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Trends and Issues
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Excess capacity in higher education in America–2023

Abstract

Higher education is currently in crisis, marked by significant declining enrollment, primarily due to demographic changes and a decline in the perceived value of the sector and its products, and rising costs driven largely by increased regulation and inflation. These two forces combine with another, less widely recognized feature of higher education in America—significant excess capacity—resulting in many of the challenges being faced by the sector today. In order to guide higher education policy and sector leaders in better understanding the future changes and potential options, we undertook a detailed estimation of excess higher education capacity in America. We concluded from our analysis that there exists a significant excess capacity across U.S. colleges and universities, *approximating 8.5 million undergraduate full-time equivalents, equal to more than the total current enrollment of all institutions of higher education with less than 10,000 students*.

This massive level of excess capacity, accompanied by increasing costs and declining demand, will inevitably lead to greater degrees of consolidation in the market. Beyond simple excess capacity, we should recognize that what industry now seeks from the next generation of the workforce has evolved, and it's up to higher education to evolve as well or continue finding itself offering a product that's simply out of step with where the larger society is heading. In addition, we have reason to believe that excess capacity issues in coming years will increasingly be dictated by unforeseen adaptations of technology to education. It's possible, even likely, that our heavy focus on the "traditional" college model will ultimately be overridden by technology applications that are just beginning to arrive and have yet to be even partially applied to higher education and post-secondary learning.

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Introduction

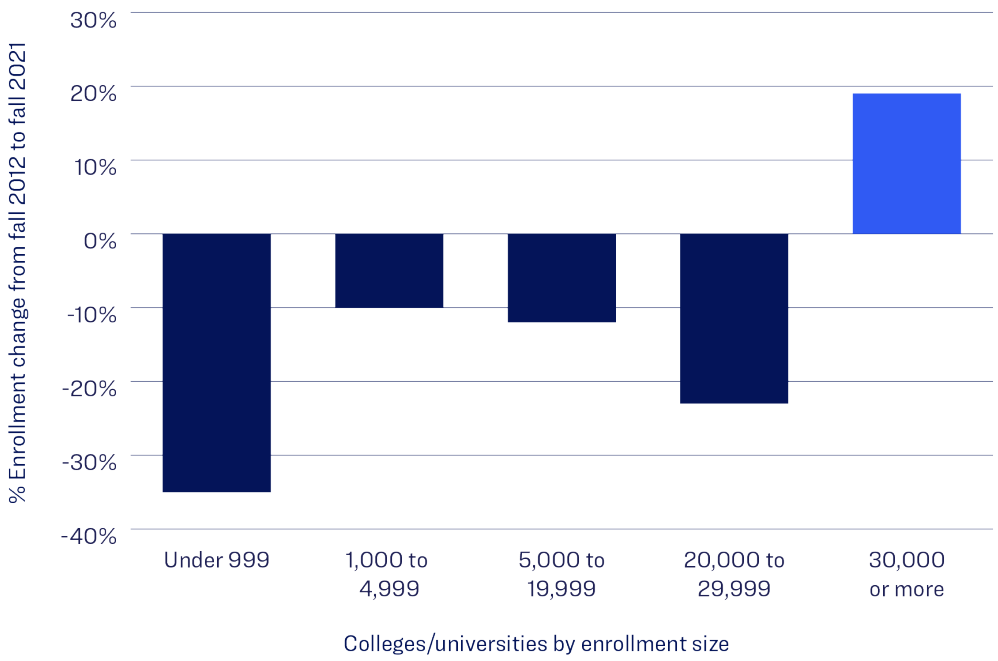
Higher education is currently in crisis, marked by significant declining enrollment, primarily due to demographic changes and a decline in the perceived value of the sector and its products, and rising costs driven largely by increased regulation and inflation. These two forces combine with another, less widely recognized feature of higher education in America—significant excess capacity—resulting in many of the challenges being faced by the sector today. In a 2020 "Voices of expertise and experience: Insights to inform COVID-19 responses" published by the TIAA Institute,[1] we suggested our then estimate of 1.5 million excess undergraduate student slots was likely a gross underestimate. EY-Parthenon, in another analysis later that year, suggested the implied excess capacity ranged from 3 million to 5 million seats.[2] The challenge of excess capacity in higher education is not just impacting the United States but appears to be a global issue.[3]

When an industry is facing increasing costs, decreasing demand, and excess capacity, as higher education is, that industry is usually ripe for significant consolidation. And that's what we're observing in U.S. higher education: increasing rate of closures, especially of small colleges;[4] increasing rates of mergers, although not at the same level as the rate of closures;[5] increasing cannibalism of student enrollment by larger schools and by providers of online education from smaller institutions;[6] a rise in the perceived need to undertake costly investment in capital facilities and other amenities;[7] and a decreasing number of eligible and interested students.

A better understanding of the degree of excess capacity in American higher education is critically useful to college and university leaders in formulating future-oriented strategic plans for their individual institutions. A greater grasp of educational capacity, including whether it impacts graduate as well as undergraduate slots, will be important to determining the adaptive strategy of individual colleges and universities. For example, this data would assist in determining whether a shift from undergraduate to graduate education, or vice versa, is advantageous; whether choosing to educate a smaller student body, but better differentiated, is needed; whether finding a merger partner, before significant declines in finances, enrollment, and brand capital occur, should be considered; and whether surviving and thriving as an institution is even possible, suggesting that a planned and orderly closure may be the best option to preserve mission, heritage, and legacy.

For higher education state and federal policymakers, these data are also crucial to their ability to formulate effective strategies to ensure the highest quality and access of higher education to U.S. residents by, for example, supporting or discouraging funding for troubled institutions, facilitating or impeding mergers, encouraging or discouraging closures, or mandating or avoiding system-wide consolidations.

FIGURE 1. CHANGE IN ENROLLMENT IN HIGHER EDUCATION FALL 2012 TO FALL 2021, BY SIZE OF INSTITUTION[8]



Mechanistically, the excess capacity in the United States likely stems from a failure by many higher education institutions and systems to adjust their facilities and teaching capacity to the actual demands and needs of the marketplace. This failure, in part, varies significantly by institution size. We previously reported that enrollment declines affected all sectors of higher education institutions, by size, except for those very large colleges and universities with >30,000 students (Fig. 1).[8] Whether this disparity stems from the ability of the very large institution to offer a quality education at a lesser price or is also a reflection of student preferences is unknown and will be explored in this report.

The decreasing demand for higher education is, in part, related to the decreasing size of the population of recent high school graduates who were traditional candidates for entry into a college or university. However, the declining demand is not just due to demographic changes, but also to a decrease in the perceived value and relevance of a college degree and an increase in the educational costs of higher education shouldered by students and their families.

A continuing increase in the teaching capacity of higher education institutions is also a possible contributor, although here we need to distinguish between the recruitment of faculty and staff for educational (teaching) purposes versus other academic aims, such as research. Likewise, an ongoing growth in capital facilities on campus is contributing to the excess capacity, although here again, we need to distinguish the growth of facilities for research versus educational and amenities purposes.

The impact of the growth of online education, with its potential to expand the teaching capacity of individual faculty and for select institutions with greater name recognition to extend their geographic reach, also plays a role in exacerbating excess higher education capacity. Alternatively, the impact of the waves of closures and the many mergers that have been undertaken or are underway on the teaching capacity of the U.S. higher education system needs to be considered.

Finally, the lingering effects of the COVID-19 pandemic on the capacity of higher education need to be assessed. The following analysis by investigators at the Center for Higher Education Mergers & Acquisitions (CHEMA) of the Foundation for Research and Education Excellence aims to answer three overarching questions: How large is the excess teaching capacity of higher education in the United States, considering undergraduate and graduate programs separately? What are the principal drivers of excess teaching capacity in higher education in the United States? Is the continued growth of the very large institution solely a matter of cost, or do student preferences play a role?

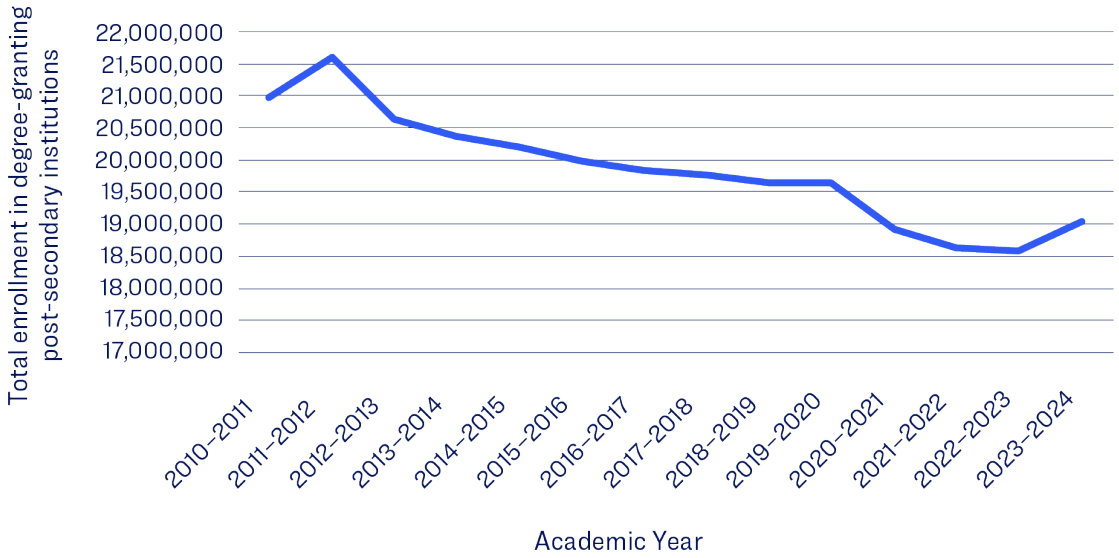
Study methodology

Our analysis begins with an assessment of the change in the numbers of students enrolled in higher education since 2011, by graduate versus undergraduate programs, by institution size, and by geographic region (for example, Northeast, South, Midwest, and West) using National Center for Education Statistics (NCES) data as the baseline for the estimate. Next, to assess whether the enrollment observed in 2011 could be considered maximum, or whether these numbers reflected a degree of potential excess capacity, a qualitative analysis based on interviews with select long-term administrators and higher education leaders (n=20) was undertaken. In addition, a quantitative analysis of contemporary data (such as existing class sizes and student-faculty ratios) was also used to estimate whether the capacity in 2011 was fully utilized or whether additional students could have been enrolled at only marginal costs. These analyses would be used to estimate the baseline capacity existing in 2011 and the potential degree of excess capacity already present in 2011.

We then estimated the change in capacity from 2011 to 2023. First, we estimated the potential *reduction* in teaching slots according to the number of institutions that closed (but not merged) during that period. We then also estimated the potential *growth* in teaching capacity by assessing: 1) the growth in educational/teaching facilities; 2) the growth in professoriate capacity (i.e., full-time and part-time/adjunct faculty), taking into consideration changes in the student-to-teacher ratio; and 3) the growth in online capacity during the period.

Next, using a number of data sources, we then assessed various potential individual drivers of excess capacity in higher education in the United States, including 1) demographic changes of potential higher education students; 2) changes in the perceived desire for, or ability to access, higher education, and 3) changing employer demand for higher education degrees. In addition, considering the disparities by institution size observed in enrollment over the past decade (Fig. 1), and that it's not known how much of this disparity reflects student preference, we engaged Hanover Research to undertake a survey of prospective/potential students. The survey assessed student preference in institution size via a direct survey of two cohorts: traditional college-bound candidates, i.e., third- and fourth-year high school students, and potential adult learners, ages 25 to 40, in four regions of the United States.[9] Finally, we not only assessed how these factors account for the present excess teaching capacity in higher education, but also used these and other data to provide an assessment of future trends in higher education capacity, if current policies, strategies, and tactics are left unchanged. We should note that for this analysis we did not assess two other important products of colleges and universities, the research and discovery and community service of higher education institutions.

FIGURE 2. ENROLLMENT IN DEGREE-GRANTING POST-SECONDARY INSTITUTIONS, FALL 2010 TO FALL 2023 [10,11]



Baseline assessment of excess capacity in American higher education: 2011 to 2023

Enrollment in higher education peaked in 2011 and has been on a general decline since, with some recovery in fall 2023 (Fig. 2). Consequently, the present estimate of excess capacity starts with an assessment of the capacity existing in 2011. At its simplest, the capacity of 2011 was the number of student FTEs existing at the time. Per NCES data,[12,13] the total headcount of undergraduate and graduates nationally, including full-time and part-time students and public and private institutions, in degree-granting institutions in 2011 was 18,077,303 and 2,931,516, respectively. In 2023, these headcounts were 15,825,762 and 3,213,800,[12] a decrease of approximately 2,251,541 (-12.5%) for undergraduates and an increase of 282,284 (+9.6%) graduate (postbaccalaureate) students from 2011 to 2023.

These figures represent headcounts and not full-time equivalents (FTE).[i] Considering student FTEs, we should note that undergraduate and graduate FTEs in Title IV institutions in 2011 were 15,656,240 (86.6% of headcount) and 2,006,952 (68.5% of headcount), respectively, and in 2023 were 13,364,332 (84.4% of headcount) and 2,260,482 (70.3% of headcount), respectively.[14,ii] This represents a decrease of 2,291,908 FTE for undergraduate and an increase of 253,530 in graduate (postbaccalaureate) FTEs, for an overall decrease in students FTEs of 2,006,952 in that time period. This change in FTEs represents a decrease of 14.6% for undergraduates and an increase of 14.2% for graduate students.

Based on the above, in the simplest of terms, we can state, assuming all other factors remain unchanged, that undergraduate excess teaching capacity currently approximates 2,300,000 undergraduate FTEs. Alternatively, using this metric (i.e., 2011 versus 2022/23 student FTE), graduate (postbaccalaureate) capacity appears to be growing, such that we cannot use loss of enrollment between 2011 and 2022/2023 to estimate baseline excess, if any. Consequently, for our purposes, we'll consider that there was no excess capacity at baseline for graduate students, although we recognize this assumption may be somewhat incorrect.

i In contrast to headcount, FTE is an estimate and represents postsecondary enrollment of full-time students plus the full-time equivalent of part-time students. The full-time equivalent of the part-time students is estimated using different factors depending on the type and control of institution and level of student. At the undergraduate level, full-time enrollment typically includes students who have a credit load of 12 or more semester or quarter credits. At the postbaccalaureate (graduate) level, full-time enrollment includes students who typically have a credit load of nine or more semester or quarter credits, as well as other students who are considered full time by their institutions.

ii We'll also be using 84% and 70% as conversion factors from headcount to FTEs for undergraduate and graduate students, respectively, when student FTEs are not directly available.

TABLE 1. TOTAL FALL ENROLLMENT (HEADCOUNT) IN DEGREE-GRANTING POSTSECONDARY INSTITUTIONS, BY REGION*

Region	Fall enrollment 2011[1]	% of total fall enrollment in 2011	Fall enrollment 2022[2]	% of total fall enrollment in 2022	Change in headcount	% Absolute change	Overall population in 2024[3]	% of total U.S. population	% Loss of enrollment per population
Midwest	4,905,742	23.37%	3,840,695	20.69%	-1,065,047	-21.71%	69,596,584	20.46%	-1.53%
Northeast	3,919,590	18.67%	3,516,562	18.94%	-403,028	-10.28%	57,832,935	17.00%	-0.70%
South	6,842,219	32.59%	6,337,348	34.14%	-504,871	-7.38%	132,665,693	39.01%	-0.38%
West	5,327,347	25.37%	4,870,513	26.23%	-456,834	-8.58%	80,015,776	23.53%	-0.57%
Overall	20,994,898	100.00%	18,565,118	100.00%	-2,429,780	-11.57%	340,110,988	100.00%	-3.18%

*Includes all degree-granting institutions, regardless of Title IV status, but excludes U.S. Service academies, American Samoa, Guam, Marshall Islands, Northern Marianas, Palau, Puerto Rico, and U.S. Virgin Islands.

(1) See reference 15.

(2) See reference 16.

(3) See reference 17.

Considering each of the regions of the United States (Table 1), we can observe that in 2022 (when data by state is available), 21% of student headcount was enrolled in Midwestern institutions of higher education, 19% in Northeastern colleges and universities, 34% in Southern institutions, and 26% in Western institutions. The Midwest lost the most enrollment (i.e., headcount) in absolute and per-population terms, followed by the Northeast, the West, and the South.[iii]

Summary of baseline assessment of higher education excess teaching capacity in 2023: At a minimum, comparing the enrollment numbers of 2023 with those of 2011, we can arrive at a basal estimate of *undergraduate excess capacity in 2023*, which approximates 2,300,000 FTEs. Alternatively, using this metric (i.e., 2011 versus 2022/23 FTE), graduate (postbaccalaureate) capacity appears to be growing and is presumably not yet in excess, at least at baseline. The shift in graduate FTE is likely associated with the type of graduate education that's growing and potentially signals a shift to more applied education.

The change in overall enrollment was not the same across the different regions of the United States, with the loss of total headcount in the Midwest being almost three times higher than that observed in the South and West and about twice as high as that observed in the Northeast.

We should note that these estimates make the assumption that there was no excess capacity already present in 2011. While a full estimation of excess higher education capacity in 2011 is beyond the purview of this report, we should note that a previous analysis by EY-Parthenon noted that in 2011 there already appeared to be excess capacity equivalent to about 2,240,000 FTEs (about 12.5% of the total projected FTEs of 17.9 million), although this excess was primarily observable in the private not-for-profit four-year sector.[2]

Further, we interviewed 20 higher education enrollment professionals who were active in 2011 and observed that all but one of the professionals interviewed felt their institution's education capacity was not a limit at the time and that it was flexible. While no specific potential percent additional capacity was expressed, it was clear that only one of the 20 enrollment professionals interviewed considered that they had hit the maximum of their institution's teaching capacity. Further details of the principal themes uncovered during these interviews are described below.

Finally, it's highly probable that higher education teaching capacity has not remained static during the past decade or so, potentially modified by institutional closures, by the establishment of new institutions, by changes in online capacity, by changes in on-campus teaching space, and by changes in faculty teaching capacity. We'll review these factors and their possible impact on excess higher education capacity next.

iii The figures depicted in Table 1 are similar, but not identical to those in the text, varying by 0.07% for 2011 enrollment and by 2.56% for 2023 enrollment.

Modifiers of excess capacity in American higher education

The baseline excess capacity estimated in the above section is simply based on changes in enrollment between fall 2021 and fall 2023 and assumes that other factors, including faculty teaching capacity, facility capacity, and online teaching capacity, did not change in that period of time. However, it's clear that various factors, which we'll term "modifiers of excess capacity," have occurred. For example, institutions of higher education have closed, removing potential teaching slots, while others have been newly established during that time, adding to teaching capacity. Further, the growth in online capacity may add to teaching capacity. Finally, any changes in faculty and facilities may increase or reduce higher education's teaching capacity. These factors and their impact on the estimated excess capacity of higher education will be reviewed below.

The impact of college and university closures and openings on higher education excess capacity

The number of postsecondary degree-granting Title IV institutions in the United States decreased from 4,706[18] in 2011–12 to 3,930 in the fall of 2024,[19] a 16.5% drop. In our analysis, comparing OPEIDs that remained or were modified to those that disappeared between 2011 and 2023, we observed that 1,730 OPEIDs for sectors 1–6 institutions[iv] were discontinued permanently (i.e., not simply changed), either through closure or merger. Of these, 745 were for the main campuses and the remainder for secondary campuses or additional locations (see Table 2). Similarly, for 2011–2022 IPEDS reported that 757 two- and four-year institutions had closed.[20]

As most schools that close are relatively small, with an average of 120[21] to 134[22] students at the time of closure, these institutional closures would result in a loss of approximately 100,000 teaching slots (both undergraduate and graduate) from 2011 to 2023, reducing excess headcount by ~4.4% or ~84,000 FTEs.[v] We note that in these estimations, we assumed that additional location/campus closures would not have a tangible effect on the overall institution's total enrollment. Further, current data does not allow us to estimate the loss in undergraduate versus graduate (postbaccalaureate) positions experienced.

Alternatively, the establishment of new colleges and universities increases teaching capacity. Our analysis indicates that there were 614 new OPEIDs assigned (and not simply changed) between 2011 and 2023 (Table 3). Of these, 365 appeared to be for main campuses and the remainder for additional locations, with a combined new enrollment of 251,529 headcount and 151,602 FTEs as of 2023 for these additional institutions. Of the additional headcount created by new institutions, 205,534 (81.7%) were undergraduate and 45,995 (18.3%) were graduate (postbaccalaureate) (Table 4).

Concerning the regions of America, 185 (24.8% of the total closed) institutions closed in the Midwest between 2011 and 2023, 152 (20.4%) closed in the Northeast, 210 (28.2%) institutions closed in the South, and 198 (26.6%) institutions closed in the West. Overall, there does not appear to be major differences in percentage of institutions closing by region. According to 2024 U.S. Census data[17] (see Table 1), the Midwest had a population of 69,596,584 (i.e., 20% of the total U.S. population), the Northeast had 57,832,935 inhabitants (17% of the total), the South had 132,665,693 inhabitants (39% of the total), and the West had 80,015,776 (24% of the total). Consequently, using an average enrollment of 134 students per closing institution (see above), the Midwest, Northeast, South, and West regions experienced a loss of approximately 0.30 (20,832/69,596,584), 0.30 (17,136/57,832,935), 0.18 (23,688/132,665,693), and 0.28 (22,344/80,015,776) teaching slots (headcount) per 1,000 inhabitants, respectively. Overall, there appeared to be a lesser per population loss of student headcounts due to closures of colleges and universities in the South.

TABLE 2. CLOSURES OF INSTITUTIONS OF HIGHER EDUCATION BASED ON THE REMOVAL OF OPEIDS: 2011–2023

1,730 OPEIDs were discontinued

745 were for the principal institution

985 for additional locations

Of the 745 institutions that closed:

18 were 4-year Publics

165 were 4-year Private Not-For-profits

88 were 4-year Private For-profits

91 were 2-year Publics

50 were 2-year Private Not-For-profits

333 were 2-year Private For-profits

iv IPEDS Sector codes: Sector 0: Administrative Offices; Sector 1: 4-year Public; Sector 2: 4-year Private Not-for-profit; Sector 3: 4-year Private For-profit; Sector 4: 2-year Public; Sector 5: 2-year Private Not-for-profit; Sector 6: 2-year Private For-profit; Sector 7: <2-years Public; Sector 8: <2-years Not-for-profit; and Sector 9: <2-years For-profit.

v Considering headcounts to be equivalent to 84% FTEs, see prior section.

Considering new institutions being opened by region (Table 4), we can observe that there were 55 (15.6% of the total opened) institutions established in the Midwest between 2011 and 2023, 74 (21.0%) opened in the Northeast, 106 (30.0%) institutions opened in the South, and 118 (33.4%) institutions opened in the West. Considering the total populations of each region, between 2011 and 2023, the Midwest, Northeast, South, and West regions experienced a gain of 0.20 (13,724/69,596,584), 0.80 (45,726/57,832,935), 0.20 (26,367/132,665,693), and 0.47 (37,231/80,015,776) teaching slots (headcount) per 1,000 inhabitants, respectively. Overall, it appears that investment in new institutions was greatest in the Northeast—at four times—and the West—at twice the per-population teaching slots—compared to the South and the Midwest.

Summary of the impact of institution closures and openings between 2011 and 2023 on excess higher education capacity: Overall, the above data indicates that closures of higher education institutions since 2011 have reduced excess teaching capacity (considering undergraduate and graduate teaching together) by an estimated 84,000 undergraduate FTEs (graduate and undergraduate combined). Alternatively, the establishment of new institutions during that time increased teaching capacity by 151,602 FTEs (graduate and undergraduate combined). Regionally, these figures indicate that the South lost less teaching slots on a population basis due to institutional closures, although the difference between regions was not dramatic. Considering the establishment of new institution openings, the Northeast and the West gained the most teaching capacity on a per-population basis. Current data does not allow us to estimate the loss in undergraduate versus graduate (postbaccalaureate) positions experienced through institutional closures, although of the additional headcount created by the opening of new institutions, 205,534 (81.7%) were undergraduate and 45,995 (18.3%) were graduate (postbaccalaureate).

TABLE 3. ESTABLISHMENT OF NEW INSTITUTIONS OF HIGHER EDUCATION BASED ON ADDITION OF OPEIDS IN IPEDS: 2011-2023

615 new OPEIDs were assigned

366 were for main campuses

249 for additional locations

Of the main campuses added:

8 (2.2%) were Sector 1: 4-year Public

134 (36.6%) were Sector 2: 4-year Private Not-For-profit

56 (15.3%) were Sector 3: 4-year Private For-profit

34 (9.3%) were Sector 4: 2-year Public

30 (8.2%) were Sector 5: 2-year Private Not-For-profit

104 (28.4%) were Sector 6: 2-year Private For-profit

TABLE 4. NUMBER AND ENROLLMENT IN NEW INSTITUTIONS OPENED, BY REGION: 2011–2023

Region	No. of institutions opened	% of Total	Under-graduate headcount	% of Total	Graduate headcount	% of Total	Under-graduate FTE	% of Total	Graduate FTE	% of Total
Midwest	55	15.58%	26,472	12.88%	2,094	4.55%	13,724	11.15%	1,426	4.99%
Northeast	74	20.96%	82,926	40.35%	38,254	83.17%	45,726	37.16%	23,295	81.58%
South	106	30.03%	44,903	21.85%	2,412	5.24%	26,367	21.43%	1,625	5.69%
West	118	33.43%	51,233	24.93%	3,235	7.03%	37,231	30.26%	2,208	7.73%
All	**353**	**100%**	**205,534**	**100%**	**45,995**	**100%**	**123,048**	**100%**	**28,554**	**100%**

*An additional 12 institutions were listed as new OPEIDs but had either never actually started or had already closed.

The impact of online education on higher education excess capacity

Online education has been growing over the past 20 years, although to be precise, distance education (i.e., by correspondence) has been an option since at least the 18th century.[23] Distance education began in the 1960s and 70s, although what we consider modern online education developed in earnest in the early 2000s. The movement was given impetus by the establishment of degrees that were completely online by Phoenix University in 1986, by the introduction of various massive open online course (MOOC) providers in 2010–2012, the COVID-19 pandemic, and the increasing need for higher education institutions to compete for students well beyond their proximate markets.

In 2022, IPEDS data reported that 54.2% of a total of 18,580,026 students (headcount) were taking at least some online courses (54.4% for undergraduates and 53.5% for graduates); 30.5% and 23.9% of undergraduate, and 14.8% and 38.7% of graduate students were listed as taking "at least one, but not all, of student's courses" or taking "exclusively distance education courses," respectively.[24] Ten years earlier, in the fall of 2012, IPEDS data indicated that 14.5% and 11.3% of undergraduates, and 7.8% and 22.0% of graduate students, were listed as taking "at least one, but not all, of student's courses" or taking "exclusively distance education courses," respectively.[25] This growth is notable, essentially representing a doubling in the number of students taking any distance education course (5,444,701 in fall 2012 versus 10,077,192 in fall 2022).

There are several advantages as well as disadvantages to online education, which will not be discussed in this assessment. However, regarding the issue of online education expanding teaching capacity, this can occur by at least two mechanisms:

1. The number of students (i.e., student FTEs) taught via online education is greater per individual faculty FTE
2. The number of faculty providing online education increases, but only assuming that the conditions mentioned under #1 above are occurring

We have attempted to answer these questions and assess the potential to increase higher education teaching capacity below.

First, can more students be taught using online education, without increasing the number of faculty FTE, either by expanding the size of the individual classes taught by faculty or by providing teaching without requiring additional effort from faculty? The short answer is yes. However, it's likely that the actual mechanism will not be for faculty to teach larger number of students per online class, although the increasing use of AI may serve to extend the professoriate's reach.[26] More likely, the increasing provision of asynchronous online education, coupled with increased use of AI for course personalization and student evaluation, will serve to increase the capacity of online education.

For example, a study published in 2023 by the California Community Colleges System (CCCS) indicated that the number of CCCS students taking distance education courses had increased from 30% of the total in 2017–18 to 54% in 2022–23.[27] The gap in completion rates between traditional face-to-face and distance education courses in 2022–23 was relatively similar between the types of courses (73% versus 69%, respectively) and similar to the prior assessment in 2017–18 (72% versus 68%, respectively).

Importantly, for fall 2022, 47% of courses were offered in-person, 5% were offered as synchronous distance education courses, and 48% of courses were offered as asynchronous online courses (Fig. 3), significantly higher than the proportion of asynchronous online courses offered in the fall of 2019 (19%). Student success rates[vi] revealed relatively modest differences between the course modalities: 74% for in-person education, 71% for synchronous online courses, and 68% for asynchronous online courses.

Relative to our analysis, these data suggest that following the pandemic there has been an increase in the proportion of in-person education and a decrease in the proportion of synchronous and asynchronous online education. Whether these trends will continue into the future remains to be seen, although data from Bay View Analytics suggests a stabilization in the modalities being used between 2022 and 2024 Academic Year (AY). However, it's also clear that the proportion of higher education offered as asynchronous online courses is much higher than before the pandemic and, in turn, there's significant room to continue to expand this modality.

vi We should note that the term "student success" was not clearly defined in the CCCS report.

FIGURE 3. DISTRIBUTION OF COURSE MODALITY BY % OF TOTAL COURSES. CALIFORNIA COMMUNITY COLLEGE SYSTEM DATA[27]

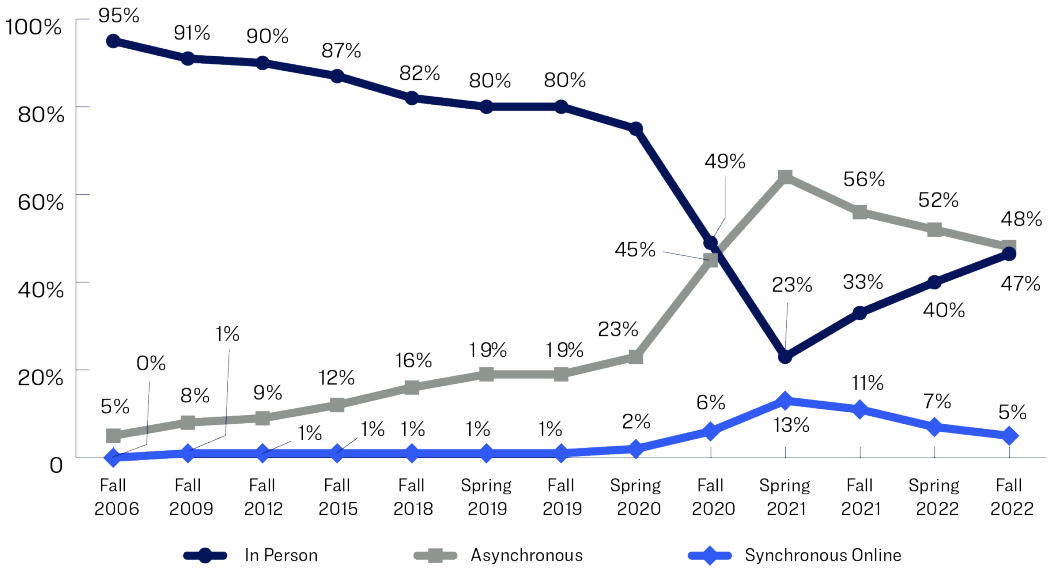
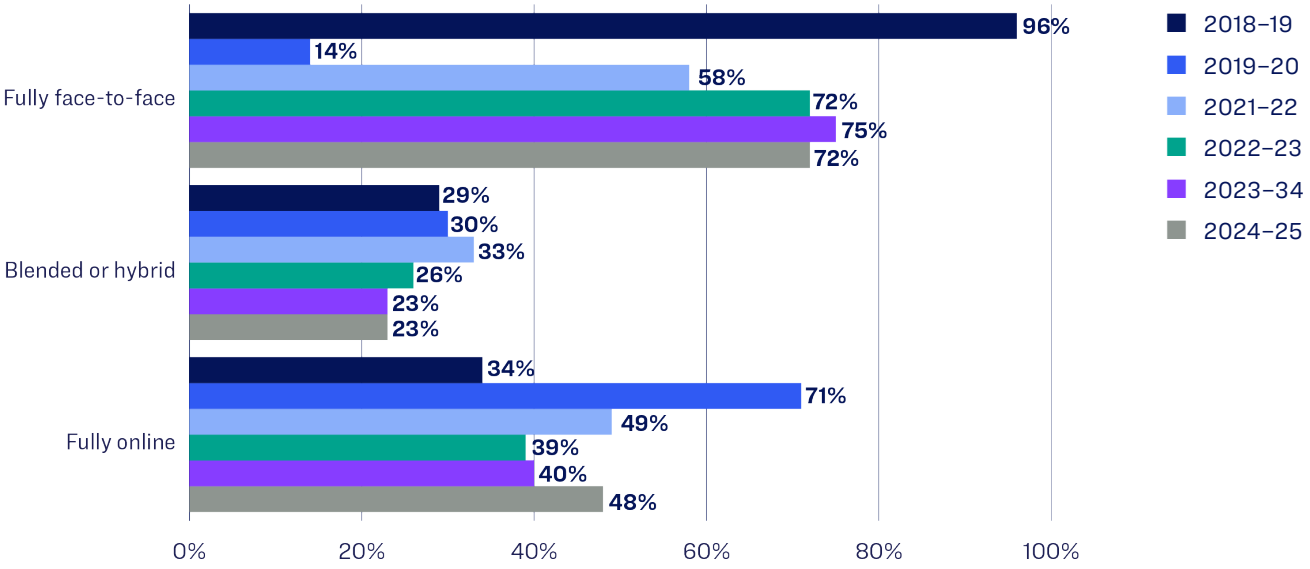


FIGURE 4. TEACHING MODALITY BY YEAR AND PER COURSE ACCORDING TO FACULTY SURVEYED



Note that the percentages do not add up to 100% as 27% of faculty reported teaching in two modalities and 8% in all three modalities across the courses they taught.[28]

Second, can more faculty be teaching online? A survey of 3,447 faculty from all 50 U.S. states, plus the District of Columbia and the Virgin Islands, performed in April 2025 by Bay View Analytics[28] indicated the following for the 2024–25 academic year (see also Fig. 4):

a. 72% of faculty taught at least one course fully face-to-face and did not teach online.
b. 48% taught at least one course that was fully online, where no instruction was done in-person.
c. 23% taught at least one blended course (mixing both online and in-person instruction in some form).
d. 65% taught in just one modality, 27% in at least two modalities, and 8% in all three modalities
e. There was little change in the data from the prior year's survey, indicating a stabilization in the return to traditional classroom settings after the disruptions caused by the pandemic.

These data indicate that the proportion of faculty that teach online has increased, although there's still significant room for faculty to further utilize online education.

Overall, the above data indicates there's significant room to increase the teaching capacity of online education. We modeled what an increase in online education capacity would look like. For the 2022–23 AY, more than 5 million students (graduate and undergraduate) were enrolled in at least one online course, although not all of the students' courses were online. Another 5 million students were enrolled exclusively in online courses. Overall, about 78% of current online FTEs are attributable to undergraduate students, with the remainder being graduate (postbaccalaureate) students.

We estimated that almost 1.7 million student FTEs were being taught online in the fall of 2022 (see Appendix 1), representing 12.20% of the total FTEs educated that year. If the proportion of FTEs taught via online education, and particularly if these represent asynchronous courses (see above), increased to 16.0% (Potential Model A), an additional 0.5 million student FTEs could be taught, without significantly increasing faculty FTEs. If the increase in the proportion of student FTEs taught online were to increase to one-fifth of the current student population (Potential Model B), then the additional educational capacity would be 1.1 million student FTEs. About 80% and 20% of this increase would impact undergraduate and graduate students, respectively. Potential Model A increases the number of all student FTEs taught online per faculty FTE from 1.6 to 2.10 online student FTEs per faculty FTE), and Potential Model B increases that parameter from 1.6 to 2.63 online student FTEs per faculty FTE, overall, a relatively modest increase. *We will use the numbers in Model A depicted in Appendix 1 for our subsequent calculation of excess higher education capacity in America.*

Specific figures regarding online education on a regional basis are not immediately available. However, we can estimate the regional distribution of the additional online FTEs identified in Model A if we assume that the distribution of online education will follow that of total enrollment (see Table 1). With these assumptions, we estimate that 111,572; 100,946; 180,640; and 138,136 additional online FTEs can be taught in the Midwest, the Northeast, the South, and the West, respectively.

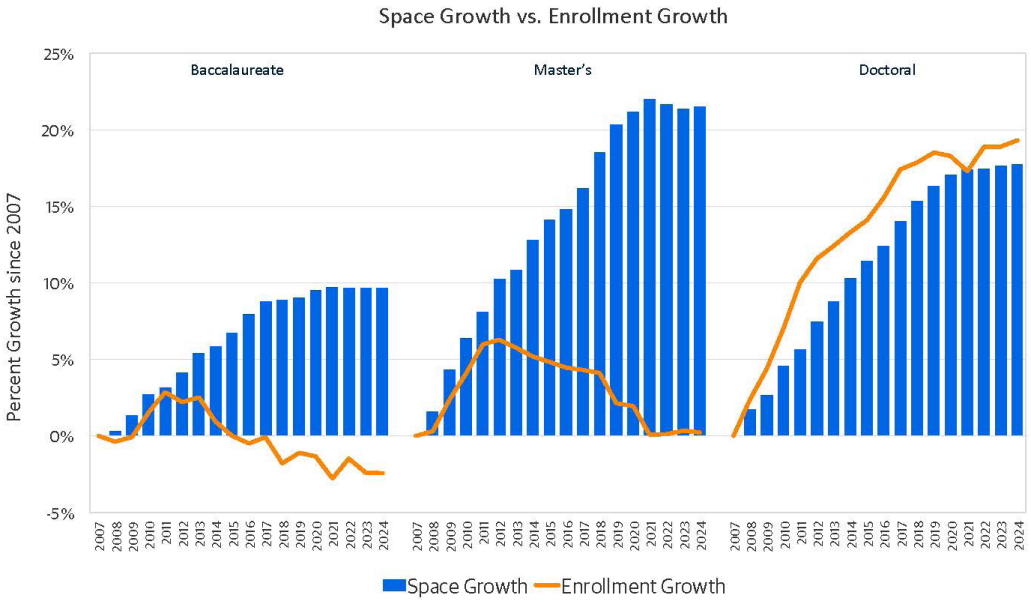
Summary of the impact of online education on higher education excess capacity: The above data indicate there's the opportunity to increase teaching capacity in higher education through expansion of online education, potentially by increasing the size of the classes provided online. We also note that the greatest potential to increase the teaching (i.e., student FTE) capacity of online education likely rests not in simply expanding the number of faculty teaching online, either in a fully online or hybrid model, nor in increasing the number of students taught in a synchronous online course, but in increasing the use of asynchronous online education. In theory, such asynchronous learning offers an almost unlimited teaching capacity. Further, data suggests that students may prefer the latter, although other data also note that not all students may learn as much or as well when using online education. Additionally, we should note that the offering of asynchronous online education requires a faculty obligation to create, test, and update the offering, provide student guidance, and oversee student evaluation, although at a lesser extent than providing in-person (including hybrid modalities) or synchronous online courses.

Our modeling suggests that even a modest increase in the proportion of student FTEs taught via online education could lead to an additional 0.5 million student FTEs being taught in this manner, without significantly increasing faculty FTEs, assuming most of the increase leverages asynchronous courses. Overall, undergraduate students account for approximately four-fifths of all FTEs currently being taught online, and there's no reason to suspect this will significantly change in the near future. Finally, our assumption was that the additional online FTEs would follow current regional enrollment patterns.

The impact of the growth in facilities on higher education excess capacity

Facilities data indicate that colleges are grappling with aging infrastructure, underutilized spaces, and growing maintenance backlogs. Key indicators to monitor include campus space per student, utilization efficiency, and the gap between capital investment and deferred maintenance needs.

FIGURE 5. SPACE GROWTH VS. ENROLLMENT GROWTH: 2007-2024[29]



Space utilization per student: There is no direct data on the total amount of teaching square footage that higher education holds. However, in 2025, Gordian reported[29] on 43,000 campus buildings and 1.1 billion gross square feet (GSF) of space, from a universe of approximately 300 institutions of all sizes. Assuming that the Gordian population of institutions mirrors that of the entire universe of degree grating institutions (i.e., 3,542),[30] we can then estimate that the total GSF for degree-granting higher education institutions in America is around 13 billion GSF.

It would appear that colleges today provide far more space per student than in past decades, though growth has leveled off recently. In the 1970s, institutions averaged around 160 square feet of assignable space per student; by around 2010, this had nearly tripled to roughly 450 square feet per student.[31] This increase in space per student was driven primarily by extensive building of new labs, recreation centers, residence halls, and more, especially in the 2000s "amenities arms race" (Fig. 5). In the last decade, however, campuses have slowed expansion of physical space. Many colleges, facing financial and enrollment pressures, have cut back on new construction. According to Gordian's facilities database, a large majority of institutions have *halted growth* of their campus footprint in recent years, with only about 27% of schools still expanding space (at a modest ~3% growth rate).[28] Still, the space-to-student ratio remains high by historical standards. Post-COVID, many states are also trying to use demolition as a deferred maintenance strategy in public institutions. As faculty and staff move to online learning, they're requiring less teaching, faculty office, and library spaces.[32]

A more pressing challenge in higher education is that currently available instructional spaces (classrooms and teaching labs) are not used to their full capacity throughout. Weekly schedules are often concentrated midday Monday through Thursday, leaving mornings, evenings, Monday mornings, and most Fridays underutilized. A common benchmark for classroom utilization is to target roughly 67% of all available class periods filled (for example, ~27 hours of a 40-hour utilization week) with an average 60% of seats occupied in each class.[33] This combination has been considered 100% utilization of a classroom's capacity when teaching in higher education.

In reality, most campuses fall well short of even this relatively modest goal.[34] Studies have found actual room use is often ~40%–60% of potential capacity. For example, one public university had daytime classrooms in use only 39% of the time (with many large rooms half-empty), indicating considerable excess capacity. Data from the UNC System's 2022 Facilities Inventory and Utilization Study indicated that total average weekly hours of instruction systemwide in classrooms was 22.6 hours per week, and total average weekly hours of instruction systemwide in class labs was 13.0 hours per week.[35]

Further, we should note that even if a campus achieved ~65% usage based on a 40-hour week, usage would be less if the length of the potential teaching day was considered longer, such as 45–55 hours/week. Many institutions are now analyzing their space usage data to improve efficiency, for instance, encouraging Friday classes or consolidating sections into fewer, fuller rooms, as a cost-saving strategy. Reasons for this underutilization may include scheduling constraints, student preferences for certain days/times, and the need for flexibility. Further, underused space not only represents construction that could have been avoided, but it also incurs ongoing maintenance, utilities, and depreciation costs.[29,31,36]

TABLE 5. ASSIGNABLE AREA PER STUDENT STATION FOR CLASSROOMS: UNC SYSTEM 2022

Institution	Number of rooms	No. of student stations	Avg. student stations per room	Total assignable sq. ft.	Sq. ft. per student station				
					2022	2021	2020	2019	2018
Grand Total	2,554	120,827		2,333,951					
Grand Total Average			47		19	19	25	19	19

Source: The University of North Carolina System 2022 Facilities Inventory and Utilization Report.[35]

Estimating excess teaching facility capacity in higher education: The above data concerning both the greater facility GSF per student and the degree of underutilization of teaching space suggest important excess capacity of current higher education square footage to provide in-person education. While about 5 million higher education students (see section above) are exclusively learning via online (remote or distance) education, the remainder (13,666,873 headcount) are either not using online education (all in-person) or use online education for some, but not all, of their classes. We can then estimate that approximately 407 million classroom-hrs. will be needed to serve the current student population (see Appendix 2).

In order to estimate excess classroom capacity, we will use the 2022 data from the UNC System (Table 5).[35] The UNC System oversees 16 public universities and a public high school. In addition to the University of North Carolina School of the Arts—a public art school granting high school diplomas and undergraduate and graduate degrees—and the North Carolina School of Science and Mathematics—a two-year public residential high school—the UNC system is comprised of three baccalaureate colleges, five master's universities, and seven doctoral/research universities. In 2022, the UNC System had approximately 92.4 million GSF of space and 2,983 buildings, including all 16 campuses and excluding UNC hospitals. In fall 2021, the System's total enrollment was 244,507 students, or about 1.31% of the total of 18,658,756 students then enrolled in the United States. The UNC System standard for classrooms is 35 hours per week of scheduled class instruction for classrooms and 20 hours per week of scheduled class instruction for teaching labs.

Using UNC System 2022 occupancy rates (48.1%) and planned hours per week of scheduled class instruction (35 hrs./week) as representative, we estimated that 10,709 classrooms are currently needed to serve the student population in degree-granting institutions in the United States in fall 2022 (see Appendix 3).[vii] This represented about twice as many classrooms needed when compared to the theoretical minimum number of classrooms required. When modeling potential adjustments to the utilization and the length of the classroom utilization week, we can estimate a moderate-high utilization that would require about 30% more classrooms than the postulated minimum, moderate utilization that would require 45% more classrooms than the theoretical minimum, and a moderate-low utilization requiring 81% more classrooms than the theoretical minimum.

Considering Model C (moderate-low utilization) denoted in Appendix 3 as the immediate goal, we can estimate that the current classrooms in America could educate 26.1% more students than they currently do (i.e., 3,644,552 more student FTEs).[viii] Undergraduates account for about 92% of this utilization (i.e., 3,352,988), with post baccalaureate students the remainder (i.e., 291,564).

Regarding regional distribution, while there's no direct data at this time, we can assume that the excess student FTE facility capacity follows the overall distribution of student enrollees by region (Table 1). If this were to be the case, then we can estimate that there would be the ability to educate 765,356 more student FTEs with current facilities in the Midwest; 692,465 in the Northeast; 1,239,148 in the South; and 947,584 in the West.

Summary of the impact of the growth in facilities on higher education excess capacity: The space-to-student ratio of most institutions remains high by historical standards, and any further enrollment declines will further raise available GSF per student. Further, a more important concern is that the instructional spaces (classrooms and teaching labs) currently available are not being used to their full capacity. Leveraging 2022 data from UNC System, we estimated that even using a modest improvement in classroom utilization, according to our moderate-low utilization model, which reduced the number of excess classrooms by 26.1%, would allow almost 3 million more students FTEs to be educated with the current available facilities. The vast majority (>90%) of this utilization would be by undergraduate students, and we've assumed the facility capacity would follow current regional enrollment patterns.

We should note that our analysis was not able to distinguish regular classrooms from teaching labs, which are more costly to maintain but are also required less. Further, our analysis was limited by the unavailability of national data on instructional spaces, and while the UNC System may be representative of many other public higher education systems, it is less representative of the many small private colleges and universities across the nation.

vii We did not consider teaching labs separately from regular classrooms.

viii 11,206,836 FTEs using in-person instruction (see Table 5) x 26.1% (see Table 8).

The impact of the growth in professoriate on excess capacity in higher education

U.S. colleges and universities employ roughly 1.5 million faculty (as of fall 2021–22), a number that's been relatively stable since 2011.37 These faculty are distributed unevenly by institution type. Public institutions employ about 63% of faculty, private nonprofits about one-third, and private for-profits only ~4%. Over the past decade, faculty counts at private nonprofit colleges grew 15% (from ~432,600 in 2011 to 495,800 in 2022).[37] In contrast, during this period, for-profit colleges saw a 53% drop in faculty numbers (from 137,700 to 65,000), reflecting the enrollment declines and campus closures in that sector. The number of faculty at public institutions were essentially flat, i.e., 946,800 in 2022, about 1% lower than 2011. There has also been a shift from two-year to four-year institutions: In 2011, 21% of faculty taught at two-year colleges, but by 2022, only ~15% did (i.e., 265,000 at two-year colleges versus 1.24 million faculty at four-year schools),[38] mirroring the enrollment declines of community colleges. Table 6 summarizes faculty FTE numbers by sector between 2011 and 2022. Total faculty FTE (including instructional, research, and public service faculty) in 2022 was 1,064,152,[39] up from 1,017,020 in 2011,[40] a 4.43% increase. Overall, faculty FTEs have risen linearly between 1991 and 2016, after which it decreased somewhat to remain around 1,064,000 FTEs (Fig. 6).

Full-time versus part-time faculty: The faculty workforce has shifted heavily toward non-tenured and part-time positions. Over the last several decades, colleges have increasingly relied on contingent faculty (full-time non-tenure-track and part-timers) and fewer tenure-track professors. In fall 2021, more than 68% of faculty appointments were off the tenure track (contingent), compared to about 47% in 1987.[42] Nearly half of all faculty are now part-time (48%), up from one-third in 1987, and only 24% of faculty were full-time and tenured in 2021—a sharp drop from 39% in 1987.[42] The remaining fraction of the professoriate are full-time *tenure*-track, not yet tenured.

TABLE 6. FACULTY FTES IN DEGREE-GRANTING INSTITUTIONS BY SECTOR: 2011 TO 2022

Sector	2011 Faculty	2022 Faculty	% Change 2011 to 2022
Public Institutions	645,542	682,097	5.36%
Private Nonprofit	306,604	349,843	12.36%
Private For-Profit	64,873	32,212	-101.40%
Total	1,017,020	1,064,152	4.43%

Source: see reference.[41]

FIGURE 6. CHANGE IN FACULTY FTE FOR ALL POSTSECONDARY INSTITUTIONS PARTICIPATING IN TITLE IV PROGRAMS, 1991–2022.[41]

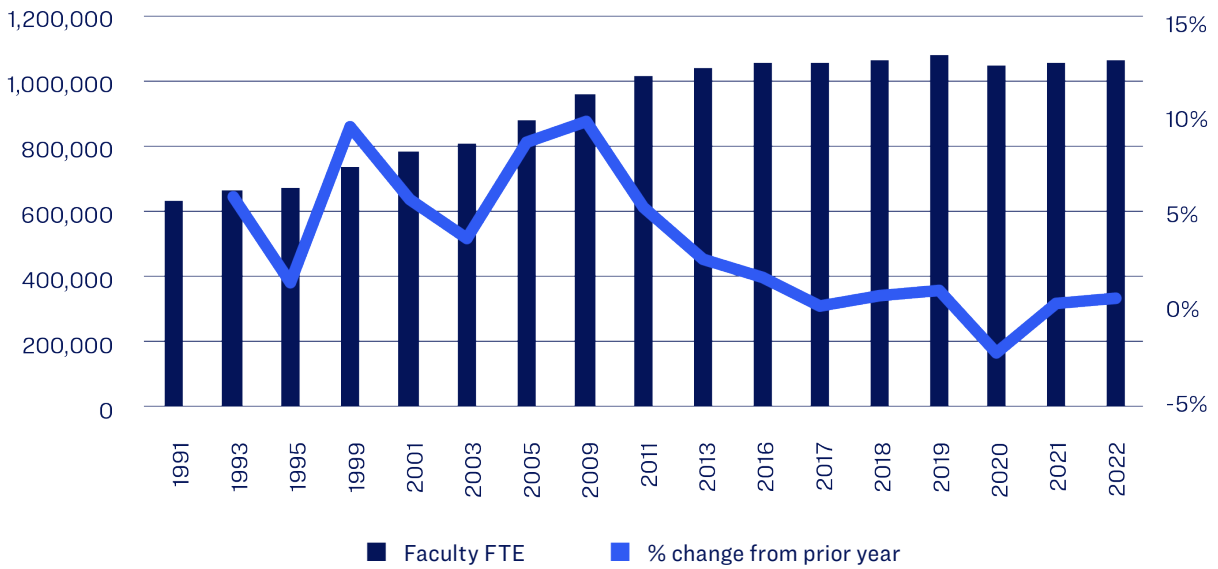
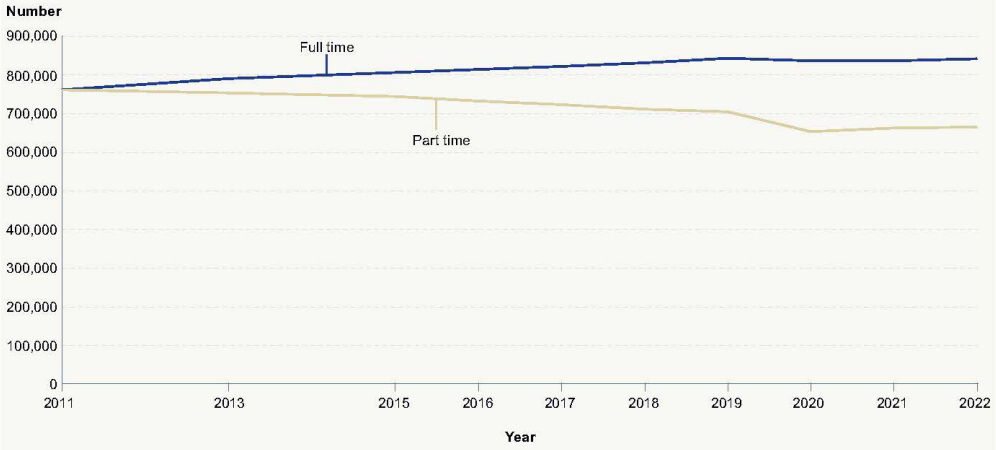


FIGURE 7. NUMBER OF FACULTY IN DEGREE-GRANTING POSTSECONDARY INSTITUTIONS, BY EMPLOYMENT STATUS: 2011 THROUGH 2022.[35]



NOTE: Data represent the 50 states and the District of Columbia. Data include faculty members with the title of professor, associate professor, assistant professor, instructor, lecturer, assisting professor, adjunct professor, or interim professor (or the equivalent). Data exclude graduate students with titles such as graduate or teaching fellow who assist senior faculty. Data are for degree-granting institutions and U.S. service academies. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. Figures are plotted based on unrounded data. Some data have been revised from previous published figures.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), IPEDS Winter 2011–12 and Spring 2014 through Spring 2022 (final data) and Spring 2023 (provisional data), Human Resources component, Fall Staff section. See *Digest of Education Statistics 2023*, table 315.10.

However, we should note that this trend has begun to reverse in the past decade. The NCES reports that between fall 2011 and fall 2022, the number of full-time faculty increased by 11% (from 762,100 to 842,400), while that of part-time faculty decreased by 13% (from 762,400 to 665,200) (Fig. 7). In fall 2022, of the 1.5 million faculty at degree-granting postsecondary institutions, 56% were full-time and 44% part-time. The decline in the number of part-time faculty accelerated with the onset of the COVID-19 pandemic, although this figure has risen slightly since the pandemic. Overall, the proportion of all faculty who were part time decreased from 50% to 44% between 2011 and 2022.

Student-to-faculty ratios: Student-to-faculty ratios have *improved* (i.e., the ratio has decreased, indicating fewer students per faculty) in the past decade, partly due to slower enrollment growth, continued hiring of faculty (including adjuncts), and a desire to improve the on-campus student experience. Nationally, the FTE student-to-faculty ratio in degree-granting institutions fell from about 16:1 in 2011 to 13:1 by 2022,[37] meaning, on average, there were 13 students per instructional faculty (FTE) in 2022. Private nonprofit colleges tended to have lower ratios than public institutions. For example, in fall 2022, private nonprofit four-year colleges averaged a student-to-faculty ratio of about 10:1, whereas public four-year universities were around 14:1.[37] Community colleges (public two-year) had even higher ratios at 17:1, and the for-profit sector had the highest ratio (~23:1 in 2022). In general, these ratios have generally declined from a decade prior across all sectors. Overall, the 13:1 ratio in 2022 for degree-granting institutions is down from 14:1 in 2015 and 16:1 in 2011.[37,43] Lower student-to-faculty ratios can indicate smaller class sizes or more instructors per student, but they also reflect the enrollment contractions being observed in many institutions and in some sectors (such as public two-year and for-profit colleges).

Estimating excess faculty capacity in higher education: Estimation of excess faculty capacity rests on the answer to three factors: 1) has the number of faculty FTEs adjusted for the decrease in student FTEs, 2) what is the most efficient student-to-faculty ratio, and 3) the extent to which asynchronous online courses are utilized. The third factor has been addressed previously, so we'll focus here on factors 1 and 2.

As to the first question, faculty FTEs rose linearly between 1999 and 2016, growing at an average of 5.2% per year (Fig. 7 and Table 7). In contrast, between 2017 and 2022, faculty FTEs have remained essentially flat, changing at an average of 0.3% per year. Overall, the number of faculty between 2011 and 2022 increased by a modest 17,730 FTEs, or 1.67%. In contrast, between 2011 and 2022, student FTEs (undergraduate and graduate combined) declined by 14.3% for all two- and four-year degree granting institutions, from 17,663,192 FTEs to 15,142,264 FTEs, representing a loss of 2,520,928 FTEs. Hence, the number of faculty FTEs has not adjusted for the decrease in student FTEs, resulting in the previously noted decrease in student-to-faculty ratios.[ix]

ix We should note that the faculty FTEs figures used combine instructional, research, and service faculty. Overall, however, the proportion of exclusively research faculty in higher education, except for R1 and R2 institutions, represents a relatively small portion of the faculty overall.

TABLE 7. FACULTY FTE, 1991–2022

Year	Faculty FTE
1991	632,565
1993	668,962
1995	677,783
1999	741,426
2001	783,036
2003	811,259
2005	880,558
2009	965,793
2011	1,017,020
2013	1,042,712
2016	1,060,084
2017	1,061,968
2018	1,068,950
2019	1,078,742
2020	1,054,203
2021	1,057,801
2022	1,064,152

Source: Data from reference.[41]

There has been a push for improved student outcomes in response to low completion rates and high levels of student debt.[44] However, it's unclear if the increase in student-to-faculty ratio has resulted in improved student success. Data from the National Student Clearinghouse Research Center note that student persistence increased modestly from 76.0% to 77.6%, and student retention increased from 66.8% to 69.5% between 2015 and 2023.[45] The overall national six-year completion rate for the fall 2011 cohort was 56.9%[46] and has progressively improved, peaking at 62.2% in 2015, after which it has remained essentially unchanged for the cohorts of fall 2016, 2017, and 2018.[47,48]

While any progress in student success is of importance, we must recognize that on a national level, these improvements have been relatively modest. Thus, if we assume that faculty FTEs should track with those of students, using 2022 faculty FTE numbers (i.e., 1,064,152), we could assume that there is an excess of 145,151 faculty FTEs in 2022 (i.e., a reduction equal to that of student FTEs between 2011 and 2022, or 14.43%). Considering that student to faculty in 2011 was 17:1,[49] we could assume that the estimated excess faculty FTEs could translate into excess teaching capacity equivalent to 2,467,572 (i.e., = 145,151 x 17) student FTEs (see Appendix 4).

Alternatively, we may choose to assume that some of the improvements in student success, modest as they were, are due to an increase in the student-to-faculty ratio. Unfortunately, there's no good data on what the ideal student-to-faculty ratio is. However, because the national student-to-faculty ratio was 17:1 in 2011[49] and 13:1 in 2022[40] in degree-granting postsecondary institutions participating in Title IV aid programs, we may want to hypothesize that the ideal national student-to-faculty ratio is somewhere in between, say 1:15.

If we follow this postulation, we can then assume the estimated excess number of faculty could educate an additional 2,177,269 (i.e., = 145,151 x 15) student FTEs. We'll use this latter figure in our modeling.

Using this assumption and that distribution of faculty by region is similar to the distribution of student enrollment (Table 1), we can estimate the number of excess student FTEs resulting from excess professoriate capacity is 457,226 in the Midwest; 413,681 in the Northeast; 740,271 in the South; and 566,090 in the West.

Summary of the Impact of the growth in professoriate on excess capacity in higher education: Our analysis suggests that the growth in the professoriate, particularly between 2011 and 2016, contributes to the excess teaching capacity in higher education. The number of faculty did not adjust for the decline in students. While some of the growth in faculty numbers may be due to an increase in the number of research-intensive faculty, these represent a minority among all faculty nationally.

As expected, consequently, the student-to-faculty ratio decreased between 2011 and 2022 from 17:1 to 13:1 for degree-granting institutions. There have also been modest improvements in student success during that time, possibly in part due to lower student-to-faculty ratio. If we postulate the optimum national student-to-faculty ratio is 15:1 (between that of 2011 and that of 2022), then we can estimate faculty excess could educate an additional 2.25 million student FTEs. Finally, we estimated excess faculty capacity would follow current regional student enrollment patterns. We were not able to calculate the contribution of the estimated faculty excess to graduate versus undergraduate student FTEs.

Limitations of the current analysis

While the preceding analysis has significant strengths in that it uses actual data, and leverages conservative and realistic assumptions in its modeling, we should recognize there are also limitations to the inquiry. We note a few of these below.

Considering we are using all available data, it's clear that it's not always possible to distinguish student headcount from the more important FTEs. Further, some of the data used pertained to degree-granting institutions and, in other cases, to Title IV eligible institutions. While we strived to examine the period of time between 2011 and 2023, we should note that in some circumstances we had to instead use data from 2022 and even 2021, which in some cases was fall data and in others year-long averages.

In some of our calculations, we had to extrapolate data generated in smaller groups than the whole of the higher education sector. (Gordian, UNC, Hechinger, SHEEHO, etc.). In estimating classroom use, we were unable to distinguish between classrooms and teaching labs. When assessing faculty, we were not able to distinguish research from teaching faculty, although the former can be assumed to represent a smaller portion of the professoriate. In some cases, we were unable to directly assess the impact of modifiers of excess capacity by region or, even more commonly, by level of degree.

Notwithstanding, it's our belief that these limitations would impact the estimations, which were made in a nonmaterial manner. For example, even if the estimated 8.5 million excess student FTEs were 6.5 million, this still would be a very large amount of excess capacity indeed. In addition, it's possible that we underestimated the degree of excess capacity in American higher education. It's highly likely that excess capacity, to some degree, was already present in 2011, an omission that potentially has resulted in our underestimating the current level of excess capacity.

Finally, we should note that the excess capacity predictions in this analysis are reliant on historical trends and reasonable estimates on our part. It's important for future research to include increased consideration of the technology-enhanced learning rushing toward us.

Summary

Overall, our estimates suggest excess capacity in higher education today approximates 8.5 million student FTEs (Table 8). Further, we should recognize that these estimates assume there was no excess capacity in 2011 and thus are likely to be an underestimation. For these estimations, a number of assumptions were made, primarily centered on the ability of institutions to make modest improvements in the effectiveness of using online education, and their facilities and professoriate. Alternatively, it's possible we may have overestimated excess capacity to some degree—for example, double-counting faculty excess, because greater utilization of online education or facilities will rely, in part, on having sufficient faculty. Nonetheless, even if we eliminate all excess capacity due to the growth in the professoriate, excess capacity is still significant at 6,250,400 student FTEs.

To understand the meaning of this estimated excess capacity in American higher education, it's important to understand the greater variety in institution sizes in the American higher education sector (Table 9). There are 2,819 institutions of higher education in the United States with less than 5,000 students, which educated a total of 4,098,251 students in fall 2021. Considering that these figures represent headcounts, we can estimate this total is equivalent to 3,360,566 student FTEs.[x] Consequently, and ignoring the realities of geographic distribution, the calculated excess capacity is equivalent to the entire enrollment of all colleges and universities in the United States that have less than 10,000 students and then some. We should note that institutions with less than 10,000 students account for 87.1% of all institutions of higher education in America.

Regarding regional distribution, the excess capacity measured by student FTEs is greater in the South measured on a per-population basis. Regarding graduate versus undergraduate capacity, we should note that we did not find significant evidence of excess capacity in graduate (postbaccalaureate) education at baseline. We could not clearly determine the impact of institutional closures on the undergraduate versus graduate student mix, although examining the impact of new institutional openings, 205,534 (81.7%) of the new headcount was undergraduate and 45,995 (18.3%) was graduate (postbaccalaureate). Taking into consideration the continuing decline in demand and the rising costs, both for the institution and for students and their families, some degree of consolidation of the sector is inevitable.

x Using 84% FTEs per headcount (see section "Baseline assessment of excess capacity in American higher education: 2011 to 2023").

TABLE 8. ESTIMATED EXCESS HIGHER EDUCATION CAPACITY: 2011 TO 2022/2023[a]

Baseline and modifiers	Excess capacity (total student FTEs)[b]	Midwest	Northeast	South	West
Change in enrollment (baseline)	2,006,952	421,460	381,321	682,364	521,808
Institutional closures	-84,000	-17,640	-15,960	-28,560	-21,840
Institutional openings	151,602	15,150	69,021	27,992	39,439
Online education growth	531,293	111,572	100,946	180,640	138,136
Facilities growth	3,644,552	765,356	692,465	1,239,148	947,584
Faculty growth	2,177,269	457,226	413,681	740,271	566,090
Total excess	**8,427,669**	**1,753,124**	**1,641,474**	**2,841,855**	**2,191,216**
Total excess per 1,000 population[c]	**24.8**	**25.2**	**23.6**	**40.8**	**31.5**

[a] Excess student FTEs by region was estimated from the distribution of student headcount by region in 2022 (i.e., 21% for the Midwest, 19% for the Northeast, 34% for the South, and 26% for the West).

[b] Includes both undergraduate and graduate students.

[c] See reference.[17]

TABLE 9. NUMBER OF INSTITUTIONS AND ENROLLMENT, BY ENROLLMENT SIZE OF INSTITUTION: 2021

	Total	<200	200 to 499	500 to 999	1,000 to 2,499	2,500 to 4,999	5,000 to 9,999	10,000 to 19,999	20,000 to 29,999	30,000 or more
Number	3,777	492	419	444	867	597	470	292	94	102
Enrollment	18,621,073	50,697	139,726	323,594	1,447,831	2,127,403	3,372,996	4,061,926	2,300,697	4,796,203

Source: see reference.[50]

The data reviewed in this analysis demonstrate clearly that there's massive excess educational capacity in the United States—8.5 million student FTEs, equivalent to the entire enrollment of all institutions with 10,000 students or less, and then some.

However, we also should note that while our estimations demonstrate massive excess capacity nationally and by region, they do not account for the fact that most students prefer to attend higher education at an institution close to them (51–54). Geographic distance impacts access to college, especially for marginalized students.[54] Living a significant distance, >25 miles or 30 minutes travel, from an institution of higher education negatively impacts the ability of Hispanic, Black, low-income, and first-generation students to obtain a postsecondary education, especially community college. Alternatively, for white and Asian students living farther from a community college tended to encourage them to attend a four-year institution out of their immediate area. Consequently, retaining some degree of proximity between institutions, particularly regional and community colleges, and students will best ensure that these individuals pursue and complete a higher education degree. How much will this requirement remain considering the growth of distance and asynchronous, AI-supplemented education is not yet known, but needs to be taken into consideration.

What does the future look like? Traditional higher education is a market in clear decline. There will almost certainly be a need for the historical model, but we fear its universal application is in the midst of a decline for which anticipated consequences are difficult to project.

The degree of excess capacity currently in place in American higher education, along with rising costs and decreasing demand, envisages an increasing number of colleges disappearing, either through closures or mergers. Over the past 12 years, more than 745 institutions have closed (Table 2), equivalent to 10.3% of the 7,234 institutions eligible for Title IV funds (and hence possessing an OPEID) in 2011.[55]

It certainly is not unreasonable to postulate that closures and mergers of Title IV eligible institutions will continue, albeit at a higher rate. For example, another 750 institutions, or 13.2% of the 5,686 Title IV-eligible institutions existing in 2023, may be comfortably assumed to close in the next five to six years.

While a greater loss of institutions could be hypothesized, the need for institutional proximity for many students, especially to community and regional colleges, may counter this loss somewhat. However, this likely means many surviving institutions will have to find ways to operate with decreased revenue, lower expenses, and a lesser number of students, majors, and programs. In other words, they'll have to figure out how to stabilize financially while being smaller.

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Appendix 1

ESTIMATION OF POTENTIAL ADDITIONAL ONLINE EDUCATIONAL CAPACITY: 2022

Total undergraduate students enrolled in some distance learning ("At least one, but not all, of student's courses")[1]	4,694,035
Total graduate students enrolled in some distance learning ("At least one, but not all, of student's courses")[1]	470,004
Total undergraduate students enrolled exclusively in distance education[1]	3,680,528
Total graduate students enrolled exclusively in distance education[1]	1,232,625
Estimated undergraduate credit-hours taught currently online*	39,685,799
Estimated graduate credit-hours taught currently online*	9,158,265
Estimated undergraduate FTEs taught currently online**	1,322,860
Estimated graduate FTEs taught currently online**	381,594
Estimated total student FTEs currently taught online	1,704,454
Estimated % undergraduate FTEs of total taught currently online	77.61%
Estimated % graduate FTEs of total taught currently online	22.39%
Actual total student FTEs[3]	13,973,424
Estimated % of actual student FTEs taught online	12.20%
Actual total faculty FTE[2]	1,064,152
Actual total student FTEs per faculty FTE	13.13
Estimated total student FTEs taught online per faculty FTE	1.60
Future modeling (2 examples)	
Model A	
Potential % of total student FTEs taught online vs. total FTEs	16.00%
Total potential student FTEs taught online	2,235,748
Total additional student FTEs taught online compared to fall 2022	531,293
Estimated total student FTEs taught online per faculty FTE	2.10
Model B	
Potential % of total student FTEs taught online vs. total FTEs	20.00%
Total potential FTEs taught online	2,794,685
Total additional student FTEs taught online compared to fall 2022	1,090,230
Estimated total student FTEs taught online per faculty FTE	2.63

*Assuming that students taking at least one, but not all, of their courses online took an average of 1.25 courses per semester (i.e., 3.75 credit-hours/year) online, and that students (undergraduate or graduate) pursuing exclusively distance education courses took an average of 2.0 courses per semester (i.e., 6 credit-hours/year) online.

**Assuming 30 credit-hours/year for undergraduate and 24 credit-hours/year for graduate students per institutions following a semester, trimester, 4-1-4, or other academic year calendar system (https://nces.ed.gov/ipeds/search/viewtable?tableId=36311&returnUrl=%2Fsearch#:~:text=For%20institutions%20following%20a%20quarter,Enrollment%20component%20(provisional%20data).

(1) https://nces.ed.gov/programs/digest/d23/tables/dt23_311.15.asp

(2) https://nces.ed.gov/programs/digest/d23/tables/dt23_314.10.asp

(3) https://nces.ed.gov/programs/digest/d23/tables/dt23_307.10.asp

Appendix 2

ESTIMATION OF POTENTIAL ADDITIONAL ONLINE EDUCATIONAL CAPACITY: 2022

Actual student headcount	
Undergraduate students not taking any online courses (headcount)	7,022,919
Undergraduate students taking some, but not all, online courses (headcount)	4,694,035
Graduate students not taking any online course (headcount)	1,479,915
Graduate students taking some, but not all, online courses (headcount)	470,004
Estimated student FTEs[1]	
Undergraduate student not taking any online course (FTE)	5,899,252
Undergraduate students taking some, but not all, online courses (FTE)	3,942,989
Graduate students not taking any online courses (FTE)	1,035,941
Graduate students taking some, but not all, online courses (FTE)	329,003
Estimated credit-hours yearly[2]	
Undergraduate student not taking any online course	176,977,559
Undergraduate students taking some, but not all, online courses	118,289,682
Graduate student not taking any online course	24,862,572
Graduate students taking some, but not all, online courses	7,896,067
Estimated in-person classroom-hours yearly[3,4]	
Undergraduate student not taking any online course	176,977,559
Undergraduate students taking some, but not all, online courses	197,149,470
Graduate student not taking any online course	21,310,776
Graduate students taking some, but not all, online courses	11,280,096
Total 2022 in-person classroom-hours required yearly	406,717,901
Estimated % of total classroom-hours yearly attributed to undergraduates	91.99%
Estimated % of total classroom-hours yearly attributed to graduates	8.01%

[1]Considering headcounts to be equivalent to 84% undergraduate FTEs and 70% graduate FTEs, see section "Baseline assessment of excess higher education teaching capacity: 2011 to 2023."

[2]From IPEDS, "for institutions following a semester, trimester, 4-1-4, or other academic year calendar system, 30 undergraduate credit hours is considered one undergraduate FTE, and 24 graduate credit hours is considered one graduate FTE" (see https://nces.ed.gov/ipeds/use-the-data/annual-survey-forms-packages-archived?year=2018).

[3]The term "classroom" can refer to classrooms, lecture halls, teaching labs, or other similar teaching facilities.

[4]Assumes 3.0 credit-hours per class-hour for an undergraduate student taking only in-person classes (i.e., class-hours equal to credit-hours); 1.8 credit-hours per class-hour for undergraduate students taking some, but not all online classes (i.e., 60% of full-time student taking only in-person classes); 3.5 credit-hours per class-hour per class for a graduate student taking only in-person classes and 2.1 credit-hours per class-hour for a graduate student taking some, but not all, classes online (i.e., 60% of full-time student taking only in-person classes); and 3 classes per week for 16 weeks per semester or 32 weeks per year.

Appendix 3

ESTIMATED TOTAL CLASSROOMS REQUIRED TO ADDRESS CURRENT ENROLLMENT: 2022

	Average maximum classroom capacity[1]	% Occupancy (based on average students per room)[1]	Average maximum classroom occupancy1 (No.)	Average maximum utilization week (hrs.)[1]	Average maximum classroom-hrs. capacity per classroom/ week	Average maximum classroom-hrs. capacity per classroom/ yr.[2]	Total undergraduate classroom-hrs. needed/yr.[3]
Postulated Current Maximum (2022)	47	100.0%	47.0	35	1645.0	78,960.0	374,127,029
Current Actual (2022)	47	48.1%	22.6	35	791.2	37,979.8	374,127,029
Model A: Moderate-high utilization	47	60.0%	28.2	45	1269.0	60,912.0	374,127,029
Model B: Moderate utilization	47	60.0%	28.2	40	1128.0	54,144.0	374,127,029
Model C: Moderate-low utilization	47	55.0%	25.9	35	904.8	43,428.0	374,127,029

	Total graduate classroom-hrs. needed/ yr.[3]	Total classroom-hrs needed/yr.[3]	Total classrooms needed/yr. (No.)	Excess number of classrooms	% excess number of classrooms relative to postulated maximum utilization	% excess number of classrooms relative to current 2022 excess	Estimated % Excess Student FTEs
Postulated Current Maximum (2022)	32,590,872	406,717,901	5,151	0	0.0%		
Current Actual (2022)	32,590,872	406,717,901	10,709	5,558	207.9%		
Model A: Moderate-high utilization	32,590,872	406,717,901	6,677	1,526	129.6%	-78.3%	10,937,080
Model B: Moderate utilization	32,590,872	406,717,901	7,512	2,361	145.8%	-62.1%	8,672,868
Model C: Moderate-low utilization	32,590,872	406,717,901	9,365	4,214	181.8%	-26.1%	3,644,552

(1) From UNC System 2022 2022 FACILITIES INVENTORY AND UTILIZATION STUDY (https://www.northcarolina.edu/wp-content/uploads/reports-and-documents/facilities-cap-design/facilities-utilization/facilities-inventory-and-utilization-study-2022.pdf).

(2) Assumes 48 weeks utilization/yr.

(3) See Table 5.

Appendix 4

ESTIMATING EXCESS FACULTY FTES, 2011–2022

Undergraduate FTE 2011[a]	15,656,240
Graduate FTE 2011[a]	2,006,952
All student FTEs 2011	17,663,192
Undergraduate 2022[a]	12,927,307
Graduate FTE 2022[a]	2,214,957
All student FTEs 2022	15,142,264
Change in undergraduate FTEs, 2011–2022	-2,728,933
Change in graduate FTEs, 2011–2022	208,005
Change in all student FTEs, 2011–2022	-2,520,928
% change in student FTEs, 2011–2022	-14.27%
Faculty FTEs in degree-granting institutions, 2011[b]	1,017,020
Faculty FTEs in degree-granting institutions, 2022[b]	1,064,152
Change in faculty FTEs, 2011–2022	47,131
% change in faculty FTEs, 2011–2022	4.43%
Estimated excess no. of faculty FTEs if we assumed faculty FTEs had followed change in student FTEs above	145,151
Student FTEs able to be taught by estimated excess no. of faculty FTEs, assuming the 17:1 student-to-faculty ratio present in 2011	2,467,572
Student FTEs able to be taught by estimated excess no. of faculty FTEs, assuming a 15:1 student-to-faculty ratio (a value mid-way between 2011 and 2022)	2,177,269

[a]See https://nces.ed.gov/ipeds/trendgenerator/app/answer/2/43?sideid=170--%7C1%7C2

[b]See Table 7.

About the authors

Ricardo Azziz is a recognized thought leader in higher education change management, leadership, and mergers and acquisitions. He led the merger that resulted in Georgia Regents University (now Augusta University), serving as founding president. Among other positions, he served as president of Georgia Health Sciences University and senior executive within the State University of New York (SUNY) system administration. He is lead author of "Mergers in Higher Education: A Proactive Strategy to a Better Future?" (TIAA Institute, 2017), "Strategic Mergers in Higher Education" (JHU Press, 2019), "Leading Big Scary Change: Major Institutional Restructuring in Higher Education" (TIAA Institute, 2023), and "Leading Existential Change in Higher Ed: Mergers, Closures and Other Major Institutional Restructuring" (JHU Press, 2025). He writes a regular column in *Higher Ed Dive*, "Merger Watch," and serves as executive director of the Foundation for Research and Education Excellence and director of the Center for Higher Education Mergers and Acquisitions (CHEMA). He's a professor at the University of Alabama at Birmingham.

Gary Stocker is a fellow at the Center for Higher Education Mergers and Acquisitions (CHEMA). He has substantial business experience in higher education and health care with skills in sales and marketing, management, consulting, data analytics, operations, and technology. Serving as chief of staff to the president of Westminster College introduced him to the fragile nature of private college finances. Efforts to find potential merger partners led Gary to ultimately develop an app (the College Viability App™) that lets users compare the financial health and viability of colleges in the United States. Gary uses his research and experience to assist higher education institutions in developing greater efficiency and long-term growth and in exploring potential major institutional restructuring, including mergers.

Karla Leeper is a senior fellow at the Center for Higher Education Mergers and Acquisitions (CHEMA). She is a nationally recognized expert in strategic communication for higher education, health care, and nonprofits. Over the course of her more than 30 years of leadership, she's developed successful, context-driven, data-informed communication strategies to implement reorganizations, realignments, and mergers in professional organizations, public school districts, nonprofit health care organizations, and three universities. In 2015, she led the effort to create and launch the new brand and philanthropic identity for Augusta University (AU), following the merger of Georgia Health Sciences University and Augusta State University to create AU, and for Augusta University Health (AUH), following the consolidation of various clinical entities to establish AUH, the only such public academic health system in the state. For these efforts, she was recognized with the Council on Advancement and Support of Higher Education's Gold Award. Karla has received awards for her work in building high-performing teams, public advocacy, diversity, student success, and teaching. Previously, she served as vice chancellor for strategic communication and public affairs at the University of Kansas, vice president for operations at Augusta University, and the vice president for board and executive affairs at Baylor University.

Rich Katzman is a fellow at the Center for Higher Education Mergers and Acquisitions (CHEMA) and a highly experienced senior-level executive with an exemplary track record of leading strategic operations and delivering top-flight results across varying business sectors, including health care and academic medicine. From for-profit to the not-for-profit sector, Richard has successfully directed strategy and business development, department and system level operations, and finance. He has directed sizable teams in the delivery of highly efficient and cohesive operations, the development and management of complex budgets, and the implementation of mission critical information systems. Beyond a wide range of service agreements and contracts, Rich has also successfully handled acquisition transactions totaling $4.5B. Most recently, he served as senior assistant dean of business and operations for the School of Pharmacy at the University of California-Irvine (UCI).

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