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National Student Clearinghouse™ Research Center™

A DREAM DERAILED? INVESTIGATING THE IMPACTS OF COLLEGE CLOSURES ON STUDENT OUTCOMES

STATE HIGHER EDUCATION EXECUTIVE OFFICERS ASSOCIATION

Rachel Burns, Lynneah Brown, Kelsey Heckert, Dustin Weeden

NATIONAL STUDENT CLEARINGHOUSE RESEARCH CENTER

Hee Sun Kim, Beatrix Randolph, Aaron Pevitz, Sarah Karamarkovich, Jennifer Causey

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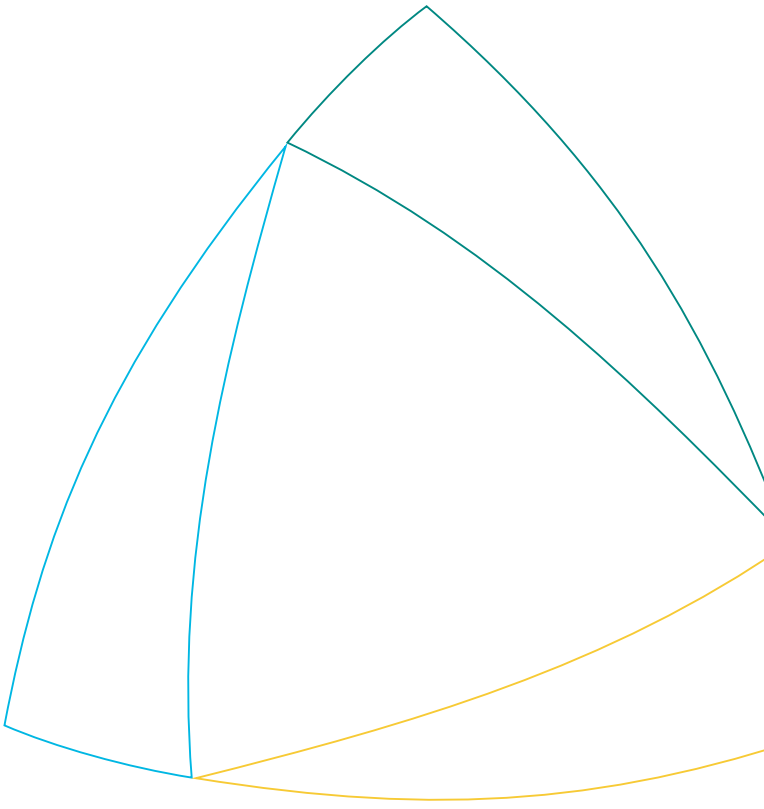

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ACKNOWLEDGEMENTS

This report would not have been possible without invaluable contributions from SHEEO staff members Carrie Klein, David Tandberg, Gloria Auer, and Jason Lee, and National Student Clearinghouse Research Center staff members Allyson Gardner, Shannon Lee, Jiangqiong Li, Mikyung Ryu, Doug Shapiro, and former staff members Qing (Poppy) Liu, Astrid Harnack-Eber, Abigail Scheetz, and Taylor Odle. SHEEO and the Research Center would like to thank Clare McCann, Wesley Whistle, Stephen Mayfield, and Ellen Bryer for reviewing an earlier draft of this paper for their thoughtful suggestions for improvement. A special thank you goes out to Arnold Ventures for their generous support of this series of three publications examining the impacts of college closure on student outcomes.

An interactive and customizable visualization that summarizes outcomes for students who experienced closure and a closed institution data download capturing details to assist in determining abrupt and orderly closures are available on the project website (www.sheeo.org/project/college-closures).

The data in this report and accompanying website may be freely used with the appropriate attribution and citation: Burns, R., Brown, L., Heckert, K., & Weeden, D., Kim, H., Randolph, B., Pevitz, A., Karamarkovich, S., & Causey, J., (November 2022). *A dream derailed? Investigating the impact of college closures on student outcomes.* Boulder, CO: State Higher Education Executive Officers Association & Herndon, VA: National Student Clearinghouse Research Center. sheeo.org/wp-content/uploads/2022/11/SHEEO_NSCRC_CollegeClosures_Report1.pdf

EXECUTIVE SUMMARY

Investigating the Impacts of College Closures on Student Outcomes is the first of three planned novel reports, co-authored by SHEEO and the NSC Research Center, seeking to quantify the impacts of college closures on students' subsequent postsecondary enrollment and completion outcomes and to identify the policy levers states may have to support students who experience a closure. Because little is known about what happens to students after a closure, this first report is a descriptive analysis of the students who experience a closure and their longitudinal enrollment and credential attainment outcomes after closure. Using an original panel dataset constructed with student-level data from the National Student Clearinghouse (NSC), this report traces if, when, and through which education pathways affected students reenrolled to continue their education and whether they were successful in earning a credential. Answering these basic questions establishes a foundation for causal estimates and deeper exploration into existing state policies that can adequately protect current and future students from the negative effects of a disrupted postsecondary experience. Report two will include a causal analysis of closures on student outcomes, while report three will incorporate the state authorization policy context to ascertain if policy interventions can ameliorate the negative impacts of closures on students.

In addition to this descriptive report, there are data resources available on the project website (www.sheeo.org/project/college-closures), including an interactive data visualization summarizing student outcomes and a data download containing additional context about the institutions that closed that are included in this study.

INSTITUTIONAL-LEVEL FINDINGS

Of the 467 institutions of higher education in our sample that closed between July 1, 2004, and June 30, 2020, nearly half (49.9%) were in the private for-profit two-year sector, followed by 28.1% in the private for-profit four-year sector, and 17.8% in the private nonprofit four-year sector (*Figure 1*). There was no evident geographic concentration of institutional closures. One-quarter of institutions were in the Southwest region of the United States (24.6%), followed by 18.0% in the Great Lakes region (*Figure 2*). More than two-thirds (68.5%) of closures occurred through an orderly process, meaning institutions had teach-out agreements and record retention policies, and provided adequate notice of the closure to students. These orderly closure institutions tended to be small, with an average of 134 students. The remaining schools (with an average of 682 students) closed abruptly, without teach-out agreements or adequate warning (*Figure 3*). Compared to open institutions, institutions that closed enrolled larger proportions of students of color (55.0% compared to 46.4%), female students (69.5% compared to 66.1%), and students receiving Pell Grants (54.7% compared to 45.8%) (*Figure 5*).

STUDENT-LEVEL FINDINGS

The 143,215 students in our sample who experienced closures were more likely to be female (54.6%), white (25.0%), and 30 years or older at the time of the closure (39.0%) (*Table 1*). The largest proportion of students were pursuing associate degrees (42.0%) and most students were enrolled full time (51.5%). Nearly one-third of students who experienced closures were majoring in health professions and clinical sciences (28.5%) (*Table 2*).

Most students (82.9%) experienced closures at for-profit institutions (46.4% at for-profit four-year institutions and 36.5% at for-profit two-year institutions) (*Table 3*). Over two-thirds of students experienced an abrupt closure (70.0%), meaning they had little warning of the closure and no teach-out arrangements for continuing their postsecondary education (*Table 4*).

Less than half of students reenrolled in another postsecondary institution after they experienced a closure (47.1%). Reenrollment rates were highest among female students, white students, and traditional college aged students (18-24 years) (*Figure 10*). Of those who did reenroll, 29.7% did so within one month of the closure, while 26.0% stopped out for at least one year (*Figure 7*). Students who reenrolled in the same institutional sector were the most likely to reenroll within one month (43.6%), while students who reenrolled in a different sector were the most likely to stop out for more than one year (35.2%) (*Figure 9*).

Students who experienced closures at private four-year institutions were most likely to reenroll in the same sector (62.6% at nonprofit and 44.5% at for-profit institutions), while those who experienced closures at private for-profit two-year institutions were most likely to reenroll at a community college (49.2%) (*Table 5*).

Over one-third of students who reenrolled earned a postsecondary credential after a closure (36.8%), while an additional 10.4% were still enrolled as of February 2022. This suggests a student success and progress rate of 47.2% after reenrolling. The remaining reenrollees stopped out without earning a credential (52.9%). As a result, 37.5% of reenrollees added to the population of students who have some college but no credential (*Figure 11*).

Students who reenrolled within one to four months were the most likely to earn a credential (47.6%), while those who stopped out for more than one year were the least likely (18.7%). The odds of earning a credential doubled if students reenrolled within one year of closure (*Figure 15*). Students who reenrolled within one to four months also had the shortest enrolled time to completion (6.0 academic years enrolled), while those who stopped out for four to 12 months had the longest time (6.9 academics years enrolled) (*Appendix C Table C-24*).

Seven out of every ten students faced an abrupt closure, and these students had consistently worse reenrollment and completion outcomes than those whose closure experience was orderly. Abrupt closures in the private for-profit four-year sector had the most adverse impact on reenrollment rates (42.4% vs. 70.1% for orderly closures) (*Figure 8*). When the closure was orderly, reenrollment rates were nearly identical across the private four-year sector (70.1% for for-profit and 69.6% for nonprofit institutions). Completion gaps by race/ethnicity were exacerbated among abrupt closures, with larger gaps in attainment than among orderly closures, especially for Hispanic (26.4% vs. 43.0%) and Black students (25.3% vs. 39.4%) (*Figure 21A*).

POLICY IMPLICATIONS

Our findings lead to suggestions for policy improvements. The particularly poor outcomes for students experiencing an abrupt closure suggest the need to strengthen financial monitoring of institutions. Once it becomes likely an institution will close, states need to ensure teach-out agreements are in place to provide all students with a pathway for completing their credentials. Additionally, states need to thoroughly vet the teach-out institutions to ensure they are capable of completing the terms of the teach-out agreement and are financially viable. Our results showing that some students who reenrolled immediately in another branch campus experienced multiple closures suggest that allowing branch campuses of the same institution to serve as the teach-out partner is inadequate. While it may be convenient for these campuses to serve as teach-out institutions, states need to review and verify the capacity of these campuses to serve as teach-out partners.

For additional data resources and to access the interactive data visualization, visit the project website (www.sheeo.org/college-closures).

STUDY BACKGROUND AND MOTIVATION

Between 2004 and 2020,[1] almost 12,000 campuses of institutions of higher education shut their doors to students (PEPS, 2022). While the primary cause attributed to institutional closures is loss of accreditation, the reasons for falling out of compliance are often related to financial challenges. Recently, one source of financial difficulty for institutions has been declining enrollment and net tuition revenues due to the coronavirus pandemic (COVID-19) and the shrinking pool of high school graduates nationally (Kelchen, 2020). Low retention and completion rates may further exacerbate declines in enrollment for struggling institutions or those subject to federal sanctions (Burnett, 2021). For institutions reliant on state funding, the stagnation in state appropriations following the technology bust in 2001 and the Great Recession in 2008 necessitated diversification of funding sources to survive. Many public and private institutions responded to these demographic and economic pressures by increasing tuition prices and shifting the burden of cost to students and their families (SHEEO, 2022). Meanwhile, institutions are subject to oversight by the federal Department of Education (ED), state higher education agencies, and accrediting bodies (the "regulatory triad") and are subject to financial and student debt accountability measures such as the cohort default rate and gainful employment regulations. Institutions with poor fiscal responsibility scores often face government sanctions, which can reduce enrollment (due to poor public perception) and exacerbate financial difficulty. These institutions may resort to closure when they fall out of compliance, are no longer financially viable, or engage in institutional misconduct leading to investigations and lawsuits.

The onset of the coronavirus pandemic in 2020 exacerbated the financial challenges institutions face. While the funding provided by the Higher Education Emergency Relief Fund (HEERF)[2] provided some relief, it has only delayed the inevitable closure of some struggling institutions. As the pandemic continues to wreak havoc on the financial stability and enrollment of postsecondary institutions, experts predict an increase in the number of institutions requiring drastic action, including furloughs, layoffs, mergers, and campus closures (Smith & Darcus, 2021). Events of this nature affect faculty, staff, and students in multiple ways, but it is incumbent on the regulatory triad to protect and support the students who are left holding the proverbial bag. The impacts on students are especially profound when institutions close abruptly (see Methodological Notes), with little warning to students and few opportunities for mitigation. Abrupt closures, which are most common in the private for-profit sector, are often the result of catastrophic financial situations or legal misconduct. While institutions are meant to offer students pathways for continuing education, abrupt closures prevent students from accessing transcripts and utilizing teach-out opportunities, which are necessary for reenrolling post-closure.

The permanent closure of several large proprietary (for-profit) institutions in the past decade has heightened the focus on the impacts of closures on students' educational trajectories. When institutions close, students' concerns may include whether they can continue their education at another school, how they will finance their future educational pursuits, and whether they are responsible for repaying loans incurred for a credential they were unable to earn. While state higher education agencies cannot entirely preclude institutional closures, they can implement authorization policies—such as requiring teach-out agreements, ensuring surety bond or student protection fund payouts reach students, regulating credit transfer, offering loan discharge, and overseeing transcript retention—that ensure that students are not adversely impacted.

1. Our years of analysis were limited to 2004 through 2020 due to institution- and student-level data availability.
2. HEERF funding was allocated through the Coronavirus Aid, Relief, and Economic Security (CARES) Act, the Coronavirus Response and Relief Supplemental Appropriation Act (CRRSAA), and the American Rescue Plan (ARP).

EXISTING RESEARCH

Existing research on college closures is sparse and focuses mostly on establishing metrics to predict institutional closures. Most recently, Kelchen (2020) documented that most college closures (greater than 80%) occur in the private for-profit sector, while private nonprofit colleges comprise the remainder. This is especially concerning given the increases in enrollment that occurred during the 2000s at large, publicly traded, for-profit chains (Deming, Goldin, and Katz, 2012). Despite this early growth, for-profit institutions enrolled just over one million students in 2020, a sharp decline from its peak of over two million students in 2010 (NCES, 2021). This enrollment decline coincided with greater oversight of recruiting practices as well as the large, publicized closures of chains, such as Dream Center, Corinthian Colleges, and ITT Tech during the 2010s. While a handful of studies have examined enrollment and workforce outcomes for students at for-profit institutions (Armona, et al., 2018; Cellini, 2009; Cellini & Turner, 2020), few studies have directly investigated student outcomes for those who experienced a college closure.

In the study most closely related to this report, Cellini, Darolia, and Turner (2020) use institution-level data to examine how students respond to for-profit institutions being sanctioned by the federal government. They find that enrollments shift from for-profit institutions to public two-year institutions with lower borrowing and default rates following the imposition of sanctions. Their study does not analyze the outcomes of students whose entire institution closed, and therefore only offers insight on the effects of program sanctions. We anticipate that outcomes for students who experience institutional closures are different than the outcomes for students whose institutions are sanctioned or close entirely due to sanctions. A Government Accountability Office (GAO) report from 2021 followed the loan discharge outcomes of approximately 246,000 students who borrowed federal student loans and were affected by closures between 2010 and 2020. Their report found that 43% of students did not continue or complete their postsecondary education, while just 32.5% had their loans forgiven through closed school discharge (Emry-Arras, 2021). While these studies provide an important framework for understanding the context of institutional closures, they do not directly examine the effects of closures on student outcomes.

RESEARCH QUESTIONS

This report expands on previous research by analyzing the outcomes of college closures and widens the coverage from a few well-known closures to a broader sample of institutions that closed between 2004 and 2020. The research questions at the institution- and student-level include:

Research Questions

RQ1 How does the total number of closed institutions vary by institutional control and level, geographic region, and abrupt or orderly closure process?

RQ2 How do the characteristics of closed institutions compare to the characteristics of the universe of higher education institutions, including by institutional control and level; race/ethnicity, gender, and age of the student body; and enrollment status and Pell eligibility of the student body?

RQ3 What are the demographics and academic characteristics of students who experienced college closures, including race/ethnicity, age, and gender; credential level, enrollment intensity, and major; and institutional control, level, and geographic region?

Continued on following page...

RQ4 What are the post-closure enrollment patterns of students who experienced closures? How do student characteristics differ among those who reenrolled and those who discontinued?

RQ5 What are the post-closure credential completion rates and times to completion of students who experienced closures? How do student characteristics differ among those who completed and those who did not?

In the five years preceding the coronavirus pandemic, an average of 20 campuses closed each month, affecting an estimated 500,000 students (Vasquez & Bauman, 2019). Though most experts assume that closures are catastrophic for students (Fain, 2019), empirically quantifying the impacts will inform the often-contentious policy debate around the appropriate regulatory action meant to prevent, prepare for, and respond to college closures. Knowledge of the tangible impacts on students could lead to the federal government employing and enforcing stringent consumer protection measures, accreditors requiring detailed financial information from campuses at frequent intervals, and state authorizers enacting student protections at authorized private institutions.

Analysis of the impacts of college closures is particularly important when viewed through the lens of educational equity. According to data from the 2017-18 National Postsecondary Student Aid Study, Administration Collection (NPSAS:18-AC), the institutions that are most likely to close—private for-profit institutions—serve a disproportionately large number of students of color, low-income students, veterans, and adult students with children. These students are also the least likely to have the economic means to recover from a closure by reenrolling quickly, earning a subsequent credential, and paying off loans incurred at the closed institution. Moreover, even in the absence of a closure, the 2012/17 Beginning Postsecondary Students Longitudinal Study (BPS:12/17) confirms that, controlling for institutional sector, these students have lower rates of persistence, attainment, and loan repayment. Thus, compared to white, high income, and traditional college aged students, minoritized student populations are not only statistically more likely to experience a college closure, but also less likely to possess the resources to recover from a closure quickly.

FORTHCOMING REPORTS

To further explore the impacts of college closure on student outcomes, report two will quantify the causal effect of college closures using a control group of students who did not experience closures. Report three will examine how state authorization policies affect student outcomes post-closure, comparing students who experienced closures in states with stringent protections with those who experienced closures in states with lenient student protections. These forthcoming reports will provide additional evidence to support or refine the recommendations contained in the current report.

METHODOLOGICAL NOTES

This report uses an original panel dataset to investigate the impacts of campus closures on student outcomes. This dataset was constructed with student-level data from the Clearinghouse, federal data sources for institutional and student demographic information, and an original institutional data source containing contextual college closure information sources from news media, institutional websites, and federal closed school reports. The dataset includes enrollment and credential completion records for 143,215 students who experienced closures at 467 institutions of higher education that closed between July 1, 2004, and June 30, 2020.

INSTITUTIONAL DATA COLLECTION

Institutional data was sourced from the Integrated Postsecondary Education Data System (IPEDS), the College Scorecard, the Postsecondary Education Participants System (PEPS), and the Federal Student Aid (FSA) Data Center. We identified almost 12,000 branch campuses at the 8-digit OPEID level (approximately 2,700 institutions at the 6-digit OPEID level)[3] that closed in the time frame of interest. Campuses that did not report enrollment and credential data to the Clearinghouse or did not have complete IPEDS or College Scorecard data were excluded. Campus closures that represented a single program site at an open institution or a teacher learning site (typically at public institutions), as well as campus mergers/consolidations that did not result in institutional closures, were excluded. The sample was further reduced to campuses with students enrolled within 120 days of the official date of the campus closure. The 120-day threshold was chosen for consistency with the closed school loan cancellation policy, which allows students affected by campus closures to discharge their federal student loans if they were enrolled within 120 days of closure.[4]

Institutional variables from IPEDS were apportioned among parent and child institutions using IPEDS allocation factors when institutions had parent-child reporting relationships.[5] Likewise, variables for institutions that had multiple 8-digit OPEIDs reporting for a single IPEDS UNITID were apportioned equally among the number of 8-digit OPEIDs reporting.[6] Data from IPEDS were cleaned to remove outlier and out-of-range values for all variables of interest. Missing values were mitigated through multiple imputation using chained equations (MICE) by regression and predicted mean matching. The final sample of closed campuses that we analyzed included 467 unique 8-digit OPEIDs across 204 6-digit OPEIDs. Each 8-digit OPEID represents a unique campus that closed.

A sample of comparison institutions representing the universe of non-closure institutions was constructed of all institutions that were open any time between 2004 and 2020 and reported completed data to IPEDS. Institutions that had ever closed were excluded from this sample, as were institutions with multiple 8-digit OPEIDs reporting for a single UNITID. Missing values were resolved using MICE. The final sample of comparison campuses included 3,299 unique 8-digit OPEIDs.

3. The 8-digit OPEID is a distinct campus-level institution identifier. Branch campuses in a multi-campus system have the same 6-digit OPEID.
4. The 120-day time frame applies to loans that were disbursed before July 1, 2020. Loans disbursed after July 1, 2020, are eligible for discharge if the student was enrolled within 180 days.
5. Parent-child reporting relationships in IPEDS occur when one main campus of an institution reports aggregated data for multiple branch campuses of the institution.
6. For example, enrollment data that wer aggregated across multiple institutions wer divided by the number of 8-digit OPEIDs reporting under a single UNITID.

We collected additional contextual information for the 467 closed institutions through internet searches of institution websites, news outlets, and ED monthly closure reports. Where possible, we identified the closure announcement dates, student records retention agreements, teach-out plans, mergers/consolidations, and whether all students completed their programs prior to the closure. We used these metrics, along with the language in news reports and closure announcements, to categorize closures as abrupt or orderly. Orderly closures were those that gave students at least three months' notice before the closure, included a teach-out plan at the institution or a partner institution, and retained student records and transcripts. Abrupt closures were those that were described as abrupt in news reports, did not include a teach-out plan, or did not give students at least three months' notice prior to closure. Institutions with incomplete information were deemed orderly closures.

STUDENT DATA COLLECTION

The Clearinghouse currently collects data from more than 3,600 Title IV eligible degree-granting postsecondary institutions, representing 97% of the nation's total postsecondary enrollment as of fall 2020. Data collection at the Clearinghouse began in 1993, and coverage has been above 90% nationally since 2007. However, some sectors have lower coverage rates, particularly in the earlier years of data collection. Historically, the representation of private for-profit institutions has been lower than that of other institution types. Details of annual data coverage rates by institution type and state are available from the Clearinghouse. Variations in coverage, particularly during the early years of the time frame of this study (which runs from July 1, 2004, through February 2022)[7] results in an underestimate of the true population of students who experienced college closures between 2004 and 2020. Further, the data do not capture students who experienced closures if they were enrolled in a non-Clearinghouse participation institution during the time frame of interest.

This study includes 143,215 students enrolled at 467 institutions who (a) had an eligible enrollment (full- or part-time enrollment of 21 days or longer) at one of the 467 closed degree-granting institutions within 120 days prior to the date of closure; or (b) had a valid enrollment for the term during which the closure occurred. Enrollment and credential records prior to, during, and after a closure experience were tracked to capture academic trajectories over time. For students with multiple closure experiences, analysis was based on their first closure experience unless otherwise noted.[8] This study does not contain a comparison group of students who did not experience a closure. Forthcoming analyses in this report series will compare students who experienced a closure with those who did not.

For more detailed information on sample creation and outcomes definitions, please see *Appendix A. Definitions* and *Appendix B. Supplemental Methodology Notes*.

7. Although this study captures closures that occurred between 2004 and 2020, enrollment and degree completion data is available for students through February 2022.

8. Some students experienced more than one closure on the same date. For these students, the institution with the earlier term end date before closure was considered the first closure experience. For students with more than one closure on the same date and identical term end dates, the institution with the earliest first enrollment begin date was considered the first closure experience.

RESULTS

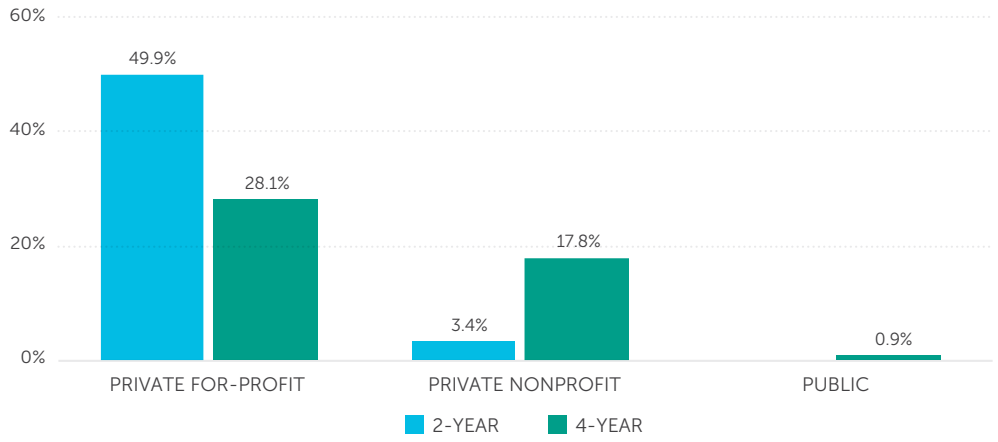
The following sections report the descriptive findings of our analysis. Institutional-level results report on the characteristics of the 467 closed institutions, and student-level results report on the characteristics and outcomes of 143,215 students who experienced closure in our study.

INSTITUTIONAL-LEVEL RESULTS

CLOSURE BY INSTITUTIONAL CONTROL AND LEVEL, GEOGRAPHIC REGION, AND TYPE OF CLOSURE

Students who experienced closures attended 467 campuses that closed between 2004 and 2020.[9] While this sample of institutions is a small percentage of the total number of institutions that closed in this time frame, the institutional characteristics of this sample were representative of the institutional closures we are interested in investigating. Just over half of the 467 closed institutions (53.3%) were two-year institutions,[10] and over three-quarters (78.0%) were private for-profit institutions (*Figure 1*). Nearly half (49.9%) of closed institutions were in the private for-profit two-year sector, followed by 28.1% in the private for-profit four-year sector. There were no closures in the public two-year sector in our institution sample and just four in the public four-year sector.[11]

FIGURE 1
CLOSED INSTITUTIONS BY SECTOR

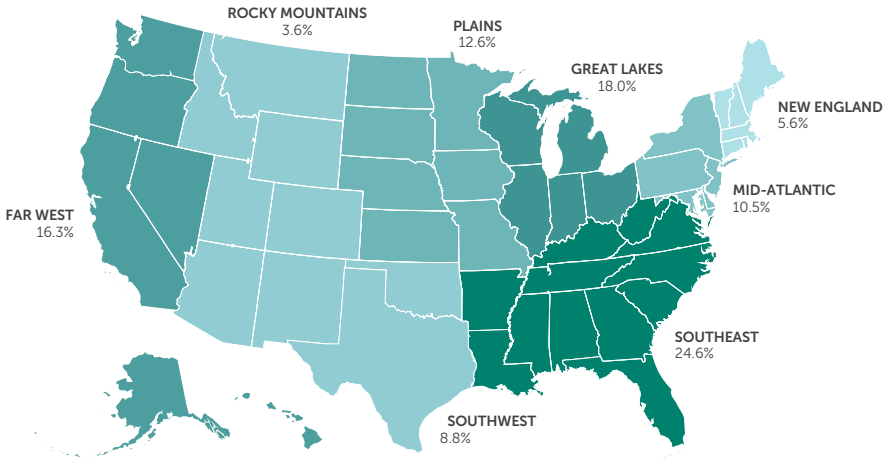


Closures were relatively evenly dispersed across the country, but mostly concentrated in the Southeast (24.6%), followed by the Great Lakes (18.0%), Far West (16.3%), and Plains regions (12.6%) (*Figure 2*). These regions are also the areas of the country where the largest numbers of private for-profit institutions are located. Many of the closed institutions were primarily or entirely online or were geographically dispersed branch campuses. Geographic region for these institutions was measured at the location of the closed branch campus.

9. In this section, we refer to closed campuses as institutions, as the data are reported at the institutional level.
10. Less-than-two-year institutions are categorized as two-year institutions in this study.
11. The public four-year institutions that closed were primarily online institutions. Sufficient data to estimate whether other institutions were primarily online or in-person were not available.

FIGURE 2

GEOGRAPHIC REGION OF CLOSED INSTITUTIONS

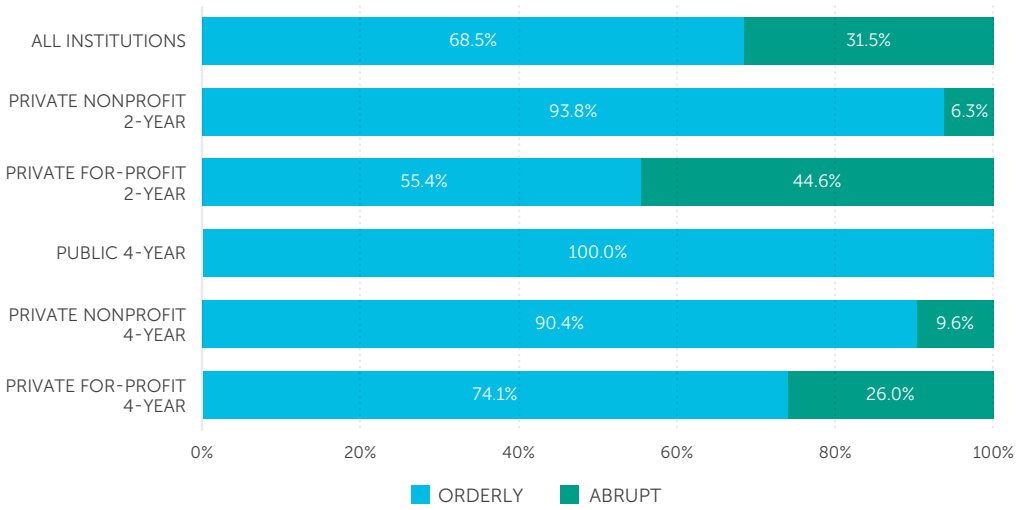


NOTE: Some closed institutions were primarily online institutions and may be reported under the main campus. This map may not accurately account for the location of primarily online instituitons that closed.

While abrupt closures are often the subject of news reports, many small institutions follow a more orderly path to closure, including an announcement preceding the closure, designated teach-out plans and agreements, and transcription retention agreements. Some institutions also assist students through their final semester by waiting until all students have completed before closing or facilitating automatic transfer to another branch in the same institutional system. In contrast, abrupt closures typically occur when the closure happens very shortly after announcement—occasionally without any announcement—and students are left without assistance from the institution. Nearly one-third (31.5%) of the closures occurred abruptly, meaning students had little to no warning that the institution was closing (*Figure 3*). Institutions that closed abruptly tended to be those serving large populations of students. Closures at private for-profit two- and four-year institutions were the most likely to be abrupt (44.6% and 26.0%, respectively).

FIGURE 3

ORDERLY AND ABRUPT CLOSURES BY SECTOR



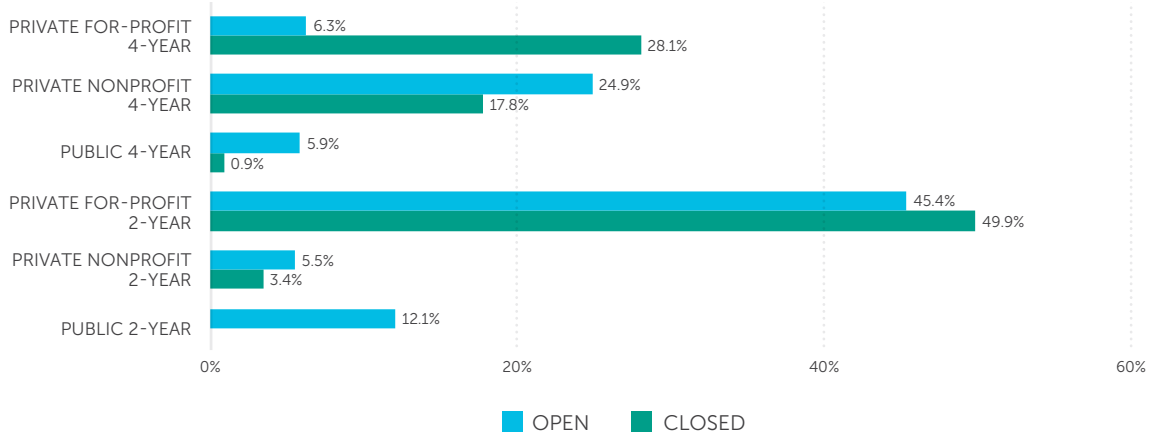
NOTE: Institutions with orderly closures enrolled an average of 134 students across sectors at closure, one fifth of the enrollment of abruptly closed institutions (682 students on average).

COMPARING CHARACTERISTICS OF OPEN AND CLOSED INSTITUTIONS

Prior research indicates that more than 80% of college closures occur at private for-profit institutions, primarily due to loss of accreditation and financial challenges. This section draws comparisons between our sample of closed institutions and the comparison group of open institutions that were in operation between 2004 and 2020 and reported complete data to IPEDS (*Figure 4*).

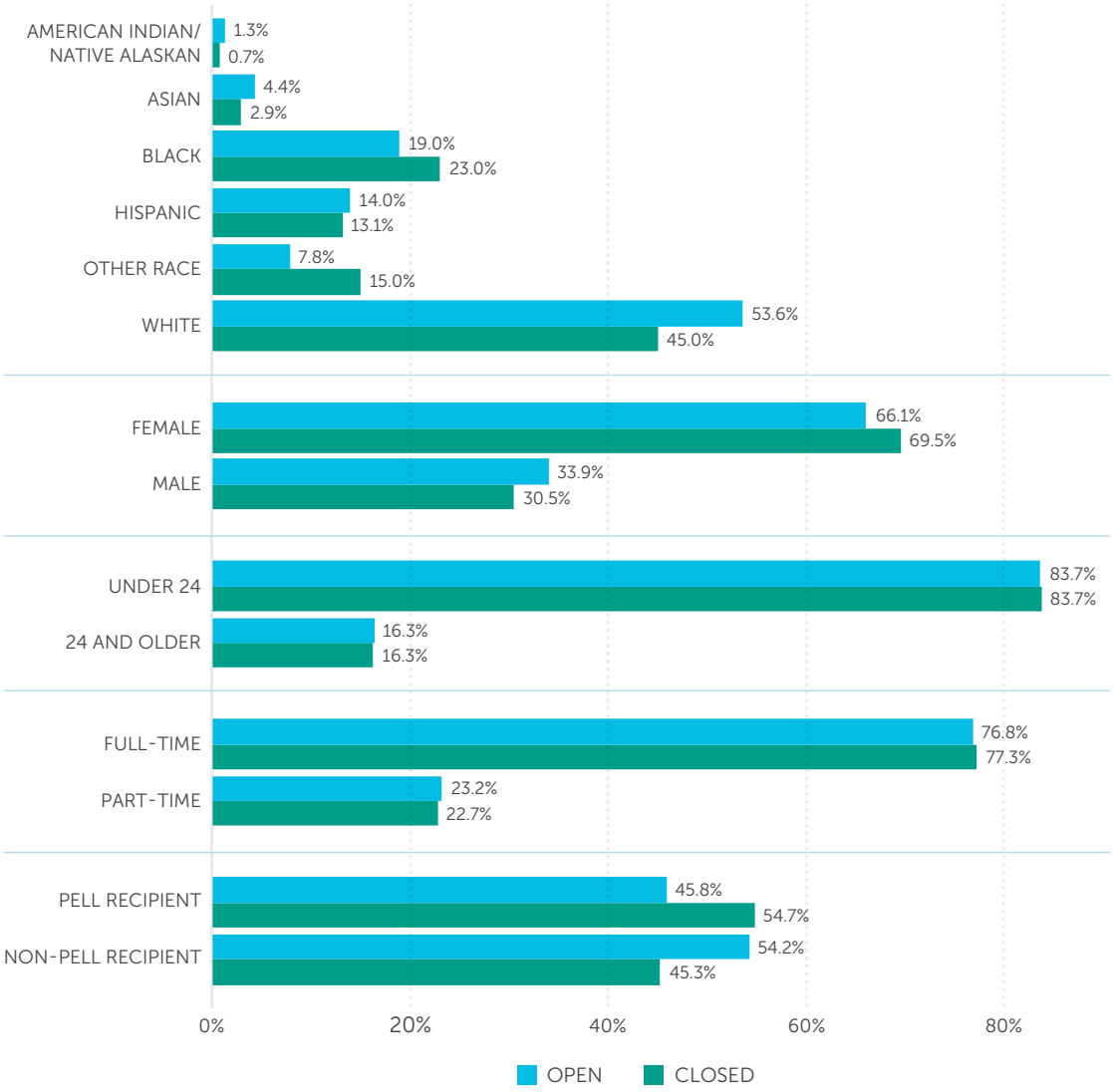
Compared to open institutions, fewer closed institutions were in the two-year sector (53.3% compared to 63.0% of open institutions). Closed institutions were disproportionately in the private for-profit sector (78.0% compared to 51.7%), and very few were in the public sector (0.9% vs. 18.0%). Among both open and closed institutions, nearly half (49.9% of closed and 45.4% of open) were in the private for-profit two-year sector. A disproportionately large percentage of closed institutions were in the private for-profit four-year sector (28.1% compared to 6.3% of open institutions).

FIGURE 4
OPEN AND CLOSED INSTITUTIONS BY SECTOR



Institutions that closed had larger percentages of students of color (55.0% compared to 46.4% at open institutions), mostly due to larger populations of Black students (23.0% at closed compared to 19.0% at open institutions) and students of two or more races or non-resident students (15.0% at closed and 7.8% at open institutions) (*Figure 5*). Closed and open institutions had roughly similar percentages of Hispanic students (13.1% compared to 14.0%) and Native American/Native Alaskan and Asian students (all less than 4.4%). Closed institutions had slightly higher percentages of female students (69.5% compared to 66.1% at open institutions). Open and closed institutions had the same percentage of students aged 24 and older (16.3%) and part-time students (22.7% at closed institutions and 23.2% at open institutions). The largest observed difference between closed and open institutions was that closed institutions had much higher rates of students with financial need, indicated by the receipt of Pell Grants (54.7% compared to 45.8% at open institutions).

FIGURE 5
STUDENT CHARACTERISTICS AT OPEN AND CLOSED INSTITUTIONS



NOTE: The "other" race category includes Native Hawaiian/Pacific Islander, Two or More Races, and Non-Resident students. These categories were collapsed due to small percentages.

STUDENT-LEVEL RESULTS

DEMOGRAPHICS AND ACADEMIC CHARACTERISTICS OF STUDENTS WHO EXPERIENCED CLOSURES

We identified 143,215 eligible students in the Clearinghouse database who experienced college closures between 2004 and 2020 and who were enrolled within 120 days of the institutional closure. The following sections highlight the demographic, academic, and institutional characteristics of students during their first closure experience. Similar to the total undergraduate student population enrolled in postsecondary institutions in the U.S., more than half (54.6%) of students who experienced a closure were female (*Table 1*). Although 36.9% of students were missing information on race/ethnicity,[12] white students represented the largest percentage (25.0%) of students with a valid race/ethnicity record, followed by Black students (17.3%) and Hispanic students (12.2%). Most students were older than 30 at the time of the closure (39.0%), with roughly even distributions among other age groups age 18 and older.

TABLE 1

DEMOGRAPHICS OF STUDENTS WHO EXPERIENCED CLOSURES (N=143,215)

STUDENT DEMOGRAPHICS	STUDENT COUNT	PERCENTAGE
GENDER		
FEMALE	78,179	54.6%
MALE	63,419	44.3%
MISSING	1,617	1.1%
RACE/ETHNICITY		
AMERICAN INDIAN/ALASKA NATIVE	936	0.7%
ASIAN	3,569	2.5%
BLACK	24,761	17.3%
HISPANIC	17,517	12.2%
NATIVE HAWAIIAN/PACIFIC ISLANDER	856	0.6%
NON-RESIDENT	363	0.3%
TWO OR MORE RACES	6,538	4.6%
WHITE	35,818	25.0%
MISSING	52,857	36.9%
AGE CATEGORY		
17 OR YOUNGER OR MISSING	1,179	0.8%
18-20	25,206	17.6%
21-24	31,926	22.3%
25-29	29,083	20.3%
30 OR OLDER	55,821	39.0%

Forty-two percent of students who experienced a closure were enrolled in associate degree programs at the time of the closure, followed by undergraduate certificate programs (21.3%) and bachelor's degree programs (18.0%) (*Table 2*). Smaller percentages of students were enrolled in graduate degree programs (5.2%) and non-credit programs (1.5%). More than half of students

12. Students with missing race/ethnicity information are most pronounced in the for-profit sector, particularly during the early years of the Clearinghouse data collection.

(51.5%) were enrolled exclusively full time across all semesters at the closed institution, while 7.5% were enrolled exclusively part time and 29.1% had mixed full-time and part-time enrollment. The largest proportion of students were enrolled in health professions and related clinical sciences at the time of the institutional closure (28.5%), followed by computer and information sciences and support (15.5%), business, management, and marketing (13.6%), and engineering technologies (11.5%).

TABLE 2

ACADEMIC CHARACTERISTICS OF STUDENTS WHO EXPERIENCED CLOSURES (N=143,215)

STUDENT ACADEMIC CHARACTERISTICS	STUDENT COUNT	PERCENTAGE
PROGRAM LEVEL		
CERTIFICATE	30,469	21.3%
ASSOCIATE	60,094	42.0%
BACHELOR'S	25,742	18.0%
GRADUATE	7,328	5.2%
NON-CREDIT	2,113	1.5%
MISSING	17,469	12.2%
ENROLLMENT		
EXCLUSIVELY FULL-TIME	73,734	51.5%
EXCLUSIVELY PART-TIME	10,707	7.5%
MIX FULL- AND PART-TIME	41,625	29.1%
MISSING	17,149	12.0%
MAJOR		
ENGINEERING TECHNOLOGIES/TECHNICIAN	16,446	11.5%
BUSINESS, MANAGEMENT, MARKETING	19,457	13.6%
COMPUTER/INFORMATION SCIENCE	22,160	15.5%
HEALTH PROFESSIONS AND CLINICAL SCIENCES	40,835	28.5%
OTHER MAJORS	44,317	30.9%

NOTE: Major categories based on 2-digit Classification of Instructional Programs (CIP).

Although for-profit two-year institutions represented the largest proportion of closed institutions, a larger proportion of students were enrolled at for-profit four-year institutions prior to closure (46.4%) (*Table 3*). A much smaller percentage of students attended either a private nonprofit four-year (15.7%), public four-year (0.5%), or private nonprofit two-year institution (0.9%).

TABLE 3

INSTITUTIONAL CHARACTERISTICS WHERE STUDENTS EXPERIENCED A FIRST CLOSURE (N=143,215)

INSTITUTIONAL CHARACTERISTICS	STUDENT COUNT	PERCENTAGE
CONTROL & LEVEL		
PRIVATE NONPROFIT 2-YEAR	1,256	0.9%
PRIVATE FOR-PROFIT 2-YEAR	52,223	36.5%
PUBLIC 4-YEAR	766	0.5%
PRIVATE NONPROFIT 4-YEAR	22,467	15.7%
PRIVATE FOR-PROFIT 4-YEAR	66,503	46.4%

ACADEMIC EXPERIENCES OF STUDENTS WHO EXPERIENCED CLOSURES

Most students had attended a different postsecondary institution (60.8%) and 10.9% had earned a credential at a different institution prior to experiencing a closure (*Table 4*). Following the closure, less than half (47.1%) of students reenrolled at a subsequent institution, and just over one-third (36.8%) of these students earned a credential (*Figure 11*). Of students who reenrolled after a closure, 52.9% dropped out without a post-closure credential and 10.4% were still enrolled as of February 2022. Over half (52.9%) of students who experienced closures never reenrolled, although 36.4% of these students earned a credential at the closed institution or another institution prior to experiencing closure. Visit the interactive tool on our project website (www.sheeo.org/project/college-closures) to explore student outcomes by demographic and academic characteristics.

TABLE 4

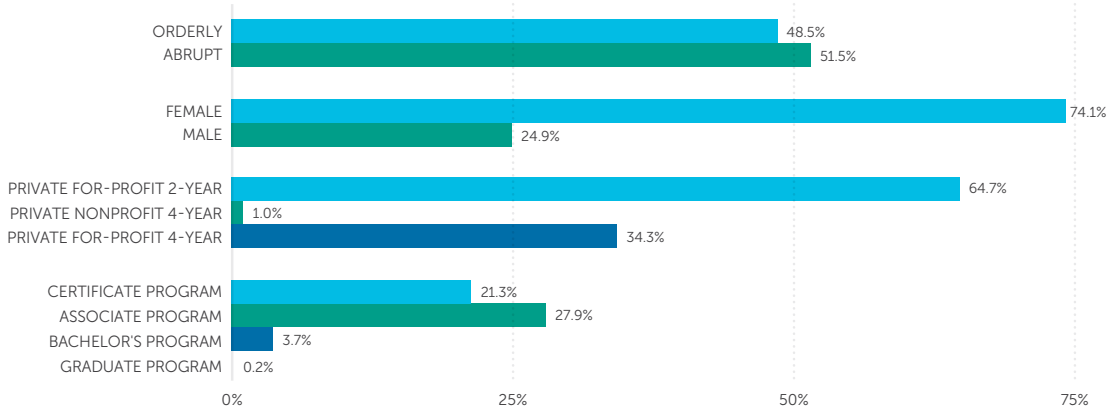
PRIOR AND SUBSEQUENT ENROLLMENT AND COMPLETION OF STUDENTS WHO EXPERIENCED CLOSURES (N=143,215)

ENROLLMENT AND CLOSURE EXPERIENCE	STUDENT COUNT	PERCENTAGE
CLOSURE TYPE		
ABRUPT	100,285	70.0%
ORDERLY	42,930	30.0%
ENROLLED PRIOR TO CLOSED INSTITUTION		
YES	87,116	60.8%
NO	56,099	39.2%
EARNED CREDENTIAL PRIOR TO CLOSED INSTITUTION		
YES	15,639	10.9%
NO	127,576	89.1%
EARNED CREDENTIAL AT CLOSED INSTITUTION		
YES	34,144	23.8%
NO	109,071	76.2%
NUMBER OF CLOSURES		
ONE	141,271	98.6%
TWO OR MORE	1,944	1.4%
REENROLLED AFTER CLOSURE		
YES	67,438	47.1%
NO	75,777	52.9%

The vast majority of students experienced one institutional closure, while just 1.4% of students experienced closures at two or three institutions. Ninety-nine percent of students with multiple closures experienced their first closure at a private for-profit institution (64.7% at two-year and 34.3% at four-year institutions) (*Figure 6*). For over half of these students (51.5%), their first closure experience was abrupt. Female students were overrepresented among students experiencing multiple closures (74.1% of students).

FIGURE 6

SELECT CHARACTERISTICS OF STUDENTS WHO EXPERIENCED MORE THAN ONE CLOSURE (N=1,944)



NOTE: Statistics for students with missing gender and program-level data are not shown in this figure. Details do not sum to 100.

REENROLLMENT POST-CLOSURE

Regardless of whether the institution closure was orderly or abrupt, students faced an unexpected disruption to their postsecondary education. For students who are unable to complete their program prior to closure, an alternative promising outcome is for students to reenroll in a subsequent institution. Less than half (47.1%) of the 143,215 students who experienced closures between July 1, 2004, and June 30, 2020, continued their enrollment at another institution post-closure. The following sections examine the reenrollment rates of students by student and institutional characteristics. Students reenrolled anywhere from one day to several years after the initial closure, although over half (53.6%) reenrolled within four months.[13] The following time frames of reenrollment are used to examine student outcomes:

- Immediate reenrollment (within one month).
- Delayed reenrollment (between one and four months).
- Stopout before reenrollment (between four months and one year).
- Extended stopout before reenrollment (more than one year).

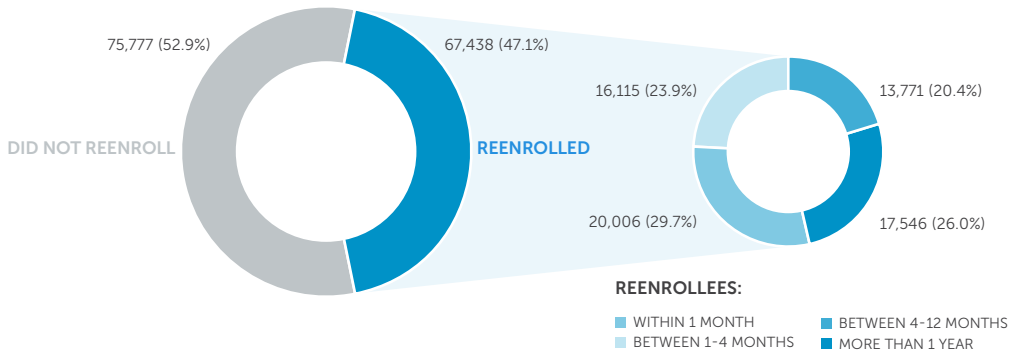
The largest percentage of students who reenrolled did so within one month of the closure (29.7%), followed by students with extended stopouts of more than one year (26.0%), delayed reenrollment

13. Student enrollment is captured through February 2022.

within one to four months (23.9%), and stopouts of four months to one year (20.4%) (*Figure 7*). Visit the interactive tool on our project website (www.sheeo.org/project/college-closures) to explore student outcomes by reenrollment time frames.

FIGURE 7

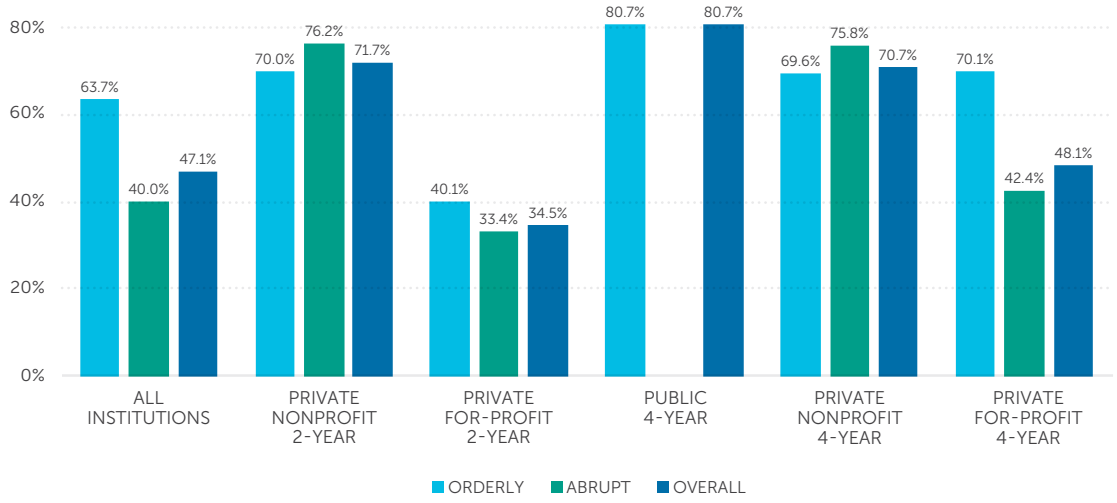
ELAPSED TIME TO REENROLLMENT AFTER CLOSURE (N=67,438)



Reenrollment rates varied by closure type (abrupt or orderly), institutional control and level, and student demographics. Reenrollment rates were lower for students who experienced abrupt closures compared to students who experienced orderly closures (40.0% vs. 63.7%), especially at private for-profit four-year institutions (42.4% reenrollment after abrupt closures compared to 70.1% reenrollment after orderly closures) (*Figure 8*). When closures were orderly, reenrollment rates at private for-profit four-year institutions were on par with private non-profit four-year institutions. Reenrollment rates at private nonprofit two- and four-year institutions were similarly high regardless of closure type (75.8% for abrupt closures compared to 69.6% for orderly closures).

FIGURE 8

REENROLLMENT RATES BY ABRUPT AND ORDERLY CLOSURE AND INSTITUTIONAL SECTOR (N=67,438)



Institutional sector at the time of the closure was associated with the institutional sector of reenrollment. The largest proportion of students at private nonprofit and for-profit four-year institutions reenrolled in an institution in the same sector (62.6% and 44.5%, respectively) (*Table 5*). Students enrolled at private nonprofit and for-profit two-year institutions tended to reenroll in public two-year community colleges (24.3% at private nonprofit and 49.2% at private for-profit institutions) or public four-year institutions (29.0% at private nonprofit institutions). Even so, 33.3% of students who experienced a closure at a private for-profit two-year institution reenrolled in the for-profit sector.

TABLE 5

MOVEMENT OF REENROLLEES FROM SECTOR OF CLOSED INSTITUTION TO FIRST REENROLLMENT INSITUTION (N=67,438)

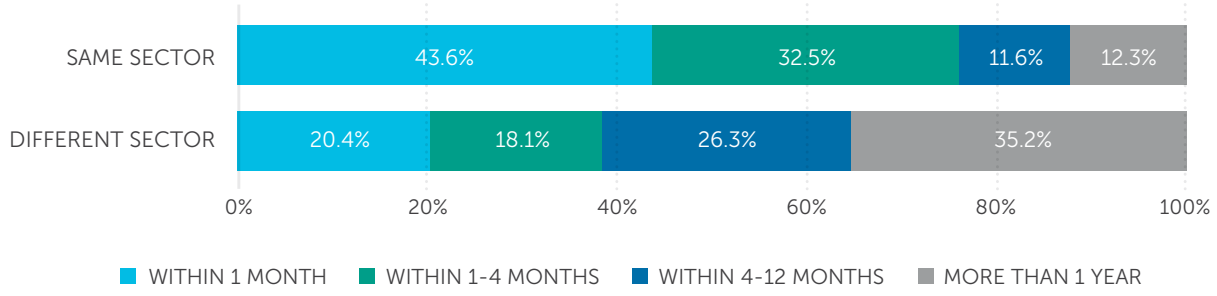
		CLOSED INSTITUTION SECTOR				
		PRIVATE NP 2-YEAR	PRIVATE FP 2-YEAR	PUBLIC 4-YEAR	PRIVATE NP 4-YEAR	PRIVATE FP 4-YEAR
REENROLLMENT SECTOR	PUBLIC 2-YEAR	24.3%	49.2%	2.9%	12.0%	25.4%
	PRIVATE NP 2-YEAR	4.9%	0.1%	0.0%	0.6%	0.1%
	PRIVATE FP 2-YEAR	0.3%	13.9%	0.0%	0.1%	3.9%
	PUBLIC 4-YEAR	29.0%	9.3%	43.9%	22.0%	9.4%
	PRIVATE NP 4-YEAR	18.3%	8.1%	51.3%	62.6%	16.7%
	PRIVATE FP 4-YEAR	23.1%	19.4%	1.9%	2.7%	44.5%
	TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

NOTE: Colors represent the size of each cell relative to the entire column. Darker cells are the largest percentage in that column.

Students who changed institutional sectors took longer to reenroll than students who stayed in the same sector. Thirty-five percent of students who reenrolled in a different sector had an extended stopout of more than one year, compared to 12.3% of students who did not change sectors (*Figure 9*).

FIGURE 9

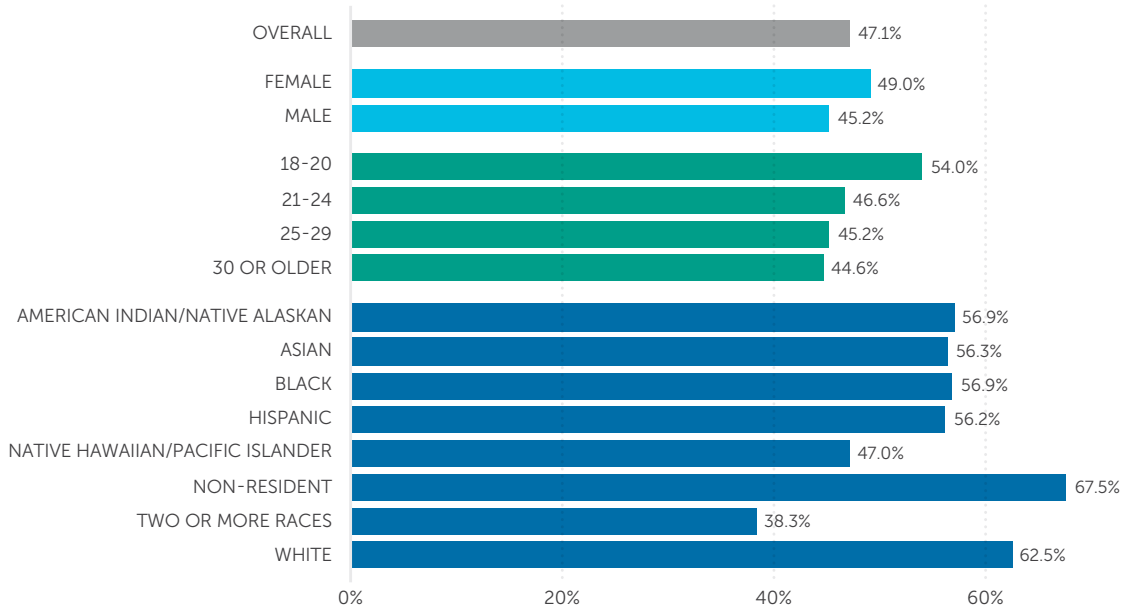
ELAPSED TIME TO REENROLLMENT BY REENROLLMENT IN SAME OR DIFFERENT SECTOR (N=67,438)



Female students comprised over half of students who experienced closures (54.6%), consistent with the higher share of female students in postsecondary education overall (NCES, 2021). After a closure, female students reenrolled at a higher rate than male students (49.0% compared to 45.2%) (Figure 10), although female students were more likely to have an extended stopout of more than one year (28.7% of female compared to 22.4% of male students who reenrolled) (Appendix C Table C-22). Female students enrolled in credit-bearing undergraduate credential programs at the time of the closure were more likely than male students in those programs to reenroll.

Students aged 18-20 at the time of closure had the highest reenrollment rate (54.0%). Reenrollment rates for older age groups ranged from 44.6% to 46.6%. Minoritized students had uniformly lower reenrollment rates than white students, with the exception of non-resident students. Between 28.4% and 34.0% of Black, Asian, Hispanic, and Native American students had an extended stopout of more than one year prior to reenrolling, compared to 19.5% of white students (Appendix C Table C-23). The combination of lower reenrollment rates and longer stopouts suggests disproportionately negative effects of a closure for minoritized students. Visit the interactive tool on our project website (www.sheeo.org/project/college-closures) to compare reenrollment rates by student demographics.

FIGURE 10
REENROLLMENT RATES BY STUDENT DEMOGRAPHICS (N=67,438)



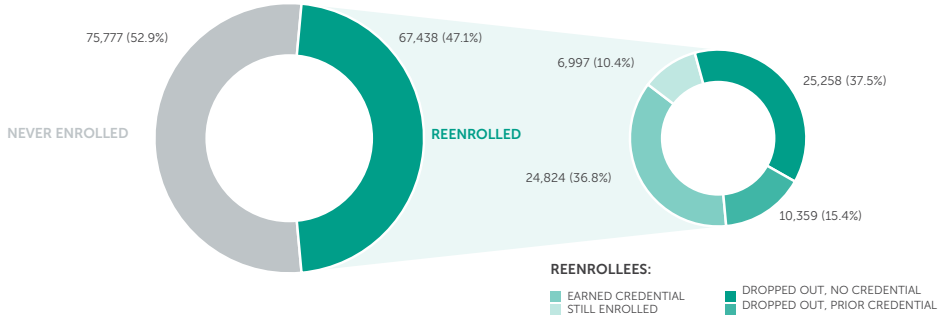
NOTE: Students with missing race/ethnicity, gender, and age data are not shown in this figure but are included in the overall statistics.

STUDENT PROGRESS AND COMPLETION AFTER REENROLLMENT

The following sections highlight the student progress and completion rates of the 67,438 students who reenrolled after a closure. Thirty-seven percent of reenrollees completed a credential and 10.4% were still enrolled as of February 2022 (*Figure 11*). The remaining 52.9% of reenrollees dropped out after reenrollment as of February 2022, although 29.1% of these students had earned a postsecondary credential at another postsecondary institution or at the closed institution prior to experiencing the closure (15.4% of all reenrollees).

FIGURE 11

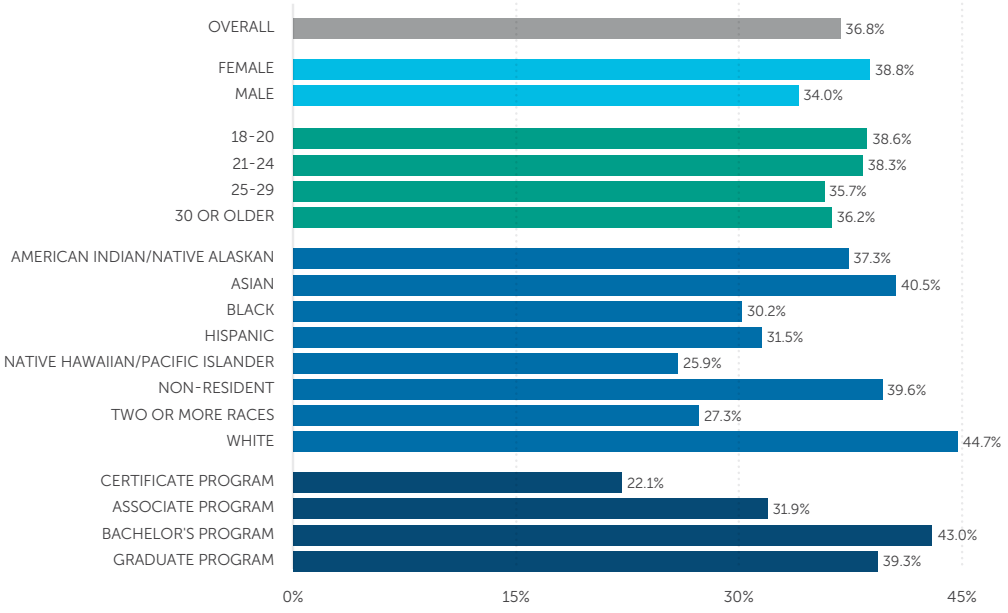
COMPLETION RATES AMONG REENROLLEES (N=67,438)



Mirroring reenrollment patterns, Black, Hispanic, Asian, and Native American students who reenrolled all had lower credential completion rates than white students (30.2%, 31.5%, 40.5%, 37.3%, respectively, compared to 44.7%) (*Figure 12*). Completion rates after reenrollment differed by the type of credential students were seeking at the time of the closure. Reenrollees pursuing a bachelor's degree at closure were the most likely to earn any credential after the closure (43.0%), followed by students enrolled in graduate degree programs (39.3%). Reenrollees seeking an undergraduate certificate at the time of closure had the lowest credential completion rate (22.1%).

FIGURE 12

COMPLETION RATES BY STUDENT DEMOGRAPHICS AND CREDENTIAL PROGRAM AT CLOSURE (ALL COMPLETERS) (N=24,824)

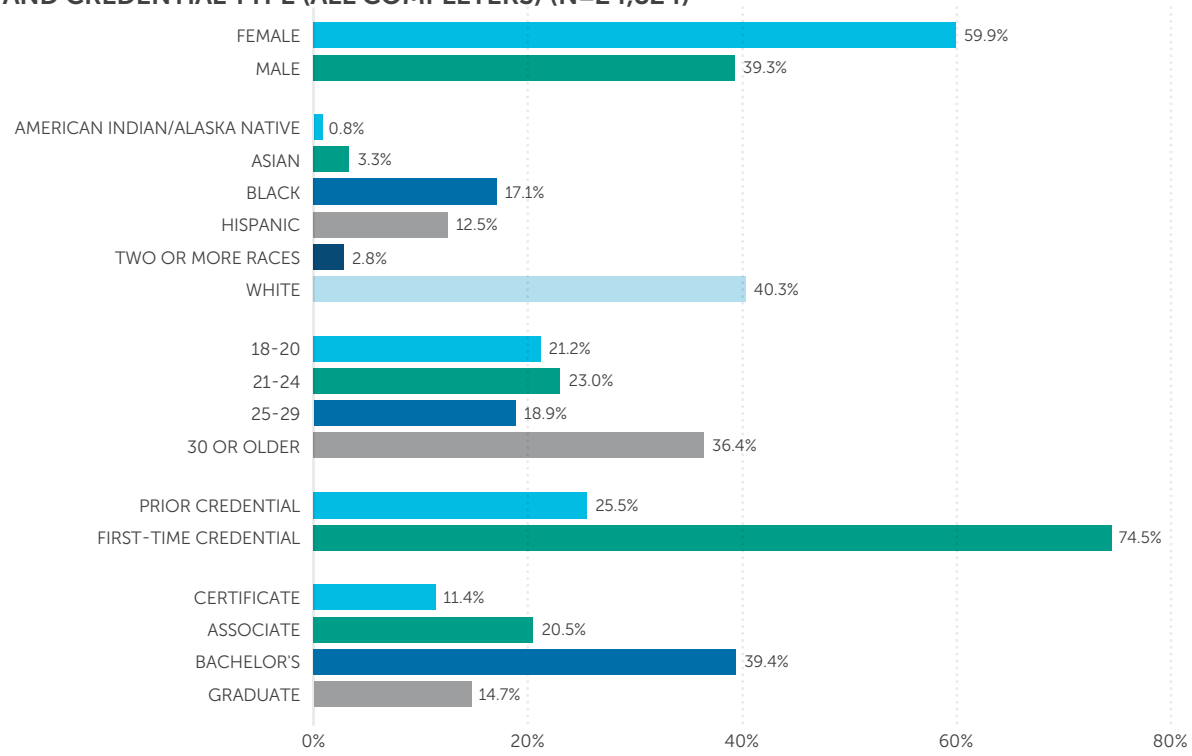


NOTE: Students with missing race/ethnicity, gender, age, and program-level data are not shown in this figure but are included in the overall statistics.

Closely reflecting the high shares of female and older students (over 30 years) among all students who experienced closure, these students made up the largest shares of completers compared to male students and younger students (*Figure 13*). The majority of students who earned a credential after experiencing a closure were first-time credential earners (74.5%). Most completers earned an undergraduate credential (71.3%), with 39.4% earning a bachelor's degree, 20.5% earning an associate degree, and 11.4% earning a certificate as their first credential after closure. This is a notable shift, as the highest proportion of reenrollees were pursuing an associate degree at the time of the closure (42.0%). Forty-two percent of associate degree seekers who completed a credential after a closure earned an associate degree as their first credential, while 24.4% earned a bachelor's degree, and 18.3% earned a certificate (*Table 6*).

FIGURE 13

PERCENTAGE SHARE OF CREDENTIAL EARNERS BY STUDENT DEMOGRAPHICS AND CREDENTIAL TYPE (ALL COMPLETERS) (N=24,824)



NOTE: Statistics for sudents with missing gender and program-level data are not shown in this figure. Details do not sum to 100.

TABLE 6

MOVEMENT OF CREDENTIAL EARNERS BY CREDENTIAL TYPE AT CLOSURE AND COMPLETION (ALL COMPLETERS) (N=24,824)

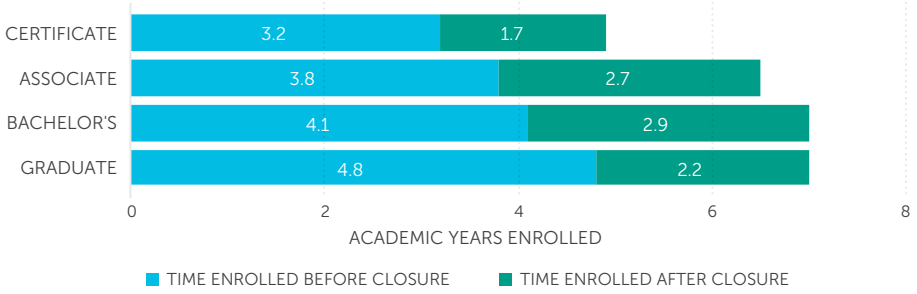
		CREDENTIAL PROGRAM AT CLOSURE			
		CERTIFICATE	ASSOCIATE	BACHELOR'S	GRADUATE
CREDENTIAL COMPLETED	CERTIFICATE	36.2%	18.3%	2.5%	1.5%
	ASSOCIATE	17.9%	42.0%	5.7%	0.4%
	BACHELOR'S	11.7%	24.4%	73.3%	0.4%
	GRADUATE	11.4%	1.8%	6.6%	95.4%
	UNKNOWN	22.8%	13.5%	12.0%	2.4%
	TOTAL	**100%**	**100%**	**100%**	**100%**

NOTE: Colors represent the size of each cell relative to the entire column. Darker cells are the largest percentage in that column.

The length of time to complete a credential from first enrollment was calculated for all students who earned their first-ever credential after experiencing a closure and varied by type of credential earned and prior enrollment. As expected, among students who earned their first credential after experiencing a closure, those who earned bachelor's and graduate degrees had the longest times enrolled until completion (7.0 academic years for both),[14] since these programs are longer than certificate and associate programs (4.9 and 6.5 academic years enrolled, respectively) (*Figure 14*). Students earning certificates were enrolled for the shortest amount of time before a closure (3.2 academic years) and after a closure (1.7 academic years), while students earning associate and bachelor's degrees were enrolled for the longest time post-closure (2.7 and 2.9 academic years, respectively).[15]

FIGURE 14

ENROLLED TIME TO COMPLETION FROM FIRST ENROLLMENT TO FIRST CREDENTIAL EARNED (FIRST-TIME COMPLETERS) (N=18,497)



NOTE: Students with missing credential-earned data are not shown in this figure. Estimated enrolled time is defined as 30 weeks of full-time enrollment per academic year. Only students who earned their first credential after experiencing a closure are included.

14. Graduate degree programs included students enrolled in master's degree programs and doctoral and professional programs, which may last longer than four years.

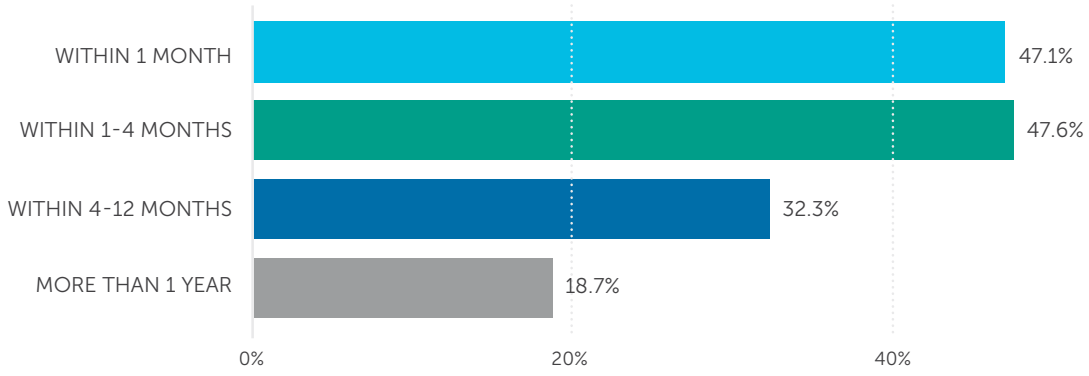
15. Time to completion is measured from first postsecondary enrollment to credential completion for students earning their first credential after reenrollment. Time to completion measures time a student was actively enrolled and is not measured in total elapsed time. Academic years are defined as 30 weeks of enrollment. See *Appendix A. Definitions* for additional information.

The following sections dive deeply into the data on completers (24,824) to gain insight into their pathways to earning a credential after experiencing a closure and reenrolling. For ease of comparison, times to completion are only calculated and reported for students who earned their first credential after experiencing a closure (18,497). Other completion statistics are reported for all completers, regardless of prior credential attainment. Credentials earned after closure are defined as the first credential a student earned after experiencing closure and reenrolling. Three distinct factors appear to be associated with pathways to completion: length of stopout, institutional sector at closure, and type of closure (abrupt or orderly).

COMPLETION DISPARITIES BY LENGTH OF STOPOUT

Some students reenrolled immediately after closure (within one month), while others delayed reenrollment (between one to four months) or stopped out for an extended period (more than four months). Reenrollment within one year after a closure appears to be a critical threshold for eventual completion. Students who stopped out for more than one year had completion rates roughly half of those with a shorter stopout of four months to one year (18.7% compared to32.3%) (*Figure 15*). Completion rates were highest for students who reenrolled within one to four months (47.6%), followed closely by students who reenrolled within one month (47.1%). Among students who earned their first credential after experiencing a closure, those who reenrolled within one to four months had the shortest times to completion from first enrollment (6.0 academic years enrolled), while students with a stopout of four months to one year had the longest times to completion (6.9 academic years enrolled). Times to credential varied by the type of credential students earned (*Appendix Table C-24*).

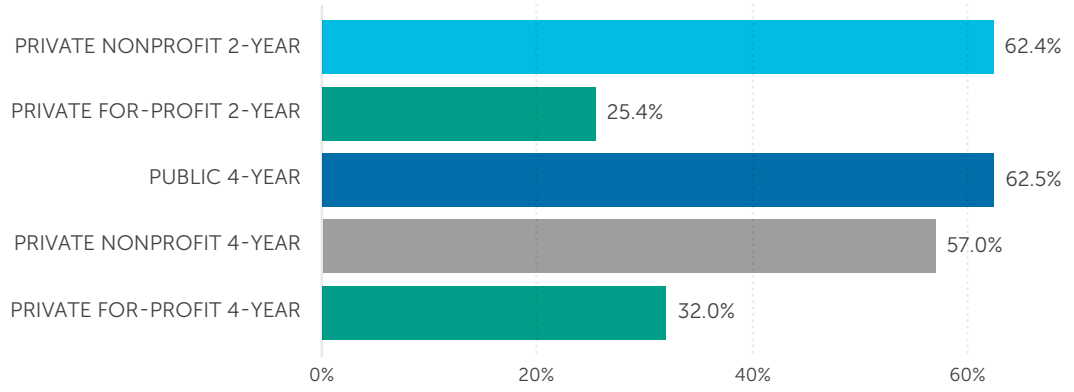
FIGURE 15
COMPLETION RATES BY ELAPSED TIME TO REENROLLMENT (ALL COMPLETERS) (N=24,824)



COMPLETION DISPARITIES BY INSTITUTIONAL SECTOR AT CLOSURE

Credential completion and type of credential earned also varied by institutional sector at closure, especially when comparing outcomes at private nonprofit and for-profit institutions. Students who reenrolled after experiencing closures at public and private nonprofit institutions were more likely to complete than students who experienced closures at private for-profit institutions. While the majority of completers experienced closures at a private for-profit two- or four-year institution (59.7%), the completion rate among all reenrollees from private for-profit two- and four-year institutions was roughly half the completion rate of reenrollees from private nonprofit two- and four-year institutions (25.4% and 32.0% compared to 62.4% and 57.0%, respectively) (*Figure 16*).

FIGURE 16
COMPLETION RATES BY CLOSED-INSTITUTION SECTOR (ALL COMPLETERS) (N=24,824)



Students who experienced closures at private nonprofit four-year institutions accounted for over half of all bachelor's degrees completed (52.8%) (*Figure 17*). Notably, over two-thirds of these credential earners stayed within the private nonprofit four-year sector (68.2%) (*Table 7A*).

FIGURE 17
PERCENTAGE SHARE OF COMPLETERS BY CLOSED-INSTITUTION SECTOR AND CREDENTIAL EARNED (ALL COMPLETERS) (N=24,824)

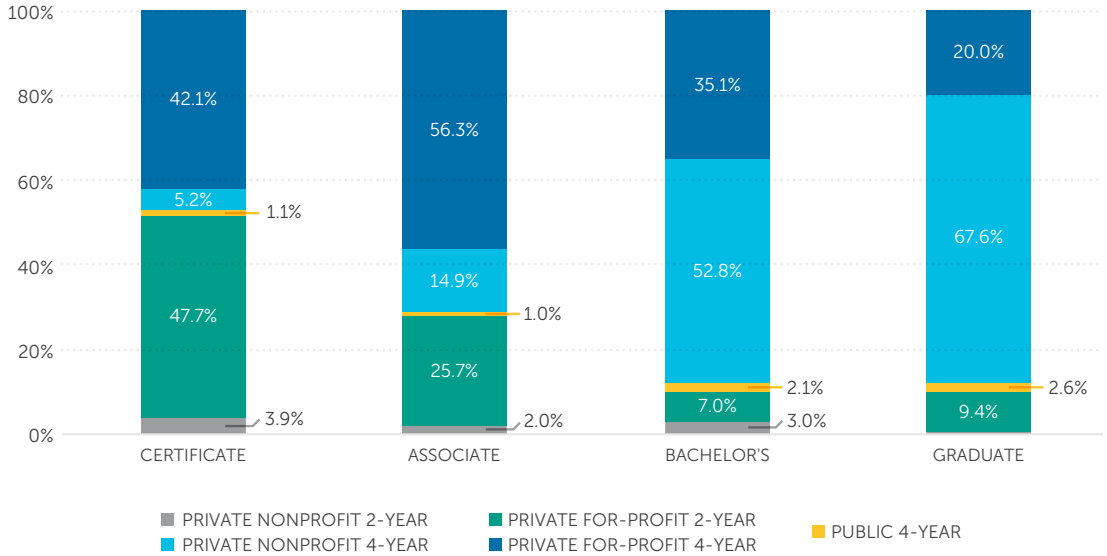


TABLE 7A

MOVEMENT BETWEEN SECTORS FOR ALL BACHELOR'S DEGREE EARNERS (N=9,778)

		CLOSED-INSTITUTION SECTOR				
		PRIVATE NP 2-YEAR	PRIVATE FP 2-YEAR	PUBLIC 4-YEAR	PRIVATE NP 4-YEAR	PRIVATE FP 4-YEAR
COMPLETION SECTOR	PUBLIC 2-YEAR	2.4%	2.0%	0.0%	0.7%	0.7%
	PRIVATE NP 2-YEAR	0.0%	0.0%	0.0%	0.5%	0.1%
	PRIVATE FP 2-YEAR	0.0%	0.6%	0.0%	0.0%	1.8%
	PUBLIC 4-YEAR	59.5%	28.2%	76.1%	29.4%	13.3%
	PRIVATE NP 4-YEAR	29.2%	32.2%	21.6%	68.2%	40.6%
	PRIVATE FP 4-YEAR	8.9%	37.0%	2.3%	1.2%	43.4%
	TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

NOTE: Colors represent the size of each cell relative to the entire column. Darker cells are the largest percentage in that column.

In comparison, sub-baccalaureate credential earners were predominantly students who had experienced closures in the private for-profit sector (89.8% of certificate earners and 82.0% of associate earners) (*Figure 17*). Sixty-nine percent of associate degree earners who experienced closures at a for-profit institution left the for-profit sector, and many earned their associate degrees at public two-year institutions (49.6% from the private for-profit two-year sector and 44.3% from the private for-profit four-year sector) (*Table 7B*).

TABLE 7B

MOVEMENT BETWEEN SECTORS FOR ALL ASSOCIATE DEGREE EARNERS (N=5,100)

		CLOSED-INSTITUTION SECTOR				
		PRIVATE NP 2-YEAR	PRIVATE FP 2-YEAR	PUBLIC 4-YEAR	PRIVATE NP 4-YEAR	PRIVATE FP 4-YEAR
COMPLETION SECTOR	PUBLIC 2-YEAR	50.0%	49.6%	4.3%	37.6%	44.3%
	PRIVATE NP 2-YEAR	10.4%	0.1%	0.0%	0.0%	0.4%
	PRIVATE FP 2-YEAR	0.0%	13.5%	0.0%	0.0%	8.1%
	PUBLIC 4-YEAR	14.6%	12.6%	47.8%	18.4%	12.1%
	PRIVATE NP 4-YEAR	21.9%	8.9%	47.8%	39.4%	11.8%
	PRIVATE FP 4-YEAR	3.1%	15.3%	0.0%	4.6%	23.4%
	TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

NOTE: Colors represent the size of each cell relative to the entire column. Darker cells are the largest percentage in that column.

Among bachelor's degree recipients who earned their first credential after a closure, those who experienced a closure at private nonprofit and for-profit two-year institutions had the longest times to completion (9.5 and 8.8 academic years enrolled, respectively), while students who experienced a closure at privte nonprofit four-year institutions had the shortest times (5.8 academic years enrolled) (*Figure 18A*). Among associate degree recipients who completed their first credential after a closure, those who experienced a closure at private for-profit two- and four-year institutions had the longest times to completion (6.8 academic years enrolled for both), and students at private nonprofit two-year institutions had the shortest times (4.2 academic years enrolled) (*Figure 18B*).

FIGURE 18A

ENROLLED TIME TO COMPLETION AMONG FIRST-TIME COMPLETERS BY CLOSED-INSTITUTION SECTOR: BACHELOR'S DEGREE (N=7,774)

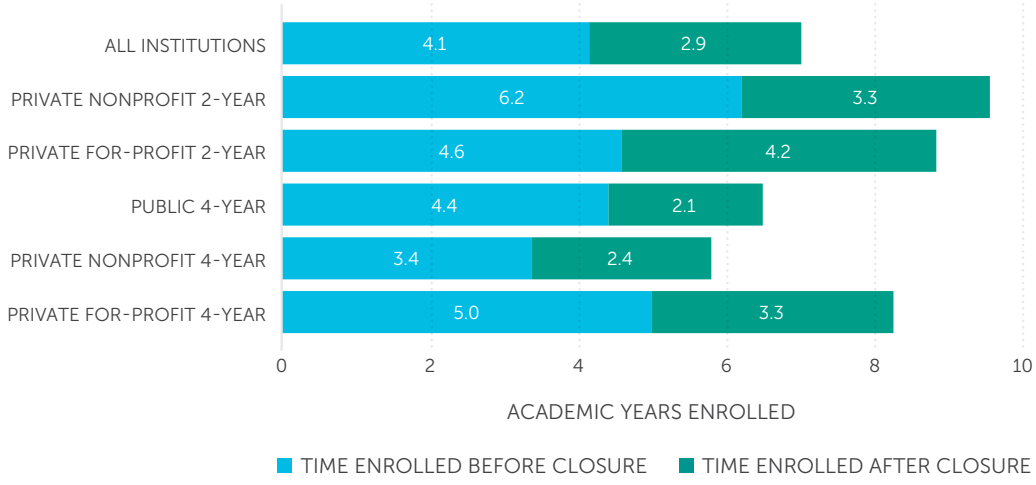
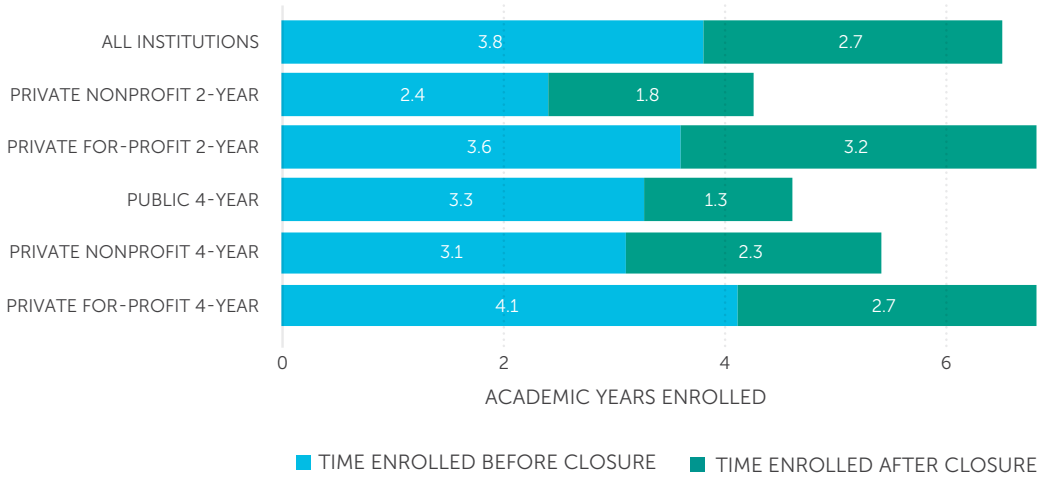


FIGURE 18B

ENROLLED TIME TO COMPLETION AMONG FIRST-TIME COMPLETERS BY CLOSED-INSTITUTION SECTOR: ASSOCIATE DEGREE (N=4,294)

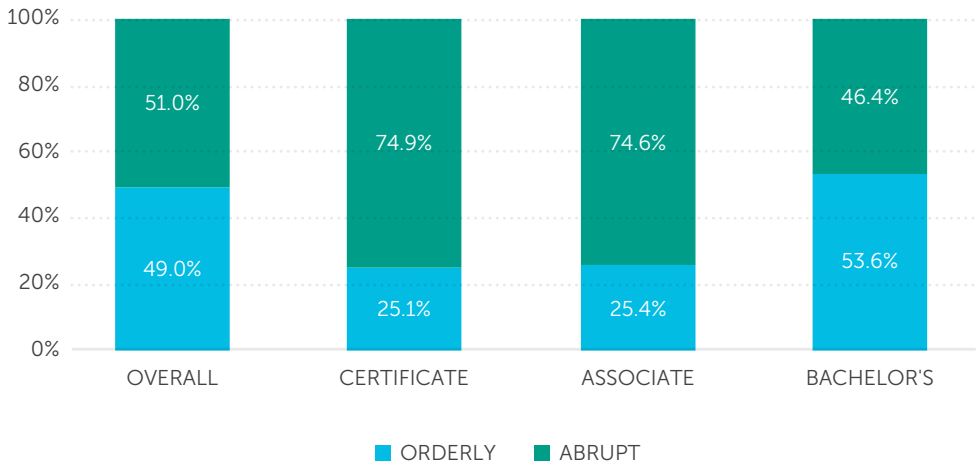


COMPLETION DISPARITIES BY TYPE OF CLOSURE

Institutions that closed in an orderly process tended to be smaller than institutions that closed abruptly (134 students at the time of closure compared to 687 students, respectively). Almost one-third (31.5%) of closures occurred abruptly with little or no advance warning, affecting 70% of students with closure experience. Across all sectors, students who experienced an abrupt closure were less likely to reenroll and less likely to earn a credential after they reenrolled than students who experienced orderly closures. Nonetheless, since the number of students experiencing abrupt closures was so high compared to orderly closures, these students made up the majority of reenrolled students (59.4%) and roughly half of credential completers (51.0%) (*Figure 19*). This is most evident among completers earning a sub-baccalaureate credential. Three-quarters of students who subsequently earned an associate degree or certificate had experienced an abrupt closure, compared to less than half of bachelor's degree completers.

FIGURE 19

PERCENTAGE SHARE OF COMPLETERS BY ABRUPT AND ORDERLY CLOSURE AND CREDENTIAL EARNED (ALL COMPLETERS) (N=24,824)

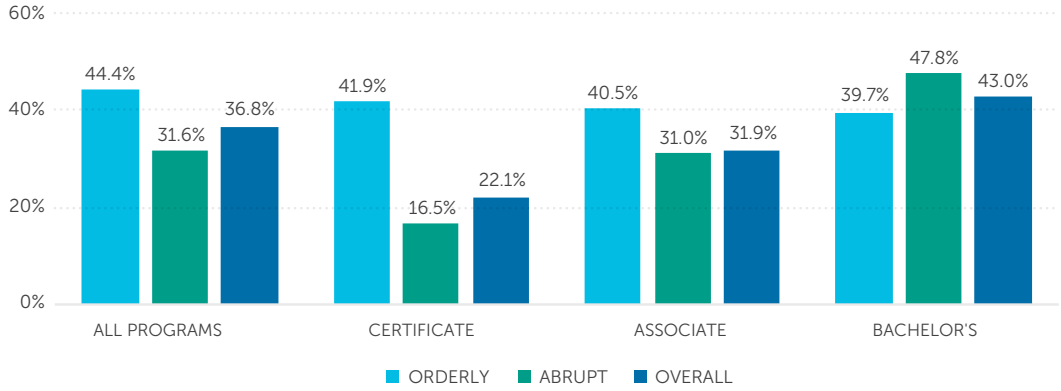


NOTE: Students with missing credential-earned data are not shown in this figure but are included in the overall statistics.

Abrupt closures led to lower rates of credential completion among reenrollees (31.6% compared to 44.4% for orderly closures), particularly among completers pursuing sub-baccalaureate credentials at the time of the closure. Completers pursuing certificates at the time of abrupt closures had completion rates over 2.5 times lower than their counterparts at orderly closure institutions (16.5% compared to 41.9%) (*Figure 20*). In contrast, students pursuing bachelor's degrees followed the opposite pattern, with much higher completion rates for students experiencing abrupt closures (47.8% compared to 39.7% for students with orderly closures).

FIGURE 20

COMPLETION RATES BY ABRUPT AND ORDERLY CLOSURE AND CREDENTIAL PROGRAM AT CLOSURE (ALL COMPLETERS) (N=24,824)

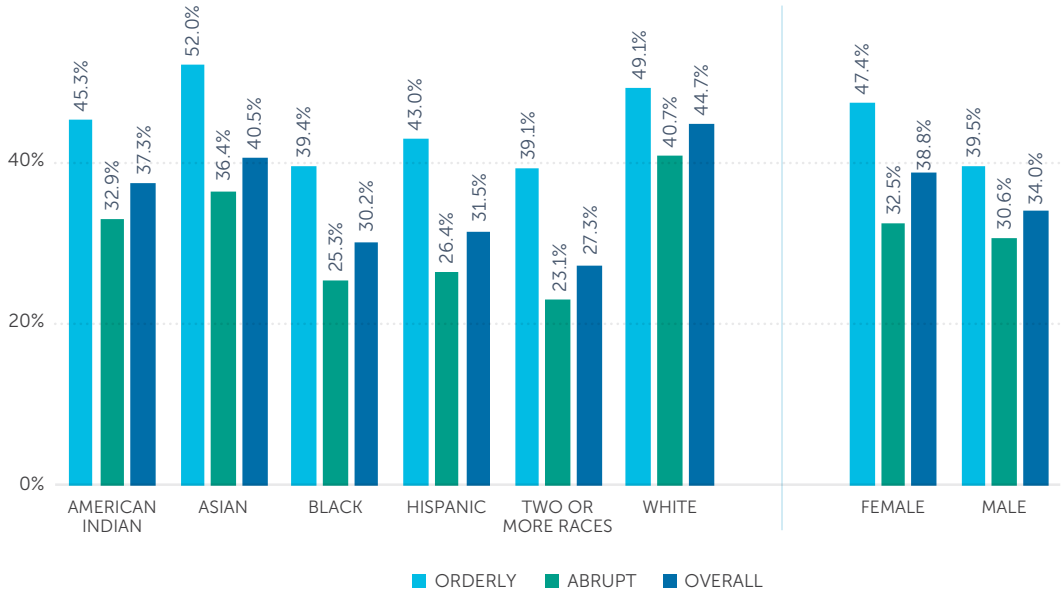


NOTE: Students with missing credential-earned data are not shown in this figure but are included in the other statistics.

Abrupt closure had a disproportionate impact on completion rates for minoritized students who reenrolled. Black, Hispanic, and Native American students who experienced abrupt closures and reenrolled had lower completion rates than their white peers experiencing abrupt closures (*Figure 21A*). Although completion gaps by race/ethnicity also existed among students experiencing orderly closures, the gaps were magnified among abrupt closures. Gender disparities in completion rates were narrowed when closure was abrupt. Male students that experienced orderly closures and reenrolled had a completion rate 7.9 percentage points lower than female students, while the completion rate gap by gender after abrupt closures was 1.9 percentage points.

FIGURE 21A

COMPLETION RATES BY ABRUPT AND ORDERLY CLOSURE AND STUDENT DEMOGRAPHICS (ALL COMPLETERS) (N=24,824)

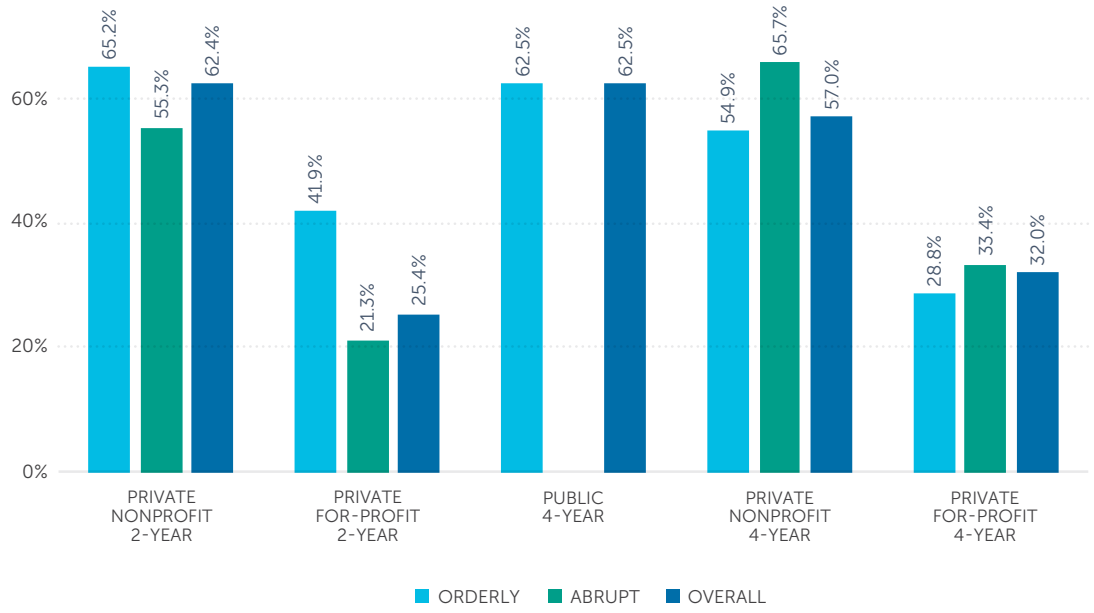


NOTE: Students with missing race/ethnicity data are not shown in this figure but are included in the other statistics.

Completion rate gaps related to the type of closure varied by institutional sector at closure. Surprisingly, reenrollees with abrupt closure experiences at private for-profit four-year institutions had higher completion rates than their counterparts in the same sector with orderly closure experiences (33.4% compared to 28.8%) (*Figure 21B*). Likewise, in the private nonprofit four-year sector, reenrollees with an abrupt closure experience had a higher completion rate than students in the same sector with an orderly closure experience (65.7% compared to 54.9%). Conversely, students who experienced an abrupt closure in the two-year sector were less likely to earn a credential than students in the same sector who experienced an orderly closure. Visit the interactive tool on the project website (www.sheeo.org/project/college-closures) to explore student outcomes by abrupt and orderly closure.

FIGURE 21B

COMPLETION RATES BY ABRUPT AND ORDERLY CLOSURE AND CLOSED-INSTITUTION SECTOR (ALL COMPLETERS) (N=24,824)



DISCUSSION AND IMPLICATIONS

Our analysis identified 143,215 students who experienced closures at 467 campuses between July 1, 2004, and June 30, 2020. Over two-thirds of these institutional closures were orderly (i.e., the institution retained student records and completed a teach-out plan), although these tended to be small institutions compared to the institutions that closed abruptly. As a result, seven in every ten students experienced an abrupt closure without adequate notice or a transition plan.

Overall, less than half (47.1%) of students who experienced a closure subsequently reenrolled at a postsecondary institution. Of those who reenrolled, roughly one-third earned a postsecondary credential (36.8%), while an additional 10.4% were still enrolled as of February 2022. The remaining reenrollees (52.9%) left without earning a credential after reenrollment. This suggests a total student post-closure success and progress rate of 47.2% upon reenrolling after a closure or 22.2% of all students who experienced a closure.

The source of these gaps in student progress and success following a closure is twofold: more than half of students never reenrolled after a closure (52.9%), and of those who did reenroll, more than half (52.9%) left without completing any credential. These outcomes are concerning for several reasons. First, this overall completion rate of 36.8% upon reenrollment is far lower than the estimated 62.2% of beginning postsecondary students nationally who complete a credential within six years (NSC, 2022a). This suggests that institutional closures have deleterious effects on college completion compared to outcomes at institutions that do not close. Moreover, more than 39 million Americans in 2020 had attended college but had not earned a credential (NSC, 2022b). Students who experienced closures disproportionately add to this population of students with "some college, no credential," which can limit students' opportunities for gainful employment and living wages (Carnevale, Smith, & Strohl, 2013).

Students who attend some college but do not complete a credential are also required to repay any loans they incurred during their time enrolled. While the federal Department of Education (ED) allows for the discharge of federal student loans for eligible students[16] when institutions close, not all students experiencing closures are eligible and not all eligible students successfully apply for closed school discharge. A Government Accountability Office (GAO) report from 2021 estimated that of the 246,000 borrowers who experienced institutional closures between 2010 and 2020, only 80,000 (roughly 32.5%) had their loans forgiven (Emry-Arras, 2021). These borrowers had a collective debt of $4 billion, and a median debt per student of $9,500. The estimated 166,000 students who were ineligible or had uncertain eligibility for loan discharge were on the hook for repayment, regardless of whether they ultimately transferred their credits and/or obtained a credential at a subsequent institution.[17]

16. Eligible students must have been enrolled when the school closed; on an approved leave of absence when the school closed; enrolled within 120 days of the closure if loans were disbursed before July 1, 2020; or enrolled within 180 days of the closure if loans were disbursed after July 1, 2020. To be eligible, the student may not be enrolled in a comparable program at another school and may not have completed all coursework for the program at the closed school.

17. Transfer of credits to another institution or completion of a credential at the closed institution discredits a borrower from closed school discharge eligibility.

Using data from IPEDS and the College Scorecard, we estimated total student debt between 2002 and 2020 for the 467 institutions that closed and a subset of comparison institutions. The average, median, and 90th percentile loan amounts for students enrolled at the 467 institutions that closed were significantly higher than the loan amounts at the comparison group of institutions that did not close (*see Appendix C Table C-25*). This finding suggests that the students enrolled at the institutions that closed had higher median debt than students enrolled at institutions that did not close. Our research found that 54.8% of students who experienced closures are still without any postsecondary credential as of February 2022. Although the median loan amounts for completers were higher than for students who withdrew at institutions that closed, students who leave without earning a postsecondary credential have lower lifetime earnings with which to repay their loans (Carnevale, Rose, & Cheah, 2011) and higher default rates of 26% for non-credential earners compared to 5.4% for credential earners (BPS:12/17).

Our analysis also revealed that reenrollment and credential completion rates were lowest among minoritized students of color, male students, and nontraditional college aged students. The institutions that comprise the largest proportion of closed institutions—private for-profit two- and four-year institutions—enroll a disproportionately large number of students of color. In 2018, 12% of all students of color enrolled in private for-profit institutions, compared to 6.4% of white students, and private for-profit institutions had the largest proportion of students of color (64.5% compared to 44.3% at private nonprofit and 48.5% at public institutions; NPSAS:18-AC). In our analysis, these students were less likely than white students to reenroll after experiencing a closure and proceed to earning a credential of any type. This post-closure attainment gap by race/ethnicity is over 1.6 times larger than the gap for students who did not experience closures (10.6 compared to 6.3 percentage points in BPS:12/17). As struggling for-profit institutions continue to close, the number of minoritized students experiencing closures, not reenrolling, and not earning a credential can be expected to rise relative to white students, further exacerbating attainment gaps.

Female students have made significant advancements in higher education over the past several decades—growing from 41.2% of the student body in 1970 to 58.6% in 2020—and now outnumber men across all institution types. Compared to their prevalence in higher education overall, female students are slightly underrepresented among students experiencing closures (54.6%). They are also more likely than male students to reenroll and earn a credential following a closure, and more likely to ever earn a credential (including credentials earned before closure). Male students of color have lower reenrollment rates than white male or female students, and their credential completion rates are the lowest of any group. While these lower completion rates are not a new phenomenon (Anthony, Nichols, Del Pilar, 2021) or unique to students experiencing closures, the disproportionate impacts of closures on male students of color during institutional closures may further contribute to educational inequities.

Most students experiencing closures were nontraditional college aged students over 24, with the largest percentage over 30 at the time of the closure. Students over 24 were the least likely to reenroll and earn a credential, although they were the most likely in our sample to have earned a credential prior to experiencing a closure. Data from the 2015-16 NPSAS confirm that students over 30 are the most likely to have dependent children or to be single parents, have more than $4,500 in credit card debt, and to indicate that they are primarily working adults who decided to enroll in school (NPSAS:16). These extraneous circumstances may make overcoming a closure experience more challenging for older students, as they have parental, financial, and occupational obligations to navigate. With greater focus in recent years on encouraging adult learners without college credentials to start or return to higher education, this disproportionate effect on older students threatens to exacerbate the gaps in attainment by age group.

The time between an institutional closure and reenrollment is a critical consideration for student success. Students who reenrolled within one to four months after a closure had the highest rate of credential completion, while students who stopped out for more than one year had the lowest completion rate. Although immediate reenrollment would seem to offer the most benefit, students who reenrolled within one month were also the most likely to experience a second or third closure at a branch campus in the same institutional system. Barring subsequent closures, however, rapid reengagement into higher education post-closure appears to be an important determinant of ultimate success. This finding calls for more pre-closure planning at the institutional level to prepare for the event of a closure and offer protections to students.

While this report provides no counterpoint of students who did not experience closures, we can compare the average enrolled time from first entry to completion for students who earned their first credential after a closure to the average enrolled time to completion for all U.S. postsecondary students. On average, students experiencing closure completed their first postsecondary credential within 6.5 academic years of first entry. The enrolled time for bachelor's earners is longer (7.0 academic years) than for associate (6.5 academic years) and certificate earners (4.9 academic years). In comparison, a 2016 report by the NSC Research Center found that the average time enrolled was 5.1 years for bachelor's degree earners and 3.3 years for associate earners. Total time elapsed since first enrollment was longer: 5.7 years for bachelor's earners and 5.5 years for associate earners (NSC, 2016). In contrast, students who experienced closures took 7.5 years to complete a bachelor's and 8.1 years to complete an associate degree in total time elapsed since first enrollment, due in part to multiple closures and frequent stopouts. These findings confirm that students who experience institutional closures not only take longer from first enrollment to first credential completion, but also accrue more time enrolled in postsecondary education than college graduates generally. Students may be unable to transfer credits from their closed institution and may be required to repeat courses required for credential completion. Since students who experience closures are enrolled for more semesters, they may also incur additional student loan debt as a result. At the national level, taxpayers may also experience increased costs from expanded access to Pell Grants and state financial aid awards.

The outcomes for students who experience abrupt closures are particularly worrisome. These students comprised 70% of all students who experienced closures, despite attending just 31.5% of the institutions in our sample of institutions that closed, due to much higher average student enrollments at institutions that closed abruptly. Students with abrupt closure experiences were significantly less likely to reenroll after a closure and less likely overall to earn a credential post-closure. Minoritized students of color and students enrolled at private nonprofit and for-profit institutions were the most likely to experience these negative effects of abrupt closures on reenrollment and credential completion outcomes.

POLICY IMPLICATIONS

Institutional closures are not always predictable or preventable, and in fact, some institutions may be best served by closing when they have lost accreditation or are no longer financially viable. As the effects of the COVID-19 pandemic continue to impact institutional finances and the funding provided by the CARES Act and other emergency legislation expires, experts predict an uptick in the number of institutions closing in the coming years. Research has shown that predicting which institutions will close is an imprecise science, but institutions that have closed share several characteristics. Most institutions that closed were private for-profit institutions, and although two-year institutions made up the largest percentage of closures, four-year institutions accounted for the largest percentage of affected students. The events precipitating a closure, while not always explicit, frequently include financial stress (heightened by emergencies such as the COVID-19 pandemic) or compliance concerns often precipitating placement on Heightened Cash Monitoring (HCM) by the federal government, loss of authority to disburse Title IV funds, and loss of programmatic and institutional accreditation.

Regardless of the reason for closing, it is essential for the regulatory triad to protect the students enrolled in institutions that close. For-profit institutions have frequently been the focus of federal and state regulations aimed at preventing "bad actors" from entering or continuing to operate in the postsecondary education market. Federal efforts to regulate postsecondary education institutions have included the 90/10 Revenue Test, the Two-Year Rule for awarding FSA funds at proprietary or vocational schools, annual cohort default rate rules for awarding FSA funds, and the now-rescinded Gainful Employment regulations.[18] Institutions with financial or compliance issues can be placed on Heightened Cash Monitoring (HCM), which offers institutions additional oversight of the management of federal student aid funds. While these regulations have identified some of the institutions most at risk of closing abruptly and prevented some institutions from continuing to operate and engage in predatory practices, federal regulations alone are not sufficient to protect students once closures occur.

States serve an essential role in the triad and can take actions to prevent closures—especially abrupt closures—and ensure state consumer protection laws are enforced following a closure. Through the state authorization process, institutions must demonstrate they have the resources and capacity to fulfill their mission and offer high-quality credentials. Robust and effective initial authorization practices can keep bad actors out of the postsecondary education business and help prevent future closures. **The poor student outcomes associated with abrupt closures documented in this report reinforce calls for improving state authorization processes.** Additionally, states have a responsibility to provide continued oversight after initial authorization. This quality assurance function includes responding to student complaints and reviewing institutional activities through a regular renewal process.

A recent study of the state laws and administrative codes regulating for-profit education found that states have the legal authority to constrain the activities of potential "bad actor for-profit institutions" (Hutchens, Fernandez, & Edmondson, 2021). The authors found several main areas for states to impose legal authority on for-profit schools: requiring mandatory disclosures to both current and prospective students; regulating predatory marketing techniques; and enforcing existing consumer protection laws. In the case of an institutional closure, states can require institutions to maintain student records and transcripts, enter into teach-out plans and agreements,

18. The federal government is in the process of reissuing these regulations and they will be in effect at a future time.

collect tuition recovery funds, and enforce a policy for student grievances. Whether these controls are enshrined in state statute or administrative rules, they have the potential to overlap with and complement regulations at the federal level to protect students from the potential negative impacts of an unplanned institutional closure.

Our findings lead to suggestions for policy improvements. **The particularly poor outcomes for students experiencing an abrupt closure suggest that members of the triad need to strengthen their financial monitoring of institutions. In particular, states should conduct trend analyses using multiple measures to assess the financial health of institutions (Tandberg, 2018) and not rely primarily or solely on Financial Responsibility Composite scores, which have been shown to be an ineffective predictor of closures (McCann, Nguyen, & Whistle, 2020; Kelchen, 2020).** Using trend analysis will allow states to have conversations with institutions about their viability and take proactive steps long before a closure becomes imminent, such as requiring quarterly financial reporting and developing teach-out agreements.

Once it becomes likely an institution will close, states need to ensure teach-out agreements are in place to provide all students with a pathway for completing their credentials. Teach-out plans alone are insufficient to ensure these pathways exist, and institutions often do not have the capacity or resources to execute teach-out plans once they announce a closure (Colston, et al., 2020). Additionally, states need to thoroughly vet the teach-out institutions to ensure they are capable of completing the terms of the teach-out agreement and are financially viable. Our results showing that some students who reenrolled immediately experienced multiple closures suggest that allowing branch campuses of the same institution to serve as teach-out partners is inadequate. While it may be convenient for these campuses to serve as teach-out institutions, states need to review and verify the capacity of these campuses to serve as teach-out partners.

The findings in this report are the first to investigate the impacts of institutional closures at the student level. The reenrollment rate of less than 50% necessitates action to enable students to reenroll in a timely manner and complete a credential without significant increases in their enrolled time to completion or amount of accumulated debt. Federal and state regulations currently exist to prevent bad actors from entering the postsecondary education market, but not all states enforce these regulations equally. Recommended best practices for regulating institutions of higher education include requiring institutions to (1) submit teach-out plans and agreements in the event of a closure; (2) provide students with sufficient warning of an impending closure; (3) counsel students on their transfer or completion options; (4) retain student records and transcripts; and (5) collect a tuition recovery fund to reimburse students affected by closures. Moreover, few protections exist for students already enrolled at predatory institutions. Federal and state actors can take steps to protect students *after* an institutional closure, including: (1) automatically discharging the loans of eligible students affected by an institutional closure; (2) immediately reenrolling students at teach-out institutions; (3) retaining student transcripts and providing easy access to transfer records to subsequent institutions; and (4) providing timely refunds of student tuition and loans, if applicable.

SHEEO and the Research Center will be publishing two follow-up reports in a series analyzing the impacts of college closures on student outcomes. Report two will include causal analysis of closures on student outcomes, while report three will incorporate the state authorization policy context to ascertain if policy interventions can ameliorate the negative effects of closures on students. The findings of these forthcoming reports will supply additional evidence-based support for and refinement of these policy implications.

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APPENDIX A. DEFINITIONS

ABRUPT AND ORDERLY CLOSURES: Closure process was determined by a qualitative review of the materials and reports surrounding the closure announcement of each of the 467 closed institutions. Orderly closures were those that gave students at least three months' notice before the closure, included a teach-out plan at the institution or a partner institution, and retained student records and transcripts. Abrupt closures were those that were described as abrupt in news reports, did not include a teach-out plan, or did not give students at least 3 months' notice prior to the closure.

AGE CATEGORY: Student age is measured during the last term enrolled at the first institution where a student experienced a closure. Age categories include under 18 years old (primarily omitted from most results), 18 to 20 years old, 21 to 24 years old, 25 to 29 years old, and 30 years and older.

CONTROL AND LEVEL: Because some institutions can change their educational offerings over time, institutional level for closed campuses was measured at the time of the closure. Institutional control is also subject to change, most often when for-profit institutions switch to nonprofit status or when institutions from different sectors merge. Given that the majority of institutions making this change continue to function as for-profit entities, any closed institution that was ever designated as for-profit is considered for-profit in the sample.

CREDENTIAL COMPLETION: Students who completed a credential after reenrolling post-closure; includes any students who earned a certificate, associate, bachelor's, graduate, or unknown credential type as of February 2022.

CREDENTIAL LEVEL: Credential level indicates what credential type a student was pursuing at closure. Beginning in the 2014-15 academic year, it became mandatory for participating institutions to report program-level data to the Clearinghouse. Prior to 2014, data coverage ranges from 11.6% to 80.7% (see Additional Data Elements for historical coverage rates). Credential level is measured during the last term enrolled at the first closure institution. Students in non-credential programs are classified separately from credit-bearing credential programs. Students in post-baccalaureate certificate programs are classified as students in certificate programs. Students in graduate certificate programs are classified as graduate students.

ENROLLMENT STATUS: Enrollment status is defined by whether the student was enrolled entirely full time, entirely part time, or a mix of full time and part time across all terms enrolled at the closure institution. A student's enrollment is reported by each institution based on its own credit thresholds for what is considered full-time or part-time enrollment. Students defined as part time include those enrolled 3/4 time, half time, or less than half time.

FIRST-TIME CREDENTIAL EARNER: First-time credential earners are students who had not earned any credential prior to their experiencing closure. Students who earned credentials at the closure institution or another postsecondary institution while dually enrolled are not considered first-time credential earners.

GEOGRAPHIC REGION: Geographic region is determined by the state of operation of the first institution where a student experienced the closure. Branch campuses of institutional systems that operate in more than one state are categorized by the physical location of the campus that closed. The New England region includes CT, ME, MA, NH, RH, and VT. The Mid-Atlantic region includes DE, DC, MD, NJ, NY, and PA. The Great Lakes region includes IL, IN, MI, OH, and WI. The Plains region includes IA, KS, MN, MO, NE, ND, and SD. The Southeast region includes AL, AR, FL,

GA, KY, LA, MS, NC, SC, TN, VA, and WV. The Southwest region includes AZ, NM, OK, and TX. The Rocky Mountains region includes CO, ID, MT, UT, and WY. The Far West region includes AK, CA, HI, NV, OR, and WA.

LENGTH OF STOPOUT: The length of stopout measures the number of days between a student's last enrollment at the closed institution (last term end date) and their enrollment at a subsequent institution (first term begin date). Students who were concurrently enrolled in another postsecondary institution at the time of a closure are considered to have a reenrollment time frame of 0 days. Length of stopout categories were chosen based on the overall distribution of days between a closure and reenrollment. Notably, many of the closed institutions in this sample have continuous enrollment or non-standard enrollment terms. Students whose institution closed at the end of the spring semester and who reenrolled at the beginning of the fall semester may be categorized into reenrollment within one month or reenrollment within one and four months.

PRIOR ENROLLMENT EXPERIENCE: Students who had enrolled at any postsecondary institution prior to their first enrollment at the closure institution are considered to have prior enrollment experience. Students who were concurrently enrolled in another postsecondary institution during their first enrollment at the closure institution are also considered to have prior enrollment experience, as long as the overlapping enrollment term began before the term begin date of the first enrollment term at the closure institution.

RACE/ETHNICITY: In recent years, data coverage for race/ethnicity has improved to 83% of the undergraduate population with a valid report of race/ethnicity. This coverage was previously much lower, with less than 15% of institutions reporting race/ethnicity to the Clearinghouse in 2009 (see Additional Data Elements for historical coverage rates). The share of students with missing race/ethnicity information was 37% (31.5% missing and 5.5% unknown). Due to this higher level of missing data, findings by race/ethnicity should be interpreted with caution. Student race/ethnicity was determined by any enrollment term, not only at the time of the closure. Race/ethnicity data for an individual student did not vary across enrollment terms or institutions. Students who did not reenroll may be more likely to have missing race/ethnicity data as they had fewer enrollment terms and fewer opportunities for race/ethnicity data to be reported by the institution.

REENROLLMENT STATUS: Students are defined as reenrolled if they subsequently enrolled in another postsecondary institution that reports data to the Clearinghouse. Students moving from a main campus to a branch campus or from a branch campus to another branch campus with the same 6-digit OPEID were coded as having changed institutions. Students who were concurrently enrolled in another postsecondary institution at the time of the closure are considered reenrollees, as long as the overlapping reenrollment term extends beyond the term end date of the closure term.

TIME TO COMPLETION: Time to completion is measured only for students who earned their first-ever credential after reenrolling post-closure. Time to completion is the sum of all enrollment terms when a student was actively enrolled, starting from a student's earliest enrollment at any institution until completion of the credential post-closure. Time to completion is reported in academic years, which is defined as 30 weeks per academic year. Although some institutions and students have academic years that are longer than 30 weeks (particularly institutions with summer terms), a standardized definition of 30 weeks per academic year enables meaningful comparisons across student and institutional characteristics. Students who were not first-time credential earners are excluded from these calculations.

APPENDIX B. SUPPLEMENTAL METHODOLOGY

INSTITUTION SAMPLE DEVELOPMENT

To investigate the impacts of campus closures on students, we constructed a unique panel dataset using National Student Clearinghouse (NSC) data merged with institutional data from the Integrated Postsecondary Education Data System (IPEDS), the College Scorecard, the Postsecondary Education Participants System (PEPS), and the Federal Student Aid (FSA) Data Center. PEPS generates an extract of school data each week, containing elements such as eligibility for U.S. Department of Education programs, program length, institution ownership, and the date of institutional closures, among many other variables. The PEPS database contained 11,338 campuses identified by 8-digit OPEID (approximately 2,600 institutions by 6-digit OPEID) that closed in the time frame of interest (July 1, 2004, to June 30, 2020). Of those, 10,590 branches were not identified in the Clearinghouse data and were dropped from the baseline data.[19]

The remaining 748 closed branches were cross-walked to IPEDS using the College Scorecard OPEID-UNITID crosswalk, then merged with IPEDS data from 2002-2020. Eight closed branches that had no IPEDS UNITID match were dropped from the sample. The remaining 740 closed OPEIDs matched 640 distinct UNITIDs, meaning that multiple branches of a main campus reported under a single UNITID. Two-hundred forty-one branches had a one-to-one match between OPEID and UNITID, while the remaining 499 closed branches matched 398 unique UNITIDs.

Following Scorecard and IPEDS data collection, another 273 campuses were dropped from the data due to ineligible student populations. Campus closures that represented a single program of an open institution or a teacher learning site (typically at public institutions), as well as campus mergers/consolidations that did not result in institutional closures, were excluded. We further reduced the sample of closed campuses to only those with students enrolled within 120 days of the official date of campus closure. The 120-day threshold was chosen for consistency with the closed school loan cancellation policy, which allows students affected by campus closures to discharge their federal student loans if they were enrolled within 120 days of closures. Institutional variables of interest generated from IPEDS appear in *Table B-1*.

To account for the aggregated data reporting among 443 of the remaining closed institutions, IPEDS count and total variables (e.g., total enrollment, total revenues, total expenditures) were divided by the number of branch campuses still open in a given year reporting under a single UNITID. Another 18 closed institutions reported data as the "parent" institution in IPEDS, while 24 institutions were the "children" institutions. Count and total variables were apportioned among parent and child institutions using IPEDS allocation factors for these 42 institutions. Count variables were also allocated by dividing by the number of 8-digit OPEIDs reporting under a single UNITID. The final sample of closed campuses that we analyzed included 467 unique 8-digit OPEIDs across 204 6-digit OPEIDs.

19. Many of the closures that we identified were small, proprietary institutions that did not receive Title IV funding and therefore did not report data to the Clearinghouse.

In order to make comparisons between institutions that closed and those that remained open, a sample of comparison institutions representing the universe of non-closure institutions was constructed. This included all institutions that were open at any time between 2004 and 2020 and reported complete data to IPEDS. Institutions that had ever closed were excluded from this sample, as were institutions with multiple 8-digit OPEIDs reporting for a single UNITID. Parent-child allocation factors from IPEDS were used to allocate count and total variables for 315 open institutions with parent-child reporting relationships. The final comparison group included 3,299 open institutions.

Institutional data from IPEDS were cleaned to remove outlier observations greater than two standard deviations from the mean if the percentage change year-over-year was greater than 100% (for average grants, average loans, net price, and tuition revenue), greater than 1,000% (for total expenditures), or greater than 4,000%(for total revenues). Observations of undergraduate FTE enrollment greater than 100,000 students, average loans greater than $40,000, and net price greater than $80,000 or less than $0 were removed. All observations from the Pennsylvania State University and the Ohio State University systems were dropped due to lack of parent-child allocation indicators.

Additional variables of interest were derived from the College Scorecard, PEPS database, and FSA Data Center. Two- and three-year cohort default rates (CDR), median debt of borrowers, and 90th percentile cumulative debt of borrowers were collected from the College Scorecard for 2002 through 2019. Basic institution-level information such as highest level offered, sector, and state of operation was primarily collected from the PEPS database, as IPEDS definitions and reporting requirements can vary. Information on Pell Grants prior to 2009 was collected from the FSA Data Center to calculate estimates of the percentage of students receiving Pell awards at institutions with missing data. The FSA Data Center was also the source of Heightened Cash Monitoring (HCM) status and Composite Financial Index (CFI) financial responsibility scores. These variables appear in *Table B-1*.

The high degree of missingness for variables of interest in both the open and closed institutions samples necessitated a mitigation approach through imputation. The percentage of observations missing for closed institutions in the years that they were still open is in *Table B-1*. Missing data are assumed to be missing at random and the missing-value pattern is assumed to be arbitrary. Multiple imputation using chained equations (MICE) was chosen to repeatedly impute multiple values as a sequential regression that uses fully conditional specifications. This approach was chosen given its flexibility and ability to handle complexities in the data. Multiple imputation by chained equations generates multiple imputation values rather than a single imputation value, which accounts for the statistical uncertainty inherent in the imputation process (Azur, et al., 2011).

The six steps of the chained equation process include: 1) place holder imputations are generated for each missing value; 2) place holder imputations are set back to missing; 3) observed values of the variables to be imputed are regressed on all other variables in the imputation model, where each missing variable is the dependent variable; both the observed and imputed values are used as independent values; 4) missing values are replaced with predictions from the regression model; 5) steps 2-4 are repeated for each variable for a set number of iterations (in this case, 10 iterations); and 6) steps 2-4 are repeated for a set number of cycles (in this case, 5 cycles), with imputations updated for each cycle.

The *regress* method was used for continuous variables, while the predicted mean matching (*pmm*) method using the five nearest neighbors was used for truncated continuous variables with a restricted range. Predictor variables included in the imputation model were limited to variables

with no missingness; these variables are in *Table B-2*. Although treatment was included in the imputation model, observations were imputed using observed values from both closed and open institutions. Post-imputation edits were implemented to ensure values measuring student percentages did not sum to more than 100.

Post-imputation diagnostics included comparisons of the distributions of imputed and observed data. All differences between the observed and imputed data were minimal and plausible. The quality of being imputed was significantly associated with the outcome of interest (that is, closure between 2004 and 2020). However, the condition of missingness was also significantly associated with treatment. This is primarily due to the characteristics of closed institutions, which are predominantly proprietary institutions that do not consistently report data to IPEDS.

Over 52,000 open and closed branch campuses in PEPS were geocoded using the OpenCage geocoding API. PEPS address data were cleaned to fill in missing data and to generate a single, readable address, and the geocoding API assigned latitude and longitude to each branch campus in the database. These data were then matched using a fuzzy matching algorithm (reclink2) to a crosswalk between latitude/longitude and U.S. counties to fill in missing county data. Data were next matched to U.S. Department of Agriculture commuting zones that were updated in 2000. These zones delineate local economies that transcend political boundaries and were developed through hierarchical cluster analysis of counties by the U.S. Census Bureau. Measures of market concentration of institutions were generated through construction of Herfindahl-Hirschman Index (HHI) within each commuting zone. HHI was calculated by squaring the market share (the proportion of total enrollment) of each institution in the sample in a given year, then summing the resulting numbers within a commuting zone. Lower HHI represents a more dispersed market, while higher HHI signifies a more concentrated or dense market.

TABLE B-1

INSTITUTIONAL VARIABLES OF INTEREST

VARIABLE NAME	SOURCE	AVERAGE[1]	PERCENTAGE MISSING[2]
CONTINUOUS VARIABLES			
COHORT DEFAULT RATE	FSA	18.7%	81.9%
PERCENTAGE AMERICAN INDIAN/ALASKA NATIVE	IPEDS	0.7%	28.6%
PERCENTAGE ASIAN	IPEDS	2.9%	28.6%
PERCENTAGE BLACK	IPEDS	23.0%	28.6%
PERCENTAGE HISPANIC	IPEDS	13.1%	28.6%
PERCENTAGE OTHER RACE	IPEDS	15.0%	28.6%
PERCENTAGE WHITE	IPEDS	45.0%	28.6%
PERCENTAGE UNDER AGE 24	IPEDS	83.7%	86.5%
PERCENTAGE OVER AGE 24	IPEDS	16.3%	86.5%
PERCENTAGE FEMALE	IPEDS	69.5%	28.6%
PERCENTAGE MALE	IPEDS	30.5%	28.6%
PERCENTAGE FULL-TIME	IPEDS	77.3%	25.6%
PERCENTAGE PART-TIME	IPEDS	22.7%	25.6%
PERCENTAGE WITH PELL	IPEDS	54.7%	89.7%
GRADUATION RATE	IPEDS	50.0%	57.4%
AVERAGE GRANTS	IPEDS	$6,256	77.2%
AVERAGE LOANS	IPEDS	$7,403	79.4%

VARIABLE NAME	SOURCE	AVERAGE[1]	PERCENTAGE MISSING[2]
INSTITUTIONAL DENSITY SCALE	PEPS	5.9	0.0%
ABRUPT CLOSURE	QUALITATIVE DATA	31.5%	0.0%
HCM STATUS	SCORECARD	27.3%	99.5%
MEDIAN DEBT	SCORECARD	$9,057	16.5%
90TH PERCENTILE CUMULATIVE DEBT	SCORECARD	$22,033	20.1%
CATEGORICAL VARIABLES			
PRIMARY DEGREE LEVEL	IPEDS		
HIGHEST LEVEL OFFERED	IPEDS		
CONTROL	PEPS		
SECTOR	PEPS		
REGION	PEPS		

1 Average post-impute values for closed institutions only.

2 For closed institutions only.

TABLE B-2

INSTITUTIONAL VARIABLES USED IN IMPUTATION MODEL

VARIABLE NAME	SOURCE
PRIMARY DEGREE LEVEL	IPEDS
HIGHEST LEVEL OFFERED	IPEDS
OPEN ADMISSIONS POLICY	IPEDS
DUAL CREDIT OFFERED	IPEDS
CREDIT FOR LIFE EXPERIENCES OFFERED	IPEDS
AP CREDITS OFFERED	IPEDS
ROTC OFFERED	IPEDS
STUDY ABROAD OFFERED	IPEDS
WEEKEND/EVENING COLLEGE OFFERED	IPEDS
TEACHER CERTIFICATE OFFERED	IPEDS
REMEDICAL SERVICES	IPEDS
ACADEMIC/CAREER COUNSELING	IPEDS
EMPLOYMENT SERVICES	IPEDS
PLACEMENT SERVICES	IPEDS
ON-CAMPUS DAYCARE	IPEDS
MEMBER OF ATHLETIC ASSOCIATION	IPEDS
CALENDAR SYSTEM	IPEDS
RESIDENTIAL CAMPUS	IPEDS
RELIGIOUS AFFILIATION	IPEDS
URBAN OR RURAL LOCALE	IPEDS
MAIN CAMPUS OF SYSTEM	IPEDS
HBCU	IPEDS
CONTROL	PEPS
SECTOR	PEPS
REGION	PEPS
TITLE IV ELIGIBLE	PEPS

DATA LIMITATIONS

Institution-level data limitations include missing, incorrect, or incomplete data from IPEDS and the College Scorecard, as well as parent-child reporting relationships in IPEDS. We used parent-child allocation factors to account for parent-child relationships, and we dropped institutions with incomplete allocation data. We imputed missing values in IPEDS and conducted post-imputation sensitivity checks. We dropped extreme outlier observations and institutions missing key variables in all years of IPEDS data collection.

Student-level data limitations result from under-coverage in the Clearinghouse. We were not able to report on many closed institutions due to non-reporting to the Clearinghouse. Students who earned credentials from non-Clearinghouse participating institutions may be misidentified in the data. Moreover, students who reenrolled or transferred to a non-Clearinghouse participating institution after a closure may be miscategorized as non-enrollees. Reporting rates of some key variables (i.e., race/ethnicity, credential program) were historically lower in previous years. Prior to 2014, institutions were not required to report program-level data. Many students have a category of "missing" for credential program, leading to potential skewness in the proportion of students enrolled in each program type. Prior to 2009, less than 15% of institutions reported race/ethnicity data. We have included categories of "missing" for credential program and race/ethnicity, but results disaggregated by race/ethnicity or credential program should be interpreted with caution.

APPENDIX C. SUPPLEMENTAL TABLES

Supplemental tables are available on the project website at www.sheeo.org/project/college-closures. These tables contain supporting data from every figure in the report in a usable format as well as additional analyses of interest.

STATE HIGHER EDUCATION EXECUTIVE OFFICERS

3035 CENTER GREEN DRIVE, SUITE 100, BOULDER, COLORADO, 80301
1233 20TH STREET NW, SUITE 360, WASHINGTON, DC, 20036
303.541.1600 • **SHEEO.org**

NATIONAL STUDENT CLEARINGHOUSE RESEARCH CENTER

2300 DULLES STATION BLVD, SUITE 220, HERNDON, VIRGINIA, 20171
nscresearchcenter.org