

# Is a Name Change a Game Change? The Impact of College-to-University Conversions

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## Abstract

In the competitive American higher education market, institutions seek to 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. Leveraging variation in the timing of such conversions in an event study framework, I show that becoming a university increases enrollments, particularly at the graduate level, which leads to a greater number of degrees produced and higher total revenues. I further find that these effects are larger when institutions are the first in their market to convert to a university and can lead to negative spillover effects on non-converting colleges.

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## 1 Introduction

Colleges and universities across the United States, particularly those outside of the elite echelon, have faced significant challenges in recent years. A declining traditional college-age population has left institutions in the northeast and Midwest competing for a smaller pool of potential students (Grawe, 2019). Meanwhile, public institutions have faced declining state support (Mitchell et al., 2019) and many Americans express 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 attracting more students and more tuition dollars. Many have done so by investing in non-instructional amenities (Jacob et al., 2018), adding new programs of study (Cook, 2020), or increasing their advertising presence (Cellini and Chaudhary, 2020).

However, some smaller colleges have taken an alternative approach: they have re-branded themselves as a “university,” rather than a “college.” Indeed, between 2001 and 2016, over 100 four-year colleges —typically ones that were already offering graduate education—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 the change had “promotional value” and that the institution experienced an immediate bump in internet search activity following the announcement (Wong, 2019).

While there is some research on factors that influence colleges’ decisions to convert to universities (Morphew, 2002; Jaquette, 2013), there is surprisingly little work documenting whether such conversions successfully attract students to institutions and affect institutions’ finances. In this paper, I leverage variation in the timing of institutions’ conversions in an event study framework to estimate the effect of college-to-university conversions on a variety of institutional outcomes. I first show that the conversions are salient to the general public, with Google searches for the

“college” decreasing and searches for the “university” increasing in the years following a conversion announcement. I then use rich, institution-level data from the U.S. Department of Education’s Integrated Postsecondary Education Data System (IPEDS) and College Scorecard to estimate the impacts of conversions on enrollments, awards, and finances. I find that converting to a university increases an institution’s first-time undergraduate enrollment by 4% and total graduate enrollment by 18% within two years. These effects grow to 6.6% and 51%, respectively, five or more years following a conversion. Conversions further increase the number of awards institutions confer—particularly at the master’s and graduate certificate levels—by 11.5% and lead to 6-8% higher revenues. These results are robust to controlling for time-varying institutional characteristics, including degree offerings and physical capacity, suggesting that the name of an institution influences student demand above and beyond the educational experience it offers. Effects are larger for institutions that are the first in their market to convert to a university and I provide suggestive evidence that they lead to negative spillover effects on colleges that do not convert to universities.

My findings contribute to a large body of empirical work on students’ college application and enrollment choices. The college application and admissions processes are complicated and students often lack information and guidance regarding where to apply and where to attend. As a result, students often rely on rankings (Griffith and Rask, 2007; Alter and Reback, 2014; Hurwitz and Smith, 2018) and media coverage (Lindo et al., 2019; Rooney and Smith, 2019) to make their decisions, and relatively small changes in application costs can dramatically affect students’ behavior (Smith et al., 2014; Pallais, 2015; Knight and Schiff, 2019). 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 in the absence of reliable information and guidance about college attributes. 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 markets, suggesting that employers also interpret a “university” as higher quality than a “college.”<sup>1</sup>

I also build on a line of literature on how colleges behave strategically to maximize their rankings, enrollments, and revenues. Conlin et al. (2013) find that colleges strategically use test-

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<sup>1</sup>Outside of the U.S. context, Eble and Hu (2020) find that Chinese colleges who change their names attract more qualified applicants and that employers respond rationally to these changes.

optional admission policies to improve their rankings, while Luca and Smith (2015) provide evidence that business schools selectively choose which ranking information to provide students to appear higher-quality. Here, I show that colleges are likely behaving strategically when deciding to convert to a university, as it leads to increased student demand and a more viable financial situation for the institution.

Finally, my results relate to a small literature in finance and industrial organization that estimates the impacts of firm name changes on profitability. Cooper et al. (2001) finds that corporations that added “.com” to their name in the late 1990s experienced abnormally high stock returns surrounding their name change announcements, while Wu (2010) documents that firms add or delete parts of their names to foreshadow a change in their business focus. McDevitt (2011) further shows that a record of complaints induces residential plumbing firms to change their names, particularly in small markets. I do not find substantial evidence of negative selection into name changes among U.S. colleges, but show that such changes can lead to financial gains for higher education institutions. This finding suggests that name changes may affect demand and financial outcomes in other industries, which is a fruitful area for future research.

## 2 Identifying College-to-University Conversions

I identify colleges that have converted to universities using annual information on postsecondary institutions’ names from IPEDS. 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 a slight change 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 489 colleges in my sample that did not experience substantial name changes over the time frame of my data, 114 (23%) converted to a university by 2016. Appendix Table A.1 lists the pre- and post-conversion names of these institutions, along with their state, sector, and year of their conversion and Appendix Figure A.1 maps their locations. Institutions in 36 states converted to universities, with the most conversions occurring in Pennsylvania (15), Ohio (10), and Massachusetts (9). Panel A of Figure 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.

Most institutions that convert to universities are private, as these institutions typically have substantial control over their names and need only a vote by their Board of Trustees to convert to a university. Exceptions include religious institutions —who may also need approval from their affiliated religious organization —and institutions in New Jersey, Pennsylvania, Massachusetts, and New Hampshire —who require approval from a state agency before converting to a university.<sup>2</sup> In contrast, public universities almost always require approval from a state agency, the state legislature, or the governor to convert. While I do not have precise information on each state's policies regarding conversions, I include state-by-sector-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.

### 3 Data & Empirical Strategy

#### 3.1 Data Sources

My analysis relies on annual, institution-level data from IPEDS and the U.S. Department of Education's College Scorecard. These databases include rich information on applications, undergraduate and graduate enrollment, awards conferred, revenues, staffing levels, and expenditures

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<sup>2</sup>I gather information on state policies from news articles about colleges' conversions. These are the only states in which articles mention that state approval was required for a conversion. All others indicate that the decision was made by an institution's Board of Trustees.

—all of which are outcomes colleges may hope to influence by converting to universities. 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.) level 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 include CIP codes with zero degrees conferred in a given year, as these are programs that institutions report operating, 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 to track average monthly search activity from 2004 to 2015 and analyze whether the general public changes the search terms they use following a conversion.

Table 1 provides summary 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). At baseline, the colleges that will convert to universities enroll slightly more undergraduate and graduate students and offer more graduate programs than their peers who remain as colleges throughout the time period. They also tend to be somewhat less selective —evidenced by their higher admissions rates and lower average SAT scores —and less resourced, spending less per student on instruction, academic support, and student services.<sup>3</sup> Many of these differences persist at the end of the sample period, with the gaps in graduate offerings and enrollment growing between 2001 and 2016.

The raw differences in characteristics between colleges that do and do not convert to universities

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<sup>3</sup>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.

align closely with work by Morphew (2002) and Jaquette (2013). Both provide evidence 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. Doing so may place them in a more competitive position to attract students and revenues, which is the focus of the remainder of the paper.

### 3.2 Event Study Framework

To estimate the causal effect of college-to-university conversions on institutions’ outcomes, I exploit colleges’ staggered conversions to universities in an event study framework. Intuitively, this approach compares 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 across the time frame of the data. The event study estimating equation is:

$$Y_{isct} = \sum_{k=-7}^{-1} \pi_k * C_i * 1[t - t_i^* = k] + \sum_{k=1}^{10} \phi_k * C_i * 1[t - t_i^* = k] + \mathbf{X}_{it}\boldsymbol{\Gamma} + \mu_i + \lambda_{sct} + \varepsilon_{isct} \quad (1)$$

where  $Y_{isct}$  is an outcome of interest for institution  $i$  in state  $s$  and control  $c$  (public vs. private) in year  $t$ .  $\mathbf{X}_{it}$  is a vector of time-varying institutional characteristics that may affect the outcome, such as tuition rates and state economic variables.  $\lambda_{sct}$  is a year fixed effect that varies at the state-by-control level, which captures changes in state-level demographics and policies that may affect public and private institutions differently.  $\varepsilon_{isct}$  is an idiosyncratic error term. To account for the potential correlation of error terms within an institution, I cluster all standard errors at the institution level.

The indicator  $C_i$  takes on a value of 1 if an institution ever converts to a university over the time frame of the data and is equal to 0 otherwise. Therefore, the interactions of  $C_i$  and event-year dummies,  $1[t - t_i^* = k]$ , are equal to 1 when the year of observation is  $k = -7, \dots, 10$  years from  $t_i^*$ , the date when an institution converts from a college to university.<sup>4</sup> The omitted year,

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<sup>4</sup>These interactions are all equal to zero for colleges that never convert to universities. However, I include these colleges in the estimation procedure to appropriately identify the effects of the other covariates and the region-sector-year dummies.

$k = 0$ , corresponds to the final year that an institution operates under its college name. Thus,  $k = 1$  corresponds to the first year an institution operates under its university name. I bin the endpoints such that  $k = -7$  captures all observations 7 or more years before a college converts to a university and  $k = 10$  captures all observations 10 or more years after it does so.

The  $\pi_k$  coefficients trace out the trend of an outcome of interest for colleges that eventually convert from a college to a university, before the year of conversion. Meanwhile, the  $\phi_k$  coefficients estimate how an outcome changes after a college converts to a university. While the intuition of this setup is similar to that of a static difference-in-differences (DID) analysis, estimating each event study coefficient separately avoids some of the negative weighting issues common in two-way fixed effects (TWFE) models with variation in treatment timing (Goodman-Bacon, 2018; de Chaisemartin and D'Haultfoeuille, 2020). Nevertheless, to summarize the results in a succinct manner, I follow Bailey and Goodman-Bacon (2015) and present estimates of the following grouped DID equation:

$$Y_{isct} = \beta_{pre} * C_i * 1[t - t_i^* < 0] + \beta_{1-2} * C_i * 1[1 \leq t - t_i^* \leq 2] + \beta_{3-4} * C_i * [3 \leq t - t_i^* \leq 4] \\ + \beta_{5+} * C_i * 1[t - t_i^* \geq 5] + \mathbf{X}_{it}\boldsymbol{\Gamma} + \mu_i + \lambda_{sct} + \varepsilon_{isct} \quad (2)$$

where the  $\beta_{pre}$ ,  $\beta_{1-2}$ ,  $\beta_{3-4}$ , and  $\beta_{5+}$  coefficients capture how the outcome of interest changes before, in the first two years following, three to four years following, and five or more years following a conversion, respectively. All other variables are the same as in equation (1). I again cluster standard errors at the institution level to account for any potential correlation of the error terms within an institution.

In Section 4.4, I further investigate how the variation in treatment timing affects my results by estimating alternative event study specifications proposed by Sun and Abraham (2020) and Cengiz et al. (2019). Both specifications rely on the comparison of treated units to only “clean” control units that never convert to universities and produce very similar results to my main approaches.

### 3.3 Validity of Name Change Timing & Anticipatory Effects

Both the event study and grouped DID approaches estimate how a college’s outcomes change after they officially begin operating as a university. However, colleges may announce plans to convert to universities in advance of these official changes, potentially inducing anticipatory effects of a name change. 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.’ Figure 2 presents event study estimates of these two search measures.<sup>5</sup> 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. Together, these figures indicate that there is limited public knowledge of the name change prior to an institution operating under their new university name.

Appendix Figure A.2 presents an analogous specification using the underlying monthly search data and defining treatment timing as August of the first academic year in which an institution operates under their new name (generally, the start of the academic year).<sup>6</sup> Searches for the institution’s college name decline, and searches for the institution’s university name rise, starting in April prior to the academic year in which they operate under their new name. Thus, colleges are likely announcing their plans to change their names in the spring prior to the fall semester in which the change will occur, leaving little time for anticipatory effects.

### 3.4 Other Threats to Identification

Even if there are no anticipatory effects of conversions, the event study and grouped DID approaches still rely on the assumption that, conditional on the control variables, institutions that have not or never will convert to universities serve as valid counterfactuals for the institutions that do. Functionally, this assumption may be broken down into two parts. First, there should be no

<sup>5</sup>All event study specifications include variables for the seven years before and ten years after an institution’s conversion. For simplicity, I limit the figures to show only the six years before and after the conversion.

<sup>6</sup>In these specifications, I replace the year fixed effects with month-by-year fixed effects to appropriately account for changes in general search intensity for colleges and universities over time.

evidence of differential trends between converters and non-converters before a conversion. This assumption is directly testable through the estimation of the event study specification, which I present visually for all outcomes of interest. Second, there must be no unobserved, contemporaneous changes at converting institutions that would also affect enrollments, awards, 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 test.

First, as colleges convert to universities, they are likely to add more programs of study, particularly at the graduate level. These additions may, in and of themselves, attract more students to the institution. To test for such changes, Panel A of Appendix Figure A.3 presents event study coefficients on the total number of undergraduate and graduate programs offered by an institution, showing that programs increase both before and after a conversion. In Appendix Figure A.4, I separate the program offerings by degree level and show the largest increases occur in bachelor's and master's programs. As such, in the event study and grouped DID specifications that follow, I control explicitly for the number of bachelor's, master's, advanced degree, and graduate certificate programs an institution offers. In Section 5, I further separate these controls by field of study to account for different impacts of new programs in high-demand and low-demand fields.<sup>7</sup>

Colleges may be adding more programs to change their classification in the Carnegie system, which classifies colleges based on the number and types of degrees they award. To test for changes in colleges' Carnegie classifications, I aggregate the Carnegie data from 2000, 2005, 2010, and 2015 into four categories: (1) baccalaureate institutions, (2) master's institutions, (3) doctoral institutions, and (4) all other institutions.<sup>8</sup> Panel B of Appendix Figure A.3 shows that institutions are likely to become classified as either master's or doctoral institutions prior to their conversion. In Appendix Figure A.6, I further show that this trend is driven by baccalaureate institutions becoming master's institutions prior to a conversion. To account for this potential pre-conversion trend, I control for a college's Carnegie classification in all specifications that follow.

As colleges add more programs and prepare to convert to universities, they may also expand the

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<sup>7</sup>Appendix Figure A.5 shows trends in undergraduate and graduate programs in different fields surrounding college-to-university conversions.

<sup>8</sup>The Carnegie classification system is only updated every five years and categorizations change slightly over time. Aggregating the data to these four categories allows for reasonable comparisons over the time frame of the sample.

physical capacity of their campuses, which could allow them to enroll more students and/or generate more room and board revenue. Such expansions could occur through purchasing new land, constructing new buildings, or upgrading existing buildings. To test for changes in an institution's physical capacity, I estimate event study specifications of the log of the total value of an institution's buildings and land. Panel C of Appendix Figure A.3 presents these results. Colleges increase the value of their land and buildings both in the years leading up to and following a conversion. To capture the effects of these investments, I control for the logged value of buildings and land in the specifications that follow.

Finally, conversions may be more likely to occur when there are changes in administrative leadership, which may be indicative of other, unobserved changes in an institution's reputation or trajectory. The most salient change in leadership institutions can experience is a change in their president. However, I find little evidence that presidential positions change leading up to, or following, a college-to-university conversion. Panel D of Appendix Figure A.3 shows these trends by estimating the event study specification for a dummy variable indicating that an institution has a different president than in the prior year. There is no systematic trend in the probability of having a new president before a conversion, and little evidence that probability changes following a conversion. Nevertheless, in Section 5, 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.

## 4 Effects of College-to-University Conversions on Institutional Outcomes

### 4.1 Enrollment Effects

I begin the analysis by estimating how college-to-university conversions affect both undergraduate and graduate student demand for institutions. Figure 3 then presents event study estimates of how the application and enrollment behavior of undergraduate students changes following 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.<sup>9</sup>

Panel A shows that converting to a university immediately increases the number of first-time undergraduate students enrolling in the institution, and Panel B shows a modest increase in total undergraduate enrollment in the years that follow. These results are quite similar with and without controls, suggesting that the name change —rather than, for example, the availability of new dorms or new programs of study —influences students' choices. However, there are little effects on the number of applications received (Panel C) or the admissions rate (Panel D), suggesting that conversions do not substantially alter the number of students who apply or are accepted to the institution. Panel E shows that the average SAT score of admitted students also does not change, which is not surprising if institutions are both moving to a less selective market and not receiving more applications. Instead, Panel F shows that conversions increase institutions' yield rates, meaning that more admitted students choose to enroll in the university. Table 2 presents the grouped DID estimates of these outcomes, with the full set of controls. The estimates indicate that first-time enrollment increases by 4.1% in the first two years following a conversion, 6.2% in years three to four, and by 6.6% five or more years after.<sup>10</sup> Yield rates increase by 3.5pp, 2.4pp, and 0.9pp over the same time frames, although the latter two estimates are not statistically significant, while total undergraduate enrollment increases by 4.6% five or more years following a conversion.

Next, Figure 4 shows how graduate enrollments change surrounding an institution's conversion. After including the control variables, Panel A shows that there is little change in whether or not an institution has graduate students enrolled following a college-to-university conversion. However, there are large increases in the number of graduate students enrolled.<sup>11</sup> Panel B shows that the total number of graduate students is relatively flat prior to a conversion, but increases dramatically

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<sup>9</sup> Appendix Figure 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.

<sup>10</sup>In Appendix Figures A.8, I 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.

<sup>11</sup>In the results that follow, I use the inverse hyperbolic sine (IHS) transformation to approximate the log transformation but include observations with zero graduate enrollments.

following. Panels C and D show that these increases occur among both domestic and international students, the latter of which is often a goal in converting to a university. Finally, because undergraduate enrollments also increase with conversions, Panel E shows how the share of all students enrolled in graduate programs changes when a college converts. This quantity is also relatively flat pre-conversion, but markedly increases following. Table 3 then presents the grouped DID results with the full set of controls for these outcomes. Five years following an institution’s conversion, total graduate enrollment increases by 51.1%, with domestic enrollment increasing by 50% and international enrollment increasing by 38%. The share of students enrolled in graduate programs increases by 2.8pp, which is about a 19% increase over the pre-conversion mean of 14.7%.

## 4.2 Degree Production Effects

Figure 5 analyzes whether these increases in undergraduate and graduate enrollment translate to increases in awards conferred by an institution, i.e. whether new enrollees persist and earn degrees. Panel A shows a small and generally not statistically significant increase in bachelor’s degree production, which is consistent with the modest effects of conversions on total undergraduate enrollment. The following panels, however, show relatively flat pre-trends for graduate awards that increase dramatically following a conversion. This effect is particularly pronounced for master’s degrees (Panel C) and graduate certificates (Panel E), both of which are shorter in duration than advanced degrees (Panel D). In Panel E, I show that total awards also increase, especially three or more years following a conversion, when the new enrollees have had time to complete degree programs. Table 4 provides the corresponding point estimates for the grouped DID specifications. Total awards increase by 11.5% five or more years out, with the largest effects coming from increases in master’s degrees (66% increase) and graduate certificates (39% increase).

In Appendix Figure A.9, I plot estimates of  $\beta_{5+}$  for awards in seven separate fields of study: arts and humanities, business, education, health and medicine, public and social services, social sciences, and STEM. Panel A shows that, while conversions only modestly increase total bachelor’s degrees awarded, they markedly increase bachelor’s degrees in health and medicine. Panels B, C, and D further show that the increases in graduate degrees occur almost exclusively in business,

education, health and medicine, and public and social service. Taken together, these findings suggest that conversions strengthen an institution’s focus on pre-professional education, rather than traditional liberal arts and sciences. This increased focus is consistent with work by Morphew (2002) and Jaquette (2013), who find that institutions that increase their specialization in pre-professional programs are also the most likely to convert to universities.

### 4.3 Financial Effects

Figure 6 shows how converting to a university affects institutions’ revenues. Panels A and B show that log revenue, both with and without investment income included, increases following a college’s transition to a university. The following panels disaggregate this revenue increase by the source of funds.<sup>12</sup> The increases are most pronounced for net tuition and fees —meaning the tuition and fees an institution collects from students, less any discounts they provide —and net revenues from auxiliary enterprises. The latter category includes revenues from dorms and dining halls, which are likely to increase as more students attend an institution. In contrast, there is little change in government revenues or other non-investment revenues, such as donations. Table 5 presents the grouped DID estimates for these outcomes, which indicate that total revenues increase by 6% five or more years following a conversion, or 7.8% when the noise from investment income is excluded. Net tuition and fees revenue increases by 8.1% and net auxiliary enterprise revenue increases by 12.6% five or more years following a conversion. As shown in the figures, the estimates for other sources of revenue are noisy and there is no clear evidence that they increase.

With increased revenues, institutions should be able to increase their expenditures. In Appendix Figure A.10, I show that this is indeed the case. Following a conversion, institutions spend up to 7% more annually, primarily on instructional and academic support services. 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 Figure A.11 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

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<sup>12</sup>I also use the IHS transformation for these outcomes since some institutions report zero revenue from a given source in a given year.

category. Both faculty (Panel B) and non-faculty staffing levels increase, with a larger increase in the latter category. Yet, institutions do not appear to increase their reliance on adjunct labor, with tenure track faculty rising more than non-tenure track faculty staff levels. 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 the total number of students is also increasing. In Appendix Figure A.12, I show that *per-student* revenue and expenditures actually decrease following a college-to-university conversion (with some evidence of pre-treatment trends). The number of faculty per student does not change in a meaningful way, while the number of no-faculty staff per student increases slightly. While declining per-student resources bolsters the interpretation that students are responding to changes in institutions' names, rather than their 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 and Turner, 2007; Deming and Walters, 2017) and long-run financial outcomes (Chakrabarti et al., 2020).

#### 4.4 Robustness & Heterogeneity

As discussed in Sections 2 and 3, the event study estimates are estimated across 114 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, Figure 7 compares my main event study specifications to alternative event study estimators for four key outcomes of interest: log first-time enrollment, graduate enrollment share, log total awards, and log total revenue.

The first estimator is the one proposed by Sun and Abraham (2020) 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 timeframe 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 (375) than treated units (114) and indicates that heterogeneous treatment effects across cohorts are not contaminating the main results.

Table 6 then summarizes several additional specifications for the key outcomes, concentrating on the long-run effects five or more years following a conversion. Column (1) provides the main specification estimate, while column (2) 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 an institution when it increases their 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.<sup>13</sup> However, all remain positive and statistically significant, indicating that the students' responses to conversions are not solely driven by changes in the types of programs offered.

Column (3) 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.<sup>14</sup> 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. Column (4) drops conversions that oc-

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<sup>13</sup>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.

<sup>14</sup>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.

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

Next, Table 7 presents estimates of heterogeneous long-run effects for the main outcomes of interest. I first stratify the sample by sector 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 graduate enrollment and degree production than for private institutions. However, they have a much smaller impact on first-time undergraduate enrollment. Conversions also do not increase total 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. In terms of graduate enrollment, total awards, and total revenues, converting to a university benefits selective institutions more than their less selective peers. This difference is particularly pronounced for total revenues, where less selective institutions experience a statistically insignificant 5.7% increase, while more selective institutions see increases of 12.9% five or more years after their conversions. These findings indicate that more selective institutions may be better able to leverage their selectivity and resources to attract new students when they convert, whereas less selective institutions may struggle to do so.

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 more of an increase

in their graduate enrollment share and total awards. Finally, in columns (8) and (9), I stratify the sample by college age, using data on the years in which they were first established.<sup>15</sup> Older colleges, which I define as those with establishment dates below the median of the sample, see much larger increases in first-time enrollment, awards, and revenues, than their younger peers. Similar to the selectivity results above, it may be the case that more established colleges can better leverage their reputation to attract students. 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.

## 5 Implications for Competition

College-to-university conversions increase the enrollment, degree production, and total revenues of converting institutions, but these conversions 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.

### 5.1 First-Mover Advantage

To establish the presence of a first-mover advantage in conversions, I estimate equation (2) separately for colleges that are the first in their region, in their region/sector pair, in their state, or in their state/sector pair to convert to a university. Table 8 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/sector pair, but a clear advantage of being the first college in one’s state or state/sector pair to convert to a university. First-movers at the state level see a 10.1% increase in first-time enrollment, while non-first-movers see a statistically

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<sup>15</sup>I obtain data on colleges’ establishment dates from the 1980 IPEDS survey. This information is missing for 9 institutions, 2 of which convert from colleges to universities and 7 of which do not.

insignificant 1.8% increase. Similarly, first-movers at the state/sector level see an 8.7% increase in first-time enrollment, compared to a 3.3% increase for those who are not the first to convert. Panel B repeats this analysis for graduate enrollment share. While there is some evidence that institutions that are the first in their region/sector pair to convert experience a larger growth in graduate enrollment, in general, both first-movers and non-first-movers experience increases in graduate enrollment.

Panel C then assesses the first-mover advantage for total awards conferred five or more years following a conversion. Across all four market definitions, the estimated effects are larger for first-movers than non-first-movers. At the state level, an institution that converts first experiences a 14.6% increase in total awards conferred, whereas an institution that is not the first to convert experiences a statistically insignificant 6.1% increase. A similar trend emerges for total revenues in Panel D, where first-movers experience larger gains across all specifications. First-movers within a state experience a 10.8% increase in revenue, whereas non-first-movers in a state experience a 4.1% 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.

## 5.2 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 restrict the sample to institutions that never convert to a university (i.e., that remain with a "college name" or a "university name" for the entirety of the 2001-2016 panel) and estimate specifications of the following form:

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

where  $Y_{it}$  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 an institution has the word “college” or “university” in their name and define markets in the same manner as in Section 5.1: region, region/sector, state, and state/sector.  $\mathbf{X}_{it}$  is a vector of the same time-varying, institution-level controls I include in the main analysis.  $\mu_i$  is an institution fixed effect and  $\lambda_t$  is a year fixed effect. I continue to cluster all standard errors at the institution level.

Table 9 presents estimates of  $\beta_1$  and  $\beta_2$  for three outcomes of interest: total headcount enrollment(both undergraduate and graduate), total awards conferred, and total revenue less investment income. Panel A shows how other institutions converting to universities affects a non-converting institution’s enrollment. Across the market definitions, there is little evidence that conversions affect enrollment at non-converting universities, but suggestive evidence that conversions cut into enrollment at non-converting colleges. A 10pp increase in the share of the market that has converted to a university reduces enrollment at non-converting colleges by 1.9-4.4%, with the largest effects coming from the region/sector market definition.

Panel B presents a similar trend for total awards conferred. A 10pp increase in the share of the market that has converted to a university decreases enrollment at colleges by 1.8-8.3% and enrollment at universities by 0.6-4.8%. The estimates are most precise when considering the region/sector market definition and the effects are consistently larger in magnitude for colleges than for universities. 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 colleges’ revenues by 1.3-2.4%, with little evidence that such conversions decrease revenues for existing universities. In sum, these results suggest that college-to-university conversions have negative spillover effects on non-converting colleges that operate in the same markets.

## 6 Conclusion

Between 2001 and 2016, over 100 postsecondary institutions converted from colleges to universities. In this paper, I present the first analysis in the literature of the effects of these conversions on

enrollments, awards, and institutional finances. Leveraging variation in the timing of institutions' conversions, I show that becoming a university increases enrollment among both undergraduate and graduate students, accelerates degree production, and leads to improved financial outcomes for the university. These effects are robust to accounting for changes in institutions' program offerings and physical capacity, suggesting that the name of an institution can influence student demand above and beyond the educational experience it offers.

College-to-university conversions also have implications for the U.S. higher education market as a whole. I find that institutions that are the first in their market to convert to a university experience the largest increases in degree production and total revenues, and that conversions can reduce enrollments, awards, and revenues at non-converting institutions in these markets. Policymakers may wish to consider these welfare effects in crafting rules and regulations surrounding whether and when colleges can convert to universities, and research on such policies would be a valuable contribution to the literature.

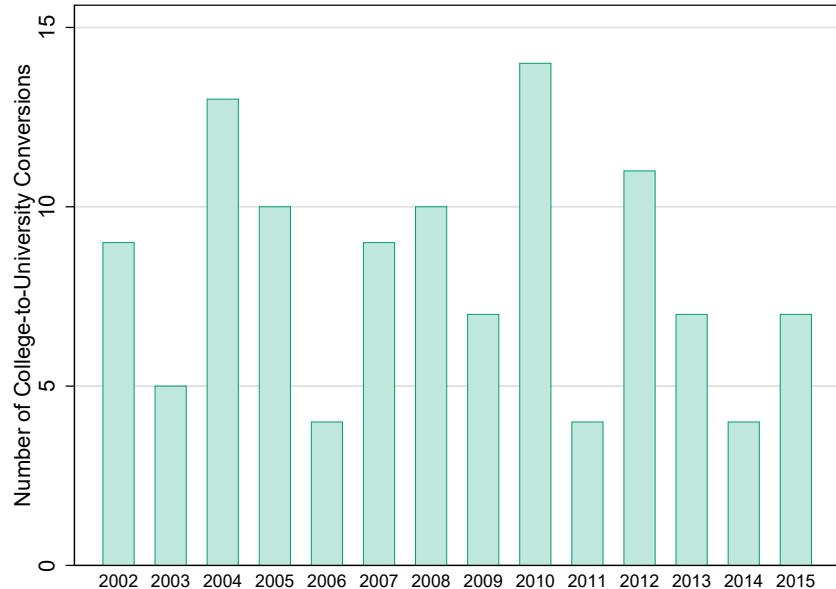
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Figure 1: College-to-University Conversions, 2002-2015

(a) Number of Conversions by Year



(b) Cumulative Conversions, 2001 Colleges

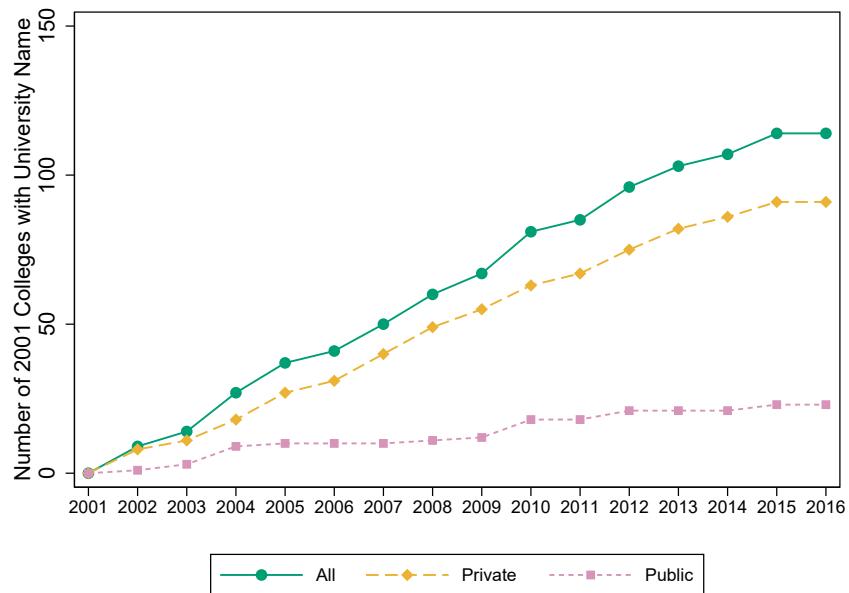
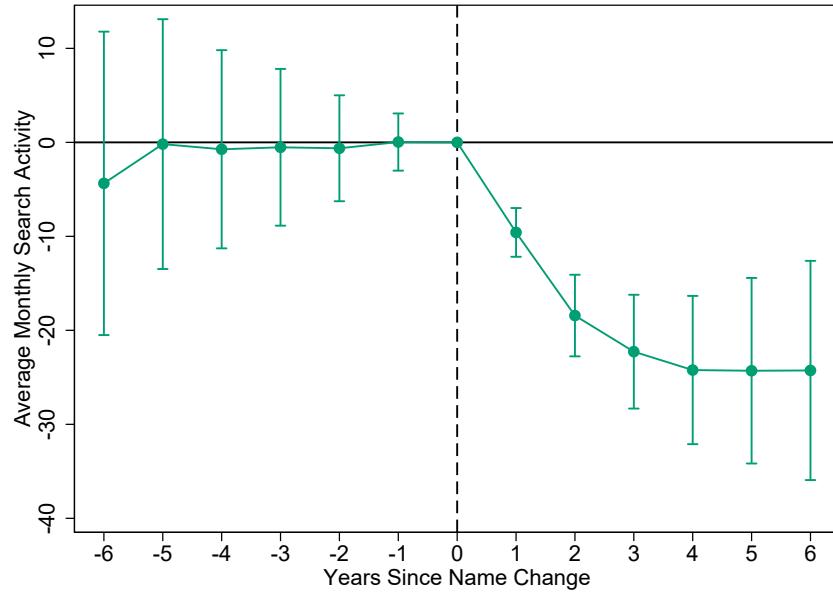


Figure 2: Changes in Search Activity Following College-to-University Conversions

(a) College Search Activity



(b) University Search Activity

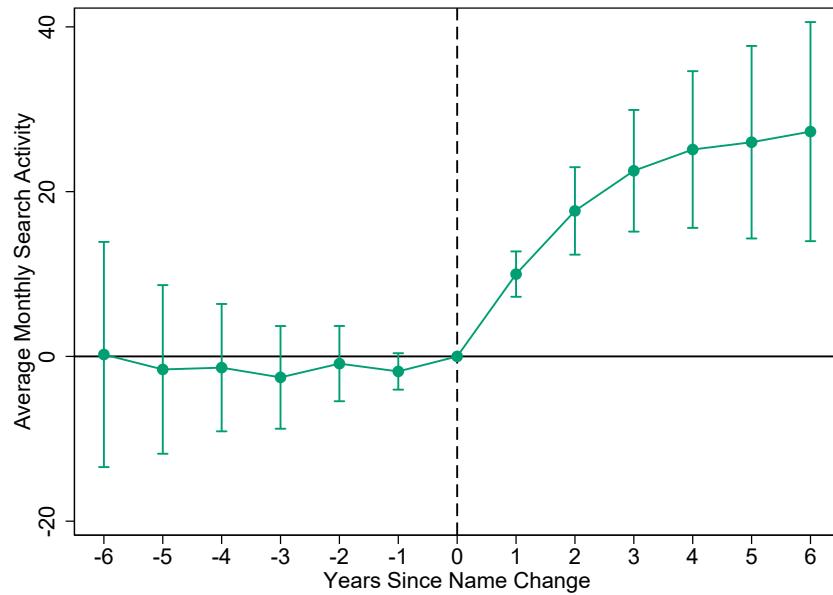


Figure 3: Changes in Undergraduate Enrollment Following College-to-University Conversions

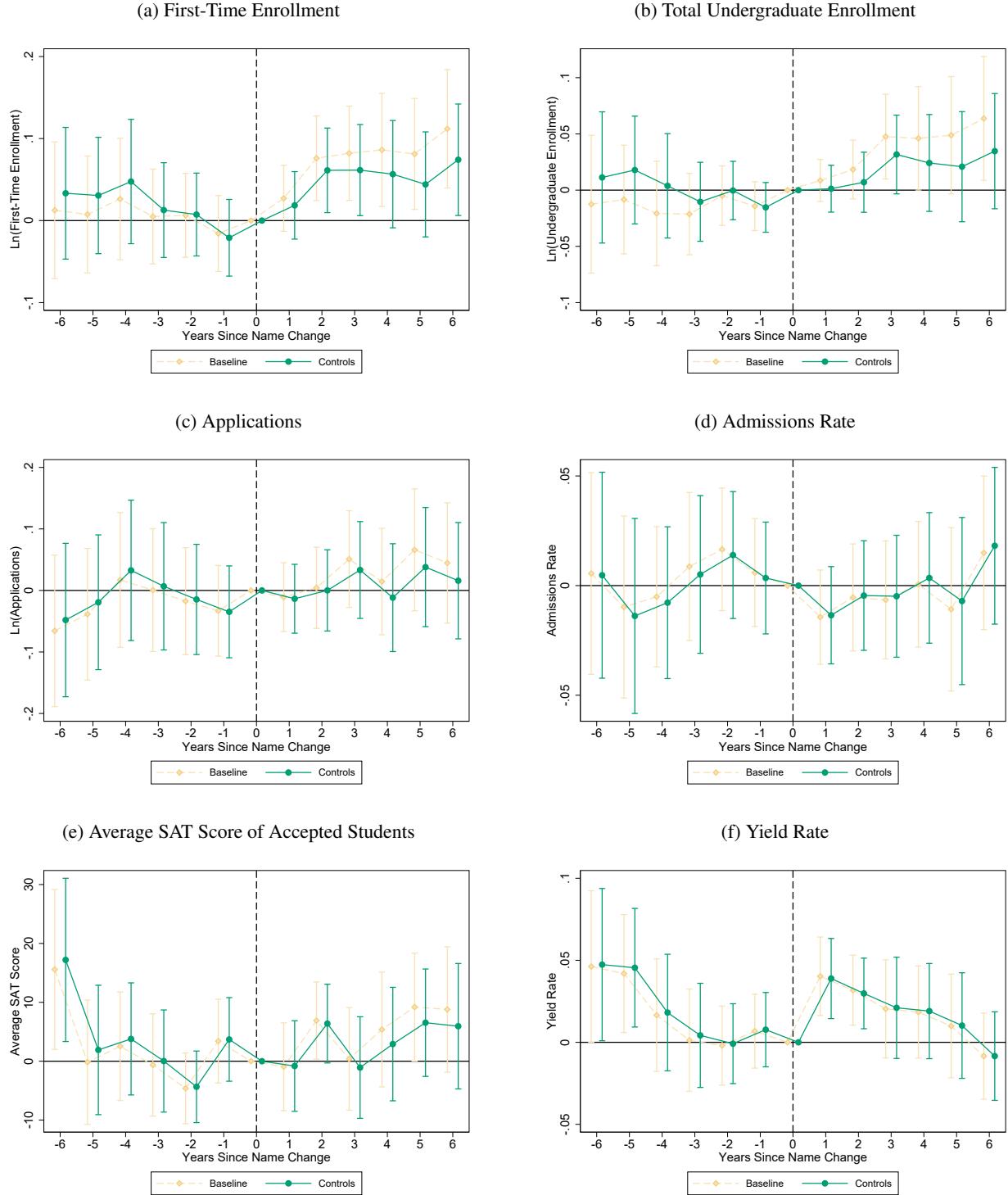


Figure 4: Changes in Graduate Enrollment Following College-to-University Conversions

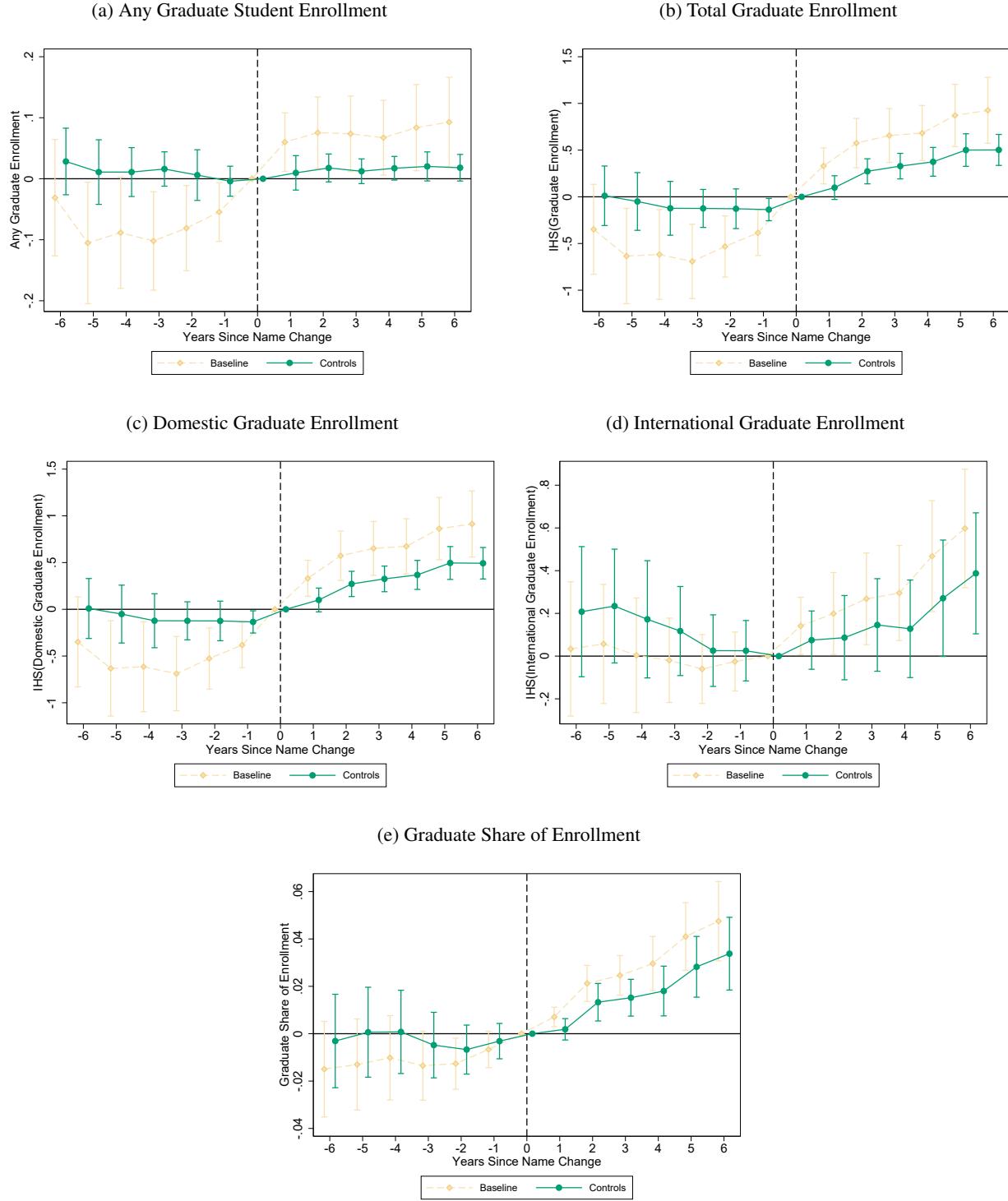


Figure 5: Changes in Awards Conferred Following College-to-University Conversions

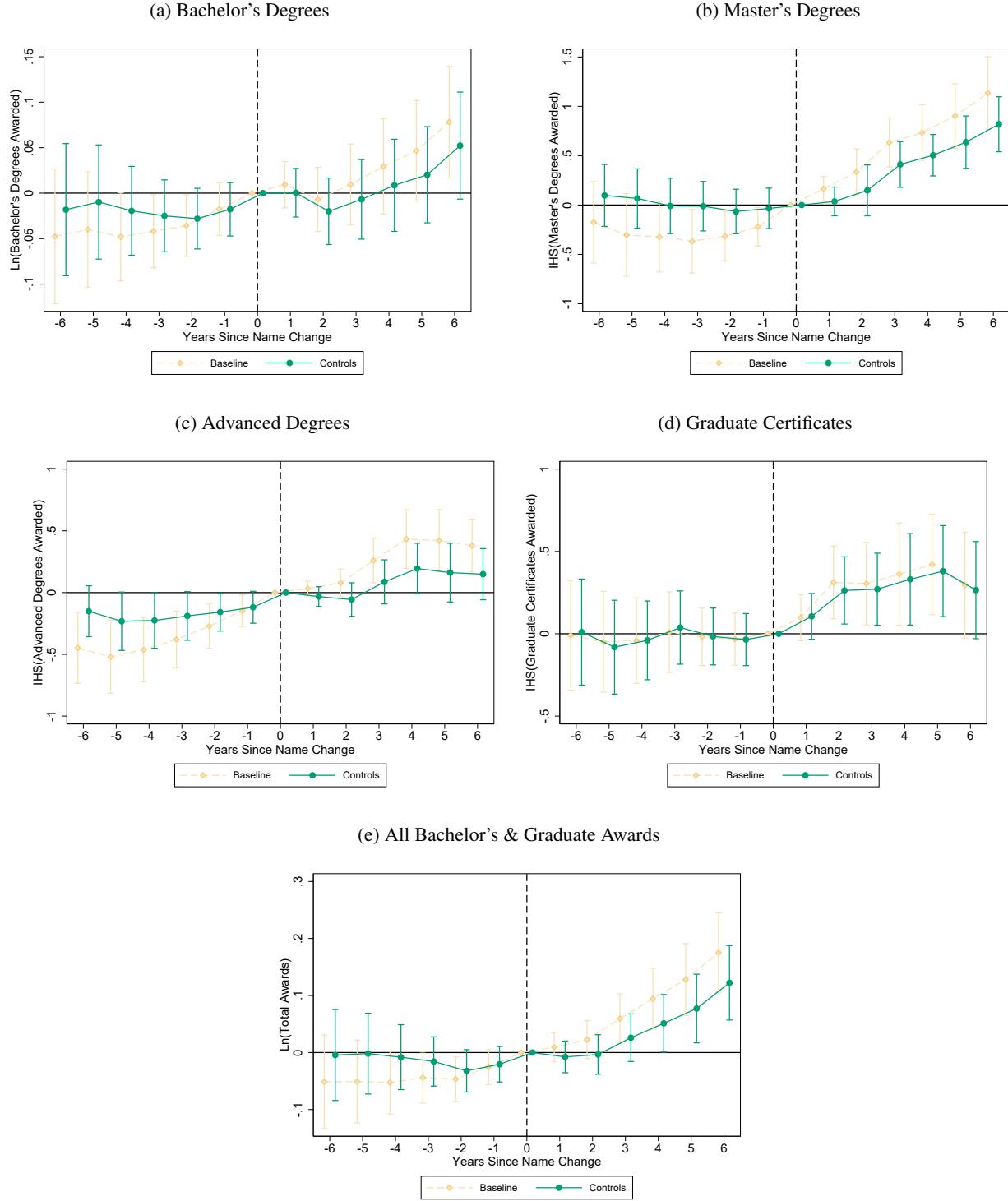


Figure 6: Changes in Institutional Revenues Following College-to-University Conversions

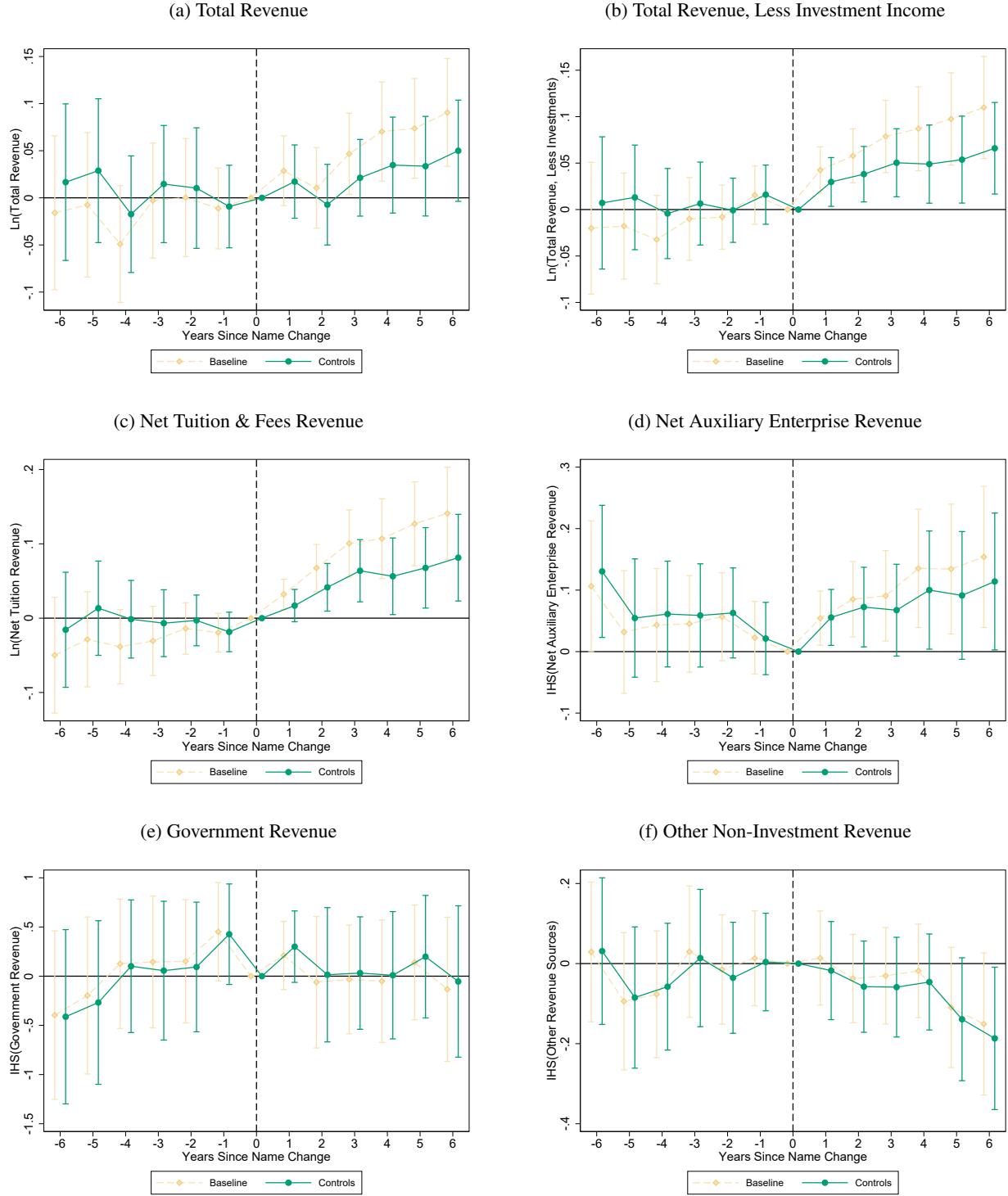


Figure 7: Alternative Event Study Estimators

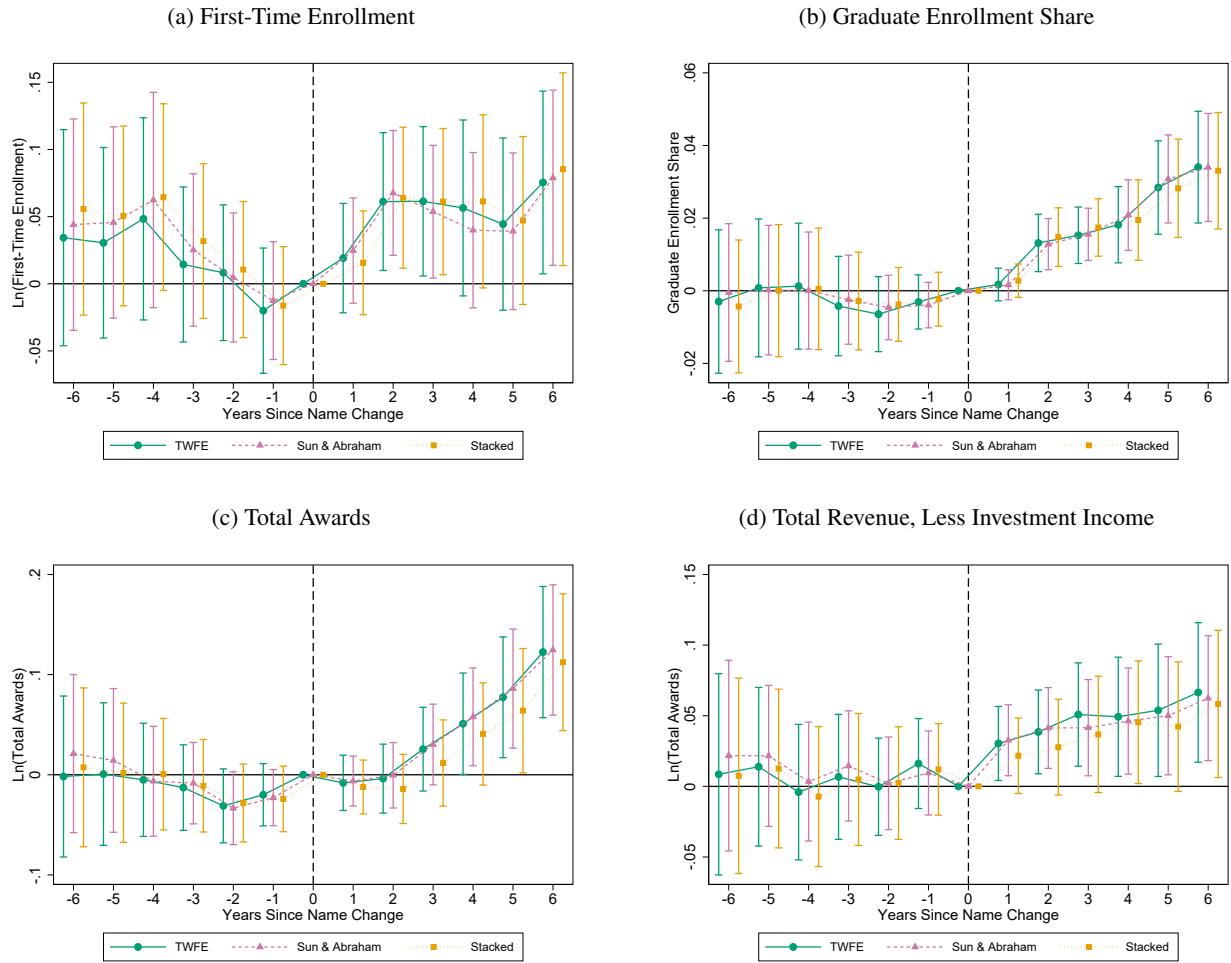


Table 1: Sample Summary Statistics

<b>Variable:</b>	<b>At Baseline (2001)</b>			<b>At End of Period (2016)</b>		
	All Colleges (1)	Changers (2)	Non-Changers (3)	All Colleges (4)	Changers (5)	Non-Changers (6)
First-Time Enrollment	403.3	422.9	397.4	445.1	481.2	434.1
Admit Rate	0.701	0.740	0.690	0.637	0.691	0.621
Average SAT Score	1070	996.2	1093	1053	992.7	1074
Yield Rate	0.401	0.437	0.390	0.254	0.270	0.249
Undergraduate Enrollment	2,045	2,462	1,918	2,280	2,846	2,108
Graduate Enrollment	305.3	365.5	287.0	396.8	641.2	322.5
Total Enrollment	2,350	2,827	2,205	2,677	3,487	2,431
Undergraduate Majors	29.01	28.74	29.09	40.31	41.65	39.90
Master's Programs	4.108	4.895	3,869	8,344	11.53	7,376
Advanced Degree Programs	0.190	0.061	0.229	0.638	0.921	0.552
Graduate Certificate Programs	0.636	1.088	0.499	2,626	3,368	2,400
Average Tuition Discount	0.283	0.247	0.294	0.407	0.347	0.425
Total Revenue per Student	17,005	12,699	18,314	37,116	21,476	41,871
Net Tuition Revenue per Student	8,892	6,694	9,581	14,424	11,362	15,355
Total Expenditures per Student	19,151	12,873	21,059	29,947	20,178	32,917
Instructional \$ per Student	6,452	4,429	7,062	10,451	7,073	11,469
Academic Support \$ per Student	1,618	999	1,806	2,605	1,613	2,908
Student Services \$ per Student	2,613	1,738	2,877	5,026	3,346	5,537
Institutions	489	114	375	489	114	375

*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.

Table 2: Effect of College-to-University Conversions on Undergraduate Enrollment

<b>Time:</b>	<b>Ln(First-Time Enrollment)</b> <b>(1)</b>	<b>Ln(Undergrad Enrollment)</b> <b>(2)</b>	<b>Ln (Applicants)</b> <b>(3)</b>	<b>Admission Rate</b> <b>(4)</b>	<b>Average SAT Score</b> <b>(5)</b>	<b>Yield Rate</b> <b>(6)</b>
Before	0.022 (0.028)	0.007 (0.019)	-0.008 (0.043)	0.001 (0.014)	2.499 (3.564)	0.019* (0.011)
1-2 years after	0.041* (0.022)	0.005 (0.011)	-0.006 (0.029)	-0.009 (0.011)	2.836 (3.118)	0.035*** (0.010)
3-4 years after	0.062** (0.030)	0.030 (0.019)	0.013 (0.040)	-0.001 (0.014)	1.093 (4.150)	0.022 (0.014)
5+ years after	0.066** (0.033)	0.046* (0.027)	0.003 (0.052)	0.006 (0.018)	5.599 (5.326)	0.009 (0.013)
Observations	7,491	7,501	6,968	6,968	6,207	6,967

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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; 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. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 3: Effect of College-to-University Conversions on Graduate Enrollment

<b>Time:</b>	<b>Any Graduate Enrollment</b> <b>(1)</b>	<b>IHS(Graduate Enrollment)</b> <b>(2)</b>	<b>IHS(Domestic Grad Enrollment)</b> <b>(3)</b>	<b>IHS (Intl. Grad Enrollment)</b> <b>(4)</b>	<b>Grad Enrollment Share</b> <b>(5)</b>
Before	0.010 (0.014)	-0.137 (0.098)	-0.137 (0.099)	0.121 (0.095)	-0.008 (0.007)
1-2 years after	0.014 (0.012)	0.186*** (0.062)	0.186*** (0.062)	0.082 (0.076)	0.007** (0.003)
3-4 years after	0.015 (0.010)	0.347*** (0.072)	0.342*** (0.073)	0.147 (0.107)	0.016*** (0.004)
5+ years after	0.027** (0.013)	0.511*** (0.100)	0.500*** (0.102)	0.380*** (0.141)	0.028*** (0.008)
Observations	7,501	7,501	7,501	7,501	7,501

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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; 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. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 4: Effect of College-to-University Conversions on Awards Conferred

<b>Time:</b>	<b>Ln(Bachelor's Degrees)</b> <b>(1)</b>	<b>IHS(Master's Degrees)</b> <b>(2)</b>	<b>IHS(Advanced Degrees)</b> <b>(3)</b>	<b>IHS(Graduate Certificates)</b> <b>(4)</b>	<b>Ln(Total Awards)</b> <b>(5)</b>
Before	-0.021 (0.021)	-0.049 (0.111)	-0.132* (0.078)	0.023 (0.099)	-0.023 (0.024)
1-2 years after	-0.011 (0.014)	0.092 (0.091)	-0.047 (0.050)	0.185** (0.077)	-0.007 (0.014)
3-4 years after	-0.001 (0.022)	0.452*** (0.106)	0.134 (0.087)	0.302** (0.120)	0.035 (0.022)
5+ years after	0.052 (0.032)	0.661*** (0.140)	0.271*** (0.092)	0.385*** (0.130)	0.115*** (0.036)
Observations	7,501	7,501	7,501	7,501	7,501

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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; 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. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 5: Effect of College-to-University Conversions on Institution Revenues

<b>Time:</b>	<b>Ln(Total Revenue)</b> <b>(1)</b>	<b>Ln(Total Rev. Less Investments)</b> <b>(2)</b>	<b>IHS(Net Tuition &amp; Fees Rev.)</b> <b>(3)</b>	<b>IHS(Net Auxiliary Enterprise Rev.)</b> <b>(4)</b>	<b>IHS(Government Revenue)</b> <b>(5)</b>	<b>IHS(Other Non-Investment Rev.)</b> <b>(6)</b>
Before	0.004 (0.026)	0.003 (0.020)	-0.012 (0.024)	0.084*** (0.038)	0.067 (0.299)	-0.021 (0.061)
1-2 years after	0.005 (0.019)	0.033*** (0.013)	0.029*** (0.013)	0.065*** (0.026)	0.146 (0.240)	-0.041 (0.054)
3-4 years after	0.028 (0.021)	0.048*** (0.019)	0.060*** (0.023)	0.088*** (0.042)	-0.002 (0.298)	-0.058 (0.055)
5+ years after	0.060** (0.026)	0.078*** (0.027)	0.081** (0.034)	0.126*** (0.061)	0.118 (0.302)	-0.075 (0.069)
Observations	7,271	7,271	7,271	7,271	7,271	7,271

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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; 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. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 6: Robustness Checks for Long-Run Effects

	Main Specification (1)	Detailed Offerings (2)	President FEs (3)	Drop System-Wide Changes (4)
<i>Panel A. First-Time Enrollment</i>				
5+ years after	0.066** (0.033)	0.056* (0.034)	0.066** (0.033)	0.069** (0.033)
Observations	7,491	7,491	7,491	7,264
<i>Panel B. Graduate Enrollment Share</i>				
5+ years after	0.028*** (0.008)	0.025*** (0.008)	0.028*** (0.008)	0.028*** (0.009)
Observations	7,501	7,501	7,501	7,274
<i>Panel C. Total Awards</i>				
5+ years after	0.115*** (0.036)	0.083** (0.034)	0.115*** (0.036)	0.115*** (0.037)
Observations	7,501	7,501	7,501	7,274
<i>Panel D. Total Revenue, Less Investment Income</i>				
5+ years after	0.078*** (0.028)	0.069** (0.027)	0.078*** (0.028)	0.082*** (0.028)
Observations	7,271	7,271	7,271	7,064

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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; 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.  
 \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 7: Heterogeneous Long-Run Effects

	Main (1)	Private (2)	Public (3)	Less Selective (4)	More Selective (5)	Smaller (6)	Larger (7)	Older (8)	Younger (9)
<i>Panel A. First-Time Enrollment</i>									
5+ years after	0.066*** (0.033)	0.069*** (0.034)	0.023 (0.142)	0.064 (0.047)	0.032 (0.057)	0.131** (0.058)	0.010 (0.037)	0.127** (0.051)	0.008 (0.044)
Observations	7,491	6,691	800	3,105	3,037	3,719	3,651	3,651	3,492
<i>Panel B. Graduate Enrollment Share</i>									
5+ years after	0.028*** (0.008)	0.027*** (0.009)	0.036*** (0.012)	0.033*** (0.010)	0.041*** (0.015)	0.011 (0.012)	0.031*** (0.010)	0.019* (0.011)	0.029*** (0.013)
Observations	7,501	6,691	810	3,105	3,037	3,719	3,651	3,492	3,553
<i>Panel C. Total Awards</i>									
5+ years after	0.115*** (0.036)	0.108*** (0.038)	0.135* (0.068)	0.082 (0.051)	0.161*** (0.057)	0.098 (0.060)	0.140*** (0.033)	0.226*** (0.064)	0.039 (0.046)
Observations	7,501	6,691	810	3,105	3,037	3,719	3,651	3,492	3,553
<i>Panel D. Total Revenue, Less Investment</i>									
5+ years after	0.078*** (0.027)	0.082*** (0.029)	0.001 (0.109)	0.057 (0.037)	0.129** (0.050)	0.092* (0.053)	0.049* (0.027)	0.167*** (0.053)	0.023 (0.034)
Observations	7,271	6,550	721	3,054	2,903	3,643	3,510	3,404	3,400

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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, 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. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 8: Evidence of First-Mover Advantage

	Main			Region			Region/Sector			State			State/Sector			
	(1)	FM	Not FM	(2)	FM	Not FM	(3)	FM	Not FM	(4)	(5)	(6)	(7)	(8)	FM	Not FM
<i>Panel A. First-Time Enrollment</i>																
5+ years after	0.066*** (0.033)	0.103 (0.097)	0.051 (0.034)	0.056 (0.072)	0.066* (0.035)	0.101** (0.049)	0.018 (0.039)	0.087* (0.045)	0.033 (0.040)							
Observations	7,491	5,870	7,319	5,998	7,159	6,519	6,686	6,679	6,494							
<i>Panel B. Graduate Enrollment Share</i>																
5+ years after	0.028*** (0.008)	0.030 (0.018)	0.030*** (0.009)	0.044** (0.019)	0.024*** (0.008)	0.024** (0.012)	0.034*** (0.010)	0.023** (0.011)	0.032*** (0.011)							
Observations	7,501	5,870	7,329	5,998	7,169	6,519	6,696	6,689	6,494							
<i>Panel C. Total Awards</i>																
5+ years after	0.115*** (0.036)	0.243*** (0.082)	0.091** (0.037)	0.193** (0.080)	0.086** (0.036)	0.146*** (0.050)	0.061 (0.042)	0.123*** (0.048)	0.082* (0.045)							
Observations	7,271	5,870	7,329	5,998	7,169	6,519	6,696	6,689	6,494							
<i>Panel D. Total Revenue, Less Investment</i>																
5+ years after	0.078*** (0.027)	0.177*** (0.063)	0.061** (0.030)	0.134** (0.059)	0.065** (0.031)	0.108*** (0.039)	0.041 (0.037)	0.095*** (0.036)	0.056 (0.040)							
Observations	7,271	5,680	7,099	5,808	6,941	6,318	6,475	6,465	6,298							

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta$  parameters in equation (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; 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. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table 9: Spillover Effects on Competitors

	<b>Region (1)</b>	<b>Region/Sector (2)</b>	<b>State (3)</b>	<b>State/Sector (4)</b>
<i>Panel A. Total Enrollment</i>				
(Share of market converted)*College	-0.288 (0.238)	-0.439*** (0.158)	-0.188* (0.114)	-0.185*** (0.063)
(Share of market converted)*University	0.104 (0.227)	-0.165 (0.120)	0.017 (0.092)	-0.017 (0.062)
Observations	17,324	17,324	17,308	17,260
<i>Panel B. Total Awards</i>				
(Share of market converted)*College	-0.278 (0.319)	-0.832*** (0.192)	-0.148 (0.138)	-0.175** (0.074)
(Share of market converted)*University	0.255 (0.272)	-0.475*** (0.152)	0.100 (0.102)	-0.063 (0.080)
Observations	17,325	17,325	17,309	17,261
<i>Panel C. Total Revenue, Less Investment</i>				
(Share of market converted)*College	-0.134 (0.207)	-0.230 (0.140)	-0.237*** (0.086)	-0.136** (0.053)
(Share of market converted)*University	0.110 (0.191)	0.074 (0.116)	-0.053 (0.084)	0.104* (0.058)
Observations	16,584	16,584	16,569	16,522

*Notes:* The coefficients in each column are estimated from a separate regression and represent variants of the  $\beta_1$  and  $\beta_2$  parameters in equation (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; 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. \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

## Online Appendix: Not for Publication

Figure A.1: Map of College-to-University Conversions

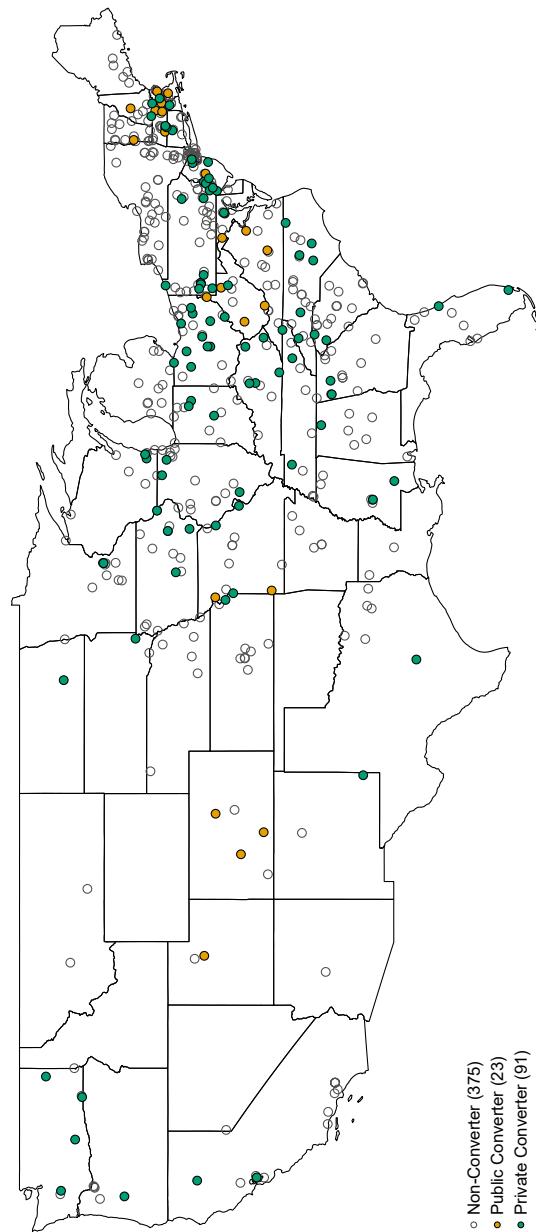


Figure A.2: Changes in Monthly Search Activity Surrounding College-to-University Conversions

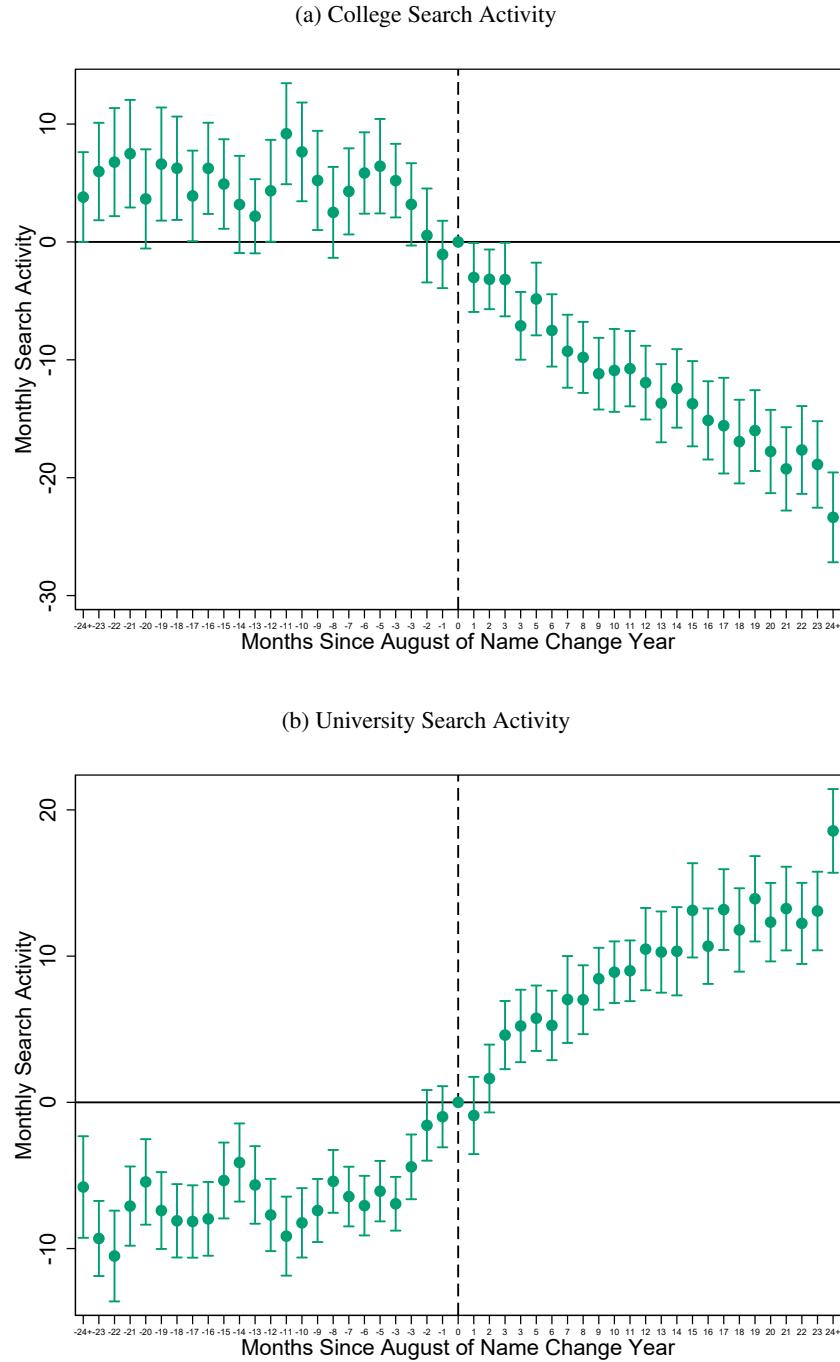


Figure A.3: Confounding Changes Surrounding College-to-University Conversions

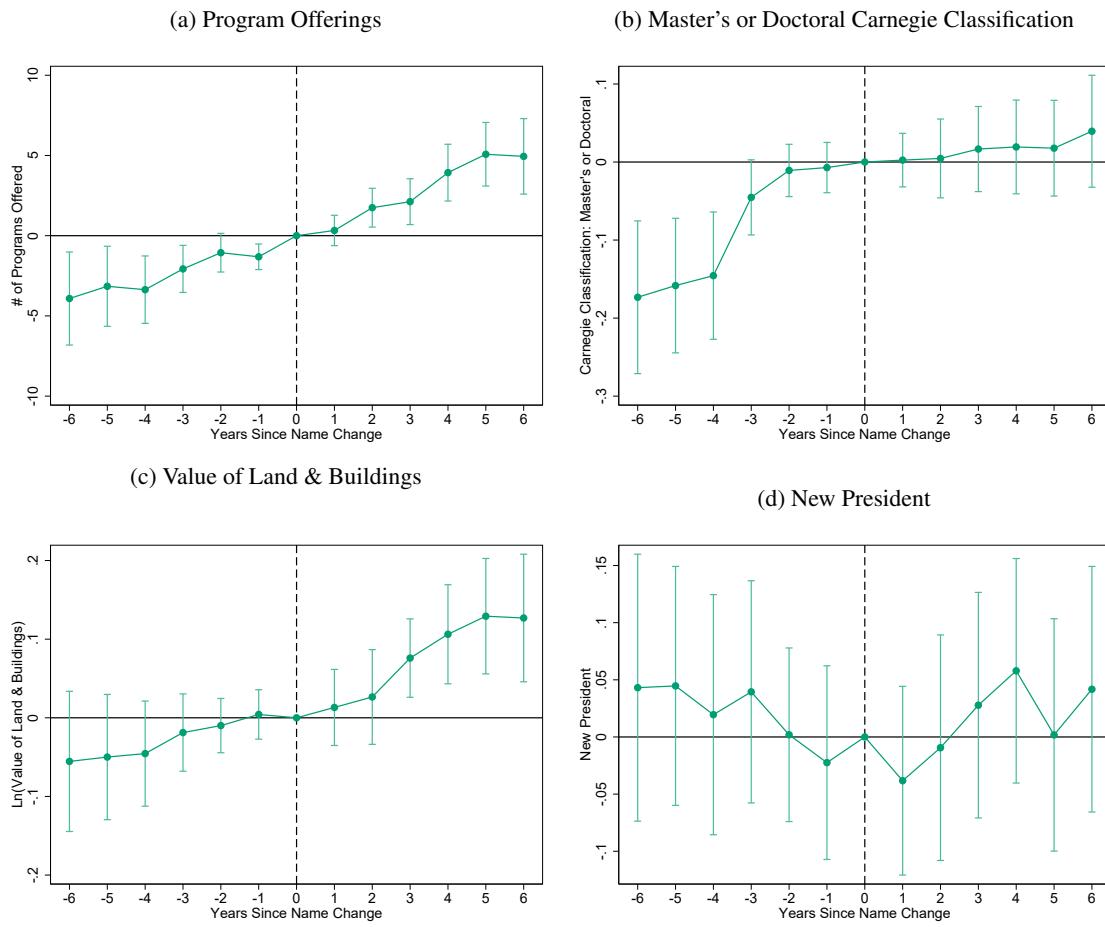
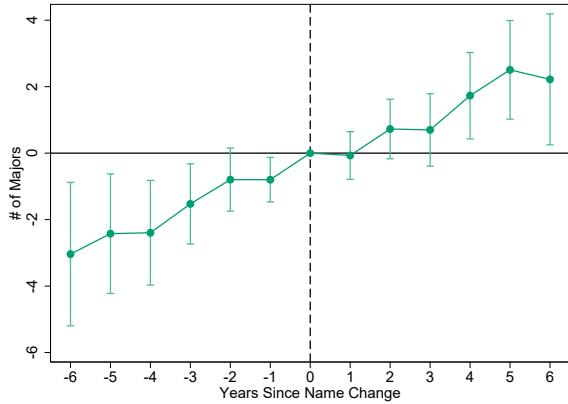
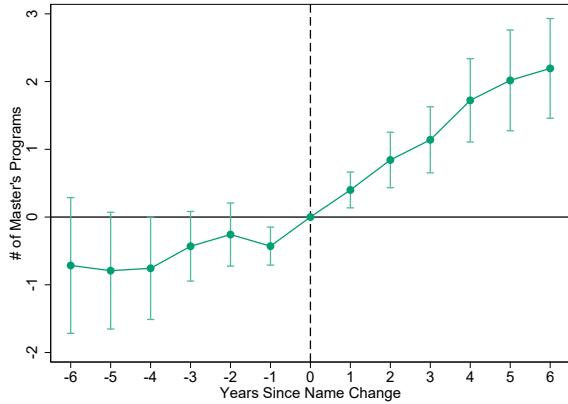


Figure A.4: Changes in Program Offerings Surrounding College-to-University Conversions

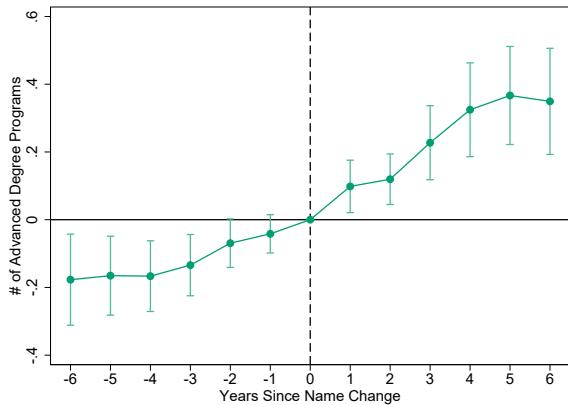
(a) Number of Bachelor's Degree Programs



(b) Number of Master's Degree Programs



(c) Number of Advanced Degree Programs



(d) Number of Graduate Certificate Programs

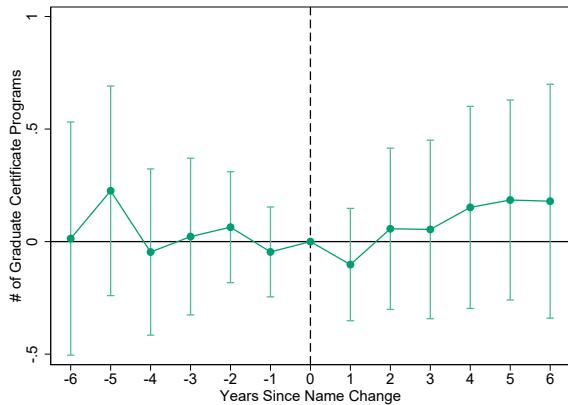


Figure A.5: Changes in Program Offerings Surrounding College-to-University Conversions

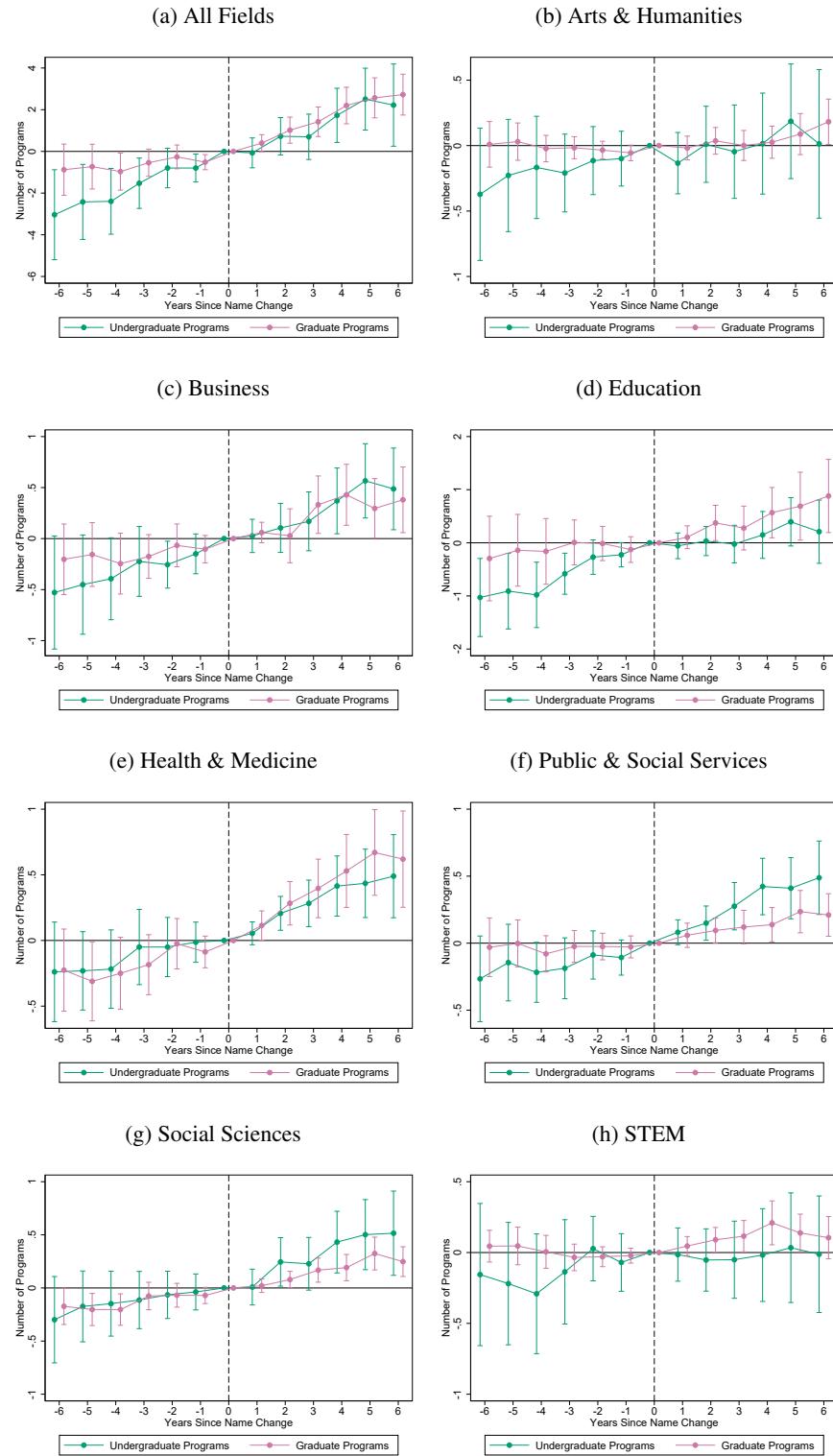


Figure A.6: Changes in Carnegie Classifications Surrounding College-to-University Conversions

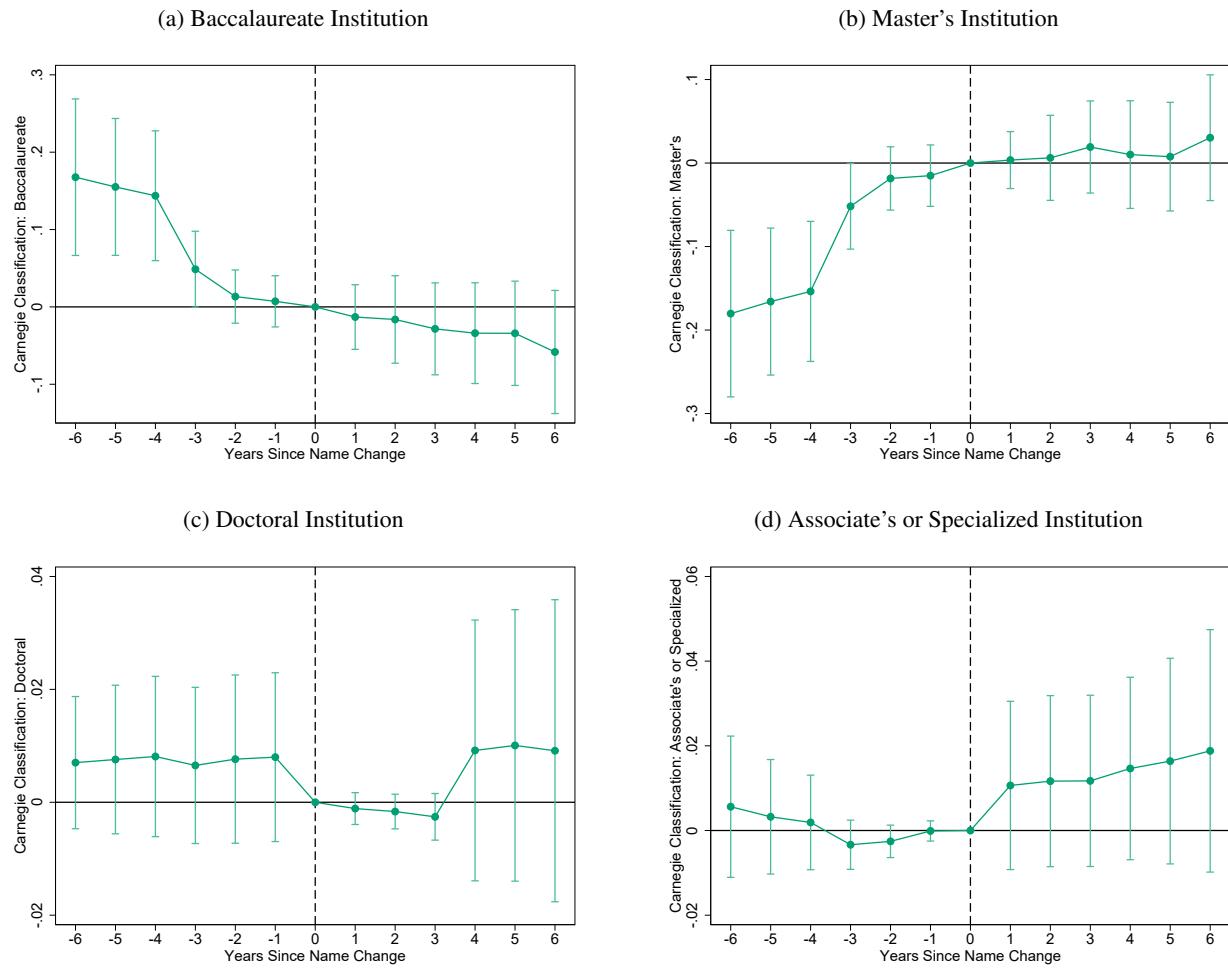


Figure A.7: Changes in Tuition Rates Surrounding College-to-University Conversions

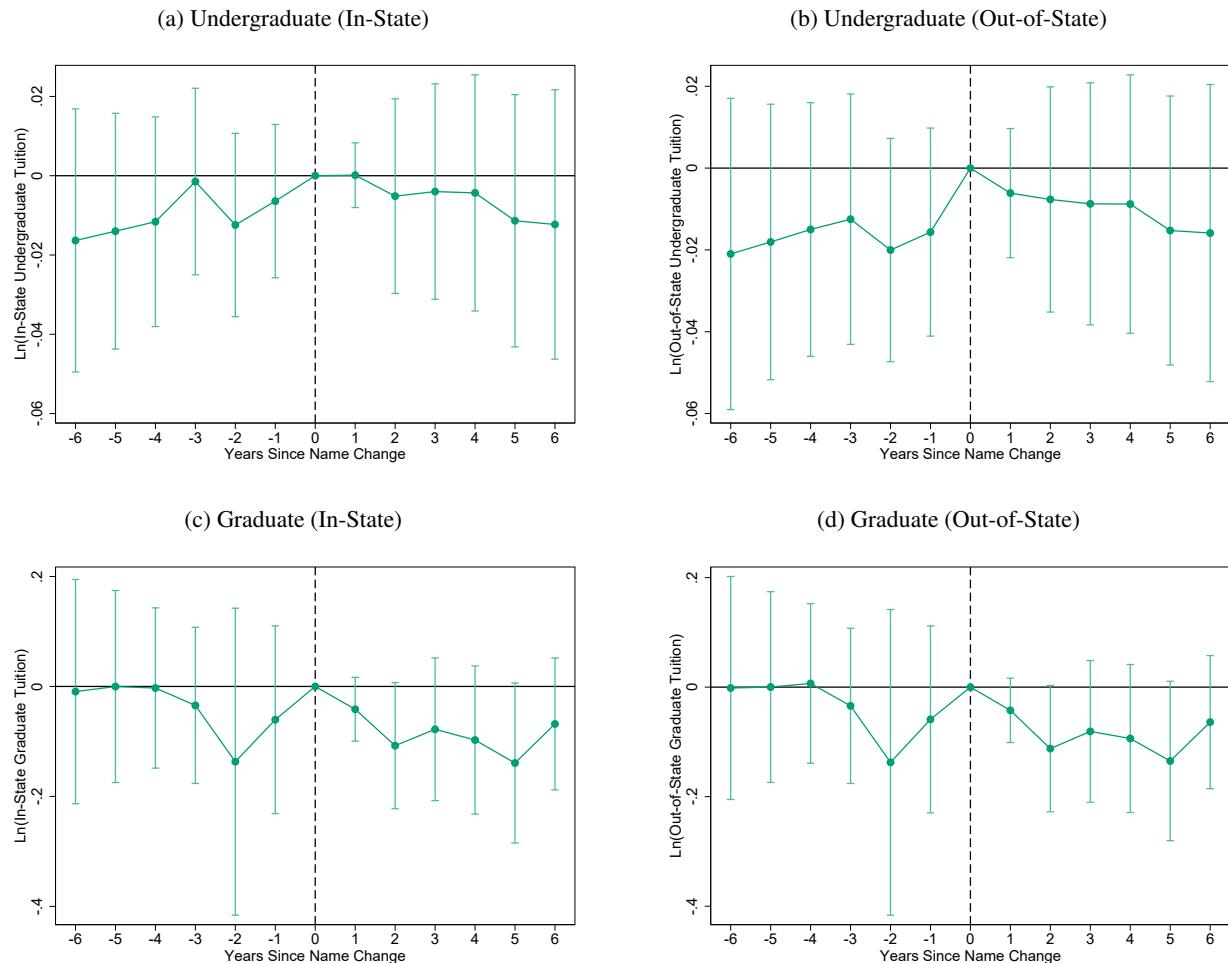


Figure A.8: October 15th Freshmen Enrollment by Residency, Even Years

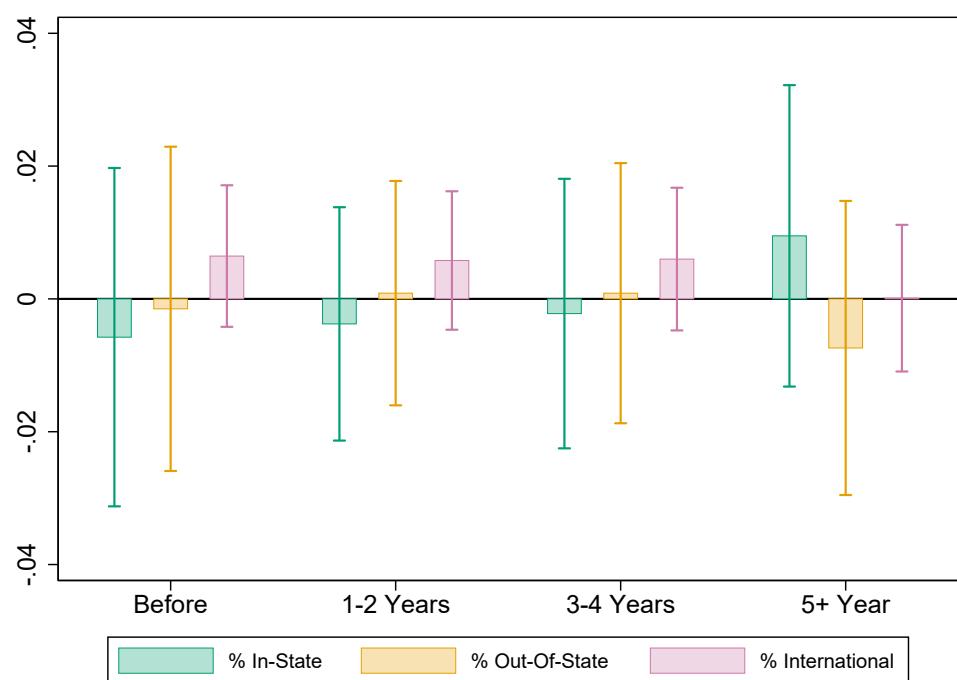


Figure A.9: Award Impacts by Field of Study, 5+ Years After Conversion

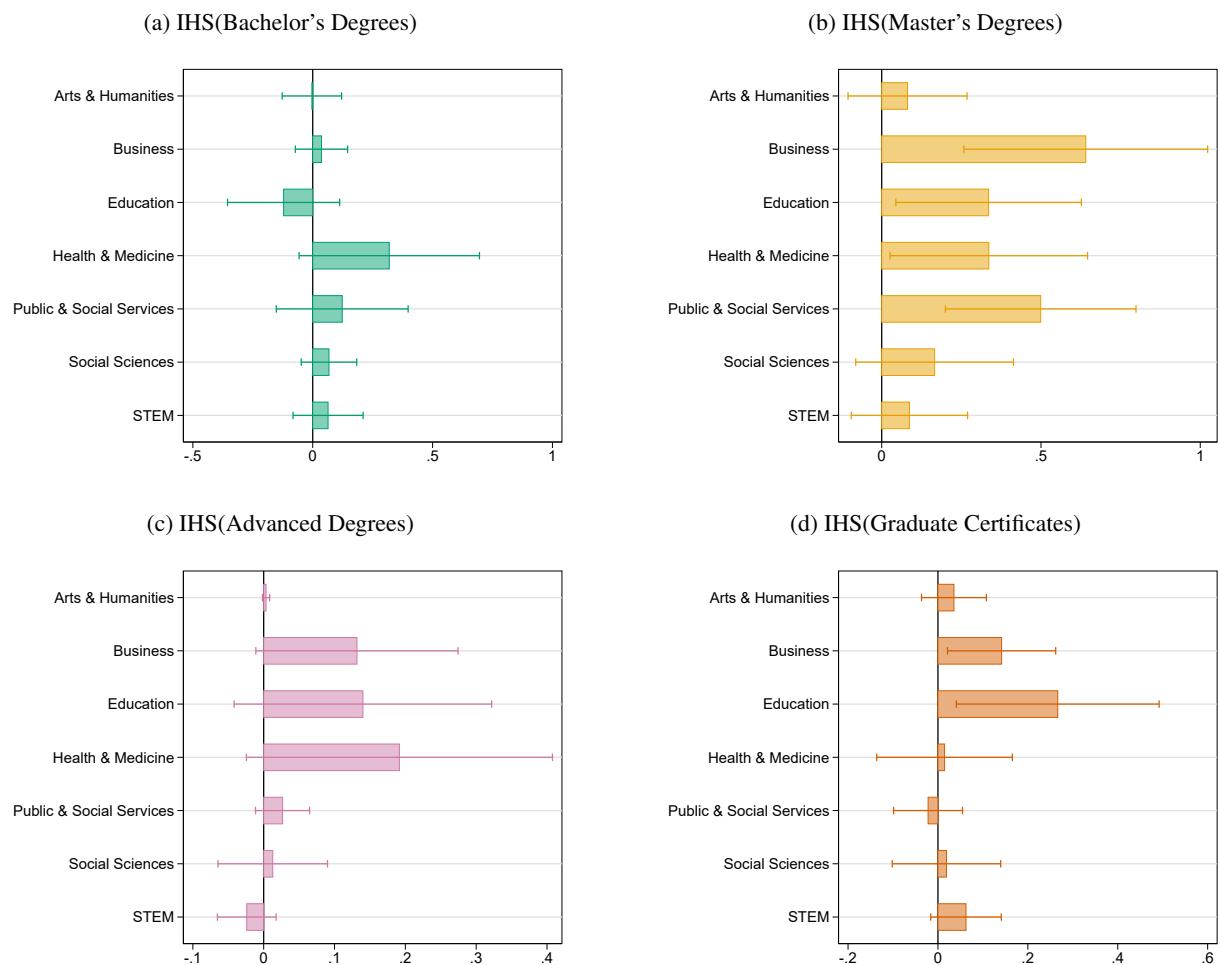


Figure A.10: Changes in Expenditures Following College-to-University Conversions

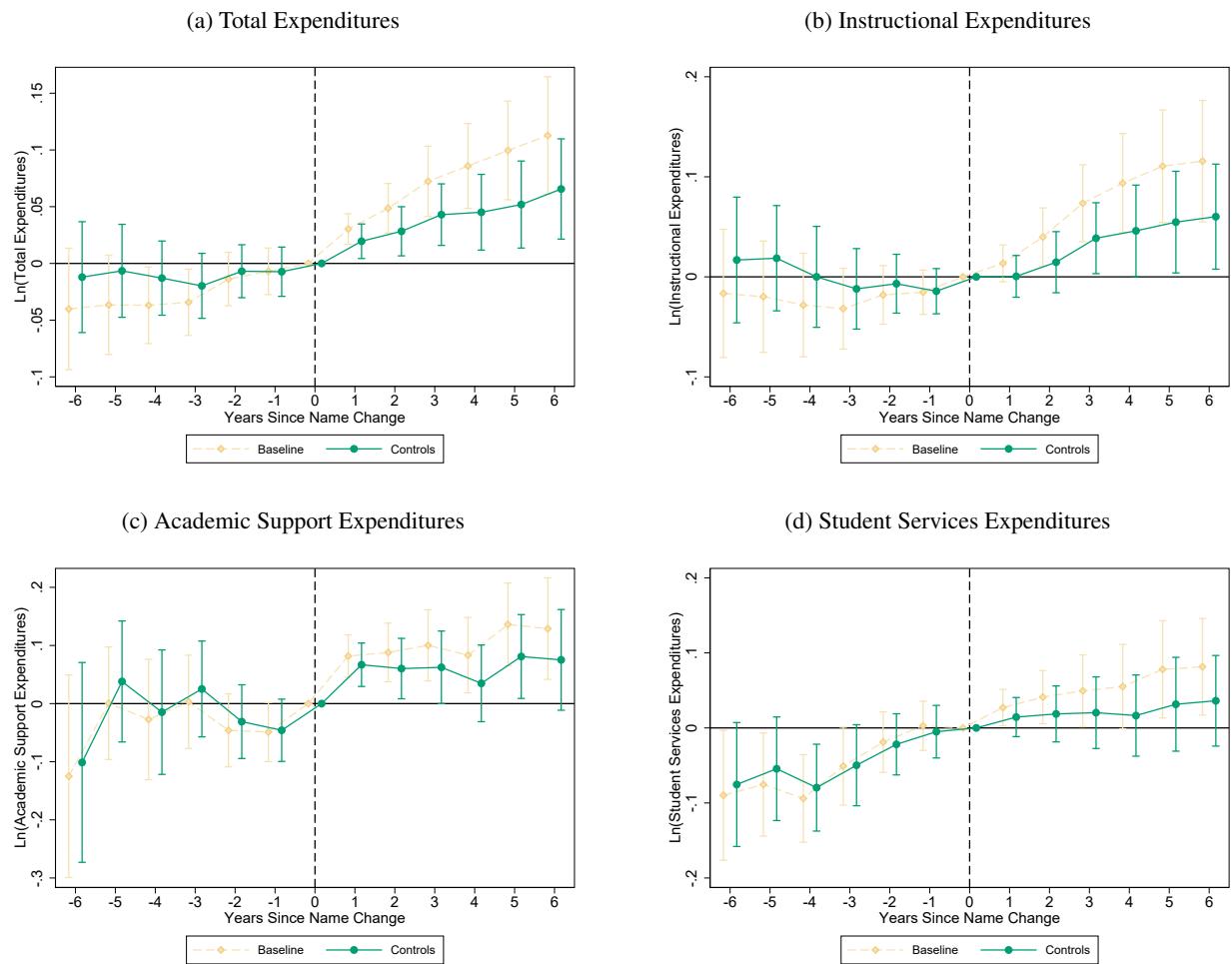


Figure A.11: Changes in Staffing Following College-to-University Conversions

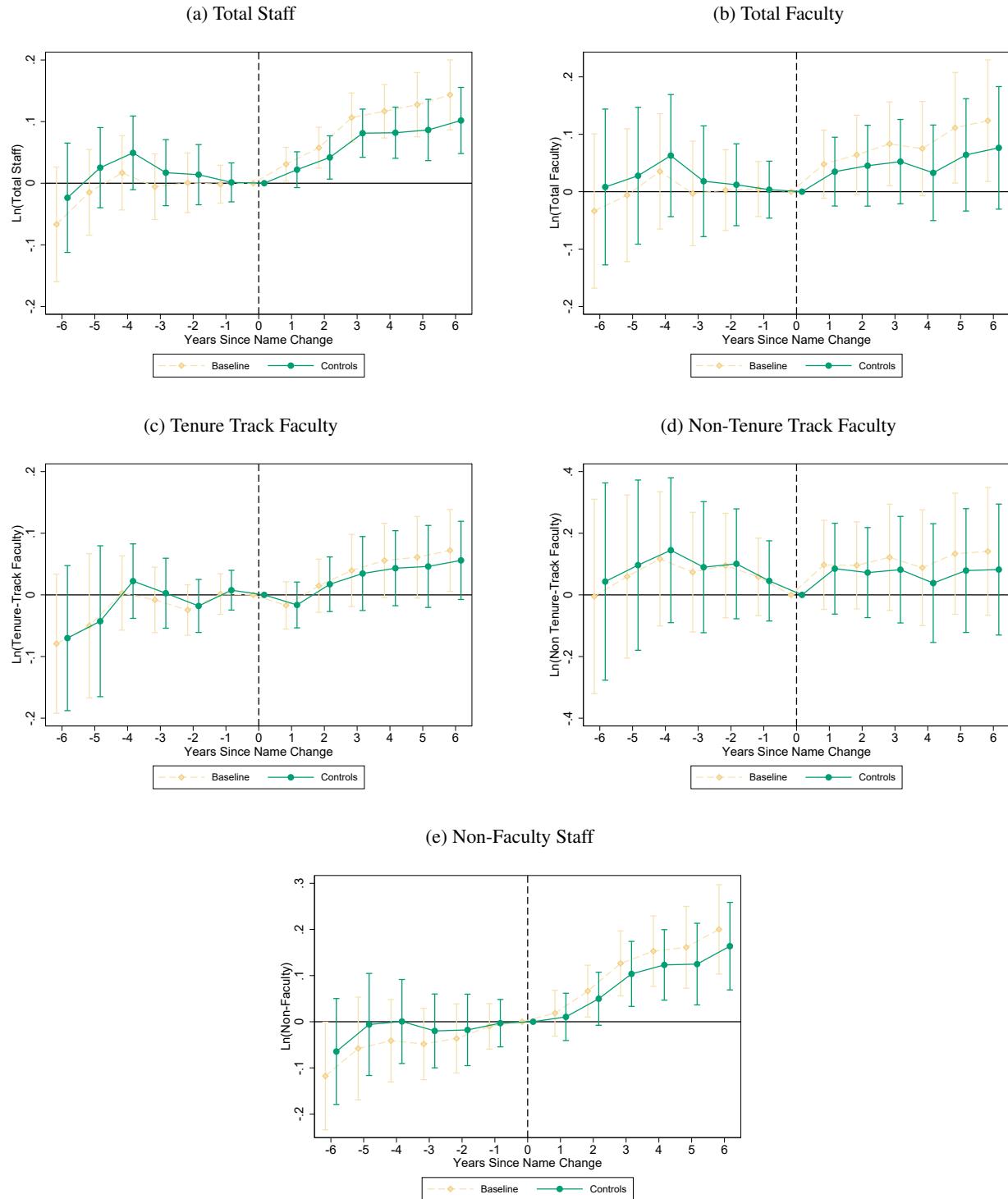


Figure A.12: Changes in Per-Student Finances and Staffing Following College-to-University Conversions

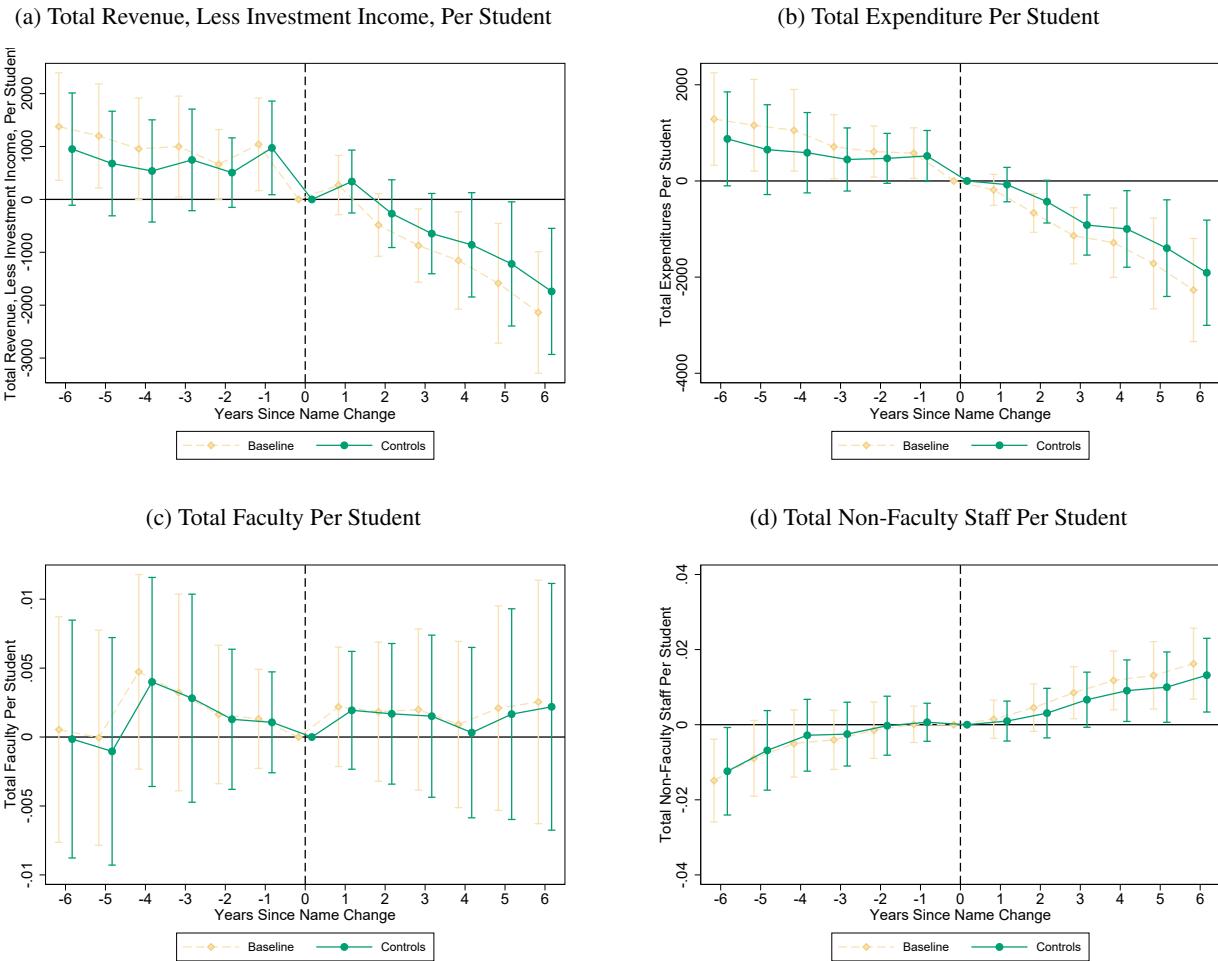


Table A.1: College-to-University Conversions, 2002-2015

<b>Pre-Change Name</b>	<b>Post-Change Name</b>	<b>State</b>	<b>Sector</b>	<b>Year</b>
Oakwood College	Oakwood University	AL	Private	2008
Holy Names College	Holy Names University	CA	Private	2003
Simpson College	Simpson University	CA	Private	2004
Adams State College	Adams State University	CO	Public	2012
Metropolitan State College Of Denver	Metropolitan State University Of Denver	CO	Public	2012
Western State College Of Colorado	Western State Colorado University	CO	Public	2012
Saint Joseph College	University Of Saint Joseph	CT	Private	2012
Wilmington College	Wilmington University	DE	Private	2007
Everglades College	Everglades University	FL	Private	2004
Florida Memorial College	Florida Memorial University	FL	Private	2005
Bethune Cookman College	Bethune-Cookman University	FL	Private	2007
Reinhardt College	Reinhardt University	GA	Private	2010
Shorter College	Shorter University	GA	Private	2010
Grand View College	Grand View University	IA	Private	2008
Clarke College	Clarke University	IA	Private	2010
Mount Mercy College	Mount Mercy University	IA	Private	2010
Iowa Wesleyan College	Iowa Wesleyan University	IA	Private	2015
Judson College	Judson University	IL	Private	2007
Mckendree College	Mckendree University	IL	Private	2007
Rockford College	Rockford University	IL	Private	2012
Huntington College	Huntington University	IN	Private	2005
Marian College	Marian University	IN	Private	2009
Manchester College	Manchester University	IN	Private	2012
Saint Mary College	University Of Saint Mary	KS	Private	2003
Cumberland College	University Of The Cumberlands	KY	Private	2005
Kentucky Christian College	Kentucky Christian University	KY	Private	2005
Asbury College	Asbury University	KY	Private	2010
Pikeville College	University Of Pikeville	KY	Private	2011
Midway College	Midway University	KY	Private	2015
Bentley College	Bentley University	MA	Private	2008
Bridgewater State College	Bridgewater State University	MA	Public	2010
Fitchburg State College	Fitchburg State University	MA	Public	2010
Framingham State College	Framingham State University	MA	Public	2010
Salem State College	Salem State University	MA	Public	2010
Western New England College	Western New England University	MA	Private	2010
Westfield State College	Westfield State University	MA	Public	2010
Worcester State College	Worcester State University	MA	Public	2010
Bay Path College	Bay Path University	MA	Private	2014
Coppin State College	Coppin State University	MD	Public	2004
College Of Notre Dame Of Maryland	Notre Dame Of Maryland University	MD	Private	2011
Bethel College	Bethel University	MN	Private	2004

Northwestern College	University Of Northwestern-St Paul	MN	Private	2013
Avila College	Avila University	MO	Private	2002
Missouri Baptist College	Missouri Baptist University	MO	Private	2002
Missouri Southern State College	Missouri Southern State University	MO	Public	2003
Missouri Western State College	Missouri Western State University	MO	Public	2005
Hannibal-Lagrange College	Hannibal-Lagrange University	MO	Private	2011
William Carey College	William Carey University	MS	Private	2006
Belhaven College	Belhaven University	MS	Private	2009
Chowan College	Chowan University	NC	Private	2006
Methodist College	Methodist University	NC	Private	2006
Lenoir-Rhyne College	Lenoir-Rhyne University	NC	Private	2008
Saint Augustine's College	Saint Augustine's University	NC	Private	2012
Mars Hill College	Mars Hill University	NC	Private	2013
Mount Olive College	University Of Mount Olive	NC	Private	2014
Jamestown College	University Of Jamestown	ND	Private	2013
Plymouth State College	Plymouth State University	NH	Public	2003
Franklin Pierce College	Franklin Pierce University	NH	Private	2007
Rivier College	Rivier University	NH	Private	2012
Georgian Court College	Georgian Court University	NJ	Private	2004
Caldwell College	Caldwell University	NJ	Private	2014
Felician College	Felician University	NJ	Private	2015
Thomas Edison State College	Thomas Edison State University	NJ	Public	2015
College of the Southwest	University of the Southwest	NM	Private	2008
Mount Vernon Nazarene College	Mount Vernon Nazarene University	OH	Private	2002
Ohio Dominican College	Ohio Dominican University	OH	Private	2002
Bluffton College	Bluffton University	OH	Private	2004
Heidelberg College	Heidelberg University	OH	Private	2008
Malone College	Malone University	OH	Private	2008
Muskingum College	Muskingum University	OH	Private	2009
Mount Union College	University Of Mount Union	OH	Private	2010
Otterbein College	Otterbein University	OH	Private	2010
Lourdes College	Lourdes University	OH	Private	2011
Baldwin-Wallace College	Baldwin Wallace University	OH	Private	2012
Northwest Christian College	Northwest Christian University	OR	Private	2008
Holy Family College	Holy Family University	PA	Private	2002
Immaculata College	Immaculata University	PA	Private	2002
Robert Morris College	Robert Morris University	PA	Private	2002
Seton Hill College	Seton Hill University	PA	Private	2002
Point Park College	Point Park University	PA	Private	2003
Carlow College	Carlow University	PA	Private	2004
Chatham College	Chatham University	PA	Private	2006
College Misericordia	Misericordia University	PA	Private	2007
Waynesburg College	Waynesburg University	PA	Private	2007
Alvernia College	Alvernia University	PA	Private	2009
Neumann College	Neumann University	PA	Private	2009
Mercyhurst College	Mercyhurst University	PA	Private	2012
Gwynedd Mercy College	Gwynedd Mercy University	PA	Private	2013
Delaware Valley College	Delaware Valley University	PA	Private	2014
Cabrini College	Cabrini University	PA	Private	2015

Bryant College	Bryant University	RI	Private	2004
Anderson College North Greenville College	Anderson University North Greenville University	SC	Private	2005
Augustana College	Augustana University	SD	Private	2015
Bethel College Carson-Newman College King College	Bethel University Carson-Newman University King University	TN	Private	2009
Huston-Tillotson College	Huston-Tillotson University	TX	Private	2005
Utah Valley State College	Utah Valley University	UT	Public	2008
Longwood College Mary Washington College	Longwood University University Of Mary Washington	VA	Public	2002
Castleton State College	Castleton University	VT	Public	2015
Heritage College Saint Martin's College Walla Walla College Whitworth College	Heritage University Saint Martin's University Walla Walla University Whitworth University	WA	Private	2004
Carroll College Mount Mary College	Carroll University Mount Mary University	WI	Private	2008
Concord College Fairmont State College Shepherd College West Virginia State College Ohio Valley College West Liberty State College Alderson Broaddus College	Concord University Fairmont State University Shepherd University West Virginia State University Ohio Valley University West Liberty University Alderson Broaddus University	WV	Public	2004
		WV	Public	2004
		WV	Public	2004
		WV	Public	2004
		WV	Public	2004
		WV	Private	2005
		WV	Public	2009
		WV	Private	2013