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Is a name change a game change? The impact of college-to-university conversions

Riley K. Acton[1]

Department of Economics, Miami University, 800 E. High St., Oxford, OH 45056, United States of America
Institute of Labor Economics (IZA), Bonn, Germany

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ABSTRACT

In the competitive U.S. higher education market, institutions differentiate themselves to attract both students and tuition dollars. One understudied example of this differentiation is the increasing trend of "colleges" becoming "universities" by changing their names. Between 2001 and 2016, 122 four-year colleges—nearly 25% of those called colleges in 2001—made such conversions. Leveraging variation in the timing of these conversions in an event study framework, I show that converting to a university signals an increased focus on graduate education, which leads to an increase in undergraduate enrollment, bachelor's degree production, and total revenues. I further find that these effects are largest when institutions are the first in their market to convert to a university and can lead to negative spillover effects on non-converting colleges.

1. Introduction

Higher education institutions in the United States make a myriad of strategic decisions each year to attract students to their campuses. In recent years, such decisions have become increasingly important as institutions, particularly those outside of the elite echelon, have faced a declining traditional college-age population (Grawe, 2019), reductions in state support (Mitchell, Leachman, & Saenz, 2019), and increased skepticism about the value of a college education (Parker, 2019). In the face of these trends, colleges have sought new ways to differentiate themselves in hopes of enrolling more students and claiming more tuition dollars. Many have done so by investing in non-instructional amenities (Jacob, McCall, & Stange, 2018), adding new programs of study (Cook, 2021), or increasing their advertising presence (Cellini & Chaudhary, 2020).

Other colleges have taken an alternative approach: they have re-branded themselves as "universities", rather than "colleges". Indeed, between 2001 and 2016, 122 four-year institutions —nearly 24% of those that began the century as "colleges" —changed their names to forgo the word college and include the word university instead. College leaders are not shy in providing their motivations for such changes. When Lynchburg College in Virginia announced that it would become the University of Lynchburg in the fall of 2018, their vice president and dean for academic affairs stated that "claiming our status as a university will. enable us to attract and recruit more students" (Gentry, 2017). Similarly, when Lasell College in Massachusetts announced its plans to convert to Lasell University, their president told *The Atlantic* that he hoped it would make the institution "seem more appealing" (Wong, 2019).

While there is some research on factors that influence colleges' decisions to convert to universities (Jaquette, 2013; Morphew, 2002), there is not yet evidence on whether such conversions succeed in attracting students to institutions and improving their financial viability. In this paper, I leverage variation in the timing of institutions' conversions in an event study framework to analyze how college-to-university conversions affect a variety of institutional outcomes. Using rich, institution-level data from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) and College Scorecard, I find that converting to a university signals an increased focus on graduate education, which has positive effects on both undergraduate enrollment and an institution's finances, but negative effects on competing institutions' outcomes. Specifically, the number of first-time students increases by 5.2% in the first five years following a conversion and 7.2% six or more years after. The total number of undergraduate full-time equivalent (FTE) students increases by 3.1%

E-mail address: actonr@miamioh.edu.

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and 5.4% in these respective time frames. In addition, the number of bachelor's degrees conferred by an institution increases by 5.5% six or more years following a conversion, while total non-investment revenues increase by 8.5%. These effects are larger for institutions that are the first in their markets to do so and reduce enrollment, awards, and revenues at non-converting institutions in the same markets, suggesting that a portion of the gains to a college-to-university conversion come at the expense of other institutions' ability to attract, retain, and graduate students.

While I cannot rule out that these results may be partially driven by other unobservable changes that may occur at the same time as a conversion —such as changes in administrators or marketing campaigns —I provide suggestive evidence that the name of an institution influences student demand and institutional finances above and beyond other associated factors. First, I control for a variety of time-varying institutional characteristics, including changes in institutions' degree offerings and physical capacity that occur leading up to, and after, a conversion. For the key outcomes of interest described above, the results are statistically indistinguishable with and without controls, indicating that changes to these areas are not driving the effects I document. Second, I show that my results are robust to limiting the sample only to institutions that offered graduate programs before converting, indicating that the addition of graduate education itself does not explain the results. Finally, I show that conversions tend to decrease per-student expenditures, making it unlikely that students are responding to changes in the educational quality of an institution.

These findings contribute to several related strands of literature regarding the market for higher education in the U.S. On the demand side, I add to a large body of empirical work on students' college enrollment decisions. Prior work shows that students often lack reliable information about the quality of institutions and, as a result, often rely on rankings (Alter & Reback, 2014; Griffith & Rask, 2007; Hurwitz & Smith, 2018; Meyer, Hanson, & Hickman, 2017) and media coverage (Lindo, Marcotte, Palmer, & Swensen, 2019; Rooney & Smith, 2019) to make their decisions. In addition, relatively small changes in application costs can dramatically affect students' behavior (Knight & Schiff, 2022; Pallais, 2015; Smith, Hurwitz, & Howell, 2014). In this paper, I document that students' choices are also sensitive to the name of an institution, which students may interpret as a signal of its quality and educational offerings in the absence of other reliable information. This finding is consistent with work by Clinton (2020), who finds that students enrolled in a college that converts to a university experience higher earnings in the labor market, suggesting that employers also interpret a "university" as providing a higher quality education than a "college".

On the supply side, I build on prior work showing colleges behave strategically to optimize outcomes of interest, such as their rankings and their finances. For example, Conlin, Dickert-Conlin, and Chapman (2013) find that colleges strategically use test-optional admission policies to improve their rankings, while (Luca & Smith, 2015) provide evidence that business schools selectively choose which ranking information to provide students to appear higher-quality. In terms of institutional finances, several recent papers show that institutions —particularly public universities —have turned towards out-of-state (Bound, Braga, Khanna, & Turner, 2019), international (Bound, Braga, Khanna, & Turner, 2020), and master's students (Jaquette, 2019) as revenue sources in response to declines in state appropriations. Here, I document that other institutions have converted to universities in the face of similar trends and that such conversions are likely strategic decisions as they lead to increased student demand and higher revenues.

This paper also relates to a broader literature on the determinants and effects of organizations' names. Both theoretical and empirical work indicates that names are an important signal of reputation and quality (Belenzon, Chatterji, & Daley, 2017; McDevitt, 2011, 2014; Tadelis, 1999), particularly in the presence of information asymmetries. My results confirm this finding in the higher education market and suggest that name changes may have similar effects in other markets where there are significant information frictions and where one-time decisions can have important long-run consequences, such as primary and secondary schooling and healthcare.

2. Background & institutional setting

2.1. Motivation for college-to-university conversions

In 2016, there were 1348 public and private, not-for-profit four-year institutions in the United States.[2] Of these, 408 (30.3%) contained the word "college" in their name, while 925 (68.6%) contained the word "university", and 15 (1.1%) —such as the Massachusetts Institute of Technology and the Virginia Military Institute —contained neither word.[3] In general, colleges tend to be smaller institutions, enrolling an average of 2520 students, as compared to an average enrollment of 10,145 at universities. Colleges are also less likely to confer graduate degrees than universities, although the majority of them do offer graduate programs: 62% of colleges enrolled graduate students in 2016, while 95% of universities did. These averages, however, mask the substantial heterogeneity in size and degree focus among institutions in both name categories. For example, Boston College enrolled more students (14,466) than 77% of universities and awarded more graduate degrees than 86% of them in 2016. In contrast, in the same year, Finlandia University in northern Michigan enrolled only 507 students —a lower enrollment than 94% of colleges —and awarded no graduate degrees.

Why, then, do some institutions choose to call themselves colleges, while others choose to call themselves universities? As with many decisions that occur within the competitive U.S. higher education market, the choice is likely a strategic one. Postsecondary institutions seek to maximize some objective function that depends on both the quantity and quality of the students they enroll (Epple, Romano, Sarpca, & Sieg, 2017; Epple, Romano, & Sieg, 2006; Fu, 2014). To attract more, or different, students, institutions make decisions and implement policies that they anticipate will alter students' college enrollment decisions and will induce them to enroll at their institution.

In the case of names, a 1997 article in *The Chronicle of Higher Education* outlines several reasons why, all else equal, students may be more likely to attend a university, rather than a college (Lively, 1997). For example, students may not be able to easily distinguish the differences in educational offerings between two-year community colleges —which have increasingly dropped the word "community" from their names (Marklein, 2014) —and four-year colleges. Similarly, students and families from outside of the United States may associate colleges with secondary or high school education, rather than higher education. In both cases, adopting a university name can signal to prospective students that the institution offers bachelor's degrees, and in many cases, graduate degrees.

Beyond clarifying institutional offerings, a university name may also signal to students —rightly or wrongly —that an institution offers a higher quality educational experience. In general, Americans appear to believe that universities represent the best of the U.S. higher education system. For example, when students and parents are asked to name their "dream college", they overwhelmingly list private and public universities, such as Stanford, Harvard, UCLA, and the University of Michigan (The Princeton Review, 2020). Moreover, when respondents

[2] This number reflects all institutions whose 2016 institutional category in IPEDS was "degree-granting, primarily baccalaureate". It excludes tribal colleges and specialty institutions, such as art institutes and religious seminaries, as well as institutions that only award graduate degrees (e.g., law schools) and those that do not accept federal financial aid.

[3] Nine institutions, such as The University of Maryland at College Park, contained both the word "college" and the word "university". In these descriptive statistics, I consider these institutions universities.

to Gallup surveys are asked to name the top college or university in the country, they rarely name colleges (Newport, 2003). Given these responses, as well as evidence that employers perceive degrees from universities as higher quality than degrees from colleges (Clinton, 2020; Eble & Hu, 2021), institutions may expect that students would value a university education more than a college education, even if all other institutional characteristics were the same. Converting from a college to a university then becomes a strategic decision where colleges re-brand themselves in hopes of attracting new students.

2.2. Prior work on college-to-university conversions

This analysis builds upon several previous studies of college-to-university conversions. First, Morphew (2002) investigates institutional characteristics that predicted college-to-university name changes between 1989 and 1998. He finds that less selective institutions are more likely to convert to universities than more selective institutions and that an emphasis on graduate education predicts conversions. These factors hold for both public and private institutions in his sample. Jaquette (2013) updates this analysis to include all college-to-university name changes that occur between 1972 and 2010 and uses survival analysis methods to determine which institutional characteristics predict conversions. He finds that colleges convert to universities in response to declining freshmen enrollments and following the addition of master's degree programs, and are more likely to do so if their peer institutions have previously converted. In addition, Jaquette shows descriptively that converting to a university is associated with larger enrollments, more graduate programs, and higher tuition revenues.

While both Jaquette (2013) and Morphew (2002) provide valuable insight into the types of institutions that become universities, neither attempts to establish the causal effect of conversions on institutional outcomes of interest, such as enrollments and revenues. This exploration is the focus and main contribution of my analysis. In addition, I extend the time frame of prior studies to include 37 conversions that have occurred since 2010. This longer panel, combined with my event study empirical approach, also allows me to capture the dynamic effects of conversions on institutional outcomes and to document the time it takes for conversions to influence enrollments and institutional finances.

In doing so, my work also complements two concurrent studies on the causal effects of college name changes. Clinton (2020) studies the effects of conversions on students already enrolled in six Massachusetts public colleges when they converted to universities. She finds that these students, who chose to attend the institutions before the name change but graduated after, experience increased average earnings of about $1500 per year, indicating that employers use names of educational institutions as signals of productivity. Eble and Hu (2021) find that college name changes in China lead higher aptitude students to enroll and, using an audit study, verify that employers are aware of this change in the sorting of students across institutions. While I am not able to examine the effects of college-to-university conversions on the labor market outcomes of students attending institutions in my sample, the results of both of these studies align with my findings that students find institutions more desirable to attend following a conversion to a university.

2.3. Identifying conversions in IPEDS

I identify all colleges that have converted to universities using annual information on higher education institutions' names from IPEDS. To do so, I limit the sample to public and private, not-for-profit institutions that report awarding bachelor's degrees every year from 2001 and 2016 and contained the word "college" in their name in 2001. I then identify all institutions that remove the word "college" from their names and add the word "university". Most instances of these deletions and additions are very straightforward and simply replace "college" with "university". For example, Bentley College became Bentley University and College of the Southwest became University of the Southwest. Others include slight changes in the ordering of words, such as Mount Olive College becoming The University of Mount Olive. I define these types of changes as college-to-university conversions but drop any institutions that substantially alter other words in their names, as these changes may have influenced student demand and institutional outcomes through other channels.

Of the 512 colleges in my sample that did not experience substantial name changes over the sample time frame, 122 (23.8%) converted to a university by 2016. Of these, 99 (81%) are private institutions and 23 are public institutions. Panel A of Fig. 1 plots the number of institutions converting to universities each year, showing a smooth distribution of conversions over the time frame of the data. Panel B further presents the cumulative number of conversions that have occurred each year, separated by public and private institutions. Appendix Table A.1 then lists the pre- and post-conversion names of these institutions, along with their state, institutional control (public vs. private), and year of conversion, and Appendix Fig. A.1 maps their locations. Institutions in 37 states converted to universities between 2001 and 2016, with the most conversions occurring in Pennsylvania (15), Ohio (11), and Massachusetts (9).

This variation in the number of conversions across states may reflect differences in constraints imposed by state higher education governing bodies. Public institutions in all states almost always require approval from a state agency, the state legislature, or the governor to change their names (Lively, 1997). Private institutions —which make up the majority of converters —are likely to have more leeway and may only need a vote by their Board of Trustees to convert to a university.[4] However, some states require that private institutions also meet certain criteria before converting. For example, all public and private institutions in New Jersey who wish to convert to a university must have been listed as a "master's university or college" or higher by the Carnegie Foundation for at least five years and must submit a name change proposal to be approved by the state's Secretary of Higher Education (New Jersey Secretary of Higher Education, 2016). In Pennsylvania, "any change in status, such as from college to university or establishing a new college, university or seminary, requires approval" from the state's Department of Education, along with a $1000 application fee (Pennsylvania Department of Education, 2021). Because no comprehensive dataset exists on these state-by-state regulations or how they may have changed over time, I include state-by-control-by-year fixed effects in all specifications to account for any changes in these policies over time that may differentially affect public and private institutions in each state.

3. Data

3.1. Data sources

My analysis relies on annual, institution-level data from IPEDS and the College Scorecard. Both datasets include rich information on institutions' applications, undergraduate and graduate enrollment, awards conferred, revenues, staffing levels, and expenditures. Through the award conferral data, I construct measures of an institution's program offerings at the bachelor's, master's, graduate certificate, and advanced degree (e.g., Ph.D., M.D., J.D.) levels by counting the number of unique four-digit Classification of Instructional Program (CIP) codes that an institution lists in their awards report for each credential level. I

[4] Both public and private institutions may also need to gain approval from their accreditor if the conversion is considered a "substantive change" to its educational mission or program. However, a name change on its own is not included in the U.S. Department of Education's substantive change regulations (Flores, 2019).

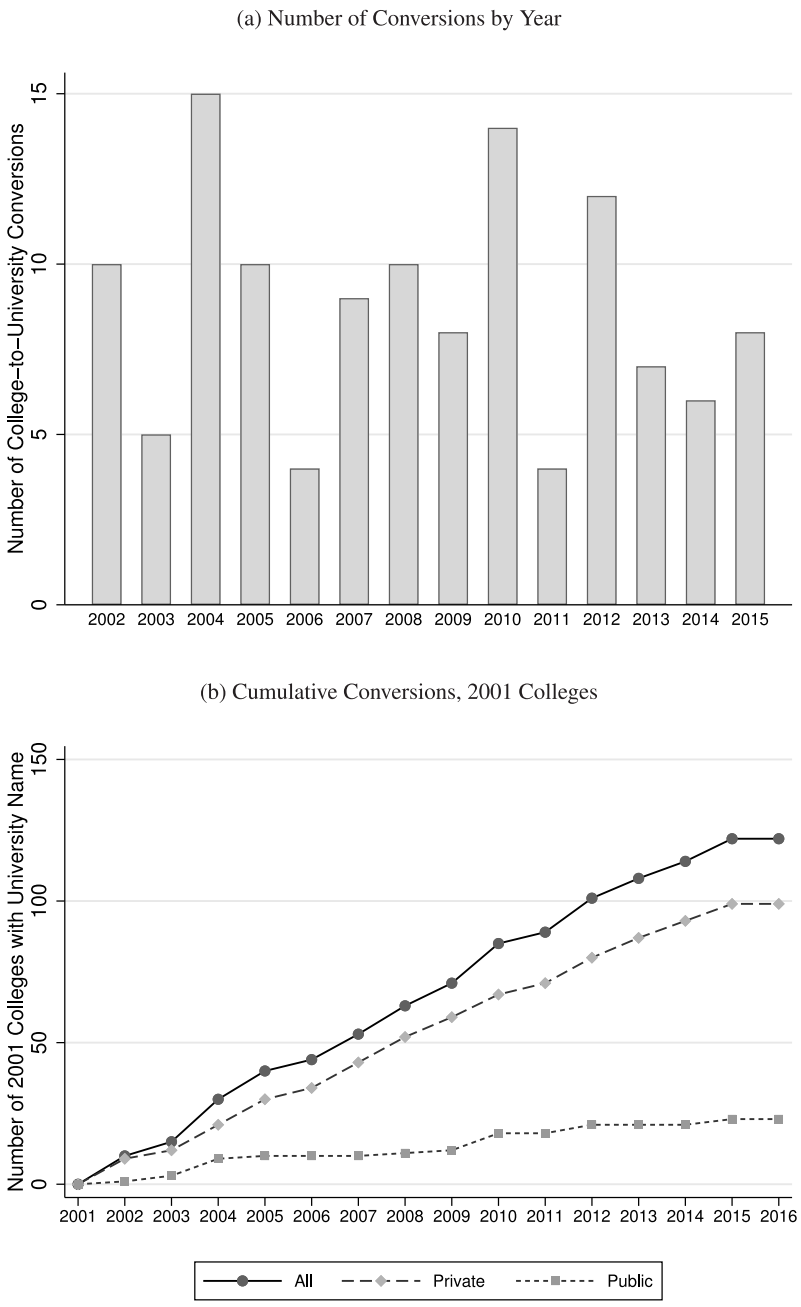


Fig. 1. College-to-university conversions, 2002–2015.
Notes: Panel A shows the number of colleges that converted to universities in each year between 2002 and 2015. Panel B shows the cumulative number of changes that have occurred by each year, separated by public and private institutions.

include CIP codes with zero degrees conferred in a given year, as these are programs that institutions report offering, but have no students completing within a given year. Thus, these counts summarize the total number of programs institutions report offering in a given year.

To complement the IPEDS and Scorecard data, I also gather monthly institution-level internet search data from Google Trends on all institutions that change their name from college to university. Specifically, I obtain all searches for an institution's "college name" (e.g., Bentley College) and "university name" (e.g., Bentley University) in a given month. Observations for each institution are standardized on a 0 to 100 scale, where 100 represents the maximum search volume for either of the two terms over the time period. I aggregate the data to the academic year level (August to July) to track average monthly search activity from 2004 to 2015 and analyze whether the general public changes the search terms they use for an institution following a conversion.

3.2. Descriptive statistics

Table 1 provides descriptive statistics on the colleges that do and do not convert to universities, both in 2001 (before any conversions in the sample have occurred) and in 2016 (after all conversions in the sample have occurred). Columns (1)–(3) show that, at baseline, the colleges that will convert to universities enroll about 113 more full-time equivalent (FTE) undergraduate students and 18 more FTE graduate students and offer 1.4 more graduate programs than their peers who

Table 1
Sample summary statistics.

	At baseline (2001)			At end of period (2016)		
Variable:	All colleges (1)	Changers (2)	Non-changers (3)	All colleges (4)	Changers (5)	Non-changers (6)
First-time enrollment	408.1	418.3	404.9	451.2	477.2	443.1
Admit rate	0.701	0.743	0.687	0.641	0.697	0.624
Yield rate	0.401	0.432	0.392	0.254	0.268	0.249
Average SAT score	1068	998	1092	1052	994	1073
Total FTE enrollment	2087	2187	2056	2438	2902	2293
Undergraduate FTE enrollment	1886	1972	1859	2118	2393	2032
Graduate FTE enrollment	200.8	214.4	196.5	319.9	508.5	260.9
% Graduate enrollment	0.073	0.097	0.065	0.109	0.185	0.085
Undergraduate majors	29.02	29.17	28.98	40.36	42.03	39.84
Master's programs	4.146	4.910	3.908	8.461	11.566	7.490
Advanced degree programs	0.188	0.066	0.226	0.637	0.967	0.533
Graduate certificate programs	0.641	1.098	0.497	2.658	3.410	2.423
Average tuition discount	0.282	0.251	0.292	0.405	0.350	0.422
Total revenue per student	20,612	16,620	21,860	37,786	24,417	41,968
Net tuition revenue per student	11,058	8898	11,761	15,022	13,031	15,645
Total expenditures per student	23,269	16,757	25,307	30,917	22,847	33,441
Instructional $ per student	7842	5682	8512	10,852	8081	11,712
Academic support $ per student	2037	1551	2189	2678	1845	2940
Student services $ per student	3139	2240	3419	5169	3790	5600
Institutions	512	122	390	512	122	390

Notes: Sample consists of all four-year institutions that included the word "college" in their names in 2001 and reported non-zero bachelor's degree awards in every year from 2001 to 2016. Institutions that substantially changed their name over the time period are excluded from the sample.

remain as colleges throughout the time period.[5] They also tend to be somewhat less selective —evidenced by their higher admissions rates and lower average SAT scores —and have fewer resources than the non-converting colleges, spending less per student on instruction, academic support, and student services.[6] These differences align closely with work by Jaquette (2013) and Morphew (2002), who show that less selective institutions that have already begun offering graduate programs are the most likely to convert to universities. They further hypothesize that these colleges convert in order to move into a different "prestige market", where they compete with regional comprehensive universities rather than selective liberal arts colleges.

Columns (4)–(6) show that many of these differences in institution characteristics persist at the end of the sample period, with the gaps in graduate offerings and enrollment growing between 2001 and 2016. On average, converting colleges added 6.7 new master's programs, 0.9 new graduate certificate programs, and 2.3 new advanced degree programs, while non-converting colleges added 3.6, 0.3, and 1.9 programs, respectively. Converting colleges also added 291.7 graduate FTEs between 2001 and 2016 —a 135% increase —while their non-converting peers added only 61.9 FTEs —a 31% increase. Correspondingly, the share of FTEs from graduate programs nearly doubled from 9.7% to 18.5% at converting colleges, while increasing modestly from 6.5% to 8.5% at non-converting colleges. Taken together, these changes indicate that converting colleges became much more focused on graduate education during the 2001–2016 time period than non-converting colleges.

[5] IPEDS calculates FTE enrollments over a twelve-month reporting period. For undergraduates, one FTE is defined as 30 credit hours for institutions using semester or trimester calendar systems and 45 credit hours for institutions using quarter calendar systems. For graduate students, one FTE is defined as 24 credit hours for semesters and trimesters and 36 credit hours for quarters (National Center for Education Statistics, 2021a). Beginning in 2003, institutions may report corrected FTE measures if they determine that the calculated FTE measures are incorrect, which I use where available.

[6] The average SAT score measure is provided by the College Scorecard and is computed as the average SAT or ACT-equivalent score across all admitted students. This measure is not reported for all institutions in all years, particularly if a college does not require standardized tests for admissions.

4. Empirical strategy

4.1. Event study framework

While Table 1 shows that there are clear changes in converting colleges' outcomes relative to their non-converting peers over the sample period, the extent to which these changes are plausibly caused by a conversion cannot be determined by raw means alone. To estimate how institutions' outcomes —such as enrollments, degree production, and finances —change as a result of college-to-university conversions, I estimate event study equations of the following form:

$$Y_{isct} = \sum_{\substack{k=-13 \\ k\neq 0}}^{15} \pi_k * \mathbf{1}[t - \text{ChangeYear}_i = k] + \mathbf{X}_{it}\boldsymbol{\Gamma} + \mu_i + \lambda_{sct} + \epsilon_{isct} \quad (1)$$

where Y_{isct} is an outcome of interest for institution i in state s and control c (public vs. private) in year t and ChangeYear_i is the year in which institution i converts from a college to a university. $\mathbf{X}_{it}$ is a vector of time-varying institutional characteristics that may affect the outcome, such as tuition rates and the number of programs offered. μ_i is an institution fixed effect that captures time invariant characteristics of institutions, such as its location and control. λ_{sct} is a year fixed effect that varies at the state-by-control level and captures any changes in state-level demographics and policies that may affect public and private institutions differently, including any policies that govern whether institutions are able to convert to universities. ϵ_{irst} is an idiosyncratic error term. To account for the potential correlation of error terms within an institution over time, I cluster all standard errors at the institution level.

The relative time indicators, $1[t - \text{ChangeYear}_i = k]$, are equal to 1 when an observation is $k = -13, \ldots, 15$ years away from the year in which an institution converts from a college to university and are zero for all institutions that never convert to a university.[7] The omitted year, $k = 0$, corresponds to the final year that an institution operates under its

[7] Following Borusyak, Jaravel, and Spiess (2021) and Sun and Abraham (2021), I do not bin the endpoints of the event study specification and instead include a fully saturated set of relative time indicator variables. In the figures that follow, I present a subset of these relative time estimates.

college name. Thus, $k = 1$ corresponds to the first year an institution operates under its university name. The π_k coefficients trace out the trend of an outcome of interest for colleges that eventually convert from a college to a university, before and after the year of conversion.

To succinctly summarize these event study results, I follow (Bailey & Goodman-Bacon, 2015) and also present estimates of the following grouped DID equation:

$$Y_{isct} = \beta_{pre} * 1[t - \text{ChangeYear}_i < 0] + \beta_{1-5} * 1[1 \leq t - \text{ChangeYear}_i \leq 5] + \beta_{6+} * 1[t - \text{ChangeYear}_i \geq 6] + \mathbf{X}_{it}\boldsymbol{\Gamma} + \mu_i + \lambda_{sct} + \varepsilon_{isct} \quad (2)$$

where the β_{pre}, β_{1-5}, and β_{6+} coefficients capture how the outcome of interest changes before, in the first five years following a conversion, and six or more years following a conversion, respectively. The β_{pre} coefficient tests whether converting institutions exhibit differential trends prior to a conversion, while the β_{1-5} and β_{6+} coefficients capture relevant dynamics of the effects of conversions. Specifically, the β_{1-5} coefficient captures how conversions immediately affect students' enrollment decisions, while the β_{6+} coefficient is useful in summarizing how enrollment changes translate to increases in degree completion and affect institutional finances. All other variables are the same as in Eq. (1) and I continue to cluster standard errors at the institution level.[8]

Both Eqs. (1) and (2) rely on a two-way fixed effects (TWFE) approach that compares the outcomes of converting colleges to the outcomes colleges that have not, have already, or never will convert to universities. However, an emerging literature documents that TWFE models with variation in treatment timing can be biased away from the true treatment effect if they rely heavily on early treated units as controls for later treated units (Callaway & Sant'Anna, 2021; de Chaisemartin & D'Haultfoeuille, 2020; Goodman-Bacon, 2021; Sun & Abraham, 2021). Thus, in Section 5.2, I also estimate alternative event study specifications proposed by Cengiz, Dube, Lindner, and Zipperer (2019) and Sun and Abraham (2021). Both specifications rely on the comparison of treated institutions to only "clean" control institutions that never convert to universities and produce very similar results to my main approaches.

4.2. Identifying assumptions

Regardless of the estimator used, Eqs. (1) and (2) both intuitively compare changes in the outcomes of colleges that have converted to a university to changes at colleges that have either not yet changed their name or will not change their name by 2016. For these approaches to produce causal effects, it must be the case that, conditional on the control variables, institutions that have not or never will convert to universities serve as valid comparisons for the institutions that do. Functionally, this assumption may be broken down into two parts. First, there should be no evidence of differential trends between converters and non-converters before a conversion. This assumption is directly testable through the estimation of the pre-treatment π_k terms in Eq. (1) and the β_{pre} term in Eq. (2). Second, there must be no unobserved, contemporaneous changes at converting institutions that would also affect their enrollments, degree production, or finances. While it is not possible to rule out all changes that may occur simultaneously as an institution converts to a university, there are several that I can observe and test.

First, I present event study estimates in Fig. 2 which indicate that college-to-university conversions occur alongside an increased focus on graduate education. There are clear pre-trends in both the number of graduate programs and the share of FTEs enrolled in graduate programs that do not differentially change when an institution becomes a university.[9] In Panel A of Appendix Fig. A.4, I further show that converting institutions are likely to gain master's or doctoral Carnegie Classification in the years leading up to their conversion. As such, I interpret the decision to adopt a university name as a signal to prospective students that the institution has increased its graduate offerings and concentrate the remainder of the analysis on how this signal affects *undergraduate* enrollment and institutional finances.

The remaining panels of Appendix Fig. A.4 assess other changes that occur alongside college-to-university conversions. Panel B shows that, despite the increased focus on graduate education, there are no systematic changes in institutions' presidents before a conversion. Nevertheless, in Section 5.2, I show that the results are robust to including president-by-institution fixed effects that account for any changes in institutions' leadership before or after a conversion. Panel C then shows that there is a small increase in the value of an institution's land and buildings leading up to a conversion, suggesting that institutions may expand the physical capacity of their campuses prior to becoming a university. I control for these increases in the main specifications that follow. Finally, Panel D shows that institutions tend to add undergraduate programs both before and after a conversion, which Cook (2021) shows can influence students' enrollment decisions. To account for these changes, I control for the number of undergraduate programs in all following specifications and show that the results are robust to doing so. In Section 5.2, I further show robustness to controlling for the number of undergraduate programs in seven different fields of study or including an institution-specific linear time trend.[10]

A final concern regarding the event study approach is that it estimates how a college's outcomes change after they officially begin operating as a university, but colleges may announce conversion plans earlier. To determine when name changes become salient to the public, I leverage Google search data on the relative intensity of searches for an institution's "college name" as opposed to their "university name".[11] Fig. 3 presents event study estimates of these two search measures. Panel A shows that the intensity of searches for a college's name is flat leading up to the year of conversion and then drops precipitously following, indicating that users stop searching for the college name after an institution converts to university. Panel B shows analogous trends for searches of the institution's university name, which are flat leading up to the conversion year and then increase following.[12] Together, these figures indicate that there is limited public knowledge of the name change prior to an institution operating under their new university name.[13]

[8] Appendix Table A.2 shows that the main results are generally robust to instead clustering standard errors at the state-by-control level.

[9] In Appendix Fig. A.2, I show that the increase in graduate programs is predominantly driven by master's programs, rather than graduate certificates or advanced degrees. In Appendix Fig. A.3, I further show that there are pre-trends in whether institutions enroll any graduate students and whether they offer any graduate awards.

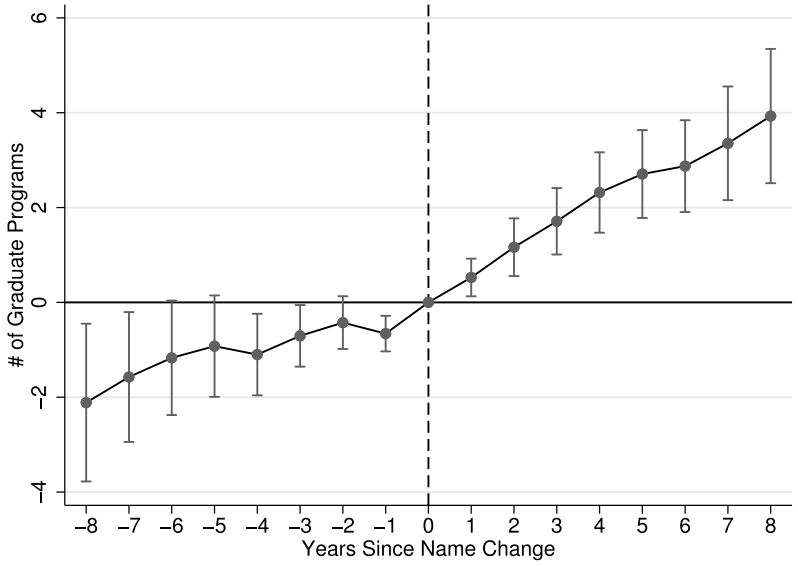
[10] Appendix Fig. A.5 shows that institutions tend to add undergraduate and graduate programs in similar fields of study, such as business, health and medicine, and public and social services.

[11] Because the Google search data is only available beginning in 2004 and at least two pre-treatment periods are needed for the event study approach, this analysis is restricted to institutions that converted to universities in 2006 or later.

[12] Because search terms are more likely to appear as autocomplete suggestions as they become more popular, it is possible that the magnitude of these estimates overstates the underlying change in the public's knowledge of institutions' names. However, such a mechanism should not alter the fact that the substitution from college to university searches occurs in the same year that name changes are registered in the IPEDS data.

[13] Appendix A.6 presents analogous specifications using quarterly search data and defining treatment as the second quarter of the year in which a conversion occurs (e.g., the second quarter of 2008 if the 2008–2009 academic year is the first year in which an institution appears with their new name in the IPEDS data). These specifications suggest that there is little pre-trend in search behavior prior to the spring preceding the academic year in which the change occurs.

(a) Graduate Programs



(b) Graduate Enrollment

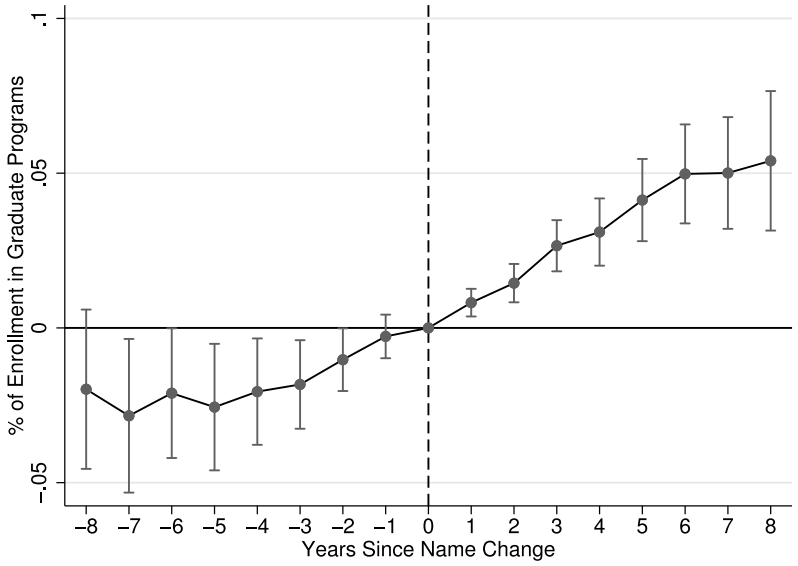


Fig. 2. Changes in graduate education following college-to-university conversions.
Notes: Each figure presents estimates of the π_k coefficients in Eq. (1), with only institution and state-by-control-by year fixed effects included. All standard errors are clustered at the institution level.

5. Effects of college-to-university conversions on institutional outcomes

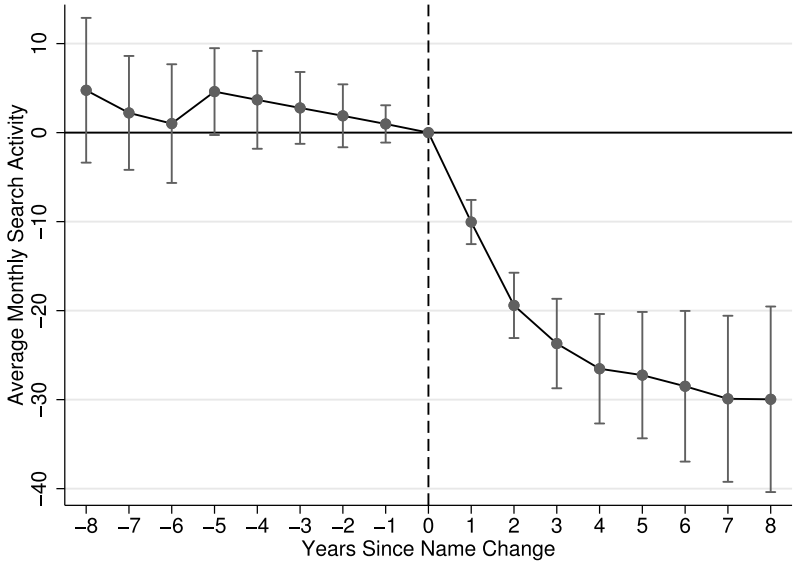
5.1. Main results

Fig. 4 presents event study estimates of how undergraduate enrollment and revenues change before and after a college's conversion to a university. In these figures and those that follow, I present both the baseline estimates and estimates of specifications with the following control variables included: the highest degree offered by the institution; the institution's Carnegie classification; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers; and the log of average undergraduate in-state and out-of-state tuition and fees.[14]

Panel A shows that converting to a university immediately increases the number of first-time undergraduate students enrolling in the institution, reversing the modest downward trend in first-time enrollment that Jaquette (2013) shows predicts conversions. In Appendix Fig. A.8, I further investigate this increase. Panel A shows that conversions do not substantially alter the number of students who apply to the institution,

[14] Appendix Fig. A.7 shows changes in tuition rates surrounding college-to-university conversions. There is little evidence that institutions systematically change their tuition rates leading up to, or following, a conversion.

(a) College Search Activity



(b) University Search Activity

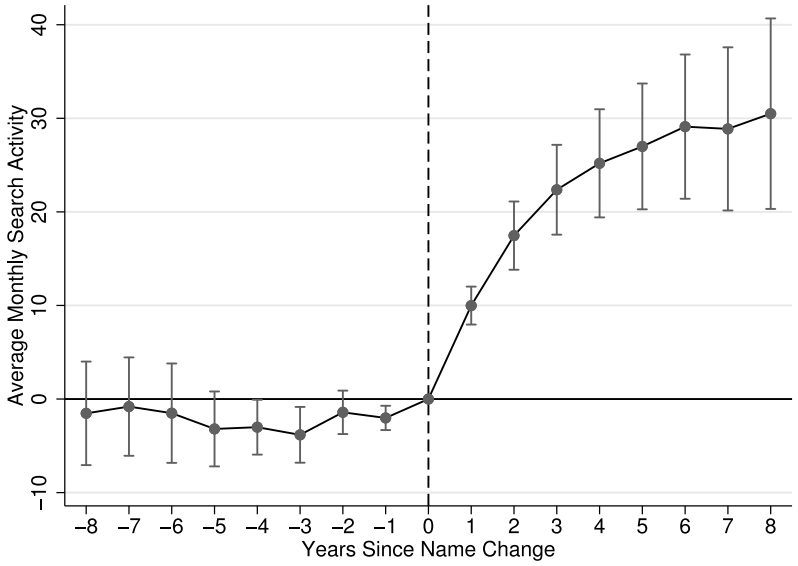


Fig. 3. Changes in search activity following college-to-university conversions.
Notes: Each figure presents estimates of the π_k coefficients in Eq. (1), with only institution and state-by-control-by year fixed effects included. All standard errors are clustered at the institution level. Panel A shows changes in Google search activity for an institution's "college" name, while Panel B shows changes in search activity for the "university" name.

and Panel B shows that admissions rates do not change following a conversion. Instead, Panel C shows that conversions initially increase institutions' yield rates, meaning that more admitted students choose to enroll once an institution uses its university name. However, the average SAT score of these enrolling students does not change (Panel D). This finding differs from Eble and Hu (2021)'s study of the Chinese higher education market but is not surprising in the American context if, as Jaquette (2013) and Morphew (2002) posit, institutions convert in order to compete in less selective and less prestigious markets.

Panel B of Fig. 4 shows that college-to-university conversions increase the total number of undergraduate FTEs enrolled in an institution. In Panel C, I show that these increases in enrollment translate into increased bachelor's degree production 5–6 years following a conversion —when the students who were induced to enroll due to the conversion have had time to complete degrees. Finally, in Panel D, I show that these increases in enrollment increase institutions' total non-investment revenues.[15] For all four outcomes, the results are quite similar with and without controls, suggesting that the name change itself —rather than, for example, the availability of new dorms or new programs of study —influences undergraduate students' enrollment choices and the institution's finances.

[15] I use non-investment revenues as the main measure of institutions' finances because a non-trivial number (N = 35) of institutions report negative total revenues in 2008 due to large, negative investment returns during the financial crisis. However, Appendix Fig. A.4 shows that ignoring these institutions and using the log of total revenues produces very similar results.

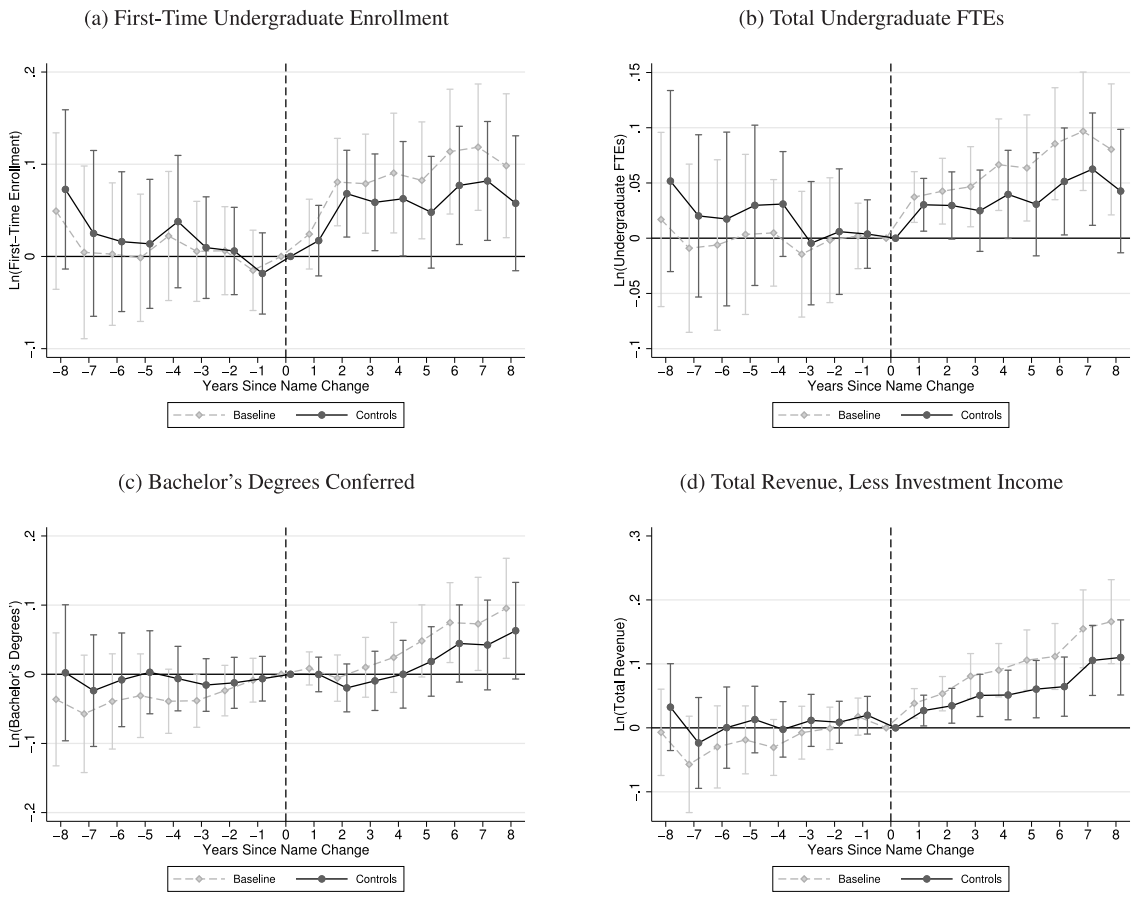


Fig. 4. Event study estimates of changes in institutional outcomes.
Notes: Each figure presents estimates of the π_k coefficients in equation (1). All regressions include institution and state-by-control-by-year fixed effects. Regressions with controls further include the highest degree offered by the institution; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers. All standard errors are clustered at the institution level.

Table 2 presents the grouped DID estimates for these outcomes. In each specification, the β_{pre} coefficient is small and statistically insignificant, again indicating that the results are not driven by differential pre-trends between converting and non-converting institutions. The estimates in column (1) indicate that first-time enrollment increases by 5.2% in the first five years following a conversion and 7.2% six or more years after. The average first-time enrollment at converting institutions in the year prior to their conversion is approximately 450, so these estimates translate to increases of 23–32 more students in an entering cohort.[16] Column (2) shows that total undergraduate FTEs increase by 3.1% in the first five years following a conversion and 5.4% six or more years later. The average number of undergraduate FTEs the year before a conversion is 2254, so the latter estimate translates into approximately 121 additional students or roughly four cohorts with increased enrollment due to the conversion.

Column (3) then shows that bachelor's degree completion does not change in the first five years following a conversion —which is unsurprising considering the average time to bachelor's degree completion in the U.S. is over 5 years (Shapiro et al., 2016) —but increases by a marginally significant 5.5% six or more years following a conversion, when new enrollees have had sufficient time to earn degrees. On average, institutions award 441 bachelor's degrees per year, so a 5.5% increase equates to 24 more degrees per year, which is again roughly the increased incoming cohort size. In Panel A of Appendix Fig. A.10, I decompose this increase in bachelor's degree production by field of study and find that it can be explained by (1) a 9.9 pp increase in the likelihood that institutions award bachelor's degrees in health and medicine, and (2) modest increases in business, public and social services, and social science degrees. Panel B further shows that institutions are more likely to award graduate degrees in health and medicine, business, and public and social services after converting to universities, suggesting that there may be complementarities to undergraduate and graduate education in these fields.

Finally, column (4) of Table 2 shows that college-to-university conversions increase total non-investment revenues by 8.5% after six years. In Appendix Table A.4, I further show that this overall increase is primarily driven by a 7.8% increase in net tuition and fees revenue and a 13.3% increase in net revenues from auxiliary enterprises, the latter of which is defined by IPEDS as operations that "exist to furnish a service to students, faculty, or staff, and that charge a fee that is directly related to, although not necessarily equal to, the cost of the service" (National Center for Education Statistics, 2021b). This definition includes revenue from residence halls and food services, which, along with tuition and fees, should increase when enrollment increases. In contrast, I find that all other non-investment revenue —such as grants and contracts, government appropriations, and donations —does not increase after a conversion.

With increased revenues, institutions should be able to increase their expenditures. In Appendix Fig. A.11, I show that this is indeed the

[16] In Appendix Table A.3, I further consider whether conversions affect the geographic composition of entering students. Using data on freshmen residency that is reported to IPEDS in even years, I find little effect of conversions on the percentage of freshmen that are in-state, out-of-state, or international.

Table 2
Effects of conversions on institutional outcomes.

Time since conversion:	Ln(First-time enrollment) (1)	Ln(Undergrad FTEs) (2)	Ln(Bachelor's degrees) (3)	Ln(Non-investment revenue) (4)
Before	0.014	0.012	−0.008	0.008
	(0.027)	(0.023)	(0.021)	(0.019)
1–5 years after	0.052**	0.031**	−0.004	0.042***
	(0.023)	(0.015)	(0.017)	(0.014)
6+ years after	0.072**	0.053**	0.055*	0.085***
	(0.033)	(0.027)	(0.032)	(0.028)
Observations	7911	7921	7921	7921

Notes: The coefficients in each column are estimated from a separate regression and represent variants of the β parameters in Eq. (2): the effect of converting to a university on the outcome of interest. All regressions include controls for the highest degree offered by the institution; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers; institution and state-by-control-by-year fixed effects, unless otherwise specified. All standard errors are clustered at the institution level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

case. Institutions spend 7.3% more six or more years following a conversion, with instructional expenditures increasing by 6.5% and academic support service expenditures increasing by 14.4%. Since higher education is a very labor-intensive industry, this increased spending should increase the number of employees at an institution. To analyze this potential effect, Appendix Fig. A.12 then presents event study estimates of conversions on institutions' staffing levels. Panel A indicates that total staff increases following a conversion, while the following panels separate this increase by occupational category. Both faculty (Panel B) and non-faculty (Panel E) staffing levels increase, with a larger increase in the latter category. Taken together with the revenue results, these findings indicate that converting to a university leads to an improved financial standing for the institution, whereby they earn, spend, and hire more.

However, these increases in revenues, expenditures, and staffing levels do not necessarily lead to a higher-quality educational experience for students as total enrollments are also increasing. In Appendix Fig. A.13, I show that *per-student* expenditures —defined as total expenditures per FTE —decrease following a college-to-university conversion. The number of faculty per full-time equivalent student does not change in a meaningful way, while the number of non-faculty staff per FTE increases slightly (with some evidence of pre-trends). While declining per-student resources bolsters the interpretation that students are responding to changes in institutions' names, rather than changes in educational quality, it also provides a cautionary tale for the future outcomes of students enrolled in these institutions since prior work finds positive effects of increased per-student spending on both educational attainment (Bound & Turner, 2007; Deming & Walters, 2018) and long-run financial outcomes (Chakrabarti, Gorton, & Lovenheim, 2020).

5.2. Robustness

As discussed in Section 4, the event study specifications are estimated across 122 college-to-university conversions taking place between 2002 and 2015. This variation in treatment timing can contaminate the main event study estimates if there are heterogeneous treatment effects across treatment cohorts. To assess the extent to which such contamination is a concern in my empirical setting, Fig. 5 compares my main event study specifications to alternative event study estimators for four key outcomes of interest: first-time enrollment, total undergraduate FTEs, bachelor's degree production, and non-investment revenue.

The first estimator is the one proposed by Sun and Abraham (2021) and allows the event study coefficients to vary by the year in which an institution converts and then produces a weighted average of the cohort-specific estimates for each coefficient, where the weights are based on the relative number of conversions that occur in each year. The second estimator is the stacked event study introduced by Cengiz et al. (2019), where I compare each converting institution only to institutions that never convert to universities within the time frame of the data. Both specifications rely on the comparison of treated units (i.e., colleges that convert to universities) to clean control units (i.e., colleges that do not convert to universities within the sample period) to prevent the negative weighting of some events that may occur in the traditional TWFE design. For all four outcomes, the results are nearly identical between my main specification and the alternative estimators and none of the event study estimates are statistically different from one another. This finding is likely driven by the fact that the specifications include more than three times the number of control units (390) than treated units (122) and indicates that heterogeneous treatment effects across cohorts are not contaminating the main results.[17]

Table 3 then summarizes several additional specifications for the key outcomes, concentrating on the long-run effects six or more years following a conversion. Column (1) provides the main specification estimate, while column (2) adds institution-specific linear time trends. The estimated effects for first-time enrollment, undergraduate FTEs, and non-investment revenue attenuate slightly when these trends are added but remain statistically significant at the 10% level or greater. The estimated effect for bachelor's degrees production attenuates further and is no longer statistically significant but remains positive.

Column (3) includes detailed measures of program offerings to account for the fact that changes in student demand may be sensitive to the fields in which new programs are offered. For example, more students may be interested in attending an institution when it increases its offerings in business and STEM subjects, as opposed to arts or humanities. When including separate controls for the number of bachelor's, master's, advanced degree, and graduate certificate programs in seven different fields of study, the results attenuate slightly, but all coefficients remain positive and those for first-time enrollment and revenues remain statistically significant.[18]

Column (4) then tests the sensitivity of the results to including a full set of president-by-institution fixed effects that capture any changes related to a new president directing the institution.[19] The results hardly change with the inclusion of these controls, providing further evidence that students are responding to a college's conversion to a university, rather than other unobserved changes that may be induced by a new administration.

[17] A decomposition of all possible 2 × 2 DID comparisons, as proposed by Goodman-Bacon (2021), indicates that 88% of comparisons are those between converting and never-converting institutions (as opposed to early vs. late or late vs. early conversions).

[18] The seven different fields of study are the same used to disaggregate the award results in the previous section: arts and humanities, business, education, health and medicine, public and social services, social sciences, and STEM.

[19] For institutions that retain the same president throughout the time frame of the data, these interactions are absorbed by the institution fixed effects. For institutions that change presidents, the inclusion of these interactions allows the institution fixed effects to vary by president.

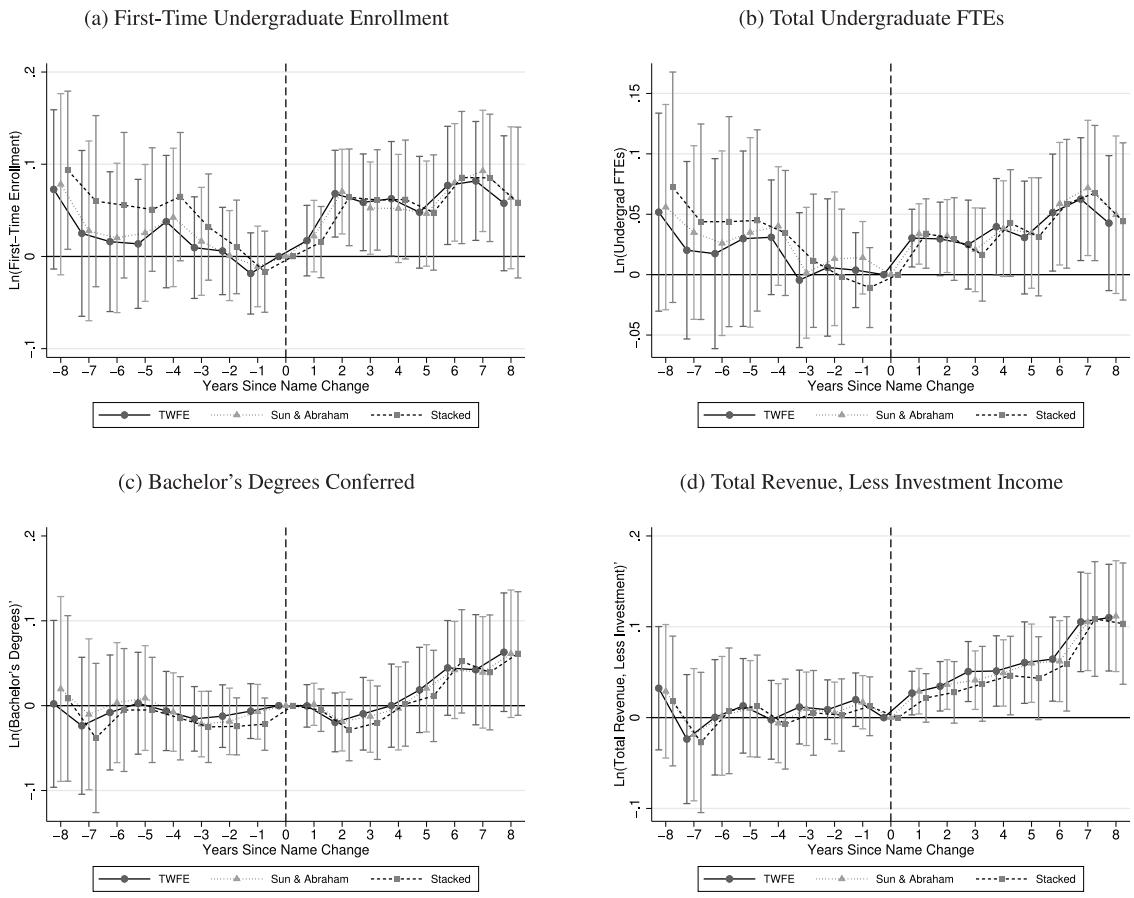


Fig. 5. Alternative event study estimators.
Notes: Each figure shows how the π_k estimates in equation (1) change when using the estimators proposed by Cengiz et al. (2019) or (Sun & Abraham, 2021). All regressions include controls for the highest degree offered by the institution; the log value of an institution's buildings and land; and separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers. All standard errors are clustered at the institution level.

Table 3
Robustness checks for longer-run effects.

	Main (1)	Time trend (2)	Add. controls (3)	President FEs (4)	Drop systems (5)	Drop no grad (6)
Panel A. First-time enrollment						
6+ years after	0.072**	0.063*	0.061*	0.072**	0.073**	0.070**
	(0.033)	(0.036)	(0.034)	(0.033)	(0.033)	(0.033)
Observations	7911	7911	7911	7911	7677	7582
Panel B. Undergraduate FTEs						
6+ years after	0.053**	0.052*	0.041	0.053**	0.050*	0.030
	(0.027)	(0.029)	(0.027)	(0.027)	(0.027)	(0.026)
Observations	7921	7921	7921	7921	7687	7592
Panel C. Bachelor's degrees conferred						
6+ years after	0.055*	0.036	0.033	0.055*	0.051	0.029
	(0.032)	(0.030)	(0.032)	(0.032)	(0.033)	(0.030)
Observations	7921	7921	7921	7921	7687	7592
Panel D. Total revenue, less investment income						
6+ years after	0.085***	0.059**	0.078***	0.085***	0.089***	0.078***
	(0.028)	(0.024)	(0.028)	(0.028)	(0.028)	(0.028)
Observations	7921	7921	7921	7921	7687	7592

Notes: The coefficients in each column are estimated from a separate regression and represent variants of the β parameters in Eq. (2): the effect of converting to a university on the outcome of interest. All regressions include controls for the highest degree offered by the institution; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers; institution and state-by-control-by-year fixed effects, unless otherwise specified. All standard errors are clustered at the institution level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Column (5) drops conversions that occurred as part of a system-wide change in a public university system, as such conversions may be more likely to coincide with other, unobserved changes in institutional characteristics. These conversions include four West Virginia public colleges that converted to universities in 2004, six Massachusetts public colleges that did so in 2010, and three Colorado public colleges that

Table 4
Heterogeneous longer-run effects.

	Main (1)	Private (2)	Public (3)	Less selective (4)	More selective (5)	Smaller (6)	Larger (7)	Older (8)	Younger (9)
Panel A. First-time enrollment									
6+ years after	0.072**	0.079**	−0.011	0.086*	0.020	0.129**	0.008	0.129***	0.026
	(0.033)	(0.034)	(0.139)	(0.045)	(0.058)	(0.055)	(0.037)	(0.050)	(0.045)
Observations	7911	7005	906	3287	3219	3913	3877	3721	3708
Panel B. Undergraduate FTEs									
6+ years after	0.053**	0.048*	0.078	0.024	0.045	0.068	0.048	0.135***	−0.002
	(0.027)	(0.029)	(0.079)	(0.039)	(0.057)	(0.047)	(0.031)	(0.046)	(0.039)
Observations	7921	7005	916	3287	3219	3913	3877	3721	3728
Panel C. Bachelor's degrees									
6+ years after	0.055*	0.045	0.135**	0.029	0.065	0.066	0.071**	0.198***	−0.027
	(0.032)	(0.034)	(0.064)	(0.045)	(0.053)	(0.059)	(0.030)	(0.061)	(0.041)
Observations	7921	7005	916	3287	3219	3913	3877	3721	3728
Panel D. Total revenue, less investment income									
6+ years after	0.085***	0.091***	−0.012	0.081*	0.122**	0.098*	0.046	0.189***	0.022
	(0.028)	(0.029)	(0.096)	(0.042)	(0.048)	(0.051)	(0.028)	(0.052)	(0.037)
Observations	7921	7005	916	3287	3219	3913	3877	3721	3728

Notes: The coefficients in each column are estimated from a separate regression and represent variants of the β parameters in Eq. (2): the effect of converting to a university on the outcome of interest. All regressions include controls for the highest degree offered by the institution; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers; institution and state-by-control-by-year fixed effects. All standard errors are clustered at the institution level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

did so in 2012. Excluding such conversions from the sample minimally changes the results and, if anything, produces slightly larger point estimates.

Finally, Column (6) drops any institutions that did not offer graduate programs prior to converting to a university, as these conversions may have represented a more drastic change in an institution's mission and may have occurred alongside other, unobservable changes. The estimated effects for first-time enrollment and non-investment revenues are very similar to the main results in column (1), while those for undergraduate enrollment and bachelor degree production are somewhat attenuated and no longer statistically significant at conventional levels.[20]

5.3. Heterogeneity

Table 4 presents estimates of heterogeneous long-run effects for the main outcomes of interest. I first stratify the sample by an institution's control in columns (1) and (2) to understand how conversions differentially affect public and private institutions. Unsurprisingly, the effects for private institutions —who make up the majority of the sample —align closely with the main results. The effects for public institutions are noisier but suggest that conversions have a greater impact on bachelor's degree production for public institutions. However, conversions do not increase non-investment revenues for public colleges, which could reflect differences in the objectives of public and private institutions. For example, whereas private institutions may convert to improve their financial viability, public institutions may do so to provide more opportunities for residents of their state to pursue graduate degrees or to make up for a decline in state appropriations for higher education (Jaquette, 2019).

In columns (4) and (5), I stratify the sample by baseline selectivity, identifying institutions as being above or below the median admissions rate in 2001. Less selective institutions see a greater increase in first-time enrollment after converting to a university, but more selective institutions see a larger increase in revenues. In columns (6) and (7), I stratify the sample by baseline size, defined as being above or below the median total full-time equivalent enrollment in 2001. Smaller institutions see larger increases in first-time undergraduate enrollment and revenues, while larger institutions see a somewhat larger increase in bachelor's degree production.

Finally, in columns (8) and (9), I stratify the sample by college age, using data on the years in which they were first established from the 1980 IPEDS survey. Older colleges, which I define as those with establishment dates below the median of the sample, see much larger increases in all outcomes than their younger peers. While I am not able to determine the direct mechanism behind these differential effects, it is possible that more established colleges can better leverage their reputation to attract students and improve their financial standing. As such, institutions and policymakers should take these differences into account when deciding whether a conversion is likely to help them achieve their longer-run goals.

6. Implications for competition

College-to-university conversions increase the enrollment, degree production, and revenues of converting institutions, but may also have effects on non-converting institutions. To establish the welfare effects of conversions on the competitive U.S. higher education market as a whole, I first document that there is a first-mover advantage, where colleges that are the first in their market to convert to universities experience larger returns to doing so. I then consider the spillover effects of conversions on non-converting institutions' enrollments, awards, and revenues.

6.1. First-mover advantage

To establish the presence of a first-mover advantage in conversions, I estimate Eq. (2) separately for colleges that are the first in their region, in their region/control pair, in their state, or in their state/control pair to convert to a university. In defining these markets, I follow IPEDS' use of region definitions from the U.S. Bureau of Economic Analysis (BEA), which divide the country into eight contiguous collections of states.[21]

Table 5 presents these estimates. Panel A considers the advantage of being a first-mover on first-time enrollment. There is little evidence of an advantage of being the first-mover in one's region or region/control

[20] In Appendix Fig. A.14, I further show that the results are similar when limiting the sample to converting institutions with below-average absolute or percentage growth in new graduate programs from 2001 to 2016.

[21] A list of states included in each region is available on the BEA's website: https://apps.bea.gov/regional/docs/msalist.cfm?mlist=2.

Table 5
Evidence of first-mover advantage.

	Main	Region		Region/Control		State		State/Control	
		FM	Not FM	FM	Not FM	FM	Not FM	FM	Not FM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A. First-time enrollment									
6+ years after	0.072**	0.096	0.060*	0.064	0.067*	0.114**	0.012	0.103**	0.019
	(0.033)	(0.090)	(0.035)	(0.085)	(0.035)	(0.047)	(0.041)	(0.045)	(0.042)
Observations	7911	6110	7687	6174	7591	6807	7006	6951	6830
Panel B. Undergraduate FTEs									
6+ years after	0.053**	0.023	0.053*	0.015	0.056**	0.072*	0.020	0.056	0.044
	(0.027)	(0.084)	(0.028)	(0.078)	(0.028)	(0.040)	(0.034)	(0.039)	(0.032)
Panel C. Bachelor's degrees									
6+ years after	0.055*	0.130*	0.035	0.127*	0.033	0.089**	0.005	0.068*	0.029
	(0.032)	(0.075)	(0.033)	(0.069)	(0.034)	(0.041)	(0.043)	(0.040)	(0.044)
Observations	7921	6110	7697	6174	7601	6807	7016	6961	6830
Panel D. Total revenue, less investment income									
6+ years after	0.085***	0.149**	0.071**	0.140**	0.074**	0.121***	0.047	0.109***	0.061
	(0.028)	(0.067)	(0.031)	(0.062)	(0.031)	(0.038)	(0.039)	(0.036)	(0.042)
Observations	7921	6110	7697	6174	7601	6807	7016	6961	6830

Notes: The coefficients in each column are estimated from a separate regression and represent variants of the β parameters in Eq. (2): the effect of converting to a university on the outcome of interest. All regressions include controls for the highest degree offered by the institution; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers; institution and state-by-control-by-year fixed effects. All standard errors are clustered at the institution level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

pair, but a clear advantage of being the first college in one's state or state/control pair to convert to a university. First-movers at the state level see an 11.4% increase in first-time enrollment six or more years following a conversion, while non-first-movers see a statistically insignificant 1.2% increase. Similarly, first-movers at the state/control level see a 10.3% increase in first-time enrollment, compared to a 1.1% increase for those who are not the first to convert. Panel B repeats this analysis for total undergraduate FTEs, where first-movers at the state-level see a 7.2% increase, compared to 2% for non-first-movers.

Panel C then assesses the first-mover advantage for the number of bachelor's degrees conferred six or more years following a conversion. Across all four market definitions, the estimated effects are larger for first-movers than non-first-movers. For example, an institution that is the first in its state to convert experiences an 8.9% increase in degrees awards conferred, whereas an institution that is not the first to convert experiences a statistically insignificant 0.5% increase. A similar trend emerges for total non-investment revenues in Panel D, where first-movers experience larger gains across all specifications. First-movers within a state experience a 12.1% increase in revenue, whereas non-first-movers in a state experience a 4.7% increase, which is not statistically significant at conventional levels.

Taken together, these results suggest that a substantial share of the average return to converting to a university can be attributed to the novelty of being the first institution in one's market to do so. However, these estimates should be interpreted with some caution as the institutions that decide to be the first mover in their market may differ from those that convert to universities later along unobservable margins. For example, their leadership may be more willing to take risks or may have a better understanding of changes in the demand for higher education than other institutions, which may make their conversions more successful.

6.2. Spillover effects on other institutions

To assess the extent to which colleges' decisions to convert to universities have spillover effects on other institutions in the higher education market, I limit the sample to colleges that never convert to a university and append the dataset with institutions that were already universities in 2001.[22] Thus, the analysis sample consists of all colleges and universities that retain their "college name" or "university name" for the entirety of the sample. I then estimate specifications of the following form:

$$Y_{imt} = \beta_1 \text{ShareConverted}_{mt} + \beta_2 \text{ShareConverted}_{mt} * \text{College}_i + \mathbf{X}_{it}\boldsymbol{\Gamma} + \mu_i + \lambda_t + \epsilon_{isct} \quad (3)$$

where Y_{imt} is some outcome of interest for institution i that competes in market m in year t. The main independent variable of interest is $\text{ShareConverted}_{mt}$, which measures the share of institutions in market m that have converted from colleges to universities by year t. I allow the effect of this variable to vary based on whether the non-converting institution is a college or a university and consider both region/control and state/control markets.[23] $\mathbf{X}_{it}$ is a vector of the same time-varying, institution-level controls I include in the main analysis. μ_i is an institution fixed effect and λ_t is a year fixed effect. Because the variation in conversion shares comes from the market level, I cluster all standard errors at the market level.

Table 6 presents estimates of β_1 and β_2 for three outcomes of interest: undergraduate FTE enrollment, bachelor's degrees conferred, and total revenue less investment income. Panel A shows how conversions affect non-converting institutions' undergraduate enrollment. The results are somewhat imprecise but suggest that a 10pp increase in the share of a market that has converted to a university decreases undergraduate enrollment at non-converting colleges by 1%–2%, with little evidence that effects differ between colleges and universities.[24] Panel B presents results for bachelor's degrees conferred. A 10pp increase in the share of the market that has converted to a university decreases the number of degrees conferred by colleges by 1.3–6.5%. The effects are somewhat larger for non-converting colleges (as opposed to universities) but are not statistically different between the two groups. Finally, Panel C shows that non-converting colleges experience revenue declines when other colleges in their market convert to universities. A 10pp increase in the share of the market that has converted decreases institutions' non-investment revenues by 1%–2%

[22] I continue to drop any institution that initiates any major name change between 2001 and 2016.

[23] Appendix Table A.5 shows analogous results using region and state market definitions.

[24] A 10pp increase in converting colleges is approximately equal to the share of colleges in a given market that will convert between 2001 and 2016. Thus, these effects can be interpreted as the average change in the outcome of interest for non-converting colleges over the sample period.

Table 6
Spillover effects on competitors.

	Region/Control		State/Control	
	(1)	(2)	(3)	(4)
Panel A. Undergraduate FTEs				
Share of market converted	−0.179	−0.210	−0.129**	−0.103
	(0.150)	(0.154)	(0.063)	(0.086)
(Share of market converted) * College		0.092		−0.055
		(0.099)		(0.094)
Observations	17,645	17,645	17,565	17,565
Panel B. Bachelor's degrees conferred				
Share of market converted	−0.651**	−0.569**	−0.170**	−0.125
	(0.255)	(0.260)	(0.078)	(0.107)
(Share of market converted) * College		−0.242		−0.094
		(0.206)		(0.115)
Observations	17,645	17,645	17,565	17,565
Panel C. Total revenue, less investment				
Share of market converted	−0.075	0.023	−0.009	0.104
	(0.137)	(0.159)	(0.054)	(0.085)
(Share of market converted) * College		−0.290		−0.237**
		(0.176)		(0.102)
Observations	17,645	17,645	17,565	17,565

Notes: The coefficients in each column are estimated from a separate regression and represent variants of the β_1 and β_2 parameters in Eq. (3): the effects of conversions on non-converting institutions. All regressions include controls for the highest degree offered by the institution; the log value of an institution's buildings and land; separate variables for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers; institution and year fixed effects. All standard errors are clustered at the market level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

on average, with larger effects for non-converting colleges, particularly when using the state/control market definition. In sum, these results suggest that college-to-university conversions have negative spillover effects on institutions that operate in the same markets, particularly the financial standing of colleges that do not become universities.

7. Conclusion

Between 2001 and 2016, over 100 four-year colleges changed their names to become universities. In this paper, I present the first analysis in the literature of the effects of these conversions on institutions' enrollments, degree production, and finances, as well as on non-converting institutions in the same markets. Leveraging variation in the timing of institutions' conversions in an event study framework, I show that becoming a university signals an increased focus on graduate education, which in turn increases undergraduate enrollment, bachelor's degree production, and revenues. These effects are robust to accounting for other institution-level changes that often surround conversions, such as the addition of new programs and the expansion of campuses, suggesting that there may be complementarities between undergraduate and graduate education that influence student demand.

I further find that college-to-university conversions have implications for the functioning of the U.S. higher education market as a whole. I show that institutions that are the first in their market to convert to a university experience the largest increases in degree production and revenues, suggesting that there is a first-mover advantage in initiating a college-to-university conversion. In addition, I find that conversions can reduce enrollments, awards, and revenues at non-converting colleges in the same markets. Policymakers may wish to consider these spillover effects when crafting rules and regulations about college-to-university conversions.

Additional research on these policies would be a valuable contribution to the literature, as would work on the many other name and branding changes that occur within the higher education market each year. For example, many public two-year colleges have changed their names multiple times since their inception, evolving from junior colleges to community colleges to now colleges, that sometimes offer bachelor's degrees (Marklein, 2014). Similarly, some institutions have removed the word "state" from their names (Argetsinger, 2000), while others have forgone directional words, such as northeast or southwest (Riley, 2015), and religious indicators (Boehnke, 2011). Understanding how these types of changes affect students' enrollment decisions and institutional outcomes remains an important line of inquiry, as they provide insight into both the college choice process and the strategic behavior of institutions.

CRediT authorship contribution statement

Riley K. Acton: Conceptualization, Methodology, Software, Formal analysis, Data curation, Writing – original draft, Writing – review & editing, Visualization.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.econedurev.2022.102240.

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