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# Pandemic responses and impacts in access-oriented private nonprofit colleges

## Executive summary

The emergence of the COVID-19 pandemic in 2020 forced major decisions on private nonprofit colleges oriented to democratizing access for underrepresented students. This project addresses their strategic choices during the pandemic and those decisions' effects on student access and equity-related outcomes in the ensuing months.

Our analysis of longitudinal data on 152 access-oriented private nonprofit institutions revealed that first-year full-time enrollments in those colleges decreased in 2020-21, but these numerical decreases were smaller in more diverse institutions and the percentage of first-year full-time racially minoritized undergraduates at the institutions grew slightly in the face of the pandemic, because numeric enrollment decreases were greater among non-minoritized populations.

The statistical analyses also found that institutions with larger residential capacity and institutions with larger student bodies were more likely to move to fully or primarily online instruction in 2020-21. Colleges with high levels of student participation in intercollegiate athletics were less likely to adopt a vaccine mandate, as were colleges with low numbers of underrepresented minoritized students and institutions located in Republican-controlled states.

**James C. Hearn**
University of Georgia
TIAA Institute Fellow

**Jarrett B. Warshaw**
Florida Atlantic University

Analyses further suggested that institutions' strategic choices generally did not play a significant role in students' equity-related outcomes in aggregate, once other baseline institutional characteristics were taken into account statistically. Most importantly, as of the 2020-21 academic year, the pandemic did not seem to have disproportionately harmed the enrollments of racially minoritized students in access-oriented private nonprofit colleges.

These quantitative findings were mostly supported by our interviews with institutional leaders, but there were some indications that further analysis is warranted.

The evidence provided here is early and may not hold up over time as further data are accumulated. Still, what evidence we do have allays some anxieties about the relationships among race/ethnicity, access, and equity in a resource-challenged institutional sector.

## Introduction

The emergence and endurance of the COVID-19 pandemic has brought new challenges to many four-year private nonprofit colleges providing needed educational opportunities to traditionally marginalized student populations. Over the decades, those access-oriented colleges have surmounted numerous enrollment and financial challenges to their survival, but the pandemic has threatened the heart of their business model in unprecedented ways. This research addresses the ways the pandemic has been shaping operations, strategic actions, and equity-related outcomes in those institutions.

Three key tenets form the rationale for the research:

1. *Access-oriented private colleges [APCs] play a key role in providing access to higher education opportunities*. Inequalities in postsecondary educational access and achievement have long characterized U.S. higher education (Chetty et al., 2017; U.S. Department of Education, 2016; 2020a and b; 2021), and those inequalities may be growing worse (Cahalan et al., 2019). Because racial/ethnic diversity is growing most rapidly in the 18-24 year old population (U.S. Department of Education, 2021), any constraining of the role of access-oriented institutions will be especially damaging to equity nationally. While highly selective private colleges are not especially diverse in their enrollment characteristics (Hearn & Rosinger, 2014), the great majority of nonprofit nondoctoral four-year colleges with broader admissions criteria exhibit substantially more diverse student profiles (Crisp et al., 2019) and annually enroll roughly 500,000 to 1 million students in the United States.[1] With APCs spread throughout the country and across urban, suburban, small-town, and rural areas, these colleges are closely tied to their regions, drawing the majority of their enrollments from surrounding areas. Perhaps not surprisingly, therefore, students in this sector are remarkably similar demographically to students at public colleges overall (NAICU, 2019) and somewhat more diverse than students at public flagship institutions (Urban Institute, 2020). These patterns reflect institutional missions that are generally not only access oriented but also teaching focused and regionally engaged.
2. *Access-oriented private colleges' immersive environments can have powerful effects on students' cognitive and social development, and may be especially beneficial to traditionally underrepresented students*. Traditionally, four-year private nonprofit colleges are focused mainly on undergraduate education and are structured to provide students with high levels of curricular and co-curricular engagement and supportive residential living/learning environments, both of which have been found to have positive developmental impacts (Mayhew et al., 2016; Campbell et al., 2019; Schudde, 2011), especially for minoritized students (Pascarella et al., 2005; Tienda, 2013).
3. *The combination of ongoing resource strains and the COVID-19 pandemic is endangering access-oriented private colleges' "high-intensity" academic models and equity-centered contributions.* In recent years, financial conditions at many APCs began tipping into critically dangerous territory (Taylor & Cantwell, 2019; Schifrin & Coudriet, 2019; Korn et al., 2020). Tuition levels have reached points perceived as unaffordable for some, state and federal student aid programs have tilted more to loans than grants, limiting students' and families' perceptions of returns to educational investments in this sector, and the liberal arts fields traditionally associated with the sector have lost some appeal to prospective students (e.g., see Kelderman, 2019a and b; Carlson, 2020). The pandemic has exacerbated those threats (Bruni, 2020; Kimbrough,

1 Authors' calculations, inferring from U.S. Department of Education (2020a and b) data, Barron's selectivity rankings, and admissions rates.

2020; Rosenberg, 2020). Although private institutions have more autonomy from governmental authorities and a less constrained societal charge than public campuses, they can never wall themselves off from emerging external pressures and threats. From the beginning, the pandemic forced institutions to adopt online instruction, decrease in-person interactions with other students and faculty on campus, and cut back on cherished extracurricular activities that can support student recruitment and build institutional loyalty (e.g., see Suggs et al., 2020). Those shifts extended into a second and even third year on some campuses, and each of them goes to the heart of the small-college enterprise. To the extent that student services, academic quality, faculty availability, and residence life compromise efforts to improve campuses' safety and fiscal heath, equity-related fault lines may emerge potentially harming the educational outcomes of underrepresented students.

## Literature review and conceptualization

Three research questions framed this research:

RQ 1: *How have access-oriented private colleges responded to the pandemic?*

RQ 2: *What effects have these actions had on equity-related opportunities and outcomes for underrepresented students at those colleges?*

RQ 3: *To what extent did colleges' prior commitment to traditional "high-intensity" undergraduate education and to racial/ethnic diversity shape their equity-related outcomes?*

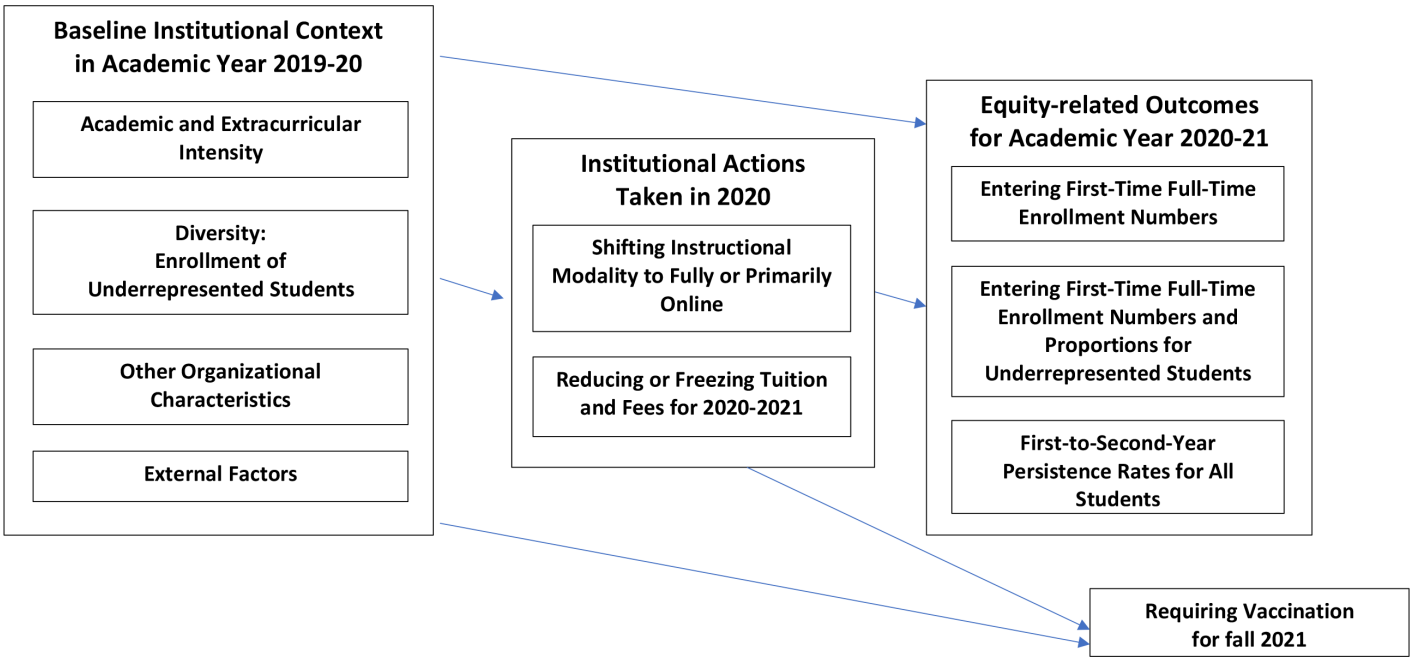
We argue that variations in campus intensity and student diversity are central for addressing these questions. The COVID pandemic is threatening precisely the intensity most central to residential colleges' historic appeal, financial viability, and effectiveness (Maloney & Kim, 2020a, b; Meyers, 2020; Seltzer, 2020; Korn et al., 2020; Kelchen, 2020). The restrictions posed by the pandemic may have moved numerous institutions further away from traditional models (Marcy, 2017; Hearn et al., 2016; Hearn & Warshaw, 2015; Hearn & Ciarimboli, 2017). Beyond their variations in intensity, private colleges also vary substantially in their commitment to various aspects of student diversity (Hearn & Rosinger, 2014). Earlier analyses by the first author indicate that percentages of APC students qualifying for federal need-based aid range from under 20% to over 95% across campuses, and a similar range exists for racially minoritized students.

We hypothesize that these variations are important for student outcomes. Specifically, institutions' prior levels of intensity and diversity will shape their responses to the pandemic crisis and financial challenges, which in turn will shape outcomes for underserved students.

High-intensity liberal arts traditions have deeply institutionalized appeal in this sector, but maintaining those traditions can be costly, making non-elite colleges operating in that mode especially vulnerable to disruption and decline. Resource-dependency theory (Pfeffer, 1981) would suggest that as financial strains grow, colleges may move toward reducing their socioeconomic diversity to facilitate enrolling more full-paying students whose tuition payments can help sustain the school financially (Hossler, 2015). What is more, the crises facing APCs threaten not only underrepresented students' enrollment but also their chances of persisting and graduating. Moving to more online classes and reducing residency and engagement requirements could penalize those students because they tend to be at a disadvantage relative to others in accessing technological resources remotely (Berg, 2020).

Figure 1 summarizes our conceptual model. Research Question 1 examines the actions institutions took in response to the pandemic, while research questions 2 and 3 examine the equity-related outcomes of those actions. These variables are discussed in turn below.

**Figure 1. Conceptual Model**




*Institutional Actions in 2020 and 2021* constitute the first group of dependent variables for the project. Nearly all U.S. institutions moved to online operations in the spring of 2020, but variations emerged soon thereafter in their strategic responses, and those variations are the focus of Research Question 1. Institutional actions responding to the pandemic in the fall of 2020 and beyond fell into three categories: academic, financial, and operational (i.e., physical). The most dramatic academic action institutions took was committing to a fully or primarily online instructional modality in the 2020-2021 academic year. Some institutions undertook a financial shift of similar magnitude: reducing or freezing tuition for that academic year, in response to the reduced levels of engagement experiences being offered students. Although numerous operational actions were taken, most prominent (and in some ways most controversial) was restricting full campus access to vaccinated students in fall 2021.

*Equity-related Outcomes* constitute the second group of dependent variables for the project. Specifically, the project focused on overall enrollments, enrollment rates and numbers for underrepresented minoritized (URM) students, and retention rates for all students.[2] Early evidence suggested that enrollment and persistence rates began to decline as the pandemic arrived, especially among student populations historically underrepresented in the four-year sector and in higher education generally (Rossman & Alamuddin, 2020; Bird et al., 2020). Much of the work on this concern focused, however, on public institutions such as community colleges and four-year universities differing in their regional focus and stewardship. Because APCs play a significant role in promoting student access and success, there is a need for deeper analysis of factors associated with underrepresented students' outcomes in those settings. More broadly, there is a need for attention to the extent and nature of student attrition in those colleges.

We hypothesized that four blocks of factors influence institutional actions and subsequent equity outcomes. These blocks are described in turn below.

*Intensity-related Characteristics* address factors relating to the extent, nature, and focus of in-person interactions on campus. The factors fall into four categories: reliance on full-time undergraduate enrollments, institutional focus on undergraduate education relative to graduate

2 Longer-term work can examine impacts of institutional actions on graduation rates.

education, high participation in intercollegiate athletics, and commitment to residential living on campus. Prior research has suggested that each of these institutional features is associated with greater college impacts (Mayhew et al., 2016) and, presumably, to these institutions' ability to attract and retain students. Revenues from students' tuition and fees subsidize the facilities and personnel needed to support intensity's features. Thus, for academic, market, and financial reasons, we hypothesized that institutions committed to high-intensity models may well have been reluctant to abandon those models in the face of a pandemic.

*Diversity Characteristics* constitute a second block of factors likely influencing institutions' pandemic-related actions and outcomes. As noted earlier, observers were raising concerns even prior to the pandemic that financial challenges and enrollment-management priorities could be driving small private colleges to reduce their commitments to socioeconomic and racial/ethnic diversity (Hossler and Bontrager, 2015). In the earliest days of the pandemic, Maloney and Kim (2020b), Fain (2020), and others worried that institutions' moves to online forms of student learning and engagement could be especially harmful to the prospects of underrepresented students for success in their undergraduate careers. Might the extent to which an institution was committed to and relied on underrepresented students' enrollment have restrained or heightened pandemic actions?

*Other Institutional Organizational Characteristics,* such as mission (e.g., affiliation with a religious body), enrollment size and trends, instructional spending per student, the tuition discount rate, and net revenues, constitute a third set of factors hypothesized to influence pandemic-related actions. While these factors can be considered a "control" facilitating close analytic attention to intensity and diversity under our conceptual framing, the factors are also of interest in their own right. Because so many private colleges have been under financial strain for years, as noted earlier, it is logical to examine whether the prior financial and enrollment threats facing some institutions shaped their pandemic-related choices as well as the outcomes of those choices.

*External Factors* constitute a fourth area of concern in analyzing colleges' choices and outcomes. Private institutions enjoy greater independence from government authorities and state and local social/political contexts than their public counterparts, but they are unquestionably affected by their external environments (Hearn & Lacy, 2009; McLendon & Hearn, 2009). Three factors seem especially worth attention here. APCs tend to draw largely on students from their local regions, rather than nationally.[3] Their competitors, therefore, tend to be nearby, and surely that ecology influences strategic choices. The postsecondary education ecologies of the states vary appreciably, with some states hosting few or no private institutions (e.g., Wyoming and some other Western states) and others historically tilted heavily toward private higher education (e.g., the New England states). To the extent the local area is densely populated with private institutions, colleges may be reluctant to cede their distinctive market niche by making a move toward a more generic model, such as by going online (Toma, 2010, 2012).

Similarly, to the extent a college is located in a socially or politically conservative area, its institutional stature and attractiveness may be shaped by its congruence with local values. Earlier research has shown significant influences of partisan politics on state institutions' pandemic-related choices (Collier et al., 2021), so it seems reasonable to hypothesize that, even without direct dependence on state funding, private institutions may experience similar pressures to conform (Zumeta, 1996).

Further, it would be unwise not to include local COVID infection rates as a factor in the model. COVID-19 rates have varied substantially over time and across states, and institutions naturally unquestionably made their pandemic-related choices with those rates in mind. That said, the causal connections here may be difficult to discern: areas with high infection rates might be those with the most resistance to masking, distancing, and moving to online education (Leonhardt, 2021; Neelon et al., 2021), so a positive association between local COVID rates and protective choices like moving to online instruction is not assured.

## Research design

This project focused primarily on quantitative analyses of institutional data. Understanding of those findings was enhanced, however, by a qualitative component featuring interviews with institutional leaders at the presidential and vice presidential levels. While the findings are

3 Among the access-oriented colleges studied for the present analysis, the average percentage of undergraduates from out-of-state was 29% in 2019.

organized sequentially along the lines of the research questions and associated quantitative analyses, those sections are supplemented by relevant comments from leaders interviewed for the project. Below, the data, methods, and limitations of the project are described.

*Quantitative Data.* The initial phase of the project focused on building a database to support institution-level analysis over time. We accumulated organizational and academic data for 2009-2020 for all institutions whose Carnegie Classification (2016) was as a four-year, private, non-profit, Title IV, degree-granting baccalaureate college.[4] These data were downloaded from the National Center for Education Statistics' *Integrated Postsecondary Education Data System* (IPEDS; see https://nces.ed.gov/ipeds/). The IPEDS data were supplemented by accessing additional data from state and national sources, including the College Crisis Initiative at Davidson College (C2i; see https://collegecrisis.org), the Council of State Governments' *Book of the States* (see https://www.csg.org/work/publications), and the federal government's Equity in Athletics Data Analysis site (EADA; see https://ope.ed.gov/athletics/#/).

Within this large dataset, we sought to identify our focal group of access-oriented colleges. Working with data on public institutions, Hillman (2020) has defined broad-access institutions as schools admitting at least 80% of their applicants. Yet admissions rates alone are not always reliable indicators of accessibility. For example, a number of private institutions in Barron's "highly competitive" category (e.g., Thomas Aquinas, Sewanee) often admit well over two-thirds of their applicants. Clearly, these schools have a talented, committed group of people applying and enrolling. Admissions rates involve two factors: who applies and who among those is accepted. To the extent the first group tends to be highly self-selected, comparing admissions rates across institutions is a questionable way to define access-oriented institutions, especially in the private sector and especially in regionally rooted institutions such as most APCs. But if admissions rates are an imperfect indicator of accessibility, so are SAT/ACT scores. Only a few schools had test-optional admissions a decade ago (Belasco et al., 2015), but now many have reduced or eliminated the use of test scores in admissions decision making (Rosinger, 2020). Increasingly, fewer and fewer institutions are reporting scores, and the scores institutions do report likely increasingly reflect averages only for those admitted students who choose self-interestedly to submit them. With these challenges in mind, we adopted the following decision rule for the project:

1. Starting with the broad database, we eliminated all institutions accepting under two-thirds of applicants in 2009, the initial year of the analysis.
2. We then eliminated those scoring 4 ("very competitive" or higher) on the Barron's indicator.
3. Next, we eliminated those with an SAT/ACT composite score for the 25th percentile of 1000 or more.
4. Finally, to ensure face validity, we examined the websites of the remaining institutions to discern the extent to which they emphasized access.

With our focal group of access-oriented institutions identified, we next sought data on those institutions' actions over the months after the pandemic arrived during the spring of 2020. For this aspect of our data gathering, we benefited from a working relationship with the C2i initiative at Davidson College, as noted above. The C2i team have provided data on pandemic responses to numerous media outlets, including *The New York Times* and *The Chronicle of Higher Education.* Their director, Dr. Chris Marsicano, generously assigned Davidson undergraduates to serve as research assistants who conducted "webscraping" efforts from our sample institutions' websites. Those efforts have helped us develop comprehensive portraits of publicly reported institutional actions on our target campuses since March 2020. We coded and merged information from C2i into the larger quantitative dataset.

Although the project focused on only a three-year period (2019, 2020, and 2021), it was important that we be able to examine trend data for enrollments and finances going back further, to allow us to incorporate any longer-term trends foreshadowing institutional responses and outcomes. For that reason, institutions with substantial missing or unreliable data on such key variables were removed. The resulting dataset encompasses 152 institutions. The robust data we accumulated allowed us to analyze how the financial and health crises are

4 To ensure our sample was relatively homogenous as to mission and continuity, we further eliminated institutions designated by Carnegie as "special focus" institutions (e.g., technical and professional schools), institutions whose programming was predominantly online, institutions whose students attend primarily part time, and institutions that closed over the study period or were acquired by another college.

affecting different kinds of access-oriented campuses, which kinds of access-oriented colleges are taking which kinds of actions, and what effects these actions are having on equity-related outcomes.

The initial design for the project anticipated accumulating data on a wide range of institutional actions, including shifts in instructional modalities, reducing or freezing tuition and fees, requiring COVID testing, adopting test-optional admissions, reducing residence hall capacity, and requiring vaccinations. In the end, several of these actions could not be investigated because we found insufficient online data or insufficient institutional variation to warrant quantitative analysis. Only four institutions reported ever making the shift to fully online instruction. Too few websites reported on any institutional requirements for COVID testing. Only 10 institutions reported requiring admissions testing over the 2020–21 academic year, and only two reported imposing notable reductions in their dormitory capacity over that year.

The project ultimately focused on the following four institutional actions: 1) shifting instructional mode to fully or primarily online in fall 2020, 2) shifting instructional mode to fully or primarily online in spring 2021, 3) reducing or freezing tuition for the 2020–21 academic year, and 4) mandating student vaccination for fall 2021. Because their immediate precedents came in the spring of 2021, it would have been ideal to use 2020-2021 data as the baseline for modeling mandated vaccination requirements. Unfortunately, the U.S. Department of Education has not released sufficient institutional enrollment and finance data for the 2020-21 academic year to support such analysis. Reported here are analyses for the four institutional actions using 2019-20 baseline institutional data.

For the equity-related outcomes, the project focused on shifts in the number of entering first-year, full-time students (which indicates an institutions' overall openness and service to access goals), the number and percentages of entering students who were from the two largest underrepresented groups, Black and Hispanic students, and the first-to-second-year retention rate for all students. It would have been ideal to be able to incorporate entry and retention of lower-SES students, as indicated by Pell Grant awards, and to be able to incorporate analysis of retention among Black and Hispanic students. Again, unfortunately, the U.S. Department of Education has not released sufficient institutional enrollment data for the 2020-21 academic year to support such analyses.

Table 1 provides an overview of the variables used in the quantitative analyses and their sources. The variable names presented are largely self-explanatory, but one merits further explanation. The indicator we term "residential intensity" is aimed at providing a measure of the extent to which an institution houses its students on campus, a characteristic which our conceptual model suggests is a more engaging campus environment. Absent direct information on the proportion of students living on campus in a given term, we use instead the relationship between an institution's residence hall capacity and undergraduate enrollment. Specifically, the indicator is the ratio of housing capacity to undergraduate head-count enrollment. A higher value suggests, albeit imperfectly, the extent to which an institution's students live on campus.

For some count indicators (enrollment, dollar figures, COVID rates), we present raw values in descriptive tables but use logged values in regression models. The analysis employed constant-dollar values for non-proportional financial indicators, using 2019 values from the Higher Education Price Index (as provided by the IPEDS dataset). Although it would have been ideal to have an indicator of typical class sizes at institutions, as a facet of intensity, no indicators in the IPEDS data approach being satisfactory for that purpose.[5]

A key variable in the modeling was institutions' undergraduate racial/ethnic composition overall and in the first year. In an institutional dataset such as the one we employ here, such indicators pose special challenges. A frequency distribution for percentages of underrepresented minoritized students (URM students) across U.S. institutions tends to be U-shaped because of the existence of institutions oriented to minority enrollment, such as Historically Black Colleges and Universities (HBCUs). Among the private institutions studied here, 24 (16%) had student bodies with less than 10% Hispanic and Black students. Such students constituted between 15% and 40% of the student bodies

5 Although using IPEDS data to compute a faculty/student ratio might seem a possibility to meet this need, the IPEDS data do not facilitate isolating faculty teaching at the undergraduate level. For that reason, the resulting indicator has a close positive association with the magnitude of institutions' graduate enrollments. That confounding eliminates its suitability for an analysis of institutions' intensity of focus on undergraduate education. In fact, that calculated indicator actually is negatively related to other calculated indicators of intensity.

at another 67% of the institutions.[6] Of the remaining 17% (26 institutions), half enrolled over 60% Black and Hispanic students, and several HBCUs enrolled over 80%. Clearly, this skewed distribution is important for understanding institutional contexts and change: institutions enrolling well over half of their student bodies from underrepresented groups make diversity-related decisions in different ways from the great majority of institutions lying in the more modal diversity ranges. The same might be said of institutions enrolling fewer than one-tenth URM students. For that reason, using solely a raw indicator of percentage URM students as an independent or dependent variable in regressions at the institution level not only violates normality assumptions but also glosses over substantively important differentiation in institutions' diversity contexts. We adjusted indicators used in our analyses accordingly. Rather than using a raw percentage of URM enrollment as a core institutional indicator, we use dummies for especially high and low URM enrollments. Specifically, we employ a dummy indicator for institutions with less than 10% URM enrollment and a dummy indicator for institutions with more than 40% URM enrollment.

Prior to beginning the regression modeling, we examined variable intercorrelations to uncover any collinearity issues among the independent variables of interest. Although some indicators are clearly interrelated (e.g., tuition levels and spending levels), none met criteria for elimination based on standard variance-inflation-factor (VIF) tests. Notably, the correlation between 2020 and 2021 COVID infection rates was only .21.

*Qualitative Data.* Having conducted initial analyses of our quantitative dataset, we then sought to enhance our understanding via interviews with administrative leaders at select private four-year colleges, with the aim of learning more about how different kinds of private institutions with different profiles have responded and fared over the pandemic period. For this qualitative aspect for the project, we conducted semi-structured interviews with the leaders of five private nonprofit institutions differing in size, curricula, mission, and finances. Our five interview participants were each at the presidential or vice presidential level, each had been in their current role for over five years, and each held a doctoral degree.

Interview respondents were provided anonymity and confidentiality. Taking this approach allowed for the interviews to be more revealing and detailed regarding what exactly took place on the ground at the selected leaders' campuses. We asked leaders about their immediate and ensuing choices in the face of the pandemic, about the decision processes employed, and about their perceptions of longer-term implications. Appendix A provides the protocol for the semi-structured interviews. The interviews were sufficiently flexible to allow variations for differing campus narratives. We supplemented these five interviews by examining some crisis-related documentary material relating to decision-making processes at those institutions. The information obtained from these distinct contexts enriched our understanding of the quantitative findings.

*Methods.* We employed various forms of quantitative analysis to build understanding of the factors associated with institutional actions and outcomes. Beyond the descriptive presentation of means and standard deviations, we tested for differences in group means, used logistic multiple regression to model the factors behind leaders' choices regarding institutional actions, which were coded as dichotomous outcomes. We used OLS linear multiple regression for continuous equity-related outcomes and negative binomial regression for count-based equity-related outcomes. We used factor analysis to validate the latent intensity construct at the heart of our conceptualization and construct a single variable for analyses of intensity/diversity interactions.

*Limitations*. There are several limitations to the design, of course. Data availability was a significant challenge. As noted above, we encountered delays in the arrival of some quantitative data from IPEDS and other sources. In addition, reports of institutional actions available on websites scanned by the C2i researchers often did not provide enough detail for precise coding for quantitative analyses. In the end, we secured responses for 125 of the 152 institutions regarding fall 2020 online instruction, 124 of the 152 for spring 2021 instruction, and 115 of the 152 for imposing a vaccine mandate for fall 2021. In the qualitative phase, securing leaders' agreement to interviews within the project's timeline posed a challenge, as many continue to cope with the challenges of the pandemic. We assiduously worked to address each of these data limitations.

6 This project includes only Black and Hispanic students in its analyses of underrepresented minoritized students.

Further, we realize that drawing causal inferences for the research questions from our quantitative and qualitative analytic efforts requires caution. Here, in analyzing only 152 institutions at most, there are limits on the number of explanatory variables that can be deeply explored. In examining the roots of institutions' pandemic-related decisions, for example, equations with 10-15 independent variables stretch the ability of specific single influences to achieve statistical significance. For that reason, we present not only full models but also blocked models exploring the influences of conceptually distinctive clusters by themselves. Obviously, compared to the full models, these blocked analyses with fewer independent variables run risks of omitted variable bias. Still, they can provide heuristics on relationships and particular avenues to explore in future research on larger samples. With that in mind, and with the growing numbers of social scientists calling for less reliance on statistical significance tests and more attention to tendencies in the data (e.g., Gelman, 2019), we note effects significant at the generous $p \leq .10$ level.

Critically, any analysis of data aggregated at the institutional level inevitably falls short of fully informing us regarding student-level experiences and outcomes. That problem is exacerbated by the fact that the IPEDS categories for race and ethnicity (notably, Black and Hispanic) do not capture the nuances and complexity of students' identities and experiences, and the only available indicator for socioeconomic status, an institution's Pell grant composition, is undeniably flawed (DeLisle, 2017). Further, because our focus was on first-time, full-time students, our findings do not extend to institutions' equity-related outcomes for part-time and adult students who may also be racially minoritized.

For all these reasons, we pose the conclusions we draw here only tentatively. Early analyses helped shape our approach to interview questions, and the interview findings in turn enriched the understandings garnered from quantitative analyses. The qualitative component to the project enhanced our confidence in our tentative causal inferences.

## Findings

Table 2 highlights 2019-20 and 2020-21 descriptive data for the 152 access-oriented institutions studied. Several patterns stand out. On average, over 80% of the students at the colleges were undergraduates studying full time. There was wide variation in the percentage of undergraduates from URM populations: 16% of the institutions enrolled under 10% URM students, while 17% enrolled over 40% URM students.[7] Over a third of the institutions' students on average were federal Pell grant recipients in 2019-20. Over half (53%) of our access-oriented schools are affiliated with non-Catholic Christian denominations, while 31% are affiliated with the Catholic Church. The remaining institutions report no religious affiliation.

On average, the schools experienced slightly negative enrollment shifts over the preceding ten years. In constant dollars, tuition and fees averaged around $31,000, and the institutions offered an average tuition discount rate of 42% in 2019-20. In that same year, the colleges on average broke about even in their finances, with only a small excess of revenues over expenses. In both focal academic years, over 70% of first-year students returned for their second year of study.

Most institutions in this analysis were in states where a majority of the postsecondary institutions were private, and over 40% were in states where both the legislature and the governor's office were controlled by Republicans. These numbers parallel some regional differences found in further analysis (data are available upon request): 5% of the APCs studied here are in New England, 20% in the Mid-eastern region, 33% in the Midwest, 23% in the Southeast, 13% in the non-coastal West, and 5% in the Far West. In all, 47% of the institutions were located in urban areas, 27% in suburban areas, 20% in small towns, and 6% in rural areas.

As noted earlier, the U.S. Department of Education has not yet released all 2020-21 IPEDS data for some organizational characteristics. Still, comparing the pre-pandemic data (2019-20) with available data for 2020-21 suggests no major shifts in most characteristics in these access-oriented institutions for which 2020-21 data were available.

Going deeper into the 2019-20 enrollment data, we found that 27 of the institutions in this analysis were under what some earlier analysts identified as a potential private college vulnerability threshold of 1,000 students.[8]

7 Six institutions were formally classified by the U.S. Department of Education in 2019-20 as HBCUs and 18 were classified as Hispanic-serving institutions.

8 Specifically, Brinkman and Leslie (1986) argued that institutions under that enrollment threshold striving to offer a diverse curriculum (as opposed to a specialized-focus curriculum) benefited from no substantive economies of scale.

In contrast, 87 had enrollment over 1,500 and many enrolled far more. At the top was Indiana Wesleyan University in Marion, with 9,687 students. Thus, the enrollment distribution for 2019-20 was quite skewed. The median value of enrollment that year was 1,603 (Muskingum University), substantially under the mean of 1,987.

Turning attention to institutional actions in response to the pandemic, only about one-fifth of the colleges went primarily or fully online in the fall of 2020, but that proportion was up to over one-third by the spring term of that academic year. Breaking these data down further, of the 125 institutions for which we have data on instructional modality in fall 2020, 3% were fully online, 18% were primarily online, 26% instituted hybrid instruction, 32% chose to instruct primarily in person, and 5% remained fully in person. The websites of another 15% indicated no planned shifts in instruction from prior approaches, which we interpreted for our analyses as absence of an institutional choice to move online. Of the 124 institutions for which we have data on instructional modality in fall 2020, 1% were fully online, 34% were primarily online, 24% committed to hybrid instruction, 35% chose to instruct primarily in person, and 4% remained fully in person. Another 2% indicated no online instructional shifts on their websites. Overall, the transition from fall to spring terms was marked by increasing numbers of institutions moving to online and hybrid modes of instruction.

About one-sixth of the institutions froze or reduced tuition for the 2020-21 academic year. Vaccinations became widely available late in the 2020-21 academic year, so institutions were not able to impose policies for that year. For the 2021-22 academic year, we lack substantial data, but it is reasonable to assume that institutions made decisions about vaccine mandates in the later part of the 2020-21 academic year, so data on vaccine-mandate decisions are provided here under the 2020-21 columns. In all, 45% of the broad-access colleges instituted some form of vaccination requirement for enrollment in fall of 2021.

Table 2 also provides descriptive data on the equity-related outcomes of interest for this analysis. Importantly, first-time enrollments in these institutions fell somewhat from fall 2019 to fall 2020, from 407 to 383 on average, a drop of 6.3%. The number of URM students dropped 1.2%, from 125 to 124 on average. Because URM enrollment dropped less than overall enrollment, the percentage of URM entering classes actually rose. Further, overall retention improved slightly, somewhat offsetting the decline in the number of entering enrollments.

*Research Question 1: How have access-oriented private colleges responded to the pandemic?* Access-oriented institutions have responded to the pandemic in different ways, and the project's initial analyses centered on the respective roles of intensity-related characteristics, diversity characteristics, other organizational characteristics, and external factors in shaping those disparate responses.

Table 3 presents a descriptive breakdown of institutions' fall 2020 and spring 2021 instructional modalities by the institutional characteristics of interest. Of the 125 colleges for which we have data on instructional modalities, 27 (22%) chose to adopt primarily or fully online instruction in the fall of 2020. By spring, 43 of the 124 institutions for which we have data were teaching primarily or fully online (35%).

In the fall of 2020, colleges with high proportions of full-time enrollment, large numbers of underrepresented minoritized students and Pell recipients, favorable enrollment trends over the preceding decade, and higher spending patterns were especially likely to adopt online modalities. Similarly, colleges in states with large numbers of private institutions were likely to go online. In contrast, colleges with high intercollegiate athletics participation rates, colleges with under 10% enrollment of underrepresented minoritized students, and institutions in Republican-controlled states were less likely to go online. Strikingly, no institution enrolling fewer that 10% URM students chose to move online in the fall.

In the spring of 2021, colleges with high proportions of full-time and underrepresented minoritized students and Pell recipients and favorable enrollment trends over the preceding decade were especially likely to adopt online modalities. Similarly, colleges in states with large numbers of private institutions were likely to go online. In contrast, colleges with higher proportions of graduate students and high intercollegiate athletics participation rates were less likely to go online, as were institutions in states with high COVID rates. Interestingly, non-Catholic Christian institutions were less likely to go online, but Catholic institutions were more like to do so. Further analysis, available upon request, revealed that Hispanic-serving colleges, women's colleges, and colleges in the Mid-Atlantic and West Coast regions were especially likely to adopt online instruction.

Table 4 presents logistic regression modeling of institutions' mode-of-instruction actions in the fall of 2020, shortly after the arrival of the pandemic. Undertaking regression analysis allows us to identify which of the bivariate patterns noted above stands up in the context of statistical controls for related organizational factors. For regression modeling of instructional mode and other actions, we present the findings in blocks of intensity-related characteristics, diversity characteristics, other organizational characteristics, and external factors. Among the intensity-related factors, institutions higher in proportional full-time undergraduate enrollment were especially likely to go fully or primarily online. The results for the diversity block reveal that minority-serving institutions (over 40% URM enrollment) were more likely to move primarily or fully online while, as noted above, institutions enrolling less than 10% underrepresented minoritized students simply did not go online at all, thus removing themselves from the statistical modeling. Among other organizational characteristics of interest, the findings suggest that institutions with favorable enrollment trends and higher-spending institutions were more likely to move online. Interestingly, among the external factors examined, it was institutions' home-state institutional ecology (proportions of private institutions) that proved most closely related to going online in fall 2020.

In the model containing all the factors of interest, nine predictive factors stood out: institutions were especially likely to go online if they had lower residential intensity, had especially low proportions of underrepresented students (the lack of any adoption in this population precluded the indicator's inclusion in the statistical modelling), had higher proportions of Pell recipients, were non-Catholic Christian-affiliated, had lower tuition and fees, spent at higher FTE levels, had weaker revenue/expense profiles, had stronger enrollment trends, or were in a relatively crowded home-state market of private institutions.

The private college leaders we interviewed revealed that institutions' decisions regarding online instruction were straightforward in the spring of 2020, when the pandemic first arrived. An admissions vice president at a large, aspiring private college told us, "There was just so much uncertainty in the world at that time and so much panic that we made the same decision that most other institutions [made]." For many of the broad-access colleges, it was important to learn from peers, especially those of higher stature in their home states.

A vice president and dean of students at a less-selective institution with very high rates of student engagement in extracurriculars explained,

> *We weren't the first school in [our home state] to come out and say that we're going to complete the spring semester remotely. We weren't the one to come out and say we're not going to have an in-person graduation. We kind of let some of the behemoths in higher education set the tone so that when the [college] family heard what we were doing, they realized that we weren't flying solo.*

After the initial shock, however, many leaders began deciding based on their understandings of missions, cultures, markets, and brands. The vice president and dean of students quoted above noted,

> *[Students here] didn't sign up for online education. They are paying for a private, residential living experience. They're paying for the opportunity to come and participate in their sport or marching band. As we've discussed before, [our college] is very much a participatory institution, and that's what people were coming to do. So we knew in the spring that we were going to have to return to in-person instruction and open residence halls and to navigate through the pandemic in the fall.*

Along similar lines, the admissions director at a prestige-seeking institution told us,

> *The [college's] experience is about being here on campus, about being in the environment, about being with people, about all the additional resources, all the additional opportunities that students have. We couldn't in good conscience ask students to pay for [this] university and only get a quarter of the experience. And honestly, we couldn't afford for them to only pay for a quarter of the experience. [As a] tuition-dependent institution, we've got bills to pay. Right? And so those two things…made the decision clear. It was just a matter of how. And so that was the path forward.*

Also influential in instructional decisions were finances. A vice president for strategy at a larger regional institution rapidly working to expand its brand told us:

> *The committee's top priority was to figure out how to continue with [the college's] top priority: in-person education. This priority set [the college's] course of action for the rest of the time. After spring 2020's online experience, students and parents said they didn't like the online experience*

*and were not ready to pay the same price for online education. So soon the monetary issue became an important concern for the college.*

By the spring of 2021, increasing numbers of institutions had moved to primarily or fully online instruction. Some institutions remained resistant, however. In a comment echoed by all our interviewees, a senior vice president told us their focus was entirely on ending the online shift. For them, the question was, "How do we get people back, not do we bring people back."

Table 5 presents logistic modeling of institutions' decision on mode of instruction in the spring of 2021. Not surprisingly, the factors associated with online modalities changed somewhat from the preceding fall.

In the blocks of intensity-related factors by themselves, colleges higher in full-time enrollment were more likely to go online, while those higher in undergraduate enrollment proportions and in residential intensity were less likely to do so. Modeling of the diversity-related factors as a block suggested institutions serving more URM students were especially likely to move online. In the block for other organizational characteristics, favorable enrollment trends showed a positive association with moving online. No external factors were closely associated with moving online in the spring. These patterns were partly replicated in the full model: institutions with high proportions of full-time undergraduates were more likely to be online in the spring, while institutions with greater proportions of undergraduate enrollment, higher residential intensity, and larger enrollments were less likely to be online then.

On some campuses, the spring 2021 term set the stage for conflicts over instructional modalities heading into the summer and fall. Decisions needed to be made in those months for the full year, while the pandemic's intensity was ebbing and flowing. A president told us of the resulting tensions:

*Where the challenge became is that faculty members wanted to change in August before the fall term began and we've said "No, you had an opportunity. The students have signed up for this class based on knowing whether it was in person, hybrid, or entirely online. You have to stick to that modality."*

The project also examined whether institutions froze or reduced tuition for the 2020-21 academic year. Overall, 16% of the institutions (25 out of 152) for which we have data chose to do so. Table 6 presents the bivariate relationship between institutions' choices and their intensity, diversity, organizational, and environmental characteristics. These descriptive data suggest that colleges more diverse in race/ethnicity and socioeconomic make-up were especially likely to reduce or freeze tuition. Higher-tuition institutions were less likely to do so, perhaps owing to their perceptions of their families' ability to pay or to perceptions that higher prices convey valued prestige to families.

Table 7 presents logistic modeling of institutions' decision whether to freeze or reduce tuition after the arrival of the pandemic. In the intensity-related block, higher intercollegiate athletics participation reduced the odds of reducing or freezing tuition but residential intensity increased those odds. Among the diversity factors, the extent of Pell enrollment was positively associated with restraining tuition rises. In the block for other organizational factors, higher-tuition schools were less likely to restrain tuition rises. No factors in the external block showed significant relationships with tuition restraint. In the full model, factors associated positively with restraining tuition were residential intensity, the percentage of Pell recipients, and the size of undergraduate enrollment. Conversely, non-Catholic Christian colleges were notably less likely to freeze or reduce tuition.

The final institutional action of interest was the imposition of a vaccine mandate in the fall of 2021. This action took place after the 2020-21 academic year, unlike the other actions of interest here. Most institutions' decisions regarding requiring vaccinations were no doubt made in the spring or summer of 2021, however, as vaccine availability became more widespread. Because of the unavailability of data, our modeling for mandating vaccination had to rely on 2019-20 values for institutional contexts, plus the values for institutions' decisions on instructional modalities and tuition restraint made in the 2020-21 year (i.e., the dependent variables for the modeling presented earlier).

Table 8 presents a breakdown of institutions' imposition of a vaccine mandate for fall 2021 by institutional characteristics of interest. Overall, 52 of 115 institutions for which we have vaccine data (45%) chose to impose a vaccine mandate. The descriptive data suggest several major themes:

- Institutions with large proportions of full-time students were especially likely to impose a vaccine mandate, while colleges with large proportions of students participating in intercollegiate athletics were especially unlikely to do so.

- Institutions with small numbers of minoritized students were similarly unlikely to impose mandates, but those with large numbers of minoritized students and Pell receiving students did tend to impose mandates.
- Higher-priced colleges, colleges with greater tuition-discount rates, and higher-spending colleges were especially likely to impose vaccine mandates.
- Christian non-Catholic colleges and colleges in Republican-controlled states were unlikely to do so.
- Institutions in states with higher COVID case rates were especially unlikely to adopt vaccine mandates.
- Institutions taking prior ameliorative actions against the pandemic, notably going primarily or fully online, were especially likely to be aggressive in adopting vaccine mandates.

Deeper analysis of the mandate data revealed that there were regional variations in adoption of a mandate: institutions in New England, the mid-Atlantic, and the coastal West were especially likely to adopt mandates, while colleges in the Midwest and Mountain West states tended to resist mandates. Further, colleges in rural and small-town locations were especially unlikely to adopt mandates.

Table 9 presents logistic modeling of institutions' imposition of a vaccine mandate for fall 2021. In the block for intensity-related characteristics, colleges with higher proportions of full-time undergraduates were especially likely to impose vaccine mandates, while colleges with higher intercollegiate athletics participation were especially unlikely to do so. In the block for diversity characteristics, institutions with small proportions of URM students were especially unlikely to adopt vaccine mandates. Among other organizational characteristics, non-Catholic Christian colleges were less likely to impose mandates, while those with higher tuition rates were more likely to do so.

External factors played a noteworthy role as a block, with Republican-controlled states and high-infection states in 2020 unlikely to impose a mandate. This finding reflects what the president of a smaller college in a rural area told us: he believed that he had to be conscious in every decision he made about how it would fit with the expectations of the college's very conservative surrounding community. After all, staff and many students were drawn from that community, and choices regarding such politicized issues as vaccines could have major enrollment, employment, and thus financial repercussions.

When these four blocks' effects are examined together (Model 5), we see positive effects for the percentage of full-time undergraduates and the tuition discount rate, while we see negative effects for intercollegiate athletics participation rates, low-diversity institutions, higher-enrollment institutions, and institutions in states under Republican control.

Because vaccine mandates were imposed in the year following institutions' initial instructional and tuition actions in response to the pandemic, we also examined two more models, for the prior institutional actions alone, and for those prior actions in concert with the four core blocks. Alone, only one of the three prior actions played a significant role: having been primarily or fully online in the spring of 2021 was associated positively with imposing a mandate in the fall of 2021. In the context of the other blocked factors, none of the prior institutional actions played a role in vaccine mandates. In that full model, the only indicators showing notable relationships with mandates were the earlier-seen positive effects of full-time undergraduate proportions and the tuition discount rate and the negative effects of athletics participation, low institutional diversity, and Republican state control.

Summarizing the results for Research Question 1, the determinants of institutional actions, some patterns emerge from the full models. The proportion of undergraduates attending full-time, a central measure of institutional intensity, had positive effects on moving to fully or primarily online instruction and on imposing a vaccine mandate. Institutions with higher residential intensity were less likely to move to fully or primarily online instruction but more likely to restrain tuition. Another indicator of intensity, intercollegiate athletics participation, appeared to make vaccine mandates less likely.

These findings relating to intensity relate to the enduring challenge facing small private liberal arts institutions: providing in-person amenities and opportunities that help justify the price of attendance. The vice president of an institution highly oriented to student engagement told us that his college's opportunities for participation in extracurricular activities such as athletics, band, and the like are key to its survival:

> *The number of students that are willing to [enroll at the college] and not participate in a signature program is dwindling. That was the case prior to the pandemic. And I think the pandemic has really exposed that. It's a lot of money to come here when you can go to a community college*

*or a [nearby regional public institution] if you're just going to show up and go to class. There's a cheaper option, and I think the pandemic has exposed that.*

Intercollegiate athletics, in particular, seem important for markets and finances. Attitudes toward returning to in-person education were shaped at all of our interviewees' institutions. At two of them, over 50% of the students participate. One president told us that his institution is currently considering a $10 million stadium to house men's and women's track and field and men's lacrosse. Conservatively, he told us, those costs are estimated to provide an additional million to million-and-a-half of annual net revenue in just a few years. The importance of adding athletics teams, he told us, is in cost-effectively maximizing the use of existing campus space:

*Athletes tend to come back…and we know that they create a vibrancy on campus that contributes to the retention of current students that aren't even into athletics.*

At his institution, he says, athletics is seen as an important part of the institution's path rebound from a pandemic-driven enrollment and retention decline.

At the institution of one of our respondents, about 140 of the institution's roughly 800 undergraduate students are on the football team. As the pandemic emerged, there was growing concern that students would be unwilling to enroll if their athletics engagement activity, an important part of their decision to come to that college, was going to be canceled or moved. Even a slight enrollment decrease for such reasons can have a major impact, that leader observed:

*So 50 students short of our goal does not sound like a lot but 50 students when you're dealing with only 800 of them is rather significant. And the thing that compounds that is the whole time that class is [here], there's a deficiency of 50 students. We have to carry that until that class graduates.*

A further finding from the intensity block is of interest, as well. The quantitative analyses found that institutions with larger graduate enrollments were unlikely to move to online instruction in the spring of 2021. This finding contradicts the observation of a president we interviewed:

*Our traditional undergraduate population has been very firm in saying "I want to be in-person." Our adult students and graduate students are all about it being online, convenient, and efficient.*

These comments justify the project's inclusion of an indicator of colleges' graduate-level enrollment proportions in the models, but the direction of the effects is surprising and merits further analysis.

Among the diversity characteristics, institutions especially low in URM enrollments were unlikely to move to online modalities in the early months or to adopt vaccine mandates later. Institutions enrolling large numbers of Pell recipients were somewhat less likely to go online in the early months, but more likely to restrain tuition increases.

Among the other organizational characteristics, non-Catholic Christian colleges were more likely to adopt online instruction in the fall of 2020 but somewhat less likely to restrain tuition increases or adopt vaccine mandates. Colleges with larger undergraduate enrollments were less likely to adopt online instruction in the spring, more likely to restrain tuitions, and less likely to adopt vaccine mandates. Schools with higher tuition and fee charges were slower to go online in the fall of 2020. Schools offering substantial institutional aid (tuition discounts) to their students were more likely to adopt vaccine mandates. Higher-spending colleges were more likely to move online in the fall of 2020, but not afterward. Colleges with more favorable ratios of revenues to expenses were less likely to go online in the pandemic's early months. Institutions with more favorable enrollment trends chose somewhat more frequently to move online in those early months.

Among the external factors, the state's density of private institutions was positively connected to colleges' decisions to move online in the fall of 2020. More than one leader mentioned their peer institutions as a factor in their decision making, but the direction of the effects was not always toward being able to better compete with those other colleges. One vice president told us there was a good deal of information sharing and what theorists term emulative behaviors:

*I think we used them as comparatives. On the one hand, starting early in fall 2020, we were meeting at least monthly [with] one or two persons from [three nearby private institutions] to learn from each other. Similarly, private schools were comparing themselves with public colleges, also. We were able to watch other institutions as we were making final decisions. For instance, [we] learned from University of Notre Dame how to lockdown, if a need arises.*

Interestingly, our quantitative analyses revealed no evidence of institutions making decisions based on area COVID infection rates. Perhaps our state-level indicators of those rates were too distal in time and space to have influences. Still, infection rates were clearly a factor for some leaders. One said,

> *Our primary concern was the case count in the surrounding area, and we have pegged most of our decision, if not all, to CDC recommendations. We are trying to say: "Look, we are basing it on science and that's been our approach." We tried not to be earliest adopter of policies (e.g., a mask mandate), mostly to make sure we can get as much data as possible. Some have estimated that was based on politics, when it had nothing to do with politics.*

That said, more than one interviewee told us that politics did play a role. And the regression analyses told us that institutions in states fully controlled by Republicans were significantly less likely to adopt vaccine mandates.

Looking at these patterns, it seems clear that decisions during the pandemic's peak were not randomly distributed across colleges. Several leaders mentioned to us the importance of a factor not measured in quantitative datasets: the ability of leaders to marshal support among faculty, staff, and students for collective buy-in and action. One vice president told us,

> *We could not have achieved what we have achieved without our student body collectively buying in pretty early on. That while the 18–22-year-old demographic is not at risk for serious illness or death because of COVID, there is enough love for the little old lady who works in the dining hall and the 70-year-old adored English faculty member that we had to do some things around here to take care of them. And for the most part, our students have really bought into that.*

Another told us how he sought to connect people on campus to the deeper roots of their college's history and culture:

> *At one point, I asked the faculty to reflect on… the [college's] Ideal that kind of serves as a guiding light for us. I picked about a half dozen or so faculty to share briefly, what's the…Ideal meant to them? I think that was inspiring to the faculty we had.*

*Research Question 2: What effects have these actions had on equity-related opportunities and outcomes for underrepresented students at those colleges?* To what extent have students' access and progress been affected by their colleges' characteristics and responses to the pandemic? As noted earlier (see Table 2), there were declines in first-time full-time enrollment both overall and among URM students and in first-to-second-year retention rates overall. However, the percentage of URM students on these campuses rose somewhat, because numerical declines in that subpopulation of enrollees were less steep than overall. The concerns of many equity-oriented observers were upheld in part: colleges' financial and health-related challenges appear to have reduced enrollments across the board, but somewhat less so among URM students.

Yet each of these outcomes deserves further analysis. Might the troubling patterns be more dire in more diverse institutions? Might financially secure institutions be more able to ensure access compared to institutions in financial straits? Table 10 presents regression results for the four equity-related outcomes of concern here: the number of entering students in 2020-21 (the first entering class after the arrival of the pandemic), the number of entering URM students that same year, the percentage of entering URM students that year, and the retention of all students from their first to their second year of study. In each case, the prior year's value of the dependent variable and the values of the four independent blocks were included as control variables in the regression, allowing isolation of the unique effects of the pandemic-response actions institutions took. As would be expected, the major factor by far in explaining colleges' 2020-21 equity-related outcomes was their 2019-20 value on the focal dependent variable; to simplify the presentation, those coefficients are not reported in the table.

The first column presents results for the number of entering first-time full-time students in 2020-21. This analysis targets institutions' ability to continue serving their access-oriented missions. Because this dependent variable is a count, negative binomial regression was employed. Neither of the pandemic-response actions appeared to affect entering enrollments. It appears instead that colleges enrolling especially high levels of URM students, larger colleges, higher-tuition colleges, and colleges with prior favorable enrollment trends were especially able to maintain their enrollment totals.

The second column presents negative-binomial regression results for the number of entering URM students in 2020-21. Here, a college's prior move to online instruction for the fall of 2020 appears to have limited the number of entering URM students coming to campus that term, all else equal. Not surprisingly, in the context of the model's controls for confounding factors, initially low-diversity colleges continued that pattern by enrolling lower numbers of URM students, while larger colleges and colleges with higher tuition-discount rates (i.e., institutional student aid) brought in higher numbers of entering URM students.

The third column presents results for the entering classes' percentages of entering URM students in 2020-21. Here, neither of the institutional actions appears to have diminished racial/ethnic diversity. Interestingly, larger colleges apparently enrolled more robust URM enrollments, all else equal.

The fourth column presents results for the retention of all students from first to second year.[9] Once again, colleges' pandemic responses appeared to play no role in this outcome. More residentially intense institutions were especially likely to retain their student numbers in the face of the pandemic's arrival.

*Research Question 3: To what extent did colleges' prior commitment to traditional "high-intensity" undergraduate education and to racial/ethnic diversity shape their equity-related outcomes?* Were the roots and effects of pandemic choices distinctive in those "intense" and diverse institutions where moves to online instruction would be especially disruptive? To examine this question, we undertook descriptive and modeling analyses.

Table 11 shows the choices institutions with different intensity and diversity profiles made regarding the four actions focused upon here. To explore the intersecting role of intensity and diversity, we first undertook factor analysis of the four indicators theorized as constituting institutional intensity in access-oriented private colleges. As we hypothesized and as the earlier literature suggests, there indeed appears to be an underlying unifying factor connecting institutions' scoring on the four indicators. That is, analysis supports the integrity of intensity as a latent construct. Specifically, the primary factor identified was significant at the p <= .001 level, with positive loadings for all four variables: .44 for the percentage of students attending full time, .50 for the percentage of student enrollment that is undergraduate, as opposed to graduate, .58 for the proportion of undergraduate participating in intercollegiate athletics, and .71 for residential intensity. Then, we determined tercile groupings of intensity and associated those with three-way groupings of URM enrollment percentages (under 15%, 15-40%, and 40% and higher). The resulting nine groups constituted varied constellations of institutions' intensity and diversity features.

Bearing in mind the small sizes of some of the groups (especially the medium intensity/high diversity and high intensity/high diversity groups), the frequencies presented in Table 11 provide some clues on the role of intensity and diversity in institutional actions. Overall, low-intensity institutions were slightly more likely to be online but slightly less likely to freeze tuitions or mandate vaccinations compared to high-intensity institutions. More dramatic differences emerged among low- and high-diversity institutions, with the high-diversity institutions appreciably more likely to undertake possible pandemic-driven action than low-diversity institutions. As a whole, the descriptive patterns here suggest that diversity was more strongly associated with institutional choices than intensity.

Table 12 takes the intensity/diversity breakdown directly to the equity-related outcomes, examining shifts in key indicators for each of the nine institutional groupings. As noted earlier, the size of entering cohorts declined in the broad-access institutions examined here. The greatest declines in percentage terms were in the low-intensity/low-diversity group and the high-intensity/high-diversity group, while the smallest declines were in the low-intensity/high-diversity group. In general, though, there were only small differences in these declines across intensity and diversity groups on this indicator.

For the numbers of entering URM students, there were more dramatic declines in the low-low and high-high groups, while the medium-intensity/low-diversity group showed notable gains. While overall there were rather small declines in total entering URM enrollments in institutions, the table reveals striking group differences. High-diversity institutions performed less well than others in changes in enrollment numbers. In fact, low-diversity institutions fared best on this indicator in 2020-21. That suggests some regression to the mean in these colleges.

There were also striking group differences in the percentage changes in URM proportions on campus.

9 Recall that, unfortunately, IPEDS has not yet provided information on retention broken out by race/ethnicity or Pell status.

Medium-intensity/low-diversity institutions showed strong gains, as did high-intensity/medium-diversity institutions to a lesser extent. On the other side, medium-intensity/high-diversity institutions suffered notable losses in diversity, as did the high-intensity/high-diversity institutions. Overall for this outcome, proportional URM enrollment followed the same pattern as the URM enrollment numbers: it was the low-diversity institutions that showed the greatest gains. It is important to note that low-diversity institutions may not have been deliberately trying to become more racially diverse; instead, as enrollment among other populations declined (a drop in the denominator), URM students maintaining their enrollment behaviors made them a larger share of enrollment.

The final outcome, for retention rates among all students, evidenced less variation. In contrast to their weaker performance on the other outcomes, it was the high-intensity/high-diversity institutions that led the way in retention gains, followed closely by high-intensity/medium-diversity institutions. It should be borne in mind, however, that these two groups had the lowest starting points in retention. Their strong percentage gains still did not bring them to the average level of year-to-year retention across all institutions.

Taking the results of Tables 10, 11, and 12 further, we addressed whether the interaction of intensity and diversity (i.e., taking into account the nine distinct intensity/diversity groups) would add appreciably to our understanding of equity-related outcomes. To the models presented in Table 10, we added indicators for institutions' specific intensity/diversity group membership and asked whether doing so would add to the explanatory power of the models. That is, the new regressions each controlled for the 2020 values of the dependent variable, for all factors in the "other organizational" and external blocks, and for institutional actions in response to the pandemic (see Table 10). Adding consideration of the intensity/diversity interactions to those base models did indeed contribute at the margins to models' power in explaining equity outcomes.

For the number of students in the entering cohort, adding indicators for institutions' specific intensity/diversity group membership added 1% to the explained variance in the outcome. For the number of URM students in the entering cohort, adding indicators for institutions' intensity/diversity group membership added 3% to the explained variance. For the percentage of URM students in the entering cohort, adding indicators for institutions' intensity/diversity group membership added 3% to the explained variance. For the retention outcome, adding indicators for institutions' intensity/diversity group membership added 5% to the explained variance. These regression results hint at some intensity/diversity group interactions in the outcomes.

Examining these results in more detail, the findings of Tables 11 and 12 are reinforced. Entering cohort sizes shrunk in all nine groups but shrunk most dramatically in colleges at the extremes: low-intensity/low-diversity and high-intensity/high-diversity colleges. Observers have expressed concerns over such outcomes for the latter group, but the weak enrollments for colleges on the other end of the intensity/diversity continuum were not anticipated.

For the size of entering cohorts of URM students, the same pattern held up: noteworthy declines in the groups at the extremes. For the percentage of URM entering students, low-diversity institutions showed the greatest gains, while again the high-intensity/high-diversity institutions suffered losses.

As interesting as the group differences are, the outcomes for cohort size and URM numbers and percentages were largely explained by the factors in the baseline model. Most of the descriptive differences among the nine groups were tied to other factors, leaving the group memberships (i.e., the intensity/diversity interactions) to add only 1% to 3% to explained variance for these three outcomes.

The findings for group effects on retention outcomes tell a somewhat different story. Contrary to earlier concerns, it was schools high in diversity and high in intensity that maintained and improved their retention rates most effectively. And there does appear to be a notable interaction effect: adding group memberships to the models added nearly 6% to explained variance in retention patterns. Further, looking across the nine groups, the three high-intensity groups had the three highest retention-rate gains of the nine groups (see Table 11). While the high-intensity/high-diversity and high-intensity/medium-diversity colleges were starting from a lower average base retention rate in 2019-20, suggesting some regression to the mean, this still seems a strong testament to the power of the intensity construct.

## Conclusion and implications

*Summary.* Descriptive analyses revealed several key patterns in access-oriented colleges' pandemic-driven actions and the impacts of those actions:

- As the severity of the pandemic increased, enrollments went down in access-oriented private colleges in the 2020–21 academic year, but the declines were somewhat less severe among underrepresented minoritized populations.
- First-to-second-year retention rates rose among all students in 2020-21, relative to 2019-20.
- Access-oriented private institutions varied appreciably in their responses to the pandemic, with 22% moving fully or primarily to online instruction in the fall of 2020, 35% doing so in the spring of 2021, 16% choosing to freeze or reduce tuition for the 2020-21 academic year, and 45% imposing some sort of vaccine mandate for students in the fall of 2021.
- Institutions with large numbers of Black and Hispanic students, higher spending levels, and more favorable enrollment trends were more likely to move online, while institutions with higher residential intensity and more student participation in intercollegiate athletics were less likely to do so.
- Institutions enrolling large numbers of minoritized and lower-income students were more likely to forgo tuition increases for the 2020-21 academic year.
- Colleges with high levels of athletic participation, low numbers of minoritized students, and affiliation with non-Catholic Christian churches were less likely to impose vaccine mandates, as were colleges located in states with Republican control of governorships and legislatures.

Investigating these bivariate patterns with regression modeling allowed us to consider the intersecting roles of confounding and interrelated factors. Although testing for the significance of individual factors was limited by the small number of institutions and rather large number of explanatory factors (i.e., by degrees-of-freedom statistical issues in the equations), some further key findings emerged:

- Colleges with more on-campus residential living were less likely to go online in the first year of the pandemic, in the context of controls for other factors.
- Students' level of participation in intercollegiate athletics was negatively related to colleges' adopting a vaccine mandate.
- Institutions with low numbers of underrepresented minoritized students and institutions located in Republican-controlled states were especially unlikely to go online or adopt vaccine mandates in response to the pandemic.[10]
- Colleges affiliated with non-Catholic Christian denominations were more likely to move online in the fall of 2020, but less likely to adopt tuition cuts or freezes.
- Larger colleges were somewhat less likely to move online or to adopt vaccine mandates but were more likely to adopt tuition freezes or reductions.
- When institutional baseline characteristics and their ensuing pandemic-driven actions were modeled jointly, the only action appearing to have had a noteworthy impact on equity-related outcomes was adopting fully or primarily online instruction in the same fall as the students were entering (fall of 2020): doing so played a role in limiting the number of entering URM students, but did not affect the proportion of URM students or the retention of students overall.
- Shifts in institutions' equity profiles appeared overall to be most affected by other organizational factors, including residential intensity and institutional size, rather than institutions' pandemic-response actions.

Overall, the findings from the regressions paralleled and supported the findings from the bivariate descriptive analyses.

Considering the descriptive and regression modeling findings together and in more detail, the analysis suggests that institutions' levels of intensity and diversity may have interacted to affect institutional actions. The most notable example of this conclusion is our finding that high-intensity/high-diversity colleges were especially likely to adopt vaccine mandates.

*Implications.* The analysis presented here may help allay some anxieties about the relationship between race/ethnicity, access, and equity in a resource-challenged sector. Most importantly, although enrollment was

10 Resistance to vaccines has been attributed to groups of varied political leanings and regional distributions: political conservatives, African Americans skeptical of vaccines because of historical abuses by the federal government (notably, the Tuskegee syphilis experiments), and adherents to new-age philosophies. In the present analyses, however, only the first of these is suggested: low diversity colleges were most likely to resist vaccine mandates.

down in access-oriented private colleges in 2020-21, the pandemic did not seem to have disproportionately harmed the outcomes of racially minoritized students in access-oriented nonprofit private nonprofit colleges.

Of course, that conclusion and others here come with several caveats. Our analysis was aggregated at the institutional level, and individual outcomes have surely varied appreciably. What is more, access and retention rates remain low among underrepresented populations, and we were able to examine only shorter-term outcomes here. And, the evidence provided here is early and may not hold up over time as further data are accumulated. Finally, while most of our initial interpretations of the quantitative analyses were supported when those analyses of institutional data were supplemented with interviews with institutional leaders, there were some indications that further analysis is warranted.

Further, we would be remiss not to note that our analysis did not take into account the remarkable largesse of the federal government toward private colleges in the midst of the pandemic. Some observers characterized the funds supplied those institutions as a "windfall" (Murakami, 2020). A president we interviewed termed the funding "astonishing," but noted some anxieties brought on by this approach:

> *I think for many institutions, if they have managed well and managed those federal dollars well, they will probably tell you that they're in a better financial situation today than they were pre-pandemic. [Still], that spigot is about to get turned off.*

We have no data on how the colleges we studied used these funds, how their use of campus affected the outcomes examined here, or how the discontinuation of the federal funding is shaping those outcomes going forward.

Still, the present work does appear to uphold the earlier conclusions of Rossman and Alamuddin (2020) and Carrasco (2022). Predictions about the pandemic exacerbating existing inequalities in postsecondary education do not yet seem confirmed in the data.

Several themes emerged in the project meriting further attention. One theme seems especially noteworthy: institutions with greater proportions of undergraduate enrollment, higher residential intensity, and larger enrollments were less likely to remain online as the pandemic continued. Institutions with high levels of undergraduate participation in intercollegiate sports were especially unlikely to impose vaccine mandates. Each of those characteristics is associated with higher risk of COVID transmission but each is also an element in preserving the traditional business model in this sector. Given the choice, it appears that in some respects, the more "intense" such institutions were, the more eager those institutions were to return to more "normal" operations.

That said, the descriptive data presented in Table 11 suggest that, across the board, it was diversity levels rather than intensity levels that was primarily associated with colleges' actions in the face of the pandemic. While this observation was partially submerged in the context of all the other factors included in the modeling of Tables 4, 5, 7, and 9, the data of Table 11 reveal that high-diversity institutions were more likely to adopt and maintain online modalities, to reduce or freeze tuition levels, and to mandate vaccinations for attendance.

The descriptive analysis for the nine groups' connections to institutions' equity-related outcomes was more mixed. Table 12 revealed that high-diversity institutions had lower overall declines in entering student cohorts than other institutions, but they performed less well than others in changes in enrollment numbers and percentages of underrepresented minoritized students. In fact, in percentage changes for URM enrollment numbers and percentages, it was the low-diversity institutions who fared best in 2020-21. And, in retention rates, gains in the high-diversity colleges lagged behind gains in the high-intensity colleges.

Interestingly, however, colleges high in both diversity and intensity maintained and improved their retention rates most effectively, and this combination of group membership characteristics added appreciably to the models' explanatory power in retention outcomes. Here, it was the intensity factor that stood out: the three high-intensity groups had the three highest retention-rate gains of the nine groups. As decades of earlier research suggest (Mayhew et al. 2016), opportunities for student interactions with diverse groups of peers do appear to improve their academic and other outcomes. Again, the evidence here is aggregate and must be taken with caution, but it remains striking.

Despite the factors that we have been unable to examine here, what remains is a useful portrait of colleges' adaptation in the face of crisis. That adaptation runs counter to the troubled early forecasts regarding this already-challenged sector. Schifrin and Coudriet (2019), writing before the pandemic arrived, titled their

Forbes article "Dawn of the Dead: For Hundreds of the Nation's Private Colleges, It's Merge or Perish." Selingo made similar warnings even earlier (2017). Economist Richard Vedder (2020) titled his 2020 article "Why the Coronavirus Will Kill 500-1000 Colleges." Robert Zemsky wrote that many of these colleges were facing an existential moment (Zemsky, 2020). As it happens, the great majority of small private colleges have thus far persisted (see Natow, 2021). Only one of the colleges in our initially identified pool of access-oriented institutions significantly changed over the period of the study, and rather than closing, it simply moved entirely to graduate-level programming (Whitford, 2021). Reflecting on this resilience, an academic vice president and provost told us:

> *I think [one] of those characteristics [of colleges] we used to talk about [was that] higher education is fairly resistant to change. We found out in a horrific way, but we found out through a pandemic that we can change on the dime…we can turn the aircraft carrier around very quickly.*

In comments like this, in our findings here, and in a scattering of recent, cautiously optimistic analyses (e.g., see Warshaw and Ciarimboli, 2020; Carrasco, 2022), there are some heartening signs that disaster has been avoided in most private colleges.

Of course, the pandemic is not yet over, and dangers remain. The fact remains that, like the rest of American higher education, access-oriented private colleges were not ready for a major pandemic, and the health crisis arrived on top of ongoing financial challenges facing many of them. Sometimes labelled "the invisible colleges" and often overlooked by national leaders and policymakers,[11] the dual crises they are facing now compel our attention to their circumstances. Failure to do so could have dire implications for their significant role in addressing the nation's ongoing racial/ethnic and socioeconomic gaps in postsecondary access and success. Ultimately, any diminishment of access-oriented private colleges will constrain the nation's capacity to ameliorate its postsecondary needs, including the pressing need to reduce postsecondary inequalities.

11 The term was originally coined by Astin and Lee (1972). The sector's features were examined more recently by Tarant et al. (2017).

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# Appendix A: Semi-structured Interview Protocol

**Introductory Comments**

*Thank you again for agreeing to talk today. Our focus will be on [your institutions'] pandemic-related decisions regarding going online, freezing tuition, requiring vaccination/testing, and so forth, and particularly on how those issues intersected with [your institution's] academic and business objectives. For this project, we are not focused on particular institutions but rather on better understanding the dynamics of private colleges' decision making, and on how early pandemic-related decisions played out over time. I anticipate an informal conversation.*

*As I noted before, I'll be happy to keep your comments anonymous, if you prefer. And, in subsequent reports, I will not identify [you or your institution] without your express permission.*

*It'd be helpful for this research if I could record the conversation, to facilitate capturing quotations for reporting, but that can be foregone if you wish.*

**Questions on colleges' actions**

1. In the initial months of the pandemic, what actions did your college take in response? What was the reasoning behind those choices?

   Prompts:

   a. imposing new seating, masking, hygiene arrangements
   b. online or hybrid
   c. closing dorms
   d. canceling athletics
   e. restricting campus access
   f. shifting academic requirements, processes
   g. shifting tuition, fees, etc.
   h. laying off staff
   i. task forces
   j. other

2. What has the college done in the subsequent months relating to the pandemic? Again, what has been the reasoning?

   Prompts:

   a. imposing new vaccine, testing policies
   b. returning to normal
   c. other

**Questions on the impacts of colleges' actions**

3. What have been the notable institutional impacts so far of the actions you've taken?

   Prompts:

   a. enrollments overall and for particular groups (URM, international, etc.)
   b. faculty/staff satisfaction, well-being, engagement, retention, hiring, workloads
   c. shifts in shared-governance processes
   d. student recruiting, applications, yield, etc.

e. student mental health, well-being
f. student retention and graduation rates
g. alumni, community relations
h. finances
i. other

4. What longer-term changes do you expect at your college?

   Prompts:

   a. impacts on enrollments overall and for particular groups longer term
   b. shifting student profiles
   c. other

**Questions on Further Actions and Thoughts**

5. Are there other actions you're contemplating in response to the pandemic?

   Prompts:

   a. increasing use of online education
   b. new or terminated degree offerings
   c. restructuring
   d. other

6. Is there anything else you'd like to share with me?

**Closing Comments**

*Thank you very much for participating in this interview. I look forward to sharing the results with you in the future.*

### Table 1. Variable specifications and sources

| Variable | Year(s) | Source | Use in Various Models (see Note a) |
|---|---|---|---|
| % of Undergrads that are Full-time | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| % of Total Enrollment that is Undergrad | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Intercollegiate Athletics Participation Rate | 2020-21 Academic Year | EADA (see Note c) | Independent Variable |
| Residential Intensity, Undergrad (housing capacity/ undergraduate enrollment) | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Institution Under 10% Underrepresented Minoritized Students | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Institution Over 40% Underrepresented Minoritized Students | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| % Pell Recipients | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Christian, Non-Catholic College | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Catholic College | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Undergrad Enrollment (raw and logged) | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Tuition and Fees, constant in 000s (raw and logged) | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Tuition Discount Rate | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Ed and Gen Expenditures FTE, constant in 000s (raw and logged) | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Excess Revenues/Total Expenses | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Enrollment Trend over 10 years | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| % Private Institutions in the State | 2019-20 Academic Year | IPEDS (see Note b) | Independent Variable |
| Republican Controlled State in 2020 | 2020 | The Council of State Governments (see Note d) | Independent Variable |
| State Covid Case Rate per 100,000 in 2020 (raw and logged) | 2020 | The Council of State Governments (see Note d) | Independent Variable |
| State Covid Case Rate per 100,000 in 2021 (raw and logged) | 2021 | The Council of State Governments (see Note d) | Independent Variable |
| Primarily or Fully Online Instruction, Fall, 2020 | 2020 | C2i (see Note e) | Independent and Dependent Variable |
| Primarily or Fully Online Instruction, Spring, 2021 | 2021 | C2i (see Note e) | Independent and Dependent Variable |
| Reducing or Freezing Tuition and Fees, 2020 to 2021 | 2020-21 Academic Year | IPEDS (see Note b) | Independent and Dependent Variable |
| Mandatory Vaccination, Fall 2021 | 2021 | C2i (see Note e) | Dependent Variable |
| # Entering Black Students (raw and logged) | 2019-20 and 2020-21 Academic Years | IPEDS (see Note b) | Control and Dependent Variable |
| % Entering Black Students | 2019-20 and 2020-21 Academic Years | IPEDS (see Note b) | Control and Dependent Variable |

## Table 1. Variable specifications and sources (continued)

| Variable | Year(s) | Source | Use in Various Models (see Note a) |
|---|---|---|---|
| # Entering Hispanic Students (raw and logged) | 2019-20 and 2020-21 Academic Years | IPEDS (see Note b) | Control and Dependent Variable |
| % Entering Hispanic Students | 2019-20 and 2020-21 Academic Years | IPEDS (see Note b) | Control and Dependent Variable |
| Retention 1st to 2nd year | 2019-20 and 2020-21 Academic Years | IPEDS (see Note b) | Control and Dependent Variable |

Notes:
a. For variables' use in models, see Figure 1 and text.
b. Data files for various years accessed from the Integrated Postsecondary Education Data System (IPEDS), National Center for Education Statistics, https://nces.ed.gov/ipeds/.
c. Defined as the proportion of undergraduates participating in intercollegiate athletics, computed from data downloaded from https://ope.ed.gov/athletics/#/datafile/list.
d. Data from The Book of States, Council of State Governments, https://www.csg.org/work/publications/.
e. Information provided on request by The College Crisis Initiative: Crisis to Innovation (C2i), Davidson College, https://collegecrisis.org.

## Table 2. Variable means and standard deviations

| | Academic Year 2019-20 | | | Academic Year 2020-21 | | |
|---|---|---|---|---|---|---|
| Variable | Obs. | Mean | Std. dev. | Obs. | Mean | Std. dev. |
| % of Undergrads that are Full-time | 152 | 84.22 | 11.83 | 152 | 84.31 | 11.50 |
| % of Total Enrollment that is Undergrad | 152 | 82.68 | 12.54 | NA | NA | NA |
| Intercollegiate Athletics Participation Rate | 149 | .26 | .15 | NA | NA | NA |
| Residential Intensity, Undergrad | 151 | .57 | .26 | 151 | .57 | .25 |
| Institution Under 10% Underrepresented Minoritized Students | 152 | .16 | .37 | 152 | .13 | .34 |
| Institution Over 40% Underrepresented Minoritized Students | 152 | .17 | .38 | 152 | .17 | .38 |
| % Pell Recipients | 152 | 38.31 | 12.24 | NA | NA | NA |
| Christian, Non-Catholic College | 152 | .53 | .50 | 152 | .53 | .50 |
| Catholic College | 152 | .31 | .46 | 152 | .31 | .46 |
| Undergraduate Enrollment (raw) | 152 | 1986.78 | 1373.59 | 152 | 1937.98 | 1333.47 |
| Tuition and Fees, constant dollars in 000s (raw) | 152 | 31152.95 | 6965.48 | 152 | 31192.82 | 7057.06 |
| Tuition Discount Rate | 152 | 42.21 | 11.85 | NA | NA | NA |
| Ed and Gen Expenditures FTE, constant dollars in 000s (raw) | 152 | 21558.34 | 5403.90 | NA | NA | NA |
| Excess Revenues/Total Expenses | 152 | .01 | .16 | NA | NA | NA |
| Enrollment Trend over 10 years | 152 | -.70 | 42.92 | NA | NA | NA |
| % Private Institutions in the State | 152 | 69.14 | 11.92 | 152 | 69.14 | 11.92 |
| Republican Controlled State in 2020 | 152 | .41 | .49 | - | - | - |
| State Covid Case Rate per 100,000 in 2020 (raw) | 152 | 6336.62 | 1710.11 | - | - | - |
| State Covid Case Rate per 100,000 in 2021 (raw) | - | - | - | 152 | 9876.56 | 1322.80 |
| Primarily or Fully Online Instruction, Fall, 2020 | - | - | - | 125 | .22 | .41 |
| Primarily or Fully Online Instruction, Spring, 2021 | - | - | - | 124 | .35 | .48 |
| Reducing or Freezing Tuition and Fees, 2020 to 2021 | - | - | - | 152 | .16 | .37 |
| Mandating Vaccination for Enrollment, Fall 2021 | - | - | - | 115 | .45 | .50 |
| Enrollment of First-time, Full-time Students (raw) | 152 | 406.80 | 248.99 | 152 | 382.65 | 225.55 |
| # Entering Underrepresented Minoritized Students (raw) | 152 | 125.20 | 137.83 | 152 | 123.70 | 136.31 |
| % Entering Underrepresented Minoritized Students | 152 | 29.55 | 21.07 | 152 | 30.62 | 20.99 |
| Retention 1st to 2nd year | 152 | 71.45 | 8.20 | 152 | 72.83 | 7.74 |

Note: Indicators with NA values are those for which the US Department of Education has not yet made 2020-21 data available.

### Table 3. Group means by instruction mode in Fall, 2020 and Spring, 2021

| | Primarily or Fully Online Instruction in Fall 2020 | | | Primarily or Fully Online Instruction in Spring 2021 | | |
|---|---|---|---|---|---|---|
| | No (n=98) | Yes (n=27) | p | No (n=81) | Yes (n=43) | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | | | | |
| % of Undergrads that are Full-time | 83 | 87 | | 83 | 87 | * |
| % of Total Enrollment that is Undergrad | 82 | 83 | | 84 | 79 | * |
| Intercollegiate Athletics Participation Rate | .27 | .19 | * | .27 | .21 | + |
| Residential Intensity, Undergrad | .58 | .52 | | .60 | .52 | |
| **DIVERSITY CHARACTERISTICS** | | | | | | |
| Institution Under 10% Underrepresented Minoritized Students | .23 | .00 | ** | .21 | .14 | |
| Institution Over 40% Underrepresented Minoritized Students | .10 | .33 | ** | .07 | .30 | *** |
| % Pell Recipients | 36 | 40 | + | 35 | 40 | * |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | | | | |
| Christian, Non-Catholic College | .52 | .41 | | .57 | .37 | * |
| Catholic College | .33 | .37 | | .28 | .42 | |
| Undergraduate Enrollment | 1955 | 2375 | | 2070 | 2012 | |
| Tuition and Fees, constant in 000s | 31 | 32 | | 31 | 32 | |
| Tuition Discount Rate | 43 | 41 | | 42 | 42 | |
| Ed and Gen Expenditures FTE, constant in 000s | 21 | 25 | *** | 21 | 22 | |
| Excess Revenues/Total Expenses | .03 | -.01 | | .03 | .01 | |
| Enrollment Trend over 10 years | -2.19 | 18.45 | * | -4.31 | 14.77 | * |
| **EXTERNAL FACTORS** | | | | | | |
| % Private Institutions in the State | 67 | 73 | * | 68 | 69 | |
| Republican Controlled State in 2020 | .48 | .26 | * | .47 | .37 | |
| State Covid Case Rate per 100,000 in 2020 | 6432 | 5856 | | 6573 | 5837 | * |
| State Covid Case Rate per 100,000 in 2021 | 9909 | 9670 | | 10009 | 9562 | + |

Note: n = 125
Note: Analysis uses 2019-2020 Baseline Data
Note: Values are rounded

## Table 4. Modeling institutions' instructional modalities: Fully or primarily online in Fall 2020

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Full Model | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | | | | | | | | |
| % of Undergrads that are Full-time | .05 | + | | | | | | | .04 | |
| % of Total Enrollment that is Undergrad | .01 | | | | | | | | .00 | |
| Intercollegiate Athletics Participation Rate | -3.12 | | | | | | | | -4.60 | |
| Residential Intensity, Undergrad | -1.49 | | | | | | | | -4.90 | + |
| **DIVERSITY CHARACTERISTICS** | | | | | | | | | | |
| Institution Under 10% Underrepresented Minoritized Students | | | PP | | | | | | PP | |
| Institution Over 40% Underrepresented Minoritized Students | | | 1.42 | * | | | | | 1.23 | |
| % Pell Recipients | | | -.01 | | | | | | -.08 | + |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | | | | | | | | |
| Christian, Non-Catholic College | | | | | -.03 | | | | 1.92 | + |
| Catholic College | | | | | .50 | | | | 1.25 | |
| Undergraduate Enrollment, logged | | | | | .78 | | | | -.75 | |
| Tuition and Fees, constant, logged | | | | | -.92 | | | | -4.58 | + |
| Tuition Discount Rate | | | | | .00 | | | | .08 | |
| Ed and Gen Expenditures FTE, constant, logged | | | | | 4.94 | *** | | | 7.71 | ** |
| Excess Revenues/Total Expenses | | | | | -2.37 | | | | -5.45 | + |
| Enrollment Trend over 10 years | | | | | .02 | * | | | .03 | * |
| **EXTERNAL FACTORS** | | | | | | | | | | |
| % Private Institutions in the State | | | | | | | .05 | * | .08 | * |
| Republican Controlled State in 2020 | | | | | | | -.63 | | -.35 | |
| State Covid Case Rate per 100,000 in 2020, logged | | | | | | | -.72 | | .18 | |
| Constant | -5.66 | * | -.71 | | -47.49 | ** | 1.71 | | -34.84 | |
| LR $\chi 2$ | 9.35 | + | 5.17 | + | 25.35 | ** | 9.13 | * | 33.28 | ** |
| Log likelihood | -55.82 | | -56.36 | | -52.55 | | -60.66 | | -38.19 | |
| Pseudo $R^2$ | .08 | | .04 | | .19 | | .07 | | .30 | |

Note: Analysis uses 2019-2020 Baseline Data (n = 126)
Note: * = p≤.05 ** = p≤.01 *** = p≤.001 + = p≤.10
Note: PP denotes perfect prediction of the outcome by the variable

### Table 5. Modeling institutions' instructional modalities: Fully or primarily online in Spring 2021

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Full Model | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | | | | | | | | |
| % of Undergrads that are Full-time | 0.09 | ** | | | | | | | 0.04 | ** |
| % of Total Enrollment that is Undergrad | -0.04 | + | | | | | | | -0.06 | * |
| Intercollegiate Athletics Participation Rate | -0.63 | | | | | | | | -1.55 | |
| Residential Intensity, Undergrad | -2.21 | + | | | | | | | -3.58 | * |
| **DIVERSITY CHARACTERISTICS** | | | | | | | | | | |
| Institution Under 10% Underrepresented Minoritized Students | | | -0.11 | | | | | | 0.39 | |
| Institution Over 40% Underrepresented Minoritized Students | | | 1.55 | * | | | | | 0.93 | |
| % Pell Recipients | | | 0.01 | | | | | | -0.02 | |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | | | | | | | | |
| Christian, Non-Catholic College | | | | | 0.6 | | | | -0.41 | |
| Catholic College | | | | | 0.19 | | | | -0.07 | |
| Undergraduate Enrollment, logged | | | | | -0.39 | | | | -1.19 | + |
| Tuition and Fees, constant, logged | | | | | 1.93 | | | | 0.52 | |
| Tuition Discount Rate | | | | | -0.01 | | | | 0.03 | |
| Ed and Gen Expenditures FTE, constant, logged | | | | | 0.25 | | | | 0.28 | |
| Excess Revenues/Total Expenses | | | | | -1.63 | | | | -1.47 | |
| Enrollment Trend over 10 years | | | | | 0.02 | * | | | 0.01 | |
| **EXTERNAL FACTORS** | | | | | | | | | | |
| % Private Institutions in the State | | | | | | | 0.02 | | 0 | |
| Republican Controlled State in 2020 | | | | | | | -0.04 | | 0.48 | |
| State Covid Case Rate per 100,000 in 2020, logged | | | | | | | -1.16 | | -1.18 | |
| Constant | -3.42 | | -1.15 | | -19.57 | | 8.38 | | 8.76 | |
| LR $\chi 2$ | 18.19 | ** | 10.93 | * | 17.06 | * | 3.81 | | 34.27 | * |
| Log likelihood | -68.38 | | -74.57 | | -71.50 | | -78.13 | | -60.34 | |
| Pseudo $R^2$ | .12 | | .07 | | .11 | | .02 | | .22 | |

Note: Analysis uses 2019-2020 Baseline Data (n = 122)
Note: * = p≤.05 ** = p≤.01 *** = p≤.001 + = p≤.10

### Table 6. Group means by tuition approach for 2020-21

| | Reducing or Freezing Tuition and Fees 2020 to 2021 | | |
|---|---|---|---|
| | No (n=127) | Yes (n=25) | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | |
| % of Undergrads that are Full-time | 84 | 86 | |
| % of Total Enrollment that is Undergrad | 83 | 82 | |
| Intercollegiate Athletics Participation Rate | .26 | .21 | |
| Residential Intensity, Undergrad | .56 | .64 | |
| **DIVERSITY CHARACTERISTICS** | | | |
| Institution Under 10% Underrepresented Minoritized Students | .17 | .08 | |
| Institution Over 40% Underrepresented Minoritized Students | .13 | .36 | ** |
| % Pell Recipients | 37 | 45 | ** |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | |
| Christian, Non-Catholic College | .54 | .44 | |
| Catholic College | .31 | .28 | |
| Undergraduate Enrollment, logged | 1971 | 2062 | |
| Tuition and Fees, constant in 000s | 32 | 29 | + |
| Tuition Discount Rate | 43 | 41 | |
| Ed and Gen Expenditures FTE, constant in 000s | 21 | 23 | |
| Excess Revenues/Total Expenses | .00 | .05 | |
| Enrollment Trend over 10 years | -.65 | -.94 | |
| **EXTERNAL FACTORS** | | | |
| % Private Institutions in the State | 69 | 71 | |
| Republican Controlled State in 2020 | .42 | .36 | |
| State Covid Case Rate per 100,000 in 2020 | 6370 | 6168 | |
| State Covid Case Rate per 100,000 in 2021 | 9814 | 10192 | |

Note: n = 153
Note: Analysis uses 2019-2020 Baseline Data
Note: Values are rounded

## Table 7. Modeling institutions' tuition policies: Imposing no tuition increase, 2020 to 2021

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Full Model | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | | | | | | | | |
| % of Undergrads that are Full-time | -.01 | | | | | | | | -.07 | |
| % of Total Enrollment that is Undergrad | .00 | | | | | | | | -.01 | |
| Intercollegiate Athletics Participation Rate | -4.14 | * | | | | | | | .33 | |
| Residential Intensity, Undergrad | 2.01 | + | | | | | | | 3.49 | * |
| **DIVERSITY CHARACTERISTICS** | | | | | | | | | | |
| Institution Under 10% Underrepresented Minoritized Students | | | -.34 | | | | | | -.34 | |
| Institution Over 40% Underrepresented Minoritized Students | | | .45 | | | | | | -.26 | |
| % Pell Recipients | | | .04 | + | | | | | .08 | * |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | | | | | | | | |
| Christian, Non-Catholic College | | | | | -.94 | | | | -1.41 | + |
| Catholic College | | | | | -.37 | | | | -.04 | |
| Undergraduate Enrollment, logged | | | | | .48 | | | | 1.52 | * |
| Tuition and Fees, constant, logged | | | | | -3.31 | ** | | | -2.72 | |
| Tuition Discount Rate | | | | | .02 | | | | .04 | |
| Ed and Gen Expenditures FTE, constant, logged | | | | | 1.39 | | | | 1.68 | |
| Excess Revenues/Total Expenses | | | | | 1.28 | | | | 2.13 | |
| Enrollment Trend over 10 years | | | | | -.01 | | | | .00 | |
| **EXTERNAL FACTORS** | | | | | | | | | | |
| % Private Institutions in the State | | | | | | | .02 | | .03 | |
| Republican Controlled State in 2020 | | | | | | | -.08 | | -.79 | |
| State Covid Case Rate per 100,000 in 2020, logged | | | | | | | -.31 | | .37 | |
| Constant | -.73 | | -3.32 | *** | 14.57 | | -.46 | | -5.76 | |
| LR $\chi 2$ | 6.62 | | 9.94 | * | 12.72 | | 1.42 | | 29.03 | * |
| Log likelihood | -62.29 | | -63.15 | | -62.94 | | -67.41 | | -51.08 | |
| Pseudo $R^2$ | .05 | | .07 | | .09 | | .01 | | .22 | |

Note: Analysis uses 2019-2020 Baseline Data (n = 148)
Note: * = p≤.05 ** = p≤.01 *** = p≤.001 + = p≤.10

## Table 8. Group means by vaccine mandate decision for Fall 2021

| | Mandated Vaccination for Fall 2021 attendance | | |
|---|---|---|---|
| | No Mandate (n=63) | Mandate (n=52) | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | |
| % of Undergrads that are Full-time | 81 | 88 | *** |
| % of Total Enrollment that is Undergrad | 82 | 82 | |
| Intercollegiate Athletics Participation Rate | .28 | .20 | ** |
| Residential Intensity, Undergrad | .57 | .56 | |
| **DIVERSITY CHARACTERISTICS** | | | |
| Institution Under 10% Underrepresented Minoritized Students | .30 | .04 | *** |
| Institution Over 40% Underrepresented Minoritized Students | .10 | .23 | * |
| % Pell Recipients | 34 | 39 | * |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | |
| Christian, Non-Catholic College | .60 | .33 | ** |
| Catholic College | .29 | .40 | |
| Undergraduate Enrollment, logged | 2225 | 1993 | |
| Tuition and Fees, constant in 000s | 30 | 35 | *** |
| Tuition Discount Rate | 41 | 45 | + |
| Ed and Gen Expenditures FTE, constant in 000s | 21 | 24 | ** |
| Excess Revenues/Total Expenses | .01 | .02 | |
| Enrollment Trend over 10 years | -1.77 | -.75 | |
| **EXTERNAL FACTORS** | | | |
| % Private Institutions in the State | 68 | 70 | |
| Republican Controlled State in 2020 | .60 | .17 | *** |
| State Covid Case Rate per 100,000 in 2020 | 6688 | 5582 | *** |
| State Covid Case Rate per 100,000 in 2021 | 9928 | 9789 | |
| **PRIOR INSTITUTIONAL PANDEMIC RESPONSES** | | | |
| Primarily or Fully Online Instruction, Fall, 2020 | .13 | .31 | * |
| Primarily or Fully Online Instruction, Spring, 2021 | .24 | .51 | ** |
| Reducing or Freezing Tuition and Fees, 2020 to 2021 | .13 | .19 | |

Note: n = 116
Note: Analysis uses 2019-2020 Baseline Data
Note: Values are rounded

## Table 9. Modeling institutions' vaccination policies: Imposing a vaccine mandate for Fall 2021

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | | Model 6 | | Full Model | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | | | | | | | | | | | | |
| % of Undergrads that are Full-time | .03 | ** | | | | | | | ·12 | ** | | | .10 | * |
| % of Total Enrollment that is Undergrad | .01 | | | | | | | | -.03 | | | | -.01 | |
| Intercollegiate Athletics Participation Rate | -5.10 | * | | | | | | | -11.25 | * | | | -11.38 | * |
| Residential Intensity, Undergrad | -.35 | | | | | | | | -2.22 | | | | -1.94 | |
| **DIVERSITY CHARACTERISTICS** | | | | | | | | | | | | | | |
| Institution Under 10% Underrepresented Minoritized Students | | | -2.22 | ** | | | | | -2.30 | * | | | -2.23 | * |
| Institution Over 40% Underrepresented Minoritized Students | | | .63 | | | | | | .00 | | | | -.03 | |
| % Pell Recipients | | | .00 | | | | | | .01 | | | | .00 | |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | | | | | | | | | | | | |
| Christian, Non-Catholic College | | | | | -1.87 | ** | | | -1.62 | + | | | -1.46 | |
| Catholic College | | | | | -1.08 | | | | -.81 | | | | -.88 | |
| Undergraduate Enrollment, logged | | | | | -.35 | | | | -1.75 | + | | | -1.57 | |
| Tuition and Fees, constant, logged | | | | | 3.84 | * | | | -.94 | | | | -1.16 | |
| Tuition Discount Rate | | | | | .01 | | | | .13 | + | | | .12 | + |
| Ed and Gen Expenditures FTE, constant, logged | | | | | 1.17 | | | | 1.62 | | | | 1.77 | |
| Excess Revenues/Total Expenses | | | | | 1.47 | | | | 3.29 | | | | 2.45 | |
| Enrollment Trend over 10 years | | | | | .00 | | | | -.01 | | | | -.01 | |
| **EXTERNAL FACTORS** | | | | | | | | | | | | | | |
| % Private Institutions in the State | | | | | | | .02 | | .01 | | | | .00 | |
| Republican Controlled State in 2020 | | | | | | | -1.66 | *** | -1.50 | + | | | -1.77 | * |
| State Covid Case Rate per 100,000 in 2020, logged | | | | | | | -1.62 | + | -1.59 | | | | -1.20 | |
| State Covid Case Rate per 100,000 in 2021, logged | | | | | | | 1.24 | | 1.73 | | | | 2.09 | |
| **PRIOR INSTITUTIONAL PANDEMIC RESPONSES** | | | | | | | | | | | | | | |
| Primarily or Fully Online Instruction, Fall 2020 | | | | | | | | | | | .84 | | | -.19 |
| Primarily or Fully Online Instruction, Spring 2021 | | | | | | | | | | | 1.04 | * | | 1.04 |
| Reducing or Freezing Tuition and Fees, 2020 to 2021 | | | | | | | | | | | .48 | | | -.43 |
| Constant | -6.67 | ** | -.16 | | -48.28 | ** | 1.66 | | -4.60 | | -.84 | ** | -11.51 | |
| LR $\chi 2$ | 22.50 | *** | 16.92 | *** | 28.02 | *** | 26.89 | *** | 72.79 | *** | 12.76 | + | 73.40 | *** |
| Log likelihood | -65.51 | | -70.72 | | -65.18 | | -65.74 | | -40.36 | | -72.01 | | -39.22 | |
| Pseudo $R^2$ | .15 | | .11 | | .18 | | .17 | | .47 | | .08 | | .48 | |

Note: Analysis uses 2019-2020 Baseline Data (n = 113)
Note: * = p≤.05 ** = p≤.01 *** = p≤.001 + = p≤.10

## Table 10. Modeling equity-related outcomes

| | Number of Entering Students in Fall 2020 | | Number of Entering URM Students in Fall 2020 | | Percentage URM of Entering Students in Fall 2020 | | First-to-Second Year Retention Fall 2019 to Fall 2020 | |
|---|---|---|---|---|---|---|---|---|
| | Coeff. | p | Coeff. | p | Coeff. | p | Coeff. | p |
| **INTENSITY-RELATED CHARACTERISTICS** | | | | | | | | |
| % of Undergrads that are Full-time | .00 | | .00 | | -.12 | | -.05 | |
| % of Total Enrollment that is Undergrad | .00 | | .00 | | .04 | | .04 | |
| Intercollegiate Athletics Participation Rate | .34 | * | .14 | | 8.45 | | -7.37 | |
| Residential Intensity, Undergrad | .03 | | -.06 | | 2.91 | | 11.35 | *** |
| **DIVERSITY CHARACTERISTICS** | | | | | | | | |
| Institution Under 10% Underrepresented Minoritized Students | .03 | | -.79 | *** | -1.46 | | .28 | |
| Institution Over 40% Underrepresented Minoritized Students | .11 | * | .16 | | -1.76 | | -.41 | |
| % Pell Recipients | .00 | | .00 | | .06 | | -.02 | |
| **OTHER ORGANIZATIONAL CHARACTERISTICS** | | | | | | | | |
| Christian, Non-Catholic College | -.05 | | -.18 | | -2.66 | | -.63 | |
| Catholic College | -.04 | | -.12 | | .39 | | 2.61 | |
| Undergraduate Enrollment, logged | .16 | + | .45 | ** | 3.10 | + | 1.44 | |
| Tuition and Fees, constant, logged | .17 | * | .25 | | 1.04 | | 3.65 | |
| Tuition Discount Rate | .00 | | .01 | * | .08 | | -.09 | |
| Ed and Gen Expenditures FTE, constant, logged | -.01 | | .12 | | -1.57 | | .01 | |
| Excess Revenues/Total Expenses | .00 | | -.06 | | .15 | | 4.05 | |
| Enrollment Trend over 10 years | .00 | + | .00 | | .01 | | -.02 | |
| **EXTERNAL FACTORS** | | | | | | | | |
| % Private Institutions in the State | .00 | | .00 | | -.10 | + | .02 | |
| Republican Controlled State in 2020 | -.03 | | -.09 | | -1.10 | | .51 | |
| State Covid Case Rate per 100,000 in 2020, logged | .00 | | -.02 | | 1.35 | | 1.58 | |
| **PRIOR INSTITUTIONAL PANDEMIC RESPONSES** | | | | | | | | |
| Primarily or Fully Online Instruction, Fall 2020 | -.02 | | -.23 | * | 2.30 | | -1.02 | |
| Reducing or Freezing Tuition and Fees, 2019-20 to 2020-21 | .04 | | .04 | | -.04 | | .97 | |
| Constant | -1.92 | + | -3.52 | | -21.92 | | -25.70 | |
| F Statistic | | | | | 46.56 | *** | 5.47 | *** |
| Adjusted $R^2$ | | | | | .69 | | .44 | |
| LR $\chi 2$ | 358.52 | *** | 223.29 | *** | | | | |
| Log likelihood | -639.81 | | -595.43 | | | | | |
| Pseudo $R^2$ | .22 | | .16 | | | | | |

Note: Regressions each control for 2019-20 Values of the dependent variable. In each case, that indicator was significant at the $p < .001$ level.
Note: Analyses of first-time student and first-time URM student counts employ negative binomial regression, while analyses of the other two outcomes employ standard OLS multiple regression.
Note: Analysis uses 2019-2020 Baseline Data (n = 111) for independent variables and fall 2020 data for dependent variables
Note: * = $p \leq .05$ ** = $p \leq .01$ *** = $p \leq .001$ + = $p \leq .10$

### Table 11. Institutional actions by intensity/diversity group

| Intensity/Diversity Group | Primarily or Fully Online Instruction in Fall 2020 (n = 122) (percentage yes) | Primarily or Fully Online Instruction Spring 2021 (n = 121) (percentage yes) | Reducing or Freezing Tuition and Fees 2020 to 2021 (n = 148) (percentage yes) | Mandated Vaccination for Fall 2021 Attendance (n = 112) (percentage yes) |
|---|---|---|---|---|
| Low Intensity/Low Diversity | 7 | 7 | 7 | 8 |
| Low Intensity/Medium Diversity | 22 | 39 | 13 | 47 |
| Low Intensity/High Diversity | 45 | 73 | 23 | 64 |
| Medium Intensity/Low Diversity | 15 | 38 | 14 | 25 |
| Medium Intensity/Medium Diversity | 15 | 32 | 13 | 63 |
| Medium Intensity/High Diversity | NA | NA | NA | NA |
| High Intensity/Low Diversity | 28 | 33 | 15 | 40 |
| High Intensity/Medium Diversity | 6 | 19 | 13 | 40 |
| High Intensity/High Diversity | NA | NA | NA | NA |
| All Low Intensity | 23 | 37 | 14 | 39 |
| All High Intensity | 19 | 30 | 18 | 41 |
| All Low Diversity | 18 | 27 | 13 | 25 |
| All High Diversity | 47 | 68 | 35 | 67 |
| All Institutions | 20 | 34 | 16 | 44 |

Note: Cells with NA reflect groups with fewer than five institutions, hindering any generalizations.
Note: * = p≤.05 ** = p≤.01 *** = p≤.001 + = p≤.10

## Table 12. Equity-related outcomes by intensity/diversity group

| | Number of Entering Students | | | Number of Entering URM Students | | | Percentage URM of Entering Students | | | First to Second Year Retention Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intensity/ Diversity Group | Fall 2019 | Fall 2020 | Change | Fall 2019 | Fall 2020 | Change | Fall 2019 | Fall 2020 | Change | Fall 2019 | Fall 2020 | Change |
| Low Intensity/ Low Diversity | 435.64 | 385.71 | -12.94 | 39.21 | 31.57 | -24.21 | 9.67 | 9.43 | -2.58 | 75.79 | 76.14 | 0.47 |
| Low Intensity/ Medium Diversity | 398.43 | 380.96 | -4.59 | 106.48 | 104.04 | -2.34 | 27.77 | 27.25 | -1.89 | 71.43 | 72.83 | 1.91 |
| Low Intensity/ High Diversity | 630.31 | 612.00 | -2.99 | 380.15 | 393.69 | 3.44 | 61.42 | 64.94 | 5.42 | 72.54 | 73.23 | 0.95 |
| Medium Intensity/ Low Diversity | 361.07 | 338.79 | -6.58 | 41.50 | 49.79 | 16.64 | 11.71 | 15.13 | 22.60 | 77.00 | 75.21 | -2.37 |
| Medium Intensity/ Medium Diversity | 447.70 | 416.43 | -7.51 | 131.27 | 128.73 | -1.97 | 28.72 | 29.92 | 4.01 | 71.17 | 72.10 | 1.29 |
| Medium Intensity/ High Diversity | 304.60 | 287.00 | -6.13 | 204.60 | 179.00 | -14.30 | 65.56 | 59.16 | -10.82 | 71.80 | 70.40 | -1.99 |
| High Intensity/ Low Diversity | 333.00 | 317.25 | -4.96 | 39.30 | 39.50 | 0.51 | 11.49 | 12.58 | 8.62 | 73.05 | 75.50 | 3.25 |
| High Intensity/ Medium Diversity | 350.30 | 334.22 | -4.81 | 95.57 | 106.43 | 10.21 | 28.12 | 32.53 | 13.55 | 65.91 | 70.17 | 6.07 |
| High Intensity/ High Diversity | 390.00 | 338.33 | -15.27 | 334.17 | 258.00 | -29.52 | 84.93 | 75.96 | -11.81 | 61.00 | 65.67 | 7.11 |
| All Low Intensity | 469.14 | 442.36 | -6.05 | 158.80 | 159.06 | 0.16 | 32.06 | 32.06 | 0.00 | 72.94 | 73.86 | 1.25 |
| All High Intensity | 348.10 | 327.80 | -6.19 | 101.82 | 97.67 | -4.24 | 28.29 | 29.70 | 4.76 | 68.22 | 71.80 | 4.97 |
| All Low Diversity | 371.13 | 343.50 | -8.04 | 39.92 | 40.19 | 0.67 | 11.02 | 12.40 | 11.11 | 75.00 | 75.60 | 0.80 |
| All High Diversity | 484.35 | 458.50 | -5.64 | 318.96 | 302.88 | -5.31 | 67.08 | 65.87 | -1.84 | 69.88 | 70.58 | 0.98 |
| All Institutions | 408.94 | 384.13 | -6.46 | 124.80 | 122.93 | -1.53 | 29.14 | 30.16 | 3.40 | 71.36 | 72.83 | 2.01 |

Note: Individual group percentages for the medium intensity/high diversity and high intensity/high diversity groups should be interpreted cautiously because of the small n's (especially for vaccine mandate).

## About the authors

**Professor Hearn** holds a Ph.D. in the sociology of education and an M.A. in sociology from Stanford University. He also holds an M.B.A. in finance from the University of Pennsylvania (Wharton) and an A.B. from Duke University. Prior to initiating his academic career, he worked as a financial analyst at a bank, as an administrator at a small private college, as a program research director at the American College Testing program, and as a policy analyst and project director at a Washington, D.C.-area consulting firm. In his subsequent academic career, he served as a faculty member at the University of Minnesota and Vanderbilt University in addition to the University of Georgia.

At present, Professor Hearn serves as a consulting editor for *Research in Higher Education*. In the past, he has served as an associate editor of the *Educational Researcher* and *Research in Higher Education* and on the editorial boards of the *Journal of Higher Education*, the *Review of Higher Education*, *Teachers College Record*, and *Sociology of Education*. He has also served as a section editor for the annual volume *Higher Education: Handbook of Theory and Research*.

Professor Hearn is a past recipient of the Distinguished Research Award of Division J of the American Educational Research Association. In 2005, he was named a TIAA-CREF Institute Fellow. In 2014, he was presented with the Excellence in Public Policy of Higher Education Award by the Council on Public Policy in Higher Education of the Association for the Study of Higher Education.

**Dr. Jarrett B. Warshaw** is associate professor in the Department of Educational Leadership & Research Methodology at Florida Atlantic University. His research focuses on postsecondary organization, finance, and policy, with an emphasis on understanding how colleges and universities change and innovate in relation to their external environments. Publications from his research have appeared in education journals, including *The Journal of Higher Education*, *Higher Education Policy*, *Journal of Education and Work*, and in edited volumes. Among the graduate courses he teaches are EDA7931: Leadership VI: Seminar in Leadership, EDH6065: History and Philosophy of Higher Education, EDH6635: Organization and Administration of Higher Education, and EDH7505: Higher Education Business and Finance.

Prior to his academic appointment, Professor Warshaw served as a research consultant for the Council of Independent Colleges and for the Office of Strategy & Policy at The University of Texas at Austin. He is a past recipient of the Innovation Scholarship Award from the Center for Innovative Higher Education at the University of Minnesota, the Outstanding Doctoral Student Award from the Standing Committee for Graduate Students and New Professionals of the American College Personnel Association, and the Best Poster Award from Division J of the American Educational Research Association.

Professor Warshaw holds a Ph.D. in Higher Education from the Institute of Higher Education at the University of Georgia, where he has been a Presidential Fellow of the Graduate School. He also holds an M.S.Ed. in College Student Personnel from Bucknell University and a B.A. in English (with honor) from Skidmore College. Before pursuing graduate studies he worked in undergraduate admissions.

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