a result of covid-19, student enrollment rates declined more substantially at two-year colleges than four-year colleges.** The largest shifts in student enrollment rates occurred within the two-year sector, where regression-adjusted enrollment rates declined by nearly 12% because of the pandemic, and stand in stark contrast to the smaller 4.5% and 2.8% enrollment rate declines in the private and public four-year sectors, respectively (Figure 3). These enrollment rate changes may differ from previously published statistics because they do not attribute pre-pandemic trends and student demographic shifts to covid-19 effects. Analyses of student trajectories into different postsecondary sectors illuminate the most novel findings. Among students in the two-year sector, the pandemic most adversely affected the college trajectories of first-generation, underrepresented minority, and lower-achieving students from higher-poverty communities and high schools. The enrollment story for the class of 2020 is quite different among students in the four-year sector, where some of the largest enrollment rate declines occurred among White and Asian students, students with college-educated parents and strong academic achievement from more affluent communities and high schools (Figures 4–7).
- 2. Students with higher high school grades may have made room at four-year colleges for students with lower high school grades.** Students with the strongest academic credentials (i.e., high school GPAs of A and A+) experienced the largest enrollment rate declines in the four-year college sector. Their 4%–7% enrollment rate declines at modestly selective four-year colleges were offset by similar *increases* in the enrollment rates of students with somewhat weaker academic credentials (i.e., B- and lower students) (Figure 18). This evidence aligns with summer of 2020 surveys that reported more students than usual were planning to take a gap year and defer enrollment until the fall of 2021, as well as reports that four-year institutions with active waiting lists were able to lean on these lists to fill the seats opened up by deferring students and international students (Dickler 2020; Horn 2020; Schifrin 2020; Baer and Martel 2020). These enrollment shifts may have implications for the college outcomes of the class of 2020 as well as the admission prospects of students graduating in the high school class of 2021.
- 3. The retention impact of covid-19 is larger among students in the two-year sector than in the four-year sector, where student retention rates are mostly unchanged.** Academic momentum between the first and second year of college is an indicator of eventual degree completion, so retention is an important early measure of potential longer run consequences of the pandemic. Shifts in first-year retention rates due to covid-19 were generally smaller in magnitude than shifts in enrollment rates. Retention rates at public two-year colleges decreased by 4.9% due to the pandemic, while retention rates increased by 1.4% in public four-year colleges and fell by 1.2% in the private nonprofit four-year sector (Figure 21). As with post-pandemic enrollment rate changes, retention rate changes vary by college sector and student subpopulation. Across all colleges in the four-year sector, first-year retention rates among students from the least-affluent public high schools increased by 3%, despite declining by more than 6% in the two-year sector (Figure 25). Retention rate changes appear to be related to college affordability, with the largest retention rate decreases (3.2%) occurring at private nonprofit four-year colleges with published tuition and fees in excess of

\$45,000 (Figure 34). Modest retention rate impacts from covid-19 may be related to emergency financial aid as well as more flexible college grading policies in spring 2020 (Lederman 2020), both of which likely reduced the financial and academic challenges that often underlie college drop-out decisions.

4. **There exists substantial state and regional variation in the impact of the pandemic on student enrollment and retention rates, although that variation does not appear to be closely linked to local health and economic conditions.** Four-year college enrollment rates *decreased* by more than 10% among students in 9 states and yet *increased* among students in 11 states (Figure 10). Our analyses explore whether this geographic variation in covid-19 impacts is linked to differences in the way the health and economic crises affected different regions of the U.S. leading up to college-going decisions in the first half of 2020. Enrollment rate and retention rate changes appear to be mostly unrelated to differences in local covid-19 case rates and local unemployment rates (Figures 12, 13, 30, 31). The variation we see by students' state of residence (Figures 10, 28) may be more closely related to spatial differences in where colleges are located, reflected in a preference for in-state four-year college options (Figure 11), and differential college responses to the pandemic.
5. **The combined health and economic crises disrupted the long-standing countercyclical relationship between college enrollment and economic growth.** Research identifies a long-standing countercyclical pattern in college enrollment, where worsening labor market opportunities during economic downturns spur increases in college enrollment as workers invest in new skills and ride out the recession labor market (Long 2014). The relatively lower tuition in the public two-year sector means that it is frequently community colleges that experience the largest increases in enrollment during recessions. In contrast to all prior analyses of recessions, we document enrollment rate *decreases* in the public two-year sector after the start of the recession for every subgroup examined with the exception of a handful of states and regions (Figures 10, 14). Although surveys of the class of 2020 reflected a strong preference for more affordable college options (Goebel, Strauss, and Hesel 2020), the historically affordable public two-year sector experienced the most substantial declines in enrollment and retention rates.

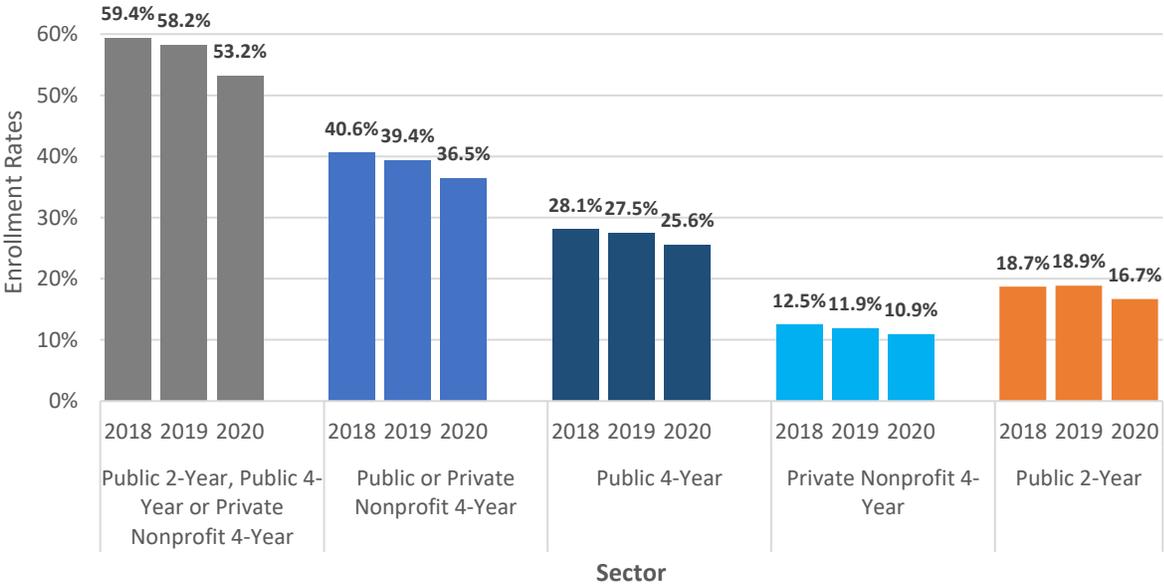
In what follows, we paint a picture of the pandemic's short-term impacts on college enrollment and retention rates among recent high school graduates. The student and college decisions represented by the fall 2020 data presented in this report are still evolving with the covid-19 pandemic. Continued research will be critical to assess whether these early results change for subsequent cohorts of recent high school graduates who have had much more substantial disruptions to their learning experiences and college application processes. The pandemic's long-term consequences for eventual college completion rates, innovations in instructional models, and changes in the higher education landscape remain open questions expected to be the focus of much future education research.

Section 1: Unadjusted Changes in Enrollment, Retention and Persistence Rates

College Enrollment Rates by Sector

Immediate college enrollment rates declined among recent high school graduates between the 2019 and 2020 cohorts in all sectors. Students enrolling in the public two-year sector experienced the largest decline with enrollment rates falling from 18.9% to 16.7% (2.2 percentage points, which represents a 11.6% decline).

Figure 1: Immediate College Enrollment Rates Among Students in the 2018 to 2020 High School Graduating Cohorts, by Sector and Cohort



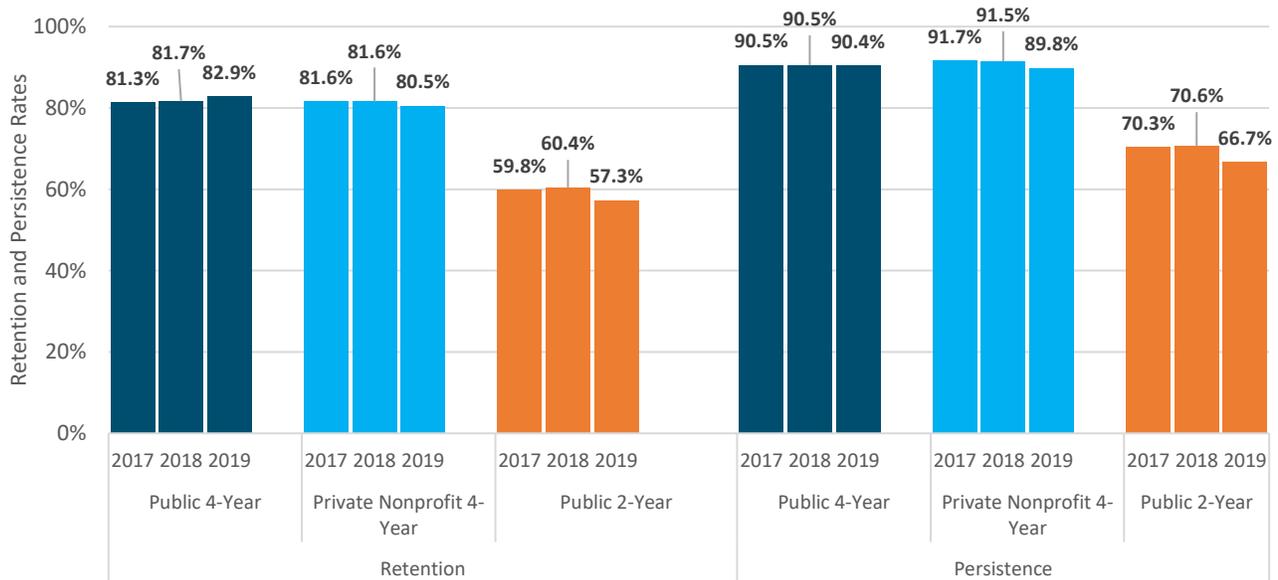
Note: Enrollment in the for-profit and less than two-year colleges is not included because less than 0.5% of students in the 2018 through 2020 high school cohorts in the College Board data enrolled in these institutions. Components may not sum to totals because of rounding.

- Between the 2019 and 2020 cohorts, four-year college enrollment rates declined from 27.5% to 25.6% (1.9 percentage points, which represents a 6.9% decline) in the public four-year sector and from 11.9% to 10.9% in the private nonprofit four-year sector (1 percentage point, which represents a 8.4% decline).
- Between the 2018 and 2019 cohorts (pre-covid), four-year college enrollment rates declined from 28.1% to 27.5% (0.6 percentage points, which represents a 2.1% decline) in the public four-year sector and from 12.5% to 11.9% in the private nonprofit four-year sector (0.6 percentage points, which represents a 4.8% decline). Two-year college enrollment rates remained relatively stable between these two pre-covid cohorts.
- The share of high school graduates enrolled in any public two-year, public four-year, or private nonprofit four-year college immediately after high school was 59.4%, 58.2%, and 53.2% for the 2018, 2019, and 2020 cohorts, respectively.

College Retention and Persistence Rates by Sector

Between the 2018 and 2019 cohorts, the first-year retention rate increased slightly from 81.7% to 82.9% (1.2 percentage points) in the public four-year sector, declined from 81.6% to 80.5% (1.1 percentage points) in the private nonprofit four-year sector, and declined from 60.4% to 57.3% (3.1 percentage points) in the public two-year sector.

Figure 2: First-Year Retention and Persistence Rates Among College Students in the 2017 to 2019 Entering Cohorts, by Sector and Cohort



Note: First-year retention rates measure the share of students enrolling in the same college one year after initial enrollment. First-year persistence rates measure the share of students enrolling in any college one year after initial enrollment.

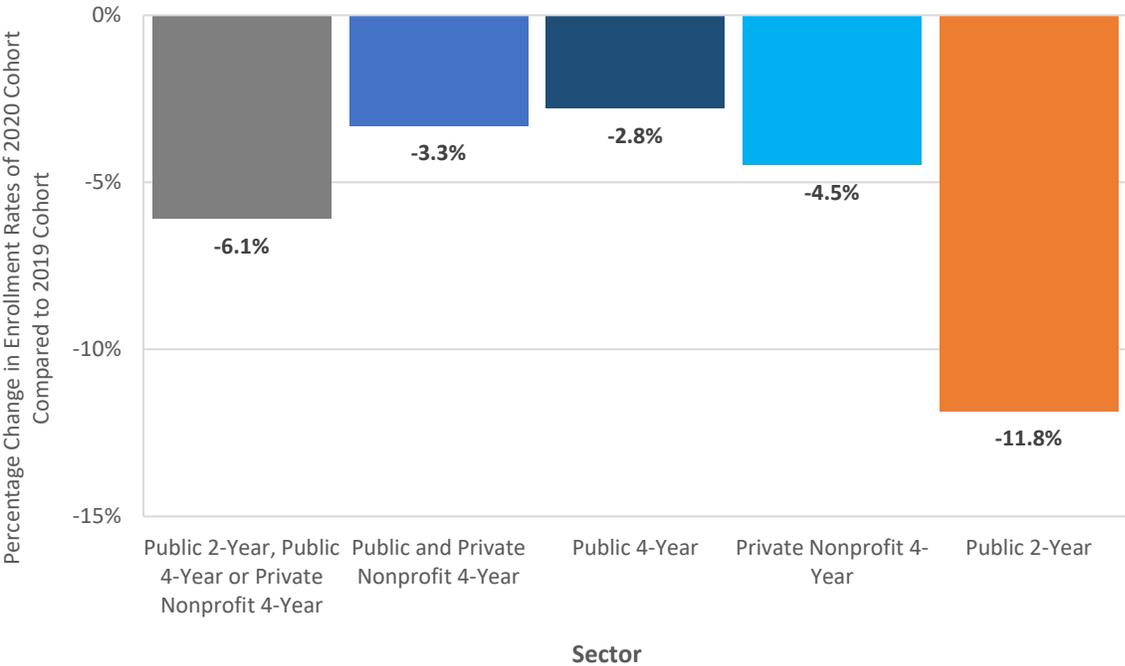
- Between the 2018 and 2019 cohorts, the first-year persistence rate remained unchanged in the public four-year sector, declined by 1.7 percentage points in the private nonprofit four-year sector, and declined by 3.9 percentage points in the public two-year sector.
- Between the 2017 and 2018 cohorts, the first-year persistence rate remained stable in all sectors.

Section 2: Regression-Adjusted Percentage Changes in Enrollment Rates

Enrollment Rate Changes by Sector

Controlling for student demographics and academic preparation as well as high school characteristics, the likelihood of enrolling in a four-year college among students in the 2020 cohort is 3.3% lower than that of students in the 2019 cohort. The likelihood of enrolling in a two-year college in the 2020 cohort is 11.8% lower than that in the 2019 cohort.

Figure 3: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Sector



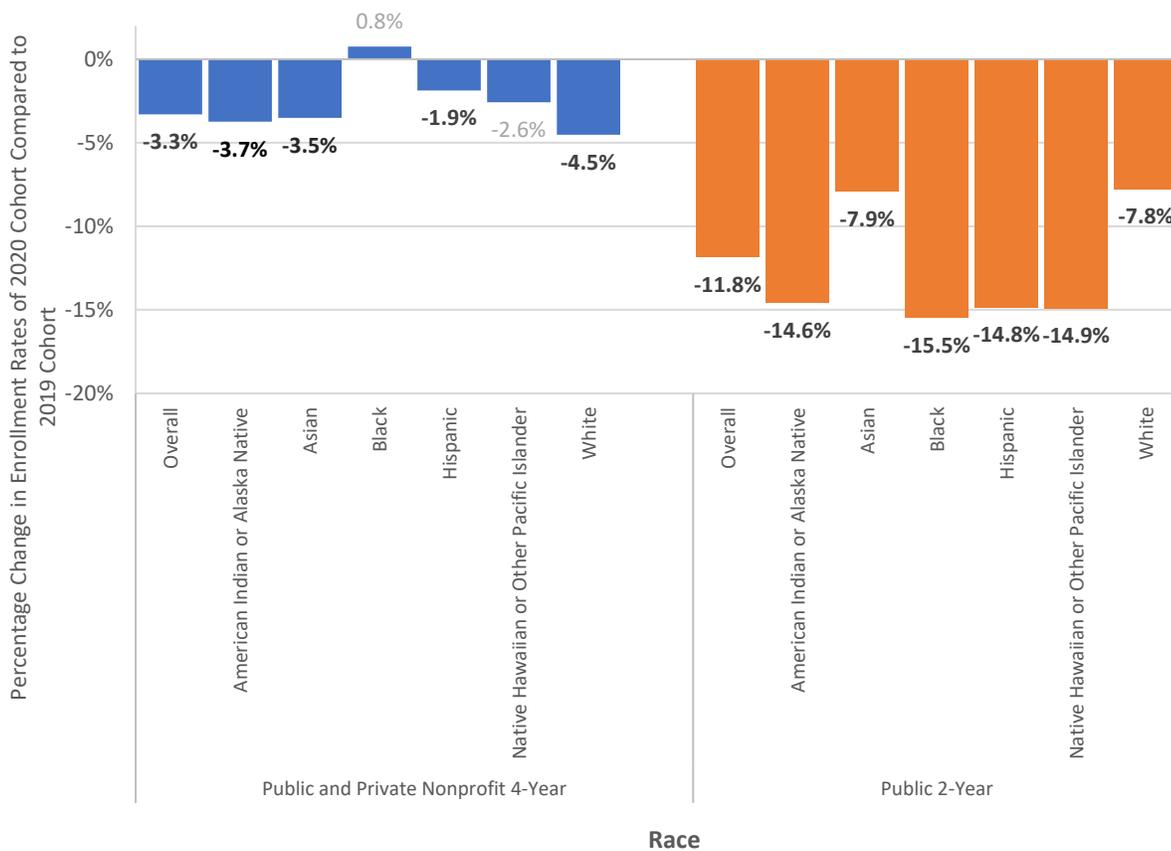
Note: Data labels in gray are not statistically significant at the 10% level. Enrollment in the for-profit and less than two-year colleges is not included in this figure because less than 0.5% of students in the 2018 through 2020 high school cohorts in the College Board data enrolled in these schools.

- The likelihood of enrolling in a public four-year college among students in the 2020 cohort is 2.8% lower than that of students in the 2019 cohort, while the likelihood of enrolling in a private nonprofit four-year college is 4.5% lower.
- The 6.1% decline in college enrollment rates across public and private nonprofit four-year colleges and public two-year colleges translates into nearly 120,000 fewer recent high school graduates enrolling in college in the fall immediately after high school graduation (online Appendix Table 3).

Enrollment Rate Changes by Sector and Race/Ethnicity

The declines in two-year college enrollment rates were larger among underrepresented minority (URM) students (between 14.6% and 15.5%) than non-URM students (by about 8%). The declines in four-year college enrollment rates were largest among White students (4.5%) followed by American Indian or Alaska Native students (3.7%) and Asian students (3.5%).

Figure 4: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Race/Ethnicity



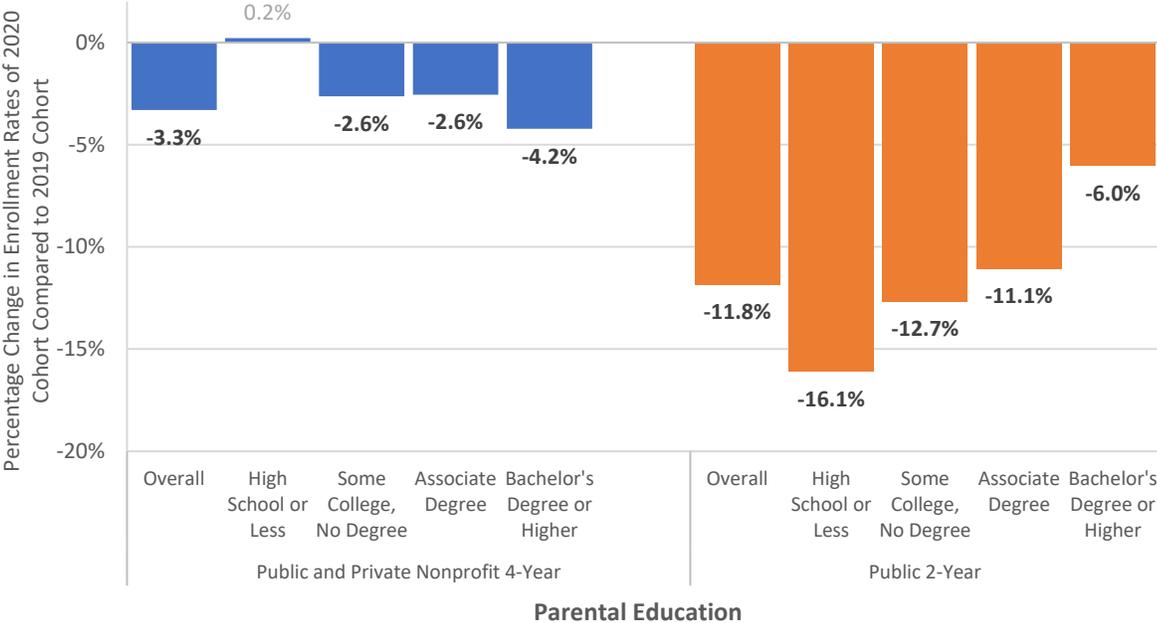
Note: Data labels in gray are not statistically significant at the 10% level.

- The large two-year public sector enrollment rate declines among Black and Hispanic students are consistent with evidence from the California Community College system (Bulman and Fairlie 2021) and Chicago Public School graduates (Nagaoka et al. 2021).
- The decline in public four-year college enrollment rates was largest among Asian students (4.0%) and White students (3.9%) (online Appendix Table 3).
- The decline in private nonprofit four-year college enrollment rate was largest among Native Hawaiian or Other Pacific Islander students (10.6%, not statistically significant), followed by White students (5.9%) (online Appendix Table 3).

Enrollment Rate Changes by Sector and Parental Education

Compared to the 2019 cohort, students in the 2020 cohort whose parents hold a bachelor’s degree or higher saw the largest declines in four-year college enrollment rates (4.2%). The opposite is true for two-year enrollment rates, which declined the most among students whose parents hold a high school diploma or less (16.1%).

Figure 5: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Parental Education



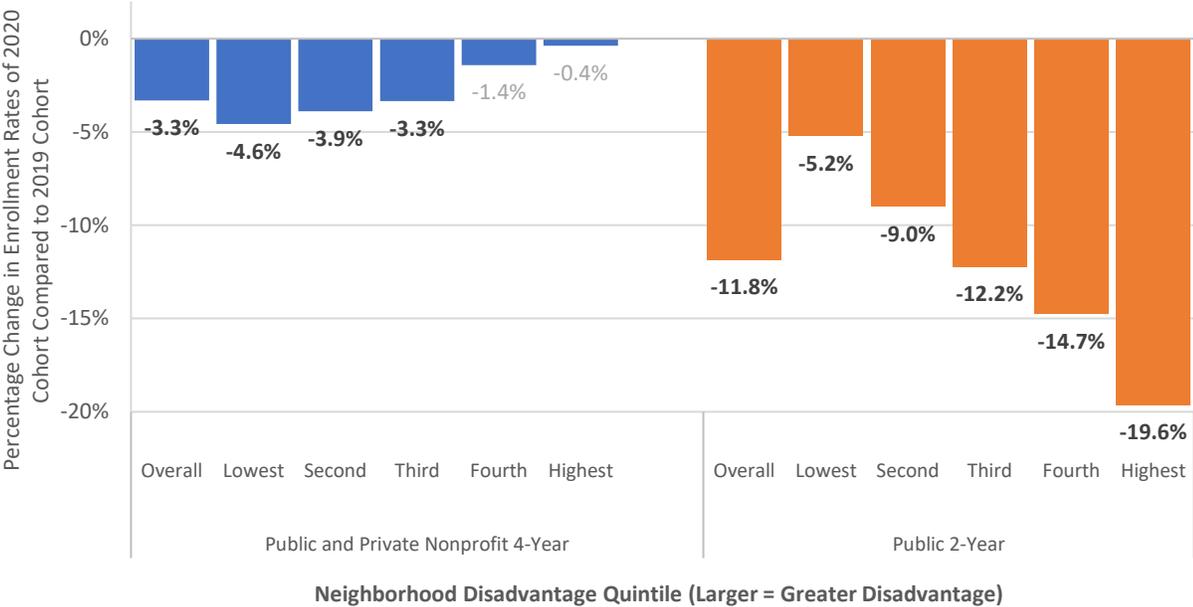
Note: Data labels in gray are not statistically significant at the 10% level.

- The declines in two-year enrollment rates were 16.1% among students whose parents had a high school diploma or less and 12.7% among students whose parents had some college experience, but received no degree. Enrollment rates declined by 11.1% among students with at least one parent holding an associate degree and 6.0% among students with at least one parent holding a bachelor’s degree or higher.
- By contrast, declines in overall four-year college enrollment rates were largest among students with at least one parent holding a bachelor’s degree or higher (4.2%). These students saw a decline of 5.3% in their private nonprofit four-year college enrollment rates and a decline of 3.7% in their public four-year college enrollment rates (online Appendix Table 3).

Enrollment Rate Changes by Sector and Neighborhood Attributes

Disaggregating results by neighborhood attributes similarly reveals that the declines in four-year college enrollment rates are primarily driven by students who reside in more advantaged neighborhoods, while the declines in two-year college enrollment rates are driven by students who reside in more disadvantaged neighborhoods.

Figure 6: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Neighborhood Attributes



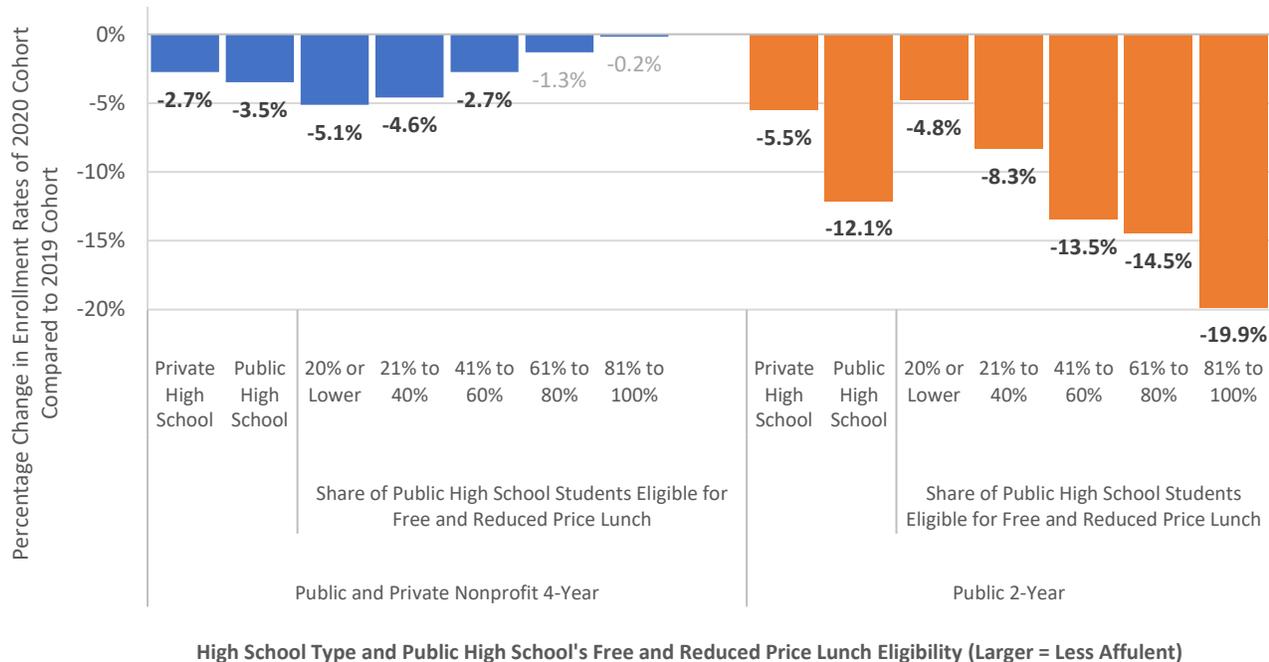
Note: Data labels in gray are not statistically significant at the 10% level. The neighborhood disadvantage measure is comprised of six indicators at the census tract level including college attendance, household structure, median family income, housing stability, education level, and crime. For more information about these measures, see: <https://secure-media.collegeboard.org/landscape/comprehensive-data-methodology-overview.pdf>.

- Two-year college enrollment rates declined by 19.6% among students in the most disadvantaged neighborhoods compared with 5.2% among students in the least disadvantaged neighborhoods.
- By contrast, four-year college enrollment rates declined the most (4.6%) among students in the least disadvantaged neighborhoods. These students saw a decline of 5.3% in their private nonprofit four-year college enrollment rates and a decline of 4.2% in their public four-year college enrollment rates (online Appendix Table 3).

Enrollment Rate Changes by Sector and High School Free and Reduced Price Lunch Eligibility

Declines in four-year college enrollment rates were larger among students from more affluent public high schools, while declines in two-year college enrollment rates were larger among students from less affluent public high schools.

Figure 7: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by High School Free and Reduced Price Lunch Eligibility



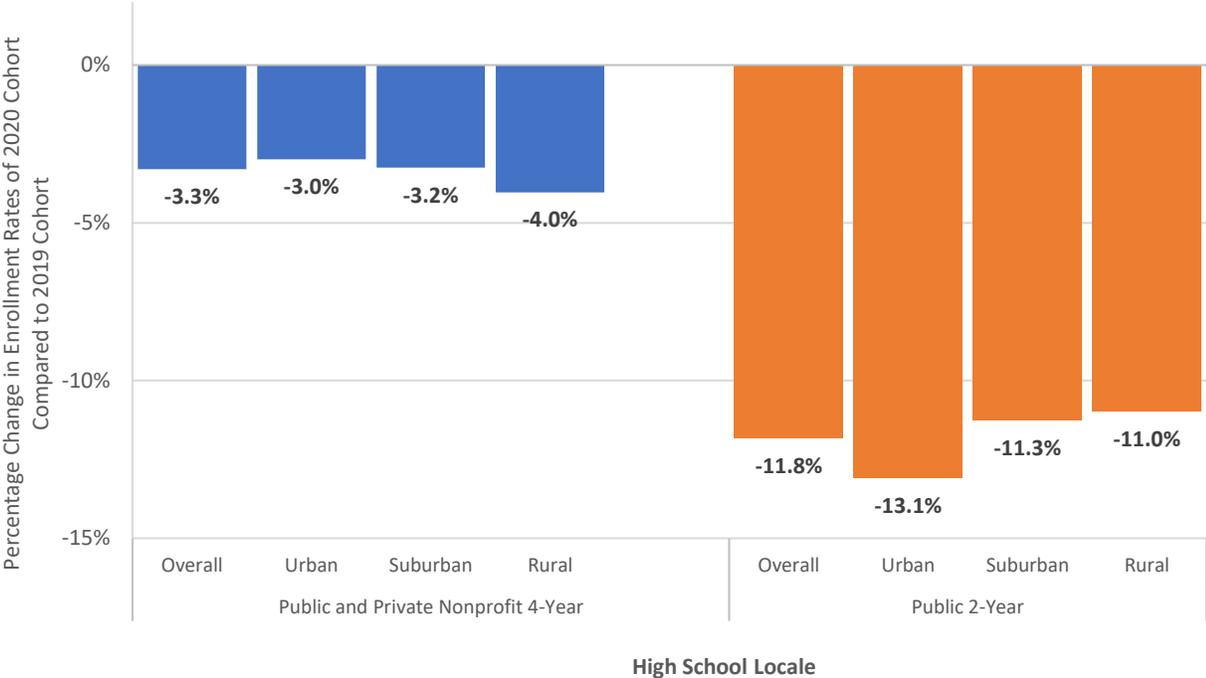
Note: Data labels in gray are not statistically significant at the 10% level. High School Free and Reduced Price Lunch Eligibility is from the National Center for Education Statistics's Common Core of Data.

- Two-year college enrollment rates declined by 12.1% among students from public high schools and by 5.5% among students from private high schools. Enrollment rates declined by 19.9% among students from the least affluent public high schools, while the decline was 4.8% among students from the most affluent public high schools.
- By contrast, four-year college enrollment rates declined the most (5.1%) among students from the most affluent public high schools.
- Similar to the pattern of overall four-year enrollment rate changes across schools in different FRPL groups, both public four-year and private nonprofit four-year college enrollment rates declined the most among students from the most affluent public high schools (online Appendix Table 3).

Enrollment Rate Changes by Sector and High School Locale

The declines in four-year college enrollment rates were slightly larger for students from rural high schools than for students from urban and suburban high schools. Declines in two-year college enrollment rates were slightly larger for urban high school students than for suburban and rural high school students.

Figure 8: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by High School Locale



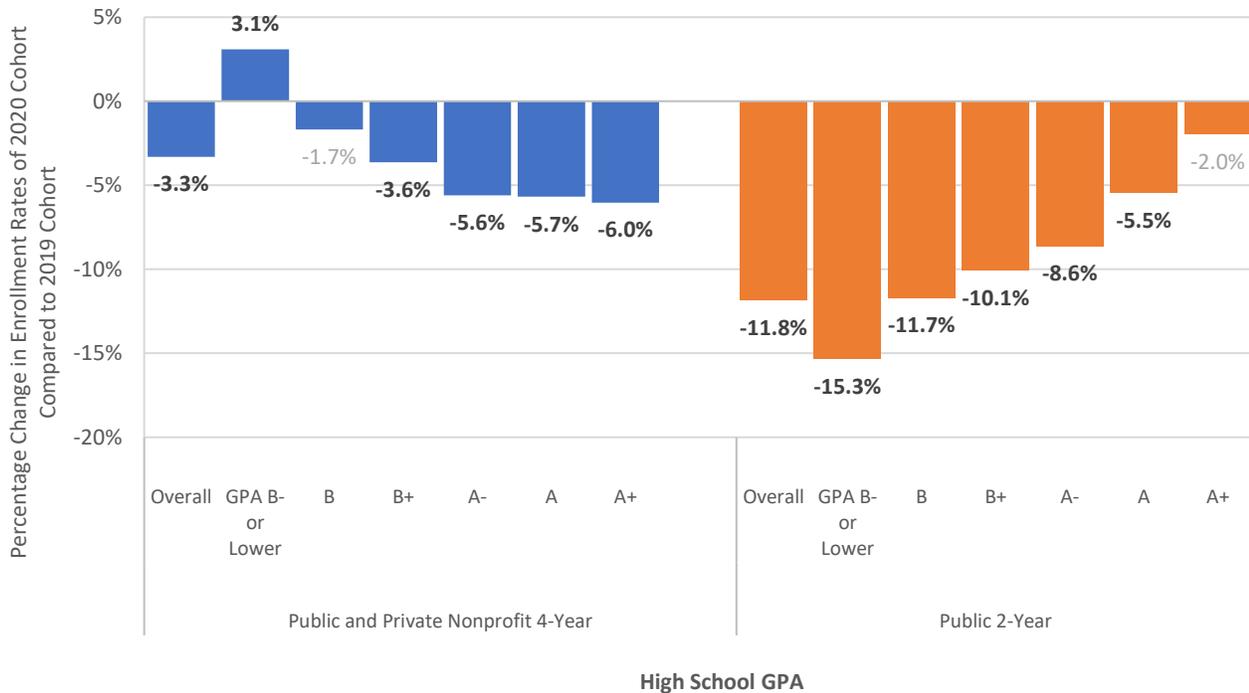
Note: Data labels in gray are not statistically significant at the 10% level. High School Locale is from the National Center for Education Statistics's Common Core of Data.

- Four-year college enrollment rates declined by 4.0% among students from rural high schools and by about 3% among students from urban and suburban high schools.
- Compared to their peers from urban and suburban high schools, students from rural high schools saw larger declines in both public four-year college enrollment rates (3.3%) and private nonprofit four-year enrollment rates (5.8%) (online Appendix Table 3).
- Two-year college enrollment rates declined by 13.1% among students from urban high schools and by about 11% among students from suburban or rural high schools.

Enrollment Rate Changes by Sector and High School GPA

Four-year college enrollment rates declined the most among students with higher high school grades, while two-year college enrollment rates declined the most among students with lower high school grades.

Figure 9: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by High School GPA



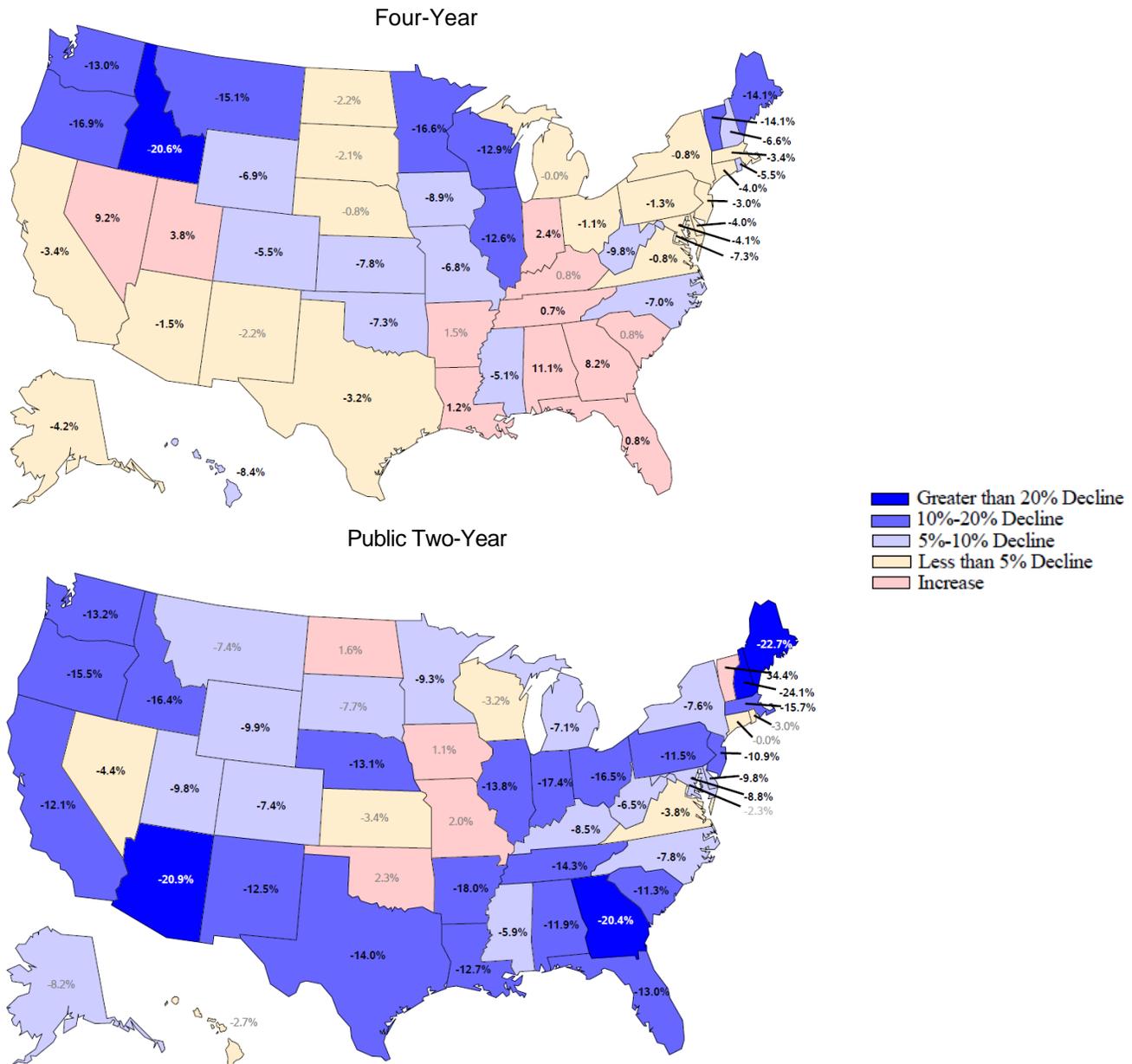
Note: Data labels in gray are not statistically significant at the 10% level. High school GPA is self-reported. Similar patterns exist by SAT score (see Appendix Figure A1).

- Four-year college enrollment rates declined by about 6% among students with GPAs of A- or higher. In contrast, enrollment rates increased by 3.1% among students with GPAs of B- or lower.
- Public four-year college enrollment rates increased by 4.5% among students with GPAs of B- or lower and declined for students in other GPA groups. Private nonprofit four-year college enrollment rates declined across all GPA groups (online Appendix Table 3).
- By contrast, two-year college enrollment rates declined the most among students with GPAs of B- or lower (15.3%) and declined the least among students with GPAs of A and A+.

Enrollment Rate Changes by Sector and Student State of Residence

Four-year college enrollment rates increased among students from most southern states, while two-year college enrollment rates declined among students from all southern states.

Figure 10: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Student State of Residence

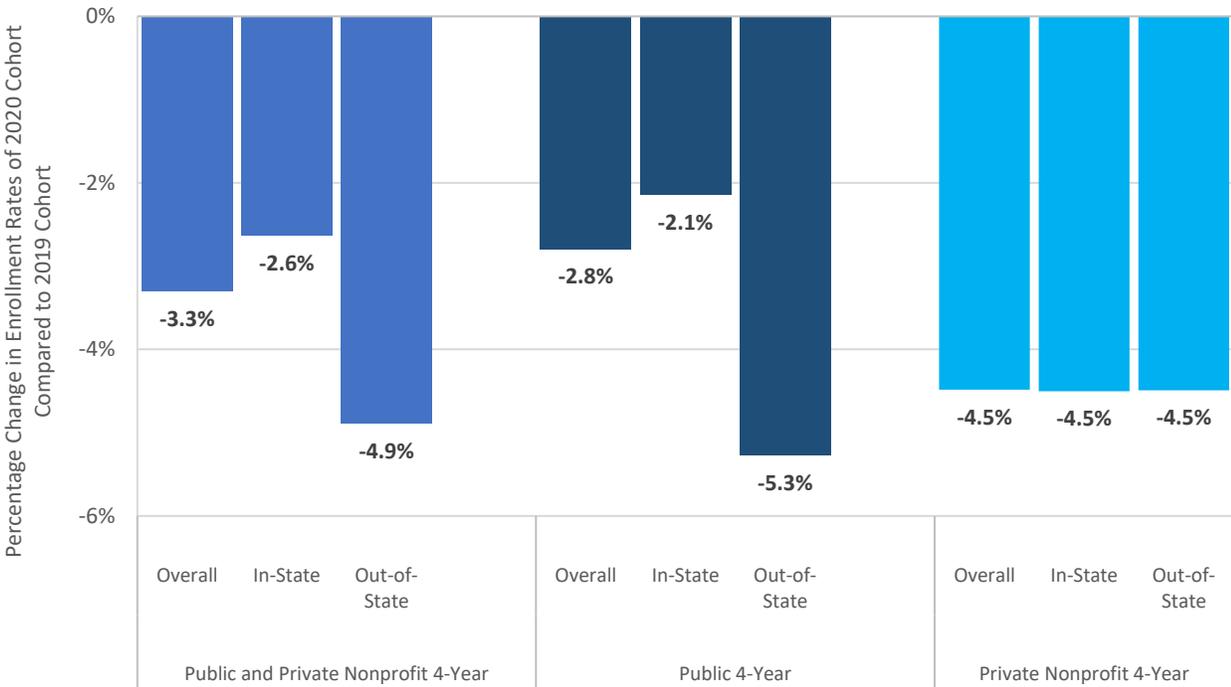


- Four-year college enrollment rates decreased by more than 10% among students in nine states and increased among students in 11 states.
- Two-year college enrollment rates declined by more than 10% among students in 23 states and increased among students in five states.

Enrollment Rate Changes by Sector and In-State Status

Out-of-state enrollment rates at public four-year colleges declined more than in-state enrollment rates. At private nonprofit four-year colleges, out-of-state enrollment rate declines were identical to in-state enrollment rate declines.

Figure 11: Percentage Change in Regression-Adjusted Four-Year College Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by In-State Status



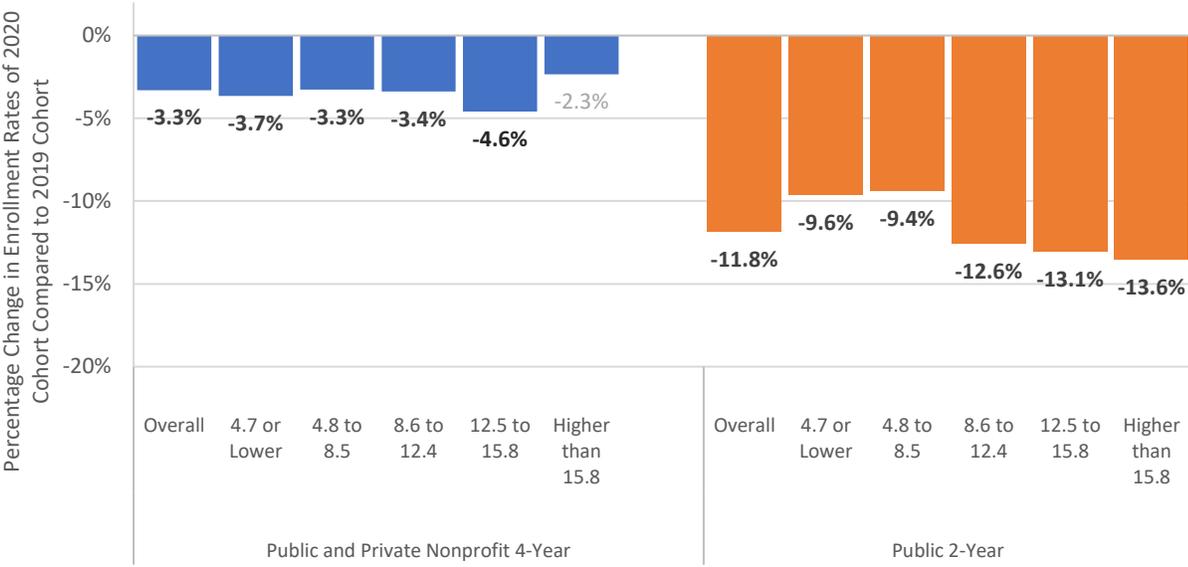
Note: Data labels in gray are not statistically significant at the 10% level.

- At public four-year institutions, college enrollment rates declined more among out-of-state students than in-state students (5.3% vs. 2.1%).
- The declines were 4.5% for both in-state and out-of-state students at private nonprofit four-year institutions.

Enrollment Rate Changes by Sector and Local Covid Case Rate

Two-year college enrollment rates declined more among students residing in counties with higher daily covid case rates compared to students in counties with lower daily covid case rates.

Figure 12: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Local Covid Case Rate



Daily Covid Cases per 100K County Residents as of August 31, 2020

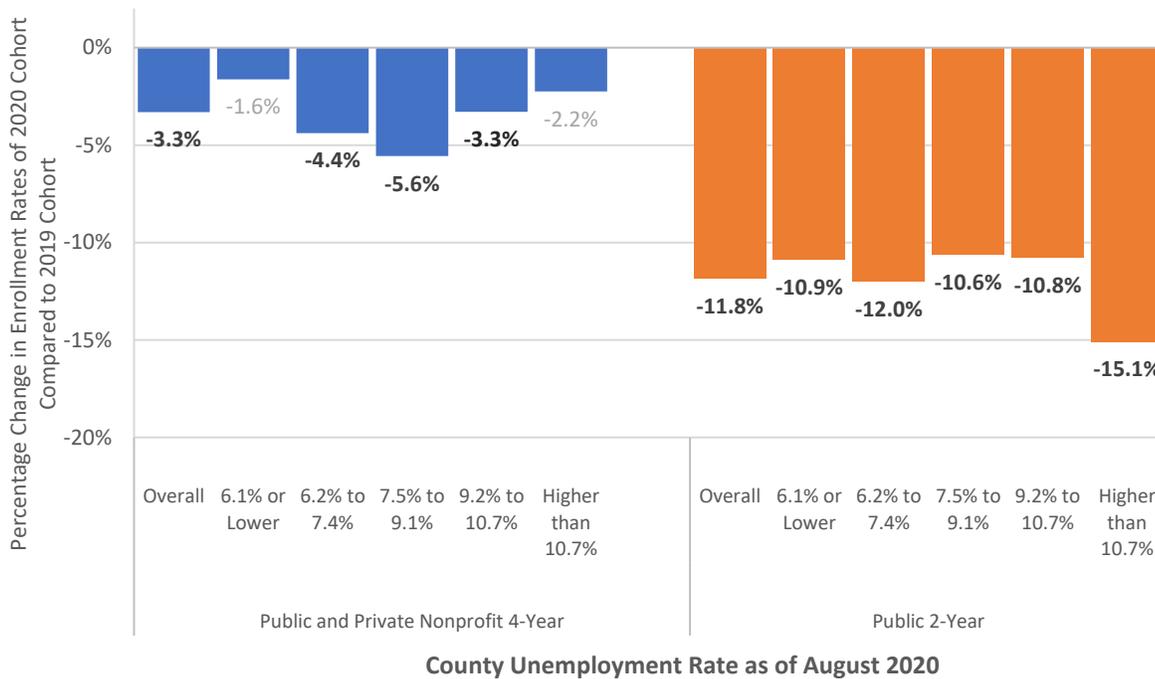
Note: Data labels in gray are not statistically significant at the 10% level. Covid case rates are calculated at a student’s county level using data from U.S.A. Facts. Students are grouped into five quintiles by covid-19 case rates.

- Two-year college enrollment rates declined by 13.6% among students in counties with high daily covid case rates (higher than 15.8 daily cases per 100K residents), while the decline was 9% to 10% in counties with lower daily covid case rates (8.5 and lower).
- There is no clear relationship between four-year college enrollment rate declines and daily covid case rates. However, the enrollment declines in the private nonprofit four-year sector were somewhat larger among students residing in counties with higher daily covid case rate (5% to 6% among students in counties with more than 8.6 daily cases per 100K residents) compared with the students in counties with lower daily covid case rate (3.7% in counties with 4.7 or lower daily cases per 100K residents) (online Appendix Table 3).

Enrollment Rate Changes by Sector and Local Unemployment Rate

Two-year college enrollment rates declined the most among students residing in counties in the highest unemployment rate group (unemployment rate higher than 10.7%).

Figure 13: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Local Unemployment Rate



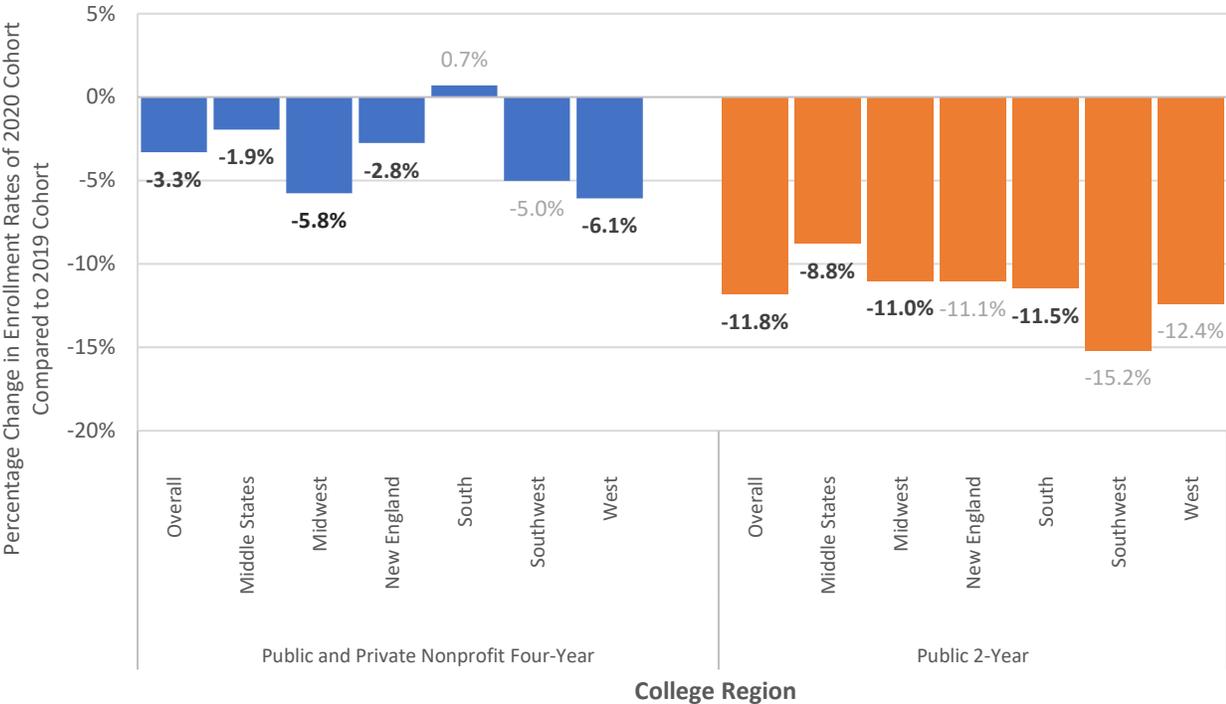
Note: Data labels in gray are not statistically significant at the 10% level. Unemployment rates are at a student's county level and are from the Bureau of Labor Statistics. Students are grouped into five quintiles by unemployment rates.

- Two-year college enrollment rates declined by 15.1% among students in counties with unemployment rates above 10.7%, while the decline was 10.6% to 12.0% in counties with unemployment rates below 10.7%.
- Four-year college enrollment rates declined the most (5.6%) among students from counties in the middle unemployment rate group (between 7.5% and 9.1%). This was the case for enrollment rates at both public four-year and private nonprofit four-year colleges (online Appendix Table 3).

Enrollment Rate Changes by Sector and College Region

Four-year college enrollment rate declines were between 1.9% at colleges in the Middle States region and 6.1% at colleges in the West region. Two-year college enrollment rates declined in all regions.

Figure 14: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Region of College



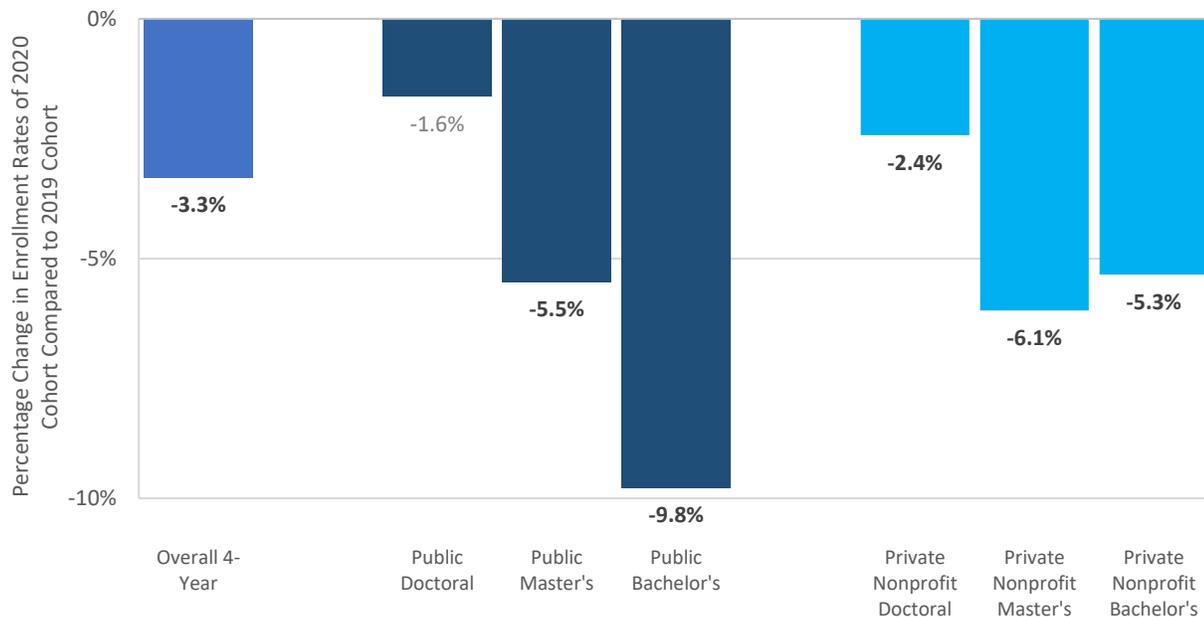
Note: Data labels in gray are not statistically significant at the 10% level. Regions are defined as follows: (1) Middle States—DC, DE, MD, NJ, NY, and PA; (2) Midwest—IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WV, and WI; (3) New England—CT, ME, MA, NH, RI, and VT; (4) South—AL, FL, GA, KY, LA, MS, NC, SC, TN, VA, and PR; (5) Southwest—AR, NM, OK, and TX; and (6) West—AK, AZ, CA, CO, HI, ID, MT, NV, OR, UT, WA, and WY.

- Four-year college enrollment rates declined the most in colleges in the West and Midwest regions.
- The declines were 5.5% at public four-year and 8.6% at private nonprofit four-year institutions in the West region. The decline was about 6% at both sectors in the Midwest region (online Appendix Table 3).

Enrollment Rate Changes by Carnegie Classification

Within the four-year sector, enrollment rate declines were smaller at doctoral institutions, compared to master's or bachelor's institutions.

Figure 15: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Carnegie Classification



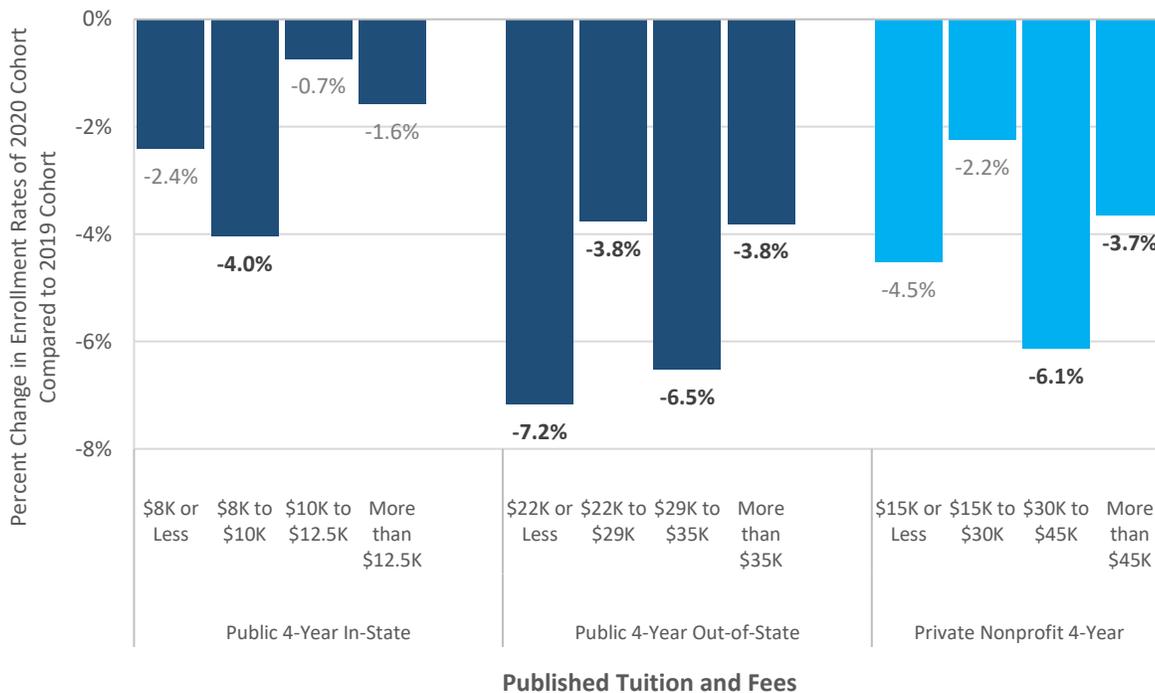
Note: Data labels in gray are not statistically significant at the 10% level.

- “Doctoral universities” include institutions that awarded at least 20 research or scholarship doctoral degrees during the update year and also institutions with below 20 research or scholarship doctoral degrees that awarded at least 30 professional practice doctoral degrees in at least 2 programs; “master’s colleges and universities” include institutions that award at least 50 master’s and fewer than 20 doctoral degrees; “bachelor’s colleges” include institutions where bachelor’s degrees represent at least 50% of all degrees but where fewer than 50 master’s or 20 doctoral degrees were awarded during the update year. All of the categories above exclude “special focus institutions” and “tribal colleges” (Indiana University Center for Postsecondary Research).
- Four-year college enrollment rates declined the most at public bachelor’s colleges (9.8%) and at private master’s colleges (6.1%).

Enrollment Rate Changes by Published Tuition and Fees at Four-Year Colleges

Among private nonprofit four-year colleges, declines in enrollment rates ranged from 2.2% for colleges that charged between \$15,000 and \$30,000 in tuition and fees to 6.1% for those that charged between \$30,000 and \$45,000.

Figure 16: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Four-Year Published Tuition and Fees



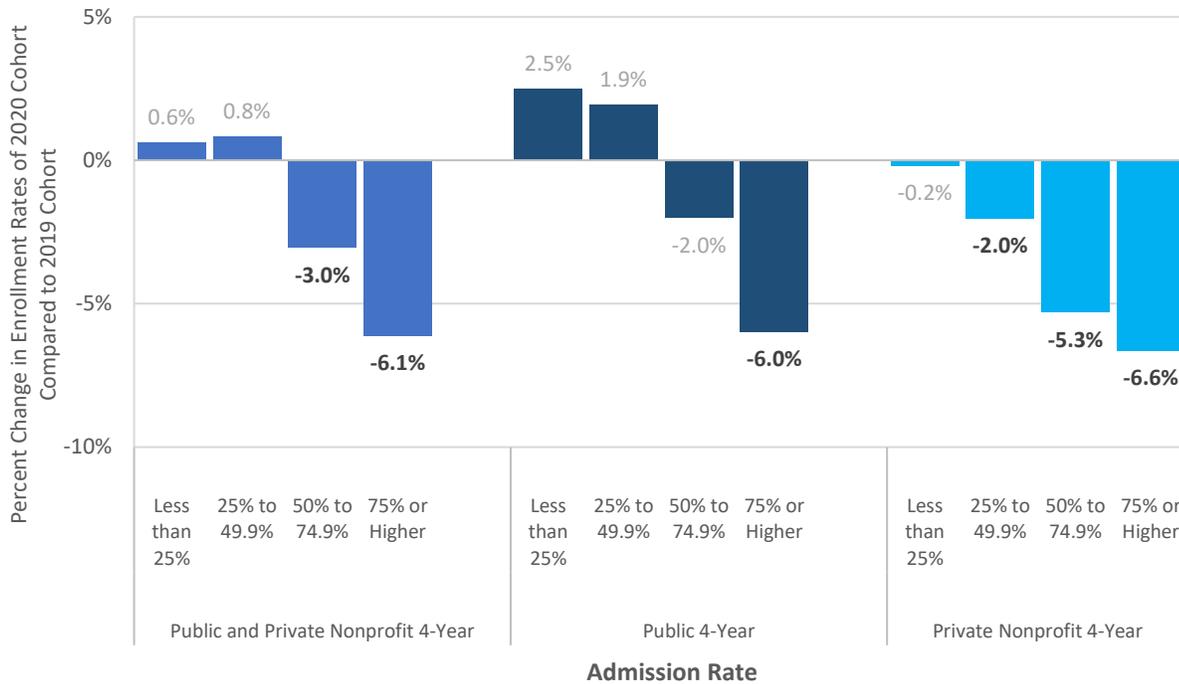
Note: Data labels in gray are not statistically significant at the 10% level. Tuition and fees are for the 2019-20 academic year.

- Enrollment rates among in-state students at public four-year colleges declined the most (4.0%) for colleges with in-state tuition and fees between \$8,000 and \$10,000.
- Enrollment rates among out-of-state students at public four-year colleges declined the most (7.2%) for colleges in the lowest out-of-state tuition group.

Enrollment Rate Changes by Sector and Admission Rate

Enrollment rates were essentially flat among four-year colleges with 2018 admission rates below 50%. At four-year colleges admitting more than 75% of applicants, enrollment rates declined by 6.1%.

Figure 17: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Admission Rate



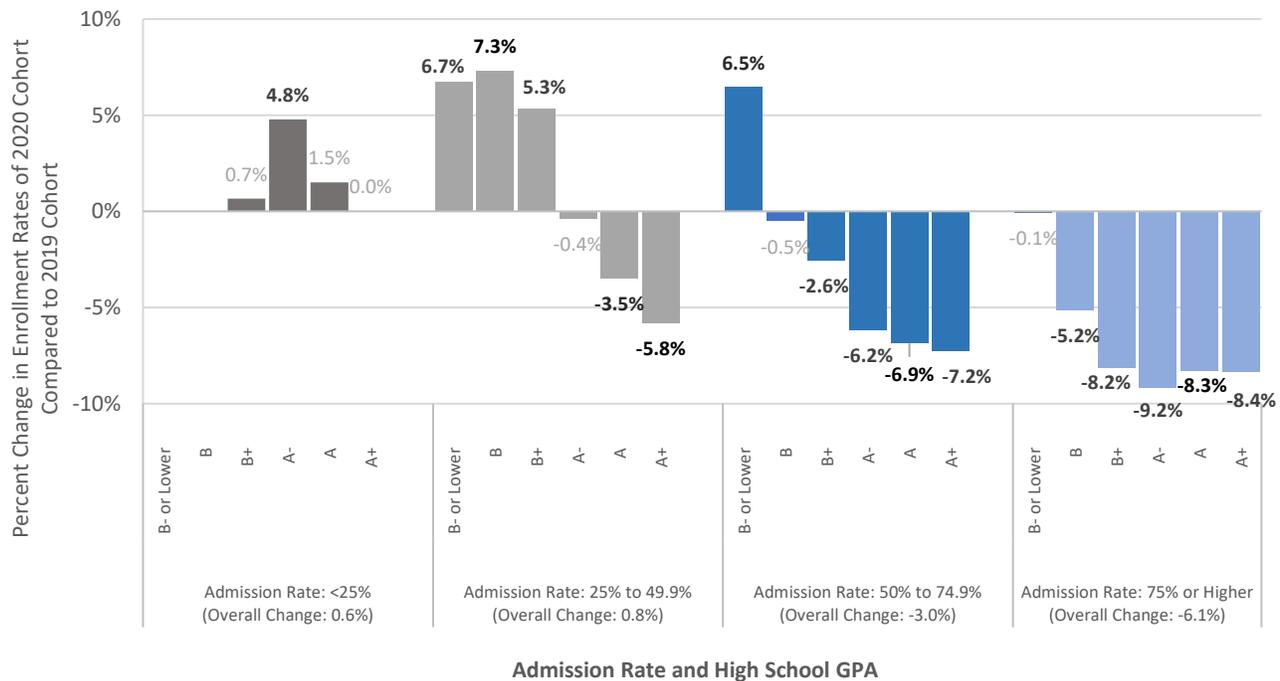
Note: Data labels in gray are not statistically significant at the 10% level. Admission rates were for fall 2018 entering cohort.

- Enrollment rates declined by 6.6% at private nonprofit four-year colleges with admission rates above 75%. The decline was 6.0% at public four-year institutions with similar admission rates.

Enrollment Rate Changes by Admission Rate and High School GPA

At modestly selective four-year colleges (with admission rates between 25% and 75%), students with higher high school GPAs were less likely to enroll and students with lower high school GPAs were more likely to enroll.

Figure 18: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to 2019 Cohort, by Admission Rate and High School GPA



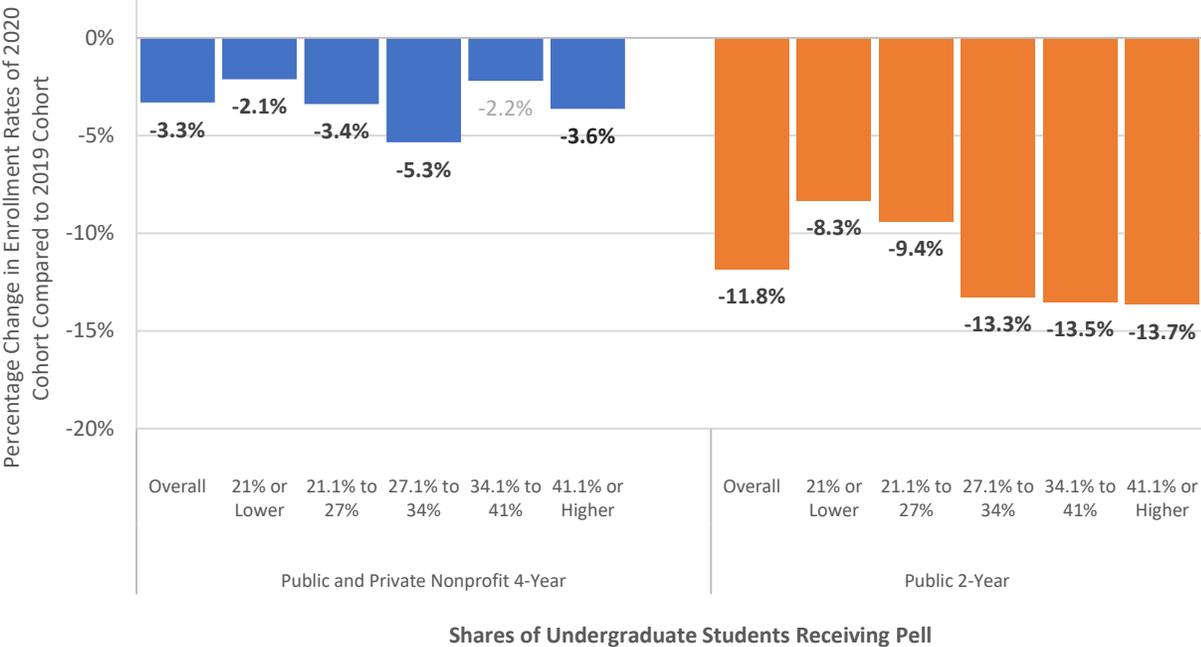
Note: Data labels in gray are not statistically significant at the 10% level. High school GPA is self-reported. Less than 0.2% of students with HSGPAs of B or below enrolled in schools with admission rate of less than 25%. These GPA groups are not shown in the dark gray panel.

- At four-year colleges with admission rates between 25% and 49.9%, enrollment rates declined by about 4% to 6% among A or A+ students, while enrollment rates of students with B+ and below at these colleges increased by about 5% to 7%.
- At four-year colleges with admission rates between 50% and 74.9%, enrollment rates declined by about 6% to 7% among students with A- or higher GPA, while enrollment rates of students with B- and below GPA at these colleges increased by 6.5%.
- At the least selective four-year colleges, enrollment rates declined among students with high school GPAs of B or higher.

Enrollment Rate Changes by Sector and Pell Share

Enrollment rates declined the most at the public two-year institutions with higher shares of Pell students.

Figure 19: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Pell Share



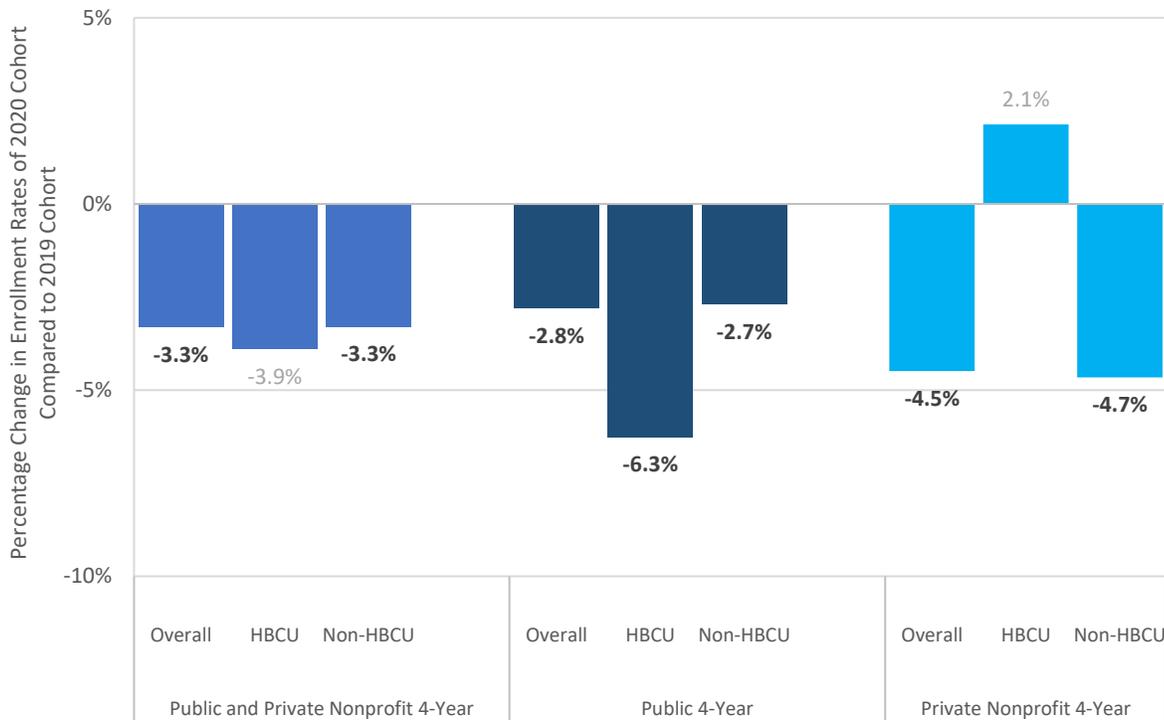
Note: Data labels in gray are not statistically significant at the 10% level. Shares of students receiving Pell are from IPEDS and are for 2018-19. Students are grouped into five quintiles.

- College enrollment rates declined by about 13% to 14% at the public two-year institutions where more than 27% of undergraduates received Pell grants. The decline was 8.3% at the two-year institutions where 21% or fewer undergraduates received Pell Grants.
- The relationship between enrollment rate changes and Pell share is less clear in the four-year sector where college enrollment rates declined the most (5.3%) among colleges with 27% to 34% students receiving Pell Grants.

Enrollment Rate Changes by Sector and HBCU Status

Four-year college enrollment rates declined by 3.9% at HBCUs, though this decline was not significant at the 10% level. However, enrollment rates declined by 6.3% at the public four-year HBCUs compared with 2.7% at other four-year public institutions.

Figure 20: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by HBCU Status



Note: Data labels in gray are not statistically significant at the 10% level.

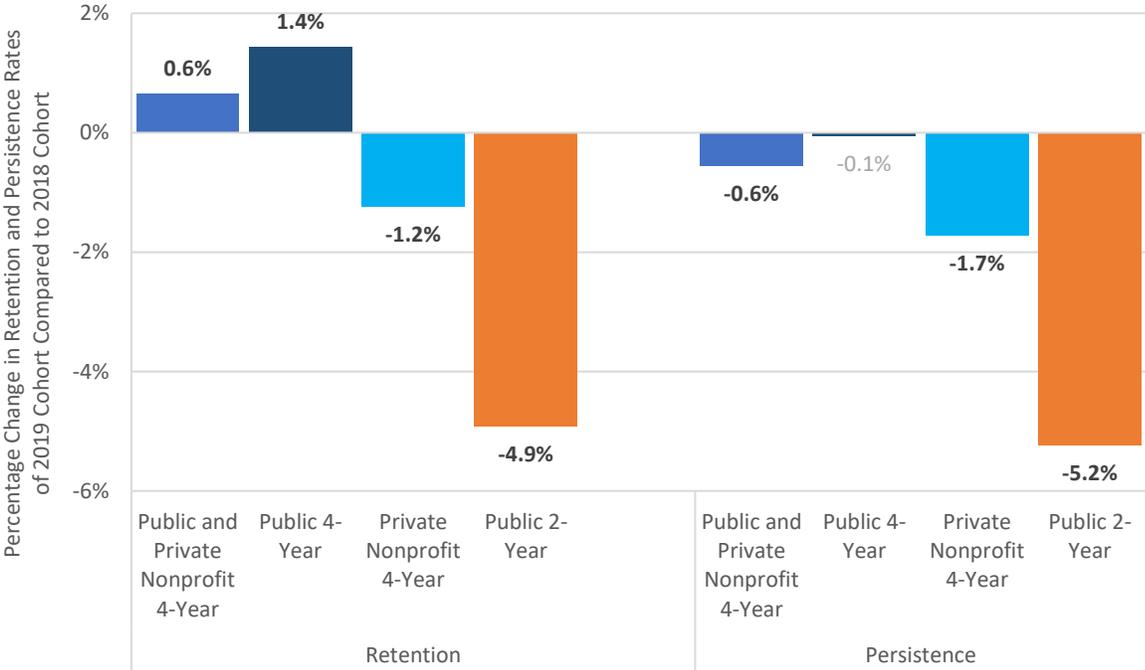
- The estimated change in the likelihood of students in the 2020 cohort enrolling in a private nonprofit HBCU four-year college is not statistically significant. At private non-HBCU colleges, the estimated change is a 4.7% decline.
- There are 39 public four-year and 42 private non-profit four-year HBCU institutions (IPEDS 2019).

Section 3: Regression-Adjusted Percentage Changes in Retention Rates

Retention and Persistence Rate Changes by Sector

First-year retention rates among students in the 2019 entering cohort, whose first year in college was interrupted by covid-19, increased by 1.4% in the public four-year sector, declined by 1.2% in the private nonprofit four-year sector, and declined by 4.9% in the public two-year sector compared to the 2018 entering cohort.

Figure 21: Percentage Change in Regression-Adjusted Retention and Persistence Rates of the 2019 Cohort Compared to the 2018 Cohort, by Sector



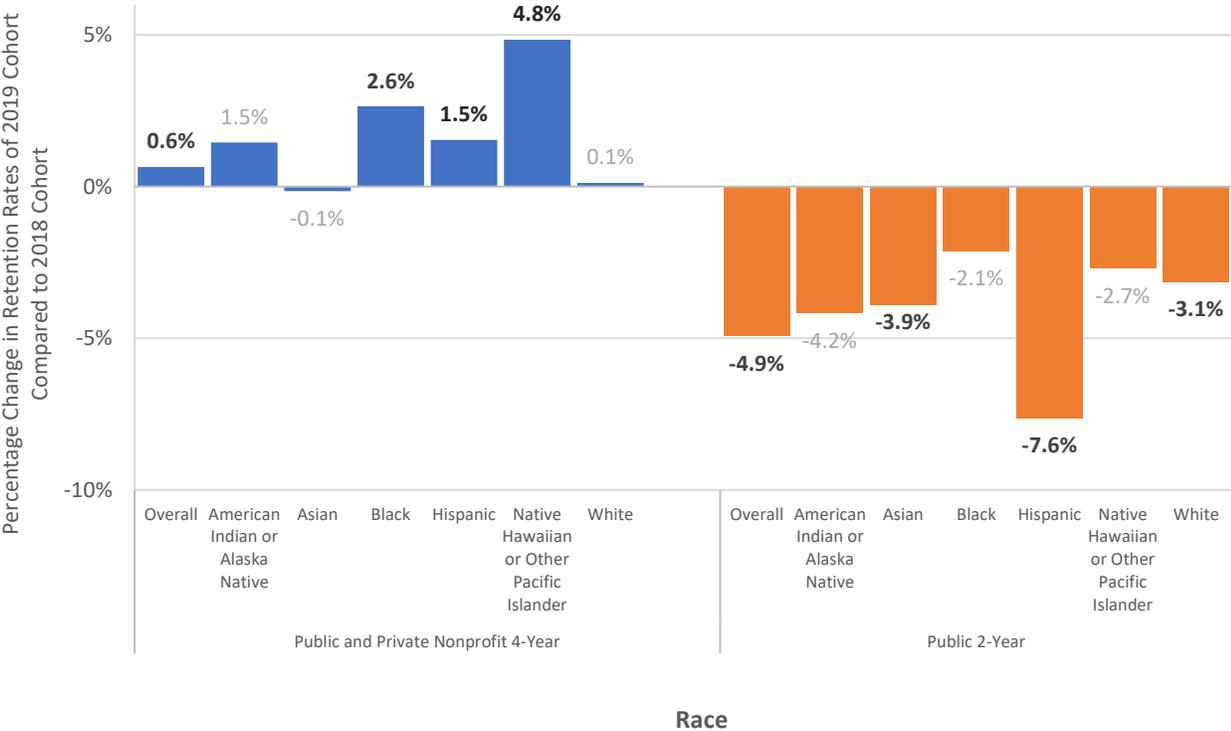
Note: Data labels in gray are not statistically significant at the 10% level.

- Student retention is re-enrollment in the same postsecondary institution, while student persistence is re-enrollment in any postsecondary institution.
- Compared to the 2018 cohort, first-year persistence rates among students in the 2019 cohort were stable in the public four-year sector, declined by 1.7% in the private nonprofit four-year sector, and declined by 5.2% in the public two-year sector.
- Because of the similar patterns in retention and persistence rate changes, we focus on retention results in the remainder of this section.

Retention Rate Changes by Sector and Race/Ethnicity

In the public two-year sector, students in all racial/ethnic groups in the 2019 cohort saw declines in first-year retention rates compared to their 2018 counterparts. The decline was largest among Hispanic students (7.6%).

Figure 22: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Race/Ethnicity



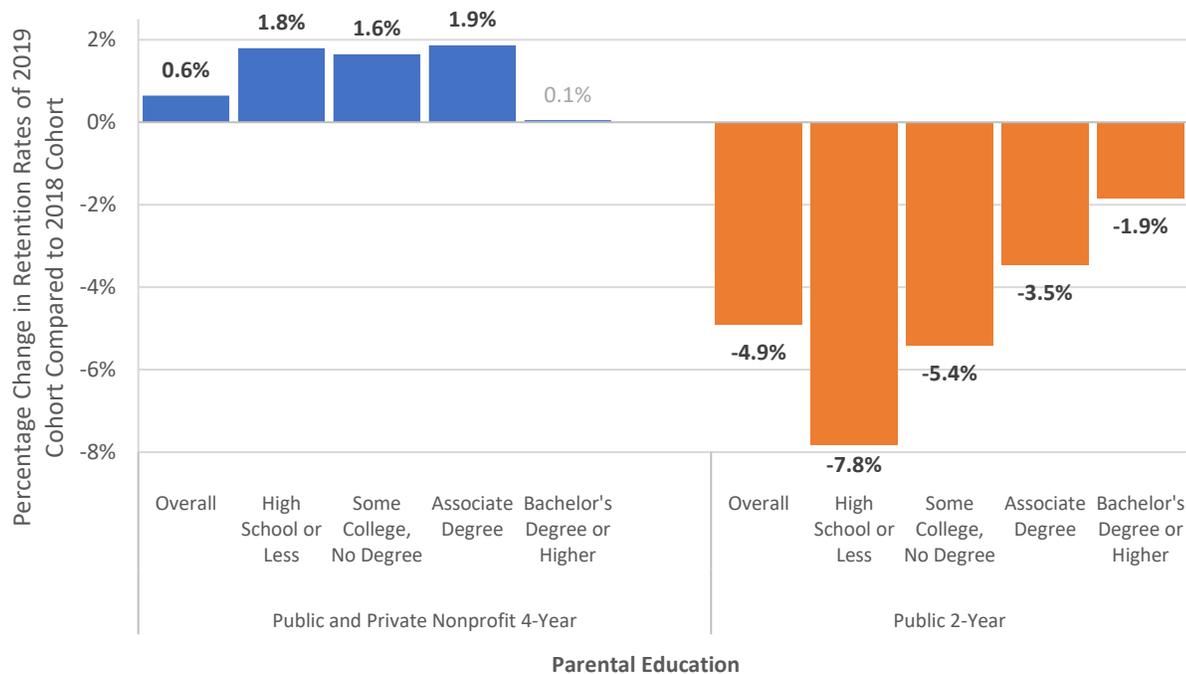
Note: Data labels in gray are not statistically significant at the 10% level.

- Across racial/ethnic groups, the percentage change in first-year retention rates among four-year college students in the 2019 cohort compared to the 2018 cohort ranged from roughly no change among Asian and White students to 2.6% and 4.8% increases for Black and Native Hawaiian/Other Pacific Islander students, respectively.
- In the public four-year sector, students in all racial/ethnic groups in the 2019 cohort saw increases in first-year retention rates compared to their 2018 counterparts. The increases were under 1% for Asian and White students and between 2.2% and 4.7% for other groups (online Appendix Table 4).
- In the private nonprofit four-year sector, Black and Native Hawaiian/Other Pacific Islander students in the 2019 cohort saw increases in their first-year retention rates, while other groups saw declines (online Appendix Table 4).

Retention Rate Changes by Sector and Parental Education

Compared to the 2018 cohort, first-year retention rates among four-year college students in the 2019 cohort were essentially unchanged for those whose parents had at least a bachelor's degree and increased by between 1.6% and 1.9% for students whose parents did not hold a bachelor's degree.

Figure 23: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Parental Education



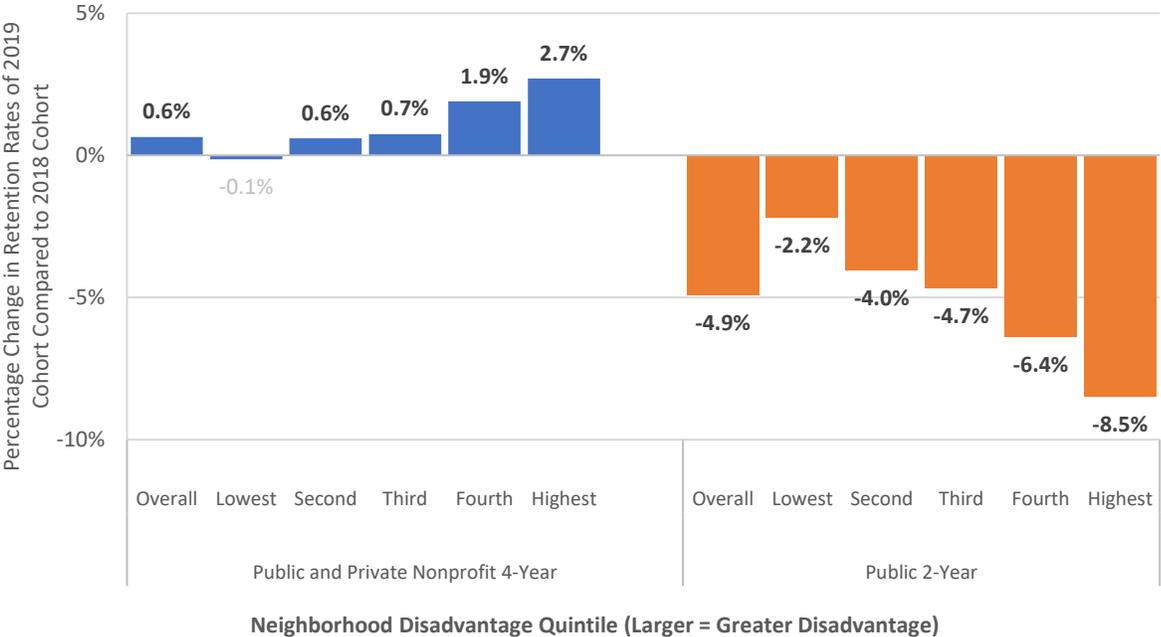
Note: Data labels in gray are not statistically significant at the 10% level.

- Compared to the 2018 cohort, the first-year retention rates among public two-year college students in the 2019 cohort declined across all parental education levels. The declines ranged from 1.9% for students whose parents had at least a bachelor's degree to 7.8% for those whose parents did not have any education beyond high school.
- In the public four-year sector, students with all parental education levels in the 2019 cohort saw increases in first-year retention rates compared to their 2018 counterparts. The increases were 0.8% for those whose parents had at least a bachelor's degree and between 2.3% to 2.7% for those whose parents did not have a bachelor's degree (online Appendix Table 4).
- In the private nonprofit four-year sector, students with all parental education levels in the 2019 cohort saw declines in first-year retention rates compared to their 2018 counterparts. The decline was 1.6% for those whose parents had at least a bachelor's degree and less than 1.0% and statistically insignificant for other groups (online Appendix Table 4).

Retention Rate Changes by Sector and Neighborhood Attributes

Disaggregating results by neighborhood attributes reveals that, compared to the 2018 cohort, four-year college students in the 2019 cohort from more disadvantaged neighborhoods saw higher increases in first-year retention rates than students from less disadvantaged neighborhoods.

Figure 24: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Neighborhood Attributes



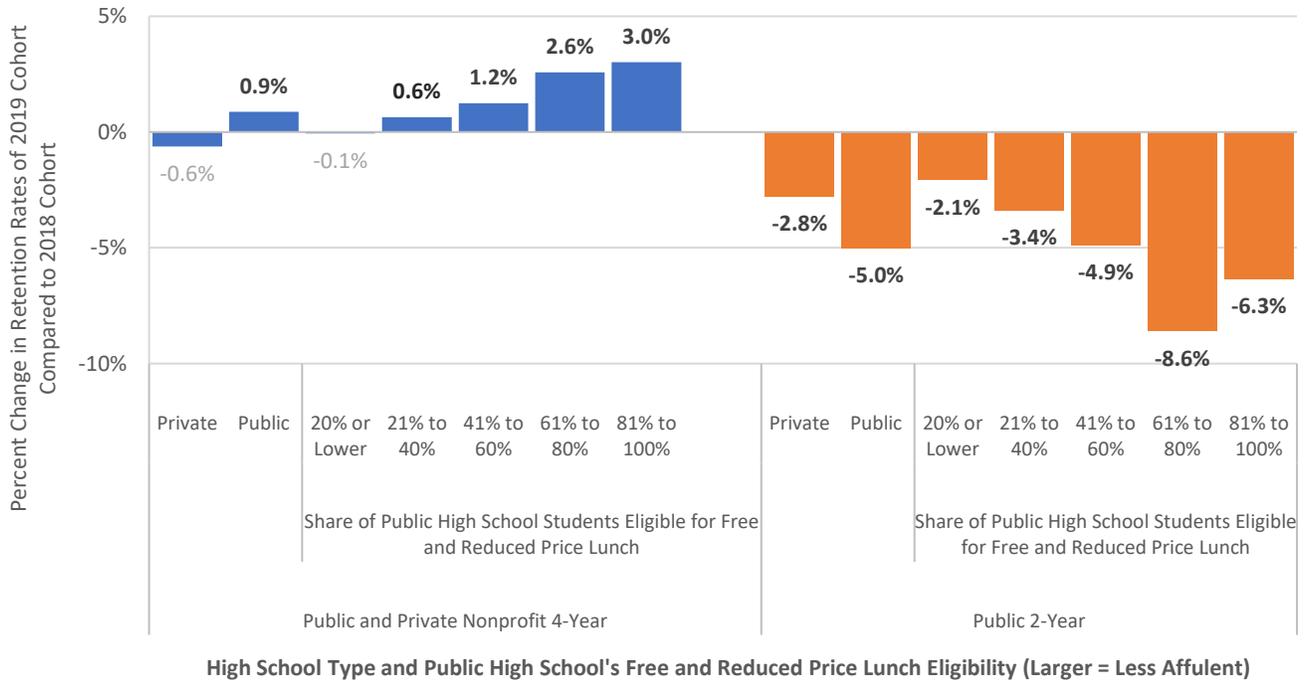
Note: Data labels in gray are not statistically significant at the 10% level. The neighborhood disadvantage measure is comprised of six indicators at the census tract level, including college attendance, household structure, median family income, housing stability, education level, and crime. For more information about these measures, see: <https://secure-media.collegeboard.org/landscape/comprehensive-data-methodology-overview.pdf>.

- Compared to the 2018 cohort, two-year college students in the 2019 cohort from more disadvantaged neighborhoods saw sharper declines in first-year retention rates. Declines ranged from 2.2% for those from neighborhoods in the least disadvantaged group to 8.5% for those in the most disadvantaged group.
- Compared to the 2018 cohort, public four-year college students in the 2019 cohort saw increases in first-year retention rates across all disadvantage groups, ranging from 0.7% for those from the least disadvantaged group to 3.2% for those from the most disadvantaged group (online Appendix Table 4).
- Compared to the 2018 cohort, private nonprofit four-year students in the 2019 cohort from the most disadvantaged group saw an increase of about 1.0% in first-year retention rates, although the estimate is not statistically significant. Students in the 2019 cohort from other groups saw declines in retention rates compared to the 2018 cohort, ranging from 0.4% for those from the second most disadvantaged group to 1.8% for those from the least disadvantaged group (online Appendix Table 4).

Retention Rate Changes by Sector and High School Free and Reduced Price Lunch (FRPL) Eligibility

Two-year college students in the 2019 cohort from less affluent high schools saw larger increase in first-year retention rates than their more affluent counterparts.

Figure 25: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by High School Free and Reduced Price Lunch Eligibility



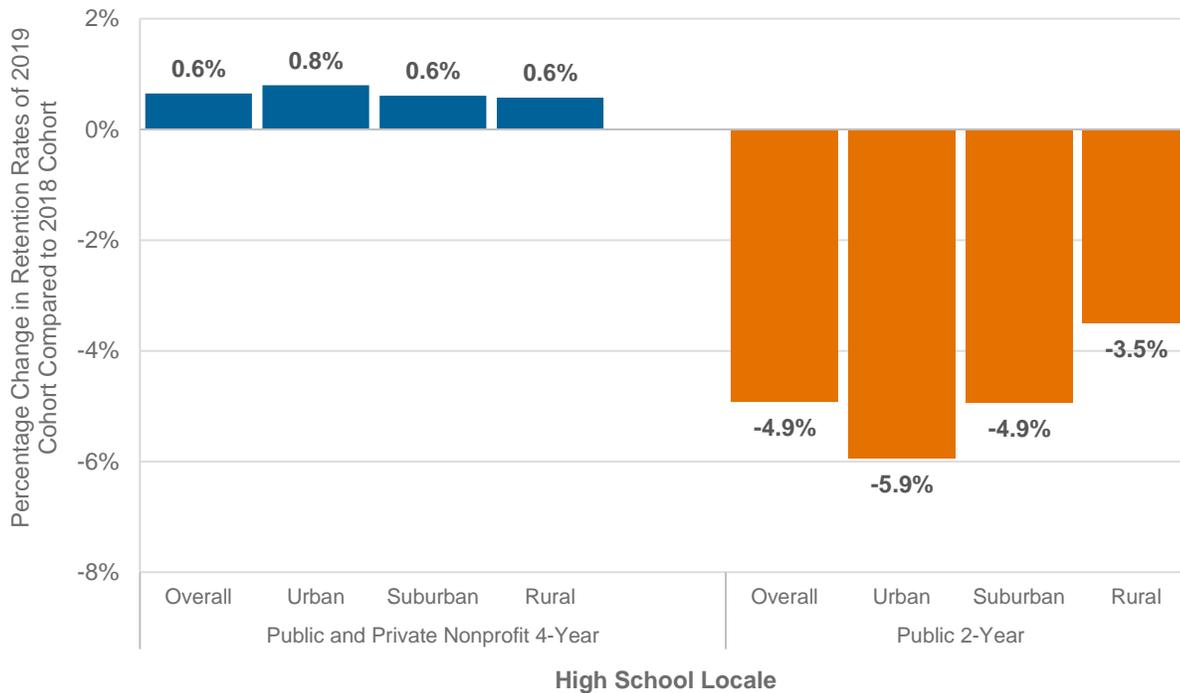
Note: Data labels in gray are not statistically significant at the 10% level. High School Free and Reduced Price Lunch Eligibility is from the National Center for Education Statistics's Common Core of Data.

- Compared to the 2018 cohort, four-year college students in the 2019 cohort from public high schools saw a 0.9% increase in first-year retention rates, compared to a statistically insignificant 0.6% decline for those from private high schools.
- Compared to the 2018 cohort, public two-year college students in the 2019 cohort saw declines in first-year retention rates across school types and FRPL levels. The declines were 2.8% and 5.0% for those from private and public high schools, respectively.
- Compared to the 2018 cohort, public four-year college students in the 2019 cohort saw increases in first-year retention rates across high school types and FRPL levels, ranging from 0.5% for those from the wealthiest public high schools to 4.0% for those from the least wealthy public high schools (online Appendix Table 4).
- Compared to the 2018 cohort, private nonprofit four-year college students in the 2019 cohort saw declines in first-year retention rates across high school types and FRPL levels with the exception of an increase of 1.6% for those from public high schools with FRPL between 61% and 80% (online Appendix Table 4).

Retention Rate Changes by Sector and High School Locale

Compared to the 2018 cohort, public two-year college students in the 2019 cohort from all high school locales saw declines in retention rates. The declines were 3.5% for students from rural high schools, 4.9% for students from suburban high schools, and 5.9% for students from urban high schools.

Figure 26: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by High School Locale



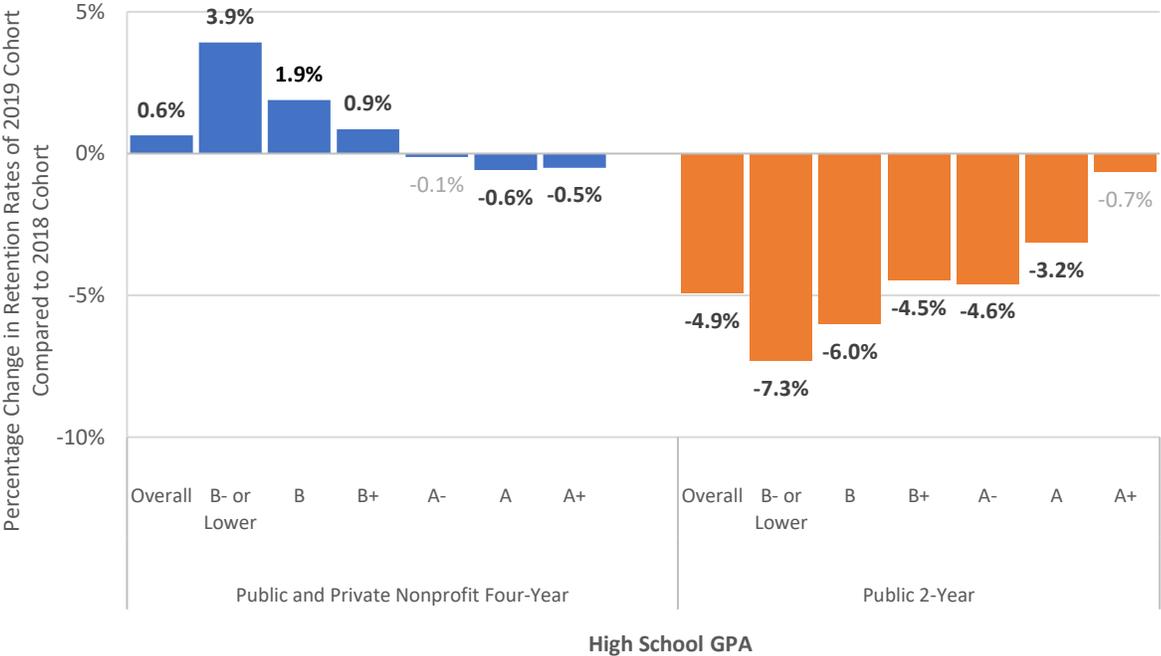
Note: Data labels in gray are not statistically significant at the 10% level. High School Locale is from the National Center for Education Statistics's Common Core of Data.

- Compared to the 2018 cohort, public four-year college students in the 2019 cohort saw increases in first-year retention rates across high school locales, ranging from 1.1% for those from rural high schools to 1.8% for those from urban high schools (online Appendix Table 4).
- Compared to the 2018 cohort, private nonprofit four-year college students in the 2019 cohort saw declines in first-year retention rates across high school locales, ranging from 0.9% for those from rural high school to 1.8% for those from urban high schools (online Appendix Table 4).

Retention Rate Changes by Sector and High School GPA

Compared to the 2018 cohort, retention rates among four-year college students in the 2019 cohort increased for those with high school GPAs of B+ or lower and declined slightly for those with GPAs of A and A+.

Figure 27: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by High School GPA



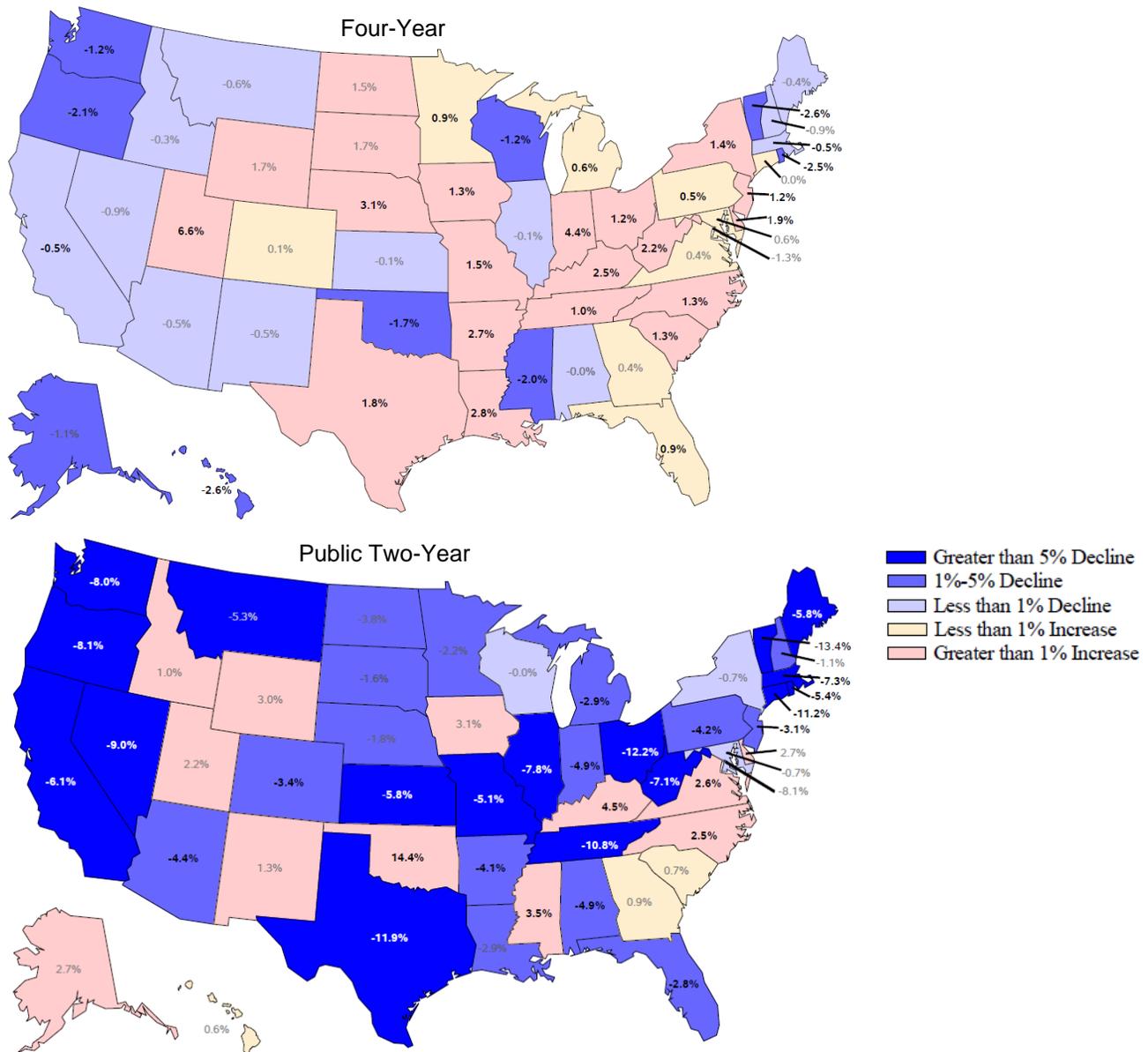
Note: Data labels in gray are not statistically significant at the 10% level. High school GPA is self-reported. Similar patterns exist by SAT score (see Appendix Figures 3 and 4).

- Public two-year college students in the 2019 cohort with lower GPAs saw larger declines in retention rates compared to the 2018 cohort. For example, students with high school GPAs of B- or lower had retention rate declines of 7.3% in the public two-year sector, compared to a 3.2% decline for students with high school GPAs of A.
- Compared to the 2018 cohort, public four-year college students in the 2019 cohort saw increases in first-year retention rates across high school GPA levels, ranging from 0.5% or less for those with high school GPAs of A- or higher to 5.1% for those with GPAs of B- or lower (online Appendix Table 4).
- Compared to the 2018 cohort, private nonprofit four-year college students in the 2019 cohort saw declines in first-year retention rates for those with high school GPAs of B+ or higher, ranging from 1.4% for those with a high school GPA of B+ to 2.3% for those with a high school GPA of A (online Appendix Table 4).

Retention Rate Changes by Sector and Student State of Residence

Compared to the 2018 cohorts, retention rates among students in the 2019 cohort enrolled in a four-year college ranged from a decline of 2.6% for students from Hawaii and Vermont to increases of 4.4% for students from Indiana and 6.6% for students from Utah.

Figure 28: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Student State of Residence

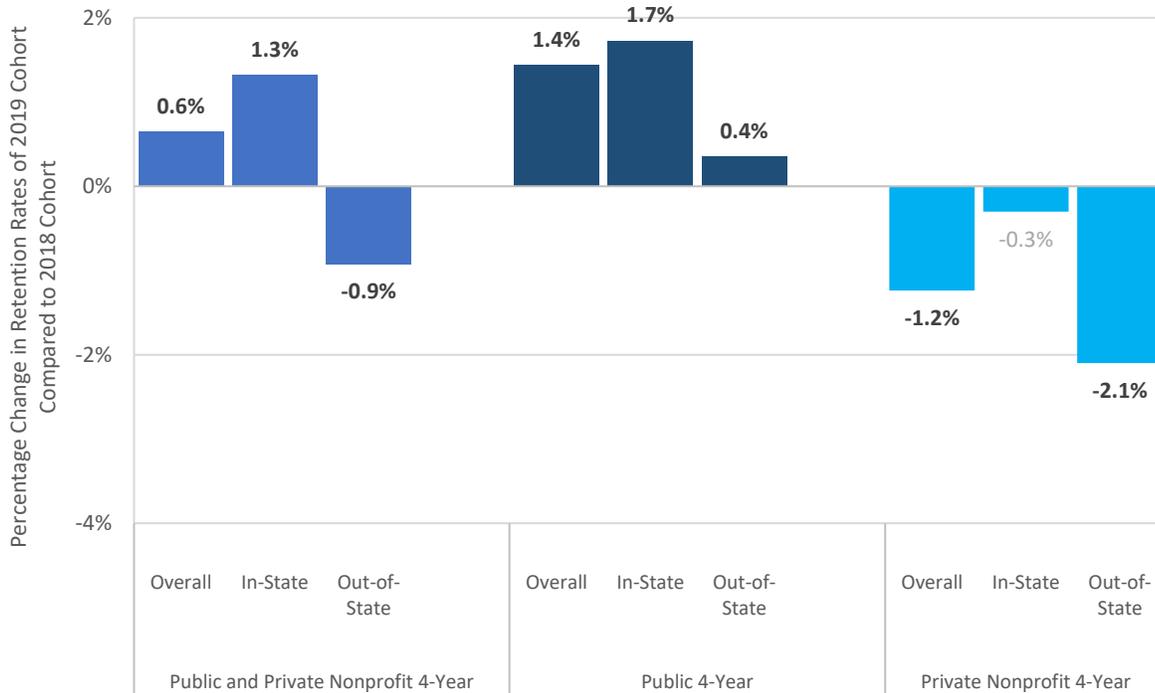


- Compared to the 2018 cohorts, retention rates among students in the 2019 cohort enrolled in a public two-year college ranged from declines of 12% to 13% for students from Texas and Vermont to an increase of 14% for students from Oklahoma.

Retention Rate Changes by Sector and In-State Status

Compared to the 2018 cohort, retention rates of students in the 2019 cohort increased by 1.7% among those enrolled in an in-state public four-year college and by 0.4% among those enrolled in an out-of-state public four-year college.

Figure 29: Percentage Change in Regression-Adjusted Four-Year College Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by In-State Status



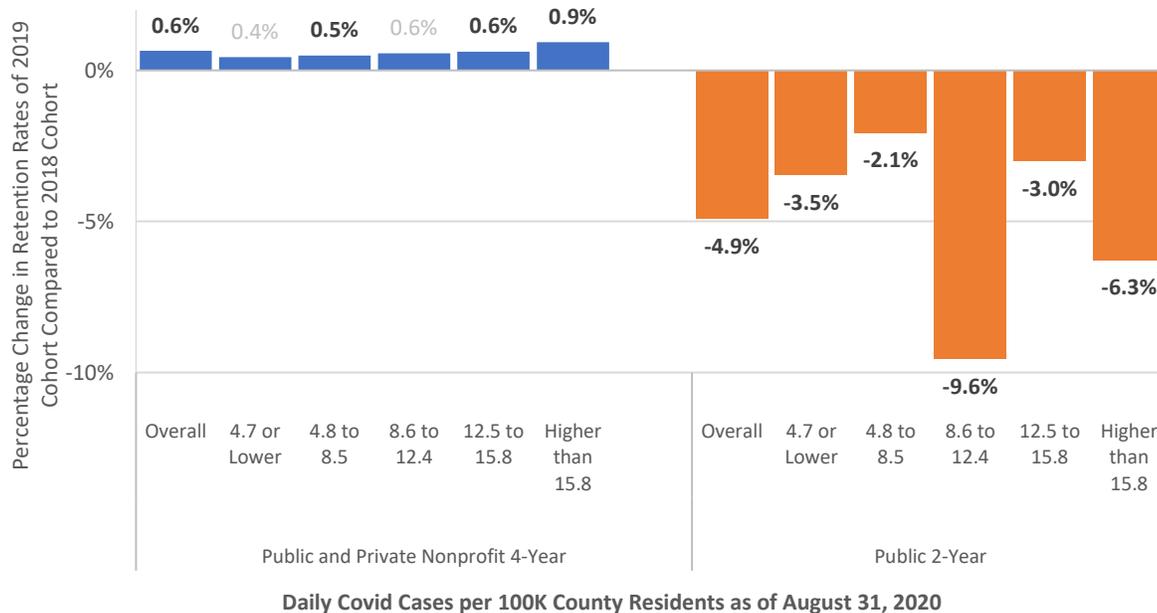
Note: Data labels in gray are not statistically significant at the 10% level. Nearly all community college students are in-state.

- Compared to the 2018 cohort, retention rates of students in the 2019 cohort declined by a statistically insignificant 0.3% among those enrolled in an in-state private nonprofit four-year college and by 2.1% among those enrolled in an out-of-state private nonprofit four-year college.
- Compared to the 2018 cohort, retention rates of students in the 2019 cohort increased by 1.3% among those enrolled in an in-state public or private nonprofit four-year college and declined by 0.9% among those enrolled in an out-of-state public or private nonprofit four-year college.

Retention Rate Changes by Sector and Local Covid Case Rate

Compared to the 2018 cohort, retention rates of four-year college students in the 2019 cohort increased by between 0.4% and 0.9% across groups, defined by county-level covid daily case rates.

Figure 30: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Local Covid Case Rate



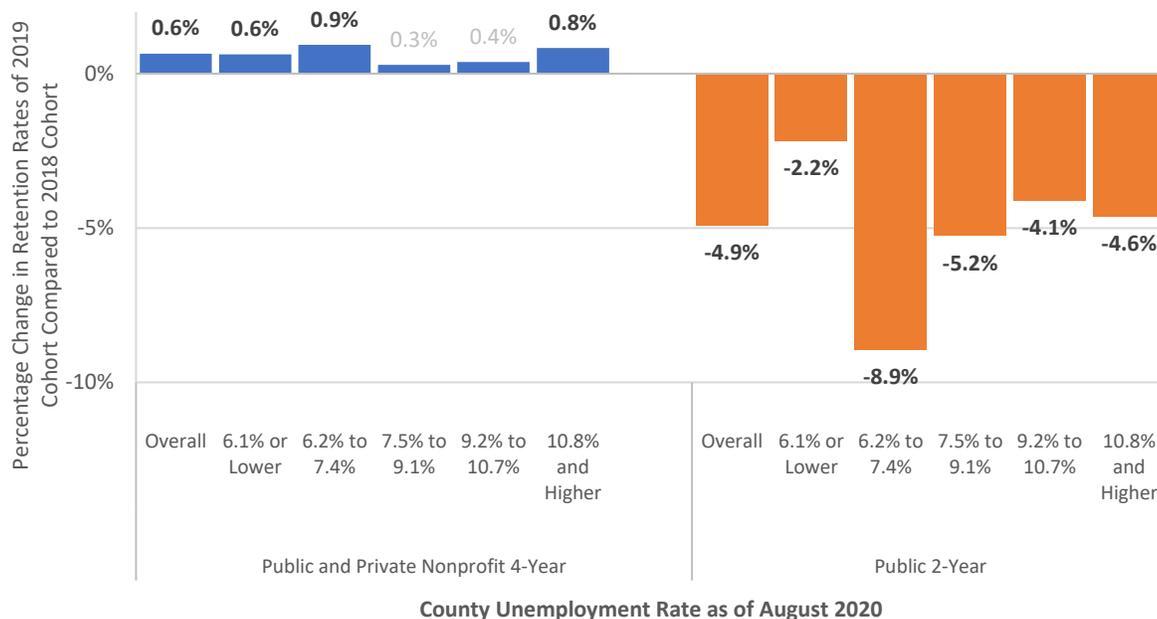
Note: Data labels in gray are not statistically significant at the 10% level. Covid case rates are calculated at a student's county level using data from U.S.A. Facts. Students are grouped into five quintiles by covid-19 case rates.

- Public two-year college students in the 2019 cohort saw declines in retention rates compared to the 2018 cohort across groups with various covid rates. The declines ranged from 2.1% for those from counties with between 4.8 and 8.5 daily cases per 100,000 residents as of August 31, 2020 to 9.6% for those from counties with between 8.6 and 12.4 daily cases per 100,000 residents.
- Compared to the 2018 cohort, public four-year students in the 2019 cohort saw increases in retention rates of between 1.3% and 1.6% across counties of various covid rates (online Appendix Table 4).
- Compared to the 2018 cohort, private nonprofit four-year students in the 2019 cohort saw declines in retention rates across counties of various covid rates. The declines ranged from 0.5% for those from counties in the highest covid daily rate group to 1.7% for those from counties in the second highest covid daily rate group as of August 31, 2020 (online Appendix Table 4).

Retention Rate Changes by Sector and Local Unemployment Rate

Compared to the 2018 cohort, retention rates of four-year college students in the 2019 cohort increased by between 0.3% and 0.9% across groups of students defined by county unemployment rates.

Figure 31: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Local Unemployment Rate



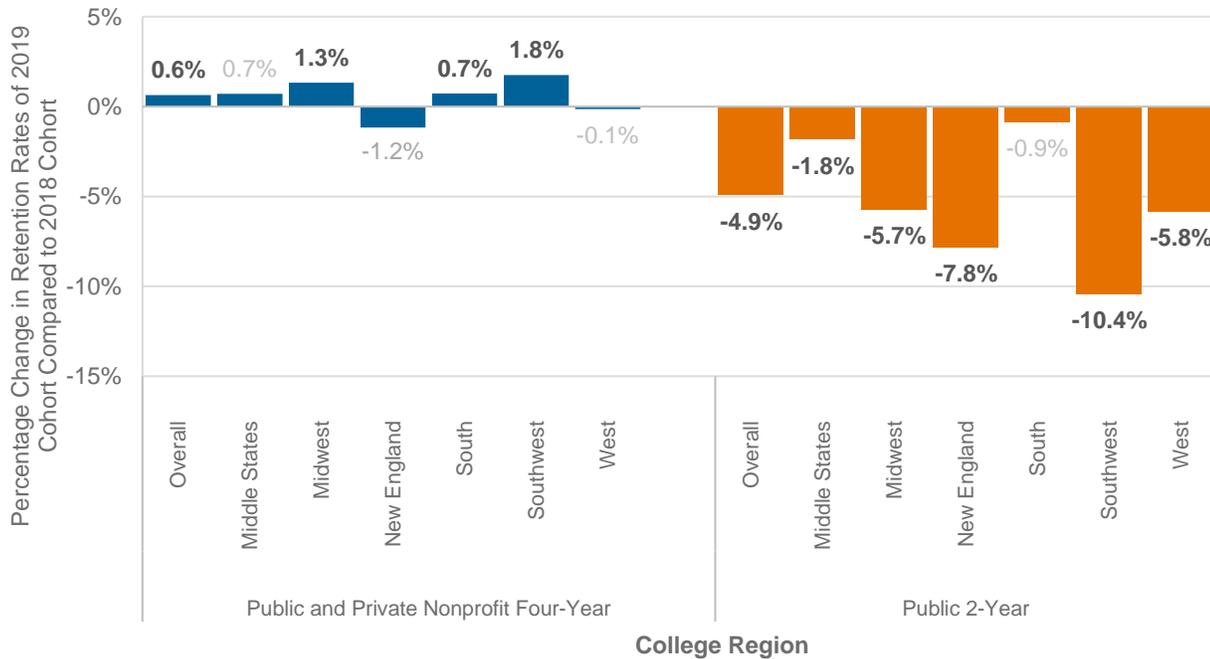
Note: Data labels in gray are not statistically significant at the 10% level. Unemployment rates are at a student's county level and are from the Bureau of Labor Statistics. Students are grouped into five quintiles by unemployment rates.

- Public two-year college students in the 2019 cohort saw declines in retention rates compared to the 2018 cohort across groups with various unemployment rates. The declines ranged from 2.2% for those from counties in the lowest unemployment rate group to 8.9% for those from counties in the second lowest unemployment rate group.
- Compared to the 2018 cohort, public four-year students in the 2019 cohort saw increases in retention rates across counties of various unemployment rates. The increases ranged from 1.1% to 2.1% (online Appendix Table 4).
- Compared to the 2018 cohort, private nonprofit four-year students in the 2019 cohort saw declines in retention rates across counties of various unemployment rates. The declines ranged from 0.9% to 1.5% (online Appendix Table 4).

Retention Rate Changes by Sector and College Region

Compared to the 2018 cohort, retention rates of public two-year college students in the 2019 cohort declined across all regions. The declines ranged from a statistically insignificant 0.9% in the South to 10.4% in the Southwest.

Figure 32: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Region of College



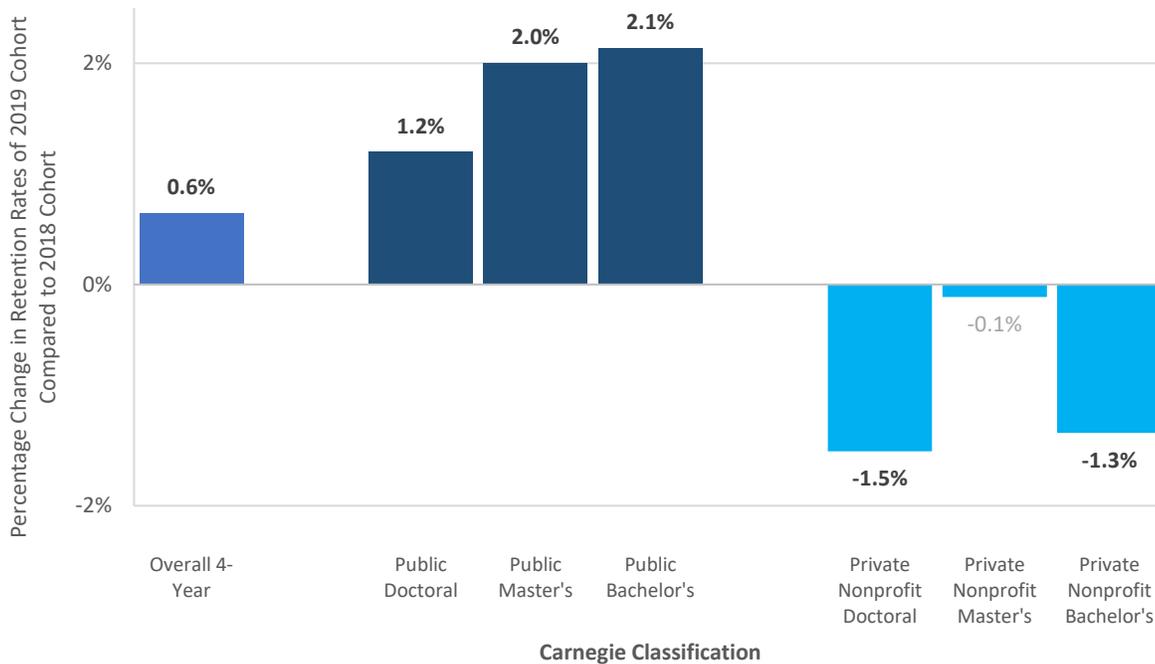
Note: Data labels in gray are not statistically significant at the 10% level.

- Compared to the 2018 cohort, retention rates of public four-year college students in the 2019 cohort increased across all regions. The increases ranged from 0.6% in the West to 2.3% in the Middle States (online Appendix Table 4).
- Compared to the 2018 cohort, retention rates of private nonprofit four-year college students in the 2019 cohort declined across all regions. The sharpest declines were in 2.7% in New England and 3.9% in the West (online Appendix Table 4).

Retention Rate Changes by Carnegie Classification

Within the public four-year sector, students in the 2019 cohort saw increases between 1.2% and 2.1% in retention rates compared to the 2018 cohort.

Figure 33: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Carnegie Classification



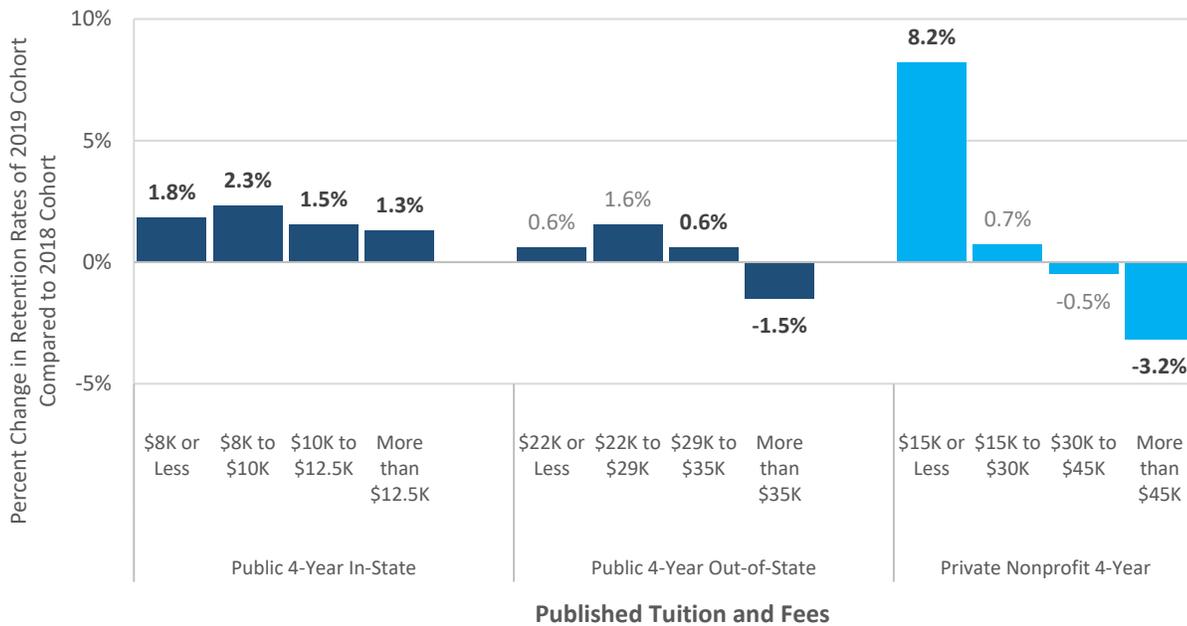
Note: Data labels in gray are not statistically significant at the 10% level.

- Within the private nonprofit four-year sector, students in the 2019 cohort saw a decline of 1.5% in retention rates at doctoral institutions and a decline of 1.3% at bachelor's institutions compared to the 2018 cohort.
- In the public four-year sector, 70%, 27%, and 3% of students were enrolled in a doctoral, master's, or bachelor's institution, respectively (calculations from online Appendix Table 4).
- In the private nonprofit four-year sector, 44%, 31%, and 25% of students were enrolled in a doctoral, master's, or bachelor's institution, respectively (calculations from online Appendix Table 4).

Retention Rate Changes by Published Tuition and Fees at Four-Year Colleges

Compared to the 2018 cohort, retention rates of students in the 2019 cohort increased by 8.2% among those enrolled in private nonprofit four-year colleges with published tuition and fees of less than \$15,000 and declined by 3.2% among those enrolled in colleges with published prices of \$45,000 or more.

Figure 34: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Four-Year Published Tuition and Fees



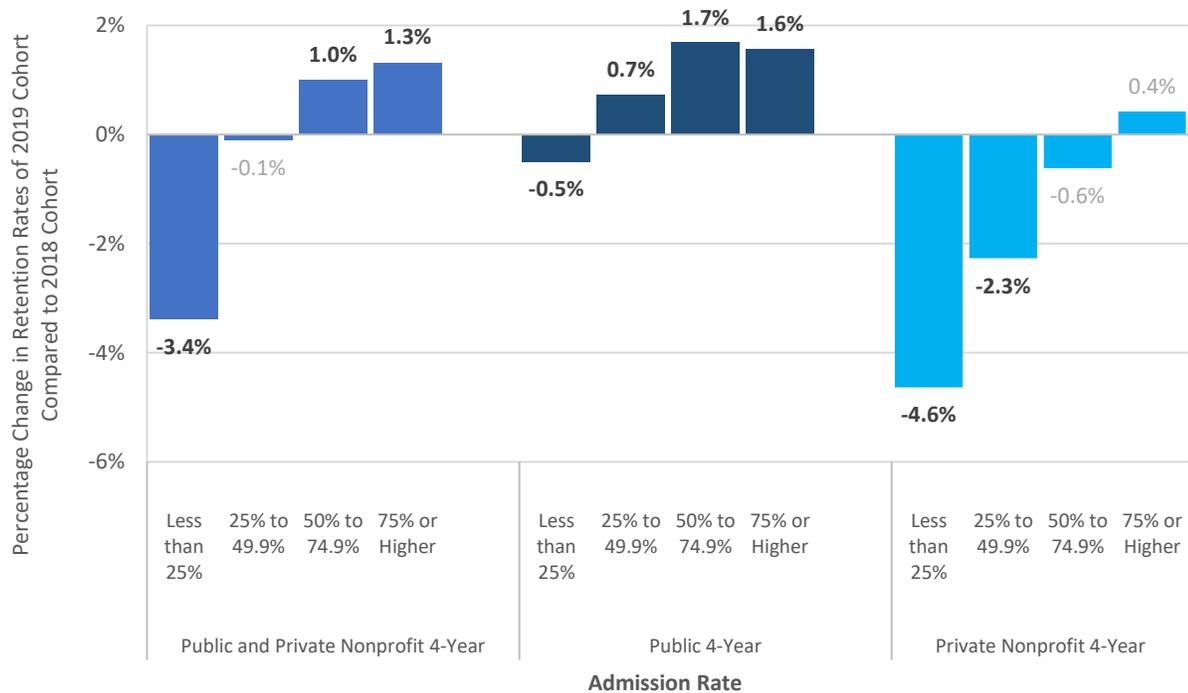
Note: Data labels in gray are not statistically significant at the 10% level. Tuition and fees are for the 2019-20 academic year.

- Compared to the 2018 cohort, retention rates among public four-year in-state students in the 2019 cohort increased across in-state tuition groups, ranging from 1.3% for those in the highest tuition group to 2.3% for those in the second lowest tuition group.
- Compared to the 2018 cohort, out-of-state public four-year students in the highest out-of-state tuition group in the 2019 cohort saw their retention rate decline by 1.5%. Out-of-state students in other tuition groups saw their retention rates increase by 0.6% and 1.6%.

Retention Rate Changes by Sector and Admission Rate

Compared to the 2018 cohort, retention rates of students in the 2019 cohort declined by 3.4% among those enrolled in most selective four-year colleges and increased by about 1.0% among students enrolled at four-year colleges that admitted at least 50% of applicants.

Figure 35: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Sector and Admission Rate



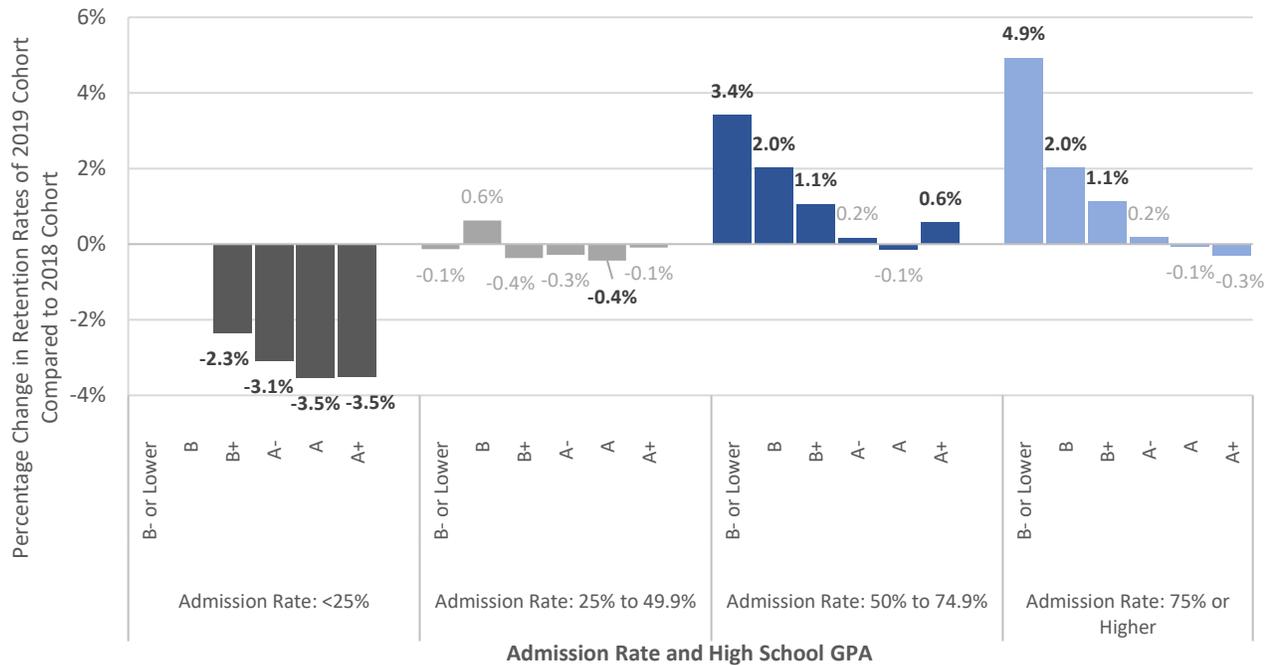
Note: Data labels in gray are not statistically significant at the 10% level. Admission rates were for fall 2018 entering cohort.

- Compared to the 2018 cohort, retention rates of public four-year college students in the 2019 cohort declined by 0.5% among those enrolled in the most selective public four-year colleges and increased by 0.7% to 1.7% among those enrolled in other colleges.
- Compared to the 2018 cohort, retention rates of private nonprofit four-year college students in the 2019 cohort declined by 4.6% among those enrolled in the most selective colleges and by 2.3% among those enrolled in the second most selective colleges.

Retention Rate Changes by Admission Rate and High School GPA

Compared to the 2018 cohort, retention rates of students in the 2019 cohort declined at the most selective four-year colleges across all high school GPAs.

Figure 36: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Admission Rate and High School GPA



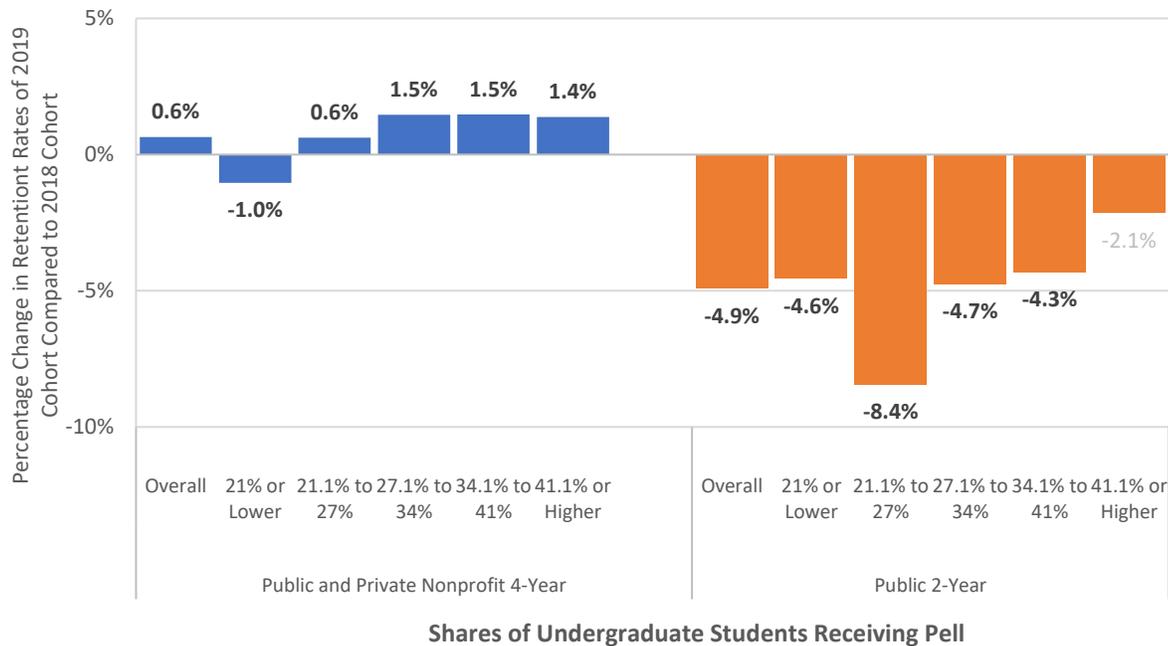
Note: Data labels in gray are not statistically significant at the 10% level. High school GPA is self-reported. Less than 0.2% of students with HSGPAs of B or below enrolled in schools with admission rate of less than 25%. These GPA groups are not shown in the dark gray panel.

- Compared to the 2018 cohort, retention rates of students in the 2019 cohort enrolled in colleges that admitted between 25% and 50% of applicants saw roughly no change in retention rates across all high school GPAs.
- Compared to the 2018 cohort, retention rates of students in the 2019 cohort enrolled in colleges that admitted at least 50% of applicants increased at most GPA levels.
- Compared to the 2018 cohort, retention rates of public four-year college students in the 2019 cohort increased for those enrolled in colleges that admitted at least 25% of applicants (online Appendix Table 4).
- Compared to the 2018 cohort, retention rates of private nonprofit four-year college students in the 2019 cohort at almost all selectivity and GPA levels declined (online Appendix Table 4).

Retention Rate Changes by Sector and Pell Share

Compared to the 2018 cohort, retention rates of four-year college students in the 2019 cohort declined slightly for those enrolled in colleges with the lowest share of students receiving Pell Grants and increased for all other groups.

Figure 37: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Pell Share



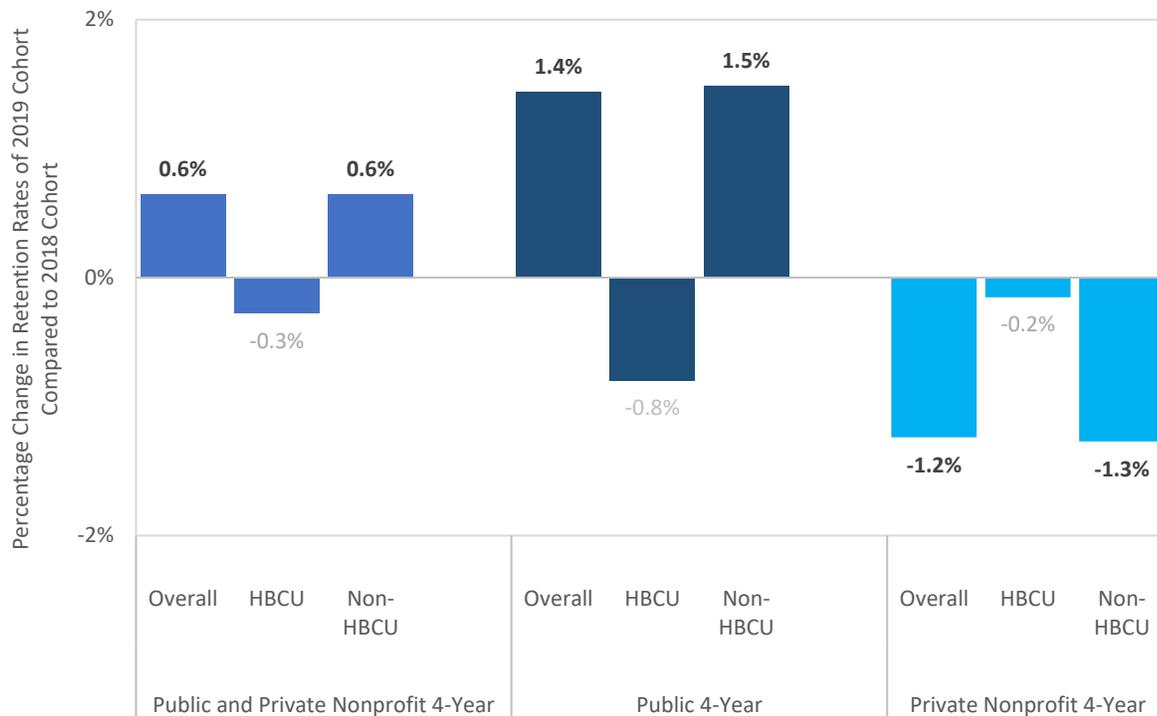
Note: Data labels in gray are not statistically significant at the 10% level. Students are grouped into five quintiles.

- Compared to the 2018 cohort, retention rates of public two-year college students in the 2019 cohort declined across all Pell groups.
- Compared to the 2018 cohort, retention rates of public four-year college students in the 2019 cohort increased across all Pell groups (online Appendix Table 4).
- Compared to the 2018 cohort, retention rates of private nonprofit four-year college students in the 2019 cohort declined for those enrolled in schools with the lowest and highest shares of students receiving Pell Grants (online Appendix Table 4).

Retention Rate Changes by Sector and HBCU Status

Compared to the 2018 cohort, retention rates of students enrolled at four-year HBCU colleges declined by a statistically insignificant 0.3%.

Figure 38: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by HBCU Status

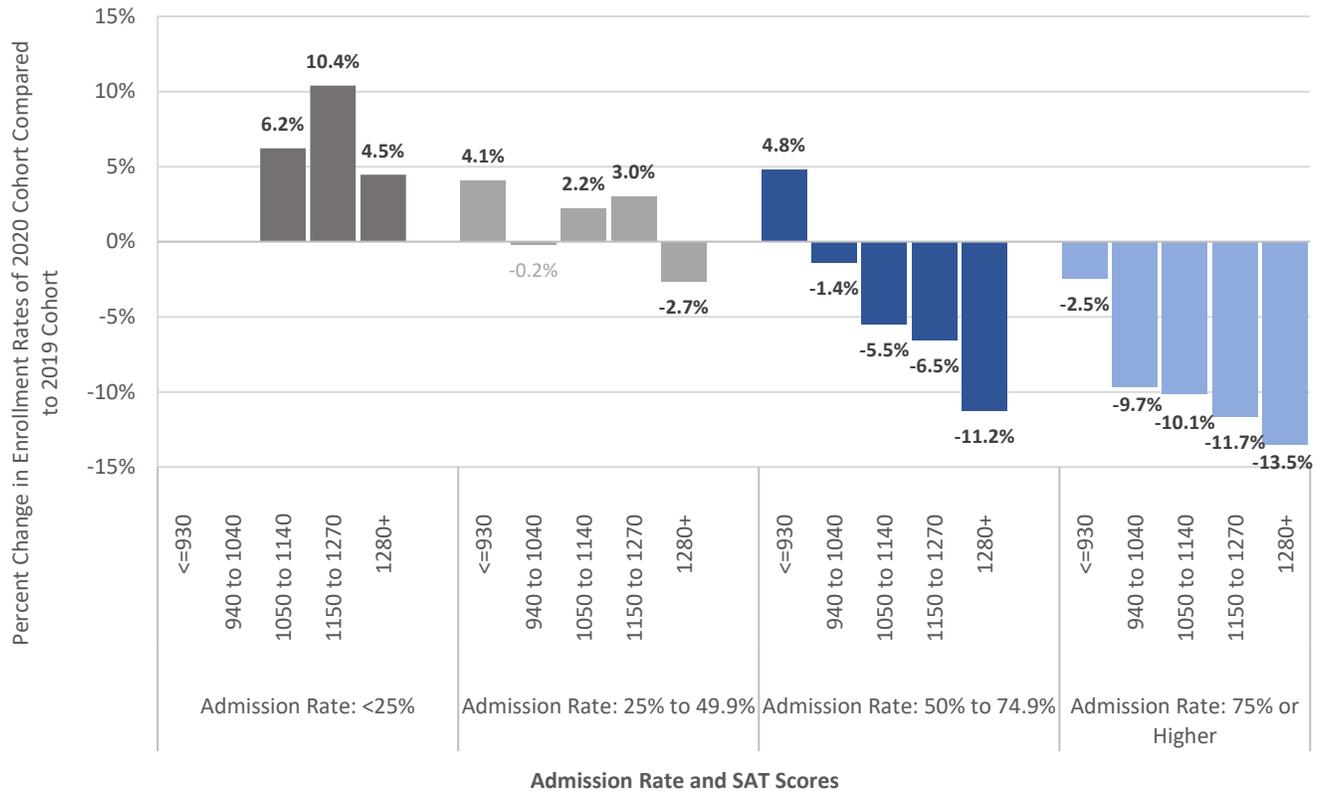


Note: Data labels in gray are not statistically significant at the 10% level.

- Compared to the 2018 cohort, retention rates of public four-year HBCU college students in the 2019 cohort declined by a statistically insignificant 0.8%.
- Compared to the 2018 cohort, retention rates of private nonprofit four-year HBCU college students in the 2019 cohort declined by a statistically insignificant 0.2%.
- There are 39 public four-year and 42 private non-profit four-year HBCU institutions (IPEDS 2019).

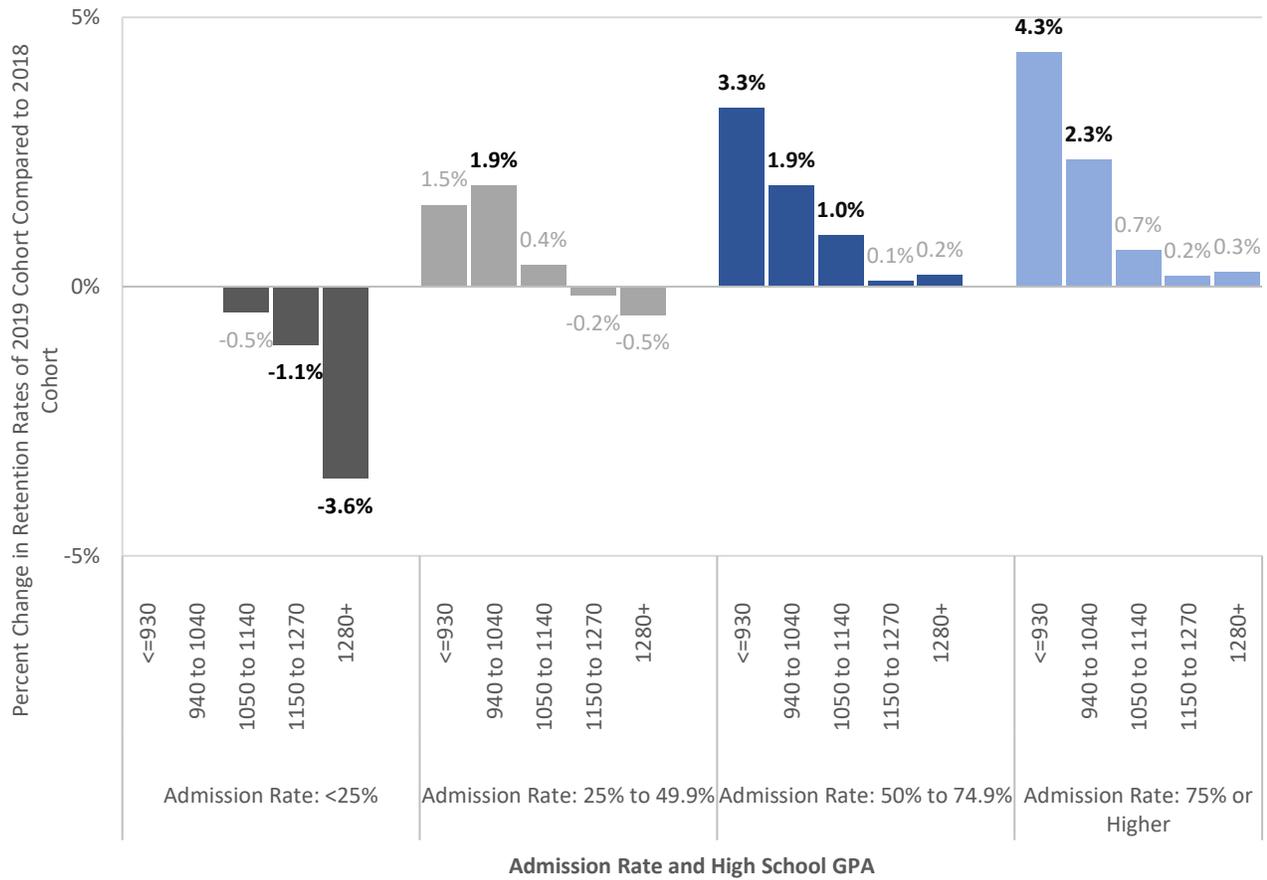
Appendix

Figure A1: Percentage Change in Regression-Adjusted Enrollment Rates of the 2020 Cohort Compared to the 2019 Cohort, by Admission Rate and SAT® Scores



Note: Data labels in gray are not statistically significant at the 10% level. Less than 0.2% of students with SAT® scores of 1040 or below enrolled in schools with admission rate of less than 25%. These groups are not shown in the dark gray panel.

Figure A2: Percentage Change in Regression-Adjusted Retention Rates of the 2019 Cohort Compared to the 2018 Cohort, by Admission Rate and SAT® Scores



Note: Data labels in gray are not statistically significant at the 10% level. Less than 0.2% of students with SAT® scores of 1040 or below enrolled in schools with admission rate of less than 25%. These groups are not shown in the dark gray panel.

Appendix Table 1: Number of College Board Assessment Takers, 2017 to 2020 Cohorts

	All College Board Assessment Takers			
	2017	2018	2019	2020
Total Number of Students*	3,028,068	3,237,848	3,297,204	3,292,838
Enrollment in Fall after High School (Number)				
Public or Private Nonprofit 4-Year	1,271,576	1,316,057	1,297,726	1,200,869
Public 4-Year	878,461	910,558	906,028	841,687
Private Nonprofit 4-Year	393,115	405,499	391,698	359,182
Public 2-Year	574,801	607,023	622,484	549,900
Not Enrolled or Enrolled in Other Colleges*	1,181,691	1,314,768	1,376,994	1,542,069
Enrollment in Fall after High School (Percent)				
Public or Private Nonprofit 4-Year	42.0%	40.6%	39.4%	36.5%
Public 4-Year	29.0%	28.1%	27.5%	25.6%
Private Nonprofit 4-Year	13.0%	12.5%	11.9%	10.9%
Public 2-Year	19.0%	18.7%	18.9%	16.7%
Not Enrolled or Enrolled in Other Colleges*	39.0%	40.6%	41.8%	46.8%
First-Year College Retention (Re-enrolled in the Same College One Year after High School) (Number)				
Public or Private Nonprofit 4-Year	1,035,415	1,074,317	1,066,137	N/A
Public 4-Year	714,587	743,484	750,752	N/A
Private Nonprofit 4-Year	320,828	330,833	315,385	N/A
Public 2-Year	343,802	366,377	356,531	N/A
First-Year Retention Rates				
Public or Private Nonprofit 4-Year	81.4%	81.6%	82.2%	N/A
Public 4-Year	81.3%	81.7%	82.9%	N/A
Private Nonprofit 4-Year	81.6%	81.6%	80.5%	N/A
Public 2-Year	59.8%	60.4%	57.3%	N/A
First-Year College Persistence (Re-enrolled in Any College One Year after High School) (Number)				
Public or Private Nonprofit 4-Year	1,155,184	1,194,845	1,171,214	N/A
Public 4-Year	794,854	823,944	819,405	N/A
Private Nonprofit 4-Year	360,330	370,901	351,809	N/A
Public 2-Year	404,148	428,693	414,913	N/A
First-Year Persistence Rates				
Public or Private Nonprofit 4-Year	90.8%	90.8%	90.3%	N/A
Public 4-Year	90.5%	90.5%	90.4%	N/A
Private Nonprofit 4-Year	91.7%	91.5%	89.8%	N/A
Public 2-Year	70.3%	70.6%	66.7%	N/A

* Includes all College Board assessment takers with a U.S. mailing address. Enrollment analyses utilize data from the 2018 to 2020 high school graduation cohorts; retention and persistence analyses utilize data from the 2017 to 2019 high school graduation cohorts.

**Other colleges include for-profit colleges and colleges that are less than two years. Less than 0.5% of all College Board assessment takers enrolled in these colleges.

Appendix Table 2: Distribution of College Board Assessment Takers, 2017 to 2020 Cohorts

	All College Board Assessment Takers			
	2017	2018	2019	2020
Total Number of Students	3,028,068	3,237,848	3,297,204	3,292,838
No SAT or PSAT	6.2%	7.0%	7.1%	9.0%
Race/Ethnicity				
American Indian or Alaska Native	0.7%	0.8%	0.9%	1.0%
Asian	6.5%	6.5%	6.5%	6.5%
Black/African American	13.3%	12.8%	12.6%	12.2%
Hispanic	24.3%	25.3%	26.7%	27.3%
Native Hawaiian or Other Pacific Islander	0.2%	0.3%	0.3%	0.3%
White	46.4%	44.8%	43.6%	42.2%
Two or More Races	2.9%	3.7%	4.1%	4.2%
Other	5.7%	5.9%	5.4%	6.4%
Highest Level of Parental Education				
High School Diploma or Less	18.9%	23.3%	24.0%	23.0%
Some College, No Degree	13.3%	15.3%	15.1%	14.2%
Associate Degree	6.9%	7.5%	7.2%	6.7%
Bachelor's Degree or Higher	40.0%	42.5%	42.4%	42.0%
Missing	21.0%	11.4%	11.2%	14.1%
Gender				
Female	51.0%	50.7%	50.6%	50.5%
Male	48.7%	48.9%	49.0%	49.1%
Other	0.3%	0.4%	0.4%	0.5%
High School Locale				
Urban	32.1%	31.8%	32.0%	32.2%
Suburban	42.4%	42.6%	42.4%	42.7%
Rural	23.0%	23.3%	23.2%	22.8%
Missing				
High School GPA				
A+	4.8%	4.9%	5.5%	6.0%
A	15.2%	15.3%	15.8%	16.4%
A-	14.9%	14.9%	15.4%	15.6%
B+	15.3%	14.9%	14.5%	14.1%
B	14.7%	14.5%	13.7%	12.7%
B- or Lower	22.6%	22.6%	22.7%	22.2%
Missing	12.5%	12.7%	12.4%	13.1%

Appendix Table 2, Continued	All College Board Assessment Takers			
	2017	2018	2019	2020
SAT® Score				
930 or Lower	15.5%	17.9%	19.8%	20.6%
940 to 1040	11.2%	12.1%	12.0%	11.8%
1050 to 1140	10.4%	11.1%	10.6%	10.5%
1150 to 1270	10.2%	10.8%	10.4%	10.1%
1280 to 1600	8.8%	9.8%	9.7%	9.0%
Did Not Take SAT	43.9%	38.4%	37.6%	38.0%
Neighborhood Disadvantage Quintile (Larger = More Disadvantaged)				
Lowest (1 to 20 Percentile)	26.9%	26.6%	26.2%	26.4%
Second (21 to 40 Percentile)	17.7%	17.8%	17.5%	17.5%
Third (41 to 60 Percentile)	15.4%	15.5%	15.3%	15.1%
Fourth (61 to 80 Percentile)	14.6%	14.9%	14.8%	14.5%
Highest (81 to 100 Percentile)	14.8%	15.1%	15.2%	14.9%
Missing	10.7%	10.3%	10.9%	11.7%
High School Type				
Public	89.6%	90.0%	90.2%	90.5%
Private	9.7%	9.2%	9.0%	8.8%
Other	0.7%	0.8%	0.8%	0.7%
Share of High School Students Eligible for Free and Reduced Priced Lunch (FRPL), Public High Schools				
1% to 20%	16.0%	16.1%	15.9%	16.1%
21% to 40%	22.8%	22.9%	22.7%	22.7%
41% to 60%	20.3%	20.7%	21.0%	20.8%
61% to 80%	15.0%	15.1%	15.4%	15.4%
81% to 100%	10.5%	10.7%	10.9%	11.1%
Missing	15.4%	14.4%	14.1%	13.9%
Daily COVID Cases per 100,000 County Residents as of August 31, 2020				
4.7 or Fewer	18.8%	18.4%	17.7%	17.3%
4.8 to 8.5	17.9%	17.9%	17.8%	17.7%
8.6 to 12.4	17.5%	17.7%	17.6%	17.6%
12.5 to 15.8	17.6%	18.1%	18.4%	18.4%
15.9 or Higher	17.7%	17.7%	17.7%	17.4%
Missing	10.5%	10.1%	10.8%	11.6%
County Unemployment Rate as of August 2020				
6.1% or Lower	18.7%	18.4%	18.5%	18.3%
6.2% to 7.4%	16.9%	16.9%	16.9%	16.9%
7.5% to 9.1%	17.7%	17.8%	17.5%	17.4%
9.2% to 10.7%	18.4%	18.4%	18.4%	18.4%
Higher than 10.7%	17.9%	18.2%	17.9%	17.3%
Missing	10.5%	10.1%	10.8%	11.6%

Data and Methodology

Analyses in this report are based on a rich data set from College Board, National Student Clearinghouse (NSC), and the U.S. Department of Education. Enrollment analyses utilize data from the 2018 to 2020 high school graduation cohorts; retention analyses (re-enrolling at the *same* postsecondary institution) and persistence analyses (re-enrolling at *any* postsecondary institution) utilize data from the 2017 to 2019 high school graduation cohorts. Additional data are sourced from U.S.A. Facts and the Bureau of Labor Statistics.

The analytic sample is based on students with U.S. mailing addresses who took the SAT[®], PSAT/NMSQT[®], and/or AP[®]. Appendix Table 1 and Table 2 provide the number and distribution of students included in the sample for each of these cohorts. The total number of students included in the enrollment analytic sample is 3.24 million in 2018, 3.30 million in 2019, and 3.29 million in 2020. This sample of U.S. high school students covers a stable 80% of all 12th graders during this time period.² The stability in the sample allows the impacts of covid-19 on enrollment and retention rates to be identified overall and for subgroups defined by student demographics, academic preparation, high school attributes, college characteristics, and geography.

We provide descriptive data on changes in both college enrollment and retention/persistence rates, as in prior research (National Student Clearinghouse Research Center 2020, 2021). For example, Appendix Table 1 shows that 53.2% of the 2020 high school graduating cohort enrolled in a public two-year, public four-year, or private nonprofit four-year college,³ compared to 58.2% in 2019, implying an unadjusted one-year change in college enrollment rates of -5.0 percentage points or -8.6%. This unadjusted change likely overstates the effect of covid-19 on enrollment rates given the downward pre-covid trend in college enrollment visible in Figure 1.

The bulk of this report relies on fitting statistical models to the data to adjust for trends in student demographics and college-going behavior unrelated to the pandemic. Ultimately, the models isolate the estimated change in college enrollment (retention) for a student from the 2020 high school graduation cohort relative to an otherwise similar student from the 2019 high school graduation cohort.

Equation (1) specifies the linear probability regression model used to isolate the changes in college enrollment associated with covid-19.⁴

$$(1) \textit{Enrollment}_i = \alpha_1 + \beta_1 \textit{Cohort2020}_i + X_i \Gamma + \epsilon_i$$

Enrollment_i denotes whether or not student *i* enrolled in college in the fall after finishing high school. Vector *X_i* includes a rich set of controls: an indicator for whether a student was in the 2018 cohort (*Cohort2019* is the omitted variable), measures of academic achievement (SAT scores and

2. Coverage rates are calculated by dividing the number of College Board assessment takers in each cohort by the number of 12th graders reported in *Knocking at the College Door* from Western Interstate Commission for Higher Education (Bransenberger et al., 2020).

3. Two-year colleges are defined as institutions where more than 50% of degrees/certificates awarded are associate degrees or certificates, even if they award some bachelor's degrees.

4. Logistic regression models yield similar results, so we rely on the OLS estimates because they are more straightforward to interpret directly.

predicted SAT scores for those who only took the PSAT), student demographics (gender, race, parental education), neighborhood attributes, high school attributes (private/public, free/reduced lunch eligibility percentage), and indicators for geography-specific elements including students' home state. Standard errors are clustered at the state level.

The parameter of interest in equation (1) is β_1 on the *Cohort 2020* indicator, which captures the change in the likelihood of enrollment for a student in the 2020 cohort relative to the 2019 cohort all else constant. We calculate the percentage change in the 2020 cohort enrollment compared to the 2019 cohort by dividing the percentage point coefficient estimate, β_1 , by the 2019 mean enrollment rate. We separately fit equation (1) for student subgroups defined by sociodemographic data and academic preparation, and report these regression-adjusted percentage changes in Section 2. Enrollment regression coefficients and associated standard errors from equation (1) are reported in Appendix Table 3.

Similarly, we use a linear probability regression model to estimate how college retention and persistence changed for the 2019 high school cohort relative to the 2018 cohort, controlling for the same set of variables as in equation (1).

$$(2) \text{Retention}_i = \alpha_2 + \beta_2 \text{Cohort2019}_i + X_i \Gamma + \epsilon_i$$

$$(3) \text{Persistence}_i = \alpha_3 + \beta_3 \text{Cohort2019}_i + X_i \Gamma + \epsilon_i$$

Retention_i denotes whether or not student *i* re-enrolled in the same institution in the fall after their first year in college. *Persistence_i* denotes whether or not student *i* re-enrolled in any institution in the fall after their first year in college. The controls variables in equations (2) and (3) are the same as in vector X_i in equation (1). A *Cohort2019* indicator variable in these regressions focuses the estimates on students who were in their first year in college during the 2019-20 academic year. We calculate the percentage change in the 2019 cohort retention/persistence compared to the 2018 cohort by again dividing the appropriate coefficient estimate, β_2 or β_3 , by the 2018 mean retention rate for each regression. We report these percentage changes in Section 3, focusing primarily on retention rate changes, which are generally similar to persistence rate changes. Retention regression coefficients and associated standard errors from equation (2) are in Appendix Table 4.

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